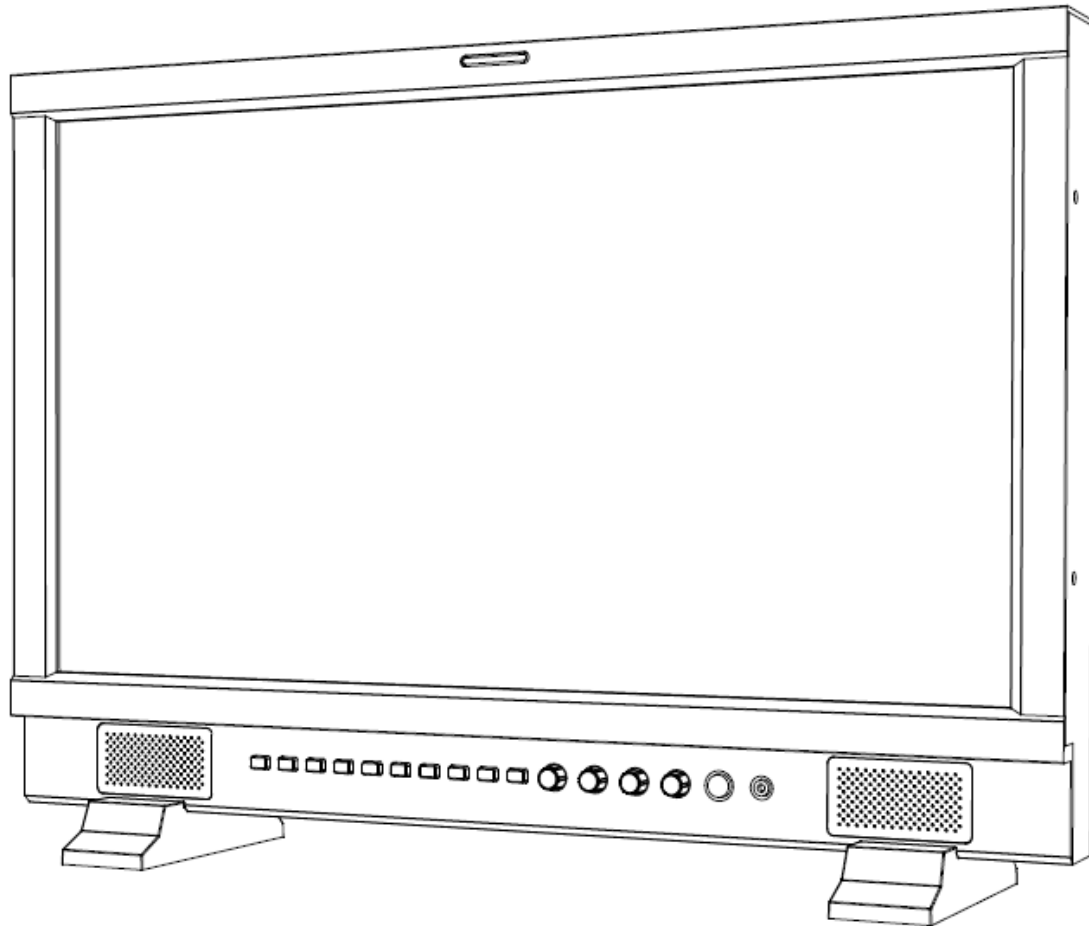


# **ProHD**

Model: **DT-X24H**

23.8" Broadcast Studio LCD Monitor



## **User Manual**

Ver: V1.0.0V00

Please read this User Manual  
throughout before using.

## Preface

Congratulations on your purchase of this product. Please read this user manual carefully.

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 of SWIT Electronics Co., Ltd. are protected and other relative trademarks in this user manual are the property of their respective owners.
3. Due to constant effort of product development, SWIT 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.
5. For any suggestions and requirements on this product, please contact us through phone, fax, Email, etc.

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# **ProHD**

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## Maintenance

- **The Monitor**

1. Please keep the signal terminals and the cooling vent away from knife-edge, metal or liquid in order to avoid short-circuit and damage.
2. Please don't try to disassemble any parts of the monitor by yourself, which would probably damage the monitor and do harm to human body, and it will cause the invalidation of product warranty.
3. Please don't touch the screen with your fingers, which would probably deface the screen.
4. Please don't press the screen; the LCD is extremely exquisite and flimsy.

- **The power**

Please use the power adapter provided or recommended by the manufacturer in order to avoid damage. For a third party power adapter, please make sure the voltage range, supplied power, and polarity of power lead are fit.

Please disconnect the power cable under the following situations:

1. If you do not operate this monitor for a period of time;
2. If the power cable or power adaptor is damaged;
3. If the monitor housing is broken.

- **Working Environment**

1. Please don't lay this product on the unstable place.
2. Please don't lay this product in hot, cold or wet location.

- **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.

## 1. Features

### ◆ Full-HD 23.8" LCD Panel

1920×1080 resolution, 1000:1 contrast

### ◆ Multiple inputs

3G/HD/SD-SDI, HDMI and Composite input

### ◆ Loop through outputs

SDI, HDMI has loop through output

### ◆ 2-ch audio meter

Under HDSDI and HDMI, it displays channel1 and channel 2 embedded audio meters with mark. The audio meter is green, and will turn yellow when audio exceeds -20dB, and turn red when exceeds -9dB.

### ◆ SDI timecode

Under SDI input, it can display the SMPTE timecode (VITC1, VITC2 or LTC), which is used extensively for synchronization, and for logging and identifying material in recorded media.

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

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

### ◆ UMD

Support TSL UMD protocol so that TALLY、UMD can be remotely controlled.

### ◆ 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%.

### ◆ Blue Only

Under Blue Only Mode, only blue pixels are used to generate the image, because hue and saturation can be adjusted quicker and more accurately.

### ◆ Safe Area Adjustable

You can select the scale of safe area frame from 80%, 85%, 90% and 95% in the menu system.

### ◆ Scale Marker

The monitor has 16:9 native LCD panel, and supports 4:3, 13:9, 14:9, 15:9, 1.85:1 and 2.35:1 scales marker for different video producing.

### ◆ Image Flip

Set image to rotate by 180°

### ◆ User definable function keys

There are 4 function keys on the monitor front panel, which permit users to define shortcuts for the various functions.

### ◆ User editable video title

User can edit a video title for the current camera, and the title will display on the top of screen.

### ◆ 3-color TALLY light

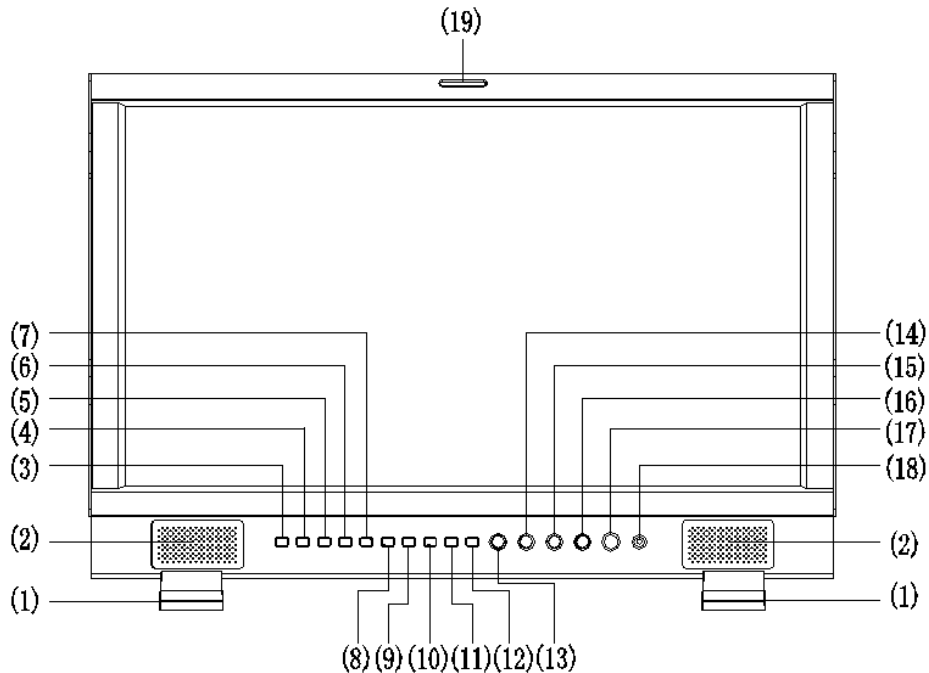
There's a 3-color TALLY light in the front panel of monitor, and TALLY signal is input via DB-9 connector on the rear panel.

### ◆ Main/Backup Power Supply

The monitor provides 2 DC power inputs, for main and backup power.

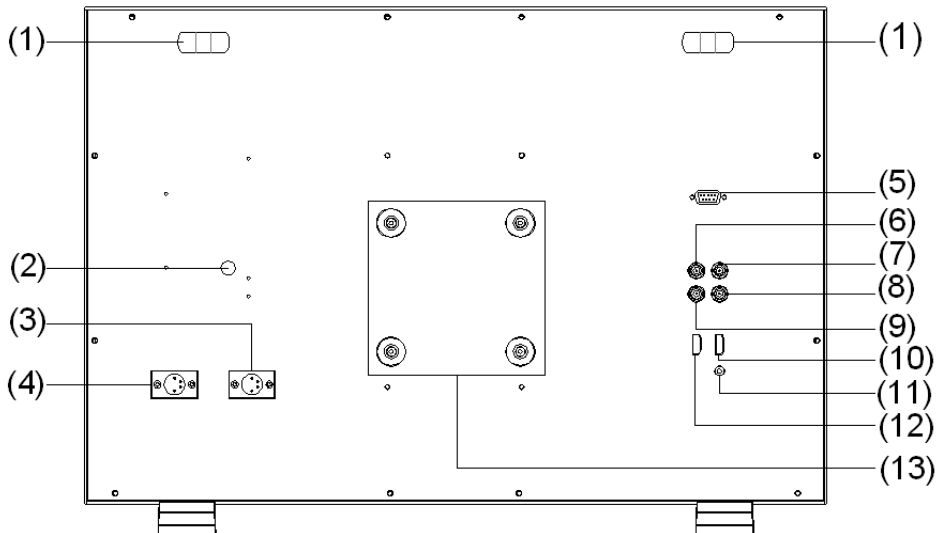
## 2. Panel Instruction

### Front view



- (1) **Desktop Stand Feet** (dismountable)
- (2) **Speaker:** For SDI/HDMI embedded audio and analog audio monitoring. (Will not work if earphone is plugged in)
- (3) **SDI1:** Press “SDI1” to switch to SDI input 1
- (4) **SDI2:** Press “SDI2” to switch to SDI input 2
- (5) **HDMI:** Press “HDMI” to switch to HDMI input
- (6) **CVBS:** Press “CVBS” to switch to CVBS input
- (7), (8), (9), (10) **F1, F2, F3, F4:** User definable function keys
- (11) **DISPLAY:** Press “Display” to display safe area, scale marker, title and the current input signal information.
- (12) **MENU:** Press to enter Menu
- (13) **ENTER:** Select and Apply  
Under menu system, revolve “ENTER” to adjust settings and press to apply; and out of menu system, directly revolve “ENTER” to adjust volume and press “ENTER” to mute.
- (14) **BRIGHT:** Revolve “BRIGHT” to adjust brightness value from 0~100. Default value is 50.
- (15) **CONTRAST:** Revolve “CONTRAST” to adjust contrast value from 0~100. Default value is 50.
- (16) **SATURATION:** Revolve “SATURATION” to adjust saturation value from 0~100. Default value is 50.
- (17) **POWER:** Power on/off  
Connect with power cable, press the “POWER” to switch on the monitor. Press again to switch off. Disconnect with power cable if the monitor will not be used for a period of time.
- (18) **PHONE:** 3.5mm earphone socket, for SDI/HDMI embedded audio and analog audio monitoring.
- (19) **TALLY Light:** Red, Green and Yellow 3-color TALLY indicator

## Rear view



- (1) **Handle**
- (2) **Reserved battery plate power socket:** Take off the rub cover to find the power socket, V-mount or Gold mount battery plates can be connected to the power socket.
- (3) **DC IN 11V-17V BACK UP:** Connect with 4-pin XLR power adaptor (Pin 1: Negative, Pin 4: Positive)
- (4) **DC IN 11V-17V MAIN:** Connect with 4-pin XLR power adaptor (Pin 1: Negative, Pin 4: Positive)
- (5) **REMOTE:** DB9 socket, external controlling signal input.  
(See details in “4.REMOTE interface definition”)
- (6) **SDI-LOOP:** 3G/HD/SD-SDI loop through output (BNC connector)  
When SDI-IN2 is displayed, the SDI-LOOP outputs the SDI-IN2 signal, and when SDI-IN1 or other input sources are displayed, the SDI-LOOP outputs the SDI-IN1 signal.
- (7) **CVBS-IN:** Composite video input (BNC connector)
- (8) **SDI-IN1:** 3G/HD/SD-SDI input (BNC connector)
- (9) **SDI-IN2:** 3G/HD/SD-SDI input (BNC connector)
- (10) **HDMI-IN:** HDMI input (HDMI-A connector)
- (11) **AUDIO-IN:** Analog stereo audio input (3.5mm)
- (12) **HDMI-LOOP:** HDMI loop through output (HDMI-A connector)
- (13) **VESA installation position:** standard 10×10cm VESA thread

## Input formats

Input	Supported formats
CVBS	PAL / NTSC
HDMI	480i / 576i / 480p / 576p
	720p (60 / 59.94 / 50)
	1080i (60 / 59.94 / 50), 1080psf (30 / 29.97 / 25 / 24 / 23.98)
	1080p (60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 / 23.98)
SDI	SMPTE-425M 1080p (60 / 59.94 / 50)
	SMPTE-274M 1080i (60 / 59.94 / 50)
	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)	

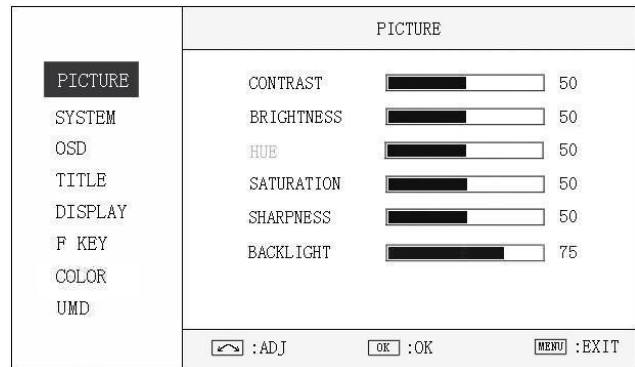
### 3. Menu Operation

- (1) Press "MENU" and it will display menu system
- (2) Revolve "ENTER" to select an item. The selected item will be highlighted display.
- (3) Press "ENTER" to enter the selected item.
- (4) Under menu system, press "MENU" to back to previous menu.  
\*The menu will automatically save and quit if it remains idle.

#### 3.1 PICTURE submenu

The PICTURE submenu includes:

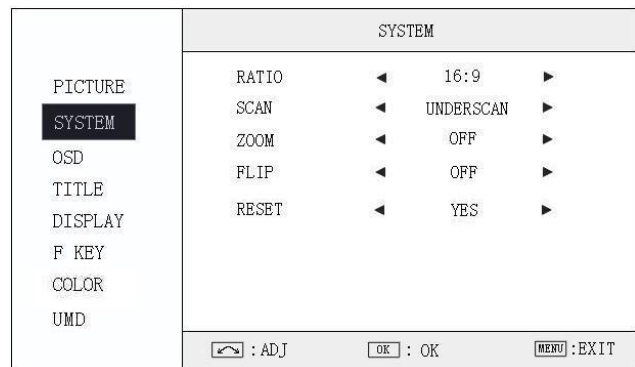
- (1) **CONTRAST:** 0-100 value adjustment
- (2) **BRIGHTNESS:** 0-100 value adjustment
- (3) **HUE:** 0-100 value adjustment  
(Only available under CVBS NTSC input)
- (4) **SATURATION:** 0-100 value adjustment
- (5) **SHARPNESS:** 0-100 value adjustment
- (6) **BACKLIGHT:** 0-100 value adjustment



#### 3.2 SYSTEM submenu

The SYSTEM submenu includes:

- (1) **RATIO:** Aspect ratio "16:9" / "4:3" selection
- (2) **SCAN:** "UNDERSCAN" / "OVERSCAN" / "NATIVE" selection
- (3) **ZOOM:** "OFF", "ZOOM1" and "ZOOM2" selection
- (4) **FLIP:** Select "ON" to flip the picture by 180°.
- (5) **RESET:** Select "YES" to recover all to factory setting.



#### 3.3 OSD submenu

The OSD submenu includes:

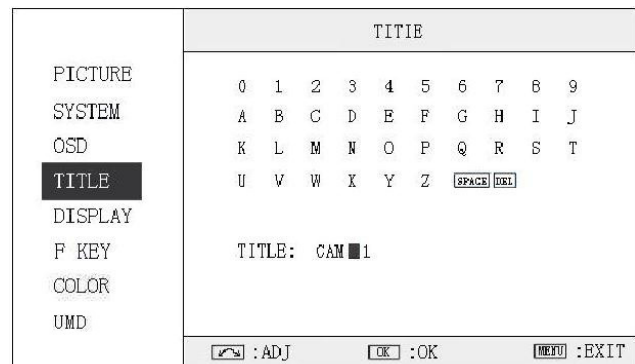
- (1) **LANGUAGE:** Menu language selection
- (2) **H-POSITION:** Menu horizontal position (0-100) adjustment, real-time preview and default value: 50.
- (3) **V-POSITION:** Menu vertical position (0-100) adjustment, real-time preview and default value: 50.
- (4) **DURATION:** Menu timeout setting (5-60)  
Set a time (in seconds) in which the menu will automatically quit if remains idle. Default: 15.



#### 3.4 TITLE submenu

Revolve "ENTER" button to select the letters, and press "ENTER" to input. Select SPACE to input space and DEL to delete the left letter. Max 10 letters are supported.

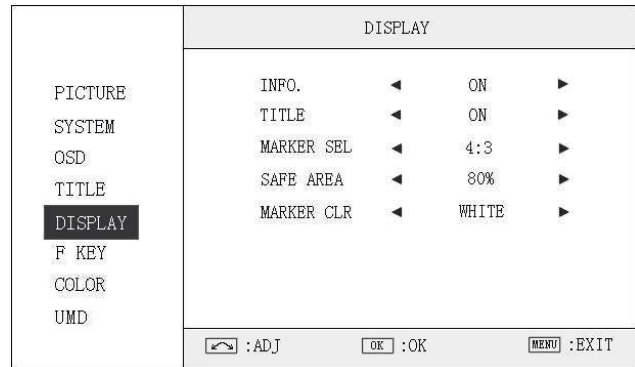
After setting, press "MENU", the system will save data to current user and quit menu. The menu will automatically save and quit if it remains idle.



### 3.5 DISPLAY submenu

The DISPLAY submenu is to select the items to be displayed on screen when 'DISPLAY' button is pressed. Revolve "ENTER" to turn on/off the items:

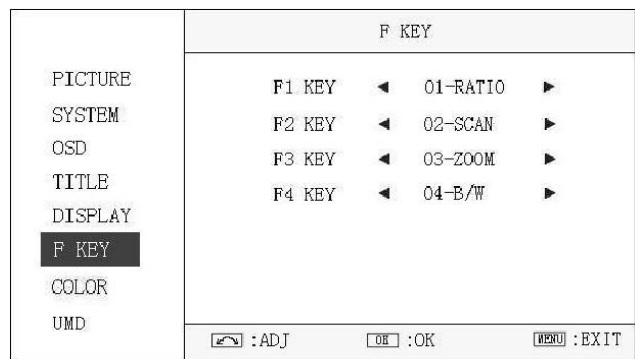
- (1) **INFO:** Including Input format, aspect ratio, underscan/overscan, zoom status
- (2) **TITLE:** User edited title
- (3) **MARKER SEL:** Select the scale marker from 4:3, 13:9, 14:9, 15:9, 1.85:1, 2.35:1 and OFF
- (4) **SAFE AREA:** Select the safe area scale from 80%, 85%, 90%, 95% and OFF.
- (5) **MARKER CLR:** Select the color of markers from WHITE, RED, GREEN, BLUE, BLACK and GRAY.



### 3.6 F KEY submenu

The F KEY Settings Submenu is to define Function Key F1, F2, F3 and F4. The available function items are:

- 01- **RATIO:** Aspect ratio 16:9 / 4:3 switch
- 02- **SCAN:** Underscan / Overscan switch
- 03- **ZOOM:** Picture Zoom-in
- 04- **B/W:** Color / Black & white switch
- 05- **BLUE ONLY:** Blue only mode switch on/off
- 06- **ZEBRA:** Zebra over exposure switch on/off
- 07- **TIMECODE:** SDI timecode display switch on/off
- 08- **AUDIO BAR:** Audio meter display switch on/off
- 09- **FOCUS:** Peaking focus assist switch on/off
- 10- **FLIP:** Image flip
- 11- **COLOR TEMP:** Adjust color temperature
- 12- **KEY LED:** Keyboard backlight switch on/off
- 13- **UMD:** UMD display switch on/off

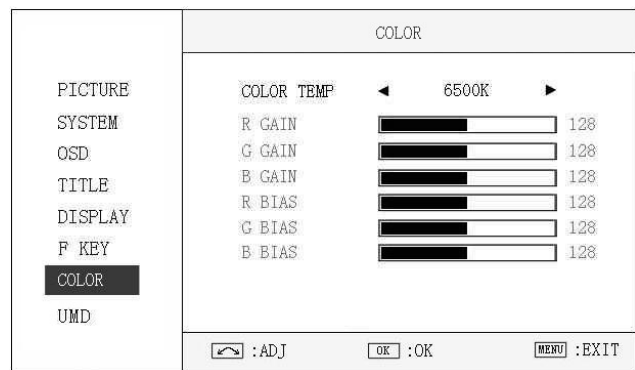


### 3.7 COLOR submenu

The color submenu is to change the color temperature settings. User can select color temperature as 6500K, 5600K, 9300K, or define color temperature by RGB GAIN and RGB BIAS.

- (1) **COLOR TEMP:** 6500K, 5600K, 9300K, USER1, USER2, USER3
- (2) **R GAIN:** 0-255 value adjustment
- (3) **G GAIN:** 0-255 value adjustment
- (4) **B GAIN:** 0-255 value adjustment
- (5) **R BIAS:** 0-255 value adjustment
- (6) **G BIAS:** 0-255 value adjustment
- (7) **B BIAS:** 0-255 value adjustment

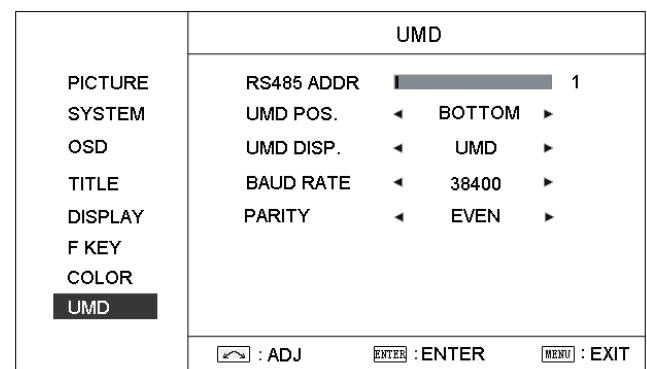
Remark: RGB GAIN and RGB BIAS settings are only available when "Color temp" is set as USER1/2/3



### 3.8 UMD submenu

The UMD submenu includes:

- (1) **RS485 ADDR:** 1~126 address selection
- (2) **UMD POS:** Select UMD display at TOP or BOTTOM on the screen
- (3) **UMD DISP:** Switch to UMD or fixed TITLE, or turn OFF
- (4) **BAUD RATE:** "38400", "19200" or "9600" selection
- (5) **PARITY:** "EVEN" or "NONE" selection

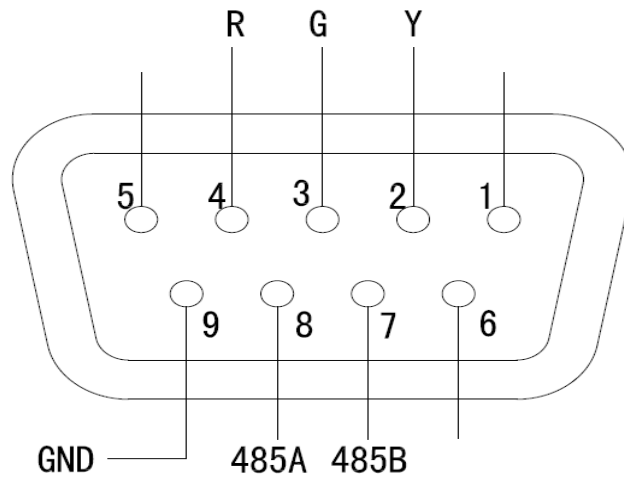




#### 4. REMOTE Interface Definition

The TALLY light controlling port and UMD signal port are controlling through the DB-9 socket at the rear panel, and terminal description is as follows:

Terminal	1	2	3	4	5	6	7	8	9
Description		Y	G	R			485B(Rx-)	485A(Rx+)	GND



- (1) The RED light is on when connecting the terminal "R" with "GND", and goes out when disconnecting.
- (2) The GREEN light is on when connecting the terminal "G" with "GND", and goes out when disconnecting.
- (3) The YELLOW light is on when connecting the terminal "Y" with "GND", and goes out when disconnecting.
- (4) 485B(Rx-)
- (5) 485A(Rx+)

Note: 3-color TALLY light can be remotely controlled by REMOTE port.

## 5. Specifications

<b>LCD Performance</b>		
Size	23.8 inches	
Display area	527×296mm	
Resolution	1920×RGB×1080	
Aspect ratio	16:9 (4:3 adjustable)	
Brightness	250cd/m <sup>2</sup>	
Contrast	1000:1	
Color	16.77 million colors	
Viewing angle	Horizontal: 178° Vertical: 178°	
<b>Video Format</b>		
CVBS	NTSC / PAL	
SDI	SMPTE-425M	1080p (60 / 59.94 / 50)
	SMPTE-274M	1080i (60 / 59.94 / 50)
		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)	
HDMI	480I / 576I / 480P / 576P	
	720p (60 / 59.94 / 50)	
	1080i (60 / 59.94 / 50), 1080psf (30 / 29.97 / 25 / 24 / 23.98)	
	1080p (60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 / 23.98)	
<b>General</b>		
Working voltage	DC / battery 11V-17V	
Power consumption	≤35W	
Working temperature	0℃~+40℃	
Working humidity	10%~90%	
Storage temperature	- 15℃~ + 60℃	
Storage humidity	10%~90%	
Net weight (w/o stand)	6.03kg	

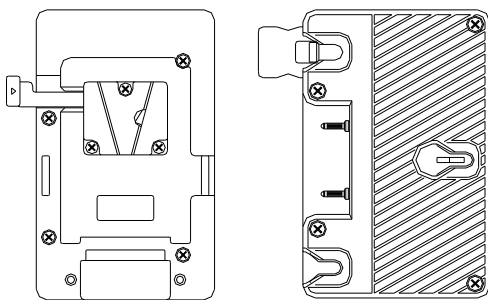
## 6. Packing List

Monitor	×1
Desktop stand	×2
User manual	×1
4-pin XLR AC-DC Power adaptor	×1
Power cable	×1
Warranty Card	×1

## 7. Optional Accessories

Model	Description
S-7004S	V-mount battery plate
S-7004A	Gold mount battery plate
A-VS22	Rotatable desktop stand with VESA installation

### 7.1 Battery plate

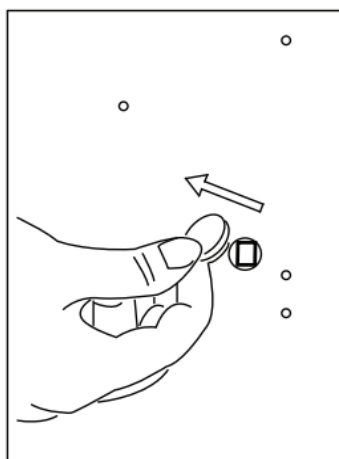


**S-7004S**

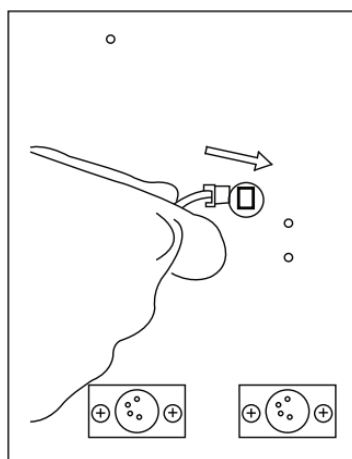
**S-7004A**

#### Installation

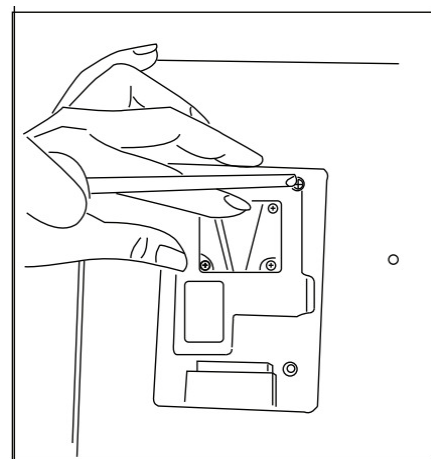
1. Take off the rub cover on the rear panel, see Fig. (1)
2. Insert the DC cable of S-7004S/A into the hole, and plug onto the power socket inside the hole, see Fig. (2)
3. Fix the battery plate onto the rear panel by the supplied screws, see Fig. (3)



(1)

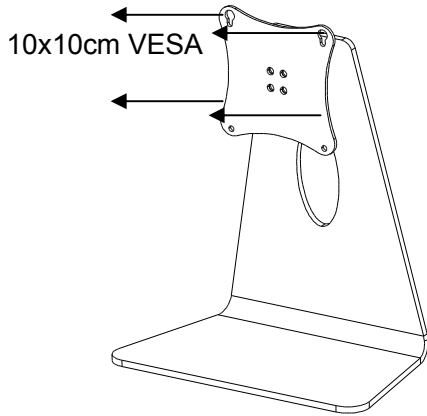


(2)

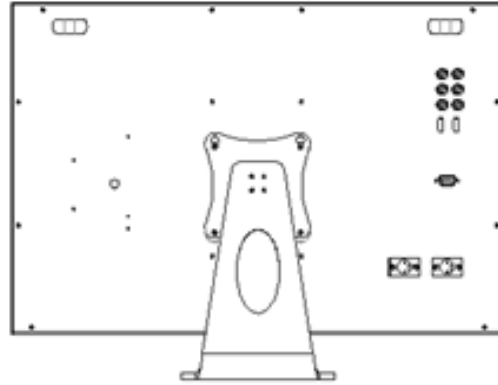


(3)

## 7.2 VESA Desk top stand



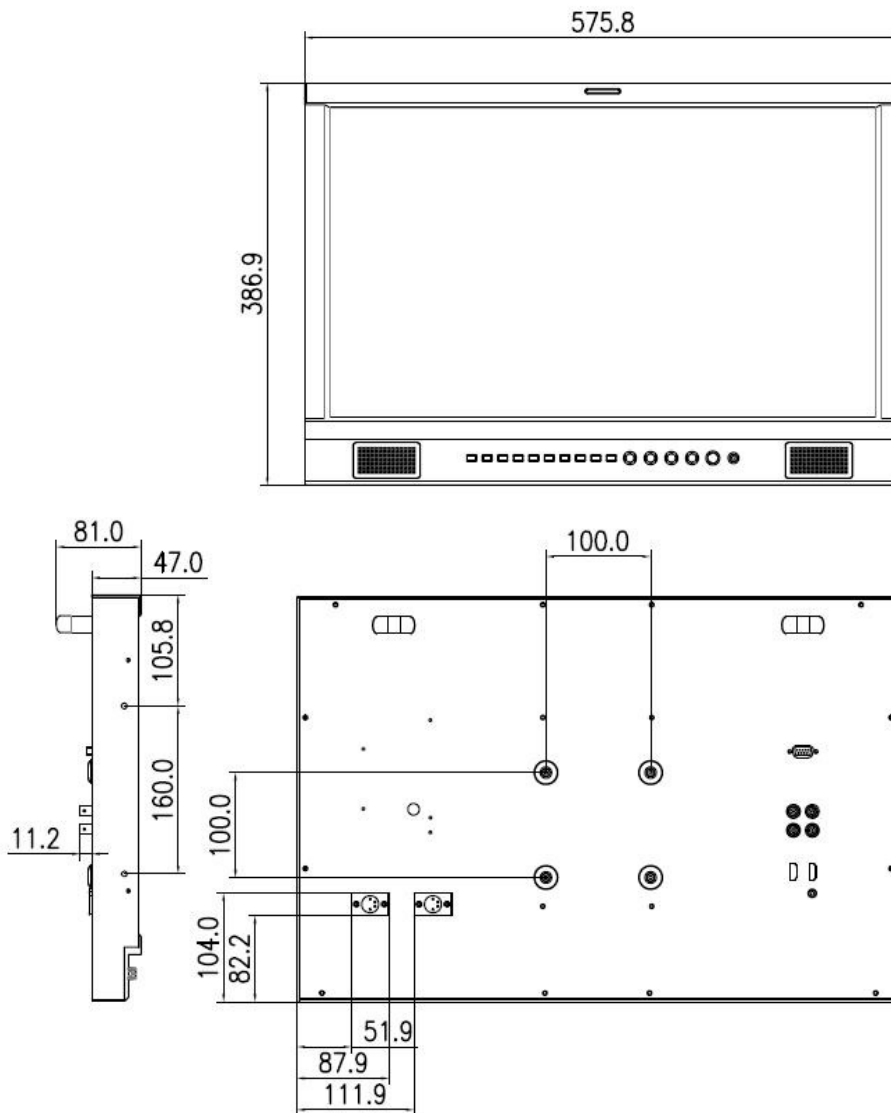
**A-VS22**



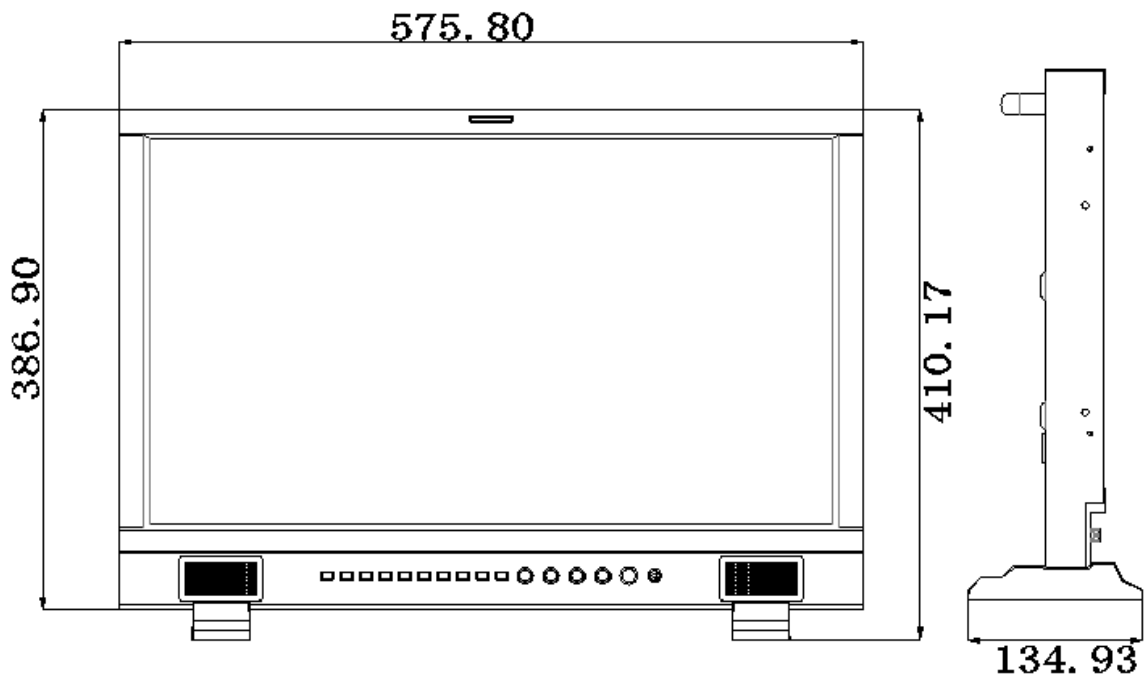
**Rear View**

## 8. Installation Dimension

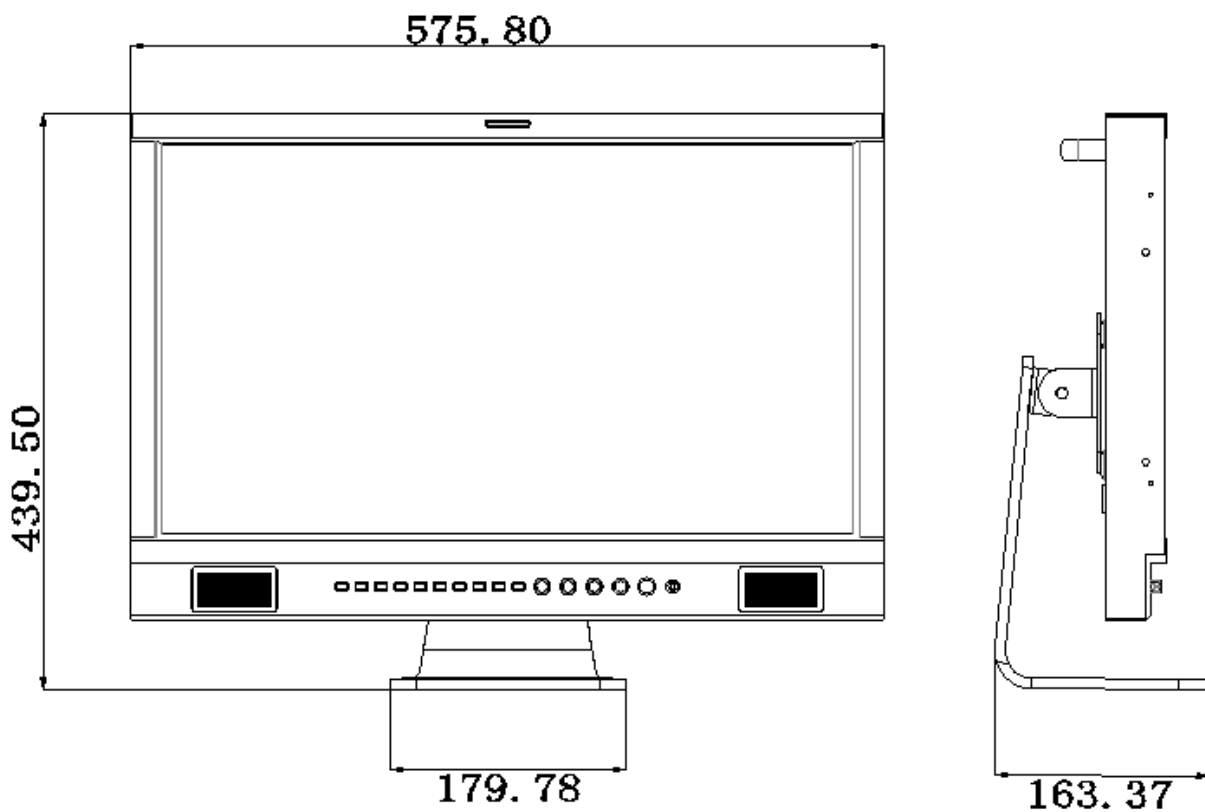
### 8.1 The main body (in mm)



**8.2 With desktop stand feet (in mm)**



**8.3 With rotatable VESA desktop stand (in mm)**







# ***ProHD***

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

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