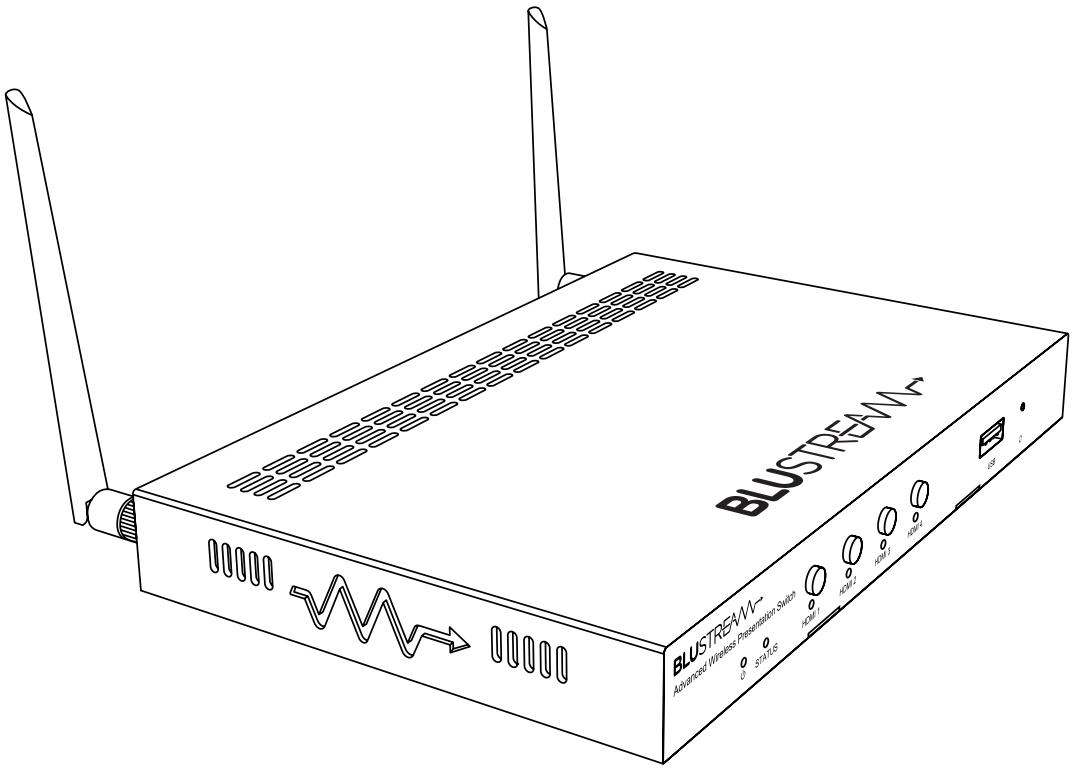


Blustream AMF41W

API Document

BLUSTREAM

Rev A1_23/06/2021

Introduction

The AMF41W is an advanced 4K multi-format presentation switch featuring 4 x HDMI, AirPlay and Miracast® inputs to a single HDMI output.

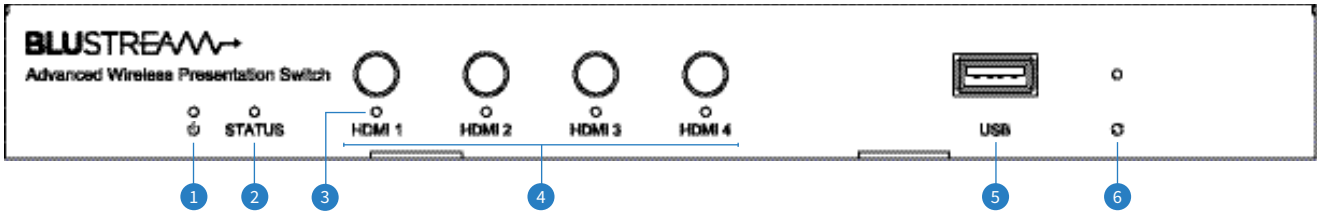
This unit provides enhanced features including localised 2.4/5G WiFi hotspot, seamless switching, multiview presentation, video scaling and web GUI for control and configuration.

The AMF41W also features auto display control via RS-232, manual or automated source selection and control via front panel, RS-232 and TCP/IP. The AMF41W is an ideal product for your boardroom, classroom or huddle-space application.

FEATURES:

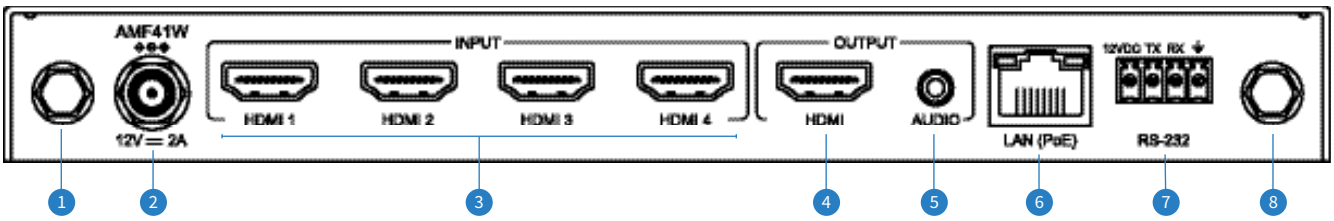
- Features 4x HDMI, AirPlay and Miracast® inputs which can be switched to a single HDMI output
- Localised 2.4G/5G WiFi hotspot to host AirPlay and Miracast® local streaming to AMF41W
- Multiview presentation with up to 7 concurrent video signals and configurable screen layout
- Seamless switching of sources in both single or multiview mode
- In-built video scaler with output timing up to 4K 60Hz 4:4:4
- HDMI inputs support resolutions up to 4K UHD 60Hz 4:2:0 / 4K 30Hz 4:4:4
- Supports AirPlay mirror and Miracast® point-to-point mode (up to 1080p)
- Audio breakout to analogue L/R audio
- LAN connection for integration to existing network infratructures
- Auto display on/off feature allowing control of display via RS-232
- Web interface module for control and configuration of switch
- Control via front panel, RS-232 and TCP/IP with manual or auto source selection

Front Panel Description



1. Power LED Indicator - Illuminates when the device is powered on
2. Status LED Indicator - Illuminates when the device is outputting at least one source
   - Flashes when the device is in standby mode
   - Turns off when the device is outputting the guide screen
3. Input Selection LED - Illuminates when video input has a valid signal and is shown on the display,
   - Flashes once a second when input does not have a signal but is shown in the current layout
   - Flashes once every two seconds when video input has a valid signal but is not shown on the display
   - Off when the video input signal is neither valid nor shown in the layout, or device is in standby
4. Input Selection Buttons - Short press to select / deselect the input signal between HDMI 1 to 4, long press to view video source in full screen mode
5. USB Socket - Reserved for future use
6. Reset Button - Push and hold for 10 seconds to factory reset the device

Rear Panel Description



1. WiFi Antenna Connection 1 - Connect to supplied WiFi antenna
2. Power Port – Use included 12V/2A DC adaptor
3. HDMI Inputs 1-4 - Connect to HDMI source equipment
4. HDMI Output - Connect to HDMI display equipment
5. Analogue Audio Output - 3.5mm stereo analogue audio output to connect to external audio distribution equipment or amplifier. Supports 2ch PCM only
6. TCP/IP Port - RJ45 connector to connect to LAN for TCP/IP control of device and to access Web GUI
7. RS-232 Port - 4-pin Phoenix connector for control of source or display from the AMF41W, also includes a 12V output pin to trigger local device
8. WiFi Antenna Connection 2 - Connect to supplied WiFi antenna

NOTE: *The distance between user and products should be no less than 20cm.*
La distance entre l'utilisateur et le produit ne doit pas être inférieure à 20 cm.

WARNING: *5.2 GHz band is restricted to indoor use only.*
La bande de 5.2 GHz est réservée à l'usage intérieur.

Configuration and Web GUI Control

The AMF41W features an in-built web-GUI which may be required for normal control and configuration of the device. This configuration includes features such as source EDID management, output scaler resolution, network / WiFi configuration and user control.

You can connect to the AMF41W either via hardwired LAN connection or via local WiFi hotspot.

Connecting via LAN:

By default this device is set to DHCP, however if a DHCP server (eg: network router) is not installed or you connect directly from your PC to the AMF41W, the IP address will revert to the below details:

Default **Username** is: blustream Default **Password** is: 1234 Default **IP Address** is: 192.168.0.200

If the AMF41W is connected to a pre-existing network then it will be provided an IP Address via DHCP. There are several ways in which you can find the IP address of the device as follows:

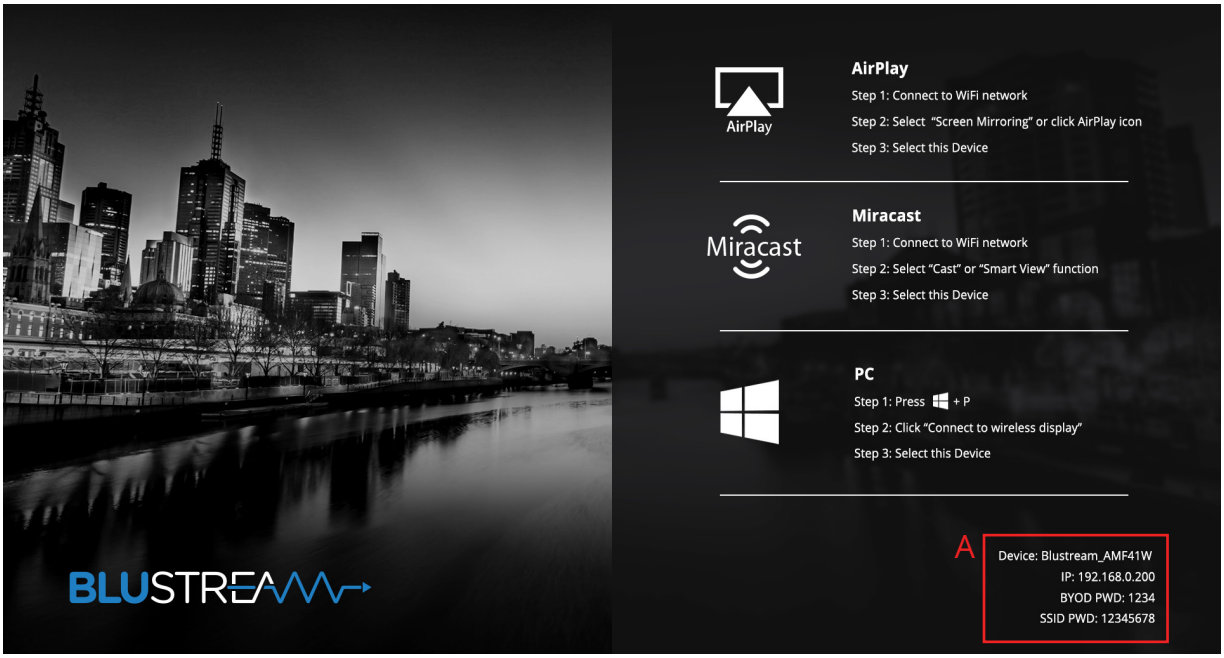
- The On Screen Display shows the IP address of the product in the lower right corner of the screen (item A in the image below).
- Use a 3rd party IP scanning tool on your PC to find the IP address of the AMF41W.

Connecting via Local WiFi Hotspot:

This device can broadcast its own local WiFi hotspot which users can connect to in order to stream content to the device, or control and configure it. The default local WiFi hotspot settings are as follows:

Default **Device ID / SSID** is: Blustream_AMF41W Default **SSID Password** is: 12345678 Default **BYOD PIN** is: N/A

It is also possible to disable the local WiFi hotspot and hardwire the AMF41W into a pre-existing data network. You would then use the pre-existing WiFi access points to connect to the network and communicate with the AMF41W.



RS-232 Configuration

The RS-232 port is used for control of source or display from the AMF41W. The default RS-232 communication settings are:

Baud Rate: 57600 **Data Bit:** 8

Stop Bit: 1 **Parity Bit:** none

Telnet Commands

The Blustream AMF41W can be controlled via Telnet The following pages list all available commands for this advanced multi-format presentation solution.

Common Mistakes

- Carriage return – Some programs do not require the carriage return where as other will not work unless sent directly after the string. In the case of some Terminal software the token <CR> is used to execute a carriage return. Depending on the program you are using this token maybe different. Some other examples that other control systems deploy include \r or 0D (in hex).
- Spaces – Blustream commands do not require space between commands unless specified. There may be some programs that require spacing in order to work.

API Command Overview

API commands of the unit are mainly classified into the following types:

- **config**: manage the configuration of the device
- **control**: control the device to carry out a command
- **layout**: adjust features related to screen layout
- **scene**: manage scenes
- **event**: message to report device state changes

The following pages outline the individual API commands feaures within the classification types listed here.

Example command structure:

Where the API command is: config --outputresolution [resolution]

The variable is contained within the brackets and listed within the command description. For the command above, if the resolution is to be set to 3840x2160P60 then the resulting command would read:

config --outputresolution 3840x2160p60

Where multiple variables are configured within one command line, the variables are divided by brackets, a space is required between the variable:

Example command.: config --lan-info [dhcp / static] [IP address] [netmask] [gateway]

The command would be: config --lan-info static 192.168.1.88 255.255.255.0 192.168.1.1

Config Commands

COMMAND	COMMAND DESCRIPTION
config --name [name]	Configure the device name
config --output-resolution [resolution] Where resolution = 3840x2160P@60; 3840x2160P@50; 3840x2160P@30; 3840x2160P@25 3840x2160P@24; 1920x1080P@60; 1920x1080P@50; 1920x1080P@30 1920x1080P@25; 1920x1080P@24; 1680x1050P@60; 1600x1200P@60 1440x900P@60; 1366x768P@60; 1280x1024P@60; 1280x720P@60 1280x720P@50; 1024x768P@60; 800x600P@60; 720x480P@60 640x480P@60 Note: default is [auto]	Configure the resolution of the HDMI output
config --auto-switch-source [y / n]	Configure the automatic switching feature.
config --lan-info [dhcp / static] [IP address] [netmask] [gateway]	Configure the wired Ethernet settings
config --hdcp-enable [y / n]	Configure whether the HDCP feature of HDMI out interface is enabled
config --rs232-param [baudrate] [data bit] [parity] [stop bit]	Configure the RS-232 communication settings used to control the external display
config --rs232-hex-cmd-enable [y / n]	Configure whether to set the commands used to control the external display with hexadecimal format
config --rs232-sinkpoweron-cmd [power on command]	Configure the RS-232 command string used to turn on the external display (must be hexadecimal)
config --rs232-sinkpoweroff-cmd [power off command]	Configure the RS-232 command string used to turn off the external display (must be hexadecimal)
config --auto-standby-time [minutes]	Configure the timeout of the automatic standby feature in minutes (full minutes only)
config --source-select [video name] config --source-select [video name] [window position] Where video name = HDMI1; HDMI2; HDMI3; HDMI4; BYOD1; BYOD2; BYOD3; BYOD4; GUIDE (Home screen) Where window position (if multi-view is being used) = 1 - 7	Control the device to display a video source Control the device to display a video source in position (where multi-view is used)
config --input-state [video name]	Query the details of the video source(s)
config --media-source [current video name] [new video name] Where current video name will be (i.e.): HDMI1 new video name can be (i.e.): Camera	Manage / rename video source inputs
config --audio-select [video name]	Control the device to play the audio of the designated video source
config --access-code [access code / Auto]	Configure the access code of BYOD video source. Note: access code should be 4 digits long
config --softap-password [password]	Configure the password of the soft AP. Note: passwrd can only be 8 digits long and made from numbers or letters
config --softap-enable [y / n]	Configure whether the Soft AP is enabled
config --byod-enable [y / n]	Configure whether the BYOD sink is enabled
config --analog-audio-latency [audio latency in ms]	Configure the latency of analogue auido output. Note: device latency can be set from 0 - 200ms
config --wifi-mode [2 / 5.2 / 5.8 / 5] [channel / auto] Where: WiFi band: 2 = 2.4G; 5.2 = 5.2G; 5.8 = 5.8G; 5 = full 5G band Channel: 2.4G band - channels: 1 - 11, or auto 5.2G band - channels: 36, 40, 44, 48, or auto 5.8G band - channels: 149, 153, 157, 161, or auto 5G band - channels: 36, 40, 44, 48, 149, 153, 157, 161, or auto	Configure the work mode of the Wi-Fi module
config --softap-router [y / n]	Configure whether enable the soft router
config --edid [video name] [edid profile / passthrough]	Configure the EDID of the input ports
config --rs232-usage [output name / video name / null]	Configure the usage of the RS-232 port to use the RS-232 to control the source, display or none (null).
config --cec-usage [sink / null]	Configure the usage of the internal CEC feature to control the display or none (null)
config --help	Shows a simple guide of all configuration commands

Control Commands

COMMAND	COMMAND DESCRIPTION
control --reboot	Reboot the device manually
control --reset-to-default	Resets the device to factory defaul
control --upgrade-firmware [OTA package path]	Upgrade the device firmware with the OTA package. Note: OTA package path is the absolute path of the .zip file on your PC.
control --video-source [video name] [window number]	This command is the equivalent to the 'config --source-select' command - see previous page
control --audio-source [video name]	This command is the equivalent to the 'config --audio-select' command - see previous page
control --stop-video [video name] [window number]	Stop playing the designated input source with or without out changing the screen layout in multi-view (where [window number] is added to the command line
control --sinkpower [on / off]	Sends a CEC on / off command to the display to power on or off the device
control --show-osd	Shows all OSD (on screen display) items for 10 seconds to display information such as access code and soft AP password
control --set-layout-video [layout number] [video name 1] [video name2] [video name3] [.....]]]]	Sets the screen layout and displays the input device images respectively within one command. Please refer to Layout commands for [layout number] on next page
control --device-info	Obtain the information about the unit model and firmware version
control --serial -b [param] -r [on / off] -h [on / off] -t [timeout] [command string] Where: -b = RS-232 parameters: [baudrate] [data bit] [parity] [stop bit] -r = include a carriage return to the end of the command string [on / off] -h = set whether the command string is in hexadecimal or not [on / off] -t = designate the timeout in which the command will return (0 = default) [command string] = the data to be sent	Send a command string through the RS-232 port and receive the response data
control --help	Show a simple guide of all configuration command

Layout Commands

COMMAND	COMMAND DESCRIPTION
layout --start-video [video name]	Start to display an input video source, the screen layout will be changed automatically. If there is no free window (view) which can be used to display the source, the device will first switch to a layout with more windows before displaying the video. If there is no free window, nor screen layout with more windows, the device will stop the 'oldest' or first video source and replace with the new video input
layout --stop-video [video name] [window number]	Stop displaying a video source, the screen layout will be changed automatically. This is the reverse of the above command.
layout --add -no [layout number] -main [main window] See below for layout numbers as per web-GUI	Add a screen layout to the device
layout --del [layout number]	Delete a screen layout from the device
layout --list	Lists all available screen layouts configured within the device
layout --show [layout number]	Query the detail of a screen layout
layout --set [layout number]	Set the device to output a new screen layout
layout --get	Queries the information related to the current screen layout
layout --auto [y / n]	Enable / disable whether the device can change the screen layout automatically
layout --help	Show a simple guide of all layout command

INSERT HERE LAYOUT DIAGRAMS WITH LAYOUT NUMBERS FOR ABOVE COMMANDS

Scene Commands

COMMAND	COMMAND DESCRIPTION
scene --add [scene name] [layout number] [video name1] [video name2] [video name3.....]]]] Where scene name = a case sensitive name for the scene	Add a scene for the device. A scene is a pre-configured setting for a control –set-layout-video command. See page 7 for control commands. Note: If the scene name is the same as an existing scene name, the comand will modify the scene settings
scene --del [scene name]	Delete a scene from the device
scene --list	List all scenes configured within the device
scene --show [scene name]	Query the detail of a scene
scene --apply [scene name]	Apply a scene to the device

Event Commands

The Event command section is not a list of commands that can be sent from a controller, but feedback from the AMF41W outlining a change of a configuration, or setting.

COMMAND	COMMAND DESCRIPTION
[Event] VideoSource	The state of one video source has changed. There will be at least 2 variables returned to the console. The first is the name of the video source, followed by the detail of the change for the video source. If the video source loses signal, the words NoSignal is used as the detail for the video source. If the video source is amended, the detail following the video source name will be the timing and format of the video signal.
[Event] WorkMode [normal / sleep]	The device mode has changed to the state detailed in the feedback.
[Event] Layout [layout name] [layout number]	The screen layout has changed
[Event] Button [button name] [press / longpress]	A button on the front panel is pressed. The first feedback detail is the button name as per the printing on the front of the AMF41W. Followed by a short press or long press of the button.

Notes

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