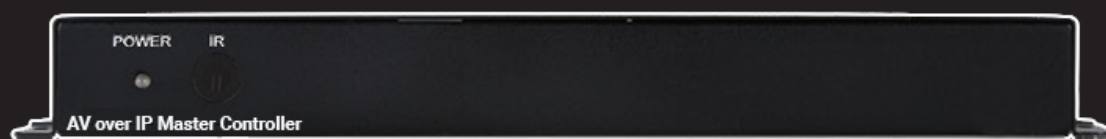


USER MANUAL

VSW-MC-CTRL-R2

MEDIACENTO IPX AV OVER IP SYSTEM CONTROLLER



BLACK BOX®

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install, or operate this equipment and before connecting the power supply.

- Always follow basic safety precautions to reduce the risk of fire, electrical shock, and personal injury.
- To prevent fire or shock hazard, do not expose the unit to rain or moisture. Also, do not install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling; do not allow any weight to be placed upon it; and do not allow any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

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1. INTRODUCTION

The MediaCentro IPX AV over IP system controller is a powerful and flexible solution for controlling multiple MediaCentro IPX transmitters and receivers within the same network. The user only needs to install this unit into the same local network as the endpoints (Transmitter and Receiver) to easily define and configure channel routing selections (including video, audio, IR, RS-232, and comprehensive USB over IP functionality with seamless collaboration across multiple windows), for both unicast and multicast scenarios, using the WebGUI. It is also possible to define and switch routes using customized groups or presets, allowing for easy control over multiple video zones. Without the use of this centralized unit, each individual Transmitter and Receiver in the system would need to be controlled and configured directly through its own individual WebGUI or front-panel controls.

Additionally, this unit supports controlling and configuring the matrix and video wall modes of connected AV over IP endpoints. The settings of all connected Transmitter/Receiver units, including IP configuration, compatibility settings, and extender status, are clearly displayed within the WebGUI. The WebGUI is easily accessed via a web browser over a normal network connection or by directly connecting a HDMI display, a USB keyboard, and a mouse to the unit. A trigger input interface is also provided to allow the easy addition of a remote control keypad, or touchscreen, which can be installed within a podium or table in a conference room or classroom. This interface can allow the user to activate stored macros with the simple press of a button. Standard control is available via WebGUI (remote or local), RS-232, Telnet, IR Remote and triggers.

2. APPLICATIONS

- AV signal distribution and matrix switching
- Security surveillance and control
- Commercial advertising, display, and control
- Facility command and control centers
- System monitoring and operations centers

3. PACKAGE CONTENTS

- (1) MediaCentro IPX Control Appliance
- (1) 5V/2.6A DC Power Adapter (includes clips for US, UK, EU, and AU mains)
- (1) Remote Control (CR2025 battery)
- (1) 3-pin Terminal Block
- (3) 5-pin Terminal Block
- (1) IR Extender Cable
- (1) Shockproof Feet (Set of 4)
- (1) Registration and documentation card

4. SYSTEM REQUIREMENTS

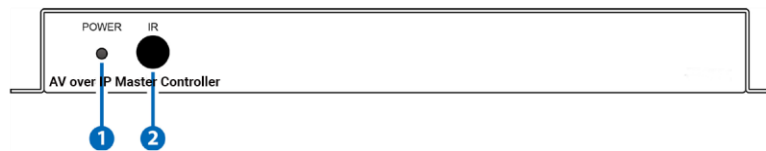
- An active network connection from a switch or router to your MediaCentro IPX endpoint network
- An HDMI-compatible display and USB human interface device will be required if local monitoring and control are needed

5. FEATURES

- Enables the management and configuration of multiple MediaCentro IPX endpoints
- Can be powered by Ethernet switches supporting the IEEE 802.3af 2003 PoE standard (Optional)
- Standard control is available via WebGUI (remote or local), RS-232, Telnet, and IR Remote
- Supports comprehensive USB over IP functionality on capable endpoints
- Control over both matrix and video wall modes using WebGUI macros
- Dual LAN ports enable isolation of the AV over IP network from the control network, where desirable
- I/O triggers to simplify end-user operation with keypads, interactive kiosks, buttons, or other triggering mechanisms
- Definable display groups
- Local HDMI output displays the WebGUI and system status
- Supports the use of a USB mouse and keyboard to locally control the WebGUI
- WebGUI clearly displays the status of all connected Transmitters and Receivers, including IP address and channel selection.
- Provides control over the routing of video, audio, and control signals between all MediaCentro IPX transmitters and receivers
- Supports point-to-point (unicast) and multi-to-multi (multicast) routing selections
- Can generate serial commands to directly control external serial-controllable devices attached to capable endpoints

6. OPERATION CONTROLS AND FUNCTIONS

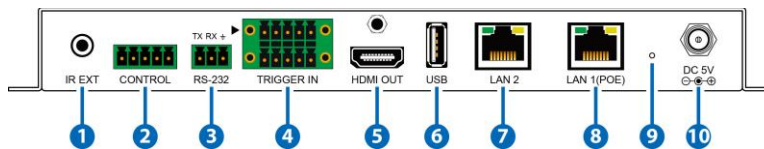
6.1 Front Panel



(1) **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.

(2) **IR Window:** Accepts IR signals from the included IR remote for control of this unit only.

6.2 Rear Panel



(1) **IR EXT Port:** Connect to the provided IR Extender to extend the IR control range of the unit. Ensure that the remote being used is within direct line-of-sight of the IR Extender.

(2) **CONTROL 5-pin Terminal Block:** Connect to a serial controllable device for the transmission of RS-232 signals.

(3) **RS-232 3-pin Terminal Block:** Connect to a PC, laptop, or other serial control device with a 3-pin adapter cable to control the unit via RS-232.

(4) **TRIGGER IN 10-pin Terminal Block:** Connect to any compatible triggering device, such as window security alarms, motion detectors, or door switches. Each of the eight trigger inputs will activate the associated macro (1~8) when triggered.

NOTE: A minimum of 5V DC is required to activate each trigger.

(5) **HDMI OUT Port:** Connect to a standard HDMI display to view the unit's current status information and access the WebGUI directly without a PC.

NOTE: HDMI output is locked to a resolution of 1080p@60Hz.

(6) **USB Port:** Connect a USB mouse and keyboard to control the unit's WebGUI displayed on the HDMI output port.

NOTE: Specialized USB control devices, such as a touch panel, should be connected before the unit is powered on.

(7) **LAN 2 Port:** Connect directly, or through a network switch, to your PC/laptop to control the unit via WebGUI/Telnet.

NOTE: This LAN port cannot support AutoIP devices and should ONLY be used for external control of the IP Master Controller itself.

(8) **LAN 1 (POE) Port:** This port is used to connect to the MediaCentric IPX endpoint network, to enable detection and control over those units.

NOTE: If the connected network switch supports the IEEE 802.3af 2003 PoE (Power over Ethernet) standard, this unit can optionally be powered directly via this Ethernet port.

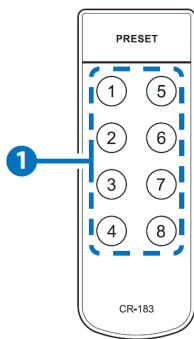
(9) FACTORY RESET Pinhole: Press and hold for 3 seconds to reset the unit to its factory defaults, including Ethernet settings.

NOTE: While the reset is in process, the LEDs on the front of the unit will illuminate red. Once the reset is complete, the unit will return to normal operation.

(10) DC 5V Port: Plug the 5V DC power adapter into the unit and connect it to an AC wall outlet for power (not required if the unit is powered via PoE).

6.3 Remote Control

(1) PRESET 1~8: Press any of the eight buttons to activate the saved preset associated with that number.



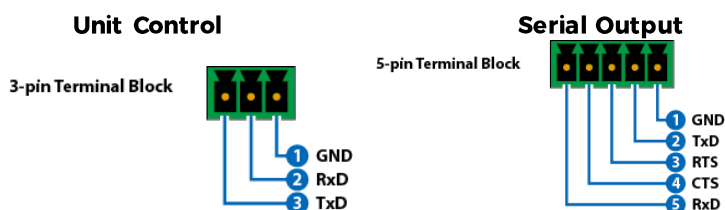
6.4 IR Cable Pinouts

IR Extender
Cable



6.5 Serial Pinout and Defaults

Serial Port Default Settings	
Baud Rate	19200
Data Bits	8
Parity Bits	None
Stop Bits	1
Flow Control	None



6.6 WebGUI Control

• Device Connection

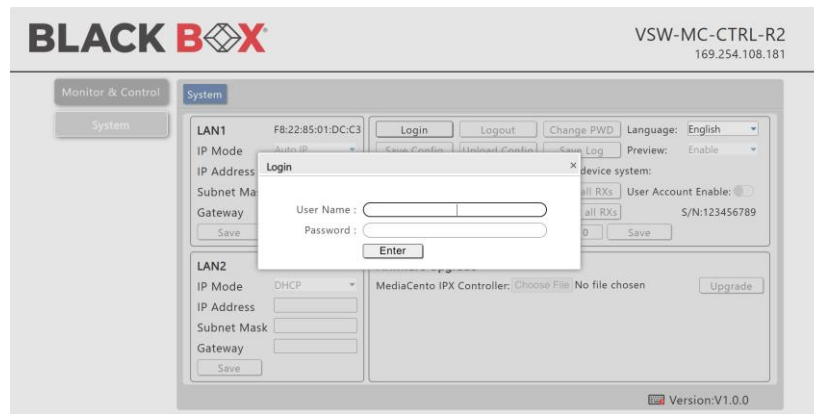
Connect the unit and your PC/Laptop to the same active network and connect to the unit by IP address.

NOTE: The LAN 2 defaults to DHCP mode. The default of LAN 1 is Auto IP mode (169.254.x.x). The current IP address can be verified using the HDMI output or RS-232.

• WebGUI Overview

After connecting to the WebGUI's address in a web browser, the WebGUI will load and display the "Monitor & Control" tab. Basic routing functions can be controlled from here without logging in. To gain full control over the unit, however, switch to the "System" tab and click on the "Login" button to open the authentication window. Enter the appropriate username and password, and then click on the "Enter" button to log in. If a keyboard is not available, such as when using a touch screen, an on-screen keyboard can be enabled or disabled by clicking on the keyboard icon (). When enabled, the on-screen keyboard will display whenever editing a text entry field. The interface language may also be changed by selecting a new language from the "Language" drop-down menu.

NOTE: The default user name is "admin" (without the quotes), and the default password is "BBNSMediaCento" (without the quotes).



After logging in, on the left side of the browser you will see menu tabs where all primary functions of the unit are controllable via the built in WebGUI.



These functions will be introduced in the following sections.

Clicking on the "Logout" button within the "System" tab will log the currently connected user out of the WebGUI and return to the login page.

NOTE: When not logged in, only the "Monitor & Control" and "System" tabs are visible.

6.6.1 System Tab

This tab provides access to system configuration options, including IP configuration for both LAN ports, interface language, preview control, login and user management, and firmware update functionality.

The screenshot shows the BLACK BOX VSW-MC-CTRL-R2 web interface. At the top, the device name and IP address (169.254.108.181) are displayed, along with the user (admin). The left sidebar contains navigation tabs: Monitor & Control, System (selected), Settings, Transmitter, Receiver, Scaling, and Video Wall. The main content area is divided into sections for LAN1, LAN2, and Firmware Upgrade. LAN1 and LAN2 sections allow configuration of IP mode (Auto IP, Static IP), IP address, subnet mask, and gateway. The Firmware Upgrade section includes a 'Choose File' button and an 'Upgrade' button. A 'Save' button is present for each LAN configuration. The bottom right corner indicates the version: V1.0.0.

- 1) **LAN 1 & LAN 2:** The IP mode for each LAN port (DHCP, Auto IP, or Static IP), IP address, netmask, and gateway can be set here. When a LAN port is set to “DHCP” mode, it will automatically attempt to obtain proper configuration information from a DHCP server. When the unit is set to “Auto IP” mode it will automatically assign itself an APIPA address from the 169.254.xxx.xxx range. To configure the network settings manually, set the LAN port to “Static IP” mode and enter the information, as appropriate, for the connected network. Click on the “Save” button to activate the changes. The MAC address for each port is also displayed here.

NOTE: If the devices being controlled have been set to “Auto IP” mode, then LAN 1 should be set to DHCP. With no DHCP server available, LAN 1 will automatically assign itself an APIPA address from the 169.254.xxx.xxx range, allowing it to discover and control Auto IP devices.

2) System Commands:

- **Login/Logout:** Click on these buttons to log into or out of the WebGUI interface.
NOTE: When not logged in, only the “Monitor & Control” and “System” tabs are available.
- **Change PWD:** Click on this button to change the WebGUI's administrator login password.
NOTE: The default administrator user name is “admin” with the password of “BBNSMediaCento” (without the quotes). The administrator user name cannot be changed.
- **Save Config:** The current system configuration may be saved as a *.7z file to the local PC. Click on the “Save Config” button to save the current system configuration to your local PC.
- **Upload Config:** The system configuration may be restored from a previously saved *.7z file. Click on the “Choose File” button to locate the saved *.7z file, and then click on the “Open” button.
- **Save Log:** A comprehensive system log file to help diagnose configuration issues or other problems can be generated when technical support requests the log. Click on the “Save Log” button to save a copy of the current log data in *.7z format to your local PC.
NOTE: The generated file is password protected, and it is only intended for use by authorized technical support.
- **Language:** Use this drop-down menu to select the preferred display language for the unit's WebGUI interface.
- **Preview:** Use this drop-down menu to enable or disable live preview thumbnail support on the “Monitor & Control” tab.

NOTE: In very large systems, disabling previews can save bandwidth and lessen the processing strain on the MediaCento IPX AV over IP Controller.

- **Factory Reset:** Use this option to reset the unit back to its factory default settings.
- **Reset all TXs/RXs:** Use this option to reset all detected transmitters or all detected receivers back to their factory default settings.
- **Reboot System:** This option reboots the unit.
- **Reboot all TXs/RXs:** This option reboots all detected transmitters or all detected receivers.
- **User Account Enable:** Move the slide switch to enable or disable the use of additional users and advanced user management functionality.

NOTE: See section 6.6.3 for user management settings.

- **S/N:** This option displays the unit's serial number.
- **Login Timeout:** Set the length of time to wait, in minutes, before logging out a user due to inactivity. Set it to 0 for no timeout.

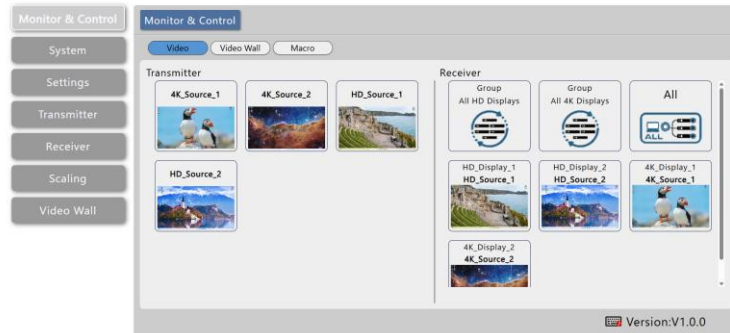
6.6.2 Monitor & Control Tab

This tab provides easy-to-use, drag-and-drop control over all basic routing functionality of the transmitters and receivers that have been detected within the local network. Sources can be easily assigned to displays, display groups, and video walls from this tab. Current assignment status is reported here, and a preview of the current content can be viewed (if enabled).

NOTE: Units that were previously a part of the system, but are not currently detected, will still be displayed. They will have a disconnected icon () , however, and they cannot be used for routing.

- 1) **Video Routing:** Provides drag-and-drop control over the video routing between all detected transmitters and receivers. Each transmitter and receiver button will display a small, low-frame-rate, video thumbnail to indicate what video is currently active.

NOTE: Certain operational modes and some transmitters and receivers may not support the video thumbnail feature.



- **Video Transmitter:** This section provides drag-and-drop buttons for all transmitters detected by the system.

Source to Single Receiver Routing: To route a source to a receiver, click and drag the source's button on the left to the preferred display on the right side, and then release the mouse button. If the routing was completed successfully, the newly routed source's name will appear below the display's name within the button. Clicking on any source button will change the color of itself and of all currently routed displays.

NOTE: Receivers may also be drag and dropped onto sources to activate a new route.

- **Source to Multiple Receiver Routing:** To route a source to multiple receivers at the same time, click and drag the source's button on the left to a pre-defined device group or "All" button on the right side, and then release the mouse button. If the routing was completed successfully, the source's name will appear within the buttons of all appropriate displays.

NOTE: Device groups are defined within the Settings tab; see section 6.6.3 for more information.

- **Video Receiver:** This section provides drag-and-drop buttons for all receivers detected by the system as well as for display groups. A button target to disconnect incoming streams from one or more receivers is also provided.
- **Status Icons:** Status icons will be displayed instead of a video thumbnail image under the following conditions:

	Displayed when a transmitter's or receiver's current input has no live source connected
	Displayed when a transmitter or receiver can't support the video thumbnail feature
	Displayed when a transmitter or receiver is offline or not currently detected by the IP Master Controller

2) **Video Wall Routing:** Provides drag-and-drop source selection for predefined video wall groups.

NOTE: Video wall groups are defined within the Video Wall tab; see section 6.6.7 for more information.



- **Transmitter:** All sources will be listed under the “Transmitter” heading. To assign a source to a video wall group, drag the transmitter to the preferred group or a group to the preferred transmitter.

NOTE: Linking a source to a previously inactive video wall group will automatically activate the video wall on all associated displays.

- **Group:** All currently defined video wall groups will be listed under the “Group” drop-down list. Choosing a group will display a simplified graphical representation of the video wall on the right side of the page in the Group View.
- **Group View:** Shows a simplified graphical representation of the currently selected video wall group. If the video wall is active, the windows will display a video thumbnail of the currently selected source. If one or more of the displays in the group is not currently active, those windows will be blue. The current routed source's name will also appear below the Group View.

4) **Macro Activation:** Provides a simple interface to activate macros that have been pre-defined and stored within the MediaCento IPX AV over IP Controller.

NOTE: See Section 6.6.3 for additional details on how to create macros.



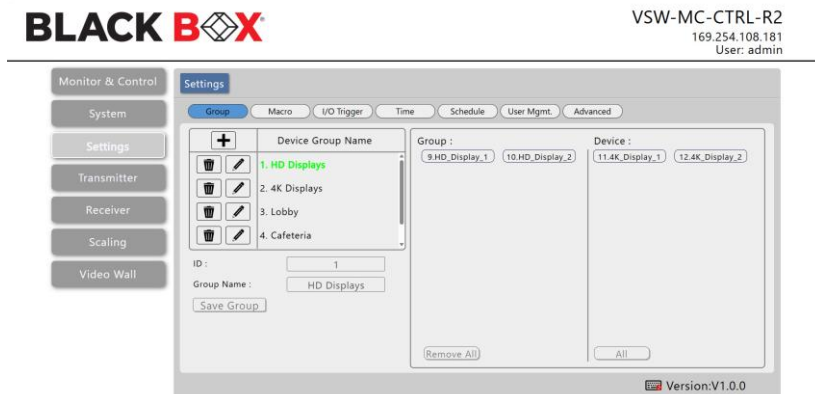
- **Macro:** All available macros will be listed in this section. To activate a macro, simply click on its button. The button will remain blue until the macro has completed executing.

NOTE: Only one macro can be executed at a time.

6.6.3 Settings Tab

This tab provides a way to configure a variety of the unit's different internal systems and interfaces including group and macro creation, I/O trigger assignment, setting the system's clock, event scheduling, and user management.

- 1) **Group:** This section provides a way to collect multiple receiving endpoints into single groups to be used as simple, single-click targets for routing A/V, USB, or IR/RS-232 sources. Once created, each group will appear within the appropriate section of the "Monitor & Control" tab along with standard receivers. Up to 256 groups can be defined.

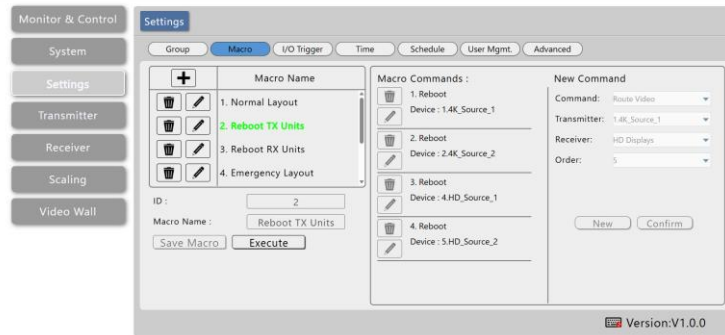


- **Device Group List:** The upper-left section contains a list of all currently defined groups and provides a way to create new groups, edit them, or delete them. The currently selected group will be highlighted in green. To add a new group, click on the "Add" icon (+). To edit an existing group, click on the "Edit" icon (✎) and then make whatever changes are required. Once a new or edited group has been configured, click on the "Save Group" button at the bottom of the page to store the group. To delete an existing group, click on the "Delete" icon (🗑️) next to the appropriate group name.

NOTE: Leaving this screen before selecting "Save Group" will undo any changes made.

- **ID:** Type the preferred position for the currently selected group.
NOTE: The order in the list also impacts the order groups are listed in other tabs.
- **Group Name:** Type the preferred name for the currently selected group.
- **Group List:** This section contains all of the receiving endpoints that are assigned to the currently selected group. Clicking on an endpoint will remove it from the group and place it back in the "Device" section. To remove all devices from the current group, click on the "Remove All" button.
- **Device List:** This section contains all of the available receiving endpoints. Clicking on an endpoint will move it into the "Group" section and add it to the group. To add all available receiver endpoints to the group, click on the "All" button.

- 2) **Macro:** This section provides a way to create operational command sequences that can be activated via the IR remote control, external triggers, or from within the WebGUI. Macros are a flexible and powerful tool. They can be as simple as selecting a new input for a receiver or a complex sequence of source, resolution, mode, and audio changes executed in sequence. Up to 256 macros can be defined, and each macro can contain up to 256 commands.



- **Macro List:** The upper-left section contains a list of all currently defined macros and provides a way to create new macros, edit them, or delete them. The currently selected macro will be highlighted in green. To add a new macro, click on the “Add” icon (+) and then create/add new commands for it in the window to the right. To edit an existing macro, click on the “Edit” icon (✎) and then make whatever changes are required. Once a new or edited macro has been configured, click on the “Save Macro” button at the bottom of the page to store the macro. To delete an existing macro, click on the “Delete” icon (🗑) next to the appropriate macro name. To immediately execute the currently selected macro, click on the “Execute” button.

NOTE: Leaving this screen before clicking on the “Save Macro” button will undo any changes made.

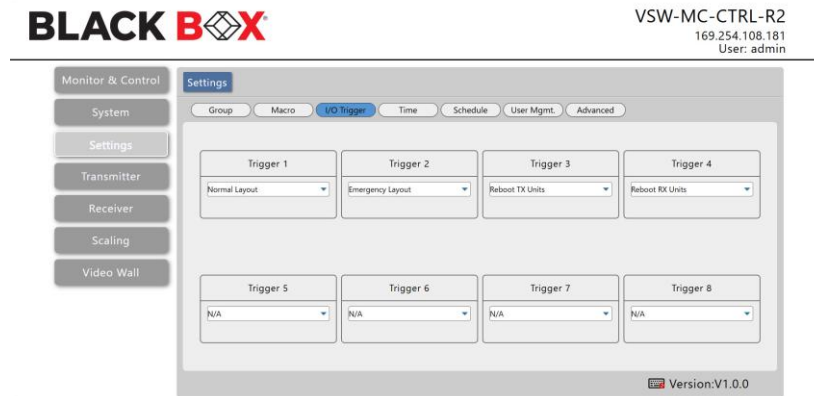
- **ID:** Type the preferred position for the currently selected macro.
NOTE: The order in the list also impacts the order macros are listed in other tabs and when assigning IR remote and trigger functionality.
- **Macro Name:** Type the preferred name of the currently selected macro.

- **Macro Command List:** This section contains a list of all currently assigned commands within the macro and their execution order. To edit an existing command, click on the “Edit” icon (✎), and then make whatever changes are required in the right-hand panel. To create a new macro command, click on the “New” button at the bottom right side of the window, and then configure it as preferred in the right-hand panel. Once a command has been edited, click on the “Confirm” button at the bottom of the page to store the command in the macro. To delete an existing command, click on the “Delete” icon (🗑) next to the appropriate command.

NOTE: Clicking on “Confirm” only stores the current changes to the command list of the macro currently being edited. The entire macro still needs to be saved by clicking on the “Save Macro” button. Leaving this screen before clicking on the “Save Macro” button will undo any changes made.

- **New/Edit Command Details:** This section contains the details of the command currently being edited or created.
 - **Command:** Use the drop-down list to select from the available macro command types.
 - **Object 1 (contextual):** Use the drop-down list to select the first component that this command will affect. This will typically be a transmitter, but the objects listed depend upon the specific requirements of the selected command.
 - **Object 2 (contextual):** Use the drop-down menu to select the second component that this command will affect. This will typically be a receiver, but the objects listed depend upon the specific requirements of the selected command.
 - **Order:** Use the drop-down menu to select this command’s position within the command list for the currently selected macro.

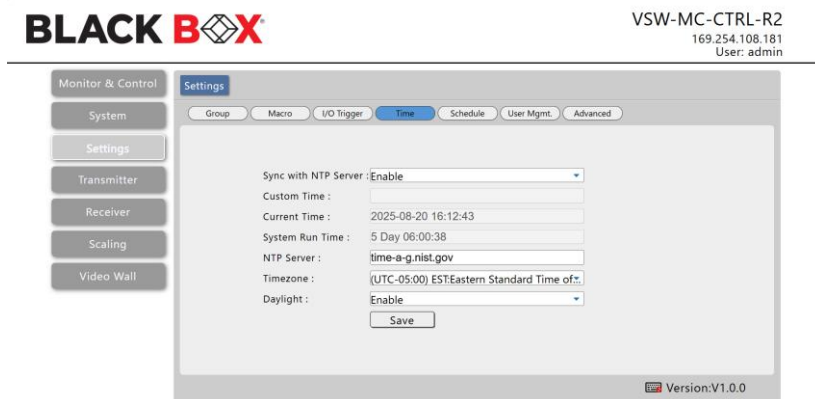
- 3) **I/O Trigger:** This section provides a way to assign macros to each of the eight trigger inputs on the unit as well as to the eight IR remote buttons.



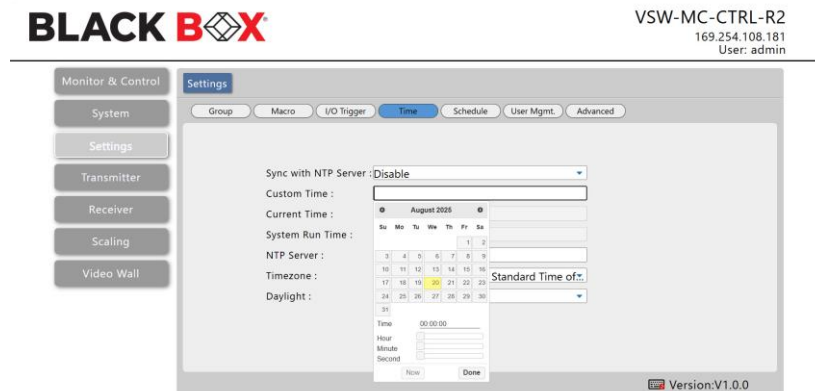
- **Trigger 1-8:** Use the drop-down lists to select the macro to assign to each trigger pin on the unit.

NOTE: The IR remote button number assignments will match the trigger assignments.

- 4) **Time:** This section provides a way to automatically set and sync the unit's system clock using a standard internet NTP (Network Time Protocol) server.



- **Sync with NTP Server:** Enable or disable support for NTP server
- **Custom Time:** The unit's time and date can be manually configured here if an internet connection or NTP server is not available. This field is available when Sync with NTP Server is disabled. Clicking on the date field will open the calendar entry window. Select the preferred day and time for the single activation, and then click on the "Done" button. Clicking on the "Now" button will update the entry field to the current time.

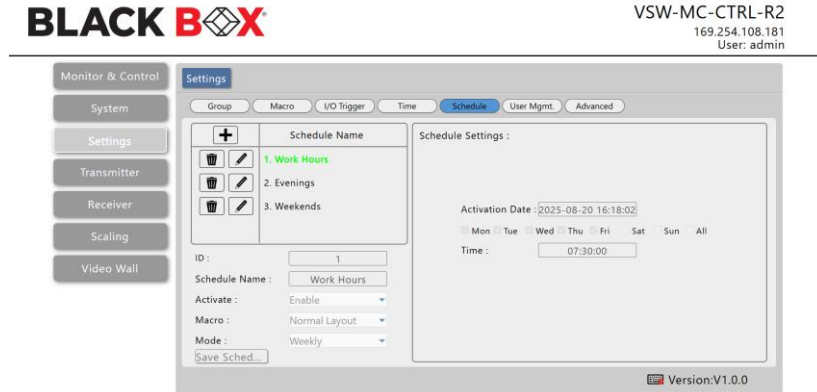


- **Current Time:** Shows the unit's current time.
- **System Run Time:** Shows the length of time the unit has been online since the last reboot.
- **NTP Server:** Enter the hostname or IP address of the preferred NTP server to use for time synchronization. After changing the NTP server, click on the "Save" button to store the new information.

NOTE: This unit's clock does not have a battery backup, so time is not kept if the unit is unplugged. The time will automatically sync at power up, however, as long as an internet connection is available and the NTP server is valid.

- **Timezone:** Use the drop-down list to select your local time zone.
- **Daylight:** Enable or disable support for daylight savings time.
- **Save Button:** Click on this button to save changes to the time settings.

- 5) **Schedule:** This section provides access to the settings and controls for configuring scheduled execution of macros. A macro can be scheduled to execute once at a specific time and date, on a periodic rotation, or at set times on specific days of the week. Up to 256 schedules can be defined.

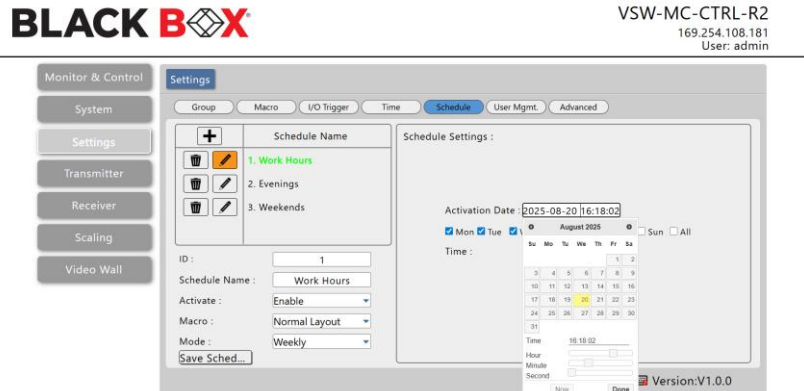


- **Schedule List:** The upper-left section contains a list of all currently defined schedule events and provides a way to create new schedule events, edit them, or delete them. The currently selected schedule will be highlighted in green. To add a new schedule event, click on the "Add" icon (+), and then select the preferred options. To edit an existing schedule event, click on the "Edit" icon (+) and then make whatever changes are required. Once a new or edited schedule has been configured, click on the "Save Schedule" button at the bottom of the page to store the schedule event. To delete an existing schedule event, click on the "Delete" icon (trash) next to the appropriate schedule event name.

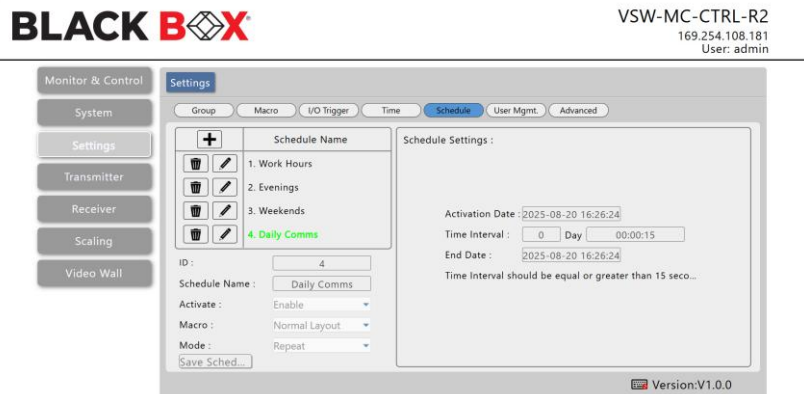
NOTE: Leaving this screen before selecting "Save Schedule" will undo any changes made.

- **ID:** Type the preferred position for the currently selected schedule.
- **Schedule Name:** Enter the preferred name for the current schedule event.
- **Activate:** Use the drop-down menu to enable or disable the current schedule event.
- **Macro:** Use the drop-down menu to select the macro to activate at the scheduled time.
- **Mode:** Use the drop-down list to select the scheduling style for the current schedule event.
 - **Once:** Select "Once" to execute the selected macro a single time on a specified day. After the configuration is complete, click on the "Save Schedule" button at the bottom of the page to store the scheduled event.

- **Date:** Clicking on the date field will open the calendar entry window. Select the desired day and time for the single activation, and then click on the “Done” button. Clicking on the “Now” button will update the entry field to the current time.



- **Repeat:** Select “Repeat” to execute the selected macro on a regularly timed schedule starting at a specified time on a specified day. After the configuration is complete, click on the “Save Schedule” button at the bottom of the page to store the scheduled event.



Activation Date: The activation date is the date and time of the macro's first execution. Clicking on the date field will open the calendar entry window. Select the desired day and time, and then click on the "Done" button. Clicking on the "Now" button will update the entry field to the current time.

Time Interval: Enter the length of time to wait between executions of the macro in days, hours, minutes, and seconds. Clicking on the time field will open the "Choose Time" window to make setting a length of time easier. Select the desired time, and then click on the "Done" button. Clicking on the "Now" button will update the entry field to the current time.

NOTE: The Time interval should be equal to or greater than 15 seconds.

End Date: The end date is the date and time of the end of the schedule. Clicking on the date field will open the calendar entry window. Select the desired day and time, and then click on the "Done" button. Clicking on the "Now" button will update the entry field to the current time.

- **Weekly:** Select "Weekly" to execute the selected macro at a specific time on set day(s) of the week. After the configuration is complete, click on the "Save Schedule" button at the bottom of the page to store the scheduled event.

Activation Date: The activation date is the date and time of the macro's first execution. Clicking on the date field will open the calendar entry window. Select the desired day and time, and then click on the "Done" button. Clicking on the "Now" button will update the entry field to the current time.

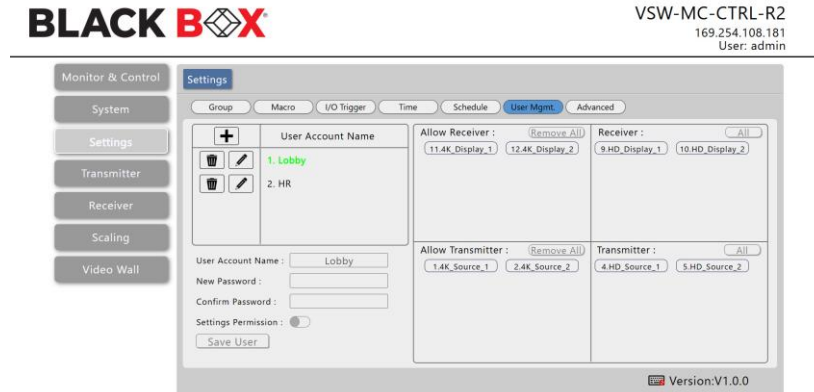
Day Selection: Use the check boxes to select which day(s) of the week the macro should execute on.

Time: Enter the time to execute the macro on the selected day(s). Clicking on the time field will open the "Choose Time" window to make setting a time easier.

- **Save Schedule:** Click on this button to save changes to the current schedule.

6) **User Mgmt.:** This tab allows the addition and configuration of standard users. The amount of access each user has to the system, and which sources and displays they can control, is independently configured.

NOTE: By default, the unit only has the built-in admin account, which has full system access.

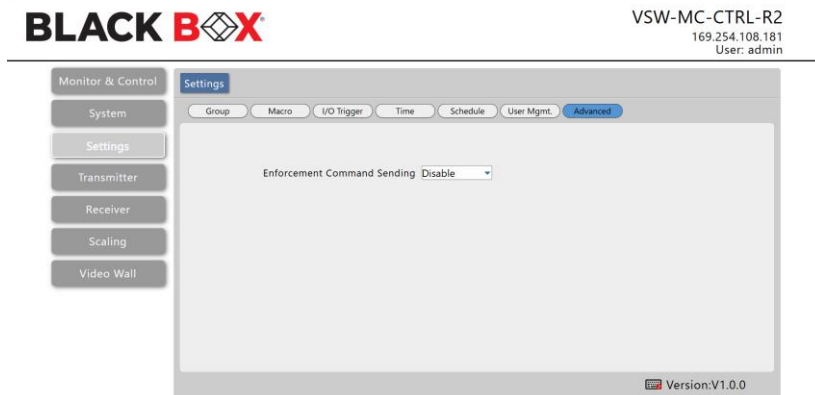


- **User Account Name List:** The upper-left section contains a list of all currently defined users and provides a way to create new users, edit them, or delete them. The currently selected user will be highlighted in green. To add a new user, click on the “Add” icon (+), and then select the preferred options, controllable devices, and password. To edit an existing user, click on the “Edit” icon (✎), and then make whatever changes are required. Once a new or edited user has been configured, click on the “Save User” button at the bottom of the page to store the user. To delete an existing user, click on the “Delete” icon (🗑️) next to the appropriate user name.

NOTE: Leaving this screen before selecting “Save User” will undo any changes made.

- **User Account Name:** Enter the preferred name for the currently selected user.
- **New Password:** Enter the associated user’s login password in the primary entry field, and then type the same password below in the “Confirm Password” field to confirm it.
- **Settings Permission:** Use this to enable or disable the user’s access to the Settings, Transmitter, Receiver, Scaling, and Video Wall tabs.
- **Allow Receiver List:** The left side of this section contains all of the receiving endpoints that are assigned to the currently selected user. Clicking on an endpoint will remove it from the user’s control and place it back in the “Receiver” section. To remove all receiver endpoints from the current user, click on the “Remove All” button.
- **Receiver List:** This section contains all of the available, but unassigned, receiving endpoints that the user can use. Clicking on an endpoint will move it into the “Allow Receiver” section and allow the user to control it. To add all available receiver endpoints to the user, click on the “All” button.
- **Allow Transmitter List:** The left side of this section contains all of the transmitting endpoints that are assigned to the currently selected user. Clicking on an endpoint will remove it from the user’s control and place it back in the “Transmitter” section. To remove all transmitting endpoints from the current user, click on the “Remove All” button.
- **Transmitter List:** This section contains all of the available, but unassigned, transmitting endpoints that the user can use. Clicking on an endpoint will move it into the “Allow Transmitter” section and allow the user to control it. To add all available transmitter endpoints to the user, click on the “All” button.

7) **Advanced:** Use this section to configure the additional settings for macro and command.

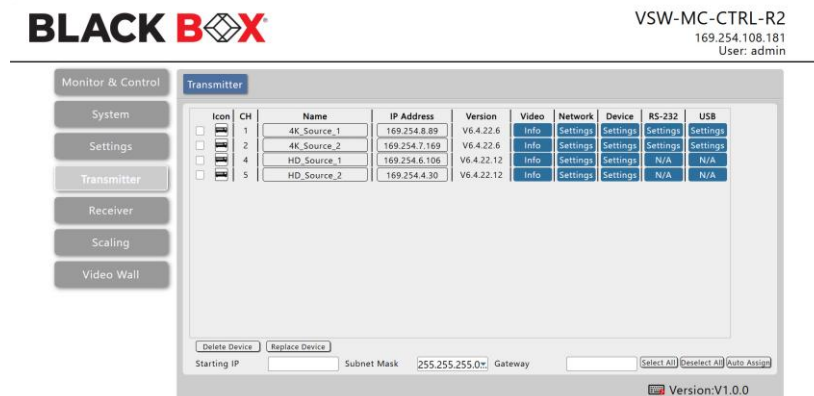


- **Enforcement Command Sending:** Enable or disable the controller “ignore offline status” of transmitters and receivers.

6.6.4 Transmitter Tab

This tab shows all transmitters that the unit detected. Details about each transmitter’s name, IP address, firmware version, and video content, as well as options to configure the network, RS-232, USB, and general device settings, are also provided.

NOTE: Units that were previously a part of the system, but are not currently detected, will still be displayed. They will have a disconnected icon (⊗), however, and they cannot be used for routing. These units may be removed via the “Delete Device” option, which is discussed in more detail later in this section.



1) Transmitter Configuration:

- **Icon:** Displays the icon used to represent the unit.
- **CH:** Displays the channel used for each unit.
NOTE: The channel can be changed within “Device Settings.” Changing the channel will also change the order the units are listed in other tabs.
- **Name:** Displays each unit’s currently assigned name.
NOTE: The name can be changed within “Device Settings.”
- **IP Address:** Displays each unit’s current IP address.

- **Version:** Displays each unit's current firmware version.

- **Video Info:** Clicking this button, or hovering the mouse over it, will display a pop-up window containing detailed information about the current video source.

Note: The button will turn red when no live source is detected.

- **Network Settings:** Clicking on this button will display a pop-up window containing detailed information about the unit's current network settings, including IP mode, and allow for those settings to be changed. To activate any changes made, click on the "Save" button to close the window.

- **Multicast On:** Enable or disable multicast (one-to-many) mode used by the transmitter. When disabled, networking mode is set to unicast (one-to-one) mode.

NOTE: Receivers must be set to the same casting mode as the transmitter in order to receive video.

- **Device Settings:** Hovering the mouse over this button displays a pop-up window with a settings summary. Clicking on it provides controls over a number of unit-specific functions. See below for more detail.

- **RS-232 Settings:** Clicking on this button will display a pop-up window containing detailed information about the unit's current RS-232 settings, including baud rate, and it allows for those settings to be changed. To activate any changes made, click on the "Save" button to close the window.

NOTE: Linked transmitters and receivers must have the same serial settings.

NOTE: This feature will be disabled if the endpoint does not support the RS-232 feature.

- **USB Settings:** Clicking on this button will display a pop-up window containing information about the unit's current USB settings, including its current operational mode and compatibility settings. To activate any changes made, click on the "Save" button to close the window.

- **Operation Mode:** Sets the USB extension mode. The available option is "Active on link (Unicast optimized)."

- **K/M Over IP & Mouse Not Responding Well:** These troubleshooting options enable specialized optimizations to solve issues when a mouse or touch panel is not responding properly. They should normally be left disabled.

NOTE: This feature will be disabled if the endpoint does not support the USB feature.

- **Delete Device:** Click on this button to remove any transmitter from the list that has the disconnected icon (🔌). The pop-up window provides a drop-down list to select the unit to be removed. Once the selection has been made, click on the "Confirm" button to apply the change.

Note: Only disconnected transmitters can be removed.

- **Replace Device:** Click on this button to replace any transmitter from the list that has the disconnected icon (🔌). The pop-up window provides a drop-down list to select the unit to be replaced. Once the selection has been made, click on the "Confirm" button to apply the change.

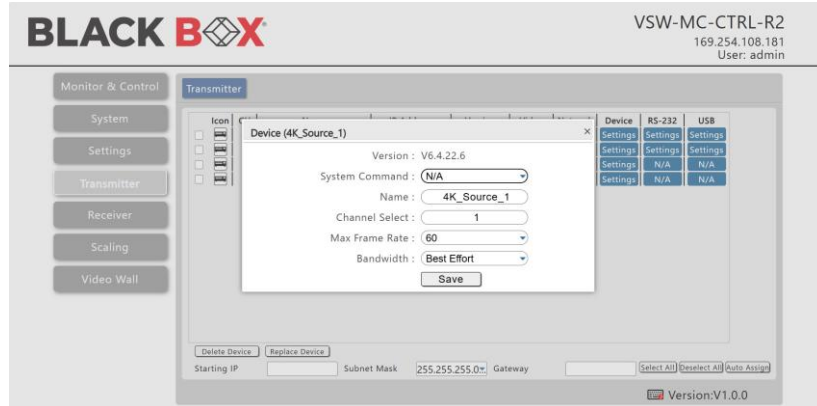
NOTE: Only disconnected transmitters can be replaced.

- **Auto Assign IP:** To assign a contiguous of IP to transmitters in the preferred IP address range, use the check boxes to select which transmitters to configure. To select all available transmitters, click on the "Select All" button. To remove all selected transmitters from the current selection, click on the "Deselect All" button. Enter the preferred starting IP address, netmask, and gateway address, and then click on "Auto Assign" to apply the change.

NOTE: APIPA addresses from the 169.254.xxx.xxx range are not available to assign IP.

- 2) **Device Settings:** Clicking on this button will display a pop-up window providing control over a number of important device settings and allow for those settings to be changed. To activate any changes made, click on the “Save” button to close the window.

NOTE: The available options will change depending on the capabilities of the selected unit. Many setting changes will require the transmitter to be rebooted for the change to be fully implemented. If this is the case, there will be a pop-up notification.



- **Version:** Display the unit's current firmware version.
- **System Command:** Use the drop-down list to select a system command to send to the unit. The available commands are:
 - **Factory Reset:** Reset the unit back to its factory default settings.
 - **Reboot:** Reboot the unit.
- **Name:** Change the unit's name (12 character maximum).
- **Channel Select:** To change the broadcast reception channel for the transmitter, type the new channel in the space provided. All receivers on the local network that are set to the same channel will receive video from this transmitter. The available channel range is from 0 to 255.

NOTE: Every transmitter within the same local network must be assigned a different broadcast channel in order to avoid network conflicts.
- **Video Type:** Use the drop-down list to select the video input on the unit to broadcast.
- **Max Frame Rate:** Set the maximum frame rate (in 1/60 steps) to use when encoding the source video.

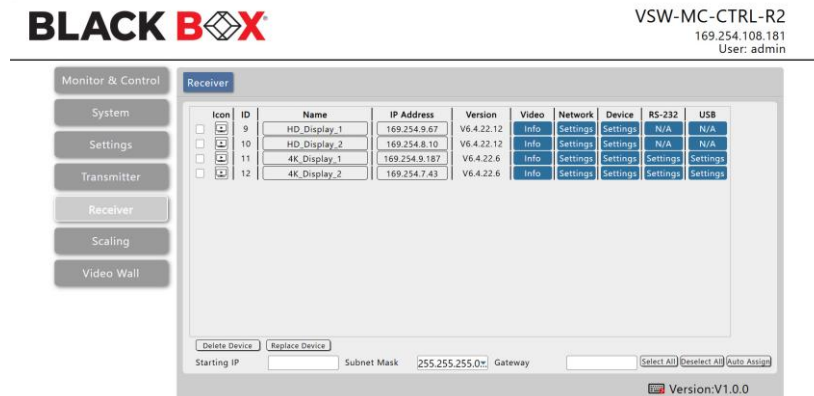
NOTE: If the frame rate is lowered too far with motion video sources, the video will become noticeably choppy.
- **Bandwidth:** Set the maximum bit rate that can be used by the video stream. Available options are: Best Effort, 10 Mbps, 50 Mbps, 150 Mbps, and 200 Mbps. Selecting “Best Effort” will use up to the maximum available bandwidth in order to maintain a full frame rate video stream.

NOTE: While it is generally suggested to select “Best Effort” when streaming 4K video sources, the amount of bandwidth required can be very large and will limit the number of concurrent video streams.

6.6.5 Receiver Tab

This tab shows all receivers that the unit detected. Details about each receiver's name, IP address, firmware version, and video content, as well as options to configure the network, RS-232, USB, and general device settings, are provided.

NOTE: Units that were previously a part of the system, but are not currently detected, will still be displayed. They will have a disconnected icon (🔌), however, and they cannot be used for routing. These units may be removed from the list by using the "Delete Device" button.



1) Receiver Configuration:

- **Icon:** Displays the icon used to represent the unit.

- **ID:** Displays the order used for each unit.

Note: The ID can be changed within "Device Settings." Changing the ID will also change the order the units are listed in other tabs.

- **Name:** Displays each unit's currently assigned name.

NOTE: The name can be changed within "Device Settings."

- **IP Address:** Displays each unit's current IP address.

- **Version:** Displays each unit's current firmware version.

- **Video Info:** Clicking this button, or hovering the mouse over it, will display a pop-up window containing detailed information about the current video output.

NOTE: The button will turn red when no display or live source is detected.

- **Network Settings:** Clicking on this button will display a pop-up window containing detailed information about the unit's current network settings, including IP mode, and it will allow for those settings to be changed. To activate any changes made, click on the "Save" button to close the window.

- **Multicast On:** Enable or disable multicast (one-to-many) mode used by the receiver. When disabled, networking mode is set to unicast (one-to-one) mode.

NOTE: Receivers must be set to the same casting mode as the transmitter in order to receive video.

- **Device Settings:** Hovering the mouse over this button displays a pop-up window with a settings summary. Clicking on it provides controls over a number of unit-specific functions. See below for more detail.

- **RS-232 Settings:** Clicking on this button will display a pop-up window containing detailed information about the unit's current RS-232 settings, including baud rate, and it will allow for those settings to be changed. To activate any changes made, click on the "Save" button to close the window.

NOTE: Linked transmitters and receivers must have the same serial settings.

NOTE: This feature will be disabled if the endpoint does not support the RS-232 feature.

- **Enable Serial Over IP:** Enable or disable reception of RS-232 streams.

- **USB Settings:** Clicking on this button will display a pop-up window containing information about the unit's current USB settings, including its current operational mode and compatibility settings. To activate any changes made, click on the "Save" button to close the window.

NOTE: This feature will be disabled if the endpoint does not support the USB feature.

- **Operation Mode:** Sets the USB extension mode. Available options are "Active On Link (Unicast optimized)," and "Active Per Request (Multicast optimized)."
- **K/M Over IP:** This troubleshooting option enables specialized optimizations to solve issues when a mouse or touch panel is not responding properly. They should normally be left disabled.
- **Enable USB Over IP:** Enable or disable reception of USB streams.

- **Delete Device:** Click on this button to remove any receiver from the list that has the disconnected icon (🔌). The pop-up window provides a drop-down list to select the unit to be removed. Once the selection has been made, click on the "Confirm" button to apply the change.

NOTE: Only disconnected receivers can be removed.

- **Replace Device:** Click on this button to replace any receiver from the list that has the disconnected icon (🔌). The pop-up window provides a drop-down list to select the unit to be replaced. Once the selection has been made, click on the "Confirm" button to apply the change.

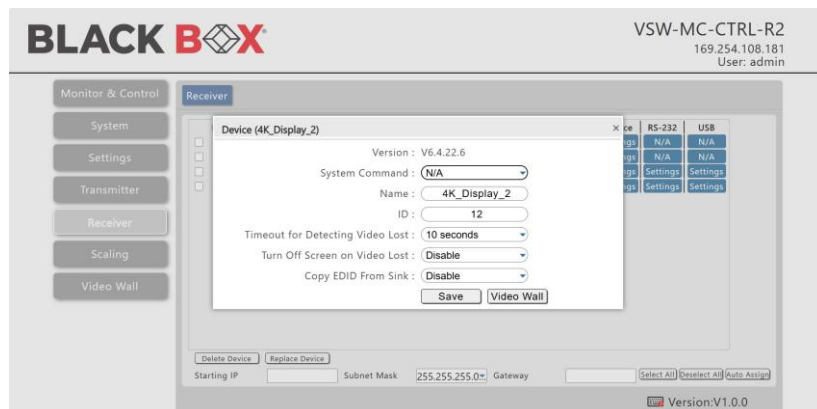
NOTE: Only disconnected receivers can be replaced.

- **Auto Assign IP:** To assign a contiguous of IP to receivers in the preferred IP address range, use the check boxes to select which transmitters to configure. To select all available receivers, click on the "Select All" button. To remove all selected receivers from the current selection, click on the "Deselect All" button. Enter the preferred starting IP address, netmask and gateway address, and then click on "Auto Assign" to apply the change.

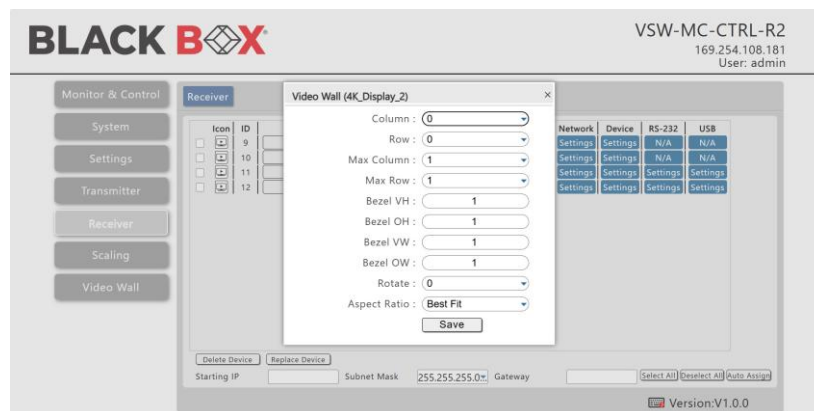
NOTE: APIPA addresses from the 169.254.xxx.xxx range are not available to assign IP.

- 2) **Device Settings:** Clicking on this button will display a pop-up window providing control over a number of important device settings and allow for those settings to be changed. To activate any changes made, click on the "Save" button to close the window.

NOTE: The available options will change depending on the selected unit's capabilities. Many setting changes will require the receiver to be rebooted for the change to be fully implemented.



- **Version:** Display the unit's current firmware version.
 - **System Command:** Use the drop-down list to select a system command to send to the unit. Available commands are:
 - **Factory Reset:** Reset the unit back to its factory default settings.
 - **Reboot:** Reboot the unit.
 - **Name:** Change the unit's name (12 character maximum).
 - **ID:** Type the new order in the space provided to reorder the units in the list. Changing the order here will also change the order the units are listed in other tabs.
 - **Timeout for Detecting Video Lost:** Use the drop-down to set the length of time to wait for a lost source to return before showing the "Link Lost" screen. Available options are: 3, 5, 10, 20, 30, or 60 seconds, or Never.
 - **Turn Off Screen on Video Lost:** When enabled, the HDMI output will be completely disabled, including sync, after the video loss timeout time has expired. When disabled, the "Link Lost" screen will continue to be displayed until the connection returns.
 - **Copy EDID From Sink:** When multiple receivers are connected to a single transmitter in multicast mode, enabling this on one receiver selects that receiver as the one which should send its EDID to the transmitter for use by the source.
- NOTE: This option is only valid in multicast mode. Only one receiver, per transmitter, should have this checked at any one time to avoid potential conflicts.
- **Save Button:** Click on this button to save all device settings to the receiver and exit the window.
 - **Video Wall Button:** Clicking on this button will open a new window to allow the direct configuration of this receiver's current video wall settings.



- **Column:** Set the horizontal location of the currently controlled receiver. (Counts left to right, from 0 to 15)
- **Row:** Set the vertical location of the currently controlled receiver. (Counts top to bottom, from 0 to 15)
- **Max Column:** Use the drop-down list to define the number of displays in the video wall, measured horizontally. (Maximum is 16 displays)
- **Max Row:** Use the drop-down list to define the number of displays in the video wall, measured vertically. (Maximum is 16 displays)

- **Bezel VH/VW/ OH/ OW:** This section is used to define the physical dimensions of all displays being used in the video wall. Accurate measurements are needed of the monitor's outer frame (OH, OW) and the video screen (VH, VW). The measurements may be made using any unit of measurement (inches, mm, cm, etc.) as long as all measurements within the same video wall are made using the exact same units and the numbers are integers.

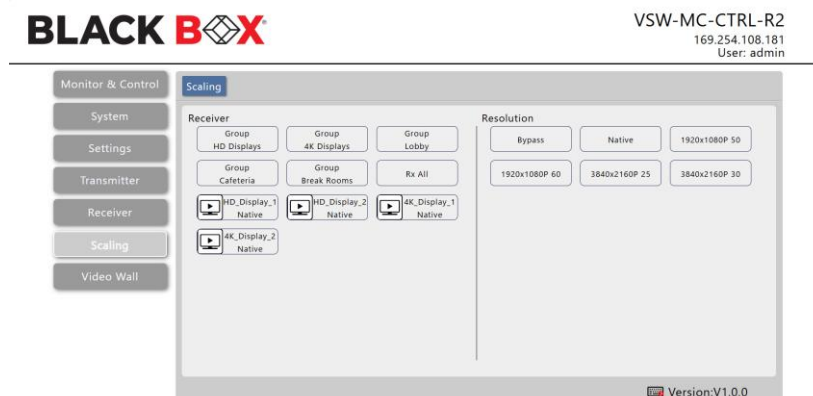
NOTE: It is strongly recommended to use the same make and model for all displays within a video wall to avoid video distortions due to bezel and panel size discrepancies.

- **Rotate:** Set the rotation of the video output to 0,90,180, or 270 degrees.
- **Aspect Ratio:** Set the video stretch method. Selecting "Full Screen" will expand the video to exactly fit the dimensions of the video wall regardless of the source's original aspect ratio. Selecting "Best Fit" will zoom the video until the video wall is filled in all four dimensions while maintaining the aspect ratio of the original source.

6.6.6 Scaling Tab

This tab provides drag-and-drop control over the video output resolution of each receiver in the system.

NOTE: Due to this scaling occurring only on the receiver side, changes to resolutions here has no impact on bandwidth usage.

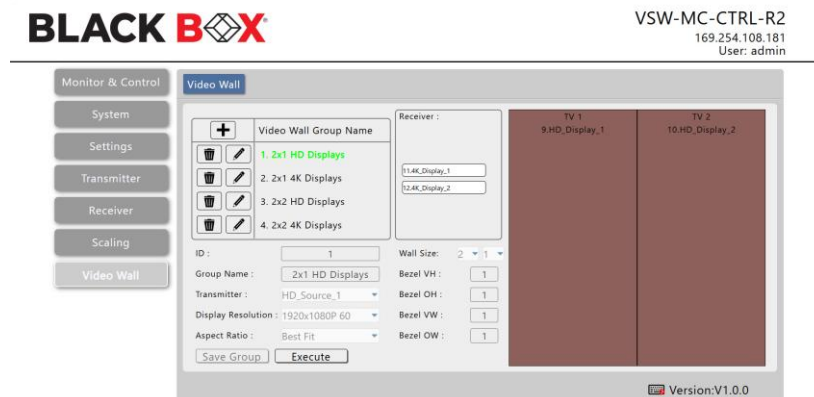


- 1) **Resolution Selection:** To select an output resolution for a receiver, click and drag the receiver or receiver group's button on the left to the preferred resolution on the right side, and then release the mouse button. If the selection was completed successfully, the new resolution will be displayed below each affected receiver's name. To change all receivers to the same resolution, drag the "Rx All" button to the preferred resolution on the right side. Selecting "Bypass" will force that receiver to output any routed source in its original resolution without scaling. Selecting "Native" will force that receiver to output using the native resolution provided by the connected display's EDID.

NOTE: Resolutions may also be drag and dropped onto receivers to change the output resolution.

6.6.7 Video Wall Tab

This tab provides a way to configure or modify video walls using multiple receivers in a group. All aspects of the video wall group can be configured here including dimensions (up to 16x16 displays), bezel compensation, display output resolution, and source. Up to 256 video wall groups can be defined.



1) **Video Wall List:** The upper left section of this tab contains a list of all currently defined video wall groups in the system and provides a way to create new video walls, edit them, or delete them. The currently selected video wall group will be highlighted in green. To add a new video wall, click on the “Add” icon (+), and then select the preferred options and receivers. To edit an existing video wall group, click on the “Edit” icon (✎), and then make whatever changes are required. Once a new or edited video wall group has been configured, click on the “Save Group” button at the bottom of the page to store the group’s configuration. To immediately activate the current video wall group, click on the “Execute” button. To delete an existing video wall group, click on the “Delete” icon (🗑) next to the appropriate group’s name. NOTE: Deleting a video wall preset will not disable the video wall it described if it is currently active. To completely remove a video wall, new sources need to be routed to those displays from the “Monitor & Control” tab.

- **ID:** Type the preferred position for the currently selected video wall groups.
NOTE: The order in the list also impacts the order groups are listed in other tabs.
- **Group Name:** Set the name of the video wall group here.
- **Transmitter:** Select the transmitter to use as the video source for the video wall when the “Execute” button is used.
- **Display Resolution:** Select the resolution for all receivers in the video wall to output to their connected displays.
- **Aspect Ratio:** Set the video stretch method. Selecting “Full Screen” will expand the video to exactly fit the dimensions of the video wall regardless of the source’s original aspect ratio. Selecting “Best Fit” will zoom the video until the video wall is filled in all four dimensions while maintaining the aspect ratio of the original source.
- **Wall Size:** Select the size of the video wall, measured in number of monitors tall by number of monitors wide. The maximum number of displays in a single video wall is 256 (16x16).
- **Bezel VH/VW/ OH/ OW:** This section is used to define the physical dimensions of all displays being used in the video wall. Accurate measurements are needed of the monitor’s outer frame (OH, OW) and the video screen (VH, VW). The measurements may be made using any unit of measurement (inches, mm, cm, etc.) as long as all measurements within the same video wall are made using the exact same units and the numbers are integers.

NOTE: It is strongly recommended to use the same make and model for all displays within a video wall to avoid video distortions due to bezel and panel size discrepancies.

- **Receiver Selection:** This is a list of all available receivers in the system. Drag and drop each receiver to its correct position within the video wall grid to the right of the list. After placement, each receiver's name will be displayed within the selected location of the video wall, and it will turn red or green. Green panels within the video wall indicate that a display has been assigned and is in video wall mode; red panels indicate that a display has been assigned, but is not active or in the correct mode; and blue panels indicate that no display has been assigned yet.
- **Save Group:** Click on this button to save changes to the current video wall configuration without executing or activating it.
- **Execute:** Click on this button to execute the saved video wall configuration. If the video wall was not already active, this will also activate it.

6.7 Telnet Control

Before attempting to use Telnet control, ensure that both the unit and the PC are connected to the same active networks.

Start your preferred Telnet/Console client, or use the built-in client provided by most modern computer operating systems. After starting the client, connect by using the current IP address of the unit and port 23 (if the communication port number used by the unit has not been changed previously). This will connect to the unit to be controlled, and commands may now be entered directly.

NOTE 1: If the IP address of the unit is changed, then the IP address required for Telnet access will also change accordingly.

NOTE 2: This unit defaults to DHCP mode. The current IP address can be verified via the HDMI output or RS-232. The default communication port is 23.

6.8 Serial and Telnet Commands

COMMAND
Description and Parameters
help Show the full command list.
help N1 Show details about the specified command. N1 = {Command}
? Show the full command list.
get fw ver Show the unit's current firmware version.

COMMAND
Description and Parameters
get command ver Show the unit's current command version.
get model name Show the unit's model name.
get model type Show the unit's product type.
get mac N1 addr Show the MAC address of the specified LAN port. Available values for N1 : 1 [LAN port 1] 2 [LAN port 2]
set factory default Reset the unit to the factory defaults.
set factory ipconfig default Reset the unit's network settings to the factory defaults.
set system reboot Reboot the unit.
get lan N1 ipconfig Show the specified LAN port's current IP configuration information. Available values for N1 : 1 [LAN Port 1] 2 [LAN Port 2]
set lan N1 ip mode N2 Set the IP address assignment mode of the specified LAN port. Available values for N1 : 1 [LAN Port 1] 2 [LAN Port 2] Available values for N2 : Static [Static IP mode] DHCP [DHCP mode]
get lan N1 ip mode Show the current IP address assignment mode of the specified LAN port. Available values for N1 : 1 [LAN Port 1] 2 [LAN Port 2]

COMMAND					
Description and Parameters					
get lan N1 ipaddr	Show the specified LAN port's current IP address. Available values for N1: <table> <tr> <td>1</td><td>[LAN Port 1]</td></tr> <tr> <td>2</td><td>[LAN Port 2]</td></tr> </table>	1	[LAN Port 1]	2	[LAN Port 2]
1	[LAN Port 1]				
2	[LAN Port 2]				
get lan N1 netmask	Show the specified LAN port's current netmask. Available values for N1: <table> <tr> <td>1</td><td>[LAN Port 1]</td></tr> <tr> <td>2</td><td>[LAN Port 2]</td></tr> </table>	1	[LAN Port 1]	2	[LAN Port 2]
1	[LAN Port 1]				
2	[LAN Port 2]				
get lan N1 gateway	Show the specified LAN port's current gateway address. Available values for N1: <table> <tr> <td>1</td><td>[LAN Port 1]</td></tr> <tr> <td>2</td><td>[LAN Port 2]</td></tr> </table>	1	[LAN Port 1]	2	[LAN Port 2]
1	[LAN Port 1]				
2	[LAN Port 2]				
set lan N1 static ipaddr N2	Set the specified LAN port's static IP address. Available values for N1: <table> <tr> <td>1</td><td>[LAN Port 1]</td></tr> <tr> <td>2</td><td>[LAN Port 2]</td></tr> </table> N2 = X.X.X.X [X = 0~255, IP address]	1	[LAN Port 1]	2	[LAN Port 2]
1	[LAN Port 1]				
2	[LAN Port 2]				
get lan N1 static ipaddr	Show the specified LAN port's current static IP address. Available values for N1: <table> <tr> <td>1</td><td>[LAN Port 1]</td></tr> <tr> <td>2</td><td>[LAN Port 2]</td></tr> </table>	1	[LAN Port 1]	2	[LAN Port 2]
1	[LAN Port 1]				
2	[LAN Port 2]				
set lan N1 static netmask N2	Set the specified LAN port's static netmask. Available values for N1: <table> <tr> <td>1</td><td>[LAN Port 1]</td></tr> <tr> <td>2</td><td>[LAN Port 2]</td></tr> </table> N2 = X.X.X.X [X = 0~255, netmask]	1	[LAN Port 1]	2	[LAN Port 2]
1	[LAN Port 1]				
2	[LAN Port 2]				
get lan N1 static netmask	Show the specified LAN port's current static netmask. Available values for N1: <table> <tr> <td>1</td><td>[LAN Port 1]</td></tr> <tr> <td>2</td><td>[LAN Port 2]</td></tr> </table>	1	[LAN Port 1]	2	[LAN Port 2]
1	[LAN Port 1]				
2	[LAN Port 2]				

COMMAND	
Description and Parameters	
set lan N1 static gateway N2 Set the specified LAN port's static gateway address. Available values for N1 : 1 [LAN Port 1] 2 [LAN Port 2] N2 = X.X.X.X [X = 0~255, gateway address]	
get lan N1 static gateway Show the specified LAN port's current static gateway address. Available values for N1 : 1 [LAN Port 1] 2 [LAN Port 2]	
get uart list List all available serial ports.	
set uart N1 reset Reset the specified serial port's settings to the factory defaults. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port]	
set uart 2 mode N1 Set the operational mode of the Control Output (5-pin) serial port. Available values for N1 : 0 [Disabled] 1 [RS-232 mode] 2 [RS-422 mode] 3 [RS-485 mode]	
get uart 2 mode Show the current operational mode of the Control Output (5-pin) serial port.	
set uart N1 baudrate N2 Set the baud rate of the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port] Available values for N2 : 2400 [2400 baud] 4800 [4800 baud] 9600 [9600 baud] 19200 [19200 baud]	

COMMAND	
Description and Parameters	
38400	[38400 baud]
57600	[57600 baud]
115200	[115200 baud]
get uart N1 baudrate Show the current baud rate of the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port]	
set uart N1 stop bit N2 Set the number of stop bits for the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port] Available values for N2 : 1 [1 stop bit] 2 [2 stop bits]	
get uart N1 stop bit Show the current number of stop bits for the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port]	
set uart N1 data bit N2 Set the data bits used by the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port] Available values for N2 : 7 [7 data bits] 8 [8 data bits]	
get uart N1 data bit Show the current number of data bits used by the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port]	

COMMAND
Description and Parameters
set uart N1 parity N2 Set the parity of the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port] Available values for N2 : 0 [None] 1 [Odd] 2 [Even]
get uart N1 parity Show the current parity setting of the specified serial port. Available values for N1 : 1 [3-pin serial port] 2 [5-pin serial port]
set uart 2 command [N1] Transmit the specified command data via the Control Output (5-pin) serial port. N1 = {Command data} [ASCII text] <i>Note: To transmit hex data, each ASCII hex pair (octet) must be preceded by “\x”. For example a carriage return would be “\x0D”.</i>
set all N1 system reboot Reboot all detected transmitters, receivers, or devices. Available values for N1 : TX [Transmitter] RX [Receiver] DEVICES [Devices]
get N1 N2 timing Show the current video timing on the specified transmitter/receiver. Available values for N1 : TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID]

COMMAND
Description and Parameters
get N1 N2 deep color Show the detected bit depth of the signal on the specified transmitter/receiver. Available values for N1: TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID]
get N1 N2 color space Show the detected color space of the signal on the specified transmitter/receiver. Available values for N1: TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID]
get N1 N2 hdcp status Show the current HDCP status of the specified transmitter/receiver. Available values for N1: TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID]
get N1 N2 edid info Show the EDID information of the specified transmitter/receiver. Available values for N1: TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID]
get N1 N2 device status Show the current status of the specified transmitter/receiver. Available values for N1: TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID]

COMMAND
Description and Parameters
set N1 N2 nickname N3 Set the name of the specified AVoIP device's nickname. Available values for N1: TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID] N3 = {ASCII string} [Nickname]
get N1 N2 nickname Show the name of the specified AVoIP device's nickname. Available values for N1: TX [Transmitter] RX [Receiver] N2 = 1~256 [Device ID]
set rx N1 stop feature N2 N3 Enable/disable AVoIP stop feature on receiver. N1 = 1~256 [Receiver device ID] Available values for N2: video [Video] audio [Audio] ir [IR] usb [USB] serial [Serial] Available values for N3: ON [Enabled] OFF [Disabled]
get rx N1 stop feature N2 Show the setting of AVoIP stop feature on receiver. N1 = 1~256 [Receiver device ID] Available values for N2: video [Video] audio [Audio] ir [IR] usb [USB] serial [Serial]
set all rx video route tx N1 Route the specified transmitter to the all output. N1 = 1~128 [Transmitter device ID]

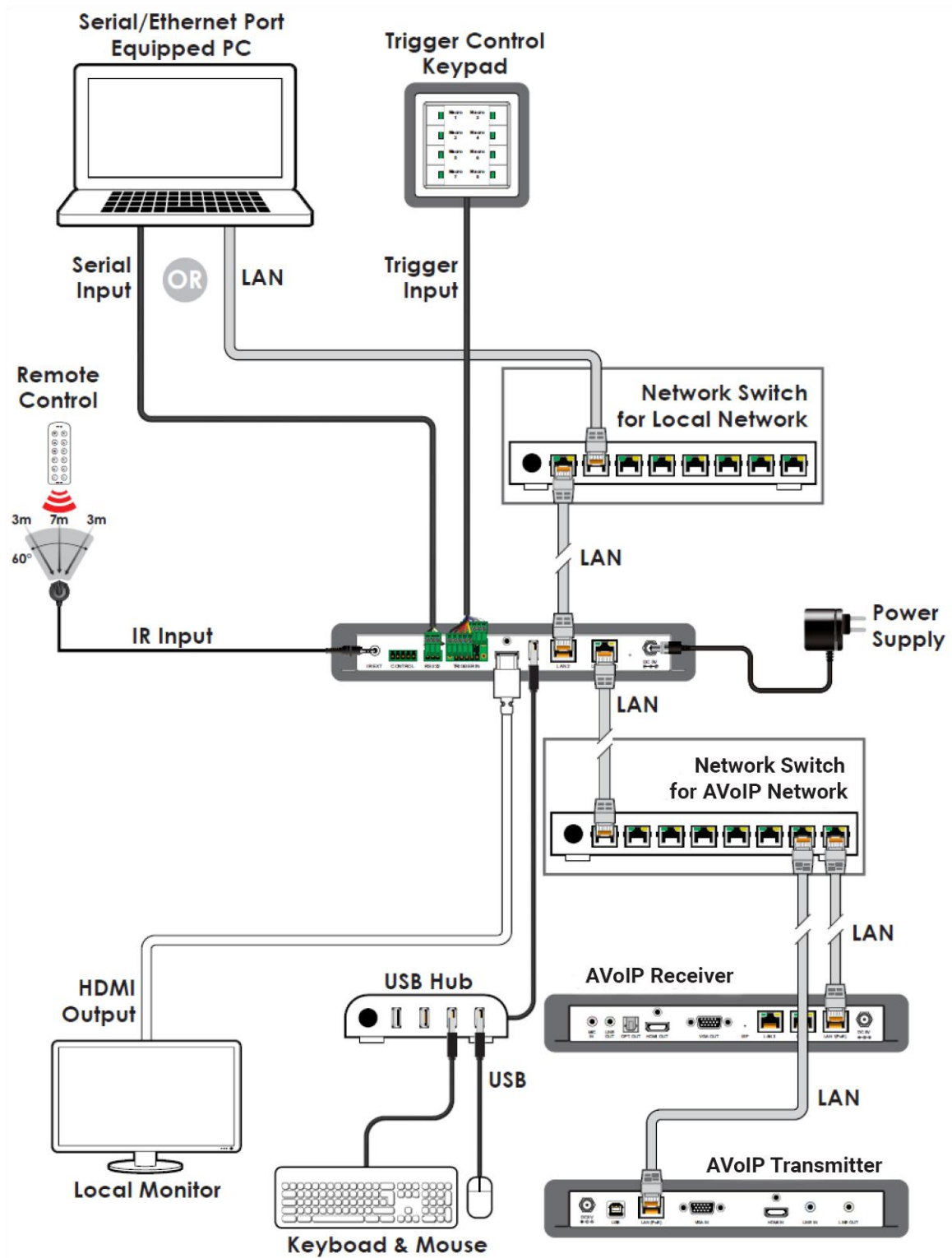
COMMAND
Description and Parameters
set rx group N1 video route tx N2 Route the specified transmitter to the specified group outputs. N1 = 1~256 [Group ID] N2 = 1~128 [Transmitter device ID]
set rx N1 video route tx N2 Route the specified transmitter to the specified receiver. N1 = 1~256 [Receiver device ID] N2 = 1~128 [Transmitter device ID]
get rx N1 video route tx Show the current video input routed to the specified receiver's video output. N1 = 1~256 [Receiver device ID]
get all rx group info Show the information of all currently defined groups. Possible response values: N1 = 1~256 [Group ID] N2 = {ASCII string} [Group name] N3 = 1~256 [Array of receiver device ID]
get all video wall preset info Show the information of all video wall presets. Possible response values: N1 = 1~256 [Video wall group ID] N2 = {ASCII string} [Video wall group name] N3 = 1~16 [Horizontal display count] N4 = 1~16 [Vertical display count] N5 = 1~256 [Array of receiver device ID]
get all macro name Show names of all macros.
set macro N1 run Execute the specified macro immediately. N1 = 1~256 [Macro ID]
set video wall preset N1 route tx N2 Execute the specific video wall configuration. N1 = 1~256 [Video wall group ID] N2 = 1~128 [Transmitter device ID]

COMMAND
Description and Parameters
run roaming preset N1 Execute the specified roaming preset configuration. N1 = 1~256 [USB roaming group ID]

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

Note: Some commands are subject to endpoint (transmitter or receiver) support. Unsupported commands will be ignored by endpoints if issued.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Output Resolution	1920×1080@60Hz
Output Ports	(1) HDMI (Type-A) (1) RS-232 (5-pin Terminal Block)
Control Ports	(1) IR Extender (3.5mm) (1) RS-232 (3-pin Terminal Block) (1) Trigger (10-pin Terminal Block) (2) LAN (RJ-45) (1) USB 2.0 (Type A)
IR Frequency	38 kHz
Baud Rate	19200
Power Supply	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
PoE Support	802.3af from LAN Port 1
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	231.5mm×25mm×108mm [Case Only] 231.5mm×25mm×117mm [All Inclusive]
Weight	648g
Chassis Material	Metal (Steel)
Chassis Color	Black
Operating Temperature	32 to 104°F (0 to 40°C)
Storage Temperature	-4 to +140°F (-20 to +60°C)
Relative Humidity	20 - 90% RH (Non-condensing)
Power Consumption	2.99W

8.2 Video Specifications

Supported Resolutions (Hz)	Output
	HDMI
720×400p@70/85	×
640×480p@60/72/75/85	×
720×480i@60	×
720×480p@60	×
720×576i@50	×
720×576p@50	×
800×600p@56/60/72/75/85	×
848×480p@60	×
1024×768p@60/70/75/85	×
1152×864p@75	×
1280×720p@50/60	×
1280×768p@60/75/85	×
1280×800p@60/75/85	×
1280×960p@60/85	×
1280×1024p@60/75/85	×
1360×768p@60	×
1366×768p@60	×
1400×1050p@60	×
1440×900p@60/75	×
1600×900p@60RB	×
1600×1200p@60	×
1680×1050p@60	×
1920×1080i@50/60	×
1920×1080p@24/25/30	×
1920×1080p@50/60	60
1920×1200p@60RB	×
2560×1440p@60RB	×
2560×1600p@60RB	×
2048×1080p@24/25/30	×
2048×1080p@50/60	×

Supported Resolutions (Hz)	Output
	HDMI
3840×2160p@24/25/30	x

8.3 Cable Specifications

Cable Length	HD	FHD	4K UHD	4K UHD*	8K UHD
High Speed HDMI Cable					
HDMI Output	15m	10m	x		

Bandwidth Category Examples:

- **HD Video**
 - 720p@60Hz
 - HDMI transmission rates lower than 3Gbps
 - HD-SDI (SMPTE 292M, 1.485Gbps)
- **FHD Video**
 - 1080p@60Hz
 - HDMI transmission rates between 3Gbps and 5.3Gbps
 - 3G-SDI (SMPTE 424M, 2.970Gbps)
- **4K UHD Video**
 - 4K@24/25/30Hz (8-bit color)
 - HDMI transmission rates between 5.3Gbps
 - 6G-SDI (SMPTE ST 2081, 6Gbps)
- **4K UHD* Video**
 - 1080p@120Hz (10/12-bit HDR)
 - 4K@50/60Hz (4:4:4, 8-bit) & 4K@50/60Hz (4:2:0, 10/12-bit HDR)
 - HDMI transmission rates between 10.2Gbps and 18Gbps
 - 12G-SDI (SMPTE ST 2082, 12Gbps)
- **8K UHD Video**
 - 4K@120Hz (10/12-bit HDR)
 - 8K@24/25/30Hz (10/12-bit HDR) & 8K@50/60Hz (4:2:0, 8-bit color)
 - HDMI transmission rates between 18Gbps and 48Gbps
 - 24G-SDI (SMPTE ST 2083, 24Gbps)

9. ACRONYMS

ACRONYM	COMPLETE TERM
10GbE	10 Gigabit Ethernet
ADC	Analog-to-Digital Converter
ASCII	American Standard Code for Information Interchange
AVoIP	Audio/Video over IP
AVR	Audio/Video Receiver or Recorder
Cat.5e	Enhanced Category 5 cable
Cat.6	Category 6 cable
Cat.6A	Augmented Category 6 cable
Cat.7	Category 7 cable
CLI	Command-Line Interface
DAC	Digital-to-Analog Converter
DHCP	Dynamic Host Configuration Protocol
DP	DisplayPort™
EDID	Extended Display Identification Data
GbE	Gigabit Ethernet
GUI	Graphical User Interface
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
HDTV	High-Definition Television
IGMP	Internet Group Management Protocol
IP	Internet Protocol
IR	Infrared
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MAC	Media Access Control
OSD	On-Screen Display
PD	Powered Device
TCP	Transmission Control Protocol

ACRONYM	COMPLETE TERM
4K UHD	4K Ultra-High-Definition (10.2Gbps max)
4K UHD⁺	4K Ultra-High-Definition (18Gbps max)
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus
VLAN	Virtual LAN
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array

TECH SUPPORT/CONTACT INFORMATION

Visit blackbox.com/discover-bb/global-presence for regional technical support and contact information.



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