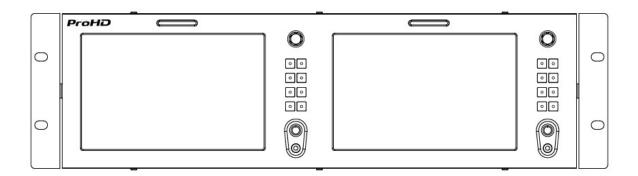


Model: DT-X7HUx2

Dual 7-inch Full HD Rack Mount LCD Monitor

3G-SDI & 4K-HDMI2.0



# **User Manual**

Ver: A

Please read this User Manual throughout before using.

## **Preface**

- 1. All internal technologies of this product are protected, including device, software and trademark.
  - Reproduction in whole or in part without written permission is prohibited.
- 2. All brands and trademarks are protected and other relative trademarks in this user manual are the property of their respective owners.
- Due to constant effort of product development, the manufacturer reserves the right to make changes and improvements to the product described in this manual without prior notice.
- 4. The warranty period of this product is 2 years, and does not cover the following:
  - (1) Physical damage to the surface of the products, including scratches, cracks or other damage to the LCD screen or other externally exposed parts;
  - (2) The LCD dot defects are not over three;
  - (3) Any damage caused by using third-party power adaptors;
  - (4) Any damage or breakdown caused by use, maintenance or storage not according to the user manual.
  - (5) The product is disassembled by anyone other than an authorized service center.
  - (6) Any damage or breakdown not caused by the product design, workmanship, or manufacturing quality, etc.
  - \* Any sales personnel have no rights to provide additional warranty.
- For any suggestions and requirements on this product, please contact us through phone, fax, Email, etc.



### **SWIT Electronics America, Inc**

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## **Maintenance**

## Warning

- 1. In order to reduce the risk of fire and electrical shock, do not lay this product in rain or damp places.
- 2. Please keep away from the strong magnetic field; it may cause the noise of the video and audio signals.

## The power

- 1. Please use the power adapter provided or recommended by the manufacturer in order to avoid damage.
- 2. For a third party power adapter, please make sure the voltage range, supplied power, and polarity of power lead are fit.
- 3. Please disconnect the power cable under the following situations:
- (A). If you do not operate this monitor for a period of time;
- (B). If the power cable or power adaptor is damaged;
- (C). If the monitor housing is broken.

#### The monitor

- 1. Please don't touch the screen with your fingers, which would probably deface the screen.
- 2. Please don't press the screen; the LCD is extremely exquisite and flimsy.
- 3. Please don't lay this product on unstable place.

## Cleaning

- 1. Please clean the screen with dry and downy cloth or special LCD cleanser.
- 2. Please do not press hard when cleaning the screen.
- 3. Please do not use water or other chemical cleanser to clean the screen. The chemical may damage the LCD.

### **Contents**

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## **Packing list**

- 1. User Manual
- 2. LCD protective film
- 3. Power cable

## Introduction

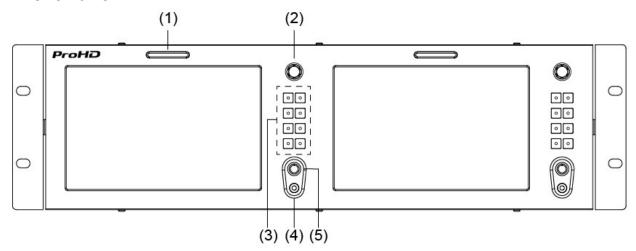
DT-X7HUx2 is a dual 7-inch monitor for 19-inch rack mount, with 1920×1200 resolution and 3GSDI + 4K HDMI2.0 input, and 16-ch audio meters, de-log 3DLut, GPI controlled TALLY light etc.

#### Features:

- ◆ 2K/3G/HD/SD-SDI input & loop output
- ◆ HDMI 2.0 (4K60p) input & loop output
- ◆ 16-ch embedded audio meters with alert
- ◆ Select any 2 audio channels to output
- 9 steps quick zoom-in and mapping
- Focus assist with precision adjustment
- ◆ Build-in multi-camera logs to Rec.709
- ◆ User 3DLUT cube file import by USB
- ◆ On-screen TALLY display and GPI
- ◆ Zebra stripes, False color, R/G/B/Mono
- ◆ H/V delay, AFD, Timecode display
- ◆ Marker 4:3, 13:9, 14:9, 15:9, 1.85:1, 2.35:1
- ◆ USB firmware upgrade

## **Operation Instructions**

#### Front Panel



- (1) TALLY Light: Red, Green and Yellow 3-color TALLY indicator
- (2) MENU/ENTER (Main menu settings)

When the menu is inactivated, presses "MENU/ENTE" to turn on the main menu on the left top of the screen;

Rotate the knob, select corresponding submenu; the corresponding item is highlighted in yellow; Press the knob, enter the submenu;

Rotate the knob to select items; the corresponding item is highlighted in yellow;

Press the knob, the parameter of the item is highlighted in yellow;

Rotate the knob to select the parameter and press to save the settings.

#### (3) Button

Signal selection button (HDMI, SDI1, and SDI2)

User definable function keys (F1∼F4)

User can set F1∼F4 keys to corresponding function for quick operation according to their needs.

For example: User can set F1 to "Focus Assistant", and press F1 to directly switch the focus assistant parameter, the sequence is "Red→Blue→Off".

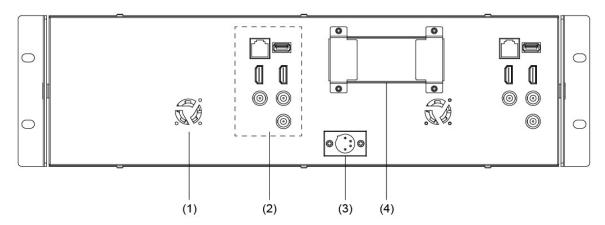
Quick function keys support multi definition, for details please refer to "4.Function key settings" in the "MENU" section.

INFO: Display Settings item, press "INFO" button, display or turn off related status information and video analysis function graphics.

When the menu is opened, press "INFO" to one button exit the menu.

- (4) PHONE: 3.5mm earphone socket, for SDI/HDMI embedded audio monitoring.
- (5) POWER: Power on/off

#### Rear Panel



(1) Fan

(2) Video Signal Interface

GPI: TSL UMD&GPI control socket

USB: For firmware upgrade

HDMI-IN: HDMI input (HDMI-A connector)

HDMI-OUT: HDMI loop through output from HDMI-IN (HDMI-A connector)

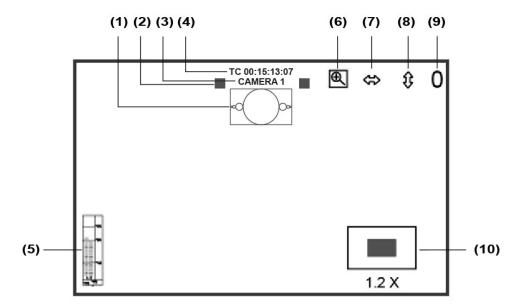
SDI-IN1: 3G/HD/SD SDI input (BNC connector) SDI-IN2: 3G/HD/SD SDI input (BNC connector)

SDI-OUT: 3G/HD/SD SDI output (BNC connector); It outputs the current selected SDI source.

(3) DC IN: Connect with 4-pin XLR power adapter (Pin 1: Negative, Pin 4: Positive)

(4) Power Adaptor

#### · OSD



#### (1) Time code

Under SDI input, it can display Time code. If no Time code information is detected, it will be displayed as "TC: UNLOCKED". (Can be assigned to F1-F4 function key to turn on/off.)

#### (2) UMD

Display the source title. Set up the UMD under 'UMD" submenu.

#### (3) On-screen TALLY

Display Red/Green TALLY signals together with the TALLY light

#### (4) AFD

Under SDI input, it can display AFD pattern. If no AFD is detected, it will be displayed as "AFD: UNLOCKED". (Can be assigned to F1-F4 function key to turn on/off.)

#### (5) Audio meter

Display Max 16-ch audio meters and display audio abnormal alert info. (Can be assigned to F1-F4 function key to turn on/off.)

#### (6) Zoom-in steps operation

When you turn on "Zoom-in" function, the screen will display the zoom-in tools. Scroll the menu knob you can quickly zoom in the video by the following rates: 1.2x, 1.5x, 1.8x, 2.0x, 2.2x, 2.4x, 2.6x, 2.8x, 3.0x, without black waiting. The zoom-in indication window is displayed on bottom right of the screen.

#### (7) Left and Right Pan

Press Menu key, the ⇔ button is highlighted. Scroll the Menu key up and down to move the video left and right.

#### (8) Up and Down Pan

Press Menu key again, the 1 button is highlighted. Scroll the Menu key up and down to move the video up and down.

#### (9) Peaking precision adjust

Press Menu key again, the peaking precision number is highlighted. Scroll the Menu key up and down to adjust the peaking focus assist precision from 0-9.

#### (10) Zoom-in indication

Under zoom-in mode, the indication window is displayed on bottom right of the screen, and indicates the zoom-in rate, up/down/left/right position.

### **Audio and Video Analysis Functions**

#### 16-ch embedded audio meters

Under 3G/HD/SD SDI, it displays 16 channels embedded audio meters. Under HDMI, it displays 2 channels embedded audio meters. The audio meter is green, and will turn yellow when audio exceeds -20dB, and turn red when audio exceeds -9dB.

#### ◆ Audio alarm

If the embedded audio value is too low or no embedded audio, it will display "MUTE" or "UNLOCKED" in the audio bar.

#### ◆ Time code (SDI)

Under SDI input, it can display the SMPTE time code (VITC1, VITC2 or LTC) on the top of the screen, which is used extensively for synchronization, and for logging and identifying material in recorded media. If no Time code information is detected, it will be displayed as "UNLOCKED".

#### ♦ Internal Color Bar

Under SDI and HDMI input, it has 100% internal color bar which helps to analyze the monitor color and adjust the display parameter.

User can set function Keys F1∼F4 or GPI pins as "color bar" to turn on or off this function.

#### Peaking focus assist (red/blue switch)

The Peaking focus assist function is to mark the sharpest edges of the image with red or blue color under SDI and HDMI input, for users to check if the subjects are focused.

User can set function Keys F1∼F4 or GPI pins as "Focus Assist" to turn on or off this function

#### Zebra stripes

Zebra Stripes are used to check if the image is over exposed or not by showing black and white lines on the monitor. It is considered over exposed when luminance value exceeds 90%.

User can set function Keys F1∼F4 as "Zebra" to turn on or off this function.

#### **♦** Freeze Frame

The freeze frame is to capture and display the current broadcast frame.

User can set function Keys F1∼F4 as "Freeze Frame" to turn on or off this function

#### ♦ R/G/B/Mono

R/G/B/Mono is to display only the blue/red/green primary signal or the luminance signal only so as to monitor the image noise.

User can set function Keys F1∼F4 as "R/G/B/Mono" to turn on or off this function.

#### ◆ False Color

The false color is used to aid in the setting of camera exposure. Under false color mode, there's a color chart on the bottom of screen for reference. The color from the dark to the bright will be displayed as blue, cyan, green, yellow, orange and red in a consecutive way. User can set function Keys F1~F4 as "False color" to turn on or off this function.

#### ◆ AFD (SDI)

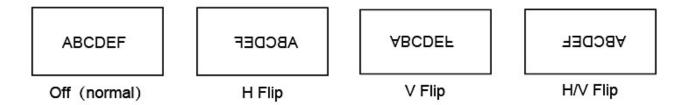
It is the abbreviation of active format description. AFD is to display the SDI embedded AFD information graphically on the screen.

#### ♦ H/V Delay (SDI)

Under SDI input, H/V Delay can be used to display line/field blanking signal, and to observe the horizontal and vertical synchronous signal.

#### Image flip

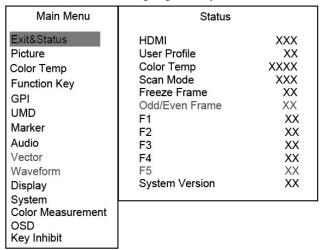
Horizontal, vertical, horizontal and vertical two-way image flip function.



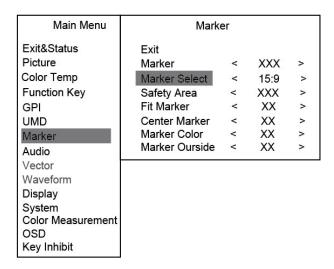
## Main menu

DT-X7HUx2 has OSD to adjust the parameters and settings, for example: Picture, color temp., function keys, etc.

1. Press "MENU/ENTER" button, the main menu will popup from the left top of the screen. The selected main menu highlights in yellow.



- 2. Revolve "MENU" to select submenu, the selected submenu highlights in yellow, press "MENU/ENTER" to apply and enter into the selected submenu's items.
- 3. Revolve "MENU" to select the item which needed to adjust, press "MENU/ENTER", the selected item and its parameters will be highlighted in yellow.



- 4. Revolve "MENU/ENTER" to change the selected item's parameter, press "MENU/ENTER" to apply and save the settings.
- 5. Revolve "MENU/ENTER" to select "Exit", press "MENU/ENTER" to quit submenu. Select "Exit & Status" under the Main Menu and press to quit Main Menu.

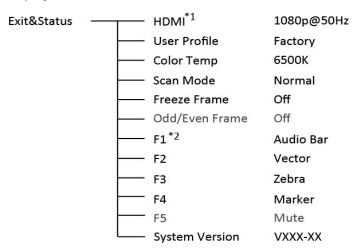
#### Notice:

- \* The items in gray cannot be set up.
- \* If there is no operation under the set time, the menu will automatically save settings and quit.
- \* If the key inhabit function is turned on, except key inhibit function, all other items are in grey. Please turn off the key inhibit function to adjust the items.

## **Submenu** (the default values are marked with underline)

#### 1. Exit & Status

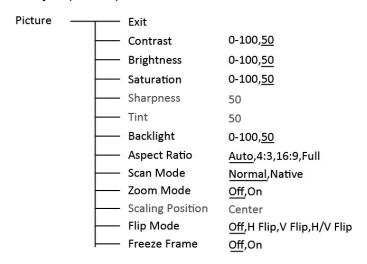
Displays the current status, the details are as down below:



<sup>\*1</sup> Display the current video signal and format

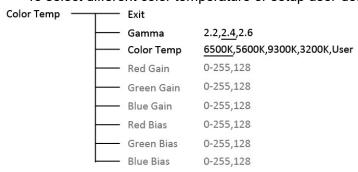
#### 2. Picture

To adjust picture parameters



#### 3. Color Temp

To select different color temperature or setup user-defined color parameters.

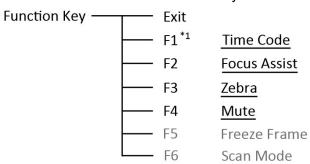


<sup>\*</sup> Only "Color Temp" is set to "User", the Red/Blue/Green Gain or Red/Blue/Green Bias can be adjusted.

<sup>\*2</sup> Display the current function keys setup

#### 4. Function key

To define the F1~F4 function keys



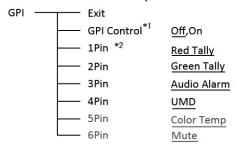
<sup>\*1</sup> Function keys F1-F4 can be set as the down below functions:

Time code, Zebra, Audio Bar, False Color, AFD, H/V Delay, R/G/B/Mono, Marker, Color Bar, UMD, Audio Alarm, Max backlight, Focus Assist, Aspect Ratio, Scan Mode, Zoom Mode, Mute, Freeze Frame, Flip Mode, Color Temp.

For example: Set F3 to "R/G/B/Mono" under "Function key" submenu. User can press F3 on the front panel to adjust the parameters of "R/G/B/Mono", and the "R/G/B/Mono" will change and follow the sequence: Blue Only  $\rightarrow$ Red Only  $\rightarrow$ Green Only  $\rightarrow$ Mono  $\rightarrow$ Off.

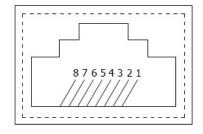
#### 5. GPI

User can set GPI pins 1-4 to relevant functions to turn on or off this function.



- \*1 When "GPI control" is set to "On", the monitor can be operated through external GPI control unit.
- \*2 The GPI pins can be set to the down below functions:

Red Tally, Green Tally, Yellow Tally, Aspect Ratio, Scan Mode, Zoom Mode, Mute, Freeze Frame, Flip Mode, Color Temp, Time code, Zebra, Audio Bar, False Color, AFD, H/V Delay, R/G/B/Mono, Marker, Color Bar, UMD, Audio Alarm, Max backlight, Focus Assist.



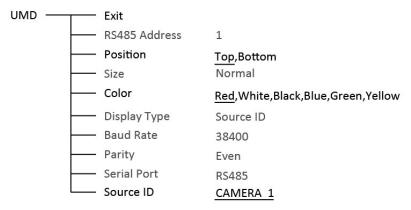
Pin	1	2	3	4
GPI	GPI_1	GPI_2	RXD+	GPI_3
Pin	5	6	7	8
GPI	GPI_4	RXD-	NC	GND

When connecting the GPI pin with ground, the setted function will be turned on, and goes out when disconnecting.

Example 1: Under "GPI" submenu, set "GPI control" to "On", set "2 Pin" to "Red Tally", when the pin 2 of the extenal GPI control unit is connected with ground, the Tally light will display on the front panel which will flashes in red around every second. When disconnected, the monitor will not display tally light information.

Example 2: Under "GPI" submenu, set "GPI control" to "On", set "4 Pin" to "Scan Mode", when the pin 4 of the extenal GPI control unit is connected with ground, the Scan mode will change and follow the sequence: "Normal" →"Overscan"→"Native".

#### 6. UMD



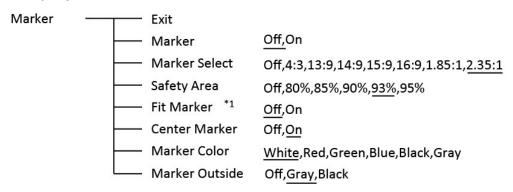
#### Set "UMD":

- (1) Select "Source ID"
- (2) The underline flashes as a reminder on the bottom of the first letter. Revolve "MENU" to select the letters; the letter will follow the sequence of the down below if clockwise revolved:

Space 
$$\longrightarrow$$
 0~9  $\longrightarrow$  A~Z  $\longrightarrow$  a~z  $\longrightarrow$  &()\*+,-./:<>\_

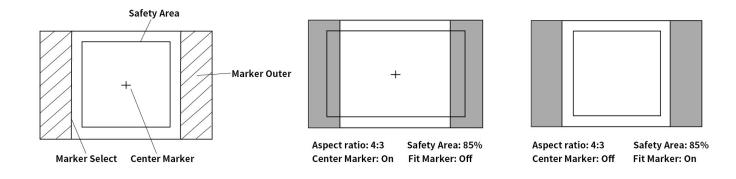
- (3) Press "MENU" to save the current settings letter and then start to set the next letter.
- (4) Repeat step (2) and step (3), max 8 letters are supported.
- (5) Press "Exit" to quit and save the settings

#### 7. Marker

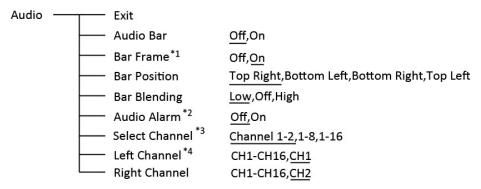


\*1 When "Fit Marker" is "Off", the size of safety area is benchmarked against the actual display screen, accounting for  $80\% \sim 95\%$  of actual display screen. When "Fit Marker" is "On", the size of safety area is benchmarked against the area inside the scales marker, accounting for  $80\% \sim 95\%$  of the area inside the scales marker.

#### Example:



#### 8. Audio



\*1 When "Bar Frame" is set to "Off", only the audio meter will be displayed.

When "Bar Frame" is set to "On", frame and real-time audio value will be displayed.

\*2 Select Channel

Under HDMI signal, channel1-2 can be selected.

Under SDI signal, channel 1-2, 1-8 and 1-16 can be selected.

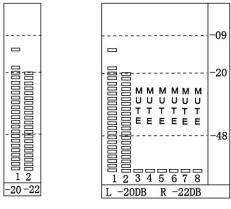
- \*3 When "Audio Alarm" is set to "On", if no embedded audio is detected, the audio bar will display "UNLOCKED". If the audio value is too low, the audio bar will display "MUTE"
- \*4 Audio channels can be selected to output according to the requirements.

When the current "Select Channel" is set to "Channel1-2", the left channel and right channel output can be selected from Channel1 or channel 2.

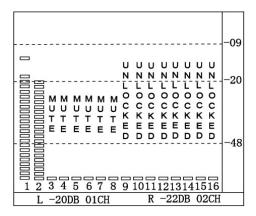
When the current "Select Channel" is set to "Channel1-8", the left channel and right channel output can be selected from Channel1 to channel 8.

When the current "Select Channel" is set to "Channel1-16", the left channel and right channel output can be selected from Channel 1 to channel 16.

In audio bar, the left channel information will be in green, and the right channel information will be in red.

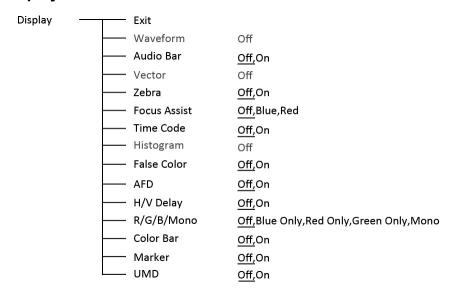




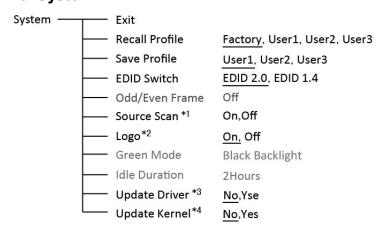


Channel 1~16

#### 9. Display



#### 10. System



#### \*1 Source Scan

When set to "Yes", after turn on the monitor, the signal will be inspected and follow the sequence of "SDI1→SDI2→HDMI"

For example: if channel is selected to SDI1, SDI1-IN has no input, and HDMI has input. When turn on the monitor, after automatic inspection, SDI1 has no recognized signal, and HDMI has recognized signal, then the input signal will be HDMI.

When set to "No", update model will not be supported.

#### \*2 Logo

When powered on, the screen will display ProHD logo.

#### \*3.\*4 Update Driver/ Kernel

- (1) Download latest firmware files and copy to USB stick root directory.
- (2) Switch on the monitor, plug the USB stick into the USB port on the rear of the monitor
- (3) Enter Menu System Update Kernel Yes, the monitor will upgrade Kernel firmware and restart automatically when finished.
- (4) Enter Menu System Update Driver Yes, the monitor will upgrade Driver firmware and restart automatically when finished.

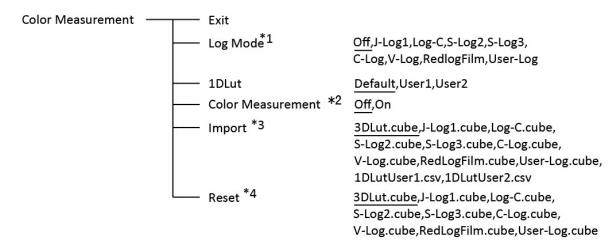
USB firmware upgrade

Firmware Upgrating... 37%

Caution! DO NOT cut off power during firmware upgrade.

<sup>\*</sup> Do not cut off power during firmware upgrade.

#### 11. Color Measurement



#### \*1 Camera Log conversion

When shooting with Log mode of the camera, you can select the corresponding Log conversion LUT, to convert the log mode video to standard ITU Rec.709 mode to monitor. A"User-Log" is provided for user defined LUT converting to Rec.709.

#### \*2 Color measurement

Set the Color measurement parameter to "On" before color calibration, make sure the parameter set to "Off" after color calibration. When reboot, the Color measurement parameter automatically set to "Off".

\*3 Import 3DLUT cube file

- (1) Use a color analysis instrument and calibration software, and set to 6500K, Gamma2.4 for color calibration, this will generate a correct cube file (recommended Konica Minolta color analyzer CA-310 and Spectracal CalMAN software);
- (2) Rename the cube file to "3DLut.cube" (case matters), and copy to USB stick;
- (3) Insert USB stick to the rear panel of the monitor. Select Operate Menu Color Measurement "Import" "3DLut.cube" "Yes" to import
- (4) Import user needed Log Lut, User-log file and 1DLut by USB stick.

#### \*4 Reset to factory cubes

For any wrong cubes imported that caused wrong display colors, you can reset the cubes to factory cubes here.

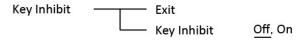
#### \*4 Reset to factory cubes

For any wrong cubes imported that caused wrong display colors, you can reset the cubes to factory cubes here.

#### 12. OSD



## 13. Key Inhibit



When the "Key inhibit" is set to "on", there is no response when all the buttons except "MENU/ENTER" is pressed, the sreen will be displayed as "Key Inhibit".

User can set "Key inhibit" to off under the "Key inhibit" submenu, restore the function of all keys.

# **Specification**

LCD Performance					
Size		7 inch×2			
Display area		151.2×94.5 mm×2			
Resolution		1920×RGB×1200			
Color Depth		8 bit			
Aspect ratio		16:9 / 4:3			
Brightness		400 nits			
Contrast		1000:1			
Viewing angle		Horizontal / Vertical: 160° / 160°			
Input/Outpu	ıt				
Input	BNC×2	3G/HD/SD-SDI input ×2			
(Each LCD)	HDMI×1	HDMI 2.0 input			
	BNC×1	3G/HD/SD-SDI loop output			
Output	HDMI×1	HDMI 2.0 loop output			
(Each LCD)	3.5mm×1	SDI/HDMI embedded audio output			
Video Form	at				
		4096×2160 (60 / 50 / 30 / 25 / 24)			
		3840×2160 (60 / 50 / 30 / 25 / 24)			
		1080p (60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 / 23.98)			
HDMI		1080psf (30 / 29.97 / 25 / 24 / 23.98)			
		720p (60 / 59.94 / 50)			
		1080i (60 / 59.94 / 50)			
		480i / 576i / 480p / 576p			
	SMPTE-2048-2	2048×1080p (23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60) 2048×1080i (50 / 59.94 / 60)			
	SMPTE-425M-A/B	1080p (60 / 59.94 / 50)			
	SMPTE-274M	1080i (60 / 59.94 / 50)			
SDI	SIVIP I E-2/4IVI	1080p (30 / 29.97 / 25 / 24 / 23.98)			
	SMPTE-RP211	1080psf (30 / 29.97 / 25 / 24 / 23.98)			
	SMPTE-296M	720p (60 / 59.94 / 50)			
	SMPTE-125M	480i (59.94)			
	ITU-R BT.656	576i (50)			
General					
Input voltage	)	DC: 6.5V∼36V			
Power consumption		18~26W			
Working temperature		-10℃~+50℃			
Working hun	nidity	10%~90%			
Storage temperature		- 15℃~ + 60℃			
Storage humidity		10%~90%			
Dimensions		484×130×82mm			
Net weight (main body)		2.4 kg			

# **Trouble-shooting**

Symptom	Possible causes	Solution
No display	The power is not turned on	Please check if the power is connected, and then press "POWER" button to turn on the monitor
	Unstable power voltage	Reconnect to power supply
	BNC or HDMI cable loose contact or not correctly connected	Check and correctly connect the BNC or HDMI cable
	Using DIY power supply but the polarity is reversed	Refer to the provided power supply, reconnect the power.
	Bad contact of BNC or HDMI cable	Change cable
	Video signal has Interference	Remove the interference source(s)
	Improper adjustment of the	Adjust the "Recall profile" to
	color parameters	"Default" under "System" submenu
	Distortion of the image	Reset the Aspect ratio
Image or color abnormal	Set to Red/Green/Blue only or Mono	Turn the Blue only/ Red Only/ Green Only/Mono off under R/G/B/Mono submenu
	Turn on the "Focus Assist" function	Turn off the "Focus Assist" function
	Turn on the "False Color" function	Turn off the "False Color" function
No audio output	Set to Mute	Turn off MUTE or revolve "MENU/ENTER" to adjust the volume
	Bad contact of signal cable	Connect to the correct input socket



This model is manufactured, warranted and supported by **SWIT Electronics Co., Ltd.** and distributed in North America by **JVC Professional Video Products**.

To obtain service or for further information, please contact:

#### **SWIT Electronics America, Inc**

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