BZB GEAR®
Solutions to Amplify Your World™

BG-UHD-DA1X24

1X24 4K 18Gbps UHD HDMI Splitter with Downscaling/Audio Extraction /RS-232 and Active Optical Cable Support

User Manual

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Statement

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

Safety Precaution

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
- Do not dismantle the housing or modify the module.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Do not put any heavy items on the extension cable in case of extrusion.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.
- Unplug this device during lightning storms.
- Do not use liquid or aerosol cleaners to clean this unit. Clean only with a soft dry microfiber cloth.
- Always unplug the power to the device before cleaning.
- If an object or liquid falls or spills on to the housing, unplug the module immediately.
- 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.
- Only use accessories specified by the manufacturer.
- Product specifications may be subject to technical upgrades without further notice.
- Unplug the power cord when left unused for a long period of time.

Introduction

The BG-UHD-DA1X24 is a 1x24 splitter that can distribute one HDMI input to twenty-four HDMI outputs. This distribution amp supports HDMI 2.0, 4K signals up to 4K@60Hz 4:4:4, HDR 10, Dolby Vision, and features an advanced EDID management system using a 4-pin DIP switch on the front panel of the unit. The BG-UHD-DA1X24 offers downscaling so a 4K video input can automatically be downscaled to a 1080p output when connecting a legacy display. Stereo analog L/R audio output is provided for audio de-embedding from the HDMI input and the splitter also supports CEC and RS232 control.

Features

- HDMI V2.0, 4K@60Hz 4:4:4 8bit, HDR 10 and Dolby Vision.
- HDCP 2.2 compliant.
- Compatible with HDMI active optical cables (AOC) and provides up to 5V100mA power on each output.
- Auto 4K to 1080p downscaling.
- Stereo analog L/R audio output for audio de-embedding from HDMI input.
- Smart EDID management and HDCP management.
- CEC and RS232 control.

Packing List

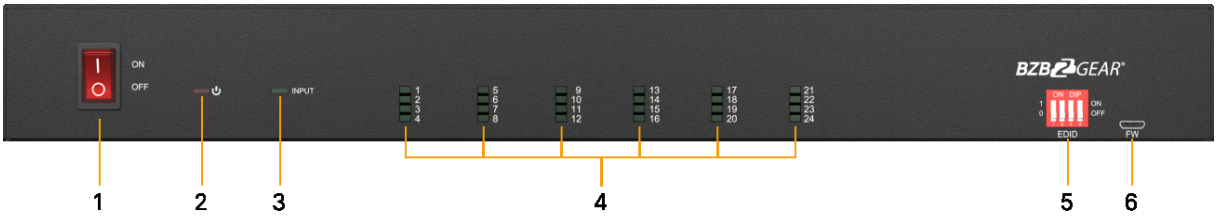
- 1x 24 Splitter
- 2x Mounting Ears with 4 Screws
- 4x Plastic Cushions
- 1x RS232 Cable (Female DB9 to Male DB9)
- 1x Power Adapter (24V DC, 1.25A)
- 1x User Manual
- 1x Quick Start Guide

Specifications

Video	
Input	(1) HDMI
Input Connector	(1) Type-A female HDMI
Input Video Resolution	Up to 4K@60Hz 4:4:4 8bit, HDR10, Dolby Vision
Output	(24) HDMI
Output Connector	(24) Type-A female HDMI
Output Video Resolution	Up to 4K@60Hz 4:4:4 8bit, HDR10, Dolby Vision, supports 4K to 1080p down-scaling
HDMI Output	Supports up to 5V100mA power for AOC cable
HDMI Standard	V2.0
HDCP Version	2.2
HDMI Audio Signal	LPCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby Digital® Plus, DTS:X™, and DTS-HD® Master Audio™ pass-through.
Analog Audio Output	
Output	(1) AUDIO
Output Connector	(1) RCA (L+R)
Frequency Response	20Hz~20kHz, ±1dB
Max output level	2.0Vrms ± 0.5dB. 2V=16dB headroom above-10dBV (316mV) nominal consumer line level signal
THD+N	< 0.05%, 20Hz~20kHz bandwidth, 1kHz sine at 0dBFS level (or max level)
SNR	> 80dB, 20Hz~20kHz bandwidth
Crosstalk isolation	< -80dB, 10kHz sine at 0dBFS level (or max level before clipping)
L-R level deviation	< 0.05dB, 1kHz sine at 0dBFS level (or max level before clipping)
Output load capability	1Kohm and higher (supports 10x paralleled 10k Ohm loads)
Noise Level	- 80dB
Control Part	
Control Port	(1) EDID Switch, (1) FW, (1) RS232
Control Connector	(1) 4-pin DIP switch, (1) Micro-USB, (1) Female DB9
General	
Bandwidth	18Gbps
Operation Temperature	23°F ~ 131°F / -5°C ~ +55°C
Storage Temperature	-13°F ~ 158°F / -25°C ~ +70°C
Relative Humidity	10%-90%
External Power Supply	Input: AC 100~240V, 50/60Hz; Output: 24V DC 1.25A
Power Consumption	29W (Max)
Dimension (W*H*D)	14.2” x 1.6” x 4.9" [360mm x 40mm x 125mm]
Net Weight	3.2lbs [1.44Kg]

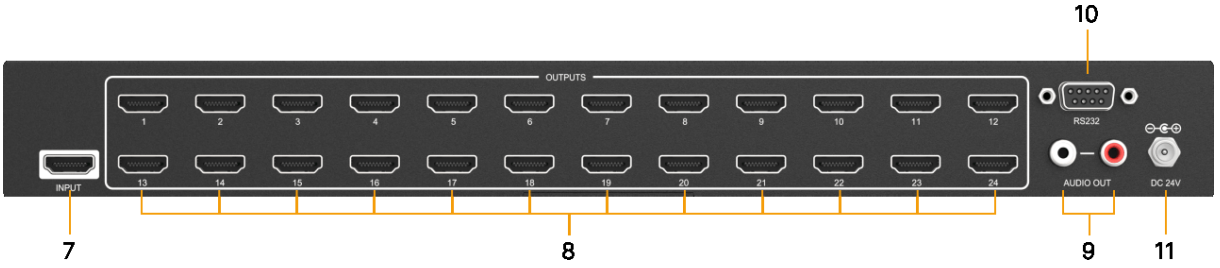
Operation Controls and Functions

Front Panel



1. **POWER SWITCH**: Power on/off the splitter.
2. **POWER LED**: Illuminates red when the device is powered on.
3. **INPUT LED**: Illuminates green when an HDMI input is detected.
4. **OUTPUT LEDs (1-24)**: Illuminates green when an HDMI output on the corresponding channel is detected.
5. **EDID**: 4-pin DIP switch for EDID setting and HDCP mode selection.
6. **FW**: Micro-USB port for firmware upgrade.

Rear Panel



7. **INPUT**: Connect to an HDMI source.
8. **OUTPUTS**: Connect up to twenty four HDMI outputs to HDMI displays.
9. **AUDIO OUT**: Connect an audio device (e.g. amplifier) for audio de-embedding from HDMI input.
10. **RS232**: Connect a control device (e.g. PC) to control the splitter by sending RS232 commands.
11. **DC 24V**: DC connector for the power adapter connection.

DIP Switch Operation

The 4-pin DIP switch on the front panel of the unit is used for EDID management and HDCP management. “0” is when a switch is in the lower (OFF) position, and “1” while the switch is in the up (ON) position.

Switches 1~3 are used for EDID settings. The switch status and its corresponding setting are shown in the chart below.

Switch Status (PIN 1~3)			EDID Value
1	2	3	
0	0	0	Obtains EDID from the first detected display starting at HDMI OUT1>OUT2>.....>OUT24.
0	0	1	1920x1080@60Hz 8bit Stereo
0	1	0	1920x1080@60Hz 8bit High Definition Audio
0	1	1	3840x2160@30Hz 8bit Stereo Audio
1	0	0	3840x2160@30Hz Deep Color High Definition Audio
1	0	1	3840x2160@60Hz Deep Color Stereo
1	1	0	3840x2160@60Hz Deep Color HDR LPCM 6CH

Switch 4 is used for HDCP settings. The switch status and its corresponding setting are shown at the below chart.

Switch 4 Status	HDCP
OFF (0)	Automatically follows the HDCP version of the display device. When display device has no HDCP, if source device have no HDCP content, the video output has no HDCP content; if the source device has HDCP content, there is no video output.
ON (1)	Automatically follows the HDCP version of source device

Note: The factory default for the switch is “0000.” To enable RS232 control to set EDID and HDCP, set the switches to “1111” .

RS232 Control

Connect the RS232 port to control device (e.g. PC) with RS232 cable. The splitter can be controlled by sending RS232 commands. Set the dip switches to “1111” to control EDID and HDCP settings.

RS232 Commands

The command lists below are used to control the splitter. The RS232 control software (e.g. docklight) needs to be installed on the control PC to send RS232 commands.

After installing the RS232 control software, please set the parameters of COM number, bound rate, data bit, stop bit, and parity bit correctly to be able to send commands.

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

Note:

- All commands need to end with “<CR><LF>” (in docklite “r” and “n” are the shortcut keys for the ending commands for ASCII or “0D 0A” for HEX)
- In the commands, “[”and “]” are symbols for easy reading and do not need to be typed in actual operation.
- Type the command carefully, it is case-sensitive.

System Commands

Command	Description	Command Example and Feedback
>GetFirewareVersion	Get a firmware version.	<V1.0.0
>SetFactoryReset	Reset to factory default.	<FactoryReset_True
>SetReboot	System reboot.	<Reboot_EN
>SetHelp [Param]	Get the command details. [Param]= Any command.	>SetHelp SetHdcpActiveMode
		<Set the HDCP bypass from SRC or SINK >SetHdcpActiveMode Param Param = Src,Sink Src - Active by src Sink - Active by Sink

Setting Commands

Command	Description	Command Example and Feedback
>SetUpdateEdid	Upload user-defined EDID. The EDID DIP switch must be set as “1111”.	<User edid ready,Please send edid data in 10s. <SetUpdateEdid_True/False / <Time out to send edid
>SetInPortEdid [Param]	Set the EDID to [Param]. [Param]=0~7. 0 - BYPASS 1 - 1920x1080@60 8bit Stereo 2 - 1920x1080@60 8bit High Definition Audio 3 - 3840x2160@30Hz 8bit Stereo Audio 4 - 3840x2160@30Hz Deep Color High Definition Audio 5 - 3840x2160@60Hz Deep Color Stereo Audio 6 - 3840x2160@60Hz Deep Color HDR LPCM 6CH 7- USER EDID The EDID DIP switch should be set as “1111”.	>SetInPortEdid 0 <InPortEdid 0
>GetInPortEdid	Get the EDID.	<InPortEdid 0
>SetHdcpActiveMode [Param]	Set the HDCP active mode. [Param]= Src, Sink Src - Active by Src. Follow source. Sink - Active by Sink. Follow the display. **Note**: The EDID switch must be switched to “1111 ” before sending the command.	>SetHdcpActiveMode Src <HdcpActiveMode Src
>GetHdcpActiveMode	Get the HDCP active mode.	<HdcpActiveMode Src
>SetVideoOutput [Param1],[Param2]	Enable or disable video output. [Param1]=1~24. Output port. [Param2]= EN, Dis Dis - Disable En - Enable	>SetVideoOutput 1 ,EN <VideoOutput 1 True
>GetVideoOutput	Get video output status.	>GetVideoOutput 1
[Param]	[Param]=1~24.Output port.	<VideoOutput 1 True
>SetAutoDownScaler [Param]	Enable/disable 4K to 1080p down- scaling function. [Param]= EN, Dis Dis - Disable En - Enable	>SetAutoDownScaler EN <AutoDownScaler True
>GetAutoDownScaler	Get the on-off status of the down-scaling function.	<AutoDownScaler True
>SetRS232Baudrate [Param]	Set the baud rate to [Param]. [Param]=1~7 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600 6 - 4800 7 - 2400	>SetRS232Baudrate 1 <RS232Baudrate 1
>GetRS232Baudrate	Get the RS232 baud rate.	<RS232Baudrate 1

Video Resolution Down-scaling

This product supports video resolution downscaling. A 4K input can be automatically degraded to a 1080P output to support legacy displays as shown in the chart below.

	Input			Output	
#	Resolution	Refresh	Color Space	Downscale	1080P Specs
1	3840x2160	60Hz	4:04:04	Support	1080p@60Hz 4:4:4
2	3840x2160	50Hz	4:04:04	Support	1080p@50Hz 4:4:4
3	3840x2160	30Hz	4:04:04	Support	1080p@30Hz 4:4:4
4	3840x2160	25Hz	4:04:04	Support	1080p@25Hz 4:4:4
5	3840x2160	24Hz	4:04:04	Support	1080p@24Hz 4:4:4
6	3840x2160	23Hz	4:04:04	Support	1080p@23Hz 4:4:4
7	3840x2160	60Hz	4:02:00	Support	1080p@60Hz 4:4:4
8	3840x2160	50Hz	4:02:00	Support	1080p@50Hz 4:4:4
9	3840x2160	30Hz	4:02:00	Support	1080p@30Hz 4:4:4
10	3840x2160	25Hz	4:02:00	Support	1080p@25Hz 4:4:4
11	3840x2160	24Hz	4:02:00	Support	1080p@24Hz 4:4:4
12	3840x2160	23Hz	4:02:00	Support	1080p@23Hz 4:4:4

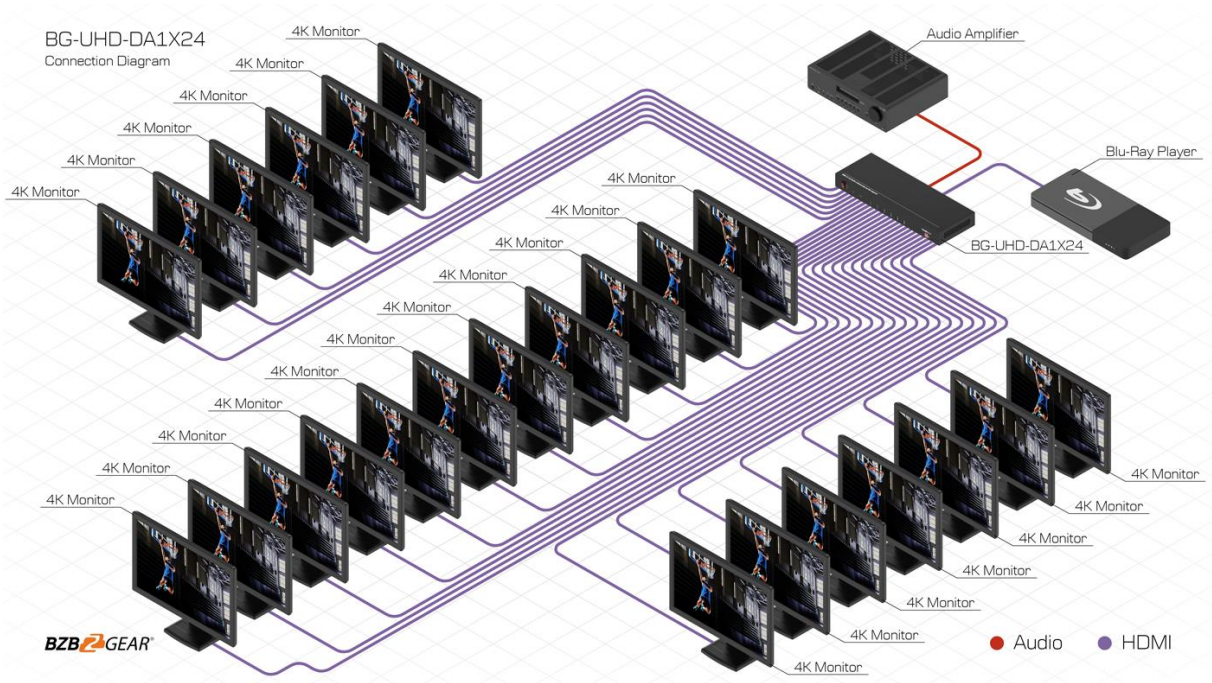
Firmware Upgrade

Please follow the steps below to upgrade firmware via the Micro-USB port:

1. Prepare the latest upgrade file (.bin) and ensure it is named “FW_MV.bin” on the PC.
2. Power off the splitter and connect the Micro-USB (FW) port of the splitter to the PC with a USB cable.
3. Power on the splitter and the PC will automatically detect a U-disk named “BOOTDISK”.
4. Double-click to open the U-disk and a file named of “READY.TXT” will be shown.
5. Copy the latest upgrade file (.bin) to the “BOOTDISK” U-disk.
6. Reopen the U-disk to check if there is a filename “SUCCESS.TXT”, if yes, the firmware was updated successfully, otherwise, the firmware update failed. Check the name of the upgrade file (.bin), and then follow the steps above to reattempt the upgrade.
7. Once complete remove the USB cable and reboot the splitter.

Application Example

The following diagram illustrates the typical input and output connection of the splitter:



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:

Phone	**Email**	**Live Chat**
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.

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