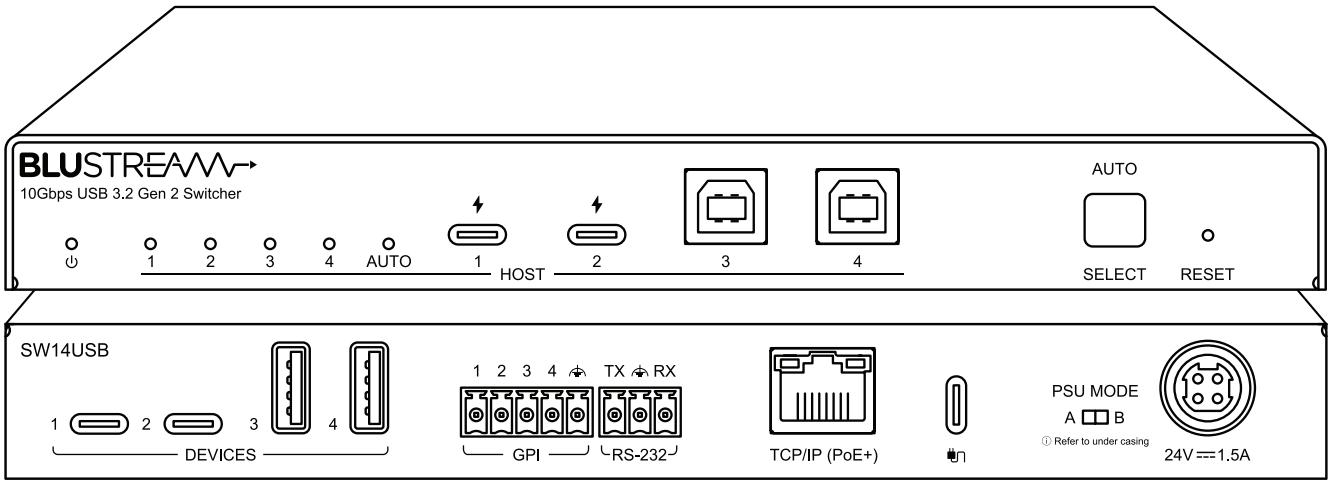


SW14USB

User Manual

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.



Surge Protection Device Recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.



Eco Friendly Packaging

This product has been packaged with fully recyclable materials, including compostable bags. Please help us to protect the environment.

Safety and performance notice

Do not substitute or use any other power supply other than approved Blustream power supplies.

Do not disassemble the device for any reason. Doing so will void the manufacturer's warranty.

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Introduction

The SW14USB is a high-performance USB 3.2 Gen 2 switcher built for seamless multi-host connectivity. With 10Gb bandwidth, the SW14USB lets you connect up to four USB peripheral devices and switch them effortlessly between up to four host systems, giving sharing flexibility to peripheral devices across multiple workstations without the hassle of constant reconnecting. Supports USB-C PD charging for Host devices (up to 100W) via user's own external USB-C charger, or when using optional 24V 6.5A PSU.

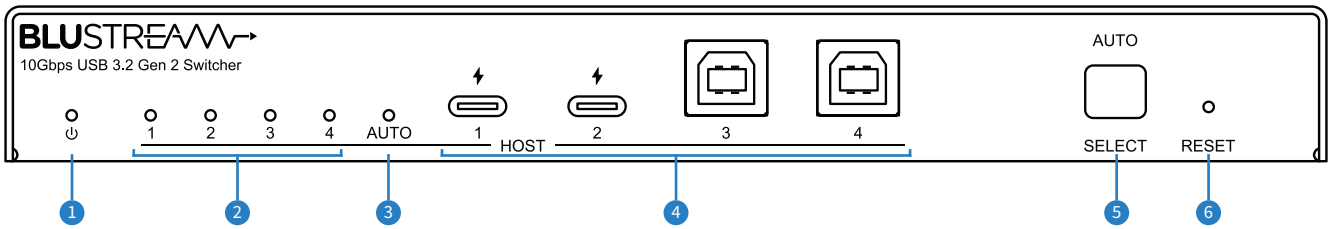
The SW14USB can automatically detect and switch between hosts using intelligent signal-sensing, or manually control with the front-panel buttons, an intuitive web-GUI, GPI, IP, or serial API control. Whether managing a busy production studio, a multi-computer workspace, or a control room environment, the SW14USB delivers the speed, flexibility, and reliability needed to keep and share peripheral devices connected and available across multiple workstations.

FEATURES:

- USB 3.2 Gen 2 switch allowing up to 4 x USB peripheral devices to connect to 4 x USB hosts
- Features 2 x USB-C and 2 x USB-A device inputs and 2x USB-C and 2x USB-B hosts
- USB 3.2 Gen 2 connectivity with data transfer rate up to 10Gbps
- Backwards compatible with USB 3.2 Gen 1, 2.0 and 1.1
- Auto, manual or GPI switching
- Supports USB-C PD charging for Host devices (up to 100W) via user's own external USB-C charger, or when using optional 24V 6.5A PSU*
- Plug-and-play with no drivers, downloads, or software required
- Features 802.3at PoE+ for powering of product from PoE+ network
- Local 24V power supply input for when network switch does not support PoE+
- Web interface module for control and configuration of SW14USB
- Control via front panel buttons, RS-232, or TCP/IP
- Features 4 x GPI port for integration with 3rd party products

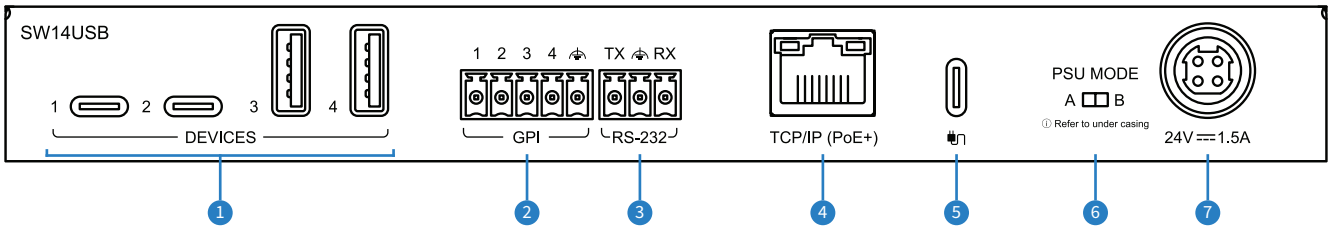
Please note: Standard 24V 1.5A PSU does not support charging of Host devices

Front Panel Description



1. Power Status LED — illuminated blue when the unit is powered on and red when the unit is powered off
2. Host LED — corresponds to currently selected host
3. Auto LED — illuminated blue when autoswitching is enabled
4. Host Ports — 2 x USB-C & 2 x USB-B for connecting to hosts
5. Auto Select Button — press to cycle sources or hold to enable autoswitching
6. Reset Pin — depress and hold to reset

Rear Panel Description



1. Host Ports — 2 x USB-C & 2 x USB-A for connecting to devices
2. GPIs — Phoenix connector triggers for control
3. RS-232 Serial Port — 3-pin Phoenix connector for serial control
4. TCP/IP PoE+ Port — RJ45 port for network control
5. PD Charging Port — USB-C port for PD Charging hosts
6. PSU Mode Switch — see page 05
7. Power Supply Input — 24V / 1.5A

Resetting the SW14USB

To reset the SW14USB back to factory defaults, use a small instrument to press down the recessed button on the front panel labelled RESET. Hold for at least 10 seconds before releasing.

The reset process takes approximately 30 seconds.

Operation and Connections

Basic operation of the SW14USB is available through the front panel. The device can be powered using PoE+ through the TCP/IP port, the included power supply, or an optional power supply. Set the PSU mode switch to A when using PoE+ or the included power supply. Set the switch to B when using the optional power supply.

After connecting power, the USB hosts, and USB devices, press the Auto/Select button to switch between hosts. Press and hold the Auto/Select button for 3 seconds to enable or disable automatic host switching mode.

Press and hold the Auto/Select button for 10 seconds to enter IP configuration mode to switch between DHCP and static IP modes.

The Auto LED indicates the current operating mode:

- Blue
  - Automatic host switching mode
- Off
  - Manual host switching mode
- Solid red
  - DHCP mode
- Flashing red
  - Static IP mode

For full configuration, the in-built Web GUI must be utilised.

Power Delivery Charging

The SW14USB supports USB Power Delivery (PD) charging through the USB-C host ports. The available charging configuration depends on the power supply used with the SW14USB:

- PoE+ or included power supply
  - Set the PSU mode switch to A
  - Connect an external USB-C charger to the rear charging port to provide up to 100 W of PD charging to a single USB-C host port, or up to 50 W to each USB-C host port when charging both ports
- Optional 24 V, 6.5 A power supply
  - Set the PSU mode switch to B
  - The SW14USB can provide up to 100 W of PD charging to a single USB-C host port, or up to 50 W to each USB-C host port when charging both ports, without an external USB-C charger

USB Performance

The SW14USB supports USB 3.2 Gen 2 data transfer rates of up to 10 Gbps and is backwards compatible with USB 2.0 and USB 1.1 devices.

Actual USB performance depends on several factors, including:

- USB host version
- Cable length and quality
- USB device version
- Cable length and quality

The USB-B host port and the USB-A device port can be limited from 10 Gbps to 5 Gbps to improve device compatibility. Configure the USB-A device port speed using the Web GUI or API.

The SW14USB does not support DisplayPort Alt Mode (DP Alt Mode) video.

Web GUI - Log In and Initialisation

The Web GUI allows for full configuration, ongoing maintenance and control of the SW14USB through a web portal. Connect the SW14USB RJ45 network port to the local network or directly to a computer to access the Web GUI.

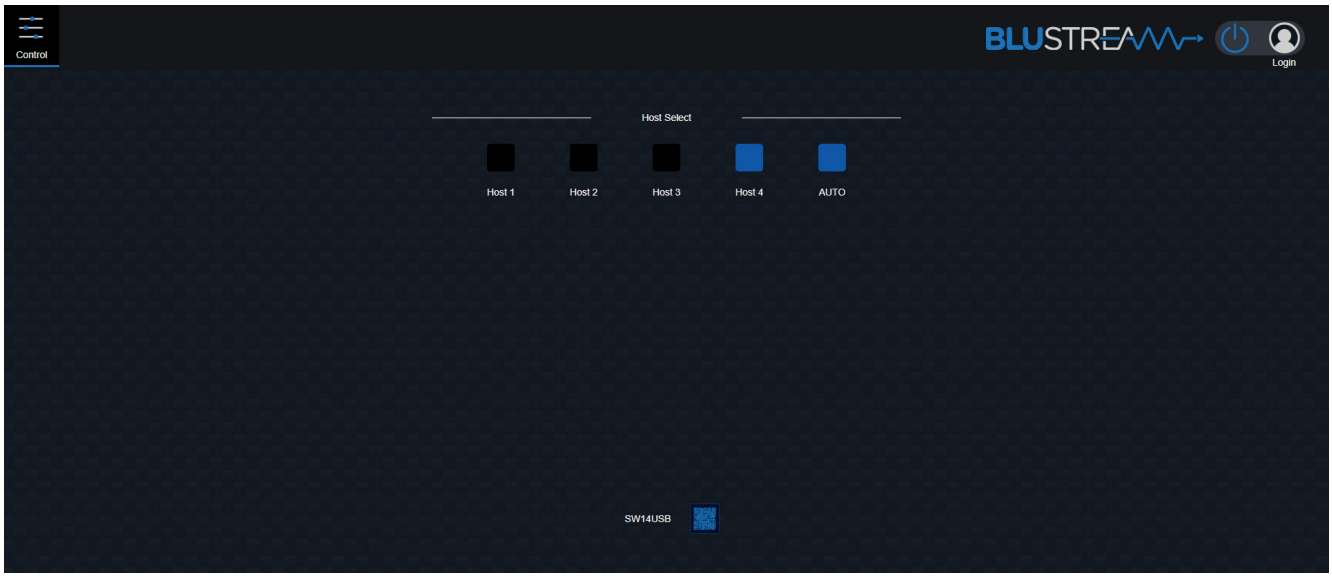
By default, the SW14USB is set to obtain an IP address via DHCP; however, if a DHCP server, such as a network router, is unavailable, the IP address will revert to below details:

Default IP Address: **192.168.0.200** Default Admin Username: **blustream** Default Admin Password: **@Bls1234**

If the IP address of the SW14USB is not known, it can be found by:

- Using a 3rd party IP scanning tool
- Using an RS-232 connection and sending 'STATUS' command; this will return all settings of the SW14USB
- Using the default mDNS hostname address
  - The SW14USB can be accessed via its mDNS hostname when the IP address is not known
  - The default mDNS name is **SW14USB.local**, which allows devices on the same local network to resolve the product's IP address without requiring a dedicated DNS server

When initially accessing the Web GUI of the SW14USB, the Guest Control page is shown as below:



Guest Control Page:

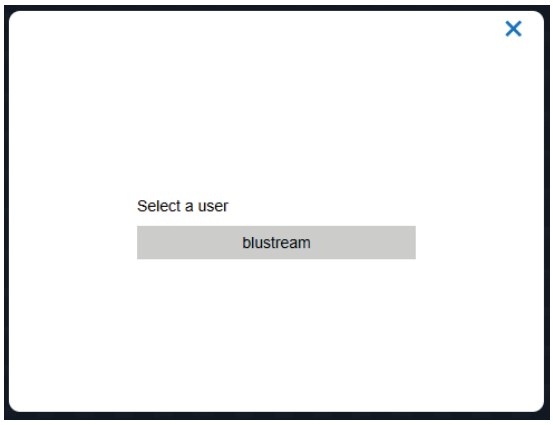
The Guest user can access the Control page of the Web GUI without logging in. Depending on the permissions set, control for the host selection can be accessed from here.

Guest permissions can be configured by an administrator on the Users page. Grant only the permissions required for the installation to prevent unauthorised access or configuration changes.

Login Page:

The Web GUI supports multiple user accounts with configurable permissions as follows:

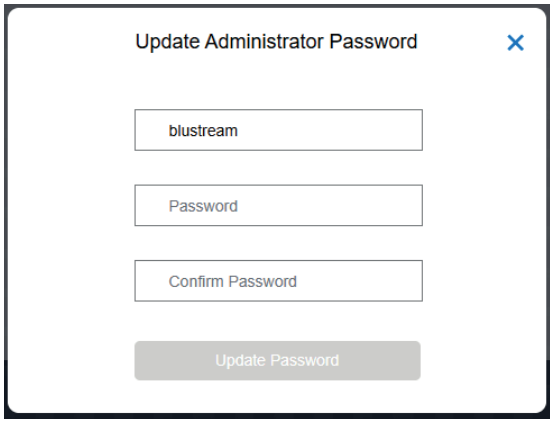
Administrator (Blustream)	The Administrator account allows full access to all functions and configuration of the device and is always enabled
Guest	When enabled, various Web GUI pages can be accessed without logging in depending on the permissions set
User Accounts	User accounts can be created with individual login details and permissions for specific pages and functions



Please note: The first time the Administrator logs into the Web GUI of the SW14USB the default password must be changed to a unique password. Store the new password securely for future use. If the administrator password is lost, the SW14USB must be reset to factory defaults. This erases the existing configuration.

New password regulations require passwords being set for products to be a minimum of 8 characters and contain a minimum of: 1 x uppercase letter, 1 x lowercase letter, 1 x symbol and 1 x number.

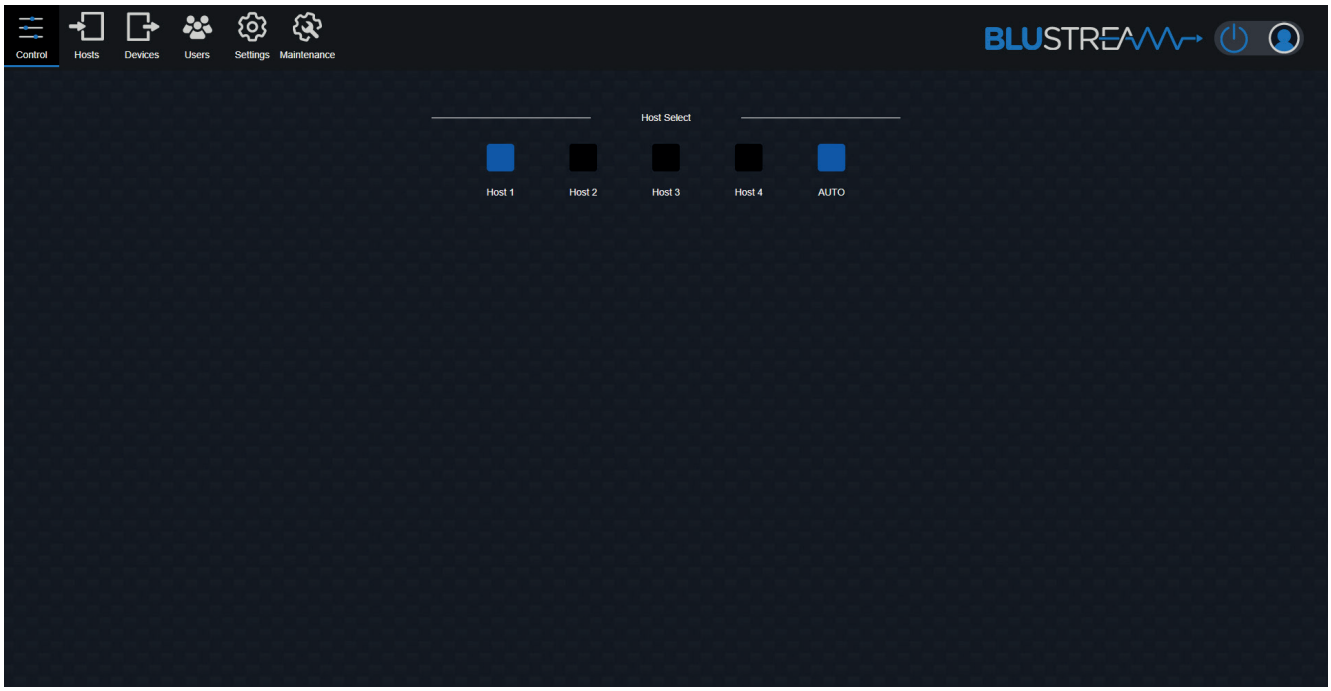
Passwords can be changed as required within the Web GUI of the SW14USB once logged in.



Web GUI - Control

Once logged in as the Administrator, the user will be directed to the Control page and additional pages become available from within the Web GUI. These pages can be accessed by selecting the corresponding icon in the navigation bar at the top of the Web GUI.

The Control page allows for USB host selection and toggling autoswitching.



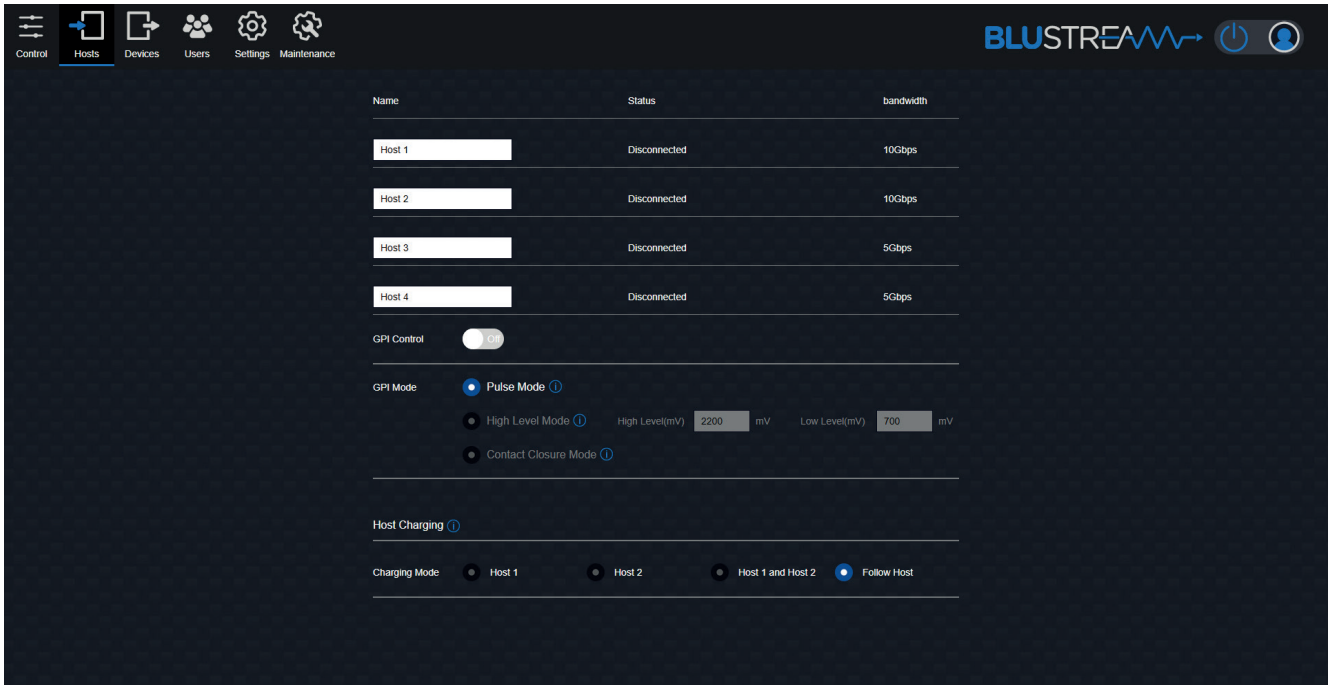
Host Select:

The Host Select section controls host selection and automatic host switching:

- Select the corresponding host button to switch to that host
- Select **AUTO** to enable or disable automatic host switching

Web GUI - Hosts

The Hosts page allow for configuration of the host USB ports and the GPI ports.



Name

- Displays the name of the host input. The name can be updated by entering a new name into the name field and pressing Enter

Status

- Displays the connection status of the host input port

Bandwidth

- Displays the current maximum bandwidth of the host port

GPI Control

- Enable / disable control via the GPI ports

GPI Mode

- Pulse Mode
  - When the GPI receives a pulse signal (1-12 V), the SW14USB switches to the corresponding host input
- High Level Mode
  - When a high level is detected on the GPI, the SW14USB switches to the corresponding host. If no GPI input or multiple GPI inputs are at a high level, the current host input remains selected. The high level and low level voltage thresholds can be configured in mV within the 0-12 V range
- Contact Closure Mode
  - When the GPI 1-4 connection is open circuit, the SW14USB switches to the corresponding host input. If no GPI input or multiple GPI inputs are open circuit, the current host input remains selected

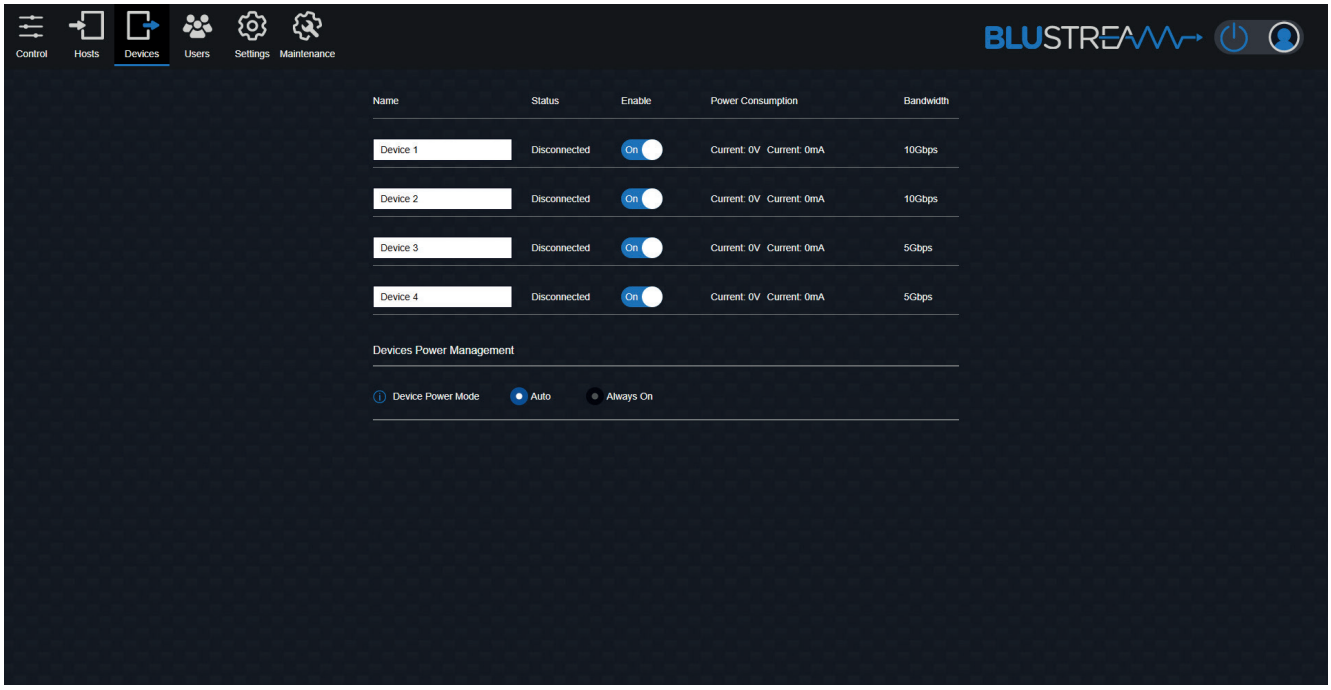
Host Charging:

Host charging can be configured to determine which USB-C host receives Power Delivery (PD) charging. Select the required charging mode using the Web GUI:

- Host 1
  - Charges Host 1 regardless of the currently selected host
  - Supports up to 100 W of PD charging
- Host 2
  - Charges Host 2 regardless of the currently selected host
  - Supports up to 100 W of PD charging
- Host 1 and Host 2
  - Charges both Host 1 and Host 2 regardless of the currently selected host
  - Supports up to 50 W of PD charging per host
- Follow Host
  - Charges only the currently selected host

Web GUI - Devices

The Hosts page allow for configuration of the device USB ports.



Name

- Displays the name of the device input. The name can be updated by entering a new name into the name field and pressing Enter

Status

- Displays the connection status of the device input port

Enable

- Enable / disable the device input port

Power Consumption

- Displays the voltage and current consumption of the device input

Bandwidth

- Displays the current maximum bandwidth of the host port

Devices Power Management:

The Device Power Mode setting controls when power is supplied to the USB device ports:

Auto

- The USB device ports output power only when a host is connected and active
- Power to the USB device ports is disconnected when switching between hosts

Always On

- The USB device ports remain powered regardless of whether a host is connected
- Power to the USB device ports is maintained when switching between hosts

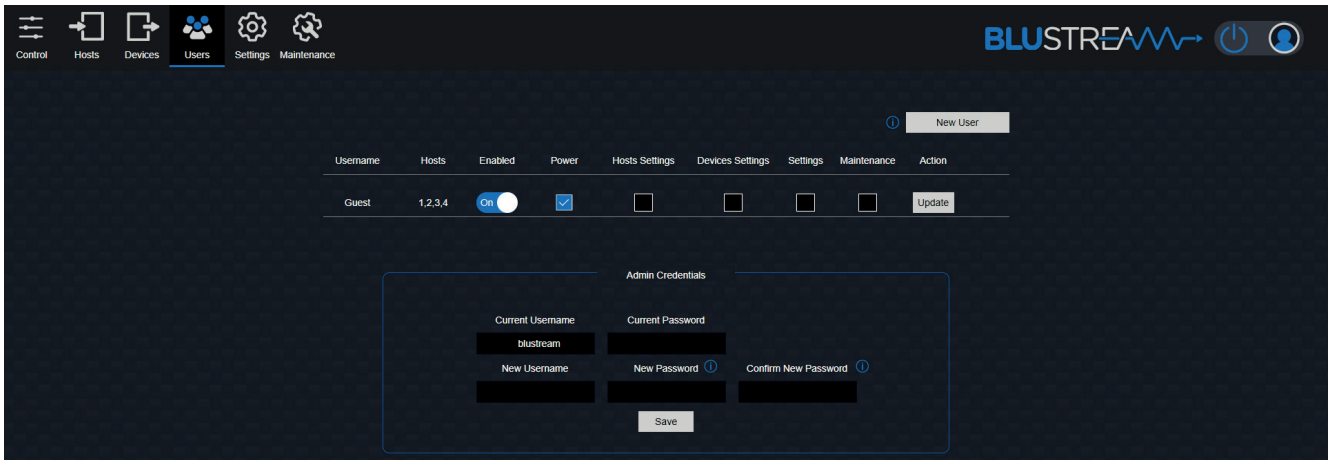
Web GUI - Users

The SW14USB offers flexible user management, allowing multiple users to be configured with unique logins and customisable access privileges. Access to inputs, outputs, presets, and various Web GUI pages can be configured per user.

Please note: A dedicated user should be set up and used after installation of the device in order to prevent non-administrator users from changing settings and potentially damaging connected equipment. The guest user should also be disabled or have permissions set to prevent unauthorised access, as the Guest user does not require credentials for control of the device.

By default, there is an Administrator and Guest user.

The login details for the Administrator can be modified from **Admin Credentials**.

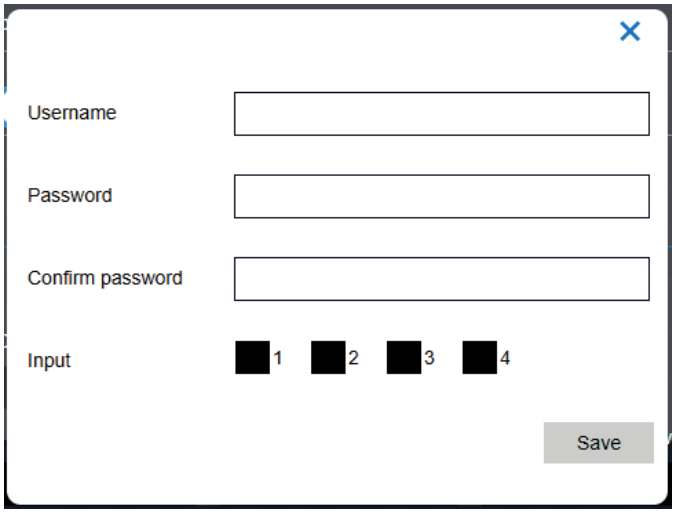


To add a new user, select **New User**.

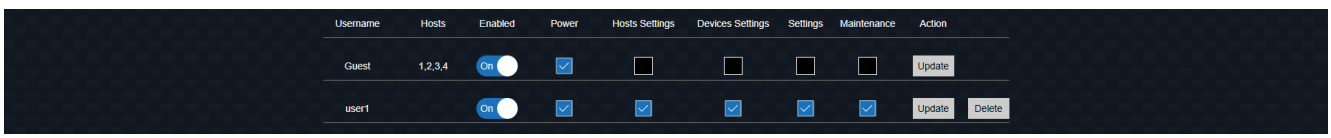
Enter a username, password, and select which inputs, outputs and presets the user will be allowed to control.

Press **Save** to create the new user.

New User:



The new user will appear in the user list.

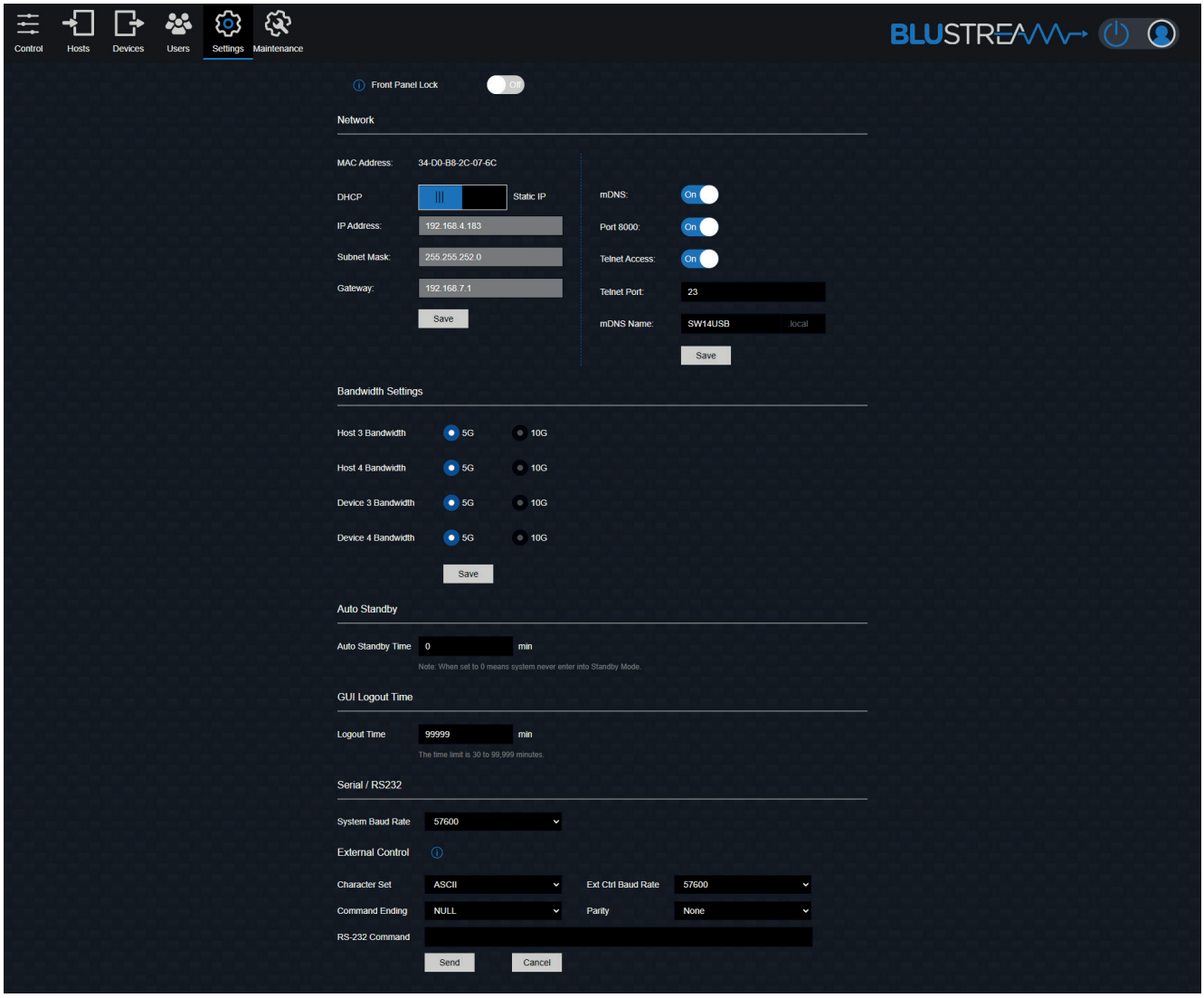


Press **Update** to change the password or permissions of the user.

Press **Delete** to delete the user.

Web GUI - Settings

The Settings page allows for advanced configuration of the SW14USB.



Front Panel Lock

- Enable / Disable the front panel buttons

Network:

MAC Address

- Displays the MAC Address

DHCP / Static

- Set the SW14USB to obtain an IP address through DHCP or to set a static IP address

IP Address

- Set the static IP address of TCP/IP port

Subnet

- Set the subnet mask of the TCP/IP port

Gateway

- Set the gateway address of the TCP/IP port

mDNS

- Enable / Disabled mDNS broadcasting

Port 8000

- Enable / Disable TCP/IP Access

Telnet Access

- Enable / Disable Telnet Access

Telnet Port

- Set the Telnet port
- Default is 23

mDNS Name

- mDNS is a protocol used in network environments to resolve hostnames to IP addresses within local networks without the need for a dedicated DNS server. The SW14USB is able to be accessed via the hostname if the IP address is not known
- By default this is set to **sw14usb.local**

Press **Save** to apply any changes.

Bandwidth Settings:

Set the maximum bandwidth for the host and device ports.

Auto Standby:

Auto Standby Time

- Set how long in minutes until the SW14USB enters standby mode

GUI Logout Time:

Logout Time

- Set the amount of time in minutes until the Web GUI will log out a user

Serial / RS-232:

System Baud Rate

- 2400 / 4800/ 9600 / 19200 / 38400 / 57600 / 115200

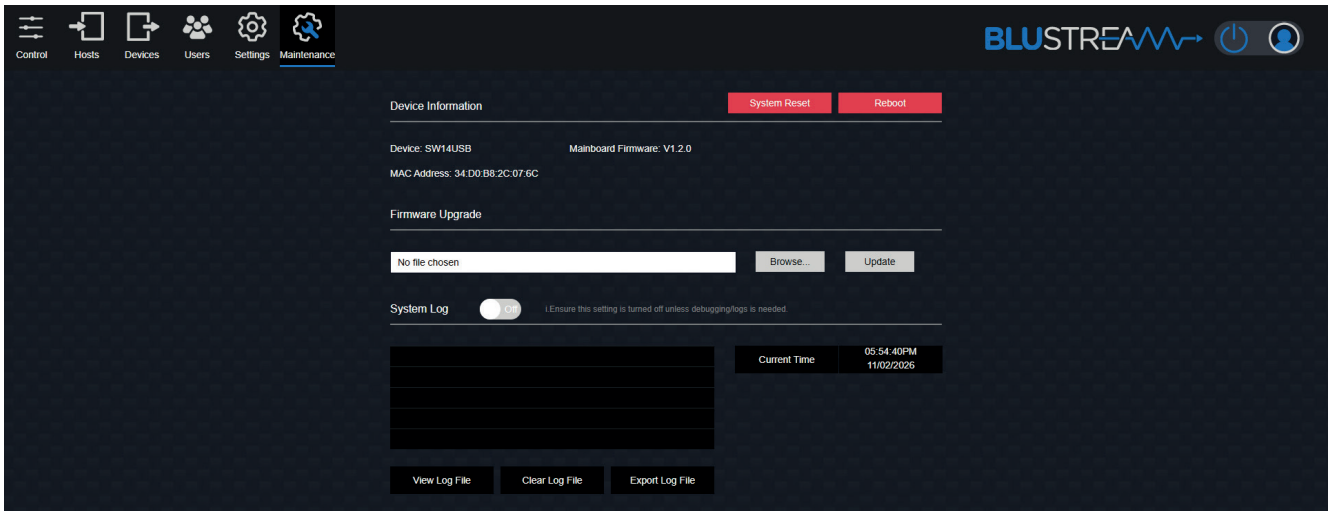
External Control

The SW14USB can send RS-232 commands out from it's serial port to an external device. This can be used for testing or external control

- Character Set
  - ASCII / HEX
- Baud Rate
  - 2400 / 4800/ 9600 / 19200 / 38400 / 57600 / 115200
- Command Ending
  - NULL / CR / LF / CR+LF
- Parity
  - None / Even / Odd
- RS-232 Command
  - Enter the string to send into the input field
  - Press **Send** to transmit the command, or press **Cancel** to clear the command

Web GUI - Maintenance

The Maintenance page allows the firmware of the SW14USB to be upgraded. Various debugging tools are also available from this page.

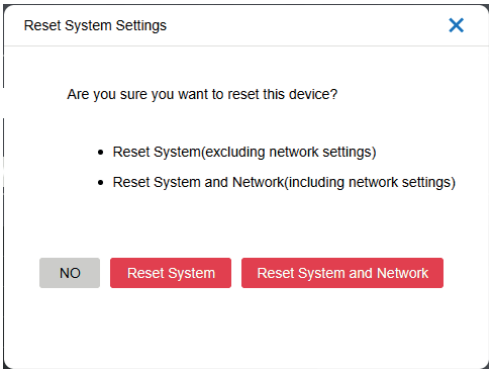


System Reset

- Factory reset the SW14USB
- To reset but retain network configuration, select **Reset System**
- To fully reset, select **Reset System and Network**

Reboot

- Reboots the SW14USB



Device Information:

Display various system information including firmware version.

Firmware Upgrade:

The latest firmware for the SW14USB can be found on the Blustream website. Download the firmware file and press Browse to locate and select the file. Once selected, press Update to begin the upgrade process.

System Log:

The System Log is intended strictly for debugging and advanced troubleshooting. It is recommended to keep this disabled during normal operation.

Enable/Disable

- Switches the background recording of system events on or off

View Log File

- Opens a window to scroll through current log entries

Clear Log File

- Deletes all current log entries

Export Log File

- Exports the current log entries as a .txt file

Signal Information:

The Signal Information section provides a real time overview of the USB signals passing through the SW14USB.



Specifications

- **USB Device:** 2 x USB Type A, female; 2 x USB Type C, female
- **USB Host:** 2 x USB Type C, female; 2 x USB Type B, female
- **GPI port:** 1 x 4-pin Phoenix connector
- **RS-232 serial port:** 1 x 3-pin Phoenix connector
- **TCP/IP Control:** 1 x RJ45, female
- **Dimensions (W x D x H):** 200mm x 115mm x 23mm
- **Shipping Weight:** 0.8kg
- **Operating Temperature:** 32°F to 104°F (-5°C to +55°C)
- **Storage Temperature :** -4°F to 140°F (-25°C to +70°C)
- **Power Supply:** 24V / 1.5A DC, 4-pin DIN connector

NOTE: *Specifications are subject to change without notice. Weights and dimensions are approximate.*

Package Contents

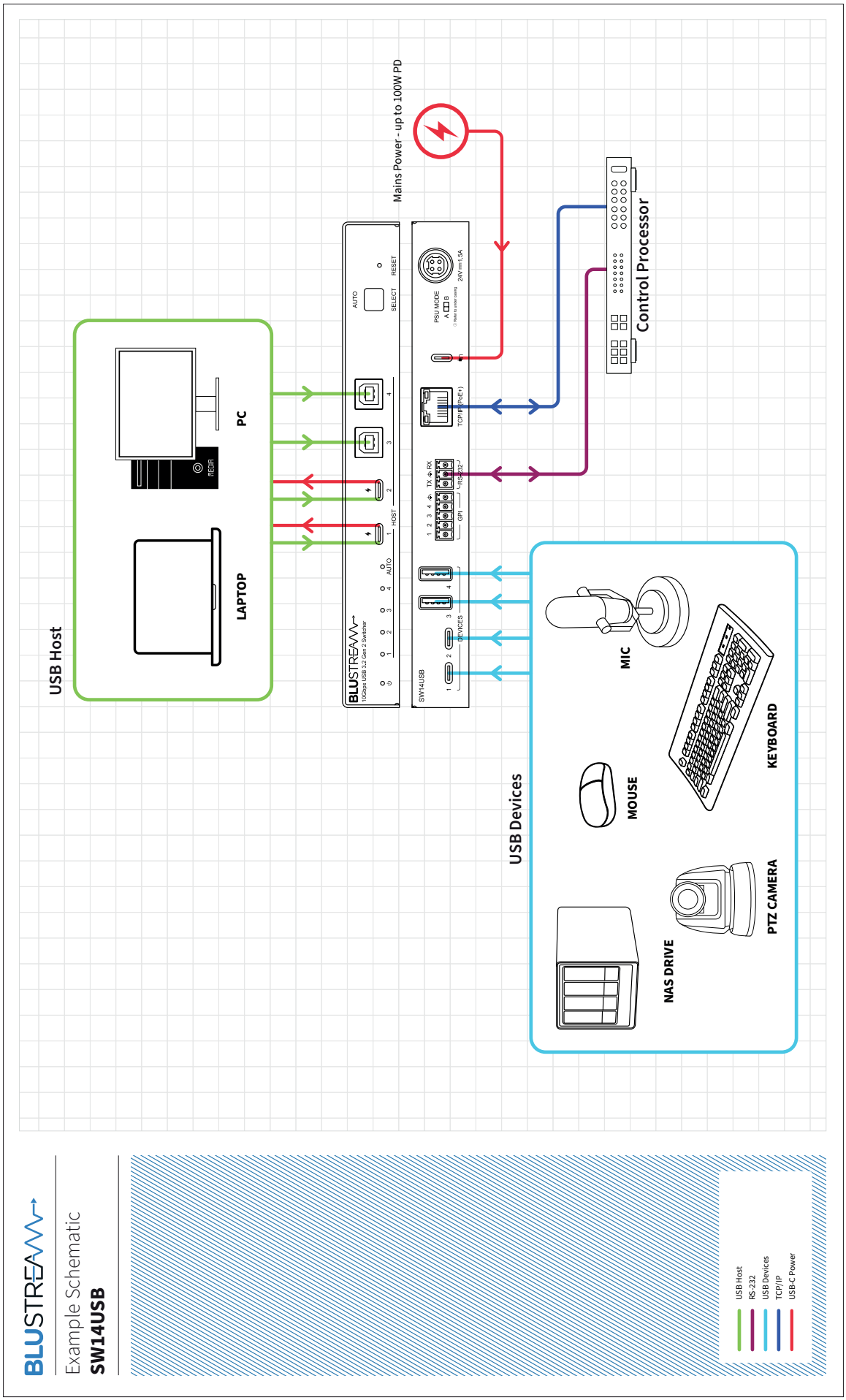
- 1 x SW14USB
- 1 x 24V / 1.5A DC power supply
- 1 x Mounting kit

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

Connection Schematic

BLUSTREAM
Example Schematic
SW14USB



Communication Protocols and Commands

The SW14USB can be controlled with control commands via serial (RS-232) and TCP/IP (Telnet, Raw TCP).

The default RS-232 communication settings are:

- **Baud rate:** 57600
- **Data bits:** 8
- **Stop bits:** 1
- **Parity:** none
- **Control Character:** CR+LF (Carriage Return 0x0D \r + Line Feed 0x0A \n)

The following pages list all available control commands.

Commonly Used Commands:

There are several commands that are commonly used for control and testing:

STATUS	Status will give feedback on the USB host and device ports
PON	Power on
POFF	Power off
HOSTyyFRALL	Select a USB host
	Example: HOST04FRALL (This would set host 4 as the USB host)

Common Mistakes:

When troubleshooting control issues, check the following common configuration and formatting errors:

- Control Characters
  - RS-232 & Raw TCP control applications vary in how they handle command termination. Some applications automatically append Carriage Return (CR) and/or Line Feed (LF) characters when transmitting a command. Other applications transmit the command exactly as entered, requiring control characters to be added manually
  - Blustream products require a Carriage Return (CR, 0x0D, \r) followed by a Line Feed (LF, 0x0A, \n) at the end of each command. These characters mark the end of each instruction, allowing consecutive commands to be distinguished. Commands that are not terminated with these characters will not be recognised
  - Before troubleshooting RS-232 & Raw TCP communication issues, confirm how the application handles command termination and ensure that CR and LF characters are appended to every transmitted command
- Spaces
  - Blustream commands do not require spaces within commands unless specified. There may be some applications that require spacing in order to work
  - How the string should look is as follows: OUTON
  - How the string may look if spaces are required: OUT{Space}ON
- Incorrect Baud Rate or Serial Communication Settings

Communication Protocols and Commands (continued)

COMMAND	ACTION
?/HELP	Print Help Information
REBOOT	Reboot System
STATUS	Print System Status And Port Status
FWVER	Print All Firmware Version
PON/OFF	Set System Power On Or Off
RESET	Reset System To Default Setting
RESET ALL	Reset System And Network To Default Setting (Type ""Yes"" To Confirm, Or Send Other Command To Discard)
SYSTEMLOG ON/OFF	Enable Or Disable System Log Print
AUTO STANDBY DLY xx	Set Auto Standby Delay Time to xx min xx = 0-30
HOST yy FR All	Set Connect From Host:yy yy = 01 : Host1 yy = 02 : Host2 yy = 03 : Host3 yy = 04 : Host4
SWITCH aa	Set Switching To aa aa = AUTO: Auto Switching ON - Auto Mode aa = MAN: Auto Switching OFF - Manual Mode
USBDP aa	Set USB Device Power Mode aa = FH : Follow Host aa = ON : Always On
USBDPOUT yy ON/OFF	Set USB Device Power Output yy = 00 : All Devices yy = 01 : Device1 yy = 02 : Device2 yy = 03 : Device3 yy = 04 : Device4
CHARGE MODE aa	Set USBC Charge Mode aa = 00 : Follow Host aa = 01 : Always Host 01 aa = 02 : Always Host 02 aa = 03 : Host 01 And Host 02 Equalization
GPI ENABLE/DISABLE	Set GPI Mode Enable Or Disable
GPI yy	Set GPI Mode yy = 00 : Pulse Mode yy = 01 : Level Mode yy = 02 : Contact Closure Mode
GPI LOW xx	Set The Low Level Voltage In The Level Mode xx Range 0~12000 Unit mV
GPI HIGH xx	Set The High Level Voltage In The Level Mode xx Range 0~12000 Unit mV"
KEY ON/OFF	Set Key Control On Or Off
HOST xx SPEED yy	Set Host xx Port Speed xx = 03 : Host3 xx = 04 : Host4 yy = 00 : Speed 5Gbps yy = 01 : Speed 10Gbps
DEVICE xx SPEED yy	Set Device xx Port Speed xx = 03 : Device3 xx = 04 : Device4 yy = 00 : Speed 5Gbps yy = 01 : Speed 10Gbps
RSB x	Set RS232 Baud Rate To x bps x = 0 115200, 1 57600 (Default), 2 38400, 3 19200, 4 9600, 5 4800, 6 2400

COMMAND	ACTION
RS232SEND x:y:a	Send y Type Of Command a Stored In Local RS232 Whose Baud Rate Is x x = 0 115200, 1 57600 (Default), 2 38400, 3 19200, 4 9600, 5 4800, 6 2400 y = a ASCII, h HEX a = RS232 Command
NET DHCP ON/OFF	Set Auto IP(DHCP) On Or Off
NET TN 8000 ON/OFF	Set Telnet Port 8000 On Or Off
NET TN ON/OFF	Set Telnet Port On Or Off
NET MDNS ON/OFF	Set mDNS On Or Off
NET MDNS xxxx.local	Set mDNS Name to xxxx.local
NET IP xxx.xxx.xxx.xxx	Set IP Address
NET GW xxx.xxx.xxx.xxx	Set Gateway Address
NET SM xxx.xxx.xxx.xxx	Set Subnet Mask Address
NET RB	Set Network Reboot And Apply New Config!!!
NET TN xxxx	Set Telnet Port

Certifications

FCC Notice

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.

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

Canada, Industry Canada (IC) Notices

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

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Canada, avis d'Industry Canada (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003.

Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

Correct Disposal of This Product

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.





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