BZB2GEAR®

Solutions to Amplify Your World™

BG-UHD-44M

4X4 4K 60Hz HDR HDMI Matrix Switcher with Auto Downscaling and RS-232/IP/Cloud

User Manual

TABLE OF CONTENTS

Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.

- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.

- Do not expose the product to rain or moisture.

- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.

- Do not use the product beyond the specified temperature, humidity or power supply specifications.

- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.

- Installation and use of this product must strictly comply with local electrical safety standards.

Introduction

The BG-UHD-44M is a 4x4 HDMI matrix switch, supporting resolutions up to 4K@60Hz 4:4:4. Equipped with 4 HDMI 2.0a inputs and 4 HDMI 2.0a outputs, this unit offers 18Gbps uncompressed bandwidth on all HDMI ports. Additionally, the auto-scaling feature provides the ability to downscale from 4K to 1080P, ensuring that multiple displays are supported.

This HDCP 2.2 compliant matrix can route any of the four inputs to any output utilizing either the front panel push buttons, IR remote control, RS-232, web interface, or cloud control. The control software, provided via RS-232 or the web interface, allows full control with the ability to adjust advanced features including EDID, mapping, and network settings.

All four HDMI sources provide multi-channel digital audio (up to 7.1-channel) to any or all of the output displays simultaneously and support various audio formats including Dolby Digital®, DTS-HD®, and Dolby TrueHD audio.

Features

- Resolutions up to 4K@60Hz 4:4:4
- HDCP 2.2/HDCP1.x and DVI compliant
- Smart CSC technology supports output resolutions of 4K@60Hz 4:4:4 or 4:2:0
- HDR and full 3D
- HDCP management
- Audio extraction from HDMI output to associated L/R stereo audio output and coaxial SPDIF output simultaneously
- Multiple control modes: Push Buttons, IR Remote, RS-232 (API) and GUI.
- Advanced EDID management for rapid integration of sources and displays

Packing List

- 1x BG-UHD-44M
- 1x Rack-Mounting Ear Set
- 1x IR Receiver
- 1x Installation Software CD
- 1x DC 5V 4A
- 1x User Manual
- 1x IR Remote control

Specifications

Signal	
HDMI Compliance	HDMI 2.0
HDCP Compliance	HDCP 2.2 and HDCP 1.x
Video Resolutions	18Gbps (4K@60Hz 4:4:4 8bit)
HDMI Cable Distance	1.5 meters for 4K@60Hz 4:4:4 (HDMI 2.0 certified cable)
RS232 Baud Rate	57600
IR Carrier Frequency	30-55 KHz at 5 volts
Chroma Subsampling	4:4:4, 4:2:2, 4:2:0
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color depth	1080p 48 bit, 4K 24 bit
Audio Formats	Up to PCM 8 channel, Dolby Digital TrueHD and DTS-HD Master Audio
I/O Connections	
HDMI Inputs	4x HDMI Type A Female
HDMI Outputs	4 x HDMI Type A Female
IR In	5x 3.5mm Stereo Earphone Jack
IR Out	4x 3.5mm Stereo Earphone Jack
Audio Inputs	N/A
Audio Outputs	4x RCA Jack (SPDIF), 4x 3.5mm Stereo Earphone Jack
TCP/IP	N/A
RS232	1x DB9 Port Female
Temperature	
Operating	32°F to 104°F (0°C to 40°C)
Storage	-4°F to 140°F (-20°C to 60°C)
Humidity (RH)	20% to 90%, non-condensing
Power	
Consumption	13.2W (Max. 12V/1.1A)
Idle Consumption	N/A
Supply	Input: 100-240V AC, 50/60Hz, Output: 12V/2A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	
Air-gap discharge	±8kV
Contact discharge	±4kV
Dimensions & Weight	
Dimensions	315mm x 135mm x 45mm, without feet
Weight	1.376kg

Operation Controls and Functions

Front Panel

| No.	Name
1	**Power switch -** Power on/off the matrix.
2	**Input LED indicator 1 to 4 -** Lit when the corresponding input is selected.
3	**Output selection button 1 to 4 -** Press to select the input source from 1 to 4.
4	**IR receiving window** - Receive IR signal from the remote control of the matrix.

Rear Panel
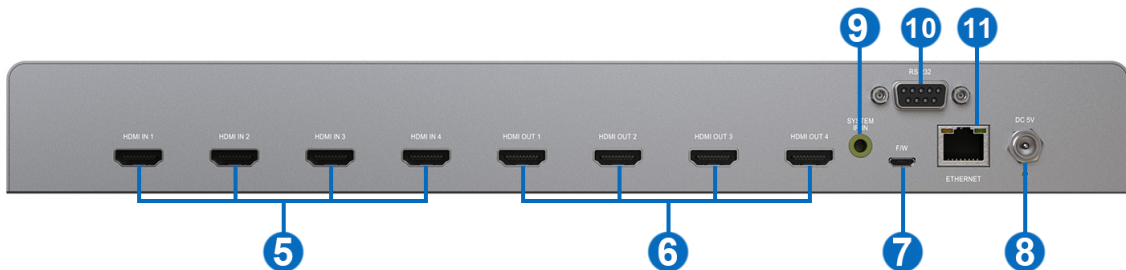
No.	Name
5	**HDMI inputs 1 to 4** - Connect to HDMI sources such as game consoles.
6	**HDMI outputs 1 to 4** - Connect to HDMI displays.
7	**Micro USB** - Upgrade the software in your controller by directly plugging into this connection from your PC.
8	**Power port** - Use the included 12V/2A DC adaptor to power the matrix.
9	**System IR In** - 3.5mm stereo earphone jack.
10	**RS232 port** - RS-232 provides a reliable method of communication to a wide variety of control systems
11	**LAN** - Network Control Connection.

Remote Control
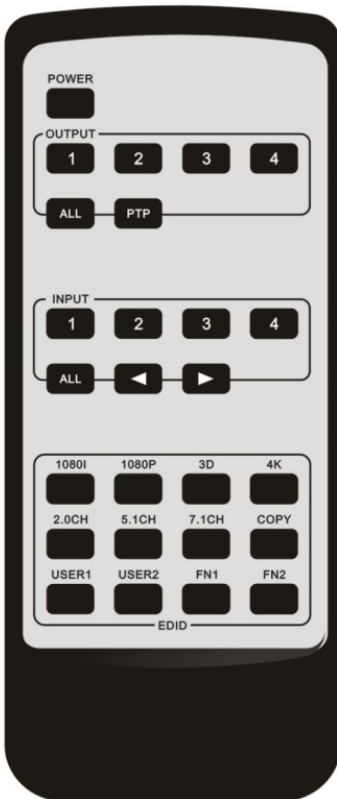
Output and Input select

1. Change Output source:
   a. Press OUTPUT-#
   b. Press INPUT-#

2. All outputs select same input:
   a. Press ALL button OUTPUT
   b. Press INPUT-#

3. Pass Through:
   a. Press PTP button in Zone OUTPUT

EDID Set Up

1. Fixed EDID to INPUT-#/ALL
   a. Press 1080I/1080P/3D/4K
   b. Press 2.0CH/5.1CH/7.1CH
   c. Press INPUT-#/ALL button in Zone INPUT

2. Copy EDID of OUTPUT-# to INPUT-#/ALL
   a. Press COPY button
   b. Press OUTPUT-# button
   c. Press INPUT-#/ALL button

3. User defined EDID to INPUT-#/ALL
   a. Press USER1/USER2 button
   b. Press INPUT-#/ALL

NOTE: Pressing buttons in sequence should be completed within 5 seconds or the operation will be discarded.

Application Diagram
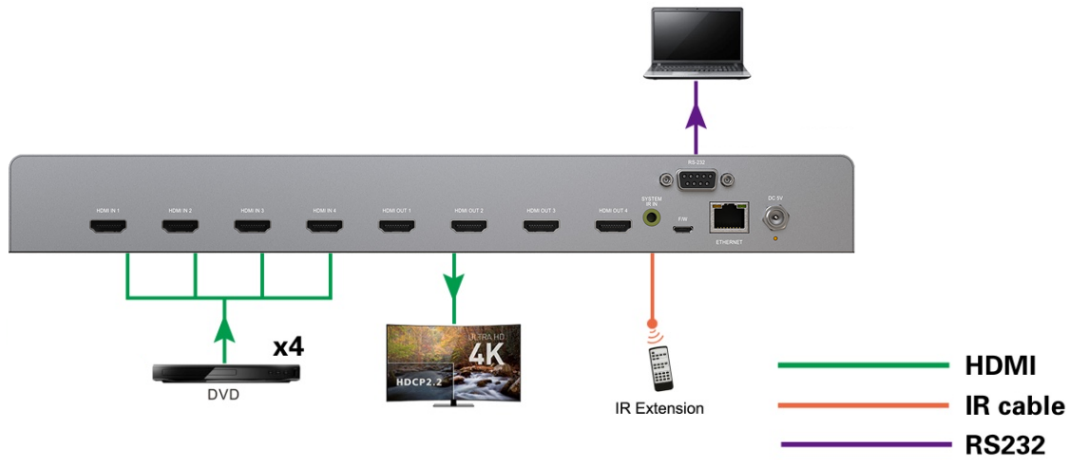
RS-232 Pin Assignment

BG-UHD-44M (DCE)		Remote Control Console (DTE)	
PIN	Assignment	PIN	Assignment
1	NC	1	NC
2	Tx	2	Rx
3	Rx	3	Tx
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

Baud Rate: 57600 bps
Data Bit: 8-bit
Parity: None
Stop Bit: 1-bit
Flow Control: None

NOTE: Use **Straight Through DB9 Cable** to connect the matrix to a computer, **DO NOT** use a Crossover Cable (Null Modem Cable).

RS232 and Telnet Commands

Command	Action
?	Print Help Information
HELP	Print Help Information
STATUS	Print System Status And Port Status
PON	Power On, System Run On Normal State
POFF	Power Off, System Run On Power Save State
IR ON/OFF	Set System IR Control On Or Off (Only for IR Extension)
KEY ON/OFF	Set System KEY Control On Or Off
BEEP ON/OFF	Set Onboard Beep On Or Off
RESET	Reset System To Default Setting, Should Type 'Yes' To Confirm, 'No' To Discard
DBG TX xx OSP SRC	HDCP version follows source xx=01-04 (input) xx=00, all inputs 01-04
DBG TX xx OSP SNK	HDCP version follows sink xx=output 01-04 (output) xx=00, all outputs 01-04
OUT xx ON/OFF	Set OUTPUT:xx On Or Off
OUT xx CSC cc	Set OUTPUT: xx Color Space Convert Mode xx=00: Select All INPUT Port xx=[01...04]: Select One INPUT Port cc=OFF: Disable Convert Function cc=420: Always Convert 6G 444 Format To 3G 420 cc=AUTO: Auto Convert 6G 444 Format To 3G 420 When Detect Sink Not Support 6G 444
OUT xx FR yy	Set OUTPUT:xx From INPUT:yy
EDID xx CP yy	Set Input:xx EDID Copy From Output:yy
EDID xx DF zz	Set Input: xx EDID To Default EDID zz xx=00: Select All INPUT Port xx=[01...04]: Select One INPUT Port yy=[01...04]: Select One OUTPUT Port zz=00: HDMI 1080p@60Hz, Audio 2CH PCM zz=01: HDMI 1080p@60Hz, Audio 5.1CH DTS/DOLBY zz=02: HDMI 1080p@60Hz, Audio 7.1CH DTS/DOLBY/HD zz=03: HDMI 1080i@60Hz, Audio 2CH PCM zz=04: HDMI 1080i@60Hz, Audio 5.1CH DTS/DOLBY zz=05: HDMI 1080i@60Hz, Audio 7.1CH DTS/DOLBY/HD zz=06: HDMI 1080p@60Hz/3D, Audio 2CH PCM zz=07: HDMI 1080p@60Hz/3D, Audio 5.1CH DTS/DOLBY zz=08: HDMI 1080p@60Hz/3D, Audio 7.1CH DTS/DOLBY/HD zz=09: HDMI 4K@30Hz 4:4:4, Audio 2CH PCM zz=10: HDMI 4K@30Hz 4:4:4, Audio 5.1CH DTS/DOLBY zz=11: HDMI 4K@30Hz 4:4:4, Audio 7.1CH DTS/DOLBY/HD zz=12: DVI 1280x1024@60Hz, Audio None zz=13: DVI 1920x1080@60Hz, Audio None zz=14: DVI 1920x1200@60Hz, Audio None zz=15: User EDID 1 zz=16: User EDID 2 zz=17: GUI Download EDID zz=18: HDMI 4K@60Hz 4:2:0, Audio 2CH PCM zz=19: HDMI 4K@60Hz 4:2:0, Audio 5.1CH DTS/DOLBY zz=20: HDMI 4K@60Hz 4:2:0, Audio 7.1CH DTS/DOLBY/HD zz=21: HDMI 4K@60Hz 4:4:4, Audio 2CH PCM zz=22: HDMI 4K@60Hz 4:4:4, Audio 5.1CH DTS/DOLBY zz=23: HDMI 4K@60Hz 4:4:4, Audio 7.1CH DTS/DOLBY/HD

GUI Control
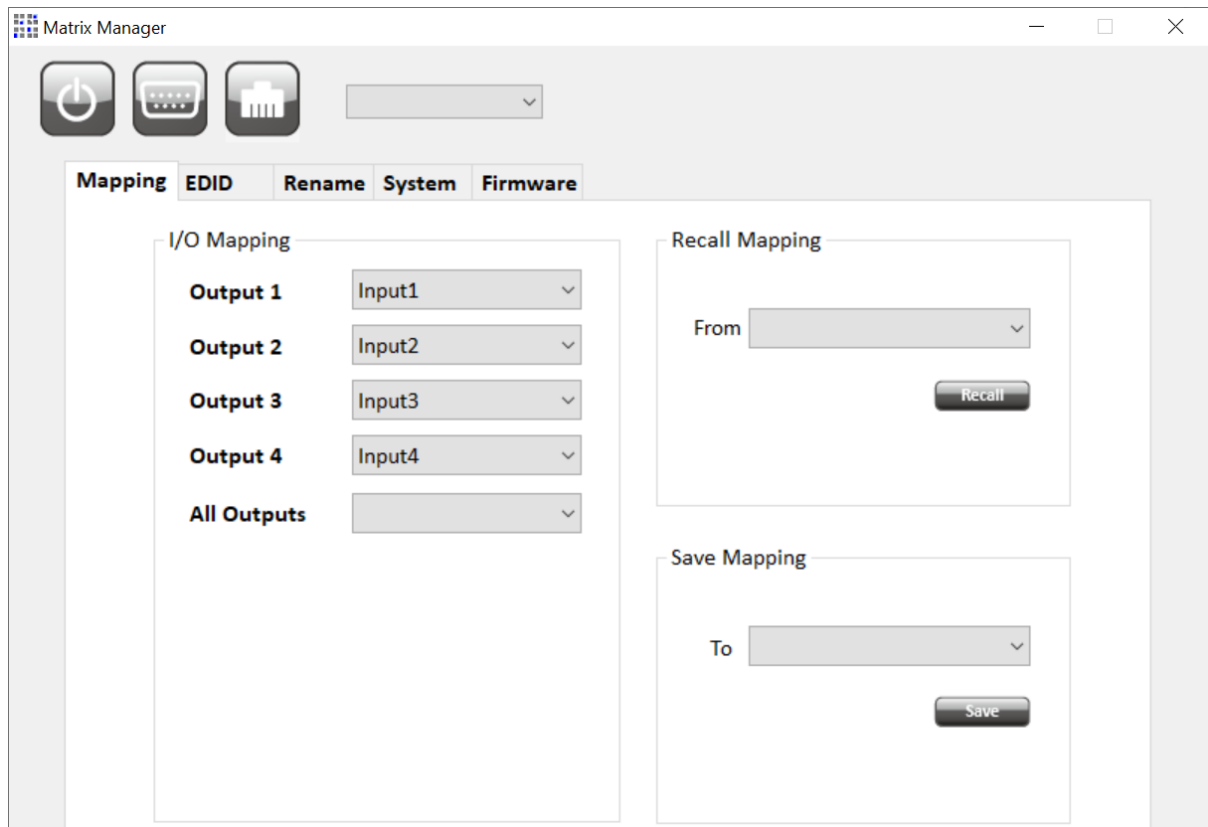
System Requirements

Microsoft Windows
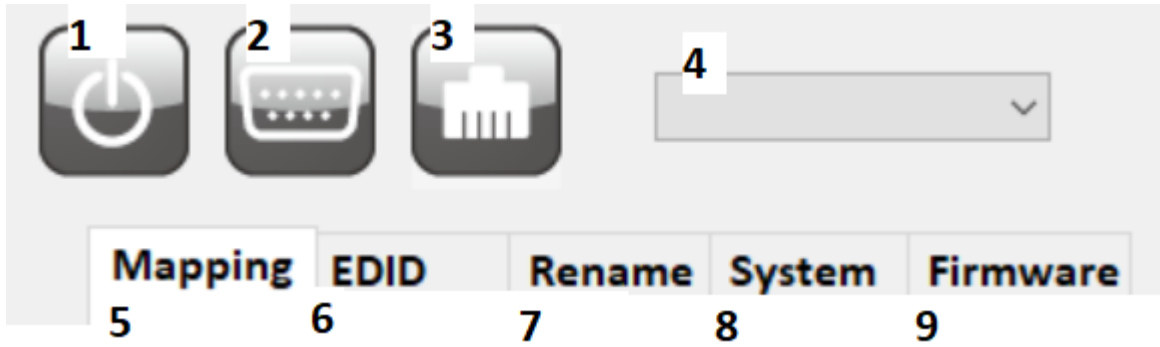
1. Power ON/ Standby mode
2. Control SW via RS-232
3. Control SW via Network
4. COM Port Selection
5. I/O Routing Tab
6. EDID Tab
7. Rename I/O Tab
8. Network Setting and Factory Reset
9. Firmware update tab

"Mapping" Page

On this page you can change the HDMI mapping of the matrix.

I/O Mapping

1. Choose which output you would like to modify.
2. Select an Input# from the dropdown menu.
3. Select an Input# in All Outputs to change all outputs to display the selected input source.

Save Mapping

1. To save a matrix mapping configuration select a "Mapping #" from the dropdown menu in the "Save Mapping" box.
2. Click the "Save" button to save the configuration.

Recall Mapping

1. To recall a saved mapping configuration select a "Mapping #" from the dropdown menu in the "Recall Mapping" box.
2. Click the "Recall" button to recall the selected previously saved mapping configuration.

EDID

On this screen you can modify the EDID settings for the matrix.

Learn EDID

1. Use either the "From Default," "From Display," or select a "File Name" to choose a default resolution, information from a connected display or a previously save/created EDID bin file.
2. Select the Input #/All from the "To" dropdown box you wish to modify
3. Click "Apply."

View EDID

1. Select a matrix port whose EDID information you would like to view from the dropdown box.
2. Click "View"

Rename

On this screen you can modify the display names of the Inputs, Outputs, and Preset Mappings up to a total of 7 characters.

1. Type in the desired name in the box whose name you would like to modify.
2. Click "Save" to save the changed
3. Click "Read" to display/refresh the names on the page.

System

On this page you can modify Network settings, view Cloud information, check firmware version, and factory reset the unit.

Network
1. Select the DHCP radial to have the network/router assign an IP address from your network.
2. Select the Static Radial to manually configure the IP address settings such as IP, Mask, and Gate way.
3. Press the "Read" button to read current device settings or click the "Save" button to save modified settings.
4. **The default IP address is 192.168.1.70**

System
1. Click the "Factory Reset" button to return the matrix to its original settings and configuration.
2. Click the "Firmware Version" button to view the current version of the device.

Cloud Setting

The first time to use the Eagleyes service, please create a new account.

1. Access Eagleyes (http://www.eagleyes.io) and click "Create new account".

2. The Registration page will pop up and please fill in your email and password information to create your private account.
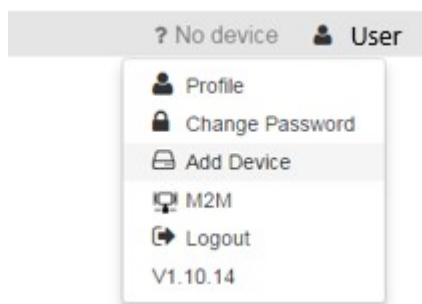
Add Device to Eagleyes

1. First, please make sure the device is connected to the Ethernet. Then please execute the software with device to get the association code
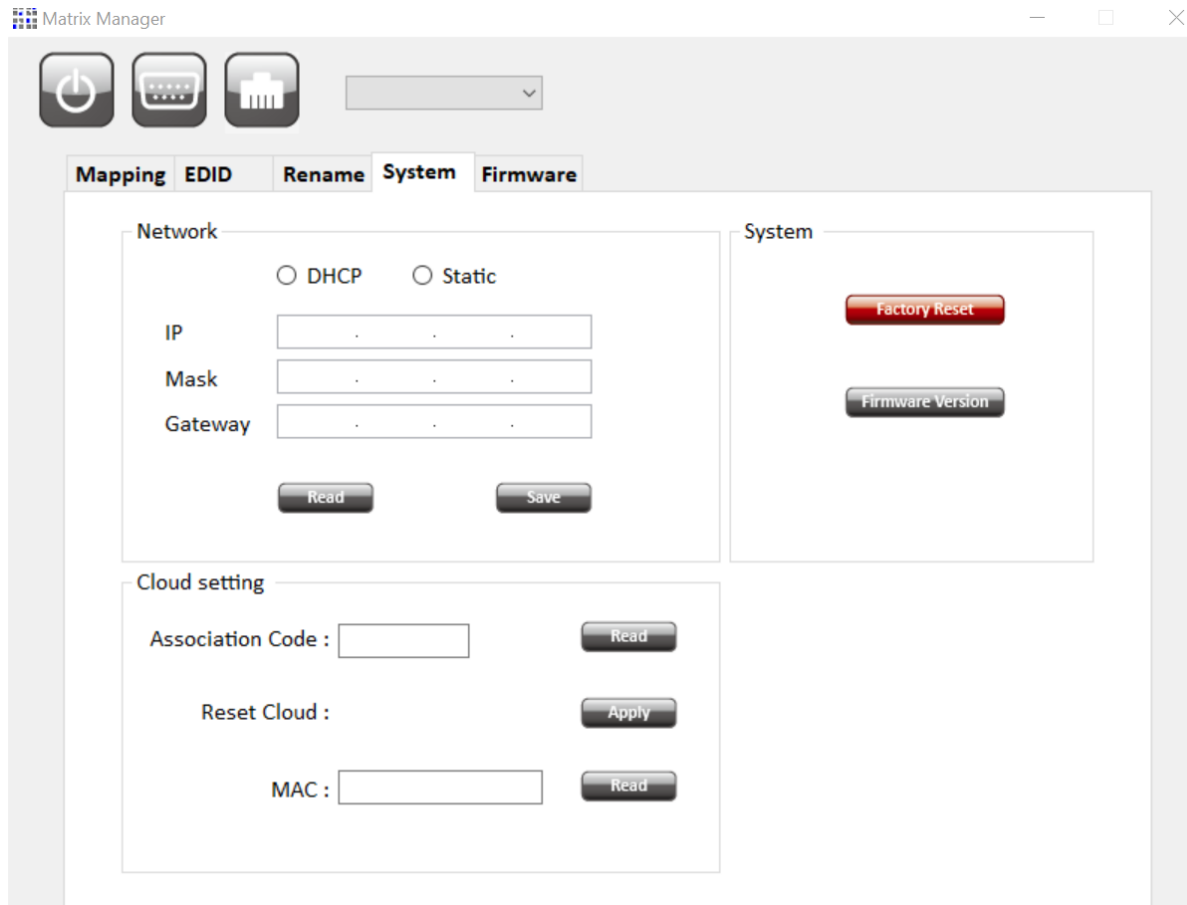
2. Access Eagleyes (http://www.eagleyes.io) or download Eagleyes APP, and then log in your account on the right top corner. Click **Add device** to add the device which you just got its association code.

3. Enter the Installer Email for online support in the future, and the Association Code for pairing with your device.
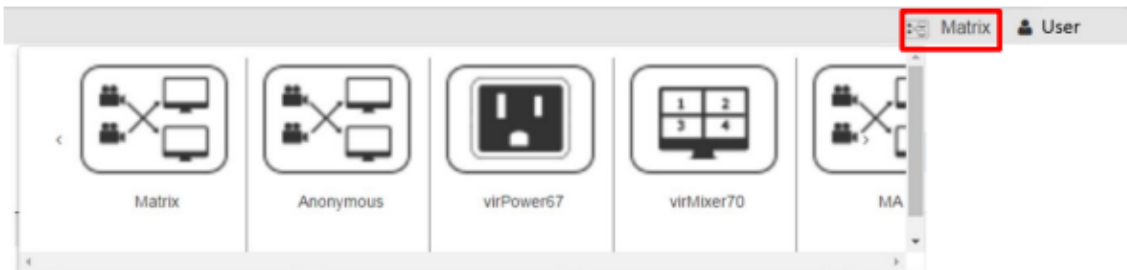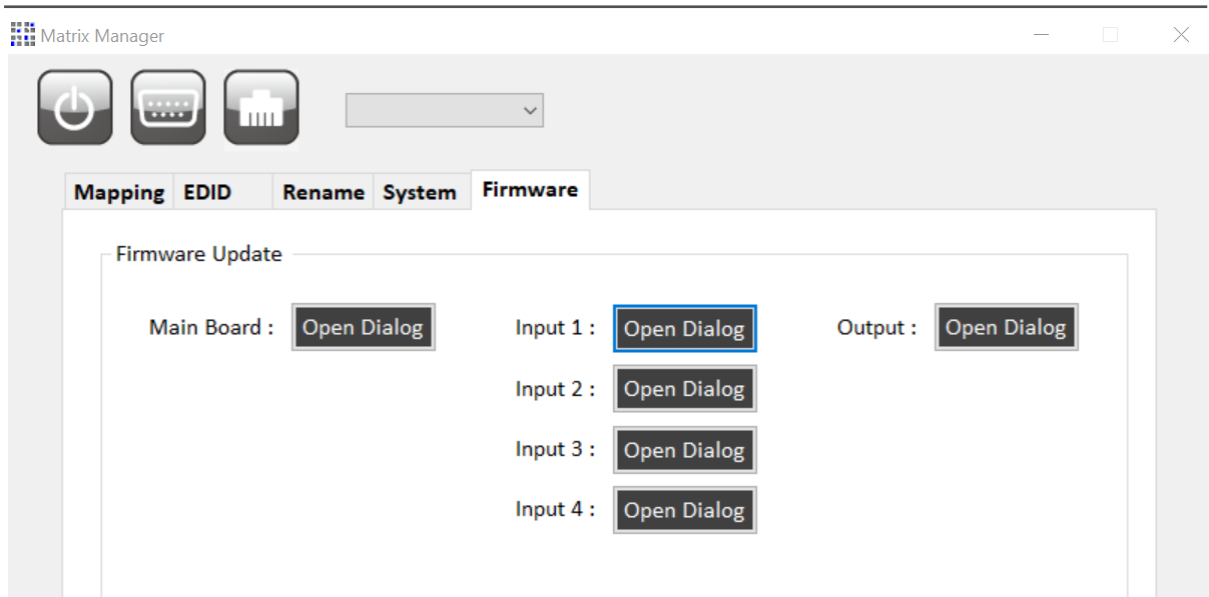

4. After adding the device, the list of devices related to your account will show on the right top corner. You can click the button to switch the device for control.
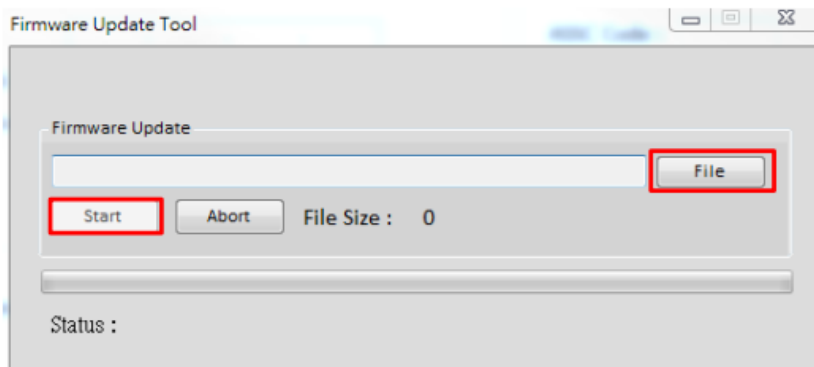
Firmware

Use this page to update the device firmware.
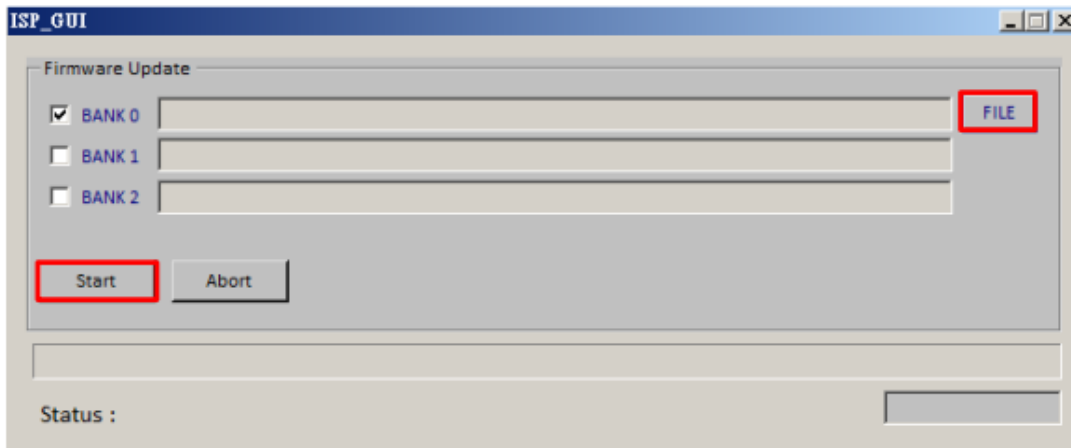
Firmware Update-Main Board

- Click "Main Board" button and another window will pop-up
- Click "File" button to load firmware
- Click "Start" button to do firmware update
- Please power cycle after firmware update complete

Firmware Update-Input

- Click "Input" button and another window will pop-up
- Click "FILE" button to load firmware
- Click "Start" button to do firmware update
- Please power cycle after firmware update complete

Firmware Update-Output

- Click "Output" button and another window will pop-up
- Click "FILE" button to load firmware
- Click "Start" button to do firmware update
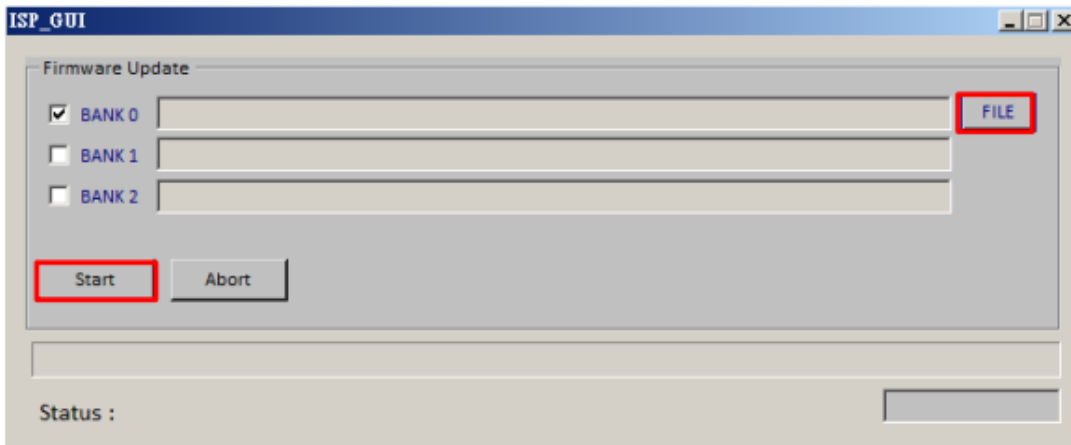- Please power cycle after firmware update complete

Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

<u>Phone</u>	<u>Email</u>	<u>Live Chat</u>
1.888.499.9906	support@bzbgear.com	bzbgear.com

Warranty

BZBGEAR Pro AV products and cameras come with a three-year warranty. An extended two-year warranty is available for our cameras upon registration for a total of five years.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

Mission Statement

BZBGEAR is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGEAR delivers quality products designed with users in mind.

Copyright

All the contents in this manual and its copyright are owned by BZBGEAR. No one is allowed to imitate, copy, or translate this manual without BZBGEAR's permission. This manual contains no guarantee, standpoint expression or other implies in any form. Product specification and information in this manual is for reference only and subject to change without notice.