Crestron **CEN-RGBHV32X32**
32x32 Matrix Switchers
Operations Guide

CRESTRON®

This document was prepared and written by the Technical Documentation department at:

Crestron Electronics, Inc.
15 Volvo Drive
Rockleigh, NJ 07647
1-888-CRESTRON

Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

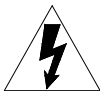
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Disconnect power prior to connecting or disconnecting equipment.
- Do not install in direct sunlight.
- The apparatus must be installed in a way that the power cord can be removed either from the wall outlet or from the device itself in order to disconnect the mains power.
- Prevent foreign objects from entering the device.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING. OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THE APPARATUS.

WARNING:

TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. ONLY QUALIFIED SERVICE PERSONNEL SHOULD PERFORM SERVICE.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

THIS IS AN APPARATUS WITH CLASS I CONSTRUCTION. IT SHALL BE CONNECTED TO AN ELECTRICAL OUTLET WITH AN EARTHING GROUND TERMINAL.

IMPORTANT:

The CEN-RGBHV32X32 can be used with Class 2 output wiring.

Regulatory Compliance

As of the date of manufacture, the CEN-RGBHV32X32 has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

Federal Communications Commission (FCC) Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions:
(1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

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 one 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

Industry Canada (IC) Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Contents

32x32 Matrix Switchers: CEN-RGBHV32X32

Introduction

Crestron® matrix switchers are designed to provide flexible signal routing of high-res signals for the most demanding presentation environments. With extremely low crosstalk, 450 MHz video bandwidth (CEN-RGBHV32X32V), optional audio (CEN-RGBHV32X32A) and full Crestron control system integration, the CEN-RGBHV32X32V and CEN-RGBHV32X32A (hereinafter collectively referred to as "CEN-RGBHV32X32", except where noted), satisfy the demanding video and audio requirements of corporate boardrooms and training centers, university lecture halls, high-tech houses of worship, command and control facilities and live staging events.

Features and Functions

CEN-RGBHV32X32V

- 32x32 high bandwidth matrix switcher
- Low crosstalk with incredibly flat response
- 450 MHz video bandwidth (-3 dB)
- Input sync detection and Genlock sync input
- Adjustable video blanking
- Selectable input sync impedance (via software)
- Standalone operation with LCD driven front control panel
- Cresnet® or high speed Ethernet communications
- Nine space rack mount installation
- Optional stereo audio matrix switching (with CEN-RGBHV32X32A)

CEN-RGBHV32X32A

- 32x32 stereo audio matrix switcher
- Professional balanced inputs and outputs
- Audio input level compensation
- Audio output volume and mute control
- Adjustable audio blanking
- Controllable via the CEN-RGBHV32X32V or a control system
- Cresnet or high speed Ethernet communications
- Three-space rack mount installation

High Bandwidth Matrix Router (CEN-RGBHV32X32V)

The CEN-RGBHV32X32V is a high bandwidth matrix switcher capable of routing up to 32 computer or video sources to up to 32 display devices. Its five matrix levels accommodate any combination of analog RGBHV, HD/component, S-video and composite signals. Proven flat response achieves optimum performance even at the highest bandwidth. Selectable sync impedance on every input helps accommodate varying cable lengths.

Glitch-free Switching (CEN-RGBHV32X32V)

Video-follow-sync switching ensures a glitch-free transition when selecting between non-synchronous sources. Blanking time is independently adjustable per output from 0 to 10 seconds, allowing each display device time to lock to the new sync signal before displaying the video image whenever a new source is selected. A sync reference input is also provided to support vertical interval switching of genlocked sources.

Sync Detection (CEN-RGBHV32X32V)

Video sync detection on each input measures the H and V sync rates of every RGB source and allows their values to be viewed on the front panel display, control system touchpanel or RoomView® software.

Full-featured Front Panel (CEN-RGBHV32X32V)

The CEN-RGBHV32X32V is fully operable out of the box for use as a standalone switcher. Featuring an informative LCD display and quick adjust knob, the front panel supports essential switcher operation without requiring a computer or control system. All signal routing (and audio compensation settings with optional audio matrix) are stored in non-volatile memory onboard the switcher.

Customizable label strips are provided on the front panel for clear designation of its inputs and outputs using Crestron Engraver software or standard 3/8” tape labels. Names may also be entered through software to appear on the LCD display during operation. For security, the front panel controls can be password protected or locked out.

Professional Stereo Audio Matrix (CEN-RGBHV32X32A)

Supporting both balanced and unbalanced line level signals, the CEN-RGBHV32X32A can route any of 32 inputs to any or all of 32 outputs. Programmable input level compensation helps ensure compatibility with a wide range of pro and semi-pro sources. Automatic blanking achieves a pop free transition when switching between sources. Every output includes volume and mute control, providing multiple channels of real-time controllable audio signal distribution to feed multi-zone amplifiers, assistive listening and recording equipment. Audio breakaway capability allows any audio input or output to be linked with its respective video channel or switched independently.

Crestron System Integration

Via Cresnet® or high speed Ethernet, Crestron switchers offer the ultimate in control system integration with every function accessible through SIMPL™ Windows or SystemBuilder™ without deciphering cryptic protocols. Up to 10 routing presets can be saved onboard the CEN-RGBHV32X32 for instant recall. Integration with any 2-Series Control system also provides the gateway to Crestron’s RoomView® Asset Management Software and e-Control®2 XPanel Solutions for remote monitoring and control.

Combining the CEN-RGBHV32X32A with a CEN-RGBHV32X32V provides a complete yet simplified solution for routing all kinds of AV and computer sources to feed a facility full of video displays and audio amplifiers. A single 25-pin cable (included with the CEN-RGBHV32X32A) is all that is required to link the two components together. When linked, the two components operate as one, allowing audio-follow-video or audio breakaway capability, with full setup and control enabled from the RGB switcher's front panel as well as from a control system.

Specifications

Specifications for the CEN-RGBHV32X32 are listed in the following table.

CEN-RGBHV32X32 Specifications

SPECIFICATION	DETAILS
Video/RGB (CEN-RGBHV32X32V)	
Switcher	32 x 32 (x5) crosspoint matrix, adjustable blanking, sync detection, selectable input termination, vertical interval switching using genlock input
Signal Types	RGB and composite, S-video or component video (does not transcode)
Video/HDTV Formats	NTSC or PAL, HDTV up to 1080i/1080p
RGB Formats	RGBHV, RGBS, RG_sB or YUV
Gain	0 dB (75 Ω terminated)
Bandwidth	450 MHz (-3 dB) fully loaded
Blanking Time	Adjustable 0 to 10 seconds, 0.5 second steps
Crosstalk	≤-65 dB @ 5 MHz ≤-47 dB @ 100 MHz
Audio (CEN-RGBHV32X32A)	
Switcher	32 x 32 stereo crosspoint matrix, input compensation, output volume and mute control, adjustable blanking, audio breakaway (when linked to CEN-RGBHV32X32V)
Input Compensation	±10 dB in 0.5 dB steps
Output Volume Control	-60 dB to + 20 dB in 0.5 dB steps
Blanking Time	Adjustable 0 to 10 seconds, 0.5 second steps
Frequency Response	20 Hz to 20 kHz ±0.5 dB
Ethernet	10/100 BASE-T, static IP or DHCP/DNS, auto-negotiating, auto discovery, full/half duplex, TCP/IP, UDP/IP, CIP
Power Requirements	
Main Power	CEN-RGBHV32X32V: 5 Amps @ 100-240 Volts AC, 50/60 Hz CEN-RGBHV32X32A: 2.4 Amps @ 100-240 Volts AC, 50/60 Hz
Cresnet Power Usage	None
Default Net ID	33
Minimum 2-Series Control System Update File[1, 2]	Version 3.137 or later

(Continued on following page)

CEN-RGBHV32X32 Specifications (Continued)

SPECIFICATION	DETAILS
Environmental	
Temperature	32º to 104ºF (0º to 40ºC)
Humidity	10% to 90% RH (non-condensing)
Enclosure	
Chassis (CEN-RGBHV32X32V)	Metal, vented front, fan cooled
Chassis (CEN-RGBHV32X32A)	Metal, vented sides
Faceplate (CEN-RGBHV32X32V)	Detachable metal panel with polycarbonate label overlay
Faceplate (CEN-RGBHV32X32A)	Metal with polycarbonate label overlay
Mounting (CEN-RGBHV32X32V)	19-inch rack mountable[3] (rack ears built in)
Mounting (CEN-RGBHV32X32A)	Freestanding or 19-inch rack mountable[3] (adhesive feet included, rack ears included)
Dimensions (CEN-RGBHV32X32V)	
Height	15.72 in (400 mm)
Width	19.00 in (483 mm)
Depth	18.96 in (482 mm)
Dimensions (CEN-RGBHV32X32A)	
Height	5.20 in (133 mm)
Width (without ears)	17.03 in (433 mm)
Width (with ears)	19.00 in (483 mm)
Depth	19.88 in (505 mm)
Weight (CEN-RGBHV32X32V)	50 lbs (22.7 kg)
Weight (CEN-RGBHV32X32A)	16 lbs (7.3 kg)

1. The latest software versions can be obtained from the Crestron website. Refer to the NOTE following these footnotes.
2. Crestron 2-Series control systems include the AV2 and PRO2. Consult the latest Crestron Product Catalog for a complete list of 2-Series control systems.
3. 9U for CEN-RGBHV32X32V, 3U for CEN-RGBHV32X32A.

NOTE: Crestron software and any files on the website are for authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users may be required to register to obtain access to certain areas of the site (including the FTP site).

Physical Description

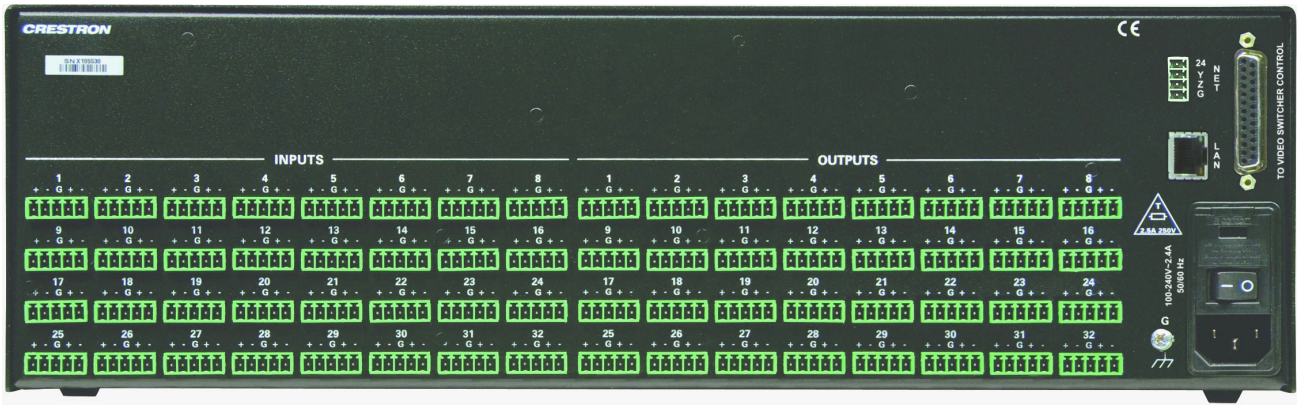
This section provides information on the connections, controls and indicators available on your CEN-RGBHV32X32.

CEN-RGBHV32X32V Front View

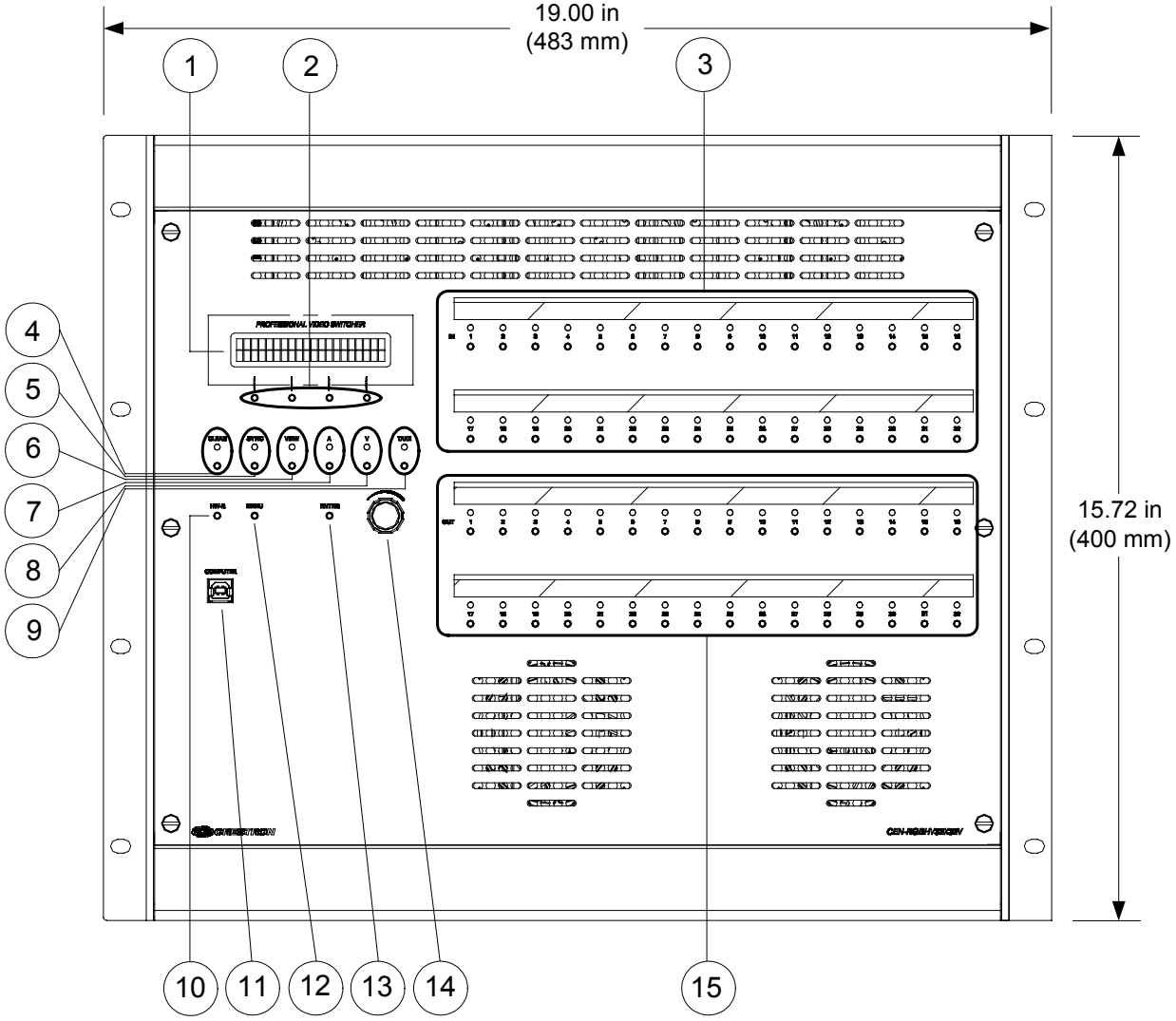
CEN-RGBHV32X32V Rear View

CEN-RGBHV32X32A Front View

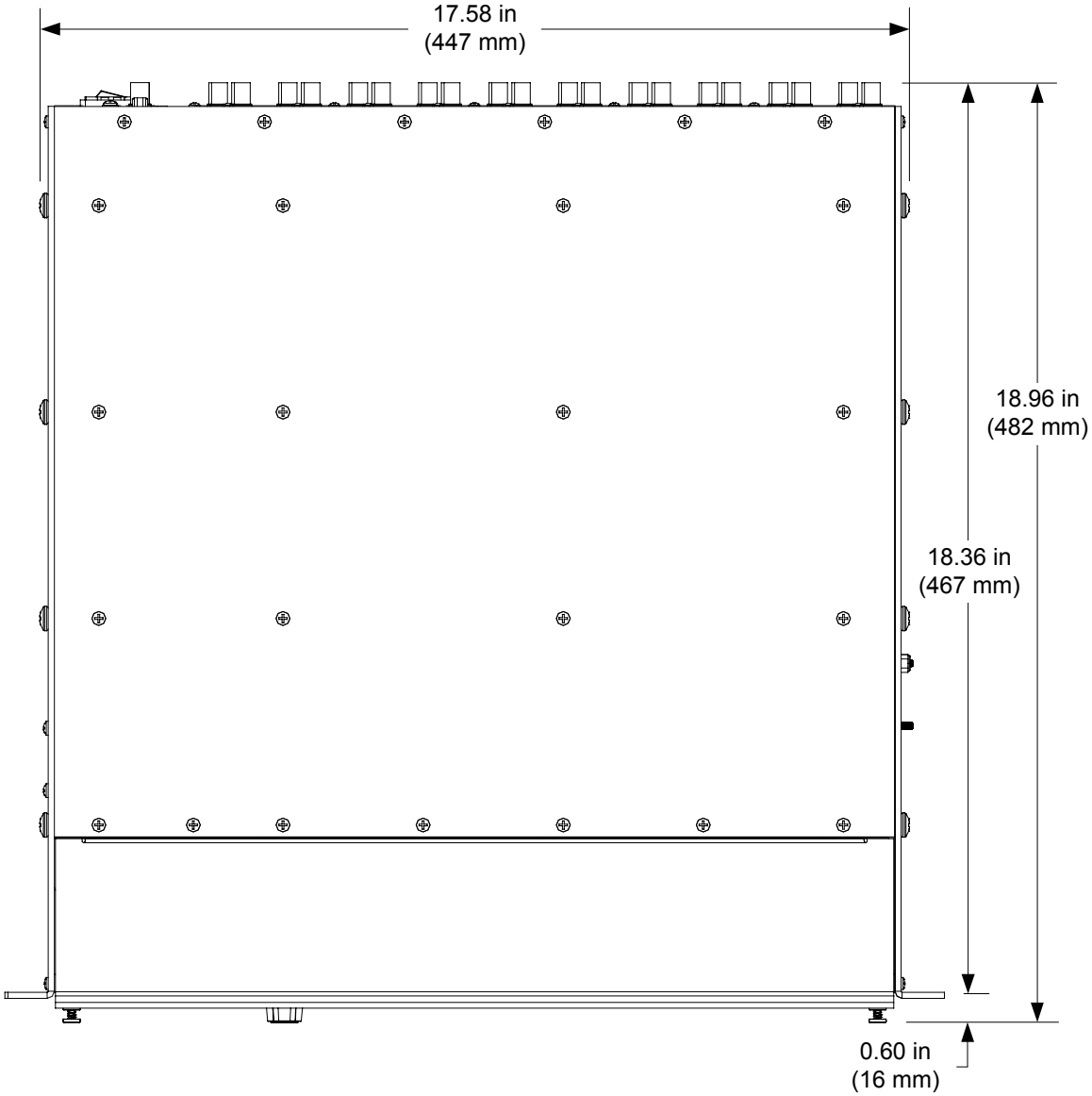
CEN-RGBHV32X32A Rear View



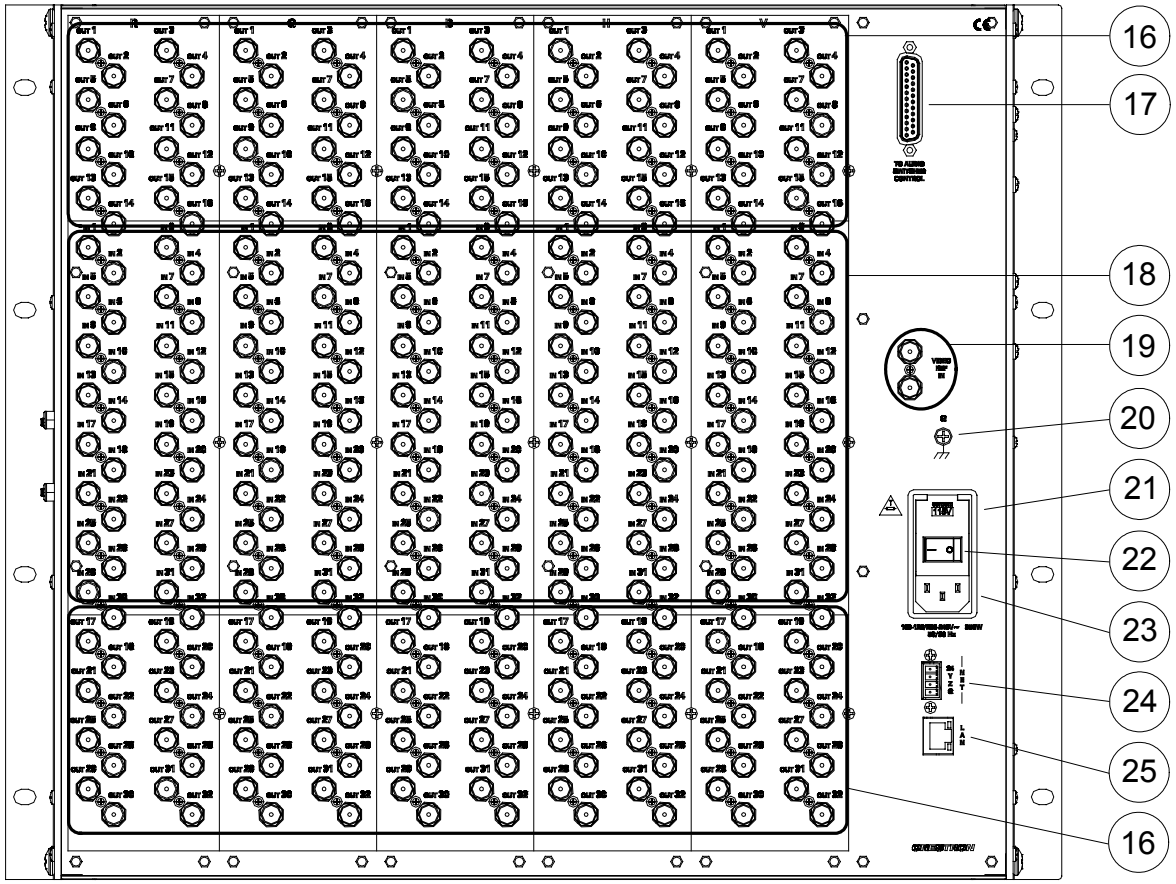
CEN-RGBHV32X32V Overall Dimensions (Front View)



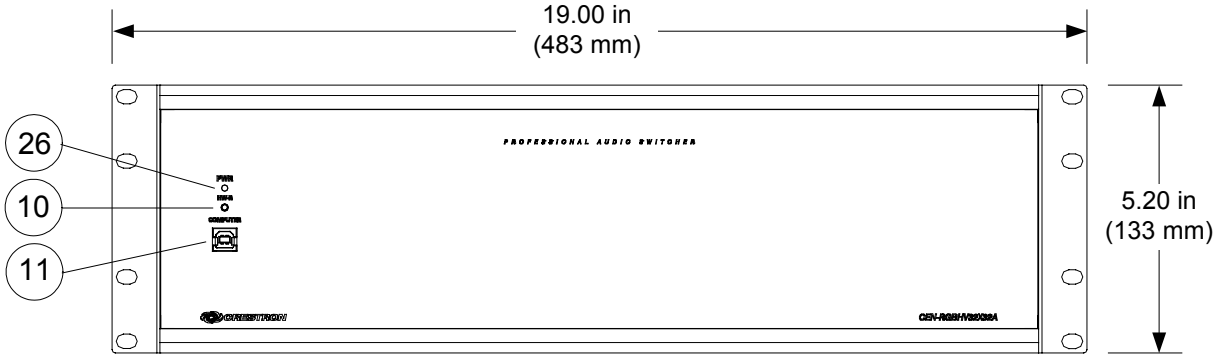
CEN-RGBHV32X32V Overall Dimensions (Top View)



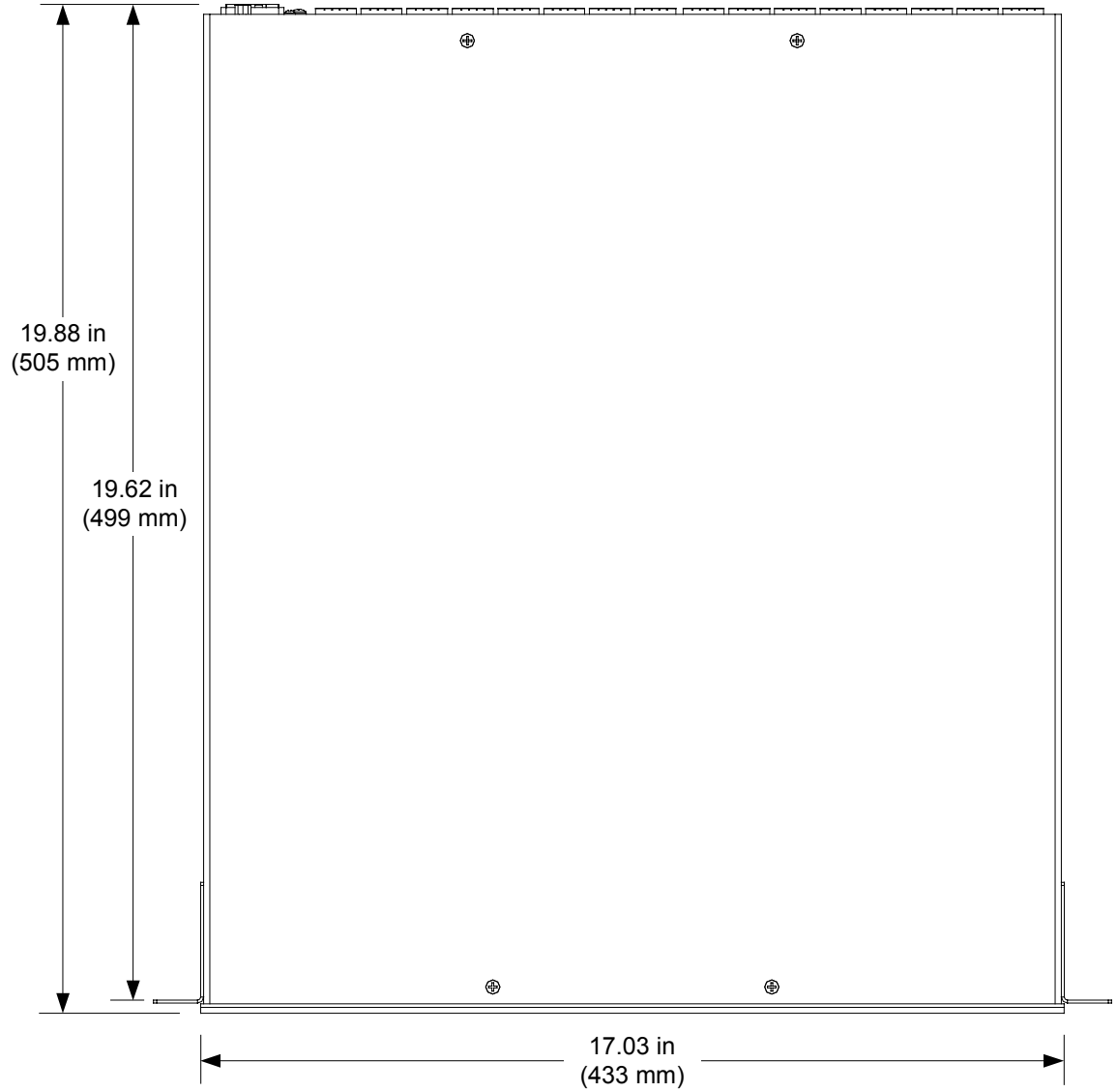
CEN-RGBHV32X32V (Rear View)



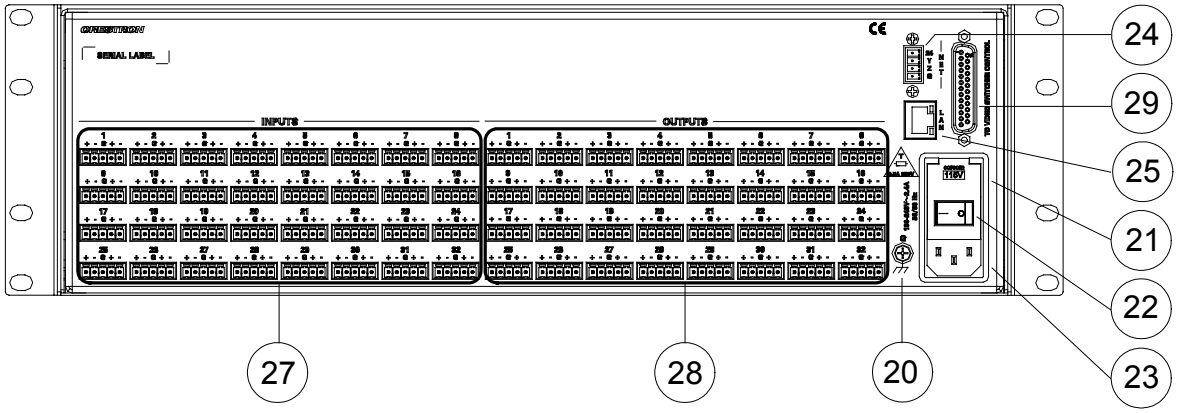
CEN-RGBHV32X32A Overall Dimensions (Front View)



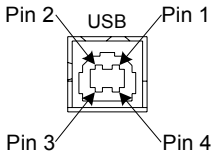
CEN-RGBHV32X32A Overall Dimensions (Top View)



CEN-RGBHV32X32A (Rear View)

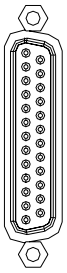
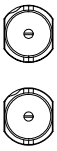
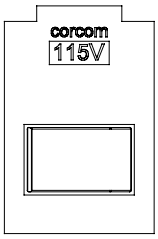
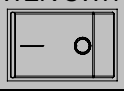


Connectors, Controls & Indicators

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
1	LCD DISPLAY[2]	Green LCD alphanumeric, adjustable backlight; 2 lines x 20 characters per line; Displays inputs/outputs by name, scan rates, audio levels, IP configuration and setup menus
2	SOFTKEYS[2]	(4) Pushbuttons for activation of LCD driven functions and pass code entry
3	IN (1 – 32)[2]	(32) Pushbuttons & red LEDs, select input to be routed
4	CLEAR[2]	(1) Pushbutton & red LED, clears all matrix routing
5	SYNC[2, 3]	(1) Pushbutton & red LED, displays input sync rates
6	VIEW[2]	(1) Pushbutton & red LED, toggles *View* mode on/off
7	A[2]	(1) Pushbutton & red LED, selects audio routing view
8	V[2]	(1) Pushbutton & red LED, selects video routing view
9	TAKE[2]	(1) Pushbutton & red LED, executes routing
10	HW-R	(1) Recessed miniature pushbutton for hardware reset, reboots the switcher
11	COMPUTER  	(1) USB Type B female; USB 1.1 computer console port (6 foot cable included) PIN / DESCRIPTION: 1 – +5 VDC 2 – Data - 3 – Data + 4 – Ground
12	MENU[2]	(1) Pushbutton, steps menu back one level
13	ENTER[2]	(1) Pushbutton, executes highlighted menu or value
14	QUICK-ADJUST KNOB[2]	(1) Continuous turn rotary encoder, adjusts menu parameters
15	OUT (1 – 32)[2]	(32) Pushbuttons & red LEDs, select output destination
16	(VIDEO) OUT (1 – 32)[2] 	(32) Sets of (5) BNC female, each set comprising (3) high bandwidth video inputs plus (2) sync inputs; Output level: 0.2 to 5.0 V_{p-p} Output impedance: 75 Ω nominal Return loss: < -30 dB @ 5 MHz

(Continued on following page)

Connectors, Controls & Indicators (Continued)

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
17	TO AUDIO SWITCHER CONTROL[2] 	(1) DB25F; Accepts connection from optional CEN-RGBHV32X32A audio matrix (sold separately)
18	(VIDEO) IN (1 – 32)[2] 	(32) Sets of (5) BNC female, each set comprising (3) high bandwidth video inputs plus (2) sync inputs; Input level: 0.2 to 5.0 V_{p-p} RGB input impedance: 75 Ω nominal Sync input impedance: 75 Ω (default) or 510 Ω, independently selectable for H and V per input Return loss: < -30 dB @ 5 MHz Sync detection on every input connector
19	VIDEO REF IN[2] 	(2) BNC female; Genlock sync reference input and loop through, unterminated
20	G 	(1) 6-32 screw, chassis ground lug
21	FUSE HOLDER[4] 	Main fuse holder CEN-RGBHV32X32V: 20 mm x 5 mm 250 Volt, 5 A, time-lag CEN-RGBHV32X32A: 20 mm x 5 mm 250 Volt, 1 A, time-lag
22	POWER SWITCH 	(1) Rocker switch, turns main power on or off

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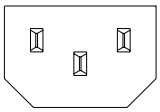
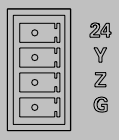
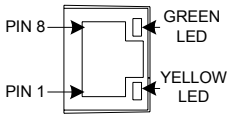
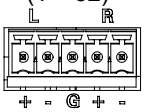
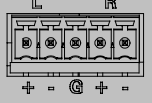
Connectors, Controls & Indicators (Continued)

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
23	100-120/200-240V~ 350W 50/60Hz[2] 100-240V ~2.4A 50/60Hz[6] 	(1) IEC socket, main power input; Mates with removable power cord (included)
24	NET 	(1) 4-pin 3.5 mm detachable terminal block; Cresnet slave port, connects to Cresnet control network; Does not draw power from the network **24**: Power (24 Volts DC) **Y**: Data **Z**: Data **G**: Ground
25	LAN[5] 	(1) 8-wire RJ-45 with two LED indicators; 10/100BASE-T Ethernet port; Green LED indicates link status; Yellow LED indicates Ethernet activity
26	PWR LED[6]	(1) Green LED, indicates main power is connected and turned on
27	(AUDIO) INPUTS (1 – 32)[6] 	(32) 5-pin 3.5 mm detachable terminal blocks; Balanced/unbalanced stereo line level inputs; Maximum input level: 12 V_{rms} balanced, 6 V_{rms} unbalanced Input impedance: 20 kΩ balanced, 10 kΩ unbalanced
28	(AUDIO) OUTPUTS (1 – 32)[6] 	(32) 5-pin 3.5 mm detachable terminal blocks; Balanced/unbalanced stereo line level outputs; Maximum output level: 12 V_{rms} balanced, 6 V_{rms} unbalanced; Output impedance: 100 Ω balanced, 50 Ω unbalanced

PIN	SIGNAL	PIN	SIGNAL
1	TX +	5	N/C
2	TX -	6	RC -
3	RC+	7	N/C
4	N/C	8	N/C

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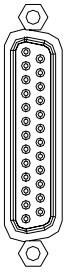
Connectors, Controls & Indicators (Continued)

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
29	TO VIDEO SWITCHER CONTROL[6] 	(1) DB25F; Connects to CEN-RGBHV32X32V RGB matrix (sold separately); DB25M to DB25M control cable included

1. Interface connectors for the **NET,** (audio) **INPUT** and (audio) **OUTPUT** ports are provided with the unit.
2. CEN-RGBHV32X32V only.
3. Input terminations for H and V Sync are set via front panel, software or control system.
4. Refer to "Fuse Replacement" on page 22 for additional details.
5. To determine which is pin 1 on the cable, hold the cable so that the end of the eight pin modular plug is facing away from you, with the clip down and copper side up. Pin 1 is on the far left.
6. CEN-RGBHV32X32A only.

Setup

Network Wiring

When wiring the Cresnet® and Ethernet network, consider the following:

- Use Crestron Certified Wire.
- Use Crestron power supplies for Crestron equipment.
- Provide sufficient power to the system.

CAUTION: Insufficient power can lead to unpredictable results or damage to the equipment. Please use the Crestron Power Calculator to help calculate how much power is needed for the system (www.crestron.com/calculators).

Cresnet

For networks with 20 or more devices, use a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality.

For more details, refer to "Check Network Wiring" on page 51.

Ethernet

The CEN-RGBHV32X32 can also use high-speed Ethernet for communications between the device and a control system, computer, digital media server and other IP-based devices.

For information on connecting Ethernet devices in a Crestron system, refer to the latest version of the Crestron e-Control® Reference Guide (Doc. 6052), which is available from the Crestron website (www.crestron.com/manuals).

Identity Code

Net ID

The Net ID of the CEN-RGBHV32X32 has been factory set to **33**. The Net IDs of multiple CEN-RGBHV32X32 devices in the same system must be unique. Net IDs are changed from a personal computer (PC) via the Crestron Toolbox™ (refer to "Establishing Communication" which starts on page 27).

When setting the Net ID, consider the following:

- The Net ID of each unit must match an ID code specified in the SIMPL Windows program.
- Each network device must have a unique Net ID.

For more details, refer to the Crestron Toolbox help file.

IP ID

The IP ID is set within the CEN-RGBHV32X32's table using Crestron Toolbox. For information on setting an IP table, refer to the Crestron Toolbox help file. The IP IDs of multiple CEN-RGBHV32X32 devices in the same system must be unique.

When setting the IP ID, consider the following:

- The IP ID of each unit must match an IP ID specified in the SIMPL Windows program.
- Each device using IP to communicate with a control system must have a unique IP ID.

Installation

Ventilation

The CEN-RGBHV32X32 should be used in a well-ventilated area. The venting holes should not be obstructed under any circumstances.

To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the table of specifications. Consider using forced air ventilation and/or incrementing the spacing between units to reduce overheating. Consideration must be given if installed in a closed or multi-unit rack assembly since the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Contact with thermal insulating materials should be avoided on all sides of the unit.

Rack Mounting

The CEN-RGBHV32X32V has built-in "ears" for rack mounting. The CEN-RGBHV32X32A can be mounted in a rack or stacked with other equipment. Two ears are provided with the CEN-RGBHV32X32A so that the unit can be rack mounted. These ears must be installed prior to mounting. Complete the following procedure to attach the ears to the unit. The only tool required is a #2 Phillips screwdriver..

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

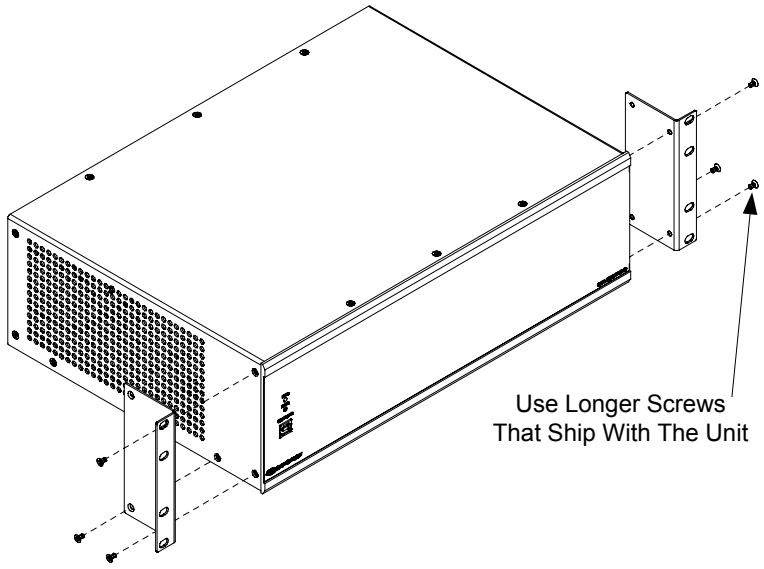
NOTE: If rack mounting is not required, rubber feet are provided with the CEN-RGBHV32X32A for tabletop mounting or stacking. Apply the feet near the corner edges on the underside of the unit. (The CEN-RGBHV32X32V is designed to be rack mounted.)

NOTE: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

To install the ears:

1. There are screws that secure each side of the CEN-RGBHV32X32A top cover. Using a #2 Phillips screwdriver, remove the three screws closest to the front panel from one side of the unit. Refer to the diagram following step 3 for a detailed view.
2. Position a rack ear so that its mounting holes align with the holes vacated by the screws in step 1.
3. Secure the ear to the enclosure with the three longer screws that ship with the unit, as shown in the following diagram.

Ear Attachment for Rack Mounting

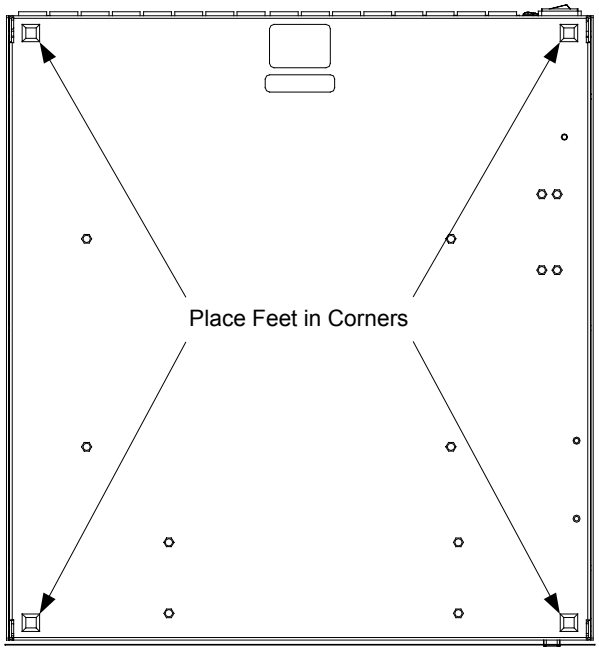


4. Repeat procedure (steps 1 through 3) to attach the remaining ear to the opposite side.

Stacking

Four "feet" are provided with the CEN-RGBHV32X32A so that if the unit is not rack mounted, the rubber feet can provide stability when the unit is placed on a flat surface or stacked. These feet should be attached prior to the hookup procedure. Refer to the following illustration for placement of the feet.

Foot Placement for the CEN-RGBHV32X32A

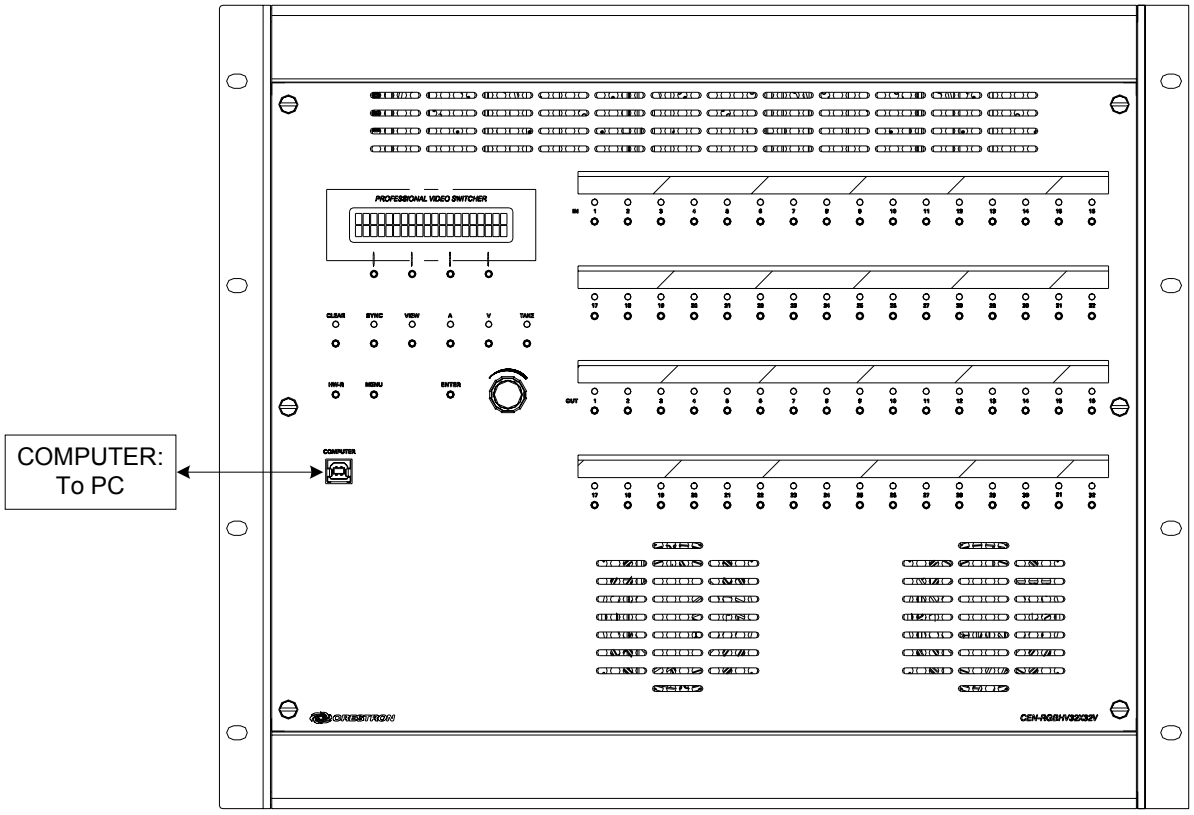


Hardware Hookup

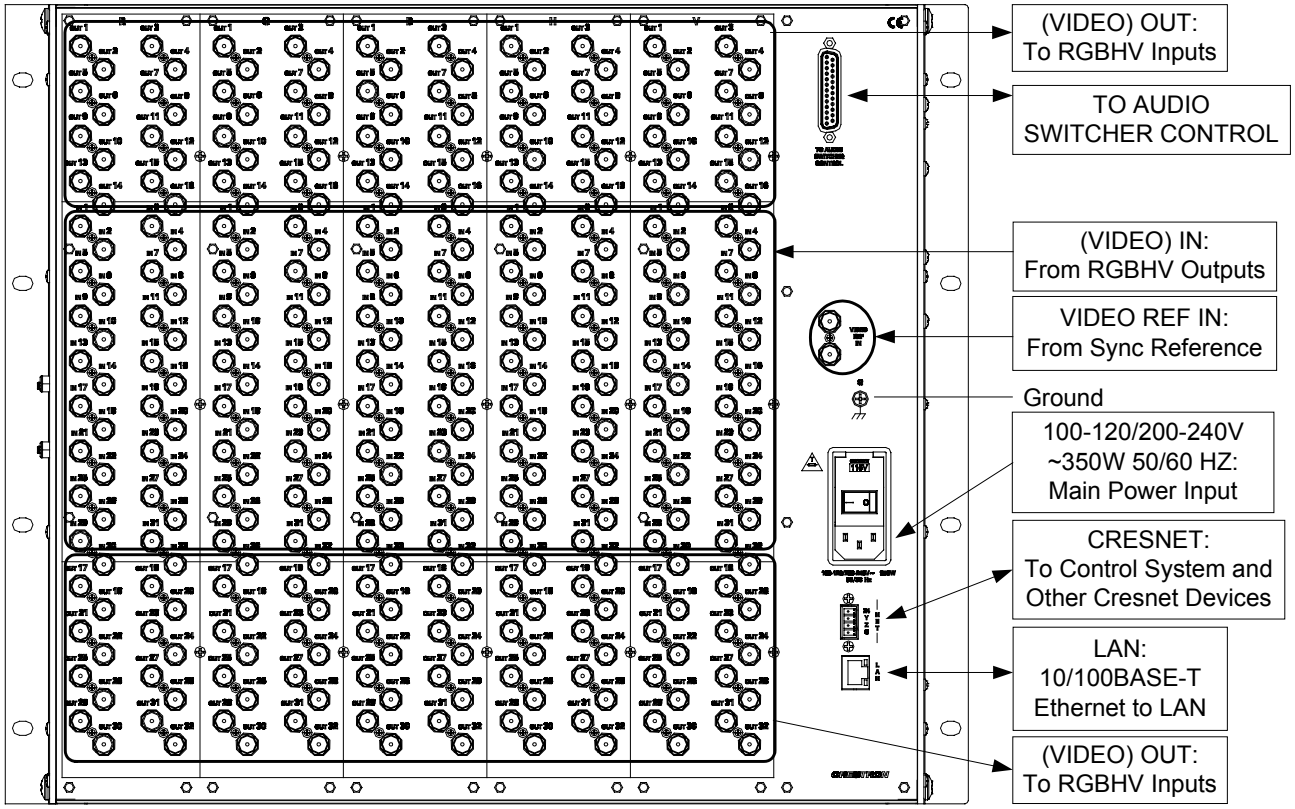
Connect the Device

Make the necessary connections as called out in the illustrations that follow this paragraph. Refer to "Network Wiring" on page 16 before attaching the 4-position terminal block connector. Apply power after all connections have been made.

Hardware Connections for the CEN-RGBHV32X32V (Front View)

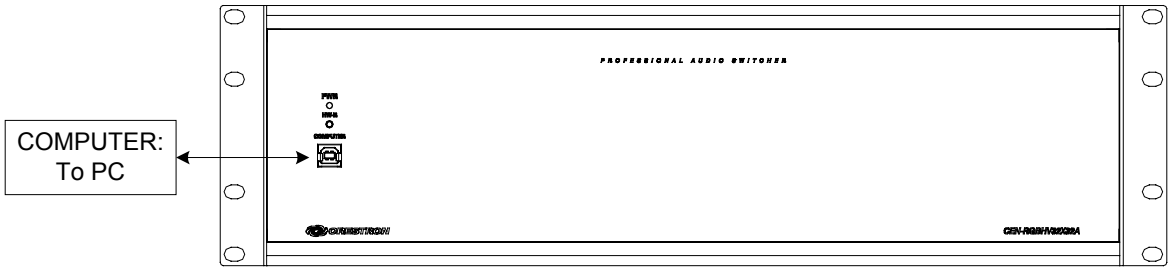


Hardware Connections for the CEN-RGBHV32X32V (Rear View)

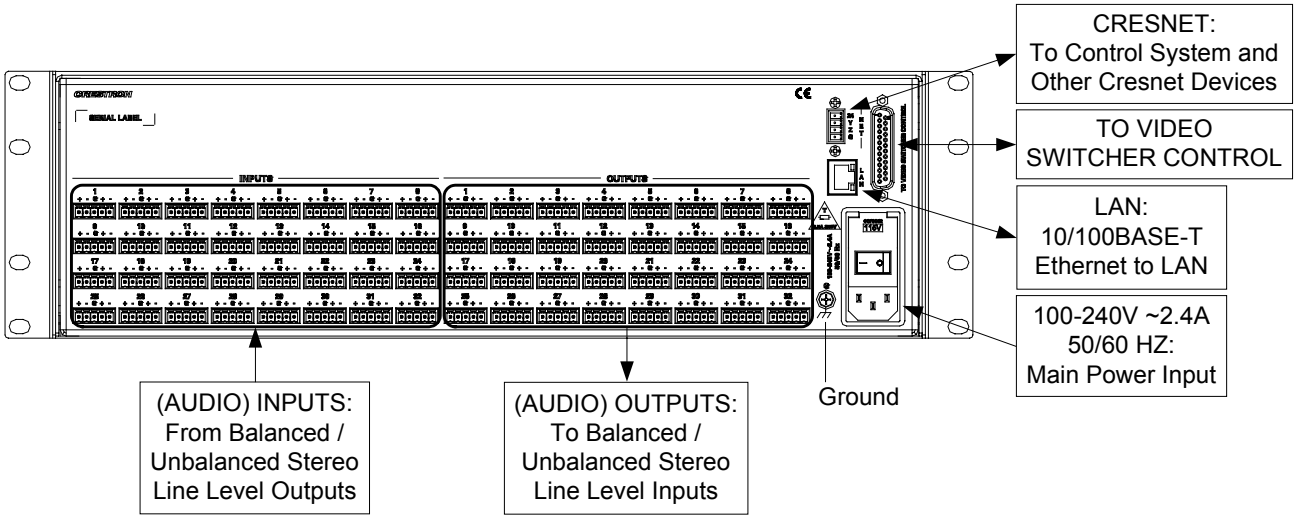


NOTE: Ensure the unit is properly grounded.

Hardware Connections for the CEN-RGBHV32X32A (Front View)



Hardware Connections for the CEN-RGBHV32X32A (Rear View)



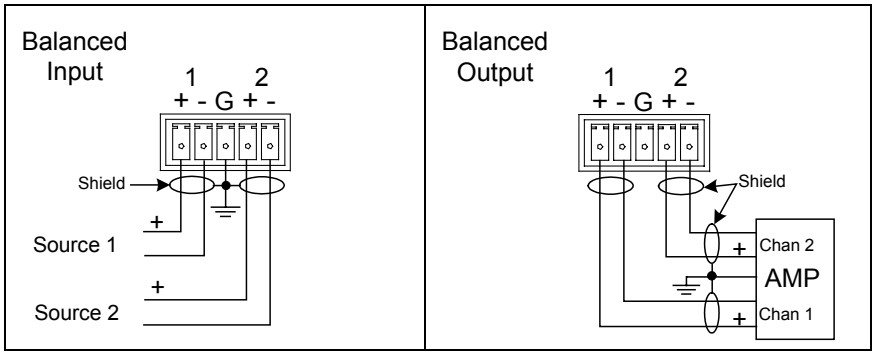
NOTE: Ensure the unit is properly grounded by connecting the chassis ground lug to an earth ground (building steel).

Balanced/unbalanced audio outputs are provided on the CEN-RGBHV32X32A, utilizing five-pin terminal block connectors. For connection details, refer to the following table and diagrams.

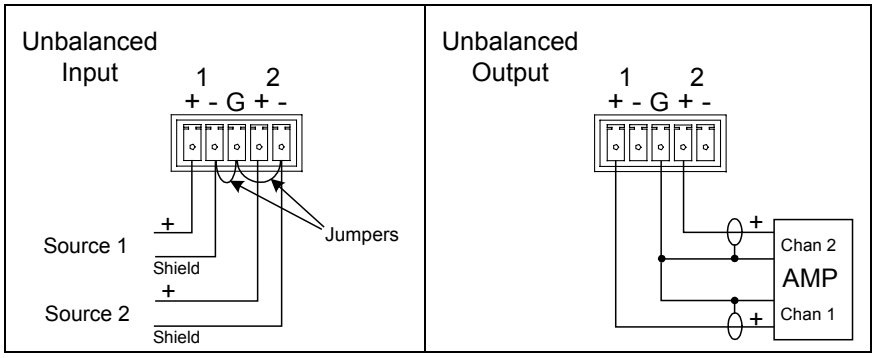
CEN-RGBHV32X32A Audio Connections

SIGNAL NAME	BALANCED AUDIO INPUT	BALANCED AUDIO OUTPUT	UNBALANCED AUDIO INPUT	UNBALANCED AUDIO OUTPUT
+	1 +	1 +	1 + In	1 + Out
-	1 -	1 -	1 – signal return, jumper to GND	Open
G	Shield/ground	Shield/ground	Ground	Common ground
+	2 +	2 +	2 + In	2 + Out
-	2 -	2 -	2 – signal return jumper to GND	Open

Typical Balanced Input and Output



Typical Unbalanced Input and Output



Fuse Replacement

If the CEN-RGBHV32X32 does not power up when it is plugged into an AC outlet, its fuse may need to be replaced. The fuse holder is located on the rear panel, just above the power switch. To replace the fuse:

1. Disconnect power to the CEN-RGBHV32X32.
2. Use a small flat head screwdriver to pry the top of the fuse holder door open. Then use the screwdriver on the side of the red fuse holder to release the fuse holder. Gently pull the fuse holder from the unit.
3. Remove the defective fuse from the fuse holder and replace with a new one.

CAUTION: Use only time lag type fuses, 5 Amps / 250 Volts for the CEN-RGBHV32X32V and 1 Amp / 250 Volts for the CEN-RGBHV32X32A.

CAUTION: To prevent possible equipment damage, it is important to use the correct value fuse in the correct position in the fuse holder. As you face the rear of the CEN-RGBHV32X32, the correct position for the fuse is on the right side of the fuse holder.

4. Inert the fuse holder in the CEN-RGBHV32X32 and push it inward until it clicks into place. Then close the fuse holder door by pushing the top to its closed position.
5. Connect power to the CEN-RGBHV32X32.

Label the Buttons

Use Crestron Engraver software to print custom labels for the CEN-RGBHV32X32's front panel buttons and LEDS. Crestron recommends printing on 100-pound paper. Paper weighing less than 100 pounds will tend to crumple while sliding in, while paper weighing more than 100 pounds may not fit.

Programming Software

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at http://support.crestron.com. First-time users will need to establish a user account.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Crestron website.

Crestron has developed an assortment of Windows®-based software tools to develop a Cresnet system. For the minimum recommended software versions, visit the Version Tracker page of the Crestron website (www.crestron.com/versiontracker).

Programming with Crestron SystemBuilder

Crestron SystemBuilder is the easiest method of programming but does not offer as much flexibility as SIMPL Windows. For additional details, download SystemBuilder from the Crestron website and examine the extensive help file.

Programming with SIMPL Windows

NOTE: While SIMPL Windows can be used to program the CEN-RGBHV32X32, it is recommended to use SystemBuilder for configuring a system.

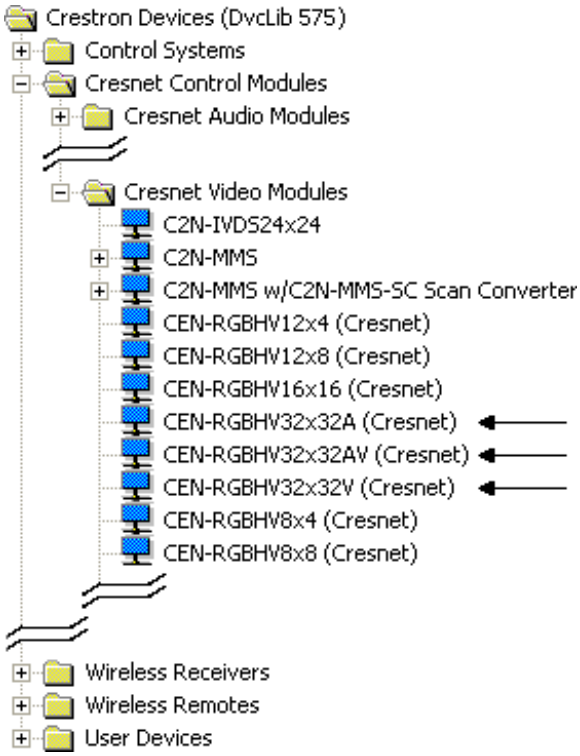
SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate but equally important "Managers".

Configuration Manager

Configuration Manager is the view where programmers "build" a Crestron control system by selecting hardware from the *Device Library*.

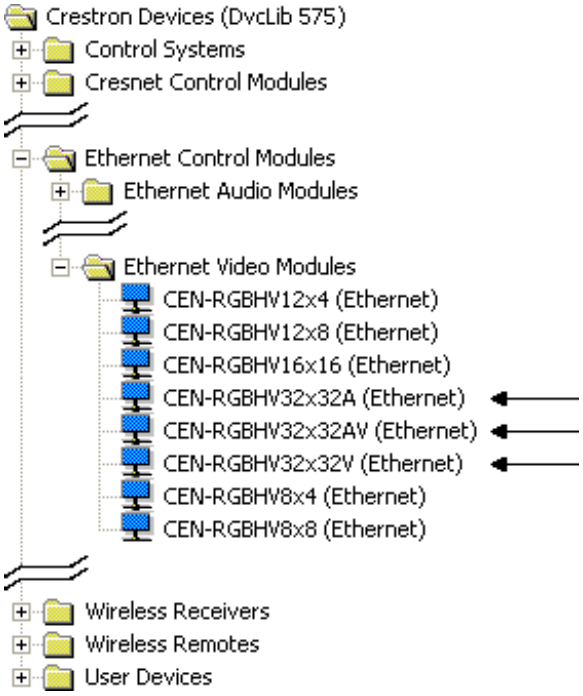
1. To incorporate the CEN-RGBHV32X32 (Cresnet) into the system, drag the CEN-RGBHV32X32 from the Cresnet Control Modules | Cresnet Video Modules folder of the *Device Library* and drop it in the *System Views*.

Locating the CEN-RGBHV32X32 (Cresnet) in the Device Library



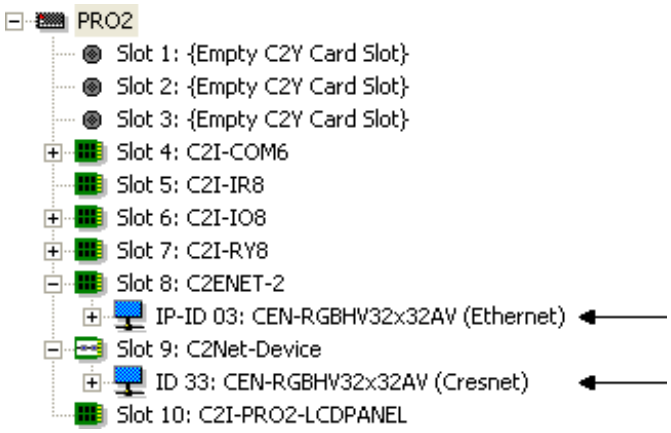
To incorporate the CEN-RGBHV32X32 (Ethernet) into the system, drag the CEN-RGBHV32X32 from the Ethernet Control Modules | Ethernet Video Modules folder of the *Device Library* and drop it in the *System Views.*

Locating the CEN-RGBHV32X32 (Ethernet) in the Device Library



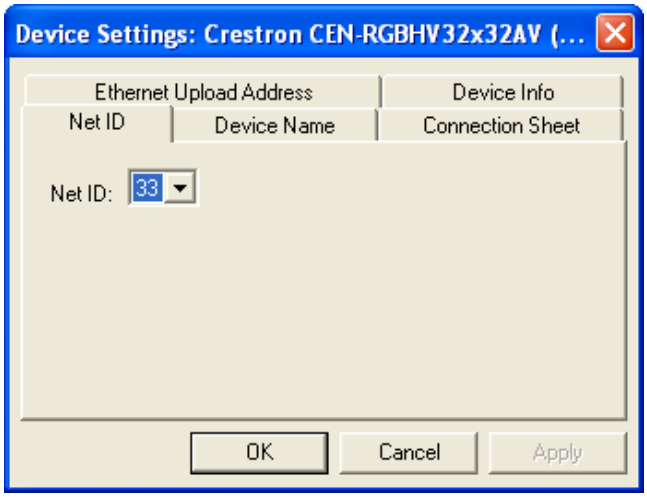
2. The system tree of the control system displays the device in the appropriate slot with a default Net ID or IP ID as shown in the following illustration.

C2Net Device, Slots 8 and 9

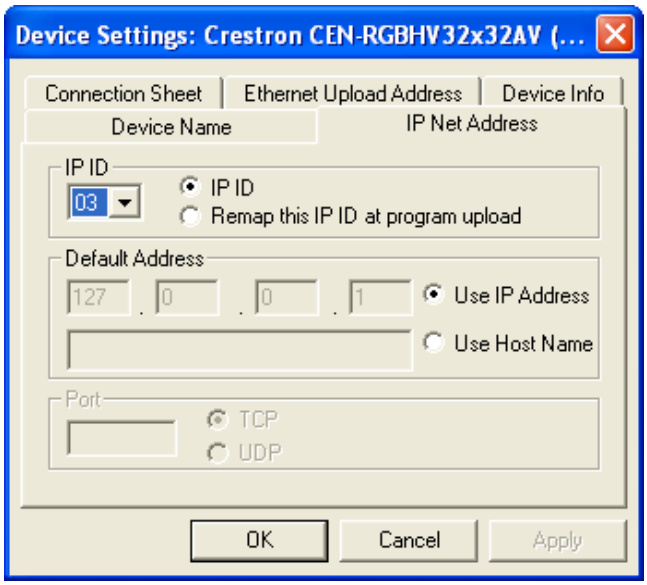


3. Additional CEN-RGBHV32X32 devices are assigned different Net ID or IP ID numbers as they are added.
4. If necessary, double click a device to open the "Device Settings" window and change the Net ID or IP ID as shown in the following figure.

CEN-RGBHV32X32 (Cresnet) "Device Settings" Window



CEN-RGBHV32X32 (Ethernet) "Device Settings" Window



5. The ID code specified in the SIMPL Windows program must match the Net ID or IP ID of each unit. Refer to "Identity Code" on page 16.

Program Manager

Program Manager is the view where programmers "program" a Crestron control system by assigning signals to symbols.

The symbol can be viewed by double clicking on the icon or dragging it into *Detail View*. Each signal in the symbol is described in the SIMPL Windows help file (**F1**).

Example Program

An example program for the CEN-RGBHV32X32 is available from the Crestron website (www.crestron.com/exampleprograms).

Uploading and Upgrading

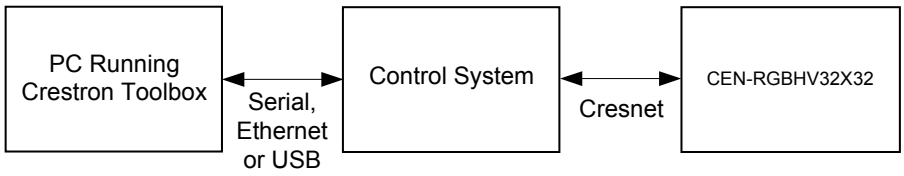
Crestron recommends using the latest programming software and that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade it is necessary to establish communication. Once communication has been established, files (for example, programs or firmware) can be transferred to the control system (and/or device). Finally, program checks can be performed (such as changing the device ID or creating an IP table) to ensure proper functioning.

Establishing Communication

Use Crestron Toolbox for communicating with the CEN-RGBHV32X32; refer to the Crestron Toolbox help file for details. There are three methods of communication.

Indirect Communication

Indirect Communication

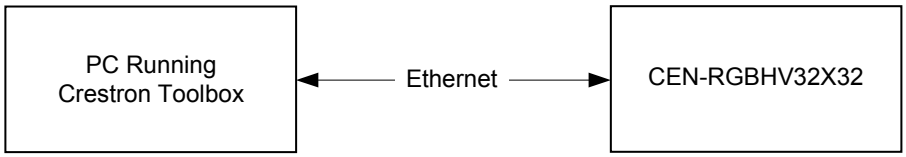


CEN-RGBHV32X32 connects to control system via Cresnet:

1. Establish communication between the PC and the control system as described in the latest version of the 2-Series Control Systems Reference Guide (Doc. 6256).
2. Use the Address Book in Crestron Toolbox to create an entry for the CEN-RGBHV32X32 using the expected communication protocol (Indirect). Select the Cresnet ID of the CEN-RGBHV32X32 and the address book entry of the control system that is connected to the CEN-RGBHV32X32.
3. Display the CEN-RGBHV32X32's "System Info" window (click the icon); communications are confirmed when the device information is displayed.

TCP/IP Communication

Ethernet Communication



The CEN-RGBHV32X32 connects to PC via Ethernet:

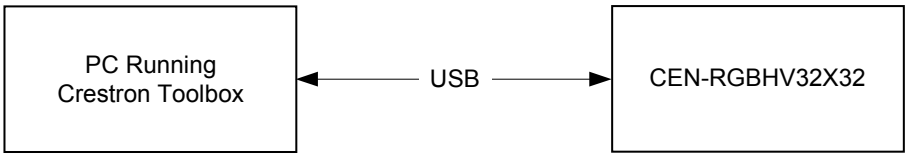
1. Establish communication between CEN-RGBHV32X32 and PC.
2. Enter the IP address, IP mask and default router of the CEN-RGBHV32X32 via the Crestron Toolbox (**Functions | Ethernet Addressing**); otherwise enable DHCP.

NOTE: Use the Device Discovery Tool in Crestron Toolbox to detect all Ethernet devices on the network and their IP configuration. The tool is available in Toolbox version 1.15.143 or later.

3. Confirm Ethernet connections between CEN-RGBHV32X32 and PC. If connecting through a hub or router, use CAT5 straight through cables with 8-pin RJ-45 connectors. Alternatively, use a CAT5 crossover cable to connect the two **LAN** ports directly without using a hub or router.
4. Use the Address Book in the Crestron Toolbox to create an entry for the CEN-RGBHV32X32 with the CEN-RGBHV32X32's TCP/IP communication parameters.
5. Display the "System Info" window (click the icon) and select the CEN-RGBHV32X32 entry.

USB Communication

USB Communication



The **COMPUTER** port on the CEN-RGBHV32X32 connects to the USB port on the PC via the included Type-A to Type B USB cable:

1. Use the Address Book in Crestron Toolbox to create an entry using the expected communication protocol (USB). When multiple USB devices are connected, identify the CEN-RGBHV32X32 by entering "CEN-RGBHV32X32" in the *Model* textbox, the unit's serial number in the *Serial* textbox or the unit's hostname in the *Hostname* textbox. The hostname can be found in the "System Info" window in the section marked *Ethernet* however, communications must be established in order to see this information in the "System Info" window.
2. Display the CEN-RGBHV32X32's "System Info" window (click the icon); communications are confirmed when the device information is displayed.

Programs and Firmware

Program or firmware files may be distributed from programmers to installers or from Crestron to dealers. Firmware upgrades are available from the Crestron website as new features are developed after product releases. One has the option to upload programs via the programming software or to upload and upgrade via the Crestron Toolbox. For details on uploading and upgrading, refer to the SIMPL Windows help file or the Crestron Toolbox help file.

SIMPL Windows

If a SIMPL Windows program is provided, it can be uploaded to the control system using SIMPL Windows or Crestron Toolbox.

Firmware

Check the Crestron website to find the latest firmware. (New users may be required to register to obtain access to certain areas of the site, including the FTP site.)

Upgrade CEN-RGBHV32X32 firmware via Crestron Toolbox.

1. Establish communication with the CEN-RGBHV32X32 and display the "System Info" window.

2. Select **Functions | Firmware…** to upgrade the CEN-RGBHV32X32 firmware.

Program Checks

Actions that can be performed on the CEN-RGBHV32X32 vary depending on whether it is connected via Cresnet or Ethernet.

Cresnet Connections

For Cresnet connections, using Crestron Toolbox, display the network device tree (**Tools | Network Device Tree**) to show all network devices connected to the control system. Right-click on the CEN-RGBHV32X32 to display actions that can be performed on the CEN-RGBHV32X32.

Ethernet Connections

For Ethernet connections, display the "System Info window (click the  icon) and select the **Functions** menu to display actions that can be performed on the CEN-RGBHV32X32.

Be sure to use the Crestron Toolbox to create the CEN-RGBHV32X32 IP table.

1. Select **Functions | IP Table Setup**.
2. Add, modify or delete entries in the IP table. The CEN-RGBHV32X32 can have only one IP table entry.
3. A defined IP table can be saved to a file or sent to the device.

Operation

Using the CEN-RGBHV32X32A with the CEN-RGBHV32X32V

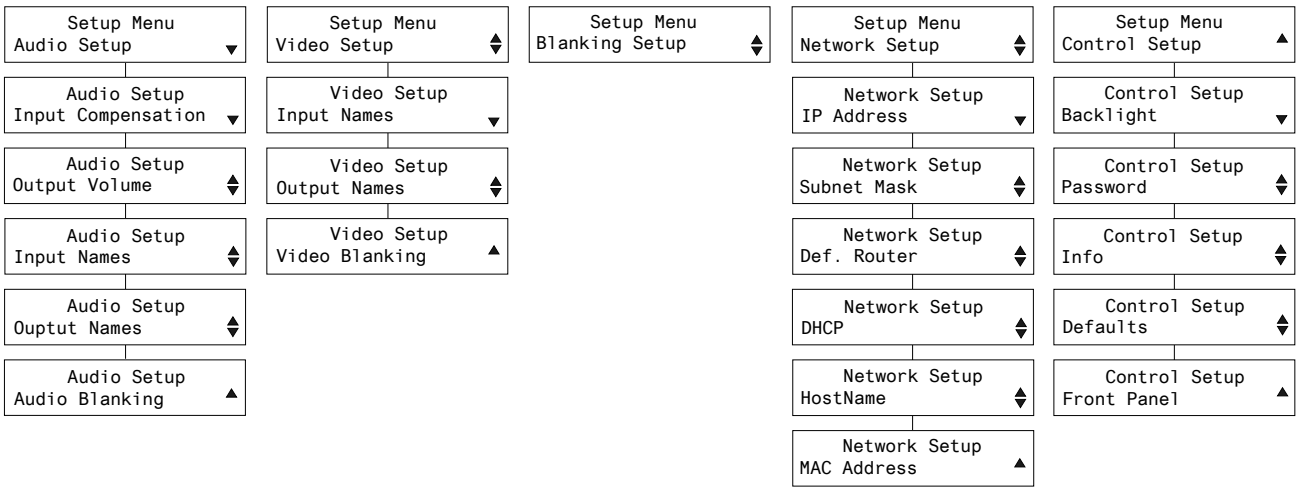
To use the CEN-RGBHV32X32A with the CEN-RGBHV32X32V, use the following procedure:

1. Connect the **TO VIDEO SWITCHER CONTROL** port on the CEN-RGBHV32X32A to the **TO AUDIO SWITCHER CONTROL** port on the CEN-RGBHV32X32V, using the DB25 cable included with the CEN-RGBHV32X32A. Refer to "Hardware Hookup" which starts on page 19.
2. Establish communication (Ethernet or USB) between the CEN-RGB32X32A, CEN-RGBHV32X32V and the PC. (Refer to "Establishing Communication" which starts on page 27.)
3. In Crestron Toolbox, open the Text Console and at the prompt, put the CEN-RGBHV32X32A into *Slave* mode using the console command `switcher audiomaster 0`.
4. Cycle power on both the CEN-RGBHV32X32V and CEN-RGBHV32X32A simultaneously.

Menu Structure

The overall front panel menu structure of the CEN-RGBHV32X32V is shown in the following illustration. Subsequent paragraphs describe the individual pages and their functions.

CEN-RGBHV32X32 Menu Structure



NOTE: The *Audio Setup* screens will not appear if the CEN-RGBHV32X32V is not connected to a CEN-RGBHV32X32A, with the CEN-RGBHV32X32A in *slave* mode, as described on this page.

Setup and Information Screens

The following paragraphs describe the various setup and information screens that are available with the CEN-RGBHV32X32V. These are accessed using the **MENU** button on the front panel.

There are five categories within the menu structure:

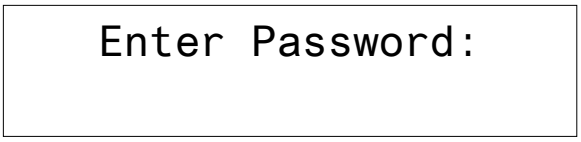
- Audio Setup

NOTE: The *Audio Setup* screens will not appear if the CEN-RGBHV32X32V is not connected to a CEN-RGBHV32X32A, with the CEN-RGBHV32X32A in *slave* mode, as described on page 30 in "Using the CEN-RGBHV32X32A with the CEN-RGBHV32X32V".

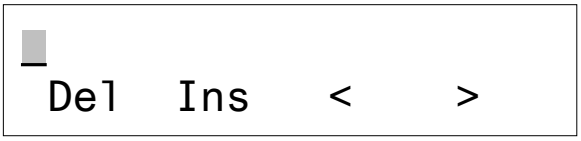
- Video Setup
- Blanking Setup
- Network Setup
- Control Setup

When the **MENU** button is pressed, the system will request a password, as shown in the two illustrations that follow.

"Enter Password" Screen



Password Entry Screen



The default password for the CEN-RGBHV32X32V is 12345. You can change the password using the Control Setup / Password screen (refer to "Control: Password" on page 44).

Use the buttons below the **<** and **>** symbols on the display to navigate to the digit you wish to set. Use the buttons below **Del** and **Ins** to delete and/or insert digits. Change a digit by rotating the quick-adjust knob. When the password in entered, press **ENTER** to go to the setup menus.

When the setup menus are used for the first time, after password entry, the system will display the main Audio Setup screen. If the setup menus have previously been used, the system will display the first screen in the last used category. From any of the top level menus, you can select a different category by using the rotary quick-adjust knob on the front panel.

NOTE: The ▲and ▼symbols in the lower right corner of the display let you know if there are screens available above and/or below the presently displayed screen.

To exit the Setup Menu screens, press the **MENU** button repeatedly until you see the **Exit Setup Menu** screen, shown on the following page. (The number of presses required will depend on how deeply into the menu structure you have navigated.) Then press the button below **Yes**.

"Exit Setup Menu" Screen

```
  Exit Setup Menu?
Yes              No
```

Audio Setup

"Audio Setup" Screen

```
     Setup Menu
Audio Setup      ▼
```

Press the **ENTER** button to select which parameter of the Audio Setup menu you wish to view. From any of the parameter level menus, you can select a different parameter by using the rotary quick-adjust knob on the front panel.

For example, pressing the **ENTER** button from the Audio Setup menu will display one of the following parameters:

- Input Compensation
- Output Volume
- Input Names
- Output Names
- Audio Blanking.

Using the quick-adjust knob, you can change to any of the other parameters of the Audio Setup menu. When you see the parameter you wish to enter, press the **ENTER** button.

Audio:
Input Compensation

"Input Compensation" Screen

```
     Audio Setup
Input Compensation ▼
```

Input Compensation allows you to adjust the gain for the selected input. To adjust input gain, press the **ENTER** button.

Input Compensation Screen 2

```
To adjust gain,
press an input
```

Press the front panel **IN** button for the input source you wish to adjust.

For example, to raise the input level for the source connected to input number **1**, press the **IN** button below **1** on the front panel. The LED above **IN 1** will light and the current gain setting for input 1 will be displayed.

"Input 1 Comp." Screen

```
Input 1 Comp.
0.0 dB
```

Use the quick-adjust knob to change the gain. In this example, we will raise the gain 0.5 dB. The display will show the change in gain along with a bar graph.

"Gain" Screen

```
Gain          +0.5 dB
□□□□□□□□□□□□
```

Press **ENTER** to return the display to the "Input Compensation" screen. Press **ENTER** to select another input or use the quick-adjust knob to select another Audio Setup parameter. The next parameter is Output Volume.

Audio:
Output Volume

"Output Volume" Screen

```
Audio Setup
Output Volume                ▲▼
```

To adjust output volume, press the **ENTER** button.

Output Volume Screen 2

```
To adjust volume,
press an output
```

Press the front panel **OUT** button for the output you wish to adjust.

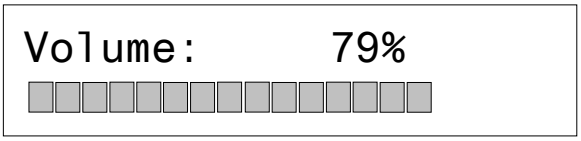
For example, to lower the output level for output number **1**, press the **OUT** button below **1** on the front panel. The LED above **OUT 1** will light and the current output level setting for output 1 will be displayed.

"Output 1 Vol." Screen

```
Output 1 Vol.
80%
```

Use the quick-adjust knob to change the output level. In this example, we will lower the output level by 1%. The display will show the change in output level along with a bar graph.

"Volume" Screen



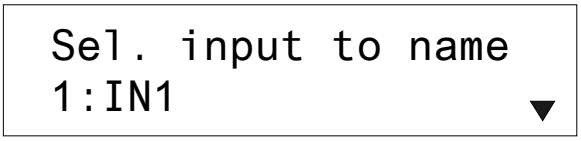
Press **ENTER** to return the display to the "Output Volume" screen. Press **ENTER** to select another input or use the quick-adjust knob to select another Audio Setup parameter. The next parameter is Input Names.

Audio:
Input Names

"Input Names" Screen

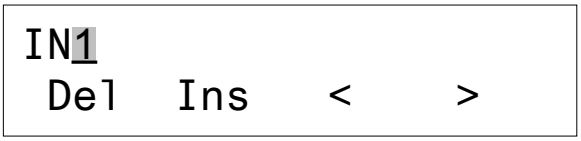
To set up an input name, press the **ENTER** button.

"Sel. input to name" Screen



Use the quick-adjust knob to select the input you wish to name. Then press **ENTER**.

Input Name Setup Screen



Use the buttons below the **<** and **>** symbols on the display to navigate to the digit you wish to set. Use the buttons below **Del** and **Ins** to delete and/or insert digits. Change a digit by rotating the quick-adjust knob.

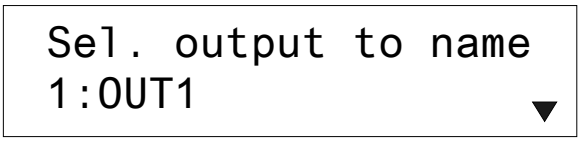
Press **ENTER** to save the new setting. The display will return to the "Sel. input to name" screen. Use the quick-adjust knob to select another input or press **MENU** to return to the "Input Names" screen. From the "Input Names" screen, use the quick-adjust knob to select another Audio Setup parameter. The next parameter is Output Names.

Audio:
Output Names

"Output Names" Screen

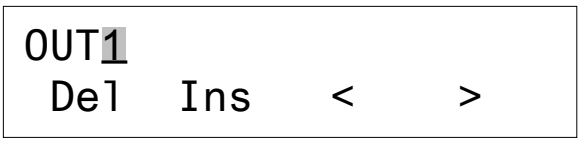
To set up an output name, press the **ENTER** button.

"Sel. output to name" Screen



Use the quick-adjust knob to select the output you wish to name. Then press **ENTER**.

Output Name Setup Screen



Use the buttons below the **<** and **>** symbols on the display to navigate to the digit you wish to set. Use the buttons below **Del** and **Ins** to delete and/or insert digits. Change a digit by rotating the quick-adjust knob.

Press **ENTER** to save the new setting. The display will return to the "Sel. output to name" screen. Use the quick-adjust knob to select another output or press **MENU** to return to the "Output Names" screen. From the "Output Names" screen, use the quick-adjust knob to select another Audio Setup parameter. The next parameter is Audio Blanking.

NOTE: Blanking may be enabled/disabled separately for audio and video. Blanking is used to ensure that no flickering occurs on the video output as the new sync signals are sent to the display. Audio blanking may be used to mute the audio signal during video blanking.

Audio:
Audio Blanking

"Audio Blanking" Screen

To set audio blanking, press **ENTER.** Use the quick-adjust knob to turn audio blanking on or off.

Audio Blanking Screen 2

An asterisk to the left of the blanking option will show the current setting.

Audio Blanking Screen 2 (Showing Blanking Set to On)

Press **ENTER** to save the new setting. The display will return to the "Audio Blanking" screen. Use the quick-adjust knob to select another Audio Setup parameter or press **MENU** to return to the "Audio Setup" category screen.

Use the quick-adjust knob to select another category. The next category is Video Setup.

Video Setup

"Video Setup" Screen

Press the **ENTER** button to select which parameter of the Video Setup menu you wish to view. From any of the parameter level menus, you can select a different parameter by using the rotary quick-adjust knob on the front panel.

For example, pressing the **ENTER** button from the Video Setup menu will display one of the following parameters:

- Input Names
- Output Names
- Video Blanking

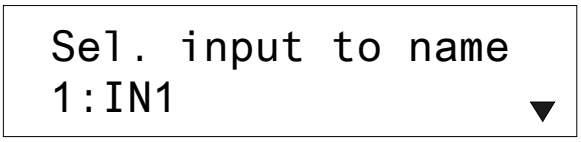
Using the quick-adjust knob, you can change to any of the other parameters of the Video Setup menu. When you see the parameter you wish to enter, press the **ENTER** button.

Video:
Input Names

"Input Names" Screen

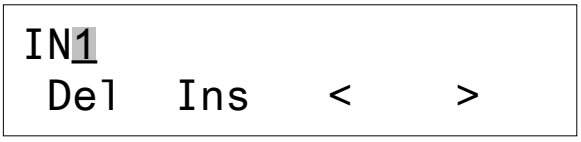
To set up an input name, press the **ENTER** button.

"Sel. input to name" Screen



Use the quick-adjust knob to select the input you wish to name. Then press **ENTER**.

Input Name Setup Screen



Use the buttons below the **<** and **>** symbols on the display to navigate to the digit you wish to set. Use the buttons below **Del** and **Ins** to delete and/or insert digits. Change a digit by rotating the quick-adjust knob.

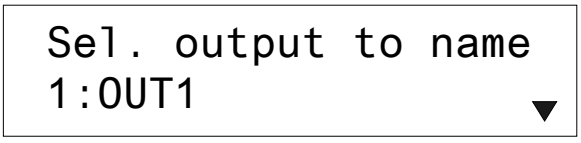
Press **ENTER** to save the new setting. The display will return to the "Sel. input to name" screen. Use the quick-adjust knob to select another input or press **MENU** to return to the "Input Names" screen. From the "Input Names" screen, use the quick-adjust knob to select another Video Setup parameter. The next parameter is Output Names.

Video:
Output Names

"Output Names" Screen

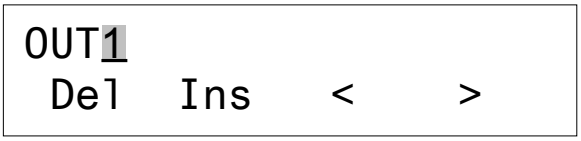
To set up an output name, press the **ENTER** button.

"Sel. output to name" Screen



Use the quick-adjust knob to select the output you wish to name. Then press **ENTER**.

Output Name Setup Screen



Use the buttons below the **<** and **>** symbols on the display to navigate to the digit you wish to set. Use the buttons below **Del** and **Ins** to delete and/or insert digits. Change a digit by rotating the quick-adjust knob.

Press **ENTER** to save the new setting. The display will return to the "Sel. output to name" screen. Use the quick-adjust knob to select another output or press **MENU** to return to the "Output Names" screen. From the "Output Names" screen, use the quick-adjust knob to select another Video Setup parameter. The next parameter is Video Blanking.

NOTE: Blanking may be enabled/disabled separately for audio and video. Blanking is used to ensure that no flickering occurs on the video output as the new sync signals are sent to the display. Audio blanking may be used to mute the audio signal during video blanking.

Video:
Video Blanking

"Video Blanking" Screen

To set video blanking, press **ENTER.** Use the quick-adjust knob to turn audio blanking on or off.

Video Blanking Screen 2

An asterisk to the left of the blanking option will show the current setting.

Video Blanking Screen 2 (Showing Blanking Set to On)

Press **ENTER** to save the new setting. The display will return to the "Video Blanking" screen. Use the quick-adjust knob to select another Video Setup parameter or press **MENU** to return to the "Video Setup" category screen.

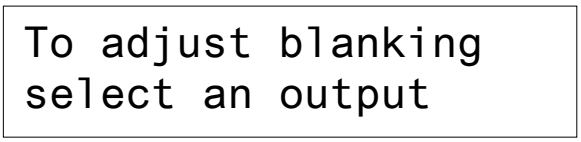
Use the quick-adjust knob to select another category. The next category is Blanking Setup.

Blanking Setup

"Blanking Setup" Screen

To set up blanking, press the **ENTER** button

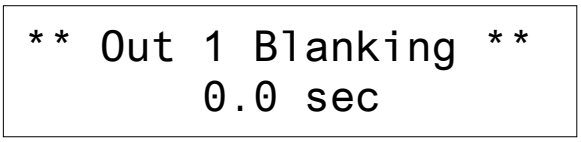
Blanking Setup Screen 2



Press the front panel **OUT** button for the output you wish to adjust.

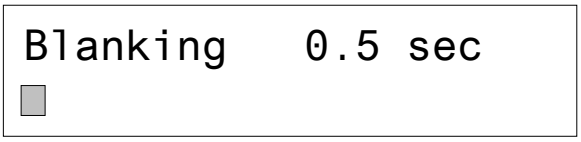
For example, to set blanking for output number **1**, press the **OUT** button below **1** on the front panel. The LED above **OUT 1** will light and the current blanking setting for output 1 will be displayed.

"Out 1 Blanking" Screen



Use the quick-adjust knob to change the blanking time. In this example, we will change the blanking for output 1 from 0 to 0.5 seconds. The display will show the change in blanking time along with a bar graph.

"Blanking" Screen



Press **ENTER** to save the new setting. The display will return to the "Blanking Setup" screen. Press **ENTER** to select another output.

Use the quick-adjust knob to select another category. The next category is Network Setup.

Network Setup

"Network Setup" Screen

Press the **ENTER** button to select which parameter of the Network Setup menu you wish to view. From any of the parameter level menus, you can select a different parameter by using the rotary quick-adjust knob on the front panel.

For example, pressing the **ENTER** button from the Network Setup menu will display one of the following parameters:

- IP Address
- Subnet Mask
- Def. Router
- DHCP
- HostName
- MAC Address

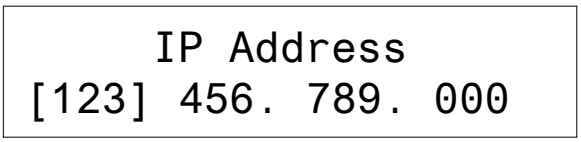
Using the quick-adjust knob, you can change to any of the other parameters of the Network Setup menu. When you see the parameter you wish to enter, press the **ENTER** button.

Network: IP Address

"IP Address" Screen

To set the IP address, press the **ENTER** button.

IP Address Screen 2

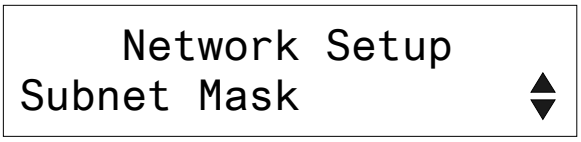


Use the quick adjust knob to set the values for the first three digits in the IP address. Then press **ENTER** to move the brackets to the next three digits and use the quick-adjust knob to set the values for these. Use the **ENTER** button and quick-adjust knob to set the values for next two groups of three digits.

Press **ENTER** to save the IP address. The display will return to the "IP Address" screen. Use the quick-adjust knob to select another Network Setup parameter. The next parameter is Subnet Mask.

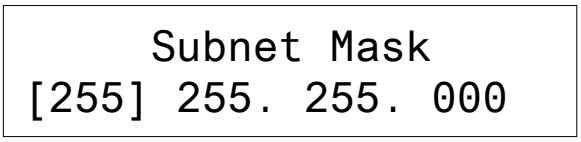
Network: Subnet Mask

"Subnet Mask" Screen



To set the subnet mask, press the **ENTER** button.

Subnet Mask Screen 2



Use the quick adjust knob to set the values for the first three digits in the subnet mask. Then press **ENTER** to move the brackets to the next three digits and use the quick-adjust knob to set the values for these. Use the **ENTER** button and quick-adjust knob to set the values for next two groups of three digits.

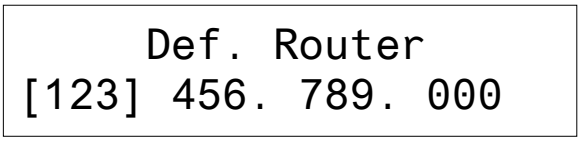
Press **ENTER** to save the subnet mask. The display will return to the "Subnet Mask" screen. Use the quick-adjust knob to select another Network Setup parameter. The next parameter is Def. Router.

Network: Def. Router

"Def. Router" Screen

To set the default router, press the **ENTER** button.

Def. Router Screen 2



Use the quick adjust knob to set the values for the first three digits in the default router. Then press **ENTER** to move the brackets to the next three digits and use the quick-adjust knob to set the values for these. Use the **ENTER** button and quick-adjust knob to set the values for next two groups of three digits.

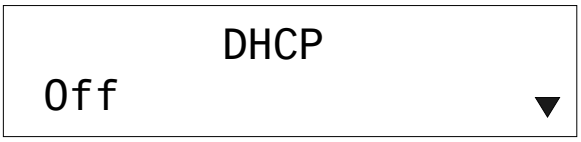
Press **ENTER** to save the default router. The display will return to the "Def. Router" screen. Use the quick-adjust knob to select another Network Setup parameter. The next parameter is DHCP.

Network: DHCP

"DHCP" Screen

To set DHCP, press **ENTER**. Use the quick-adjust knob to turn DHCP on or off.

DHCP Screen 2



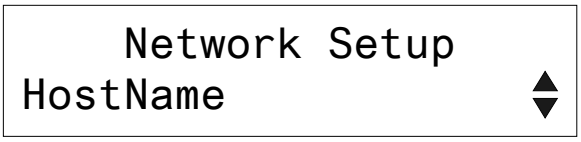
An asterisk to the left of the DHCP option will show the current setting.

DHCP Screen 2 (Showing DHCP Set to On)

Press **ENTER** to save the new setting. The display will return to the "DHCP" screen. Use the quick-adjust knob to select another Network Setup parameter. The next parameter is HostName.

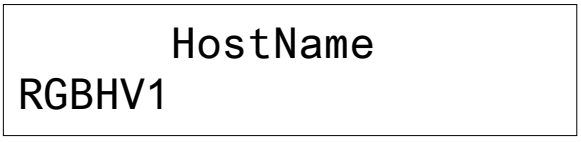
Network: HostName

"HostName" Screen



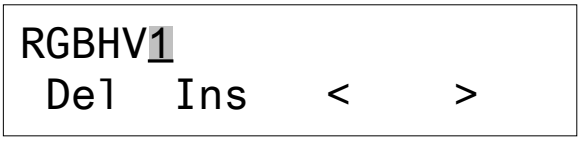
To view the host name, press **ENTER**. The display will show the existing host name.

HostName Screen 2



To set up the hostname, press **ENTER**.

HostName Setup Screen



Use the buttons below the **<** and **>** symbols on the display to navigate to the digit you wish to set. Use the buttons below **Del** and **Ins** to delete and/or insert digits. Change a digit by rotating the quick-adjust knob.

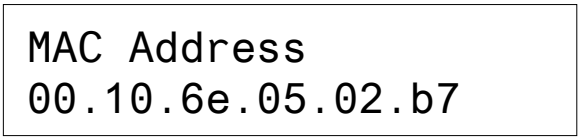
Press **ENTER** to save the new setting. The display will return to the "HostName" screen. Use the quick-adjust knob to select another Network Setup parameter. The next parameter is MAC Address.

Network:
MAC Address

"MAC Address" Screen

To display the MAC Address, press **ENTER**.

Mac Address Screen 2



Press **MENU** to return to the "MAC Address" screen.

Use the quick-adjust knob to select another category. The next category is Control Setup.

Control Setup

"Control Setup" Screen

Press the **ENTER** button to select which parameter of the Control Setup menu you wish to view. From any of the parameter level menus, you can select a different parameter by using the rotary quick-adjust knob on the front panel.

For example, pressing the **ENTER** button from the Control Setup menu will display one of the following parameters:

- Backlight
- Password
- Info
- Defaults
- Front Panel

Using the quick-adjust knob, you can change to any of the other parameters of the Control Setup menu. When you see the parameter you wish to enter, press the **ENTER** button.

Control: Backlight

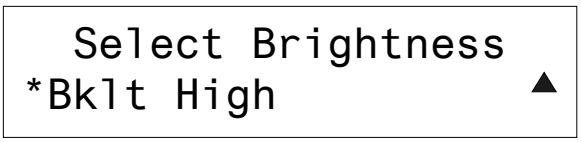
"Backlight" Screen

To set the backlight level, press **ENTER**. Use the quick-adjust knob to set the backlight level to Low, Medium or High.

Backlight Screen 2

An asterisk to the left of the backlight option will show the current setting.

Backlight Screen 2 (Showing Backlight Set to High)

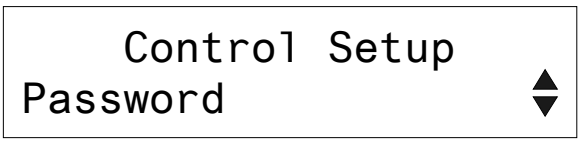


NOTE: The backlight setting will be in effect while the unit is on. It is not saved across reboots.

Press **ENTER** to return the display to the "Backlight" screen. Use the quick-adjust knob to select another Control Setup parameter. The next parameter is Password.

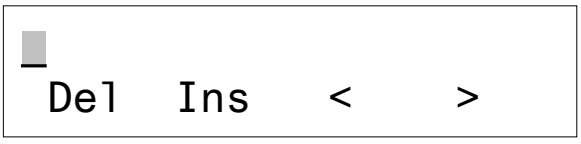
Control: Password

"Password" Screen



To set a password, press **ENTER**.

Password Screen 2



Use the buttons below the < and > symbols on the display to navigate to the digit you wish to set. Use the buttons below **Del** and **Ins** to delete and/or insert digits. Change a digit by rotating the quick-adjust knob.

Press **ENTER** to save the new setting. The display will return to the "Password" screen. Use the quick-adjust knob to select another Control Setup parameter. The next parameter is Info.

Control:
Info

"Info" Screen

To view information about your CEN-RGBHV32X32V, press **ENTER**.

"Info HW/OPS" Screen

The Info submenu is divided into **HW** (hardware) and **OPS** (operation) sections.

To view information about your CEN-RGBHV32X32V hardware, press the button below **HW**.

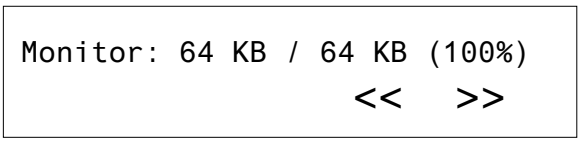
"Hardware Version" Screen

NOTE: Use the buttons below << and >> to scroll through the information on each screen. In the illustration above and the fourteen that follow, the text has been made smaller to fit all of the information. The actual screen displays will require scrolling to see all the information.

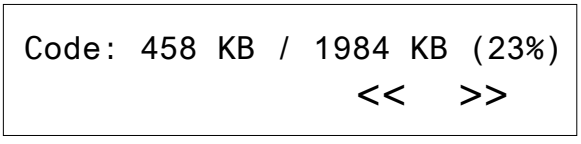
Use the quick-adjust knob to view other hardware information parameters or press **MENU** to return to the "Info HW/OPS" screen.

"FLASH" Screen

Flash "Monitor" Screen



Flash "Code" Screen



Flash "File System" Screen

```
File System: 68 KB / 6144 KB (1%)
                    <<   >>
```

"TOTAL FLASH" Screen

```
TOTAL FLASH: 8192 KB
                    <<   >>
```

"FLASH unique id" Screen

```
FLASH unique id: 09b4 2e22 859a 52af
                    <<   >>
```

"RAM" Screen

```
RAM:
                    <<   >>
```

RAM "Code" Screen

```
Code: 458 KB / 2153 KB (21%)
                    <<   >>
```

RAM "Initialized Data" Screen

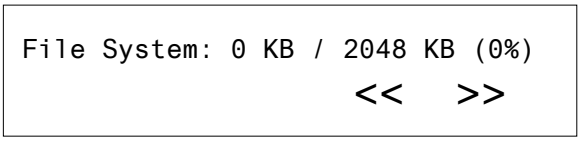
```
Initialized Data: 6 KB / 2153 KB (0%)
                    <<   >>
```

RAM "Uninitialized Data" Screen

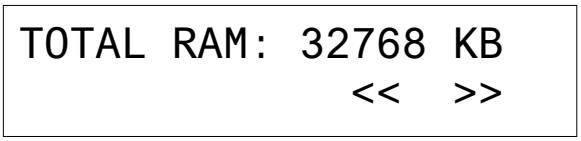
```
Uninitialized Data: 1684 KB / 2153 KB (0%)
                    <<   >>
```

RAM "Heap" Screen

RAM "File System" Screen

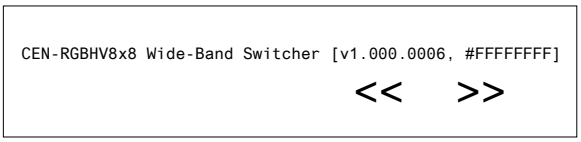


"TOTAL RAM" Screen



To view the firmware version and serial number of your CEN-RGBHV32X32V, press **MENU** to return to the "Info HW/OPS" screen then press the button below **OPS**.

CEN-RGBHV32X32 Firmware and Serial Number Screen



Press **MENU** to return to the "Info" screen, then press **MENU** again to return to the "Info" screen. Use the quick-adjust knob to select another Control Setup parameter. The next parameter is Defaults.

Control: Defaults

"Defaults" Screen

To reset factory defaults, press **ENTER**. Use the quick adjust knob to select whether to restore defaults for Audio settings only, Video setting only, All settings or select Abort to maintain the current settings.

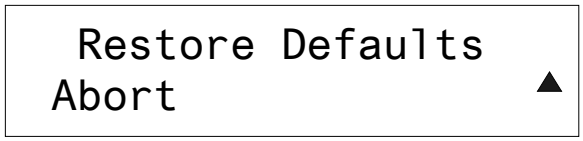
Defaults Screen 2 (Showing "Audio settings only" Option)

An asterisk to the left of the restore defaults option will show the current setting.

Defaults Screen 2 (Showing "Video settings only" Option)

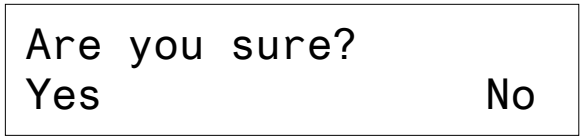
Defaults Screen 2 (Showing "All settings" Option)

Defaults Screen 2 (Showing "Abort" Option)



Press **ENTER** to select the new setting. The display will ask you if you are sure you want to restore default settings.

"Are you sure?" Screen



To restore defaults, press the button below **Yes**. After a short pause, the screen will briefly display a "Restored defaults" message (if you reset any defaults), then return to the "Defaults" screen. Use the quick-adjust knob to select another Control Setup parameter. The next parameter is Front Panel.

Control:
Front Panel

"Front Panel" Screen

To turn the front panel lock on or off, press **ENTER**. Use the quick-adjust knob to set the front panel lock on or off.

Front Panel Screen 2

An asterisk to the left of the front panel lock option will show the current setting.

Press **ENTER** to save the new setting. The display will return to the "Front Panel" screen. Use the quick-adjust knob to select another Control Setup parameter or press **MENU** to return to the "Control Setup" category screen.

You can then use the quick-adjust knob to select another category or press **MENU** again to display the "Exit Setup Menu" screen.

Routing Signals

The **VIEW** button allows you to see which input signals are routed to which outputs. Pressing the **VIEW** button will cause the LED above the button to light. The display will show the "View Mode" screen.

"View Mode" Screen

```
      View Mode
Press input/output
```

In *View* mode, pressing any of the numbered **IN** or **OUT** buttons will cause the corresponding LEDs to light, showing the input to output routing.

For example, if you press the **IN** button **1**, the LED above **IN 1** will light and the LEDs above any outputs input 1 is routed to will also light. Or, if you press **OUT 2** button, the LED above **OUT 2** will light and the light and the LED above the input that is routed to **OUT 2** will also light.

If the **A** button is pressed when you are in *View* mode, its LED will light and the unit will display the audio routing. If the **V** button is pressed when you are in *View* mode, its LED will light and the unit will display the video routing.

Pressing the **VIEW** button again will toggle the unit to *Route* mode. In *Route* mode, the LED above the **VIEW** button will not be lit. The display will show the "Route Mode" screen.

"Route Mode" Screen

```
      Route Mode
Press input/outputs
```

If the **A** button is pressed, its LED will light and you can route audio signals. If the **V** button is pressed, its LED will light and you can route video signals. If both buttons are pressed, both LEDs will light and both audio and video signals can be routed simultaneously.

To route signals, select **A**, **V** or both, then press the button for the input signal you wish to route, followed by the **OUT** buttons corresponding to the outputs you wish to route that signal to. Audio and video signals can be routed independently.

The LED below **TAKE** will blink on and off. Press the **TAKE** button to execute the routing you have selected. The **TAKE** LED will stop blinking when routing changes have been executed.

To exit *View* or *Route* mode, press the **MENU** button.

Sync Mode

To enter *Sync* mode, press the **SYNC** button. The display will show the "Sync Mode" screen.

"Sync Mode" Screen

```
      Sync Mode
Press input
```

To view the horizontal and vertical sync rates of any input, press the numbered **IN** button for the input you wish to view. The display will show the horizontal and vertical sync rates for that input.

For example, to view the sync rates for input number **1**, press the **IN** button below **1** on the front panel. The LED above **IN 1** will light and the sync rates for input number 1 will be displayed.

Sync Screen (Showing Horizontal and Vertical Sync Rates for Input 1)

```
1HSync 63897Hz
1VSync 60Hz
```

To refresh the current rate, press the numbered **IN** button below the selected input again. A displayed sync rate of 0 Hz, indicates that no sync has been detected.

To view the sync rates for a different input, press the numbered **IN** button for the input you wish to view.

To exit *Sync* mode, press the **SYNC** button or press another button such as **VIEW** or **MENU**.

Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

CEN-RGBHV32X32 Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Device does not function.	Power switch is not set to ON.	Confirm rocker switch is set to ON.
	Power connection is not secure.	Confirm power connections are secure at the switcher and the receptacle.
	Device is not communicating with the network.	Use Crestron Toolbox to poll the network. Verify network connection to the device.
	Improper Net ID used.	Verify that device ID matches Net ID in the program.
Poor picture or sound quality	Cables improperly connected.	Verify all cables are secure.

Check Network Wiring

Use the Right Wire

In order to ensure optimum performance over the full range of your installation topology, Crestron Certified Wire and only Crestron Certified Wire may be used. Failure to do so may incur additional charges if support is required to identify performance deficiencies because of using improper wire.

Strip and Tin Wire

When daisy-chaining Cresnet units, strip the ends of the wires carefully to avoid nicking the conductors. Twist together the ends of the wires that share a pin on the network connector and tin the twisted connection. Apply solder only to the ends of the twisted wires. Avoid tinning too far up the wires or the end becomes brittle. Insert the tinned connection into the Cresnet connector and tighten the retaining screw. Repeat the procedure for the other three conductors.

Add Hubs

For larger networks (i.e., greater than 28 network devices), it may become necessary to add a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality throughout the network. Also, for networks with lengthy cable runs it may be necessary to add a Hub/Repeater after only 20 devices.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron website (www.crestron.com/manuals). This link will provide a list of product manuals arranged in alphabetical order by model number.

List of Related Reference Documents

DOCUMENT TITLE
2-Series Control Systems Reference Guide
Crestron e-Control Reference Guide

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling Crestron at 1-888-CRESTRON [1-888-273-7876].

You can also log onto the online help section of the Crestron website (www.crestron.com/onlinehelp) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features and extends the capabilities of the CEN-RGBHV32X32, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact an authorized CRESTRON dealer. Only authorized CRESTRON dealers may contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number and return address.
2. Products may be returned for credit, exchange or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended or if it has been subjected to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supersedes all previous warranties.

Trademark Information

Crestron Electronics, Inc.
15 Volvo Drive Rockleigh, NJ 07647
Tel: 888.CRESTRON
Fax: 201.767.7576
www.crestron.com

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Specifications subject to
change without notice.