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Disclaimer of Product & Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

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.
- 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 is 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 beings 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, batteries, metal parts, housing, cable reel and consumable parts 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 qualify 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, Non-PCle Card and third party provided PC components 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.



CE Marking is the symbol as shown on the left of this page. The letters "CE" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced

by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

1. Product Overview

The HDR-2 is a standalone 4K Recorder box which allows you to record and playback 4K or HD video. The box is equipped with one HDMI input and two HDMI outputs.

One major advantage of the HDR-2 is its ability to use it independently of a PC by simply connecting an HDMI video source. The HDR-2 records from a range of devices, including HDMI digital camcorder and camera, IP cam, game console, PC Game (4K recommended) and etc. The HDR-2 indeed makes video recording and viewing easier.

1.1 Features

- Supports up to UHD 4K (3840 x 2160) resolution
- HDMI 2.0 input, output and loop-thru output
- 2" LCD for setting and monitoring
- Supports up to 4K50/60 video recording
- Record on SD card
- An external power bank can be connected through the USB port.
- Balanced XLR in x2 + RCA in x 2
- Supports DVIP, RS-422/RS-232 and GPI remote control.

1.2 System Diagram



2. Connections and Controls

This section provides an introductory overview of the device functions on front and rear panels.

2.1 Front Panel





Power On / Off Button

Push once to switch **ON** the HDR-2. To turn **OFF**, push and hold the power button for at least 2 seconds.



Headphone Audio Monitoring

Stereo 3.5mm mini audio jack socket for stereo headphone which is used for monitoring the audio being recorded. The headphone audio level is controlled by the volume knob.

Note: The socket does not output audio when the HDR-2 is in playback mode.



Menu Button

This calls up the menu display on the LCD screen. For more about using the menu, see <u>OSD MENU</u>.



Back Button

Press to exit the current menu page and return to the previous one, or go back to the video image.



OSD Menu Knob

Push the knob left/right/up/down to move among options; press the knob to confirm a selection.



INT. Button

Press the INT. button to display the video on the LCD screen. Please note that the HDMI video output will be disabled once the INT. button has been turned ON.

Note: You will not be able to change the display device once recording starts.



EXT. Button

Press the EXT. button to display the video on the monitor connected to the HDMI output port. Now the LCD screen should show the current video status.

Note: You will not be able to change the display device once recording starts.



CLIP Button

Press the "CLIP" button to enable clip management on the LCD screen. For more information about clip management, see <u>CLIP</u>.



Stop Button

Press to stop recording or playback.



Play / Pause Button

After selecting a clip, press the play/pause button to start the playback. While the clip is playing, press the play/pause button to pause.

In general, when no particular clip is selected, pressing the play/pause button also plays the last recorded video file.

Note: The play/pause button should illuminate green when enabled.



Record Button

Press the **Record** button to start/stop recording. The record status should be displayed on the LCD screen.

Note: HDR-2 will not record if no video source is connected.



Rewind Button

While in playback state, press this button to **Fast Rewind**. While the video is rewinding, press this button to change the rewind speed (2x/4x/8x).

Note: The play/pause button LED should be off while the video is fast rewinding.



Fast Forward Button

While in playback state, press this button to **Fast Forward**. While the video is fast forwarding, press this button to change the FF speed (2x/4x/8x).

Note: The play/pause button LED should be off while the video is fast forwarding.



Slow Play Button

Press the Slow Play button to play the video in slow play mode. While the video is in slow play mode, press this button to change the speed (1/2x and 1/4x).

Note: The play/pause button LED should be off after the slow play mode is enabled.



Previous Clip Button Press to go back to the previous clip.



Next Clip Button Press to go to the next clip.



Repeat Button Press to switch between Repeat One, Repeat All and Repeat Off modes.



Bitrate Button

Press to select high, mid or low bitrate modes for video recording. Please note that the LED color is green.



Replay Button Press to play the last recorded video file.



SD Card Slot

Please use a U3 SD card. The maximum supported storage capacity is 128 GB.

Note: Because of the MP4 container format limitation, the maximum file size for video and audio recordings is 4 GB.

2.2 Rear Panel





DC IN Socket

Connects the supplied 12V PSU to this socket. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.



Power Switch Switches the power On / Off



Power Bank IN

Connect an external portable USB power supply to **POWER BANK IN** port. The connected external portable USB power supply will start to provide power to the HDR-2 only when the DC power supply fails. Use power banks that has at least one port providing an output voltage of 5V and an output current of 2.5A.

Warning: The power bank is mainly used for emergency power supply and sustains the device operation in the event of unexpected DC power loss. The power bank, however, is not to be used for powering the HDR-2 recording primarily. Hence, when the DC power is disconnected, the power button LED will then start flashing red and as the flashing gets faster, it means the Power Bank IN port starts to drain your power bank at a faster rate. You should either try to reconnect the DC power or stop recording to avoid file corruption before the power is cut unexpectedly.

Note: Files will be corrupted if recording is interrupted due to unexpected power outage.



HD/4K-HDIM Input

Allows input of HD/4K videos through the IN1 HDMI interface. Simply connect a video source to the input port, which will be replicated onto the loop through port for output.

HD/4K-HDMI Outputs

Allow output of the recorded HD/4K video clips through the OUT1/2 HDMI interfaces. Simply connect external HDMI devices for playback of output videos.

Note: The HDR-2 will adjust the output resolution according to the EDID information provided by the connected display. Please note that if you've selected YUV422 as the color space, the HDR-2 may fail to downscale the output resolution to 1080p.



XLR Analog Audio IN XLR IN Port for balanced audio connection.

Stereo RCA (Left/Right)

Connects unbalanced analog audio source (stereo).





RS-232/422 Remote Control

(TBD) Functionality under development; will be added in the next firmware upgrade.

DVIP Port

(TBD) Functionality under development; will be added in the next firmware upgrade.

GPI Control

The GPI interface is a 3.5mm Jack Socket that allows connection of an external controller with GPI functionality such as iCAST MINI to enable/disable recording. Contact closure between the Outer and Inner contacts on the jack plug will enable/disable recording.



See <u>Control</u> for more information about setting the GPI function.

3. LCD Screen

The built-in 2 inch LCD screen allows you to configure the record and system settings using an OSD menu. In addition, the user can view saved clips and live video directly on the LCD screen.

3.1 Dashboard

After the system boot-up is finished, the main screen will be displayed. There is a slight variation in the main screens displayed with and without a video source. The respective main screens are shown in the following sections.

With Video Source



Without Video Source



Please note that the monitors connected to HDMI 1/2 should also display the Datavideo logo against a blue background in absence of a video source.

3.2 Recording

When recording is enabled, you should see the following information on the LCD screen.



3.3 Playback

During playback, you should see the following information on the connected monitor screen.



4. OSD MENU

Pressing the **MENU** button should bring up the menu screen on the LCD screen.



Menu	
Record Setting	
Clip	
Control	
System	

The table below shows you the menu hierarchy.

	Record Mode	.265 .264		
	Video Bitrate (bps)	Manual Bitrate	10M 20M 30M 40M 50M	
Record Setting		High (50M)		
		Medium (30M)		
		Low (20M)		
	Format Media	exFAT Format Cancel		
	POW-ON AUTO REC	ON OFF		
	Clip List	Video Info	Clip name	
			Record mode	
Clin			Resolution	
Ciip			Clip duration	
		Dalata Clin	Delete	
		Delete Clip	Cancel	
	Interface	DVIP (Default)	
Control		RS-422		
		RS-232		

	GPI Mode	PULSE (Default)		
		LEVEL		
	GPI Control	Play		
		Record (Defa	ult)	
		English (Default)		
	Language	Traditional Chinese		
		Simplified Chinese		
		RGB (Default)		
	HDMI Output Format	YUV444		
		YUV422		
		DHCP	ON (Default) OFF	
		IP Address		
		Network Mas	k	
	Network Setting	Gateway		
		Primary DNS		
		Secondary DNS		
		Mac Address		
		Reset		
Custom	Audio Source	Embedded	ON (Default) OFF	
System		XLR	ON OFF (Default)	
		RCA	ON OFF (Default)	
		Auto (Default)	
	Audio Level	+6dB (SMPTE)		
		-6dB (EBU)		
	Date Setting	YYYY/MM/DD		
	Time Setting	нн/мм		
	Time Setting	АМ/РМ		
		1		
	Key Backlight	2		
		3		
		4 (Default)		
		5		
	I CD Backlight	1		
	Lee Bucklight	2		

	3 4 (Default) 5
FW Version	HDR-2_0.3.1.027
FW Upgrade	Yes / No
Factory Default	Yes / No

4.1 Record Setting

In this section, the record settings will be discussed.

Record Setting	
Record Mode	.265 ►
Video Bitrate (bps)	
Format Media	
POW-ON AUTO REC	Off

Record Mode

You can record in H.265 (4K60/50p) or H.264 (4K30/25p) video mode.

Select H.265 if the input video resolution is 4K60/50p and H.264 if the input video resolution is 4K30/25p.

Hence if the record mode is set to H.264 and the input video resolution is 4K60/50p, the HDR-2 will not be able to record, and the message "Wrong REC Mode" will be shown at the top right corner of the LCD screen. Please change the record mode to H.265.

Video Bitrate



The customizable video bitrate range is between 10M and 50M with a step size of 10M. The default bitrate is 50M. Please note that the range may vary depending on the record mode selected.

You can also select hard coded options which are high (50M), medium (30M) and low (20M). Refer to the table below for the recording durations (in minutes) corresponding to different storage capacities at various bitrates.

		Capacity (GB)				
		8	16	32	64	128
	50	20	40	80	160	320
(sdq	40	25	50	100	200	400
Bitrate (M	30	32	66	132	266	532
	20	50	100	200	400	800
	10	100	200	400	800	1600

Note: Avoid using a bitrate of 10M for high-quality video (high resolution), as a low bitrate may result in an undesirable video viewing experience while the recorded video is being played. It is recommended to use a higher bitrate.

Format Media

Format the connected external media such as power bank and SD card to exFAT.

Note: Because of the MP4 container format limitation, the maximum file size for video and audio recordings is 4 GB. You can record up to 30 files.

POW-ON AUTO REC

Enable this option if you would like the recording to start automatically upon power-on.

4.2 Clip List



In the clip list, you will be able to view a list of all recorded clips. Up to five clips can be listed on one page, so if you have more than 5, you will need to browse between pages.

You can select the info icon to view the selected clip's name, record mode, resolution and duration.

To delete a clip, simply select the clip then the recycle bin icon.

4.3 Control

Select the remote control interface and set the GPI connection settings in **Control**.

Control			
Interface	DVIP ►		
GPI Mode	PULSE		
GPI Control	Play		

Interface (TBD)

You can access the HDR-2 via the DVIP, RS-422 or RS-232 interface.

GPI Mode

The GPI input accepts pulse or level trigger signal.

GPI Control

You can select to trigger playback or recording via GPI.

4.4 System

The System sub menu allows you to configure the device settings.

System		
Language	English 🕨	
HDMI Output Format	YUV422	
Network Setting	192.168.1.100	
Audio Source	EMB	
Audio Level		

Language

The device offers three UI languages, which are English, Traditional Chinese and Simplified Chinese.

HDMI Output Format

You can select different color spaces for the HDMI output. The options are listed as follows:

- RGB
- YUV444
- YUV422

Network Setting

Enable DHCP if you would like the recorder to be assigned an IP address by the network server.

If you would like to manually configure the device's network settings, simply disable DHCP, then enter the IP address and the network mask. Enter gateway IP, primary DNS, and secondary DNS if necessary. The default static IP settings are listed as follows:

- IP Address: 192.168.100.100
- Network Mask: 255.255.255.0
- Gateway: 192.168.100.1
- Primary DNS: 8.8.8.8
- Secondary DNS: 168.95.1.1

The device's MAC address will be displayed but it cannot be changed.

Select Reset to restore the network settings to their default values.

Audio Source

You can use the embedded audio as well as audio sources connected to XLR and RCA audio ports. The embedded audio is enabled by default.

Audio Level

In **Audio Level**, select auto to allow the recorder to detect the video's audio format. You can also manually select SMPTE (+6dB) or EBU (-6dB) audio standard.

Date Setting

Enter the current year, month and day in Date Setting.

Time Setting

This is the 12 hour clock so remember to select AM or PM after setting the time.

Key Backlight

You can set brightness of the buttons on the front panel, ranging from 1 to 5 with 4 being the default.

LCD Backlight

You can set the LCD screen brightness, ranging from 1 to 5 with 4 being the default.

FW Version

This field only displays the firmware version.

FW Upgrade

Once you've selected FW Upgrade, you will be prompted to confirm whether to start the firmware upgrade. Select YES to proceed or NO to cancel.

Factory Default

Once you've selected Factory Default, you will be prompted to confirm whether to reset the device to its factory defaults. Select YES to proceed or NO to cancel.

5. Firmware Update

Datavideo usually releases new firmware containing new features or reported bug fixes from time to time. Customers can either download the firmware as they wish or contact their local dealer or reseller for assistance.

This section outlines the firmware upgrade process which should take *approximately few minutes to complete*.

The existing settings should persist through the *firmware upgrade process*, *which should not be interrupted once started* as this could result in a non-responsive unit.

SD Card

Insert an SD card that contains the latest firmware to perform a firmware upgrade.

- A Windows PC or Laptop
- Latest firmware file
- An SD card
- At least an HDR-2 device

Upgrade Procedure

- 1. Download the latest firmware file on a Windows computer and save it on an SD card.
- 2. Insert the SD card into the HDR-2's SD card slot.
- 3. Open the OSD menu on the built-in LCD screen, tap System then FW Upgrade. Tap YES to start the process.
- 4. While the HDR-2 is performing the firmware upgrade, the button LEDs on the front panel should illuminate.
- 5. The HDR-2 should reboot itself after the firmware upgrade is complete.

6. Frequently Asked Questions

This section describes problems that you may encounter while using HDR-2. If you have any questions, please refer to related sections and follow all suggested solutions. If problem still exists, please contact your distributor or the service center.

No.	Problems	Solutions
1.	Can HDR-2 play videos recorded on other devices?	No, HDR-2 can only play its own recorded video files.
2.	Can I record video files with 120M bitrate on SD cards?	Depending on properties of the SD cards, some can only record up to 80M even though they are Class 10 cards.
3.	After pressing the play, stop and record buttons, the button LED blinks for 3 – 5 seconds.	The blinking indicates that the HDR-2 is initializing the function.

7. Dimensions



All measurements in millimeters (mm)

8. Specifications

Model Name	HDR-2
Product Name	4K Digital Recorder
Video Standard	4K & HD
Video Format	3840x2160p60/59.94/50 (H.265 Only)
	3840x2160p30/29.97/25/24/23.98
	1080p60/59.94/50/30/29.97/25/24/23.98
	720p60/59.94/50
Supported Video Input	1 x HDMI 2.0 Type A
Signal	
Video Output	2 x HDMI 2.0 Type A
	1 x HDMI 2.0 Type A Loop out
Analog Audio Input	2 x 3pin XLR Socket
	1 x Stereo RCA set (L/R)
Analog Audio Output	3.5 mm earphone jack
Embedded Audio	MP4 (H.265 + AAC) or (H.264 + AAC)
Storage Medium	SD Card Slot x 1
	Supports SD, SDHC and SDXC Card
	(UHS-I) (U3 above)
	(Max: 128 GB)
Multi-Channel	1 CH HDMI (4K & HD)
Recording	
Estimated Record Time	HD 32GB: 56Hr (1Mbps)~ 7Hr (8Mbps)
(min/10GB)	FHD 32GB: 28Hr (2Mbps)~ 3.5Hr (16Mbps)
	UHD 32GB: 7Hr (8Mbps)~ 1.7Hr (32Mbps)
Recording Media	1 x SD Card
Storage File System	exFAT
Recorded File Format	MP4 (H.265 + AAC) or (H.264 + AAC)
Video Recording Bit	YUV 4:2:0 / 8 bit
Rate / Color Sampling	Bitrate: 1 Mbps – 50 Mbps
Audio Recording	AAC 2CH
Format	16 bit 48 kHz 192 kbps
Encode Format	H.264: MAX RES: 4K@30 420 8bit codec H.265:
Supported	MAX RES: 4K@60 420 8bit codec
Video Bitrate	H.265: 50Mbps
	H.264: 50Mbps

Preview Display	2" LCD (MENU)
External Control	DVIP
	RS-422/ RS-232
	GPI Input: 3.5Ø phone jack (Pulse trigger: Record
	Start/Stop)
	Front Key Buttons
Power Failure	Redundant USB power supply (not included)
Protection	
Chassis	1 RU, Half Rack Width
Dimensions (LxWxH)	220 x 237 x 47 (mm)
Weight	1.4 kg
Operating Temp.	0 – 40 °C
Power	DC 12V, 2A

Service & Support

It is our goal to make your products ownership a satisfying experience. Our supporting staff is available to assist you in setting up and operating your system. Please refer to our web site www.datavideo.com for answers to common questions, support requests or contact your local office below.

Please visit our website for latest manual update. www.datavideo.com/product/HDR-2





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