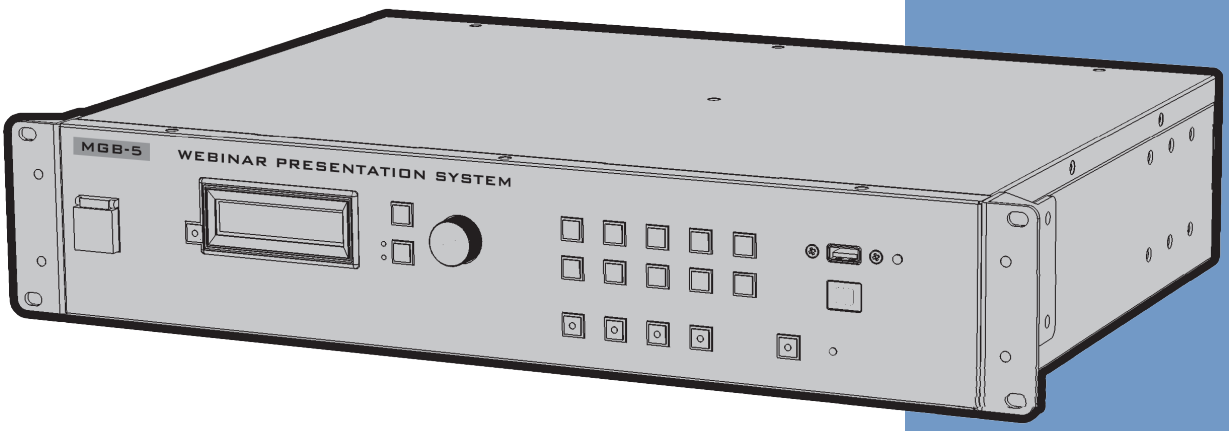
datavideo



WEBINAR PRESENTATION SYSTEM

MGB-5

Instruction manual

www.datavideo.com

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Disclaimer of Product & Services

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FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Warnings and Precautions

1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked “Do Not Remove” may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.
13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
    a. When the power cord is damaged or frayed;
    b. When liquid has spilled into the unit;
    c. When the product has been exposed to rain or water;
    d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
    e. When the product has been dropped or the cabinet has been damaged;
    f. When the product exhibits a distinct change in performance, indicating a need for service.

Warranty

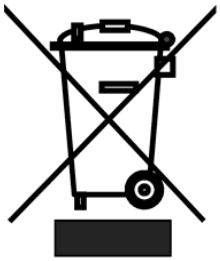
Standard Warranty

- Datavideo equipment are guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- The product warranty period begins on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Datavideo office.
- All non-Datavideo manufactured products (product without Datavideo logo) have only one year warranty from the date of purchase.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.
- Viruses and malware infections on the computer systems are not covered under warranty.
- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- All accessories including headphones, cables, and batteries are not covered under warranty.
- Warranty only valid in the country or region of purchase.
- Your statutory rights are not affected.

Three Year Warranty

- All Datavideo products purchased after July 1st, 2017 are qualified for a free two years extension to the standard warranty, providing the product is registered with Datavideo within 30 days of purchase.
- Certain parts with limited lifetime expectancy such as LCD panels, DVD drives, Hard Drive, Solid State Drive, SD Card, USB Thumb Drive, Lighting, Camera module, PCIe Card are covered for 1 year.
- The three-year warranty must be registered on Datavideo's official website or with your local Datavideo office or one of its authorized distributors within 30 days of purchase.

Disposal



For EU Customers only - WEEE Marking

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

1. Introduction

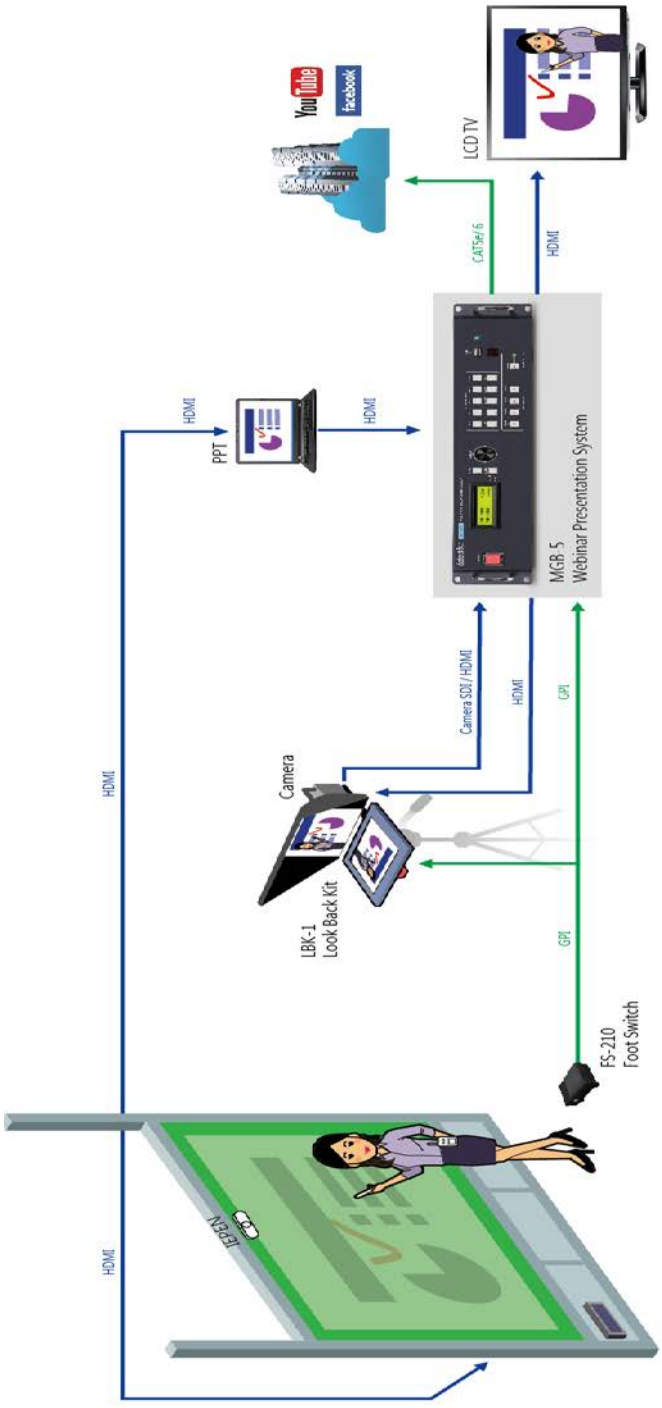
Datavideo MGB-5 is a total solution which can provide features such as Chromakey, background screen projecting with Ultra-Short Throw projector, interactive teaching, page-flipping and note-taking experiences with the interactive Pen. Moreover, the MGB-5 can enhance the interaction between teaching videos and learners by its Virtual Studio-like chromakey function to achieve recording effect just as the professional studio. The above-mentioned functions make MGB-5 the top-notch solution for the course-recording, weather-forecasting and stock market analyzing applications. The standard equipment of the MGB-5 includes functions such as chromakey, recording (backup recording included), audio delay, internet streaming and the foot switch for starting/stopping recording. The optional accessories include LBK-1 Look Back Kit, FS-210 Foot Switch and IE pen interactive pen.

Noted: External devices include the Look Back Kit, projector, green plastic mat, HDMI/SDI monitor, microphone, PC, camera, tripod and cables are not included in the MGB-5 package.

Features

- Integrated Full HD Chromakey function with easy-to-use user-guide wizard.
- Records/Streams H.264 format video(bitrate is configurable)
- The integrated audio-delay achieves up to 700ms.
- Provides GPI-trigger foot switch for Starting/Stopping recording.
- Integrated IE Pen function allows page-flipping or note-taking by the interactive electronic pen.

2. System Diagram

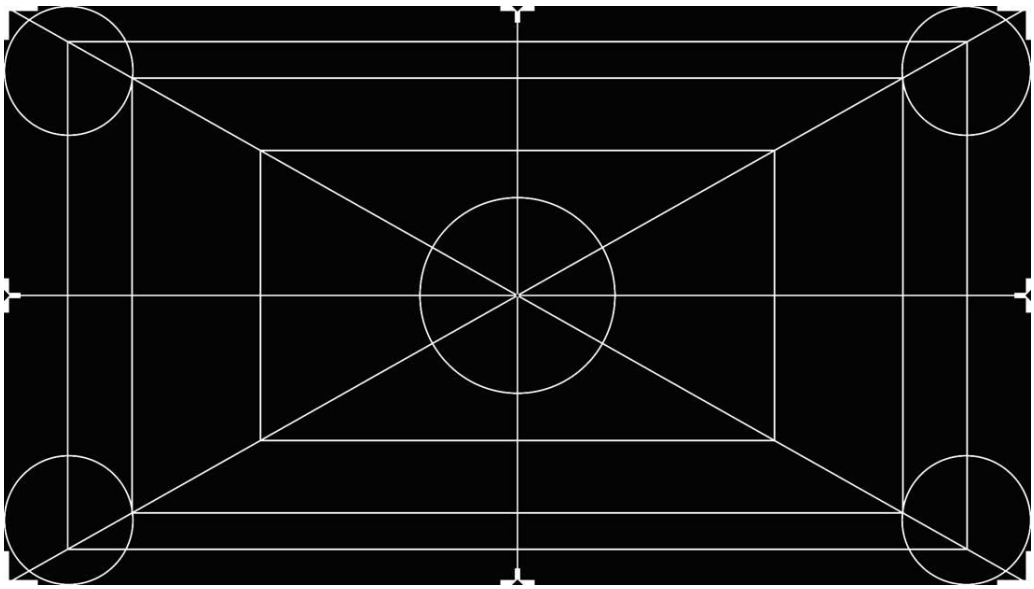


Webinar Presentation System (MGB-5) Rear Projecting Setting

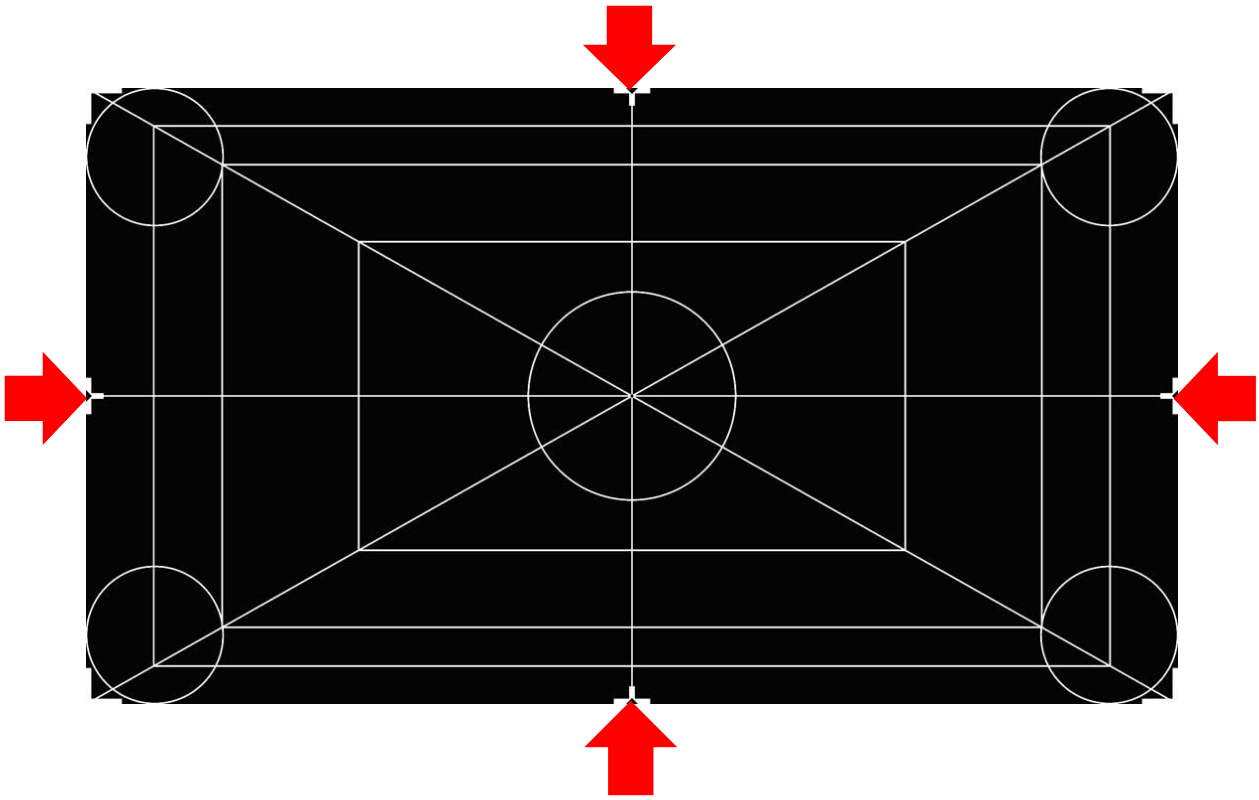
3. Quick Calibration Guide

Before using the MGB-5 Pro Presentation System, please remember to calibrate your MGB-5 Webinar Presentation System by the steps as follows in advance.

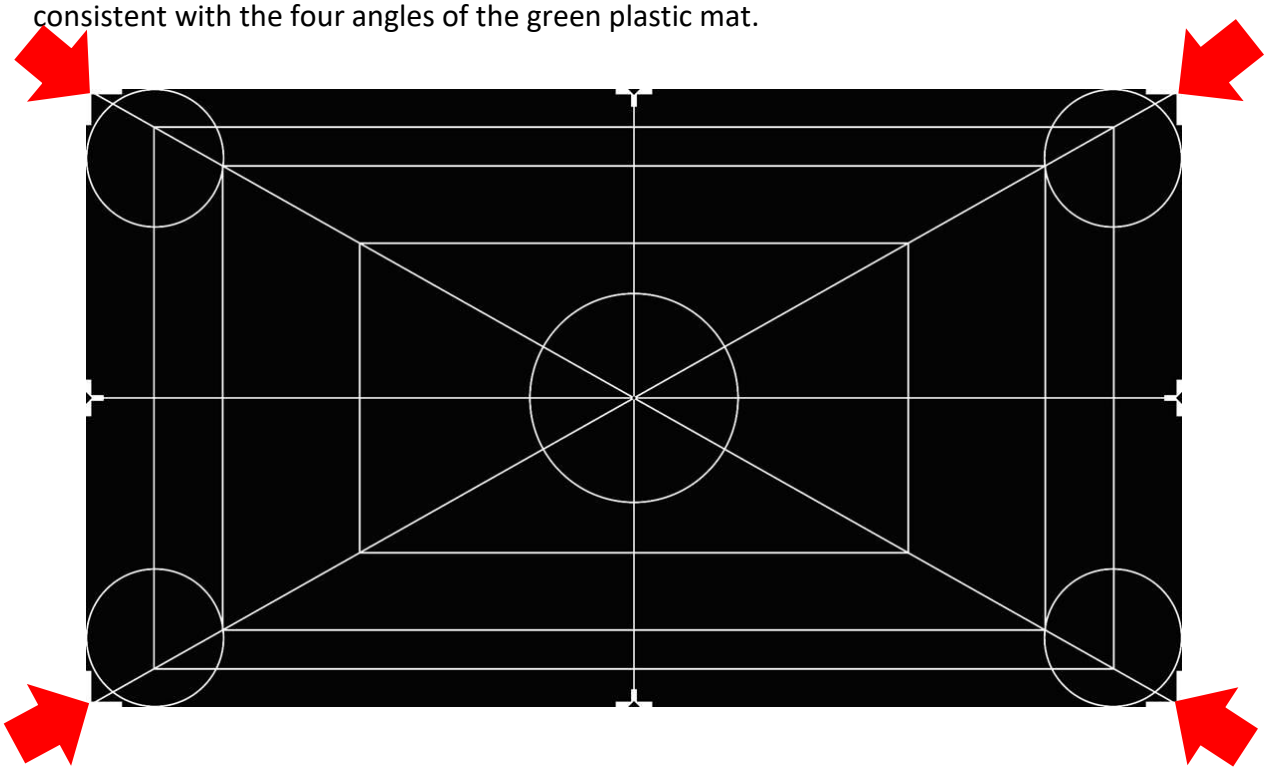
1. Please connect the MGB-5 to the wall socket by connecting one DC 12V 5A power cord from the DC power inlet on the MGB-5 rear panel to the AC wall socket.
2. Please press the power switch on the left side of the front panel to turn on the MGB-5.
3. Please connect the FS-210 foot switch to the external recording control interface on the rear panel of the MGB-5.
4. Please turn on your notebook PC and then connect your projector to the notebook PC.
   - If there is an HDMI interface only for your notebook PC, please use an HDMI splitter (1 input to 2 output) to connect your notebook PC to the **Background HDMI Input** interface on the MGB-5 rear panel and to your **projector**.
   - If you have both HDMI and VGA interfaces on your notebook PC, Please connect the HDMI interface of your notebook PC to the **Background HDMI Input** on the rear panel of the MGB-5 with an HDMI cable. After that, please use a VGA cable to connect from your notebook PC to your **projector**.
5. Please open the calibrating diagram as shown as follows on your notebook PC and then switch to full screen mode.



6. Please project the calibration diagram to the MAT-5 green plastic mat on the wall, and then adjust the height of the camera which is installed on the LBK-1 Look Back kit until the height of the camera lens is consistent with the height of the calibration diagram center point.
7. Please connect a monitor to the **Recording HDMI Output** interface on the rear panel of the MGB-5.
8. Please turn on the monitor until you can see the calibration diagram which is projected on the green plastic mat on the monitor.
9. After that, please make sure that the four points which are pointed by the four arrows are at the center of the four sides of the green plastic mat as shown as following diagram.

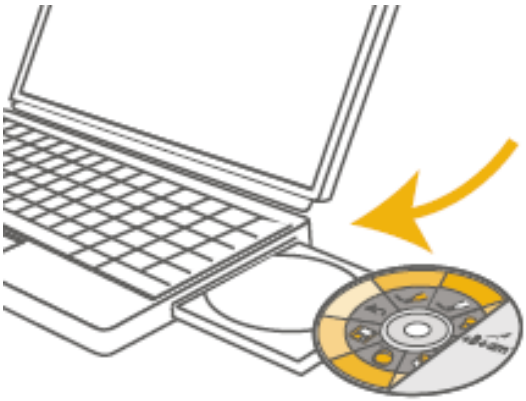


10. Please use the camera (LBK-1) zoom function to make the four angles of the monitor to be in consistent with the four angles of the green plastic mat.



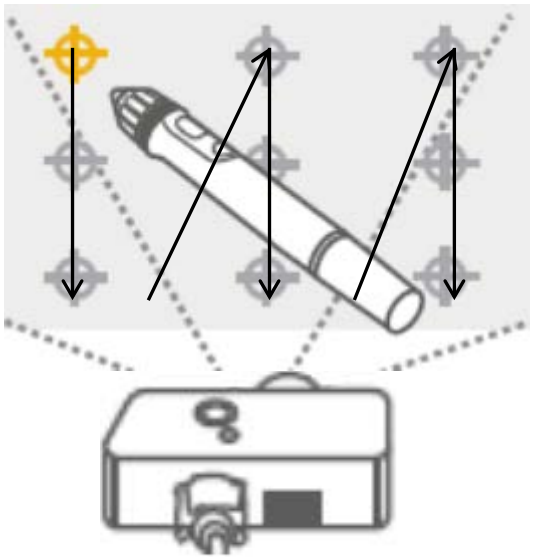
11. Attach the eBeam receiver to the left of the green board as shown as the diagram below, and then connect the eBeam receiver to your notebook PC by a USB cable.

12. Install the eBeam software on your notebook PC.

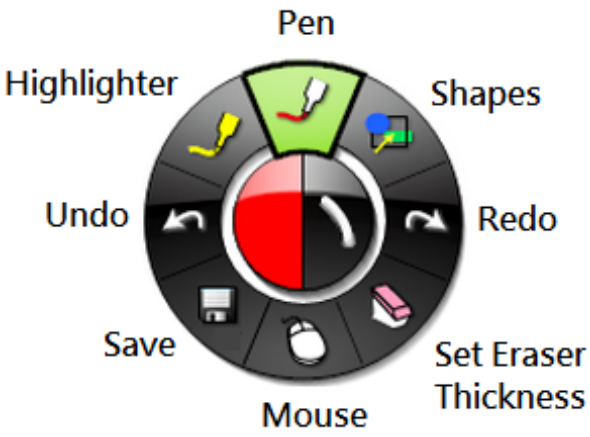


13. To calibrate the system, launch the eBeam software and press the circular button located at the center of the receiver once.

14. Once the calibration chart shown below appears on the green board, use the Interactive Electronic Pen to lightly touch the nine calibration marks one by one starting from the one located at the top left hand corner of the chart and then move down the column in a zig-zag fashion.



15. After the ninth calibration mark is touched, the calibration chart will disappear and return to the projected computer screen.
16. On the green board, locate the tools palette as shown below.



17. The user is allowed to turn on and off the tools palette by pressing the yellow circular button on the Interactive Electronic Pen.

18. After the system is successfully calibrated, insert the USB thumb drive into the external recording USB interface on the front panel.
19. Step on the footswitch once to enter the MGB-5 into the Standby mode.
20. Step on the footswitch again to start recording.
21. After recording is complete, step on the footswitch once to return to the standby mode.
22. Finally, remove the USB thumb drive safely for post-editing.

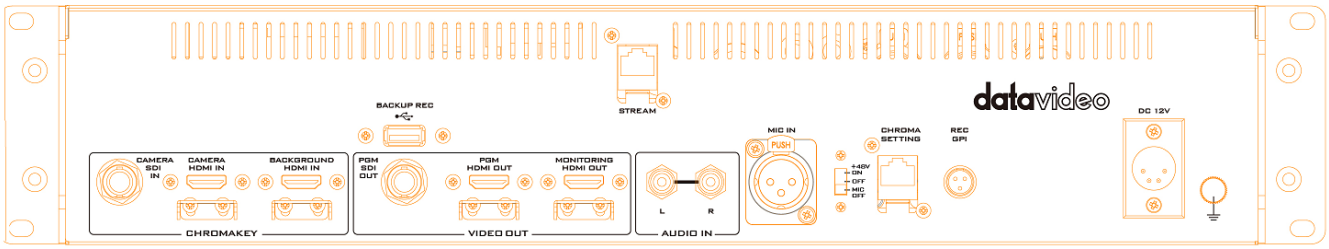
4. MGB-5

MGB-5 Webinar Presentation System is the main Audio and Video precessing unit for the MGB-5 Pro Presentation System. The MGB-5 is an intergrated system which provides HD Chromakeyer, H.264 video recording, audio delay and H.264 network video streaming functions with external connected foot switch. The video and audio input/output interfaces are located at the rear panel of the MGB-5.

MBG-5 Webinar Presentation System's chromakeyer combines foreground and background videos together with the audio signals, which are captured by the microphone and sent to audio delay unit for further processing through the XLR microphone input interface or RCA Line-IN interface located on the rear panel of the MGB-5. The HD video recording function embeds audio signals into the recorded videos. Users can save the live-audio and video contents recorded by inserting the USB thumb drive into the USB interface external recording interface on the front panel of the MGB-5. What users need to do is to press the **STREAM** button on the front panel of the MGB-5 to stream the H.264 live audio and video contents to the network.

There are many different input and output interfaces on the rear panel of the MGB-5 that can be connected to external devices such as the LBK-1 Look Back Kit, HDMI video splitter, HDMI/SDI monitor, FS-210 Foot Switch, Microphone and PC/Laptop.

4.1 Rear Panel



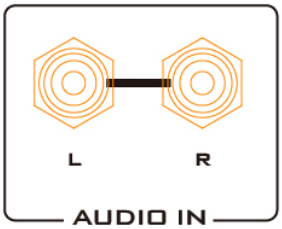
Camera SDI/HDMI IN

Connect one of **SDI IN** or **HDMI IN** to the camera shooting foreground talent.

Background HDMI IN

Connect this interface to the output of the 2 or 4 outputs HDMI splitter and then connect the other output of the HDMI splitter to the projector.

Connect the input of the HDMI splitter to the HDMI interface of the notebook PC to output the PowerPoint screen.

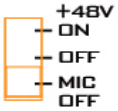


AUDIO IN (R)/(L)

Connect the **RCA AUDIO IN** either to a PC (PPT Audio) or to a player as background sound.

MIC IN

Connect this port to an external microphone.



Noted: If the microphone is the condenser microphone, please select the 48V phantom power on the rear panel of the MGB-5 before use, if the microphone is the dynamic microphone, please turn off the 48V phantom power. Turn the switch to MIC OFF will cut off the MIC connection.

Monitoring HDMI OUT

Connect this interface to the LBK-1 Look Back Kit to be the input source of the LBK-1.

PGM HDMI OUT

Connect this interface to the LBK-1 Look Back Kit or external connected monitor for users to monitor the real-time recorded scenes. The real-time status display of the recording unit is output by this output interface.

PGM SDI OUT

Connect this interface to the external connected monitor to monitor the recorded video output (this output interface can output video signal only and the audio signal is not included)

Backup REC

Users can insert a USB thumb drive into this USB interface and then select the item “record” from the web UI to start the backup video recording. The recorded backup file will be saved in this USB thumb drive.

REC GPI

Connect this port to FS-210 foot switch which sends tally light signal to the LBK-1 and toggles record/pause.

CHROMA SETTING

Connect the CHROMA SETTING interface to the PC/Laptop which the DVK-300 HD Chromakey Control software is installed to set the Chromakey effect parameter and to generate Chromakey effect for the foreground camera video. Moreover, users can save up to 4 desired Chromakey effects to preset chromakey effect. After that, users can use those pre-saved chromakey presets by pressing the preset 1 to preset 4 buttons on the front panel (Chromakey area) of the MGB-5.

DC 12V

Connect a DC 12V 5A XLR 4 pin female power cable to this interface for supplying MGB-5 power.

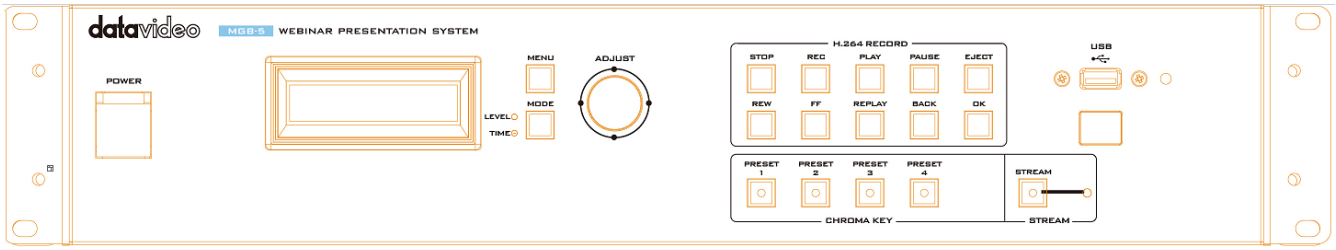
STREAM

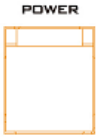
Connect an Ethernet cable from this STREAM interface to the Ethernet interface of a router. And then use another Ethernet cable to connect from the WAN port of the router to the interface of the public network. After that, press the STREAM button on the front panel of the MGB-5 for the live-video streaming.

Ground

This is the Ground.

4.2 Front Panel





Power Switch This is the power switch of the MGB-5.

Display Panel This display panel is used for audio delay unit related options only.

MENU Press the MENU button and then turn the adjustment knob beside the MENU button to browse different MENU options. All MENU numbers and options are shown as following table.

1. AUDIO_DELAY	Optional Value/Range
	ON/OFF
2. DELAY_TIME	Optional Value/Range
	0-700 mSEC
3. ATTENUATION	Optional Value/Range
	0~-60 dB
4. TONE_OUT	Optional Value/Range
	ON/OFF
5. TONE_MODE	Optional Value/Range
	MUTE~1KHz
6. TONE_LEVEL	Optional Value/Range
	26~-34dBu
7.RESET_ALL	Optional Value/Range
	HOLD 2 sec.=RESET
8.Software Version	Optional Value/Range
	Will show software version
9. ESCAPE	

MODE Press this button to toggle between Level and Time. When one of the two is selected, the LEDs which are beside the button will be lit to remind the user for the current mode.

ADJUST The adjustment knob is used to combine with the MENU button to adjust or confirm the selection of different MENU options.
After pressing the MENU button, turn the adjustment knob to browse all MENU options. After entering into specific MENU option, and then press the MENU button again, the adjustable value shown on the display panel will flicker. At this time, users can set their desired value by turning the adjustment knob. After the selected value is confirmed, press the adjustment knob again to save the selected or adjusted value.

STOP Press this button once to stop recording/playing.

REC Press this button once to start the recording, press this button again to stop the recording. If there is a USB thumb drive inserted into the external recording USB interface on the front panel, the recorded contents will be saved in this USB thumb drive.

PLAY This button is located on front panel's H.264 RECORD area. Press this button once will play videos. If the device is in Fast Forward or Replay mode, press this button once will resume the normal play speed. This PLAY button can only be used when entering into OSD menu's Media Studio option by the remote control unit.

PAUSE This button is located on the H.264 RECORD area of the front panel.
In Recording mode, press this button once will pause the recording.
In playing mode, press this button once will pause the playing.

EJECT This button is located on the H.264 RECORD area of the front panel. When the recording is stopped, please press this button and then wait for the warning "the USB thumb drive can be removed safely" appears, users can pull out the USB thumb drive safely.

REW

This button is located on the H.264 RECORD area of the front panel. Press this button to fast-rewind the recorded clip back to user desired section.

FF

This button is located on the H.264 RECORD area of the front panel. Press this button to fast-forward the recorded clip back to user desired section.

REPLAY

This button is located on the H.264 RECORD area of the front panel. Press this button once to play the previously recorded video.

BACK

This button is located on the H.264 RECORD area of the front panel. When this option appears on the screen, press the BACK button to resume to previous step.

OK

This button is located on the H.264 RECORD area of the front panel. When this option appears on the screen, press this button to confirm “OK”.

PRESET 1 to PRESET 4

These buttons are located on the Chroma Key area of the front panel. Users can save chromakey effects as the four presets. After those chromakey effects are saved, users can press those four buttons to apply the corresponding Chromakey effect respectively.

STREAM

These button is located on the Chroma Key area of the front panel. Press this button to stream the live-recorded contents to the network. When the live-stream starts, the LED beside the STREAM button will flicker.

USB

This USB external recording interface allows user to insert a USB thumb drive to be the storage media of the recorded files. A free USB 3.0 thumb drive will be included in the MGB-5 package when shipping. Please use this give-away USB thumb drive as your first priority.

Noted: If users want to buy USB thumb drive by themselves, it is highly recommended that users should buy the USB thumb drive which the write speed exceeds 45MB/Sec. to meet the write speed requirement of the recording function. If users use the 2.5" removable hard disk to be the storage media, it is possible that the power supply for the 2.5" removable hard disk is unstable due to the electric current supplied by this external USB interface is insufficient for the 2.5" removable hard disk drive.

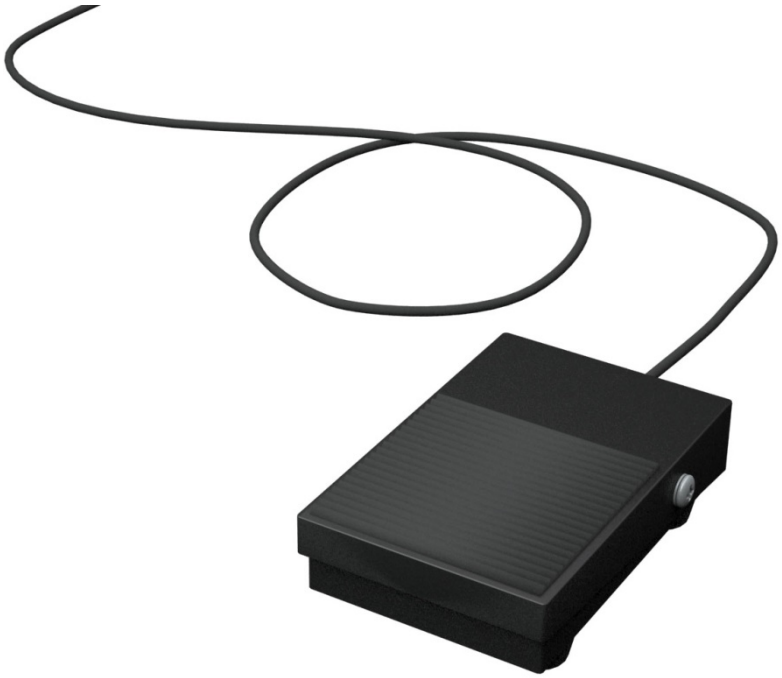
5. FS-210 Foot Switch

The FS-210 is a Foot Switch designed specifically for use with the MGB-5. The purpose is to allow the user to toggle between **Record** and **Record Pause** modes on the MGB-5 Webinar Presentation System by simply stepping on the pedal. The mode that the recorder is currently in is indicated by the Tally Light on the LBK-1 Look Back Kit. In the Record Mode, the tally light displays red color; on the contrary, if the recorder is in the record pause mode, the tally light will be OFF.

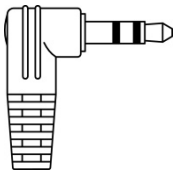
There are two connectors on the FS-210 cable end. The Mini-XLR is connected to the GPI port on the rear panel of the MGB-5 and the 3.5mm ear phone connector is plugged into the LBK-1 Tally Light IN.

Note: The LBK-1 Look Back Kit is not included in the MGB-5 product package.

5.1 Connectors



Mini XLR
Connect to REC GPI port (Rear Panel of the MGB-5)



3.5mm Phone Connector
Connect to Tally Input (LBK-1 Look Back Kit)

6 Network Connection and Setup

The network connection and setup instructions depend on whether you will be connecting the MGB-5 to a network with a DHCP server.

If connecting to a network with a DHCP server, the MGB-5 must be set to DHCP mode. If your network does not have a DHCP server, the MGB-5 must be set to True Static IP mode. By default, the MGB-5 is set to DHCP mode. Once connected to a network, configure your stream and record settings using the MGB-5 Command Center.

To access the Command Center, you must first know the network IP address of the MGB-5 device or use the Datavideo Utility Software to scan for the device IP. When connecting to a network with a DHCP server, the MGB-5 IP address is assigned by the DHCP server. In this case, you can use the Datavideo Utility Software to find the MGB-5 IP address. When connecting to a network without a DHCP server, you must assign a static IP address to the MGB-5. A default IP address is provided when in True Static IP mode.

6.1 Datavideo Utility Software

The Datavideo Utility Software is available for both Mac OS and Windows systems, and you can use it for the following:

- Identifying MGB-5 devices on a network and lists their IP addresses.
- Open the MGB-5 web based UI (Command Center) by double-clicking an identified device on the device list.
- Update the MGB-5 firmware
- Reboot MGB-5 devices

Before launching the Datavideo Utility Software, you must first configure your MGB-5's network settings as well as the PC on which the software is installed. The subsequent section will take you through the entire network configuration process.

6.2 Network Connection and IP Address

This section details how to connect the MGB-5 to a network with or without a DHCP server, and describes how to acquire the MGB-5 IP address.

6.2.1 Finding the MGB-5's current IP address

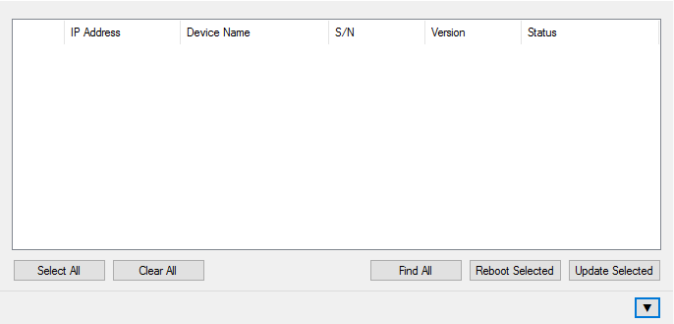
You must know your MGB-5 device's IP address to access the Command Center. Please use following way to find the MGB-5's current IP address:

- Use the Datavideo Utility Software to view all connected MGB-5 devices and their IP addresses.

6.2.2 Connecting to a network with a DHCP server

In this section, you will learn how to use the Datavideo Utility Software to find the IP address of your MGB-5 device.

1. At first, please use an RJ-45 Ethernet cable to connect from the LAN port (STREAM) on the rear panel of the MGB-5 to the LAN port of a router.
2. Please connect the WAN port of a router and the public network connector by an Ethernet cable.
3. Please use another Ethernet cable, connect one end to the LAN port of a router and connect another end to the RJ-45 port of your PC/Laptop. After that, your MGB-5 is within the same network with your PC/Laptop.
4. Please turn on the power of the MGB-5 and the MGB-5 is defaulted in the DHCP mode.
5. Please download Datavideo utility software from Datavideo official website www.datavideo.com by a PC or Laptop that is connected to the same network with the MGB-5.
6. Please double-click the Datavideo utility software to open it, if the UPnP function is activated in the Local Area Network, the utility software will search for connected MGB-5 automatically. Please press Find All button to find all connected MGB-5.



7. All the MGB-5s on the same network subnet as your computer will be displayed, along with their IP addresses and other information.
8. Open the Command Center.

7. Applications Setup

7.1 Video Related Application Setting

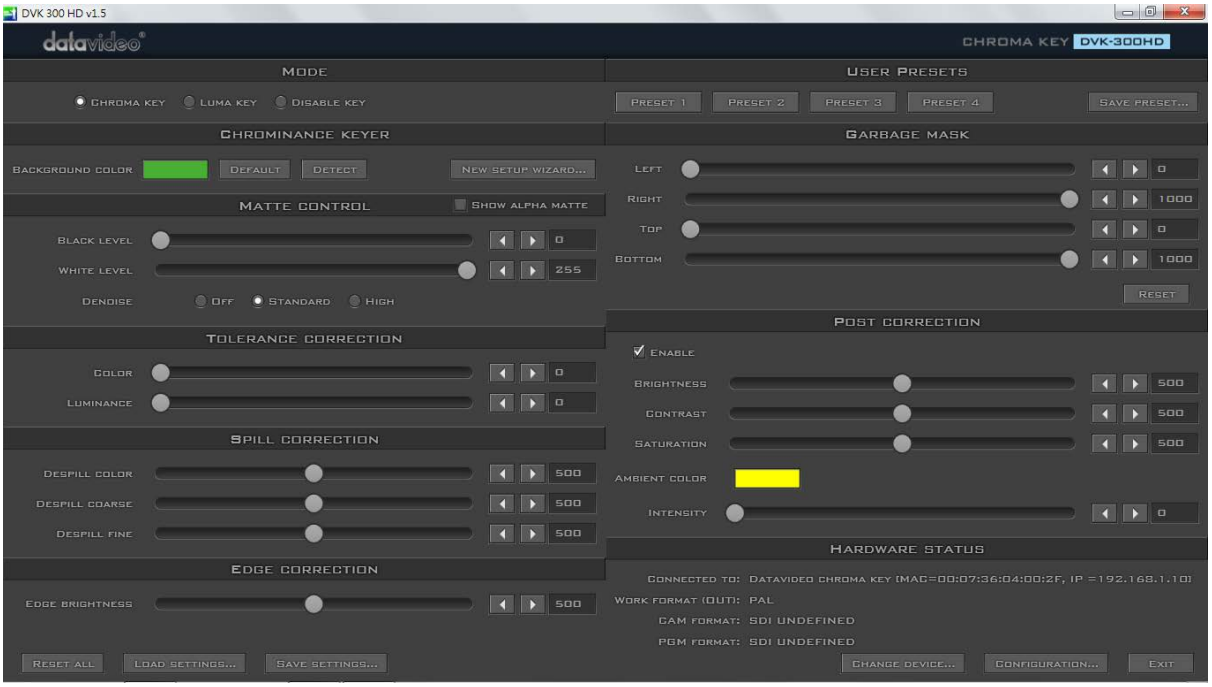
MGB-5 integrates chromakey, video streaming, recording and audio delay features within one device. Before using your MGB-5 system, it is important for you to setup some important settings in advance. Please see following paragraphs for the chromakey, streaming and recording related settings and functions. Please refer to following paragraph for the MGB-5 Chromakey function.

At first, please connect your PC/Laptop and the Chroma Setting connector on the rear panel of the MGB-5 by an RJ-45 Ethernet cable. Please refer to following section for the setting of DVK-300 HD chromakey software.

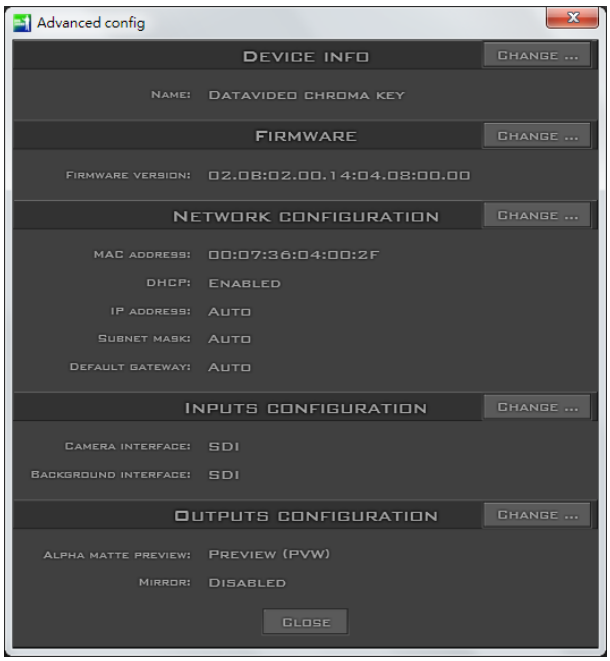
7.1.1 DVK-300HD Chromakey Software – Alpha Matte Preview Output

Please make sure the **Alpha Matte Preview Output** is set to **PREVIEW (PVW)**.

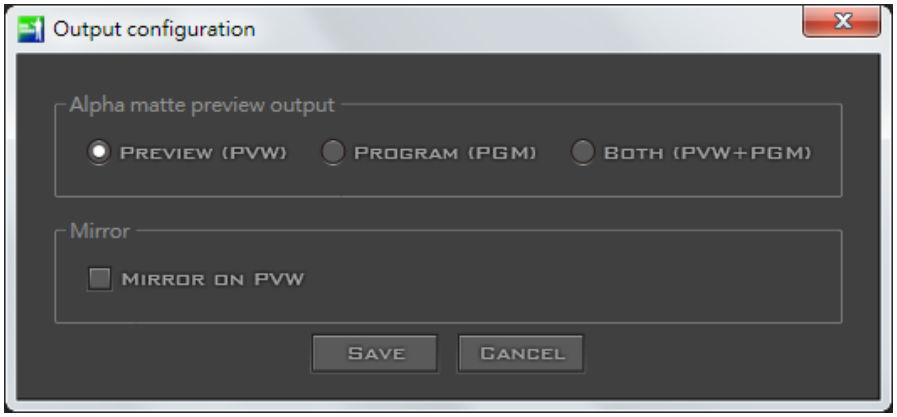
1. On the User Interface, click the **"Configuration"** button to open the **"Advanced config"** dialogue box.



2. Select the **"OUTPUTS CONFIGURATION"** by clicking the **"CHANGE"** button on the right.



3. Select **“PREVIEW (PVW)”** and then click the **“SAVE”** button to complete the configuration.



4. After the Chromakey settings for the PRESET 1 to PRESET 4 are done and saved, users can apply those pre-saved chromakey effects by pressing the PRESET 1 to PRESET 4 buttons which are located on the CHROMA KEY area of the MGB-5 front panel.

7.2 Setting-Command Center

MGB-5 Command Center is a web-page based application interface which allows you to set MGB-5 setting, to control streaming & recording, to import settings from other device and to export settings to other devices. Please open the Command Center by following instructions:

1. Please enter the IP address of the MGB-5 in the address bar of the web browser to open the MGB-5 Command Center.
2. Please double-click any device appeared in the Datavideo utility software to open the Command Center. (Please refer to Chapter 9: Network Connection and Setup)

Noted: All of the "recording" words mentioned here represent the Backup REC on the rear panel of the MGB-5.

7.2.1 Log into the Command Center

The **Status** page will appeared directly after opening the Command Center. The **Status** and **About** pages can be accessed without login. However, if users want to access other pages such as **Control** and **Stream Setting**, please click the option on the web page and then enter User Name and Password. The default user name and password are admin. The user name can not be changed by users.

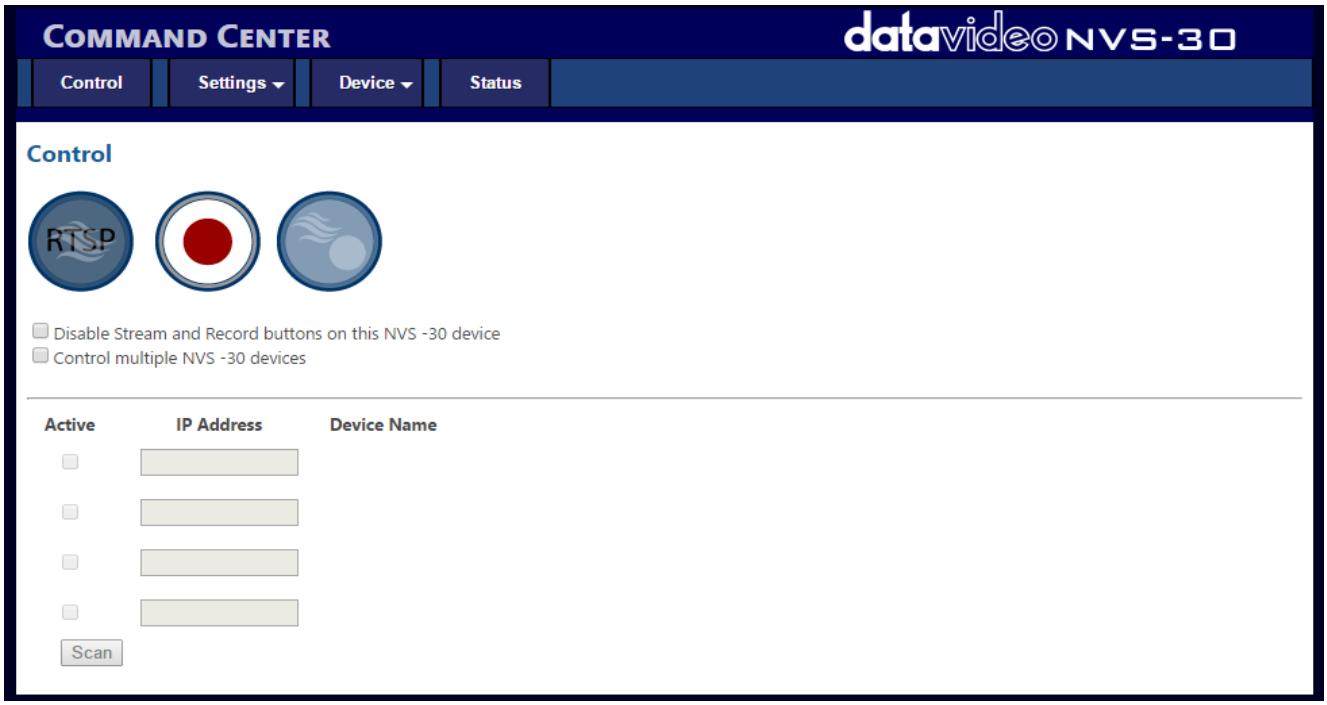
7.2.2 Control

The setting of the **Control** page allows users to control the streaming and recording of the MGB-5. If there are other MGB-5s which are connected to the same network, users can control the streaming and recording for up to 4 MGB-5s.

Noted: You can initiate the streaming by pressing the STREAM button on the front panel of the MGB-5. This STREAM button can be used for this device only.

7.2.3 Open the Control Page

If users want to access the **control** page, please open the MGB-5 Command Center and click the **Control** option.



7.2.4 Control Buttons

Different conditions of the control buttons in the **Command Center** are shown as following table.

	Buttons	Functions	
Streaming		Start Streaming (RTMP)	**Click to Start streaming in RTMP mode.** This button indicates that the MGB-5 device is set to stream in RTMP mode. Click this button to start streaming the input source connected to the MGB-5's HDMI input. If controlling multiple MGB-5 devices, those devices set to stream in RTMP mode will begin to stream their input sources as well.
		Stop Streaming(RTMP)	**Click to Stop streaming in RTMP mode.** This button indicates that the MGB-5 is currently streaming in RTMP mode. Click this button to stop streaming. If controlling multiple MGB-5 devices, those devices set to stream in RTMP mode will stop streaming as well. The devices on the network that are streaming in RTSP mode will continue to stream.
		Streaming(RTSP)	**An indication that the MGB-5 device is currently streaming in RTSP mode.** In RTSP mode, the unit delivers stream data once a client connects to the MGB-5 using the RTSP streaming protocol, and therefore does not require you to click the Stream button to start streaming.
		Stream Disabled	**An indication that the MGB-5 is currently set to Record-only operating mode.**
Recording		Start Recording	**Click to Start recording** Click this button to start recording the input source connected to the MGB-5's HDMI input. If controlling multiple MGB-5 devices, those devices will begin to record their input sources as well.
		Stop Recording	**Click to Stop recording** This button indicates that the MGB-5 device is currently recording its input source. Click this button to stop recording. If controlling multiple MGB-5 devices, those devices will stop recording their input source as well.
		Record Disabled	**Indicates that the MGB-5 is currently set to Stream-only operating mode.**

Streaming & Recording Simultaneously		Start Streaming(RTMP) and Recording Simultaneously	**Click to start simultaneous streaming and recording.** This button is available only when the MGB-5 is set to stream in RTMP mode. Click this button to start streaming and recording the input source connected to the MGB-5's HDMI input. If controlling multiple MGB-5 devices, those devices will begin to stream and record their input sources as well.
		Stop Streaming(RTMP)and Recording Simultaneously	**Click to stop simultaneous streaming and recording.** Click this button to simultaneously stop streaming and recording the input source connected to the MGB-5's HDMI input. If controlling multiple MGB-5 devices, those devices will stop streaming and recording their input sources as well. **Note: You can also use individual Stop stream and Stop record buttons to stop the respective operation.**
		Streaming and Recording Buttons Disabled.	**Disabled stream and record button.** The stream and record button is disabled when the MGB-5 is currently either streaming or recording, or when the MGB-5 is set to Stream-only or Record-only operating mode.

7.3 Setting-Record Function Related OSD Main Menu

The MGB-5 provides recording and video playing related buttons on its front panel's H.264 Record area. This section will provide detail descriptions for this video recording area. Due to that the MGB-5 will bundle with a remote-controller when shipping for users to control recording-related functions of the MGB-5. So, for recording functions mentioned in following sections, please remember to control them by the remote-controller.

Under the menu, you can check and manage both your recorded files and snapshots, and customize your preferences. Upon pressing the **MENU** button, you will be able to see the main page as depicted in the diagram below. After that, press ◄ / ► buttons to select **Settings**. Press **OK** to enter **Settings** option.

Remaining Time for Recording

Current Time

Press **BACK** button to return to the video screen

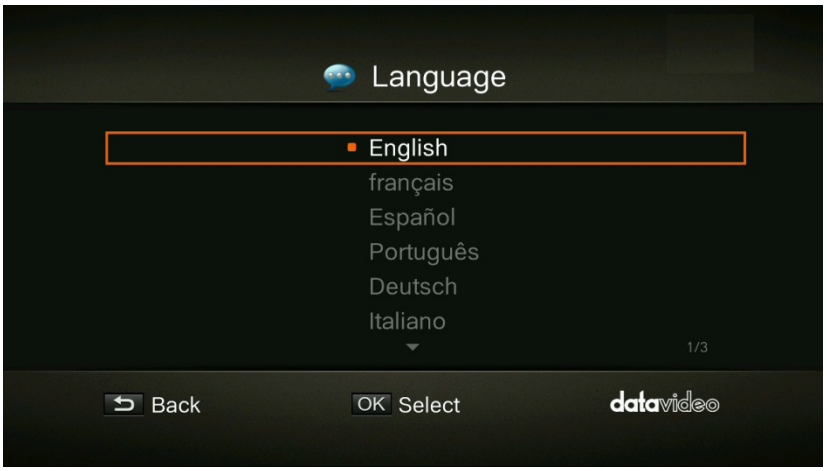
Press **F1** to safely remove the storage device.

Note: If the thumb drive is not safely removed from the MGB-5, your PC might fail to read files from your thumb drive.

After entering **Settings** menu, you will be able to see the page as shown below. Use ▲ / ▼ buttons to select menu items and press **OK** to enter the selected option. Press **BACK** to return to the previous page.

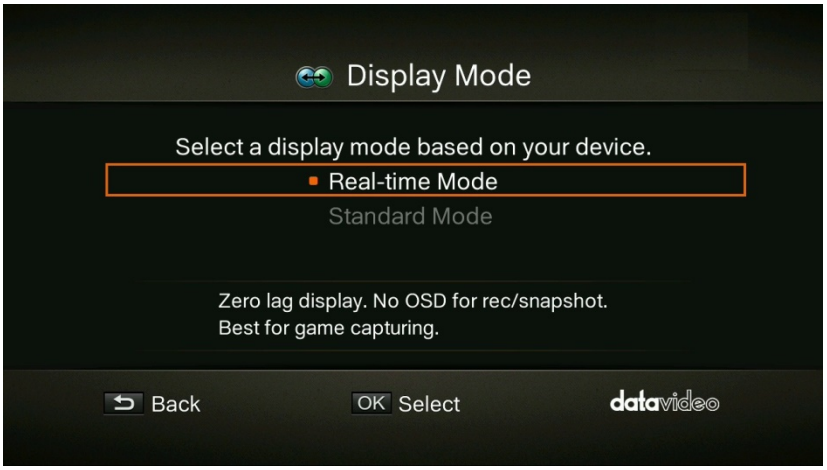
7.3.1 Language

Use ▲ / ▼ buttons to select your preferred language. Press **OK** to confirm.



7.3.2 Display Mode

The default mode is set as real-time mode. Use ▲ / ▼ buttons to switch between real-time and standard mode.



7.3.3 Real-Time Mode

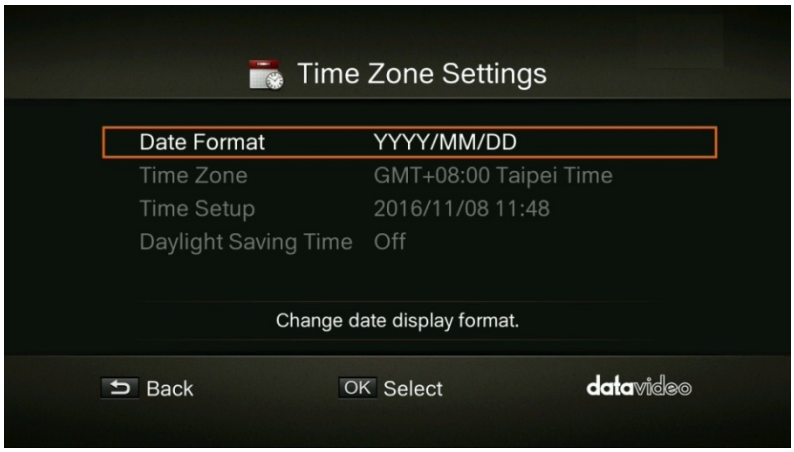
Real-time mode lets you play games with zero delay. No recording or snapshot status will be shown on screen. All capture work will run in the background. However, if any problem occurs during the capturing process, OSD will automatically jumps out. Press the **MENU** button to check OSD and track capture status.

7.3.4 Standard Mode

In standard mode, on-going recordings will be shown in the upper right corner of the screen for approximately five seconds. As there will be slight delay in screen.

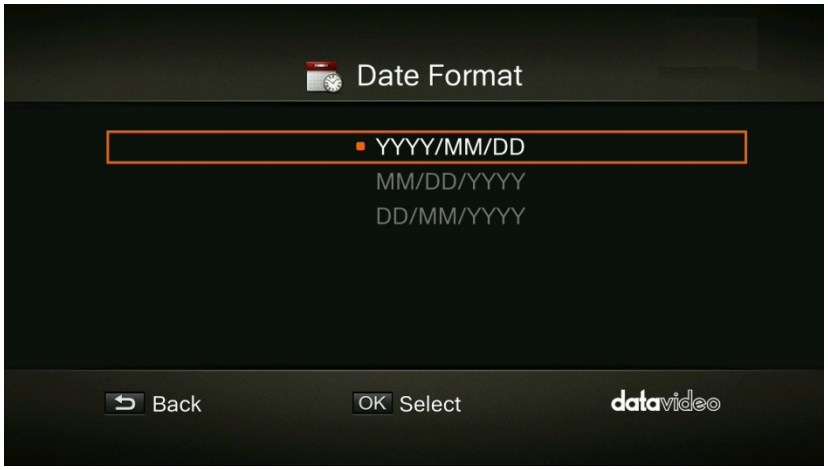
7.3.5 Date and Time

As shown in the diagram below, once in the **Date and Time** option, use ▲ / ▼ buttons to select an item for configuration. Press **OK** to confirm.



7.3.6 Date Format

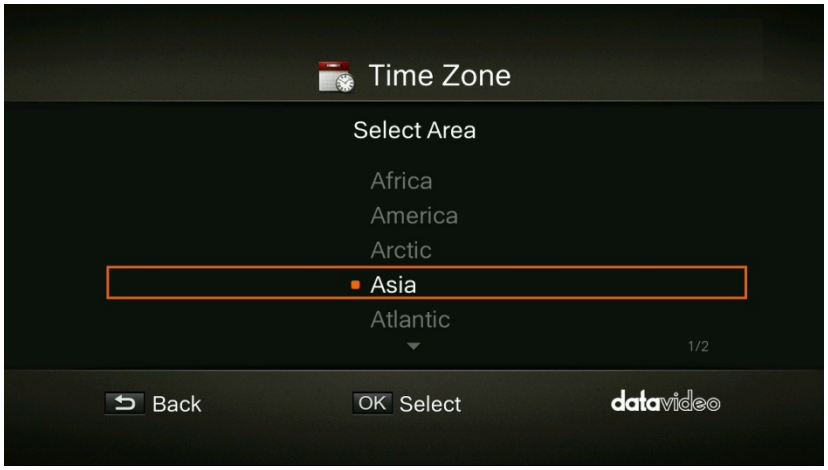
Use ▲ / ▼ buttons to select a preferred date format. Press **OK** to confirm.



7.3.7 Time Zone

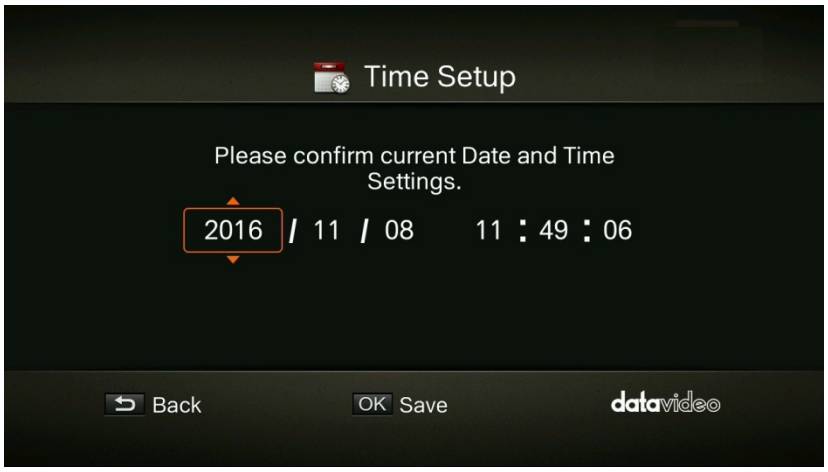
Use ▲ / ▼ buttons to move among options and select your area. Press **OK** to confirm.

Use ▲ / ▼ buttons to move among options and select your time zone. Press **OK** to confirm.



7.3.8 Time Setup

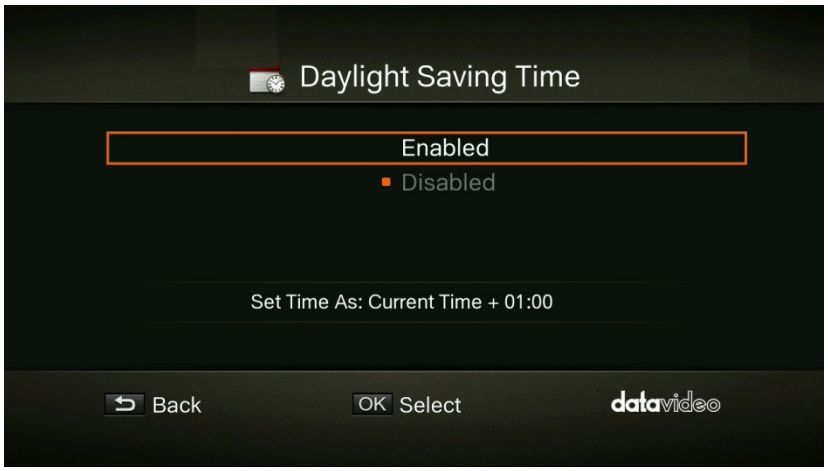
Use ◄/► buttons to move among options and ▲/▼ buttons to adjust date and time. Press **OK** to confirm.



7.3.9 Daylight Saving Time

Use ▲/▼ buttons to enable/disable Daylight Saving Time. Press **OK** to confirm.

Note: To use this function, a network connection is required.



7.3.10 Disk Management

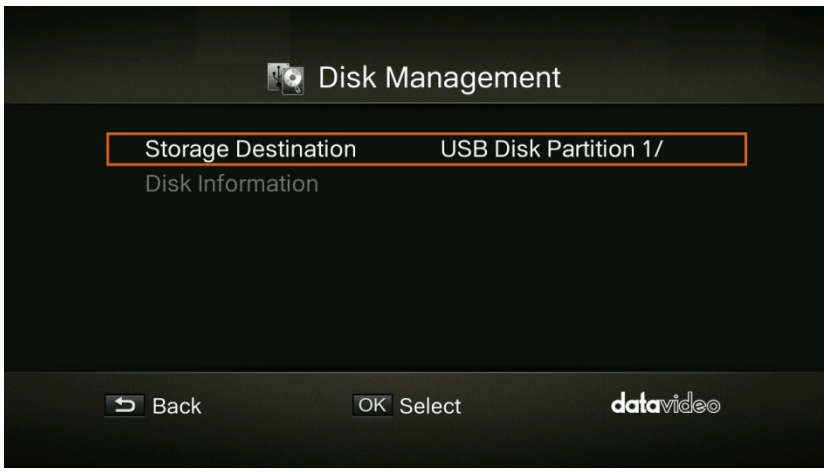
Step 1: Use ▲ / ▼ buttons to select **Storage Destination** and press OK to change your current desired default storage device for both recorded files and snapshots.

indicates normal write speed of selected partition.

indicates low write speed of selected partition.

To Make sure recording functions properly, be sure to select partition with normal write speed.

Step 2: Use ▲ / ▼ buttons to select the preferred default storage device and press **OK** to confirm.



Step 3: Use ▲ / ▼ buttons to select a folder and press **OK** to confirm.

Step 4: Press **F1** to save the setting.

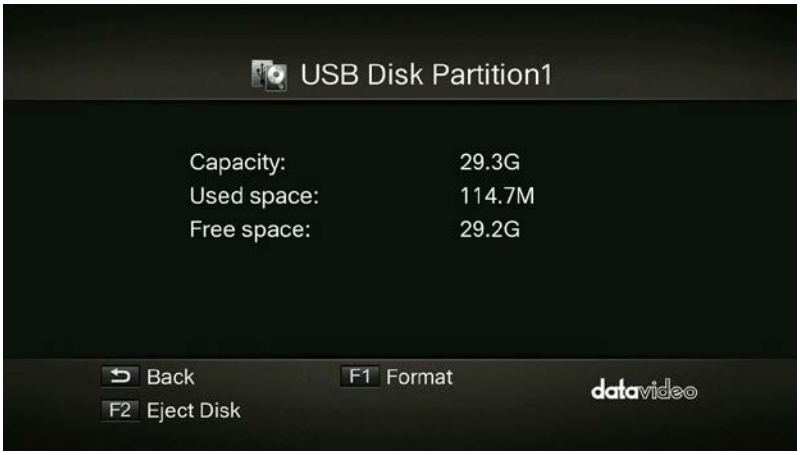
7.3.11 USB Disk Formatting

After entering **Settings** menu, you will be able to see the page as shown below. Use ▲ / ▼ buttons to select **Disk Management** and press **OK** to enter the highlighted option. Press **BACK** to return to the previous page.

Step 1: Use ▲ / ▼ buttons to select **Disk Information** and press OK to enter.

Step 2: Use ▲ / ▼ buttons to select **USB Disk Partition1** and press OK to enter.

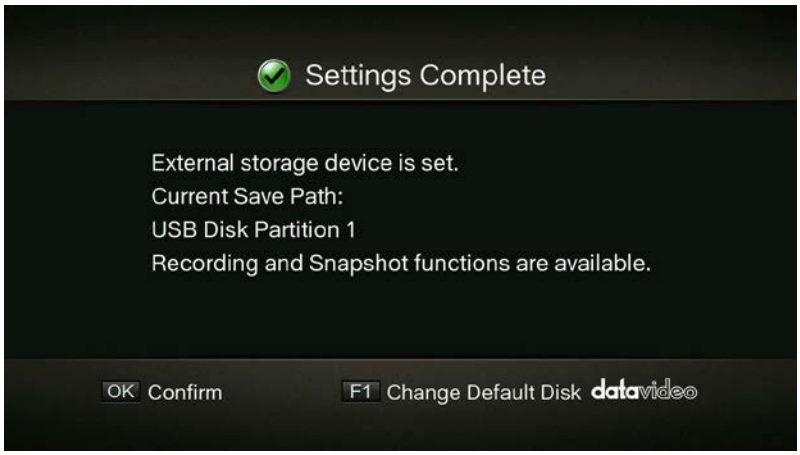
Step 3: As shown in the diagram below, you will be able to view the USB Disk Partition 1 information and press **F1** to start formatting the disk.



Step 4: You will be warned that all data on the disk will be erased after formatting. Press **OK** if you are sure to continue.

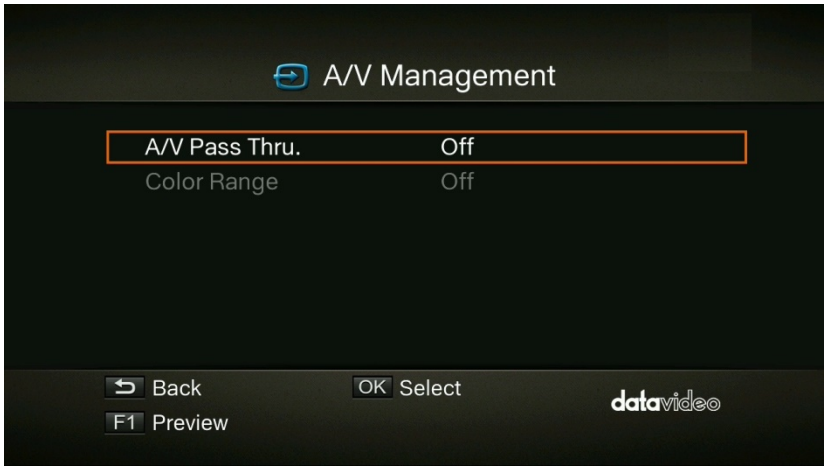
Step 5: Do not disconnect the power or remove the USB storage device as the disk is being formatted.

Step 6: The disk formatting is complete when you see the prompt as illustrated in the diagram below. Press **OK** to confirm.



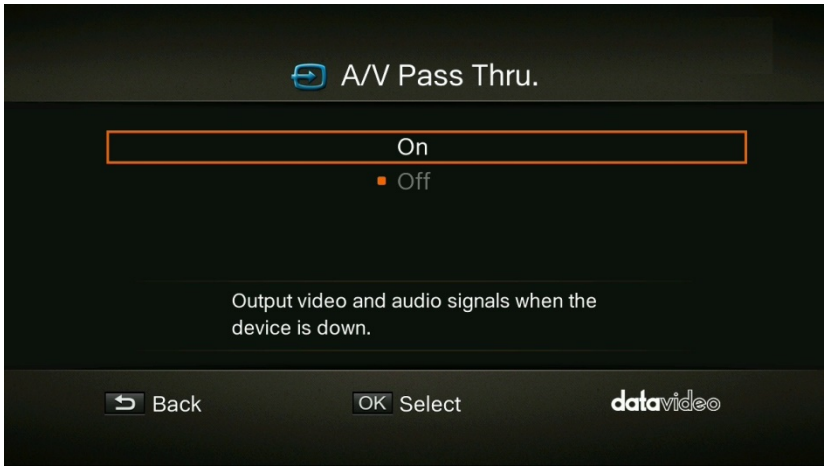
7.3.12 A/V Management

Use ▲ / ▼ buttons to move among options. Press **OK** to confirm.



7.3.13 A/V Pass Through

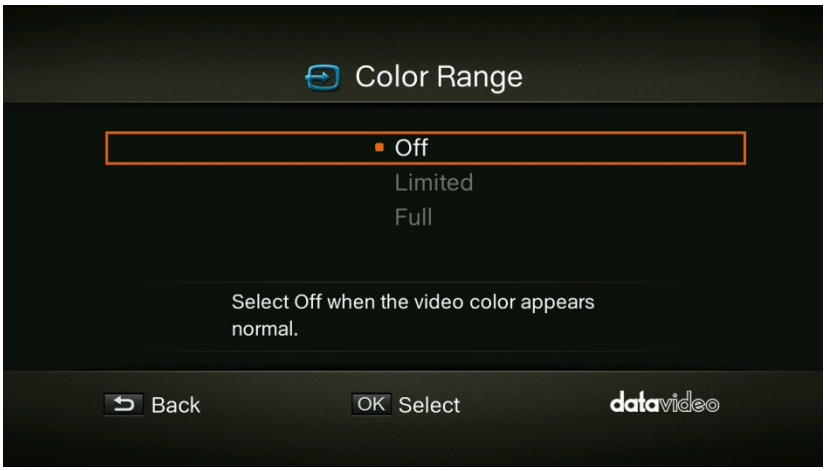
Use ▲ / ▼ buttons to enable/disable A/V Pass Through. Press **OK** to confirm.



Note: The default setting is Off to comply to the power-saving regulation. If this function is enabled, the *MGB-5* still outputs signal when the *MGB-5* is off. If this function is disabled, the *MGB-5* does not output signal when the *MGB-5* is off.

7.3.14 Color Range

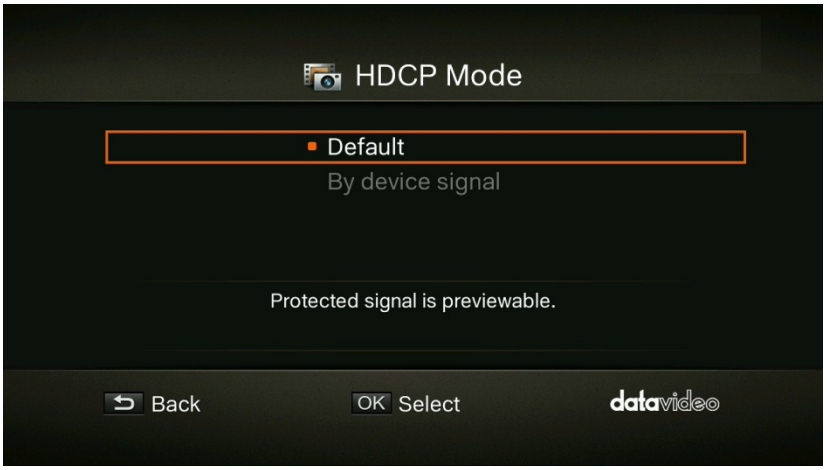
Use ▲ / ▼ buttons to toggle between off, limited and full. Press **OK** to confirm.



7.3.15 HDCP Mode

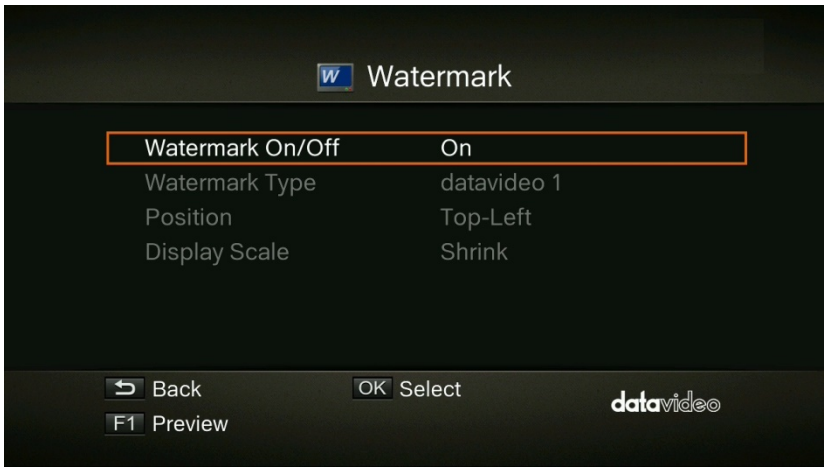
Use ▲ / ▼ buttons to select Default option (HDCP Mode ON) or By Device Signal (HDCP Mode OFF).

Note: If video source is HDCP-protected, images will NOT be shown properly.



7.3.16 Watermark

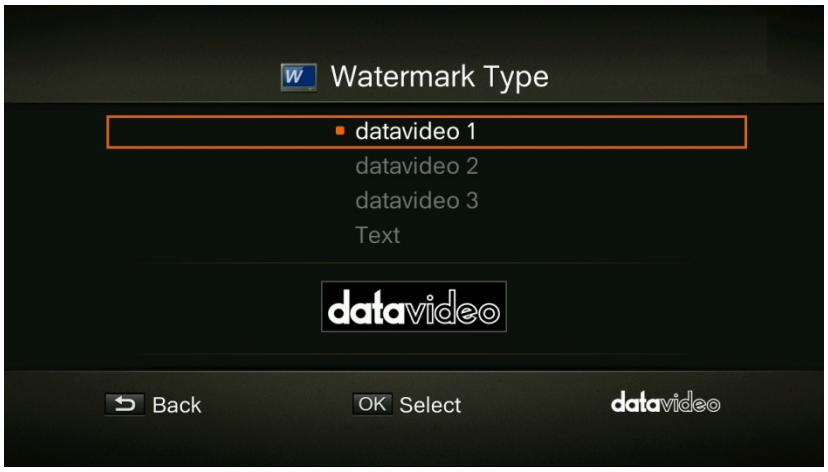
Add your selected watermark to your videos. You can customize the display of the watermark by setting up the type, position and also scale.



- Press **BACK** button to go back to the previous level.
- Press **OK** to enter the next level.
- Press **F1** to preview the watermark.

7.3.17 Watermark Type

Use ▲ / ▼ buttons to select from the listed watermark types. Press **OK** to confirm the selection. Press **BACK** button to return to the previous page.

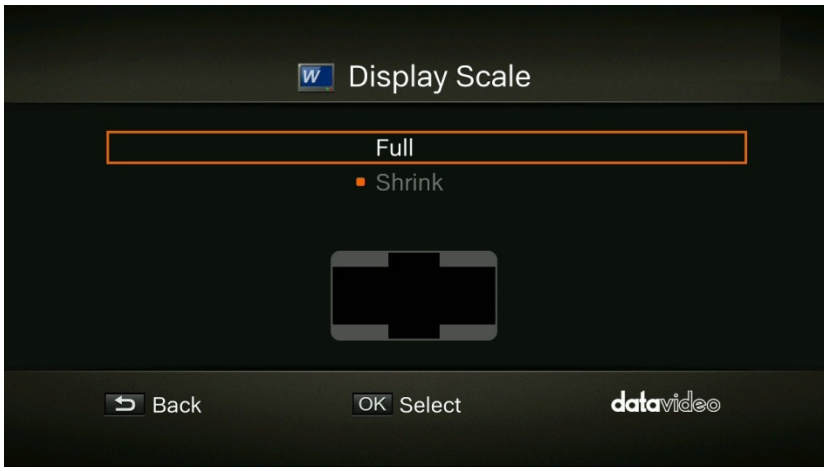


7.3.18 Position

Use ▲ / ▼ buttons to select from the listed watermark positions. Press **OK** to save the change. Press the **BACK** button to return to the previous page.

7.3.19 Display Scale

Use ▲ / ▼ buttons to select the display scale. You can either select **Full** or **Shrink**. Press OK to save the change. Press the **BACK** button to return to the previous page.



7.4 Setting-Recording/Snapshot

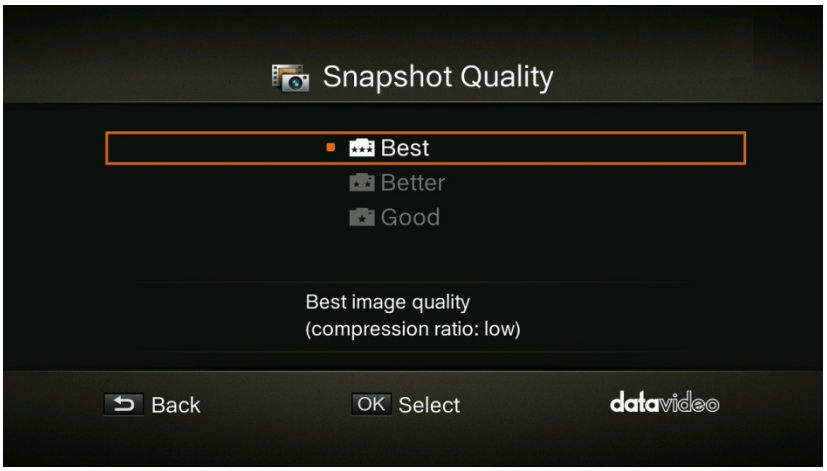
7.4.1 Video Quality

Use ▲ / ▼ buttons to toggle among various video quality options (Optimal / Good / Maximum recording length). Press **OK** to confirm.

Note: In order to ensure that there is sufficient storage space on the external storage, the MGB-5 provides a record protection mechanism that stops recording automatically when the disk space is only 1GB left. The record protection is to prevent possible disk storage shortage when the video format is changed to HD. Please refer to Appendix 3 for details of the Record Protection.

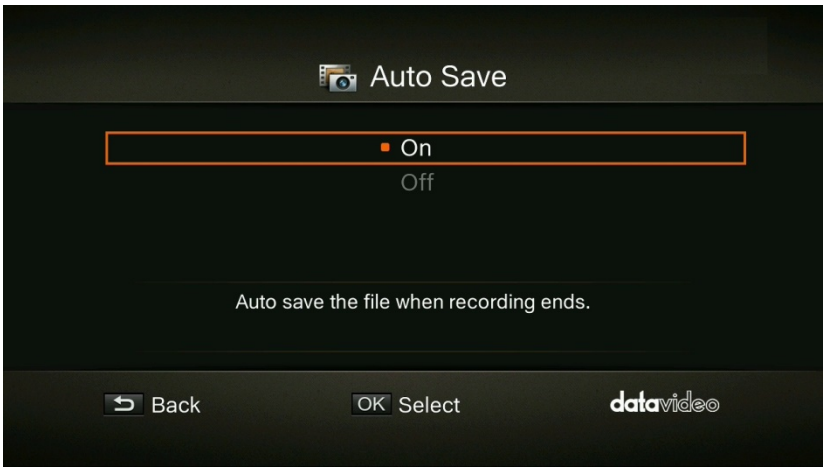
7.4.2 Snapshot Quality

Use ▲ / ▼ buttons to toggle among various snapshot quality options (Best / Better / Good). Press **OK** to confirm.



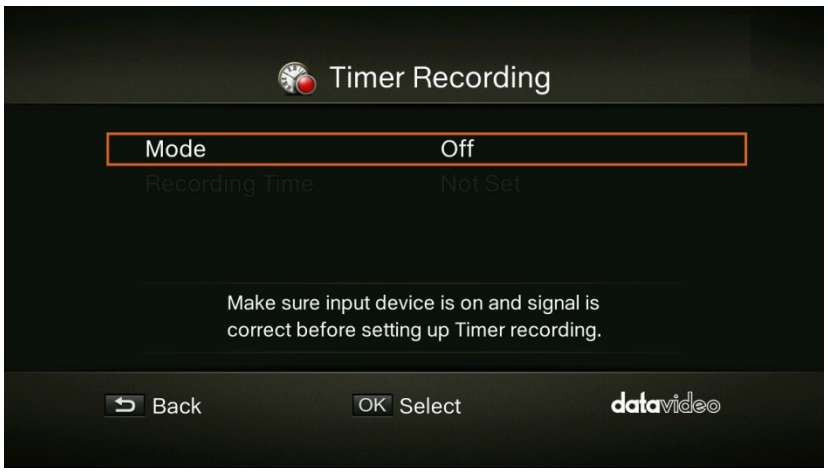
7.4.3 Auto Save

Use ▲ / ▼ buttons to switch between Auto Save function ON/OFF.



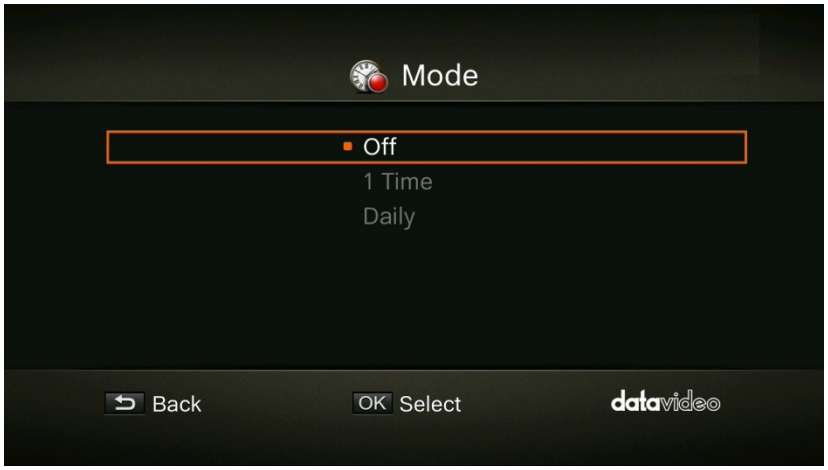
7.4.4 Timer Recording

Allows you to schedule the *MGB-5* to start recording at a particular time and record only a certain length of time.



7.4.5 Mode

Use ▲ / ▼ buttons to select from the listed recording type. Press **OK** to confirm the selection. The options are **Off** (timer recording OFF), **1 Time** (timer recording once) and **Daily** (repeat timer recording everyday).



7.4.6 Recording Time

Use ◄ / ► buttons to move among options and ▲ / ▼ buttons to adjust start time and recording length. Press **OK** to save changes. Press **BACK** button to return to the previous page.

7.5 Basic Operation of the MGB-5 Front Panel Recording Area

This chapter guides you to record video, capture images and instantly play files.

7.5.1 Record

The MGB-5 displays video in real-time and standard modes. If you prefer to display record status at the top right corner of the screen, you can change the default real-time mode to the standard mode before recording. Go to Menu → Settings → Display Mode

Instant Recording

Press to activate instant recording. Press again or to stop recording.

Pause and Resume Recording

You can skip unwanted footages and resume recording. Only the footages you recorded will be saved and those skipped clips will be deleted automatically.

Press to pause recording. Press again or to continue recording.

Capture

Image capture function on the MGB-5 is described as follows.

Quick Snapshot

Press to capture current image. Long press to activate continuous capture mode. The MGB-5 will take 5 snapshots at one time.

Instant Playback

Press to play the latest recorded file or view the last captured image.

Press to stop the playback. Press ▶ to skip forward 30 seconds. Press ◀ to skip backward 10 seconds.

Image Capture during Video Playback

You can activate screen snapshot during video playback. The three methods described below will guide you how you can use this function.

Method 1:

- Press to capture current image.

Method 2:

- Press to play the video in slow motion (1/2x). Press again to view the video frame by frame.
- Press to capture your desired image.

Method 3:

- Press ⏸ to pause the playback.
- Press ⏮ to go to previous frames.
- Press ⏭ to go to next frames.
- Press 📷 to capture your desired image.

7.6 Media Studio

You can check both recordings and snapshots captured by the MGB-5 in “Media Studio”.

Video: MP4 (Codec: H.264 format with AAC audio)
Image: JPEG

Press OK to enter Media Studio as shown below. Use the navigation buttons ◀ / ▶ / ▲ / ▼ to select among items.

- Press F1 to sort the files by file name, file size, file format and by modified date.
- Press F2 to switch between list mode and thumbnail mode.
- Press ⏭ to go to the next page. Press ⏮ to return to the previous page.
- Press MENU to directly access the main menu.

- **Video Playback**
  - Press ▶ or OK to start playing the selected video.
  - Press ⏸ or OK to pause the playback. Press ▶ or OK to resume playback.
  - Press SLOW ▶ to play the video in slow motion (1/2X).
  - Press REW ◀◀ to rewind at 2X, 4X, 8X, 16X and 32X speed.
  - Press FF ▶▶ to fast forward at 2X, 4X, 8X, 16X and 32X speed.
  - Press ▶ to play the file at normal speed (1X) when slow motion, rewind, or fast forward is active.
    Press STOP ■ to stop the playback.
  - Press INFO ⓘ to display the file playback information.

  Note: Only video files captured by the MGB-5 are supported.

- **Snapshots Viewing**
  - Press ▶ or **OK** to view the selected image.
  - Press STOP ■ or BACK ↩ to return.

  Note: Only image files captured by the MGB-5 are supported.

- **Recorded Video Post-Edit**

This section shows you how to cut and recombine video recorded by the MGB-5.

- **Select a Video**

Use the navigation buttons ◄ / ► / ▲ / ▼ to select the file you would like to edit.

- **Change File Name / Edit**

Press F3 to edit or change the selected video.

- **Change File Name**
  Input the file name by pressing ▲ / ▼ buttons to select characters, numerals or symbols. Press ◄/ ► buttons to move between character fields.
  Press **F1** to switch between different input modes (capital letter, small letter and symbols).
  Press BACK to go back to cancel the change you make.
  Press **OK** to save the name change.
  Press DELETE button to clear all texts.

- **How to edit**

An instruction on how to edit a video will be displayed, press **OK** to start editing.

In **Edit Mode**, you can cut and recombine your selected video. To cut the video, you will need to create one or more segments within the video.

Step 1
To locate a scene, use the navigation buttons ◄ / ► / ▲ / ▼ or ▶ to search the scene. You can also use ▲ / ▼ on the left of the screen to search the scene by specific hour, minute, and second.

Press **OK** to mark or unmark the scene.

Step 2
Repeat Step 1 to create a segment.
Press **OK** to keep or delete the segment.
Press **F1** to switch between search scene and segment search.
Press **F2** to clear all marks you made on the video.
Press **F3** to export the video.

Note: The MGB-5 automatically recombines the segments you choose to keep during editing.

- **Recorded Video Export**

After editing of the recorded video is complete, press **F3** to export the video. The estimated export time varies by different storage disks. Calculate your export time based on the actual disk size.

Press **OK** to export the video.

Press BACK to continue editing.

While the export is in progress, the bar in the middle of the prompt window shows the progress of the video export and the estimated complete time required.

Press BACK to cancel video export.

Press **F1** to hide the export information.

After the recorded video is successfully exported, press **OK** to exit the **Edit Mode**. Press BACK to exit or **F1** to continue editing.

Export Complete
Press [OK] to close the window or press
[F1] to continue editing file.
140306-1343(Edit-2)
100%
OK Close
F1 Edit
datavideo

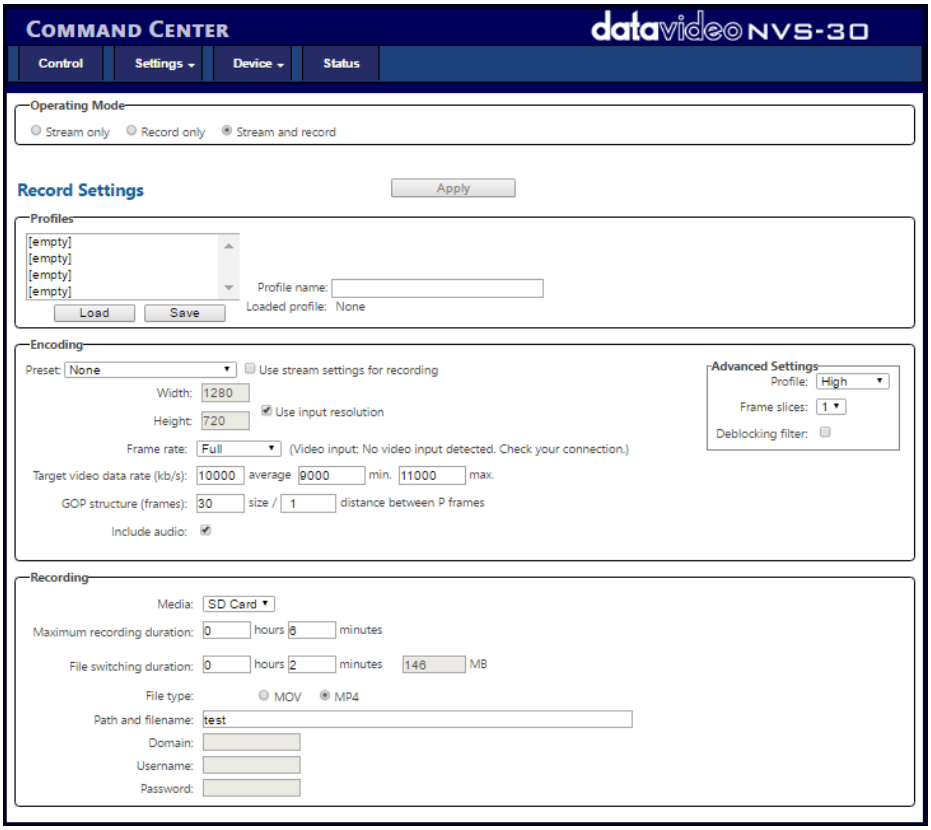
7.7 Setting-Backup Record

The **Record Settings** page in the Command Center allows you set the record settings for the MGB-5 device. The MGB-5 provides settings for recording your input source for video on demand (VOD), high-quality editing, and archiving/previewing purposes. Content can be recorded to MOV and MP4 file formats on a FAT32 or NTFS file system. Because FAT32 limits the recording file size to 4 GB, you must use an NTFS drive if your recorded file will be greater than 4 GB.
If controlling multiple devices, each device on the network records based on its own record settings.

Note: To save changes made in the Record Settings page, you must click the Apply button. If you leave the Record Settings page before applying the settings, all changes will be lost.

Accessing the record settings
To access the record settings, open the Command Center and select **Settings > Record**.

Note: The record settings cannot be modified when the MGB-5 is set to Stream-only mode.



Operating mode
Select the MGB-5 operating mode.

Stream profiles
The MGB-5 allows you to save up to four stream profiles that you can load at any time. Saving a new stream profile saves the current encoding and streaming settings.

Saving a stream profile

1. Specify your stream settings.
2. From the **Profile** list, select an empty profile, or a previously saved profile that you want to overwrite.
3. Type a **Profile name**.
4. Click **Save**.

Loading a stream profile
1. From the **Profile** list, select a profile.
2. Click **Load**. The loaded profile will appear next to **Loaded profile** field. If a change is then made to any of the stream settings, "(modified)" will appear next to the loaded profile name.

Encoding options
Specify the following H.264 encoding settings for streaming.

Presets
The MGB-5 comes with predefined presets that you can use to quickly set your encoding settings. A preset automatically sets all encoding settings, however, you should verify that the preset frame rate is appropriate for your encoding. You can also use a preset as a starting point to configure your stream encoding settings.

To use a preset:
1. Select the desired preset from the **Preset** list.
2. Select the **Frame rate**.

Note: Some presets may not be compatible for use with all CDNs. To avoid streaming issues, ensure that the selected preset settings, such as video resolution and video data rate, are supported by your CDN.

Use stream settings for recording
In Stream-and-record operating mode, check this box to use the stream encoding settings also for recording.

Video resolution
Select the resolution to which you want to stream by typing values for the **Width** and **Height**. You can also check the **Use input resolution** checkbox to stream at your input source's original resolution. The MGB-5 does not support upscaling the input source for streaming.

Note: In Stream-and-record operating mode, if the current record encoding resolution exceeds a width of 1280 and/or height of 720, and you want to stream at a resolution greater than 1280×720, the stream and record settings must use the same encoding settings. In this case, you must select the Use stream settings for recording option.

Frame rate
You can choose to stream at your input source's **Full** frame rate, or at a **Half** or a **Quarter** of your source's frame rate.

Note: The MGB-5 does not support upscaling the resolution or frame rate of the input source. If Full is selected from the Frame rate list, the frame rate will automatically be set to Half of the input source's frame rate after clicking Apply.

Target video data rate

Enter the target **average** video data rate for your stream. When entering an average data rate, the **minimum** and **maximum** data rates are automatically set to 90% and 110% of the average data rate, respectively. The default minimum and maximum values are applicable in most instances, however, you can change the minimum and maximum values to suit your needs.

The maximum average video data rate for streaming depends on the selected operating mode. The MGB-5 uses a variable data rate when encoding.

GOP size (1-1000)
Type the **GOP size** (distance between I frames) to which you want to encode your input source for streaming. The MGB-5 uses the IP pattern when encoding for streaming. For example, a GOP size of 10 creates a GOP structure of IPPPPPPPPPI.

Include audio
Check the **Include audio** box to stream the selected audio source along with the video. The MGB-5 uses the AAC audio format for streaming. Uncheck this box if you do not want to include audio in your stream.

Advanced settings
Profile sets the H.264 encoding profile for your stream. The available options are **Baseline**, **Main**, and **High**. Typically, **High** profile provides the best image quality and is suitable in most instances. However, depending on the decoder used when viewing the stream, such as with mobiles devices, a Main or Baseline profile may be required.

Frame slices: You can choose to slice each frame into **2**, **4**, or **8** sections when encoding, or you can select **1** to encode the frame as a whole. Slicing each frame when encoding the video for streaming may be useful when a multi-slice decoder device is used to view the stream.

Deblocking filter: Select this option to improve visual quality and prediction performance by smoothing the sharp edges which can form between macroblocks when **block coding** techniques are used. This filter improves the appearance of decoded pictures.

Recording options
Configure the following settings for recording.

Media
Select the storage Media. You can choose USB port, please choose USB port 2 or a network location.
Please note the following about using USB devices: (All of the USB interfaces mentioned below are Backup REC on the rear panel of the MGB-5)

- The MGB-5 writes to all USB devices (including USB 3.0 devices) at USB 2.0 speeds.
- The performance of USB keys or “thumb drives” varies. Many of these devices are optimized for “read” operations, while the MGB-5 requires sustained “write” capabilities. For best results, especially at higher recording data rates, powered USB drives are recommended.
- The MGB-5 supports USB devices with FAT32 or NTFS file systems.
- Media may need to be reformatted if not recognized by the MGB-5.
- USB devices with password protection are not supported.
- It may take a few seconds for the MGB-5 to detect a newly connected USB device (verified on the status page).
- For USB 3.0 hard drives without a dedicated power supply, the MGB-5 may not be able to sufficiently power more than one USB 3.0 drive at a time.

- When a recording is stopped, it may take a few moments for the MGB-5 to finalize the file, during which the USB LED continues to flash. To avoid corrupted video files, do not remove the USB device when its LED is flashing.
- Connecting a USB device to USB port 2 and then performing a device reboot allows you to save the MGB-5's current IP address and status as a text file.
- Connecting a USB device to USB port 2 and then performing a factory reset allows you to load pre-configured MGB-5 settings.

Maximum recording duration
Enter a **Maximum recording duration** to set an overall time limit for your recording session. The session will automatically end when this limit is reached, or when the selected storage media is full (whichever occurs first). If you enter a value of 0, the recording session will continue indefinitely, and will stop only when your storage media is full.

File switching duration
Enter a **File switching duration** to separate your recording session into more than one file at predetermined intervals. For example, if you enter a duration of 30 minutes, the MGB-5 will close the current file and start recording to a new file every 30 minutes.

The size of the created files (in approximated MBs) is displayed next to the duration. The file size depends on the video data rates you set in the encoding options.

Note
- **The maximum file switching duration you can set is four hours and fifty minutes.**
- **If you enter a file switching duration of 0, the MGB-5 will automatically switch to a new file every four hours and fifty minutes. This is a precaution that will avoid possible data loss that may occur from having files that are too large.**
- **On FAT32 storage media, file switching will occur automatically after 4 GB is reached. This is a limitation of the FAT32 file system architecture. You can stop recording at any time, either by using the control buttons in the Command Center, or the Stream and Record buttons on the MGB-5 front panel.**

File type
Select the type of file that will be recorded. You can create either an **MOV** or **MP4** (MPEG-4) file.

Path and filename
Specify the destination and filename for your recording based on your recording destination. When specifying the path, all folders in the path must be already existed. The MGB-5 will not create new folders.

Each recorded filename contains the base name, date, time, an automatically incrementing 3-digit number, and file type, using the following naming convention:
Basename-[YYYY-MM-DD_HH-MM-SS].001.mov or *.mp4*.

Note: Blank spaces are not supported in the base name. Use underscores in place of blank spaces. For example, enter *Recording1_Stage1* instead of *Recording1 Stage1* as the base name for the file.

USB 2: When recording to a USB device , enter the folder(s) on the recording device to which you want to record, if applicable, followed by the base name. For example, if you want to name your file

Recording1, and save the file in a folder named *Files* that is contained within another folder named *Project* on the root directory, enter *Project/Files/Recording1*. If you want to save the file in the media device's root directory, simply enter *Recording1*.

Network: Use this option to record your input source to a shared folder on the network. The method for entering the path and filename depends on the operating system of the computer that contains the shared folder.

- **Windows:** When recording to a shared folder that is on the Windows system on the network, you must enter the IP address of the location on the network to which you want to record, followed by the shared folder name, and then the base name for the file in the following format: *//IP address/shared folder name/basename*

For example, if you want to name your file *Recording1*, and save the file to a shared folder named *Files* that is located on a network computer with an IP address of *123.456.7.890*, enter *//123.456.7.890/Files/Recording1*.

Note: If the network destination has a firewall, it must be disabled in order to record to the network location.

- **Mac OS X Yosemite:** When recording to a shared folder that is on the Mac OS X Yosemite system on the network, the folder to which you want to save the file must be shared using the Network File System (NFS) file-sharing protocol. For information on sharing a Mac OS X Yosemite folder, see "Appendix 4, Sharing a Mac OS X Yosemite folder using NFS protocol".

Note: Shared folders that use a file-sharing protocol other than NFS are not supported with the MGB-5 for recording.

When entering the path and filename, you must enter the IP address of the location on the network to which you want to record, followed by the full path to the shared folder from the root directory, and then the base name for the file in the following format:
//IP address:/full path to shared folder/basename

For example, if you want to name your file *Recording1* and save the file to a shared folder named *Files* that is located on the *Desktop* under *Datavideo* in the *Users* root directory folder on a network computer with an IP address of *123.456.7.890*, enter the following:
//123.456.7.890:/Users/Datavideo/Desktop/Files/Recording1

Tip: You can obtain the full path to the shared folder by right-clicking the folder, and then clicking Get Info.

Domain, username, and password
When recording your source input to a network location and if the MGB-5 is not on the same domain as the network, enter the network domain. If required, also enter the **Username** and **Password** that is used to access the network.

7.8 Setting-Streaming

The Command Center page of the MGB-5 provides users streaming and backup recording related setting pages and options. For details of the streaming and backup recording, please refer to following sections.

Press **Settings** option to enter the **Stream Settings** page.

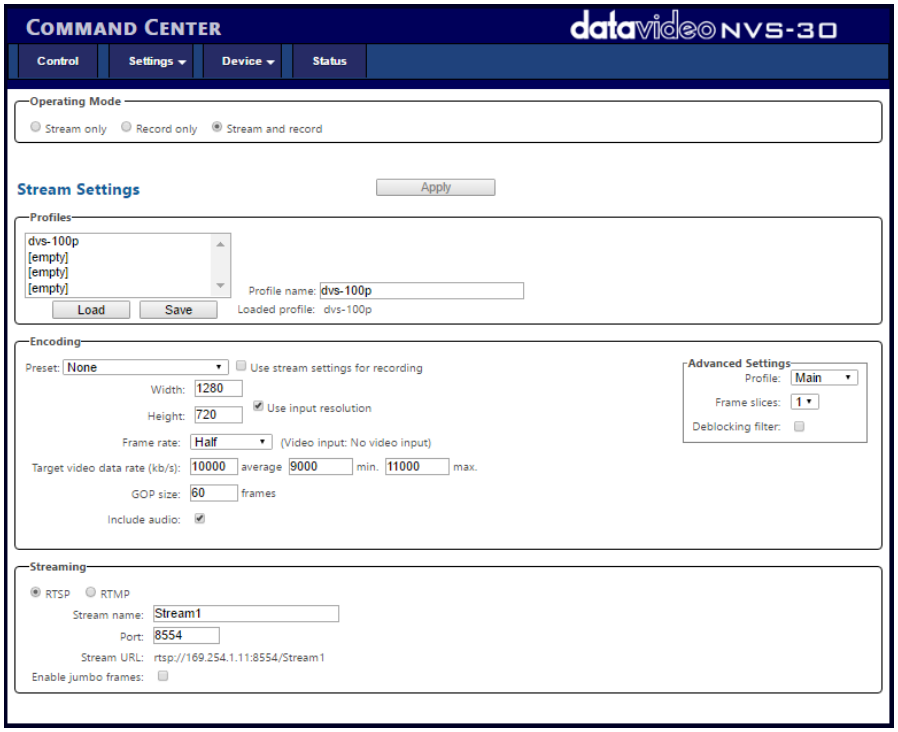
The **Stream Settings** page in the Command Center allows you set the stream settings for the MGB-5 device. If controlling multiple devices, each device on the network streams based on its own stream settings.

Note: To save changes made in the "Stream Settings" page, you must click the "Apply" button. If you leave the "Stream Settings" page before applying the settings, all changes will be lost.

7.8.1 Accessing the stream settings

To access the stream settings, open the Command Center and select **Settings > Stream**.

Note: The stream settings cannot be modified when the MGB-5 is set to Record-only mode.



7.8.2 Operating Mode

Select the MGB-5 operating mode.

7.8.3 Stream Profiles

The MGB-5 allows you to save up to four stream profiles that you can load at any time. Saving a new stream profile saves the current encoding and streaming settings.

Saving a stream profile

1. Specify your stream settings.

2. From the **Profile** list, select an empty profile, or a previously saved profile that you want to overwrite.
3. Type a **Profile name**.
4. Click **Save**.

Loading a stream profile
1. From the **Profile** list, select a profile.
2. Click **Load**. The loaded profile will appear next to **Loaded profile** field. If a change is then made to any of the stream settings, "(modified)" will appear next to the loaded profile name.

7.8.4 Encoding
Specify the following H.264 encoding settings for streaming.

Presets
The MGB-5 comes with predefined presets that you can use to quickly set your encoding settings. A preset automatically sets all encoding settings, however, you should verify that the preset frame rate is appropriate for your encoding. You can also use a preset as a starting point to configure your stream encoding settings.

To use a preset:
1. Select the desired preset from the **Preset** list.
2. Select the **Frame rate**.

Note: Some presets may not be compatible for use with all CDNs. To avoid streaming issues, ensure that the selected preset settings, such as video resolution and video data rate, are supported by your CDN.

Use stream settings for recording
In Stream-and-record operating mode, check this box to use the stream encoding settings also for recording.

Video resolution
Select the resolution to which you want to stream by typing values for the **Width** and **Height**. You can also check the **Use input resolution** checkbox to stream at your input source's original resolution. The MGB-5 does not support upscaling the input source for streaming.

Note: In Stream-and-record operating mode, if the current record encoding resolution exceeds a width of 1280 and/or height of 720, and you want to stream at a resolution greater than 1280×720, the stream and record settings must use the same encoding settings. In this case, you must select the Use stream settings for recording option.

Frame rate
You can choose to stream at your input source's **Full** frame rate, or at a **Half** or a **Quarter** of your source's frame rate.

Note: The MGB-5 does not support upscaling the resolution or frame rate of the input source. If Full is selected from the Frame rate list, the frame rate will automatically be set to Half of the input source's frame rate after clicking Apply.

Target video data rate
Enter the target **average** video data rate for your stream. When entering an average data rate, the **minimum** and **maximum** data rates are automatically set to 90% and 110% of the average data rate,

respectively. The default minimum and maximum values are applicable in most instances, however, you can change the minimum and maximum values to suit your needs.

The maximum average video data rate for streaming depends on the selected operating mode. The MGB-5 uses a variable data rate when encoding.

GOP size (1-1000)
Type the **GOP size** (distance between I frames) to which you want to encode your input source for streaming. The MGB-5 uses the IP pattern when encoding for streaming. For example, a GOP size of 10 creates a GOP structure of IPPPPPPPPPI.

Include audio
Check the **Include audio** box to stream the selected audio source along with the video. The MGB-5 uses the AAC audio format for streaming. Uncheck this box if you do not want to include audio in your stream.

Advanced settings
Profile sets the H.264 encoding profile for your stream. The available options are **Baseline**, **Main**, and **High**. Typically, **High** profile provides the best image quality and is suitable in most instances. However, depending on the decoder used when viewing the stream, such as with mobiles devices, a Main or Baseline profile may be required.

Frame slices: You can choose to slice each frame into **2**, **4**, or **8** sections when encoding, or you can select **1** to encode the frame as a whole. Slicing each frame when encoding the video for streaming may be useful when a multi-slice decoder device is used to view the stream.

Deblocking filter: Select this option to improve visual quality and prediction performance by smoothing the sharp edges which can form between macroblocks when **block coding** techniques are used. This filter improves the appearance of decoded pictures.

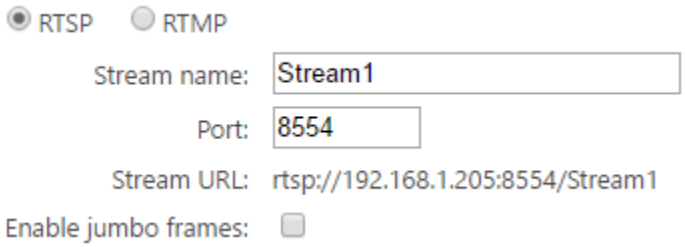
7.8.5 Streaming Options

The MGB-5 provides RTSP and RTMP streaming protocols for use on Adobe Media Servers, Wowza Media Servers, software video players such as QuickTime and VLC, or any of the popular Content Delivery Networks (CDNs), such as YouTube Live and Ustream.

In RTSP mode, the MGB-5 acts as a streaming server to which clients can connect via a media server, software video player, or CDN that supports the RTSP streaming protocol. If you want to stream to more than a handful of clients, we recommend using a dedicated media server to send streams to clients.

In RTMP mode, the MGB-5 can send stream data to a CDN or media server that supports the RTMP streaming protocol.

Using the RTSP streaming protocol



1. Select **RTSP**.
2. Enter a **Stream name**.
3. Enter the network **Port** through which the clients will connect.
4. A **Stream URL** is automatically generated based on your settings. Provide this URL to a client to connect to your MGB-5 network via a Wowza Media Server, software video player, or CDN that supports the RTSP streaming protocol.
5. Enabling jumbo frames can improve data transmission efficiency by sending a bigger frame of data instead of the standard one. However, use this feature only when accessing video files stored on an external media library or storage. Please note that to use jumbo frames to stream your video you will have to make sure that every single node on the network has to be jumbo frame enabled or else the overall network performance will not be improved.

As soon as you apply RTSP stream settings, the MGB-5 is ready to deliver RTSP streams to clients, and will begin streaming data once a client connects to the MGB-5 using the RTSP streaming protocol. The MGB-5 will continue to do so until it is no longer in RTSP mode. **There is no need to use the Stream button located on the MGB-5 front panel or the Stream button in the Command Center to start streaming**.

If you get choppy video when streaming to VLC media player, you must enable the Real-time Transport Protocol (RTP) in VLC. Proceed by doing one of the following:

- Windows operating system: Open the VLC media player, select **Tools > Preferences**, and then click the **Input / Codecs** tab. In the Network section, select **RTP over RTSP (TCP)**.
- Mac operating system: Open the VLC media player, select **VLC > Preferences**, and then click the **Input / Codecs** tab. In the **Codecs / Muxers** section, select **Use RTP over RTSP (TCP)**.

Using the RTMP streaming protocol

1. Select **RTMP**.
2. Specify the destination **Server URL** and **Stream name** provided by your CDN or server administrator.

If your CDN such as Ustream provides a streaming **XML file**, or when using Wowza Streaming Engine Manager, you can load the streaming XML file instead of entering the server URL and stream name. To do so, click **Browse...** to select the XML file, and then click **Load**.

When loading a streaming XML file, just the destination information (server URL and stream name) from the streaming XML file will be loaded. If the streaming XML file contains encoding information, those settings will not be loaded.

Clear the **Server URL** field to remove the XML file. Clear the **Stream name** field to remove the loaded streaming XML file.

Please note the following:

- If the stream name, username, or password is included in the stream URL, do not enter the information in the respective text boxes.

- Streaming XML files are not the same as the MGB-5 configuration XML files.

3. If your Flash-based server or CDN uses the “ModuleRTMPAuthenticate” method for RTMP authentication, username and password are required for authentication. However, if username and password information is not included as part of the stream URL or streaming XML file, you must enter the stream **Username** and **Password** in the text boxes provided.
4. Start streaming the MGB-5 input source to a CDN or media server.

8. Integrated Audio Delay Function

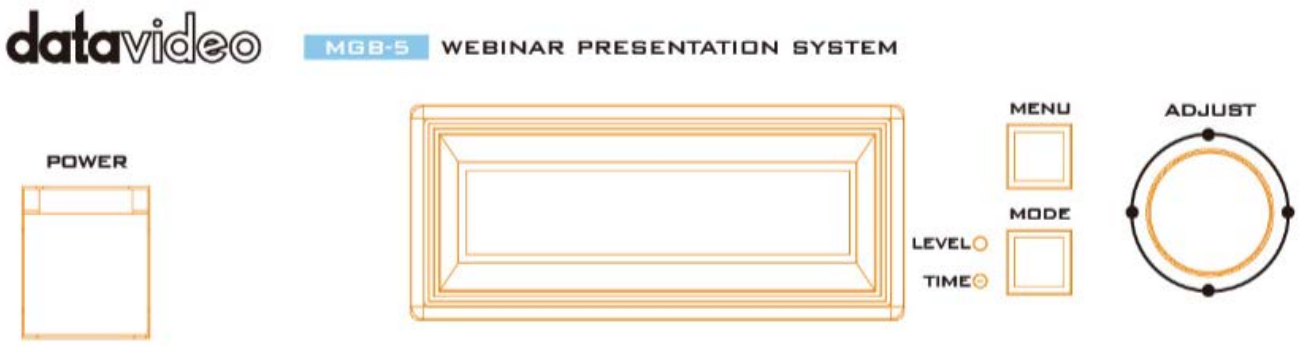
There is a control button area on the left side of the MGB-5 front panel which including display panel, ADJUST knob, MENU button and MODE button that can be used to control the integrated Audio Delay function.

8.1 MIC IN and AUDIO IN

The MGB-5 provides two ways for the external audio sources input. Please refer to following sections for details.

- MIC IN: This connector is located at the rear panel of the MGB-5 which used for users to connect the external MIC for external microphone audio source input.
- AUDIO IN: This two connectors are located at the rear panel of the MGB-5. The left and the right AUDIO IN connectors are used for users to connect to external multimedia player/PC for external multimedia or PPT audio source input. Please refer to following section for the Audio Delay area on the front panel of the MGB-5.

8.2 Audio Delay Area on the Front Panel of the MGB-5



8.3 Audio Delay Menu Setting

N.B. The unit will automatically exit the MENU settings mode if it is left idle for 12 seconds or more.

1. **AUDIO_DELAY**

This setting switches the audio delay function on or off.

- Press the **MENU** button to enter the system configuration settings.
- The cursor will flash at the beginning of this menu option.
- Press **MENU** button again to move the flashing cursor to the setting position.
- Turn the **ADJUST** knob to select the setting audio delay **ON** or **OFF**.
- Press the **ADJUST** knob in to save or confirm the chosen setting.
- The flashing cursor will return to the beginning of this menu option.
- Rotate the **ADJUST** knob to choose another menu option or press the mode button.

2. DELAY_TIME

This setting adjusts the audio delay in 10 millisecond (ms) increments to a maximum delay of 700ms.

NB: 1000ms = 1 second 1 frame PAL = 40ms 1 frame NTSC = 33.333'ms

- Press the **MENU** button to enter the system configuration settings.

- Turn the **ADJUST** Knob to select **DELAY_TIME** mode.
- The cursor will flash at the beginning of this menu option.
- Press **MENU** button again to move the flashing cursor to the setting position.
- Turn the **ADJUST** knob to select the **DELAY_TIME** setting value from **0 ~ 700m SEC**.
- Press the **ADJUST** knob in to save or confirm the chosen setting.
- The flashing cursor will return to the beginning of this menu option.
- Rotate the **ADJUST** knob to choose another menu option or press the mode button.

3. ATTENUATION

This setting adjusts how loud or quiet the audio will be at the output. ***0dB=Loud*** and ***-60dB=Quiet***.

NB: The AD-100M is an Audio Delay device and it can also be used as a Tone Generator. ***Please DO NOT connect the AD-100M directly to a headset or set of speakers it should not be used like an Audio AMP.***

- Press the **MENU** button to enter the system configuration settings.
- Turn the **ADJUST** Knob to select **ATTENUATION** setting.
- The cursor will flash at the beginning of this menu option.
- Press **MENU** button again to move the flashing cursor to the setting position.
- Turn the **ADJUST** knob to select the **ATTENUATION** setting value from **0 ~ - 60 dB**.
- Press the **ADJUST** knob in to save or confirm the chosen setting.
- The flashing cursor will return to the beginning of this menu option.
- Rotate the **ADJUST** knob to choose another menu option or press the mode button.

N.B. The unit will automatically exit the MENU settings mode if it is left idle for 12 seconds or more.

4. TONE_OUT

This setting switches the **TONE_OUT** function on or off.

- Press the **MENU** button to enter the system configuration settings.
- Turn the **ADJUST** Knob to select **TONE_OUT** setting.
- The cursor will flash at the beginning of this menu option.
- Press **MENU** button again to move the flashing cursor to the setting position.
- Turn the **ADJUST** knob to change the **TONE_OUT** setting between **ON** or **OFF**.
- Press the **ADJUST** knob in to save or confirm the chosen setting.
- The flashing cursor will return to the beginning of this menu option.
- Rotate the **ADJUST** knob to choose another menu option or press the mode button.

N.B. The test tone will be output at the level set within the TONE_LEVEL menu option. This test tone will also override any audio source already being fed through the AD-100M.

5. TONE_MODE

This setting allows the 1 KHz test tone to be switched on or muted.

- Press the **MENU** button to enter the system configuration settings.
- Turn the **ADJUST** Knob to select **TONE_MODE** setting.
- The cursor will flash at the beginning of this menu option.
- Press **MENU** button again to move the flashing cursor to the setting position.
- Turn the **ADJUST** knob to change the **TONE_MODE** setting between **MUTE** or **1KHZ**.
- Press the **ADJUST** knob in to save or confirm the chosen setting.
- The flashing cursor will return to the beginning of this menu option.
- Rotate the **ADJUST** knob to choose another menu option or press the mode button.

N.B. The MUTE value will silence the test tone but will not restore any audio source being fed into the AD-100M. Please set the TONE_OUT menu option to OFF to switch back to an audio input source instead.

6. TONE_LEVEL

This setting adjusts how loud or quiet the test tone will be at the output. ***+26dBu=VERY Loud*** and ***-34dBu=Quiet***.

- Press the **MENU** button to enter the system configuration settings.
- Turn the **ADJUST** Knob to select **TONE_LEVEL** setting.
- The cursor will flash at the beginning of this menu option.
- Press **MENU** button again to move the flashing cursor to the setting position.
- Turn the **ADJUST** knob to select the **TONE_LEVEL** setting value from **+26 ~ - 34 dBu**.
- Press the **ADJUST** knob in to save or confirm the chosen setting.
- The flashing cursor will return to the beginning of this menu option.
- Rotate the **ADJUST** knob to choose another menu option or press the mode button.

N.B. The unit will automatically exit the MENU settings mode if it is left idle for 12 seconds or more.

7. RESET ALL

Please remove all output connections before using this feature.

This option restores the factory defaults which may be louder than expected. Please review and adjust the default menu settings before re-connecting any output connections on the AD-100M rear panel.

NB: *The AD-100M is an Audio Delay device and it can also be used as a Tone Generator.* ***Please DO NOT connect the AD-100M directly to a headset or set of speakers it should not be used like an Audio AMP.***

- Press the **MENU** button to enter the system configuration settings.
- Turn the **ADJUST** Knob to select the **RESET ALL** setting.
- The cursor will flash at the beginning of this menu option.
- Press **MENU** button again to move the flashing cursor to the setting position.
- Turn the **ADJUST** knob to change the **RESET ALL** setting from **NO** to **YES**.
- Press the **ADJUST** knob in for 2 seconds, the system will return to the factory defaults.
- The setting will return to **NO**.
- Press the **MENU** or **MODE** button to start to review the units default settings.

Factory Default Settings	
AUDIO_DELAY	OFF
DELAY_TIME	10ms
ATTENUATION	-0dB
TONE_OUT	OFF
TONE_MODE	1KHz
TONE_LEVEL	+4dBu

8. SOFTWARE VERSION

- Press the **MENU** button to enter the system configuration settings.
- Turn the **ADJUST** knob to select **SOFTWARE VERSION**.
- The firmware version of the AD-100M is displayed for 12 seconds.

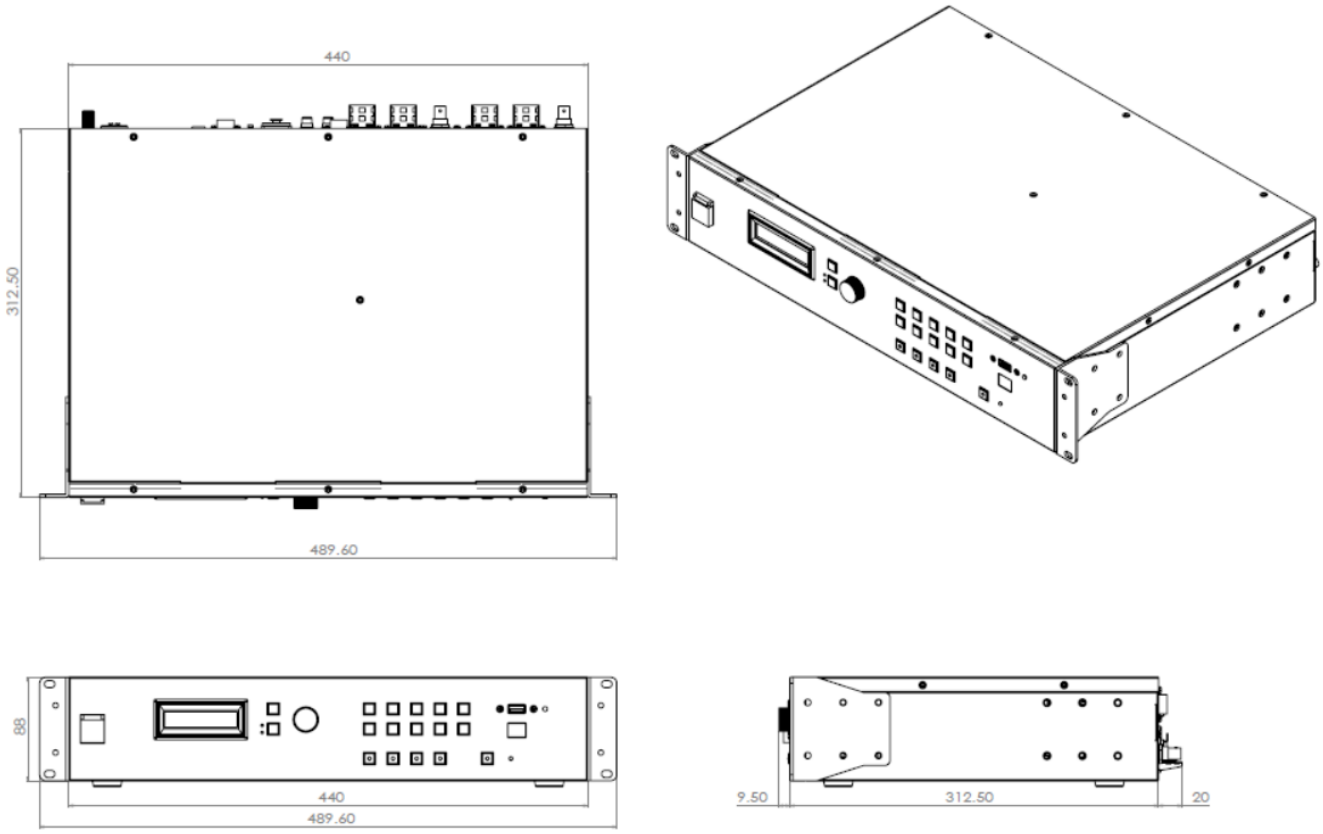
9. ESCAPE

- After reviewing or changing the system configuration settings.
- Turn the **ADJUST** knob to select **ESCAPE**.
- Press the **ADJUST** knob in to exit the system configuration settings mode.

Alternatively press the **MODE** button to exit the system configuration settings instantly.

9. Dimensions

MGB-5



All measurements in millimeter (mm)

10. Specification

Video	**Video Inputs**	1 x SD/HD/3G-SDI BNC connector **SDI Formats：** 576i, 480i (SMPTE 259M-C) 1080i50, 1080i59.94,1080i60, 720p50,720p59.94, 720p60, 1080p25, 1080p30 (SMPTE 292M)1080p50, 1080p59.94,1080p60 (SMPTE 425M) 2 x HDMI connector **HDMI Formats：** 480i/576i/720p50/720p59.94/720p60/1080i50/1080i59.94/1080i60/1080p25/1080p30/1080p50 / 1080p59.94/1080p60
	Video Outputs	1 x SD/HD/3G-SDI BNC connector **SDI Formats：** 576i/480i(SMPTE 259M-C)/1080i50/1080i59.94/1080i60/720p50/720p59.94/720p60/1080p25/1080p30(SMPTE 292M)/1080p50/1080p59.94/1080p60(SMPTE 425M) 2 x HDMI connector **HDMI Formats：** 480i/576i/720p50/720p59.94/720p60/1080i50/1080i59.94/1080i60/1080p25/1080p30/1080p50/1080p59.94/1080p60
Chroma key Control		Can be controlled by connecting PC to the RJ-45 connector on the rear panel of the MGB-5 by an Ethernet cable (Can be control by Web UI)
Video Recording	**Supported Video Codecs (External Video Recording USB Connector)**	H.264 4:2:0 HD: 1080P 20Mbps/18Mbps/15Mbps HD: 720P 20Mbps/15Mbps/10Mbps HD: 1080i 15Mbps/12Mbps/10Mbps SD: 576P/480P/576i/480i 7.5Mbps/5Mbps/3Mbps
	Supported Audio Formats (External Video Recording USB Connector)	AAC 16bit 48KHz 128Kbps Stereo
	USB Drive File format (External Recording USB Connector)	NTFS
Audio Signal	**Audio Inputs**	1 x Microphone Input ，XLR connector 2 x unbalanced stereo audio/RCA/phone sockets

	Audio Signal Spec.	Bandwidth: 20~20KHz<+/-3dB S/N Ratio>70dB T.H.D<0.1%
	Audio Signal Delay Time	10~700ms (1 frame PAL=40ms, 1 frame NTSC= 33.333'ms)
Video Streaming	**Streaming Output**	1 x RJ-45 (10/100M Ethernet)
	Video Encoding	H.264/AVC, Main/High profile The max. bitrates can up to 10Mbps
	Audio Encoding	AAC 16bit 48KHz Mono/Stereo The max. bitrates range can be set from 32Kbps to 384Kbps
	Supported Resolutions	1080p60/59.94/50 1080p30/29.97/25/24/23.98 1080i60/59.94/50 720p60/59.94/50 480i59.94,576i50
	Supported Streaming Protocols	TS over TCP/UDP, Unicast & Multicast RTSP over HTTP/TCP/UDP (RTSP Elementary Stream) RTMP(Publish)
GPI Trigger	**Foot Switch Input**	1 x 3 pin mini XLR
Others	**Dimensions**	440x345.45x88 (w/o rack mount ears) 489.6x345.45x88 (w/ rack mount ears)
	Supplied Power	DC 12V 5A （TBC）
	Operating Temp.	0℃~40℃(32℉~102℉)
	Humidity	10% to 90% (Non-condensing)

Service & Support

It is our goal to make owning and using Datavideo products a satisfying experience. Our support staff is available to assist you to set up and operate your system. Contact your local office for specific support requests. Plus, please visit www.datavideo.com to access our FAQ section.

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