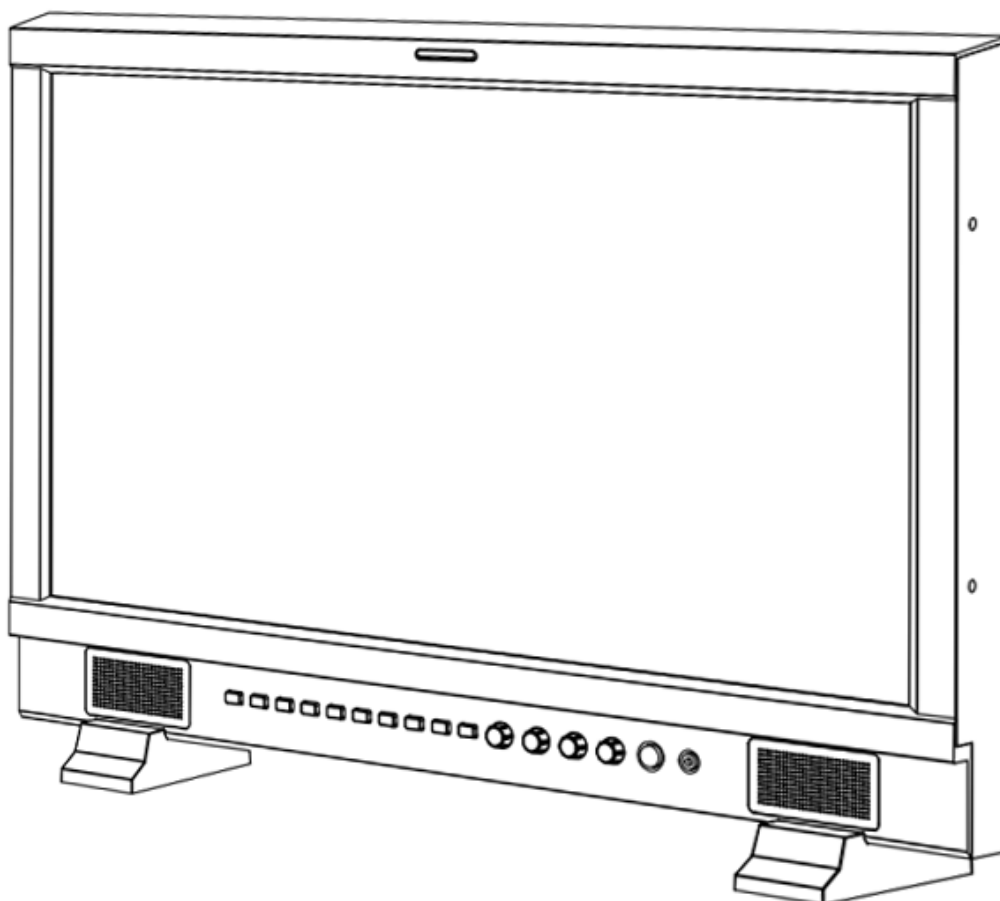


# ***ProHD***

Model: **DT-X21H**

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21.5" Broadcast Studio LCD Monitor



## **User Manual**

Ver: V2.0V02

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 are protected and other relative trademarks in this user manual are the properties of their respective owners.
3. Due to constant effort of product development, SWIT Electronics 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) Misuse, abuse or negligent operation to the product;
  - (3) The product is disassembled by anyone other than an authorized service center.It is considered normal that the LCD bright dot defects are not to exceed three.
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

- **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 provided power adapter or the battery 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 or take off the battery 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 21.5" 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

### ◆ Real Time 2-step Zoom-in

The zoom-in function is real time operation, available when preview, recording or play back.

### ◆ 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.

### ◆ Safe Area Adjustable

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

### ◆ 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.

### ◆ 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.

### ◆ 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%.

### ◆ Image Flip

Set image to rotate by 180°

### ◆ Main/Backup Power Supply

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

### ◆ 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.

### ◆ User definable function keys

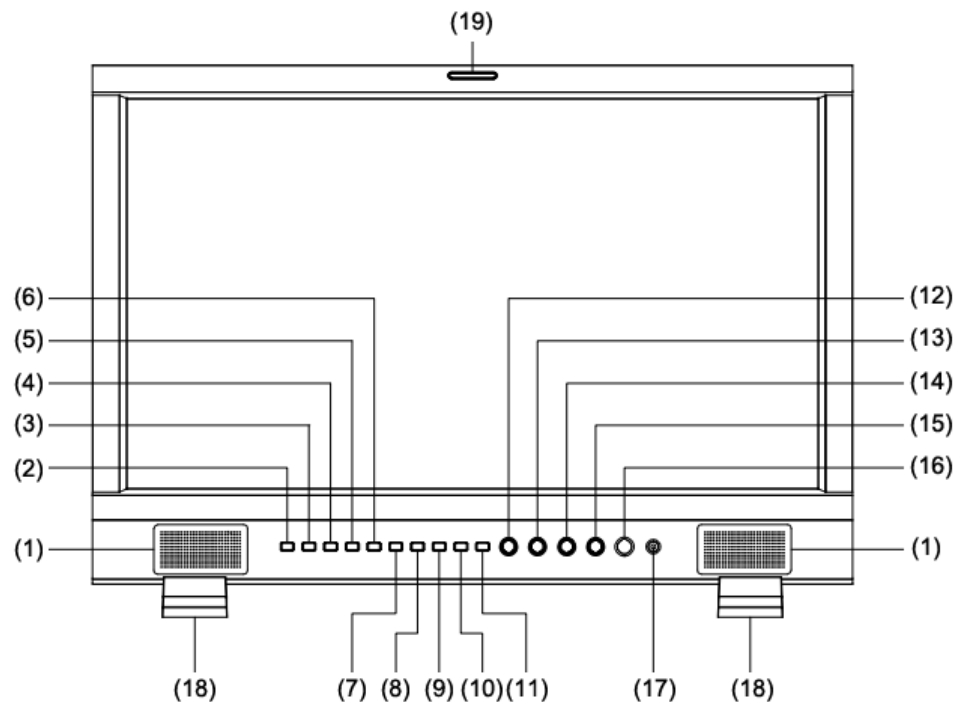
There are 4 function keys on the monitor front panel, which permit users to define shortcuts for the various functions.

### ◆ User editable video title

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

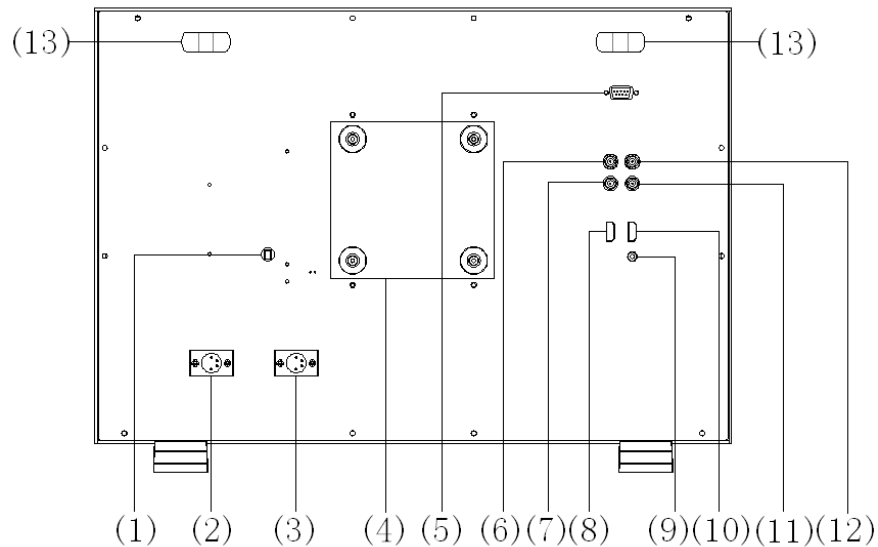
## 2. Panel Instruction

### Front view



- (1) **Speaker:** For SDI/HDMI embedded audio and analog audio monitoring. (Will not work if earphone is plugged in)
- (2) **SDI1:** Press “SDI1” to switch to SDI input 1
- (3) **SDI2:** Press “SDI2” to switch to SDI input 2
- (4) **HDMI:** Press “HDMI” to switch to HDMI input
- (5) **CVBS:** Press “CVBS” to switch to CVBS input
- (6), (7), (8), (9) **F1, F2, F3, F4:** User definable function keys
- (10) **DISPLAY:** Press “Display” to display safe area, scale marker, title and the current input signal information.
- (11) **MENU:** Press to enter Menu
- (12) **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.
- (13) **BRIGHT:** Revolve “BRIGHT” to adjust brightness value from 0~100. Default value is 50.
- (14) **CONTRAST:** Revolve “CONTRAST” to adjust contrast value from 0~100. Default value is 50.
- (15) **SATURATION:** Revolve “SATURATION” to adjust saturation value from 0~100. Default value is 50.
- (16) **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.
- (17) **PHONE:** 3.5mm earphone socket, for SDI/HDMI embedded audio and analog audio monitoring.
- (18) **Desktop Stand Feet**
- (19) **TALLY Light:** Red, Green and Yellow 3-color TALLY indicator

## Rear view



- (1) **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.
- (2) **DC IN 11V-17V BACK UP:** Connect with 4-pin XLR power adaptor (Pin 1: Negative, Pin 4: Positive)
- (3) **DC IN 11V-17V MAIN:** Connect with 4-pin XLR power adaptor (Pin 1: Negative, Pin 4: Positive)
- (4) **VESA Mount:** Standard 10×10cm VESA bracket installation
- (5) **TALLY controlling port (DB-9)**
- (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) **SDI-IN1:** 3G/HD/SD-SDI input (BNC connector)
- (8) **HDMI-LOOP:** HDMI loop through output
- (9) **AUDIO-IN:** Analog stereo audio input (3.5mm)
- (10) **HDMI-IN:** HDMI input
- (11) **SDI-IN2:** 3G/HD/SD-SDI input (BNC connector)
- (12) **CVBS-IN:** Composite video input (BNC connector)
- (13) **Handle**

## 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)
		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)

### 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

PICTURE	
CONTRAST	<div><div></div></div> 50
BRIGHTNESS	<div><div></div></div> 50
HUE	<div><div></div></div> 50
SATURATION	<div><div></div></div> 50
SHARPNESS	<div><div></div></div> 50
BACKLIGHT	<div><div></div></div> 75
<div><div>ADJ</div><div>OK</div><div>MENU</div></div> : ADJ : OK : EXIT	

#### 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.

SYSTEM	
RATIO	◀ 16:9 ▶
SCAN	◀ UNDERSCAN ▶
ZOOM	◀ OFF ▶
FLIP	◀ OFF ▶
RESET	◀ YES ▶
<div><div>ADJ</div><div>OK</div><div>MENU</div></div> : ADJ : OK : EXIT	

#### 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.

OSD	
LANGUAGE	◀ ENGLISH ▶
H-POSITION	<div><div></div></div> 50
V-POSITION	<div><div></div></div> 50
DURATION	<div><div></div></div> 15
<div><div>ADJ</div><div>OK</div><div>MENU</div></div> : ADJ : OK : EXIT	

#### 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.

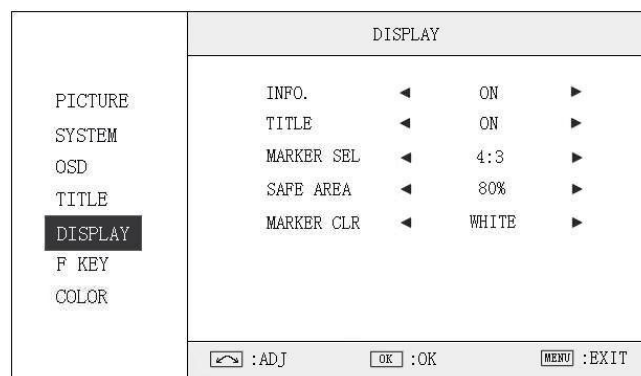
After setting, press "MENU", the system will save data to current user and quit menu. The menu will automatically save and quit if it remains idle.

TITLE	
0 1 2 3 4 5 6 7 8 9	
A B C D E F G H I J	
K L M N O P Q R S T	
U V W X Y Z	[SPACE] [DEL]
TITLE: CAM 1	
<div><div>ADJ</div><div>OK</div><div>MENU</div></div> : ADJ : OK : EXIT	

### 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:

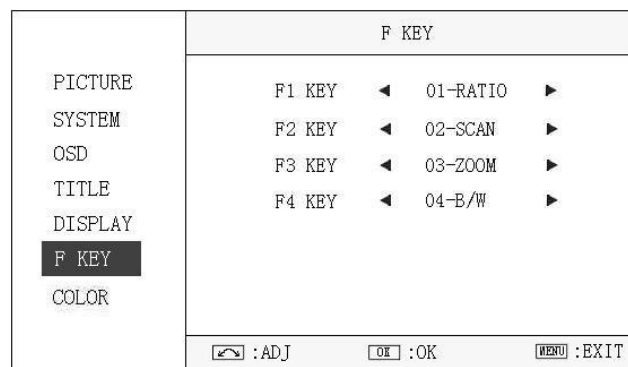
- (1) **INFO:** Including Input format, aspect ratio, underscan/overscan, zoom status
- (2) **TITLE:** User edited title
- (3) **MARKER SEL:** Select the scale marker from 4:3, 13:9, 14:9, 15:9, 1.85:1, 2.35:1 and OFF
- (4) **SAFE AREA:** Select the safe area scale from 80%, 85%, 90%, 95% and OFF.
-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

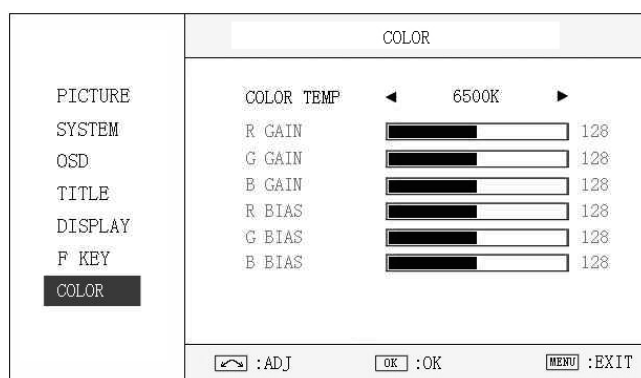


### 3.7 COLOR submenu

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

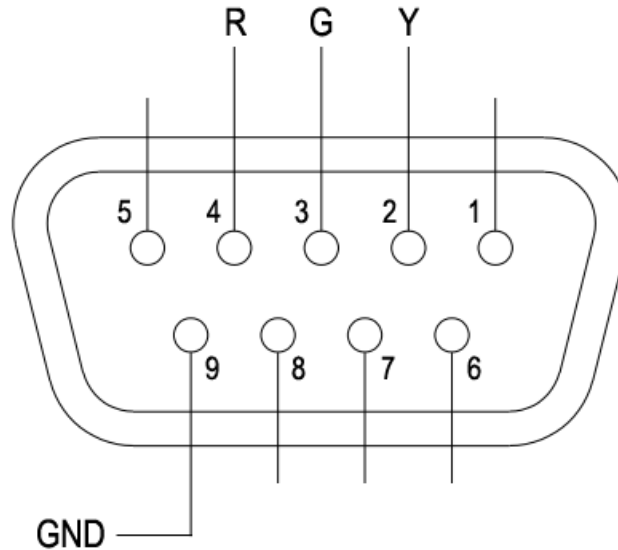




#### 4. TALLY Light Operation

The front TALLY light can display 3 colors: RED, GREEN and YELLOW. The TALLY light controlling port is 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					GND



The RED light is on when connecting the terminal “R” with “GND”, and goes out when disconnecting.  
The GREEN light is on when connecting the terminal “G” with “GND”, and goes out when disconnecting.  
The YELLOW light is on when connecting the terminal “Y” with “GND”, and goes out when disconnecting.

## 5. Specifications

LCD Performance		
Size		21.5 inches
Display area		477×268mm
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°
Video Format		
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)
General		
Working voltage		DC / battery 11V-17V
Power consumption		≤30W
Working temperature		0℃～+40℃
Working humidity		10%～90%
Storage temperature		- 15℃～ + 60℃
Storage humidity		10%～90%
Net weight (w/o stand)		6.72kg

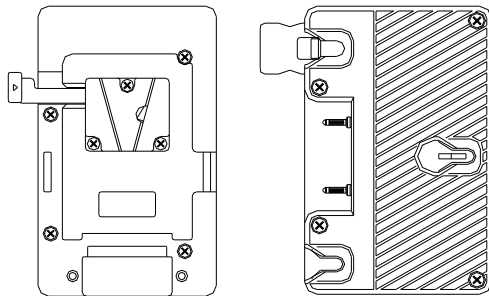
## 6. Packing List

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-PG22	Magnetic LCD protective organic glass
A-VS22	Rotatable desktop stand with VESA installation
A-RK22	19-inch rack install bracket

### 7.1 Battery plate

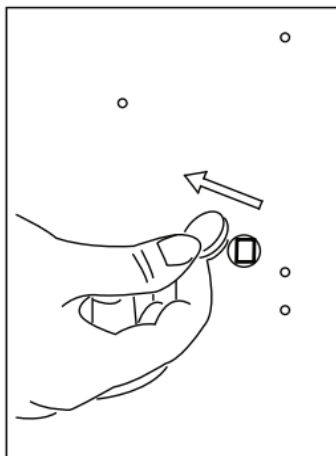


#### Installation

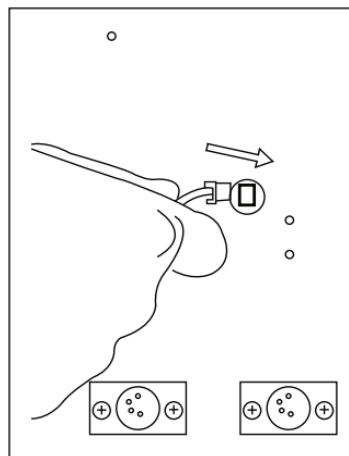
1. Take off the rub cover on the rear panel, see Fig. (1)
2. Insert the DC cable of S-7004S/A into the hole, and plug onto the power socket inside the hole, see Fig. (2)
3. Fix the battery plate onto the rear panel by the supplied screws, see Fig. (3)

**S-7004S**

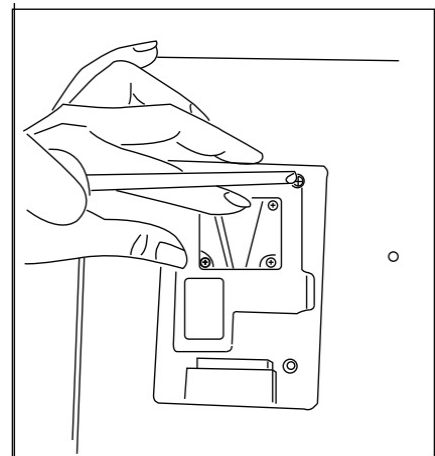
**S-7004A**



(1)



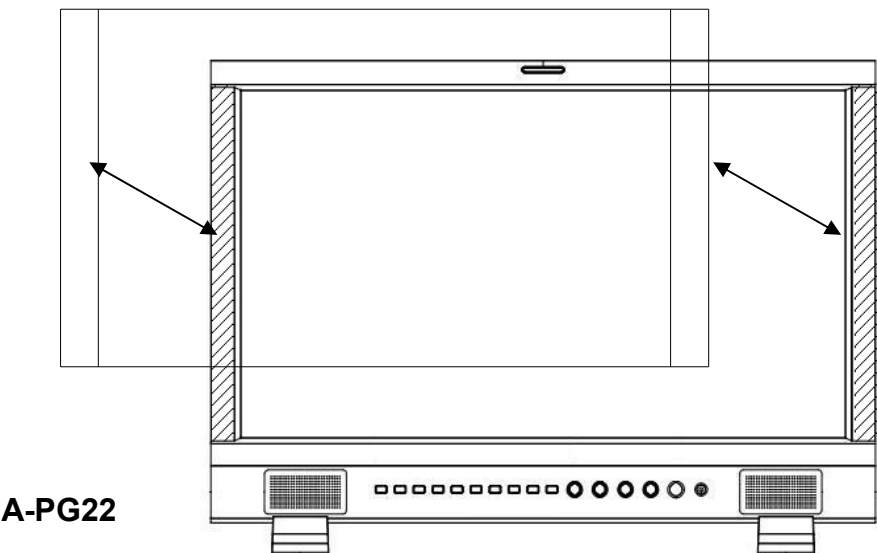
(2)



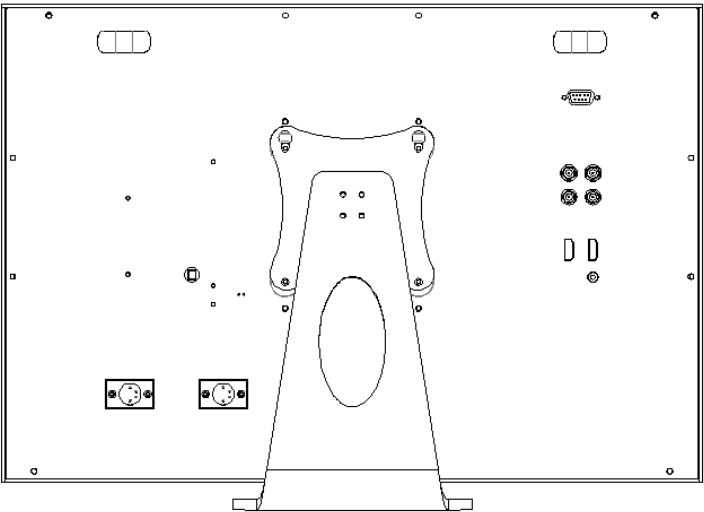
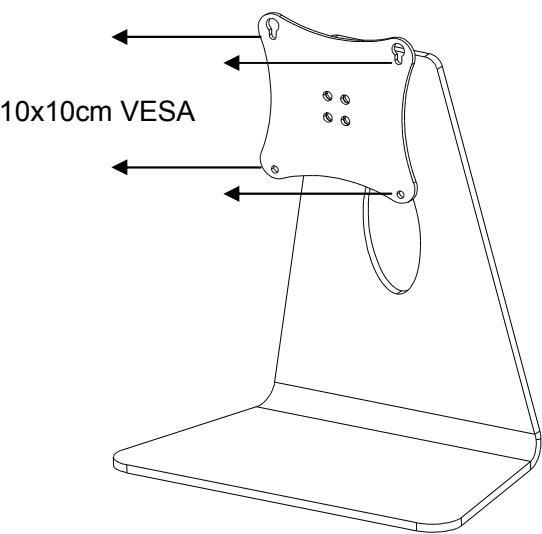
(3)

7.2 Protective organic glass

The A-PG22 organic glass has left and right magnetic stripes and can be fixed on front of the LCD panel, to protect the LCD during transport or stock.

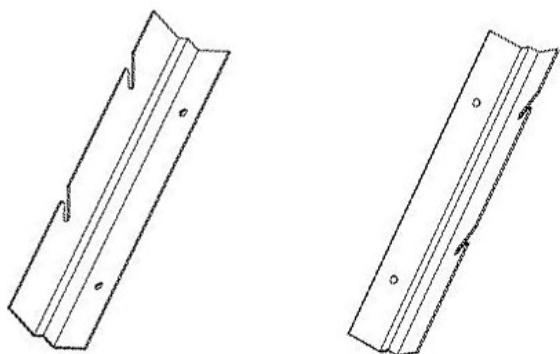


7.3 Rotatable desktop stand



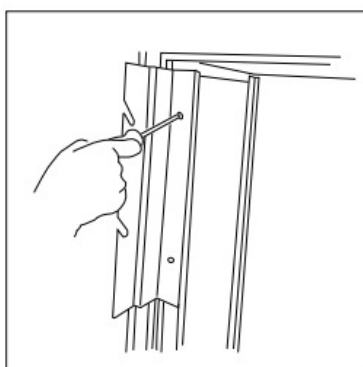
## 7.4 19-inch rack install bracket

### Installation

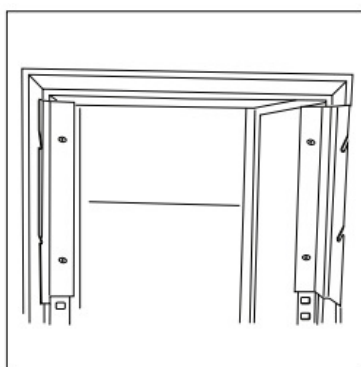


1. Install the left and right brackets onto the 19-inch rack; see Fig (1) and (2)
2. Screw the supplied 4 knobs into the left and right sides of the monitor; see Fig (3)
3. Mount the monitor onto the brackets as indicated in Fig (4), and then fasten the 4 knobs to finish installation.

### A-RK22



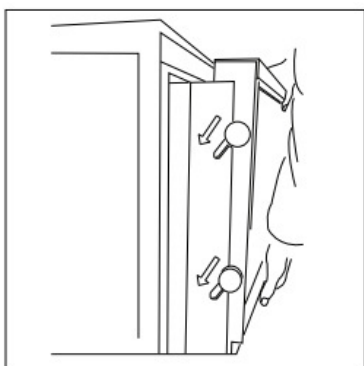
(1)



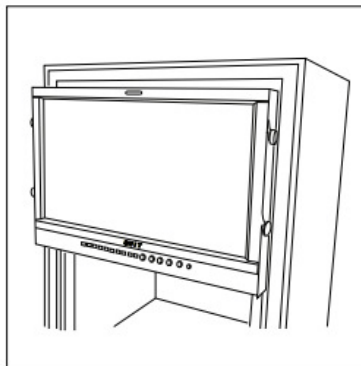
(2)



(3)



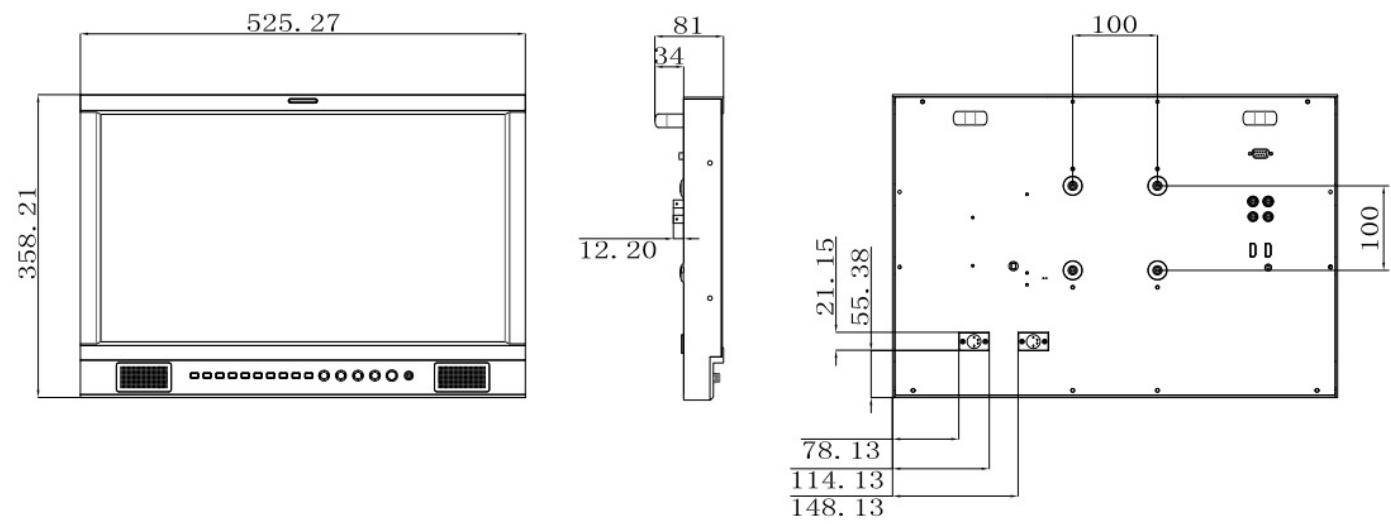
(4)



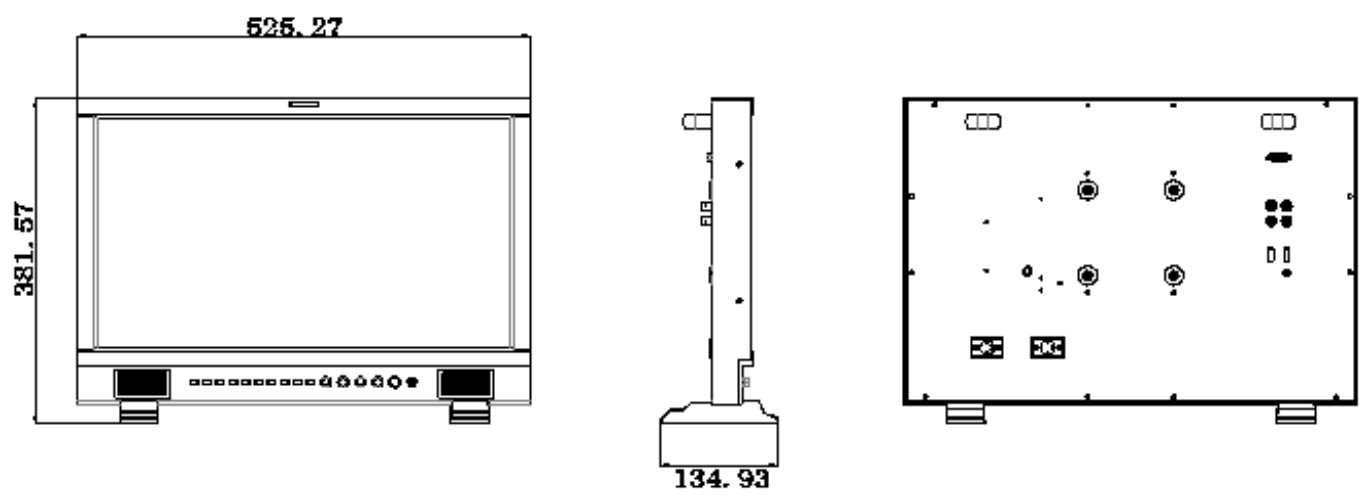
(5)

**8. Installation Dimension**

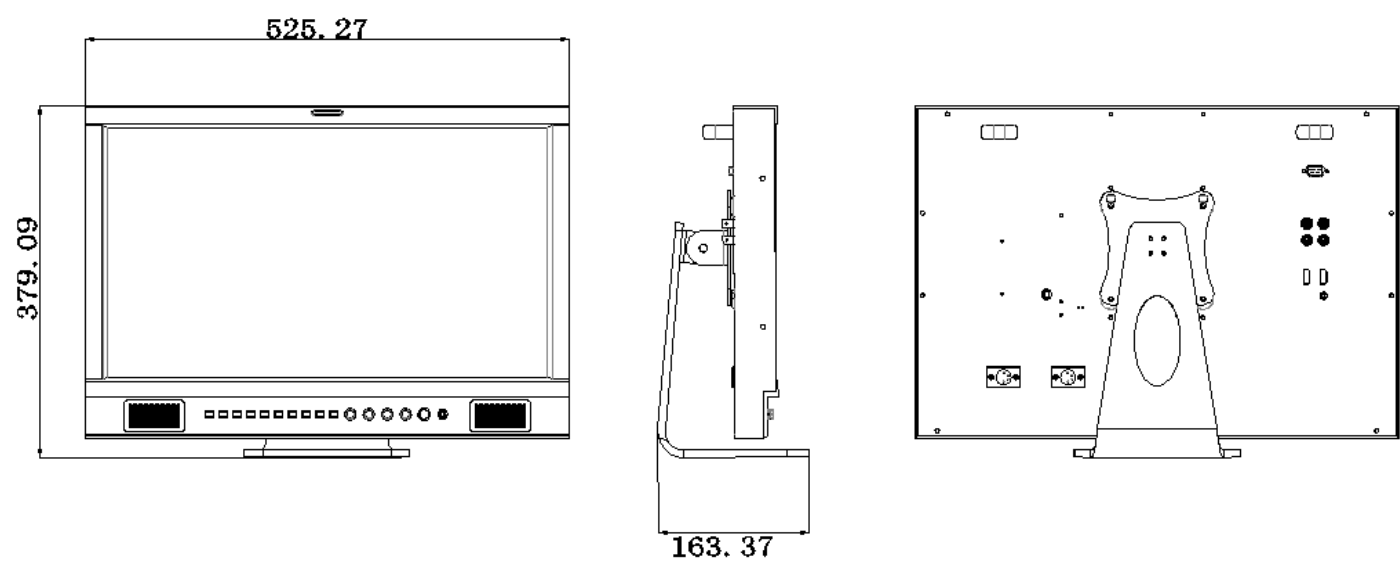
**8.1 The main body (in mm)**



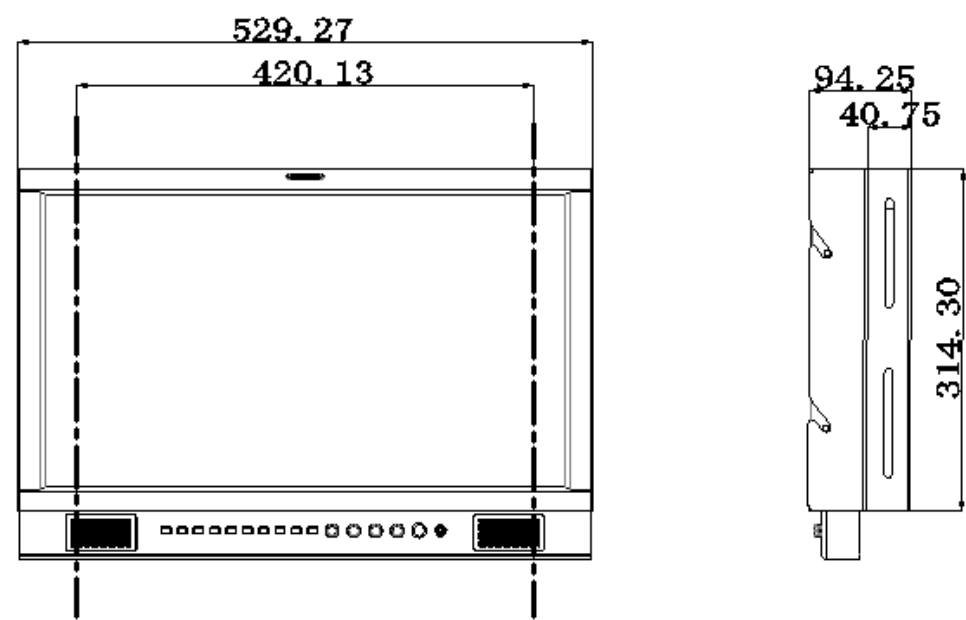
**8.2 With desktop stand feet (in mm)**



8.3 With rotatable VESA desktop stand (in mm)



8.4 With 19-inch rack install bracket (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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