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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.



- Follow all warnings and instructions marked on this unit.
  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 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.
- 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.
- 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 indicates that it will not be treated as household waste. It must be handed over to the applicable take back scheme for the recycling of Waste Electrical and Electronic Equipment. For more detailed information about the recycling of this product, please contact your local Datavideo office.

# 1. Introduction

The RMC-400 Replay Control Center is designed for controlling up to 4 HDR-10 Replay Recorder. It allows the user to capture any specific desired scenes during any sports game. Once the special scene is captured, the user can edit and replay the clip using the RMC-400. Furthermore, the RMC-400 provides the user with the capabilities of saving the captured scenes to the disk and loading previously saved clips for replay.

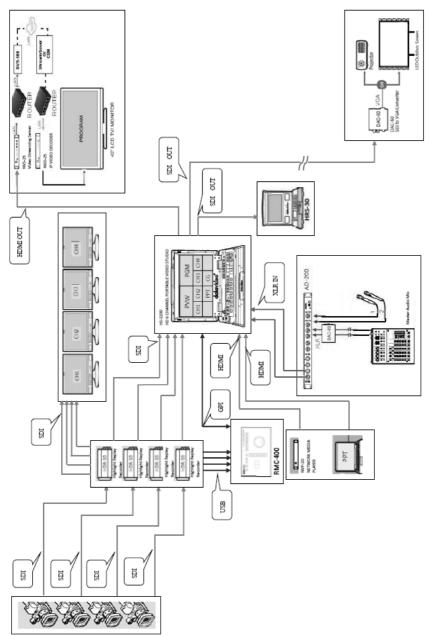
The built-in T-Bar sets play speed for replaying highlighted video footage and the jog and shuttle wheels allow the user to browse through the clip currently being edited.

With the RMC-400 controller connected, not only you are allowed to control up to 4 HDR-10 devices in a synchronized way, you will also be able to capture, edit and save any special scenes with greater flexibility and higher efficiency.

### Features

- Synchronized Remote control of up to four HDR-10 Replay Recorders
- GPI interface allows other devices such as switcher to trigger the playback.
- T-Bar for Replay playback with smooth variable speed adjustment
- A Jog/Shuttle knob for control operation





# 3. Connections and Controls

### **Rear Panel**

8	8	8
<b>data</b> video		
ON	Power Switch	The power switch turns ON / OFF the device.
+-)DC IN 12V	DC IN	DC in socket connects the supplied 12V PSU. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.
TD REPLAY RECORDER	mini-USB	Connection to up to four HDR-10 Replay Recorders.
	GPI Interface	GPI interface allows connection to other external devices such as switcher to trigger the playback.
F/W UPGRADE	Firmware Upgrade	USB type A port for firmware upgrade. Please refer to the <u>Firmware Upgrade</u> section for the procedure.

### **Control Panel**

DEV 1 DEV 2 DEV 4	ALL	
	CAPTURE	- WILK REPLAT -
	TRIM	
	REPLAY	
	RECALL	A A A A A A A A A A A A A A A A A A A
	MENU	



ALL

#### **Device Enable Buttons**

Press the "**DEV 1 to 4**" buttons to activate the corresponding HDR-10 device for control. Press the button again to deactivate.

Enabling of multiple devices is possible. Up to four HDR-10 Replay Recorder devices can be controlled at the same time. Press the "ALL" button if the user intends to control all four HDR-10 devices simultaneously.

Press the "CAPTURE" button to enter the Capture mode.



CAPTURE

### Trim Mode

**Capture Mode** 

After the desired scene has been captured, press the "**TRIM**" button to enter the Trim mode to edit.



#### Replay Mode

Pressing the REPLAY button enters the HDR-10 recorder device into the Replay mode.



#### Recall Mode

Pressing the "**RECALL**" button opens the onscreen recall menu, which allows the user to retrieve a clip for replay. The user can choose to either just replay the selected clip or append the selected clip to the current replay clip.



#### Menu Mode

To open the on-screen menu, simply press the "**MENU**" button. Details of the on-screen menu are described in the <u>Menu</u> section.



#### Play / Pause Button

In **Replay and TRIM mode**, press this button to start / pause the clip playback.



#### MARK IN / ENTER Button

In **Capture** and **Trim modes**, this button marks the start point of a clip. In **Replay mode**, this button is disabled.

In **Recall** and **Menu modes**, this button acts as an "ENTER" button for confirming a selection.

### GO TO MARK SHORT

#### GO TO MARK / SHORT Button

In Trim mode, the "GO TO MARK" button toggles between Go To Marker and Drop Marker modes. This button is disabled in Replay mode.

In **Capture mode**, this button acts as the "**SHORT**" button for quick capture of a shortlength clip. For example, if the "**SHORT**" button is set to 4 seconds, pressing this button will capture the latest 4 seconds of video. The duration of SHORT video capture can be configured in the on-screen menu. Please refer to the <u>Menu</u> section for configuration details.

#### MARK OUT / MEDIUM Button

In **Trim mode**, the **"MARK OUT**" button marks the end point of a clip. In **Replay mode**, this button is disabled.

In **Capture mode**, this button acts as the "**MEDUIM**" button for quick capture of a medium-length clip. For example, if the "**MEDIUM**" button is set to 7 seconds, pressing this button will capture the latest 7 seconds of video. The duration of MEDIUM length video capture can be configured in the on-screen menu. Please refer to the <u>Menu</u> section for configuration details.

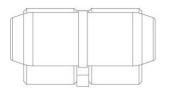
#### SAVE CLIP / LONG Button

In **Trim mode**, the **"SAVE CLIP**" button saves the current captured clip. In **Replay mode**, this button is disabled.

In **Capture mode**, this button acts as the "**LONG**" button for quick capture of a longlength clip. For example, if the "**LONG**" button is set to 14 seconds, pressing this button will capture the latest 14 seconds of video. The duration of LONG video capture can be configured in the on-screen menu. Please refer to the <u>Menu</u> section for configuration details.







#### T-Bar

T-Bar sets the speed of Replay playback. The speed ranges from 0% to 400%. In **Replay and TRIM mode**, push the T-Bar to the position that corresponds to the desired speed. At speed 0%, the T-Bar is at its resting position leaning toward the user. At full speed, the T-Bar leans away from the user.

The user is also allowed to change the speed of clip playback by adjusting the T-Bar position while the clip is being played.



#### Jog/Shuttle knob

In **Trim mode and Replay mode when paused**, use jog and shuttle wheels to adjust the cursor position. The shuttle wheel fast forwards or rewinds the cursor at 1x, 2x or 4x speed. The jog wheel fine tunes the cursor position frame by frame.

In **Recall** and **Menu modes**, use the jog wheel to browse the on-screen menu.

## 4. Modes of Selection

There are five modes of operation within the HDR-10 recorder, three main modes and two menu driven configuration modes.

The three main modes are listed, in the order, as follows:

1. Capture Mode	Where live action is monitored and a potential highlight is flagged.
2. Trim Mode	Where a highlight is precisely edited and can be also saved.
3. Replay Mode	Where the selected highlight is replayed on the PGM OUT port.
In these three modes the R	MC-400 Replay Control Center provides dedicated buttons for

In these three modes, the RMC-400 Replay Control Center provides dedicated buttons for quick access and control.

Recall mode	Where a saved clip is selected and replayed as a single clip or an appended clip; this mode is menu driven.	
Menu Mode	Where many of the HDR-10 device settings can be configured; this mode is menu driven.	

### Capture

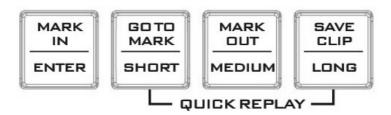
The HDR-10 automatically enters **Capture mode** when it is first powered on. This mode can also be selected by pressing the "**CAPTURE**" button.

CA	PTUR	E

In capture mode video is buffered or stored to working memory only. This memory is depicted by a growing **red buffer line** at the bottom of the AUX display.

In 1080p, up to 385 frames can be stored to memory buffer. In 1080i, up to 770 frames can be stored to memory buffer. In 720p, up to 1712 frames can be stored to memory buffer. Once the buffer memory is full, the line stops growing and the HDR-10 starts recycling memory or buffer space. During this recycle process the oldest video frames captured are lost in order to save the latest video data being supplied to the HDR-10.

In **Capture mode**, the buttons depicted as follows will turn red, allowing the user to perform video capture operations.



The "MARK IN" button drops the start cue to set the start point of a particular replay clip and marks the beginning of a possible video highlight to be replayed. Pressing the "SHORT", "MEDIUM" and "LONG" buttons will capture the latest time duration of the video as assigned to these three buttons. The time duration of these three buttons can be configured in the **Quick Play Setup** option of the OSD menu.

Right after the "**MARK IN**" button is pressed, a yellow double box mark will be shown progressing along the red buffer line. When the user decides enough video has been captured for the highlight clip, the "**TRIM**" button is pressed to end **Capture mode** and the unit automatically enters **TRIM Mode** for clip editing.

### Trim

The HDR-10 enters **Trim mode** when **Capture mode** is exited after the "**TRIM**" button is pressed. In Trim mode, the buffer line changes from red color to green color. This confirms the mode has been changed.



In **Trim mode**, the buttons depicted as follows will turn green, allowing the user to review, edit and save the clip captured in **Capture mode**.



The "GO TO MARK" button Toggles the HDR-10 device between Drop Marker and Go To Marker modes.

In **Drop Marker mode**, press the "**MARK IN**" button to drop the start cue marker at the current position. In **Go To Marker Mode**, the **MARK IN** button moves current picture cursor to IN marker position.

In **Drop Marker mode**, press the **"MARK OUT**" button to drop the end cue marker at the current position. In **Go To Marker Mode**, the **MARK OUT** button moves current picture cursor to OUT marker position.

In **Trim mode**, to manually move along the buffer line, simply rotate the jog and shuttle wheels. The shuttle wheel allows the user to fast forward or rewind at 1x, 2x or 4x speed. Use the jog wheel to fine tune the cue marker position frame by frame.

The clip marked between the start and end cue markers can now be saved to the removable SSD media as an uncompressed .MOV file by pressing the "**SAVE CLIP**" button.

### Replay

To exit **Trim mode**, press the "**REPLAY**" button on the RMC-400 to enter the HDR-10 into **Replay mode**.



The buffer line has also changed colour to blue to quickly confirm the mode has changed.

In Replay mode, press the "**Play / Pause**" button as depicted below to start and pause the clip playback.



The **T-Bar** sets the speed of Replay playback, which will be displayed on the status bar located at the top of the AUX output screen. Adjust the playback speed by moving the **T-Bar** forward and backward.

The user is also allowed to repeat the replay clip for unlimited counts by enabling the **LOOP PLAY** option in the OSD menu. To stop repeating the replay clip, simply set the **LOOP PLAY** to **OFF**.

### Recall

To recall a previously saved clip, press the "**RECALL**" button on the RMC-400 to open an onscreen menu on the AUX output display.



In this menu-driven **Recall mode**, browse the on-screen menu by rotating the jog wheel and press the "ENTER" button to select a particular option.



The menu options in **Recall mode** are describe in the table below.

SELECT CLIP	Select this option to start clip selection, which can be done by	
	using the jog wheel to cycle through the available clip numbers.	
CLEAR AND RECALL	Clear the memory buffer content and load the selected clip.	
RECALL APPEND	Load the selected clip by appending it to the existing buffer	
	content.	

### Menu

Press the "MENU" button to open the main on-screen menu, which can be seen at the top center of the AUX output display.



To browse the main on-screen menu, simply rotate the jog wheel and press the "ENTER" button to select a particular option. Press the "ENTER" button again to exit an option back to the main menu.



The main menu options are describe in the table below.

MENU Items	Parameters	Descriptions
SET TRIGGER	EXT / INT	GPI triggered playback; pulse only
	,	EXT: enabled
		INT: disabled
SET LOOP PLAY	ON / OFF	Turns ON loop play for unlimited
	- , -	counts of clip playback.
REPLAY MODE	MANUAL / AUTO	This option determines auto or
	- ,	manual clip playback upon entering
		Replay mode.
		AUTO: clip playback is automatically
		started.
		MANUAL: clip playback is started by
		pressing the "Play / Pause" button.
QUICK PLAY SETUP	QUICKPLAY S XX sec	Duration of short video capture.
	QUICKPLAY M XX sec	Duration of medium length video
		capture.
	QUICKPLAY L XX sec	Duration of long video capture.
SELECT BIN	BIN X	BIN selection
VIDEO FORMAT	720p50	Video format selection
	720p59.9	
	720p60	Note: the format selected in this
	1080i50	option must match the input
	1080i59.9	format.
	1080i60	
	1080p50	
	1080p59.9	
	1080p60	
AUDIO SETUP	MONO	Selection of audio channels.
	STEREO	MONO: one audio channel
	QUAD	STEREO: two audio channels
		QUAD: four audio channels
EMPTY CURRENT	NO	Select YES to erase the current BIN.

BIN	YES	
REVISION	CONTROL 08.090D HDR 09.0006 SUB 09.0808050305	This option displays the relevant firmware version numbers.
DATE & TIME	SET GMT SET RTC	"Real Time Clock" setting for file timestamp creation when doing SAVE CLIP
TIMECODE	SET SOURCE SET TIMECODE	Sets source of time code. Sets the time code.
FORMAT MEDIA	NO YES	Select YES to format the storage media.
FIRMWARE UPGRADE	NO YES	This FIRMWARE UPGARDE menu selection is for upgrading HDR-10 firmware. The RMC-400 FW upgrade procedure is described in the <u>Firmware Upgrade</u> section of this manual.

# 5. Applications

In this section, we provide three examples of how you can use the RMC-400 to operate the HDR-10 Highlight Replay Recorder.

### Saving an edited clip or highlight to MOV file

The HDR-10 only saves the marked clip/highlight on the buffer line to the removable SSD as an uncompressed MOV file. The file size will be large, up to 4GB, depending on the clip length in seconds. The saved clip can be replayed from the unit at a later stage or added (appended) to other clips on the same SSD. The SSD removed from the HDR-10 can also be used to transfer saved clips to a non-linear editing computer.

- 1. Power on the HDR-10 and the RMC-400 and by default, the HDR-10 will be in **Capture mode**.
- 2. Press the "MARK IN" button to place the start cue
- 3. To stop capturing, press the "TRIM" button to exit Capture mode and enter Trim mode.
- 4. In **Trim mode**, use jog and shuttle wheels to adjust the cursor position and once the cursor is at the corresponding desired position, place the start cue and/or the end cue.
- 5. After the start cue and end cue positions are determined, press the "SAVE CLIP" button to save the clip.

Note: There is no clip naming function on the current HDR-10 recorder device. Therefore, it is necessary for the user to make a note of the purpose of each clip saved. However, the user is allowed to view the first frame of every clip saved while browsing through the clip by SELECT CLIP.

### Capture and Replay

- 1. Power on the HDR-10 and the RMC-400 and by default, the HDR-10 will be in **Capture mode**.
- 2. The HDR-10 will start capturing once it is in **Capture mode**.
- 3. Press the "MARK IN" button to place the start cue
- 4. To stop capturing, press the "TRIM" button to exit Capture mode and enter Trim mode.
- 5. In **Trim mode**, use jog and shuttle wheels to adjust the cursor position and once the cursor is at the corresponding desired position, place the start cue and/or the end cue.
- 6. Press the "**MARK IN**" button to place the start cue and press the "**MARK OUT**" button to place the end cue.
- 7. After the start cue and end cue positions are determined, press the "**REPLAY**" button to exit **Trim mode** and enter **Replay mode**.
- 8. Set the clip playback speed by moving the T-Bar to the corresponding position.
- 9. If Replay mode is manual, press the "Play / Pause" button to start the clip playback. However, if the Replay mode is auto, the clip playback will be automatically started.

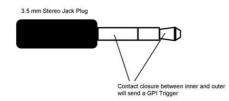
### **Recalling a previously saved Clip**

- 1. On the RMC-400 control panel, press the "MENU" button.
- 2. Rotate the jog wheel to browse to the "SELECT BIN" option on the on-screen main menu and press the "ENTER" button to enter the option.
- 3. Again, rotate the jog wheel to cycle through the BIN numbers and press the "ENTER" button to select the desired BIN number.
- 4. After the BIN number is selected, press the "**RECALL**" button to open the **Recall mode** menu where the user will be able to see the BIN number as well as the clip number on the status bar located at the top center of the AUX output display.
- Select "SELECT CLIP" option to start clip selection, which can be done by rotating the jog wheel to cycle through the available clip numbers. Press the "ENTER" button to load the selected clip number.
- 6. After the desired clip is selected, the user can either clear the memory buffer content and load the selected clip (**Clear and Recall**) or append the selected clip to the existing buffer content (**Recall Append**)
- 7. As the clip is being loaded, the HDR-10 device will automatically enter **Trim mode** for clip editing. To start the replay, simply press the "**REPLAY**" button.

# 6. GPI Connections

The RMC-400 can be controlled by external GPI trigger signal via simple contact closure GPI switch.

The GPI interface is a 3.5mm Jack Socket which is situated on the rear panel of the RMC-400. Contact closure between the Outer and Inner contacts on the jack plug will trigger a user selected event. Power is supplied by the RMC-400 and is less than 5V DC.



This GPI socket can also be used as a socket to trigger playback events by receiving GPI trigger from equipment such as SE-700.

**SAFETY FIRST** The cabling required needs to be designed specifically to connect the RMC-400 to the chosen record or playback device as they are not all the same. The cabling required can be made by yourself or a competent technician. Please speak with your Dealer or local Datavideo office to get further help and advice.

# 7. Firmware Upgrade

From time to time Datavideo may release new firmware to either add new SE-1200 MU features or to fix user reported bugs in the current switcher firmware. Customers can update the switcher firmware themselves if they wish, or they can contact their local supplier or Datavideo office for assistance, should they prefer this method.

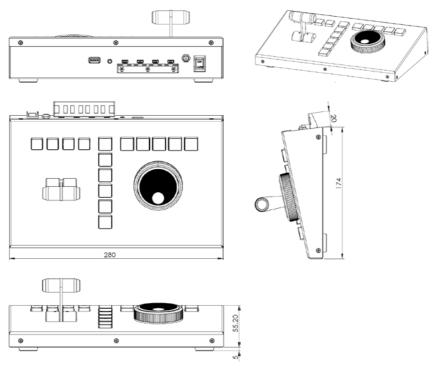
This page describes the firmware update process, and it should take **approximately few minutes total time to complete**.

Once started **the update process should not be interrupted in any way** as this could result in a non-responsive unit.

- 1. Format the USB drive to FAT32.
- 2. Copy image file RMC400.bin to the formatted USB drive.
- 3. Locate the FW Upgrade USB port on the back panel of the RMC-400.
- 4. While power OFF, insert the USB drive into the "FW Upgrade" USB port.
- 5. Switch the power ON and the RMC-400 will start the firmware upgrade automatically.
- 6. If the upgrade is successful, all panel buttons will turn green and then remove the USB drive from the FW Upgrade USB port.

Note: If the upgrade failed, all buttons will start flashing red.

# 8. Dimensions



All measurements in millimeters (mm)

# 9. Specifications

Interfaces	
Connection	Four mini-USB ports
Control	T-Bar
	Jog / Shuttle Dialer
	GPI
Software Update	USB Type A

### 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.





Please visit our website for latest manual update www.datavideo.com/product/RMC-400



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