XCM-240

Prime Reference Monitor

User Manual

OSEE TECHNOLOGY CO., LTD.

Product Information

Model: XCM-240 Monitor
Version: V010200
Release Date: July 14th, 2016

Company

OSEE TECHNOLOGY CO., LTD.

Contact Information

OSEE TECHNOLOGY CO., LTD.
Address: No.22 Building, No.68 zone, Beiqing Road, Haidian District, Beijing, China
Post Code: 100094
Tel: (+86) 010-62434168
Fax: (+86) 010-62434169
Web: http://www.osee-dig.com/
E-mail: sales@osee-dig.com

OSEE AMERICAS, LTD.
Address: 43218 Christy Street
Fremont, CA 94368
Toll Free: 866-625-6106
Tel: (+1) 510-966-4499
Fax: (+1) 510-966-4492
Web: http://www.osee-dig.com/
E-mail: sales@osee-dig.com

About this manual

Important

The following symbols are used in this manual:

Tips

- Additional information for described subjects.

Warning

- Safety warnings or operations that user must pay attention to when using this product.

Contents

The user manual applies to the following device types:

- **XCM-240-3G**
- **XCM-240-HD**

The images of XCM-240-3G are adopted in the following descriptions, and it abbreviates XCM-240 in this document.
Any of the different specifications between the device types are elaborated. Before reading the manual, please confirm the device type.

Contents

Chapter 1 Overview

The XCM-240 series Monitor is a high performance broadcast monitor designed for the most demanding applications. Applications include, program production, high quality streaming, play out to air, studio image composition, color grading, post production, film and E-Cinema acquisition.
Featuring the high quality IPS panel at full resolution of 1920 x 1080 with 15 3D-LUT selections, the XCM-240 series monitor is capable of reproducing a vivid color with phenomenal response time. In addition, the unit boasts a full wide viewing angle as well as excellent brightness and contrast ratio.
Use of advanced 12-bit digital signal processing technology provides, smoother and more natural image.
The XCM-240 series Monitor supports up to 2Ch 3G/HD/SD-SDI/analog input/output, 2Ch CVBS(LINE1, LINE2) input/output, Y/C input/output, YPbPr input/output, and HDMI input.
All the features required in the most challenging of applications, including Picture By Picture, Wipe, Blending, Focus Assist, and Interlace mode. Add analytic functions of waveform/vector scope, 16 Ch. audio metering, Time Code, Closed Caption Display, plus a host of other features, the XCM-240 has become the new standard in demanding video plus audio monitoring.

Figure 1 A Diagram of XCM-240

Features

- 3D-LUT color calibration technology plus 12bit image processing
- Having multi format input including 3G/SD/HD-SDI, 2K
- Adopting full HD, wide viewing angle IPS panel
- Proprietary algorithms provide advanced progressive/de-interlacing technology

- Various display mode: PBP, PIP, wipe and blending
- Analytics waveform/vector scope, audio metering bar, TC, IMD and CC
- Preset and USER defined color temperature, varied scan modes, flexibility in marker setting, Blue Only/Monochrome mode
- Color gamut adjustment, and various color spaces: EBU, SMPTE-C, ITU-709, D-CINE
- Focus assistant function and luma zoom check function

Functionality

- MARKER, Time Code, MET display

Chapter 2 Safety

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

Warnings:

Read, keep and follow all of these instructions for your safety. Heed all warnings.

⚠Warning

Device

- Install in accordance with the manufacturer's instructions.
- Do not beat with a hard object or scratch the LCD display.
- Do not make the freeze picture displaying on the screen time too long, otherwise, it will leave the afterimage on the screen.
- If the brightness is adjusted to the minimum, then it might be hard to see the display screen.
- Refer all servicing to qualified service personnel. Servicing will be required under all of the following conditions:
  - ☐ The unit has been exposed to rain or moisture.
  - ☐ Liquid had been spilled or objects have fallen onto the unit.
  - ☐ The unit has been damaged in any way, such as when the power-supply cord or plug is damaged.
  - ☐ The unit does not operate normally.
- Clean only with dry cloth.
- Specifications are subject to change without notice.

⚠Warning

Position

- Do not block any ventilation openings.
- Do not use this unit near water.
- Do not expose the unit to rain or moisture.
- Do not use this unit near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that product

heat.

- A nameplate indicating operating voltage, etc., is located on the rear panel.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

Warning

Power Supply Cord

- Do not defeat the safety purpose of the polarized or grounding-type plug.
- Do not damage the power cord, place the heavy objects on the power cord, stretch the power cord, or bend the power cord.
- Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the unit.
- If the power cord is damaged, turn off the power immediately. It is dangerous to use the unit with a damaged power cord. It may cause fire or electric shock.
- Unplug this unit during lighting storms or when unused for long periods of time.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.

Chapter 3 Unpack and Installation

Unpack:

When unpacking the components of XCM-240 monitor, please verify that none of the components listed in Table 3.1 are damaged or lack. If there is any missing, contact your distributors, Beijing OSEE Technology Co., Ltd., or OSEE Americas, Ltd. for it.

Table 3-1 Packing List

No.	Item	Quantity
1	Device	1
2	Pedestal with screws	1
3	Power cord	1
4	adapter	1
5	User manual	1
6	warranty card	1
7	Certificate card	1

Installation:

1. **Prepare for installation**

   Please follow the procedures below before installing XCM-240:

   - Check the equipment for any invisible damage that may have occurred during transit.
   - Confirm all the items listed on the packing list have been received.
   - Remove all the packing material including electrostatic-resistant packing.
   - Retain these packing materials for future use.

2. **Mount a XCM-240 in your desired location of a standard rack. Adequate ventilation is required when installed to prevent possible damage to the XCM-240.**
3. **Connect required cables for signal input and output. For BNC connections use 75Ω rated connectors.**
4. **Connect 4.74A19V DC power source using the included power cord.**

5. **Connect the power cord to the power interface.**
6. **Fasten the power protect accessory.**
7. **As a final step, turn on the power switch on the rear panel to power on the device, and press POWER button located on the front panel to start up the screen.**

Tips

- The pedestal and the monitor are packaged separately.
- Connect a standard signal lines to the corresponding input port. All BNC connector impedance must be 75Ω.
- Please use the power adapter supplied to avoid unnecessary trouble.
- Use the power adapter and cord to connect single-phase three-wire AC power or following the local power supply conditions. Make sure the power cord grounding well.
- The factory default value for IP address is 192.168.1.86.

.

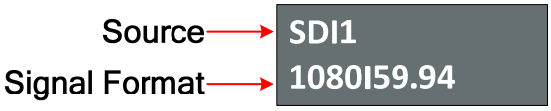
Chapter 4 XCM-240 Features

This chapter describes the features of XCM-240 monitor. The features of XCM-240monitor are as shown in Figure 4-1 after installed and powered on:

Figure 4-1 Features of XCM-240 Monitor

1. Status Information

It is displayed in the top left corner of the screen, and includes the input channel and signal format. You can define it in DISPLAY menu.



2. Waveform and Vector

This is effective only for SDI signal. The waveform and vector of the input signal are configurable in the MAIN Menu.

3. Area Marker

It is used to mark different area of the image. You can set whether to display it or not and their displaying mode in **MARKER** menu.

4. Safe Marker

It is used to mark different area of the image. You can set whether to display it or not and their displaying mode in **MARKER** menu

5. Center Marker

It is displayed in the center of the screen, and marks the center of the

image. You can set whether to display it or not in **MARKER** menu.

6. Audio Meter

It is displayed for audio monitoring. You can set its groups, direction, position and mode in **AUDIO** menu.

7. Timecode

It is displayed at the bottom of the image, the format is HH:MM:SS:FF, if there is no timecode available, the monitor will display --:--:--:--.

8. IMD

The IMD text displays at the bottom of the screen, the length can't exceed 16 characters, and you can choose letter, number or other character for it.

9. AFD/CC

AFD and CC information will display at the top center of the screen as an icon.

10. MUTE

The icon for MUTE is  . When it is mute, this icon displays at the bottom right position of the screen. You can set this function in function key.

Tips

- The **Status Information** usually displays as the following situations:
  - ☐ "UNKNOW" appears if an unsupported signal is input.
  - ☐ "NO SIGNAL" appears if no signal is input.
  - ☐ The signal is normal, for example: 1080i59.94, NTSC, 1280X1024, etc.
- The **Status Information** for the main picture displays at the top left corner of the screen, and the **Status Information** for the slave picture displays at the top right corner of the screen.
- The AFD information displays at the top center of the screen and can be selected for permanent or temporary presence.

4.1 Front Panel Features

4.1.1 Arrangement of Front Panel

There are a series of buttons at the bottom of the screen, and these buttons are used to control the screen menu items.

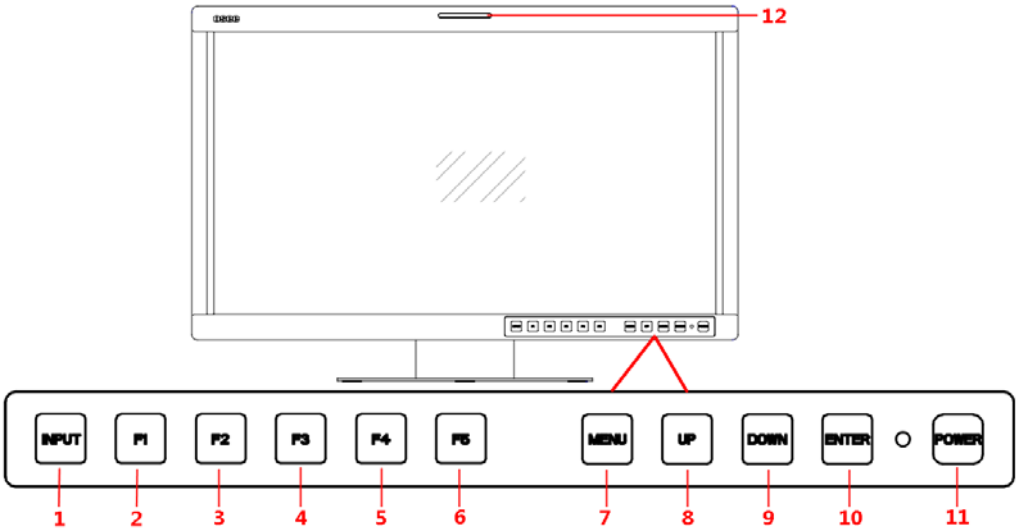


Figure 4.1-1 the Buttons in Front Panel

As shown in Figure 4.1-1 the buttons are as follows:

1. **INPUT**
2. **F1**
3. **F2**
4. **F3**
5. **F4**
6. **F5**
7. **MENU**
8. ∧**(UP)**
9. ∨**(DOWN)**
10. **ENTER**
11. ⏻**(POWER)**
12. TALLY: **TALLY indicator(LED TALLY)**

Tips

- The power button has an indicator to indicate its status.

4.1.2 Operation of Front Panel

The functionality and usage of the buttons at the front panel are as follows:

1. INPUT

Select the input signal. Press this button to display the input source menu at the right top corner of the screen, as shown in Figure 4.1-2. Use it to select an input signal source, press it again to toggle among these input signal items, or after the input source menu displayed, use the UP/DOWN button to toggle among these input signal items.

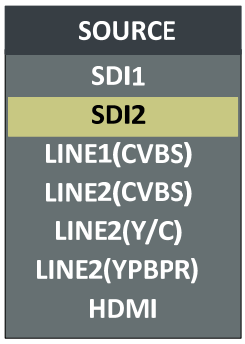


Figure 4.1-2 Source Menu

The one-to-one correspondence between the signals in the source menu list and the interfaces in the back panel are shown in Figure 4.1-3:

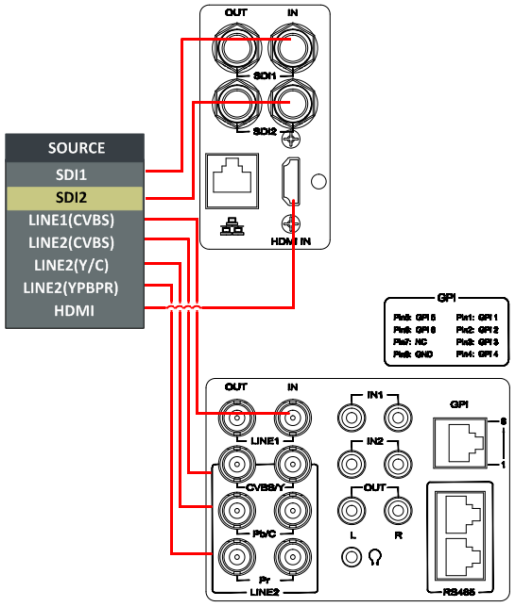


Figure 4.1-3 Correspondence between Source Menu and Interface

2. F1

User defined FUNCTION button.

- **OPERATION:** Press **F1** to display the function menu list in the center of the screen, as shown in Figure 4.1-4. Toggle **F1** button to change the value related to this function.

FUNCTION		
F1	SCAN	NORMAL
F2	NATIVE	OFF
F3	ASPECT	4:3
F4	WIN SELECT	MAIN
F5	PBP	OFF

Figure 4.1-4 Function Menu List

Tips

- After you have loaded the function menu list, it will be closed automatically if you do nothing operation with it in 10s.
- The current function value that can be modified will be indicated in highlight yellow.
- Use **FUNCTION KEY** menu to assign F1~F5 with the following commands: SCAN, NATIVE, ASPECT, BLUE ONLY, MONO, MARKER, H/V DELAY, AUDIO METER, FAST MODE, TC, IMD, MUTE, PBP, CC, FREEZE, WIN SELECT, FOCUS ASSIST, LUMA ZOOM CHECK, UNDEF. Refer to "5.1.9 FUNCTION KEY Menu" for the details.

3. F2

It is used to activate to F2 function button. The operation is as the same as F1's.

Tips

- Press and hold the **INPUT+F2** button for 3s can reset the menu settings to factory originals, as shown in Figure 4.1-5.

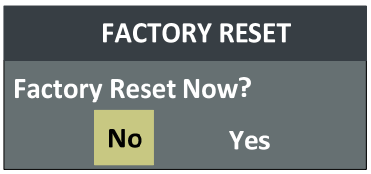


Figure 4.1-5 Reset Menu List

4. F3

It is used to activate to F3 function button. The operation is as the same as F1's.

5. F4

It is used to activate to F4 function button. The operation is as the same as F1's.

6. F5

It is used to activate to F5 function button. The operation is as the same as F1's.

7. MENU

Used to display or set the on-screen menu.

- Pressing **MENU** step back to the higher level menu
- Pressing **MENU** will cancel the Main menu

Use the MENU, ∧(UP), ∨(DOWN) and ENTER buttons to set the menu items, refer to "5.2 Menu Settings" for detail about the main menu operations.

8. UP

It is **UP** button when working with **MENU**. Toggle this button to select the next item or increase the number.

9. DOWN

It is **DOWN** button when working with **MENU**. Toggle this button to select the next item or decrease the number.

10. ENTER

This button can achieve the following two situations:

- **Work with the Main MENU**: when working with the Main menu, ENTER button achieve the following functions:

  - Enter into the next level menu: press **ENTER** button, you will enter into the menu item as this relationship: the Main menu list→ sub-menu list→ sub-menu value list, the current editable object is in yellow control icon;

- ☐ Confirm the value selection: press **ENTER** button to confirm the value selection.

■ **Adjust Menu:** when not displaying the Main menu, press **ENTER** button to display the adjust menu list, as shown in Figure 4.1-6, toggle among these menu items: VOLUME, BRIGHTNESS, CONTRAST, CHROMA.

Figure 4.1-6 Adjust Menu List

After displaying the Adjust menu, press **UP** or **DOWN** button to adjust the menu value, and then press **ENTER** button to confirm the value selection.

The relationship of the menu items and their range is shown in Table 4.1-1:

Table 4.1-1 The Description of Adjust Menu Items

Adjust Menu	Description	Range	Default
VOLUME	Adjust the volume	0~31dB	16
BRIGHTNESS	Adjust the image brightness	0~100	50
CONTRAST	Adjust the image contrast	0~100	50
CHROMA	Adjust the image monochroma	0~100	50

Tips

- Set these parameter values in the following position: BRIGHTNESS, CONTRAST, CHROMA.

  - ☐ In Adjust Menu List on screen when pressing Enter key.
  - ☐ In Adjust menu of network control page.

- After you have loaded the adjust menu list, it will be closed automatically if you do nothing operation with it in 10s.
- The main menu, the adjust menu, the function menu and the input signal selection list of a screen may not be shown all simultaneously.

11. Power

Used to power on or standby, and the light in the button will indicate the status of the power. If the light is green, the monitor is powered on, if the light is flashing, the monitor is standby.

Tips

- When the device is standby, cut off the power and restart the device, the status of the device will be normal but not standby.

12. Tally

It is the physical LED Tally lamp of the monitor, and it is used to show the status of the monitor.

4.2 Rear Panel Features

It will introduce the arrangement and the operations of the interfaces in rear of the panel in the following.

4.2.1 Arrangement of Rear Panel

As shown in Figure 4.2-1, there are various input and output interfaces at the rear panel of XCM-240 monitor.

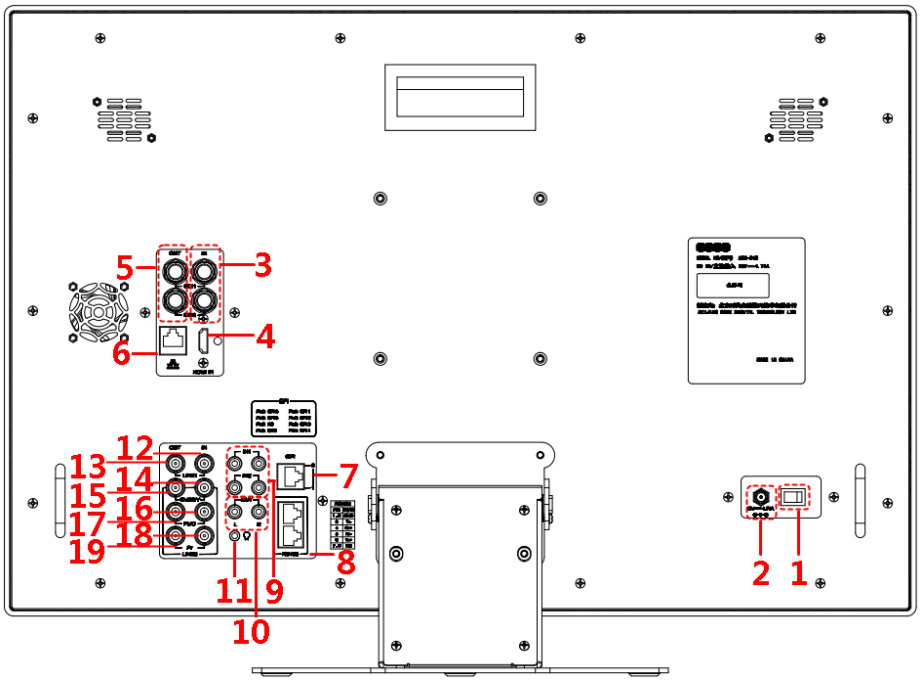


Figure 4.2-1 The Rear Panel of XCM-240 Monitor

The interfaces numbered from 1 to 8 in red dotted rectangle are described as follows:

1. **Power Switch**
2. **Power Input**
3. **Video Input: SDI1 IN, SDI2 IN**
4. **HDMI Input**
5. **Video Output: SDI1 OUT, SDI2 OUT**
6. **Ethernet**
7. **GPI interface**
8. **RS485 In/Out**
9. **Audio Input**
10. **Audio Output**
11. **Headphone Output Connector (3.5mm stereo Jack)**
12. **Video Input: LINE1 IN**
13. **Video Output: LINE1 OUT**
14. **Video Input: LINE2(CVBS/Y) IN, feed the composited LINE2, and component Y signals.**
15. **Video Output: LINE2(CVBS/Y) OUT, output the composited LINE2, and component Y signals.**
16. **Video Input: LINE2(Pb/C) IN, feed the component Pb, and component C signals.**
17. **Video Output: LINE2(Pb/C) OUT, output the component Pb, and component C signals.**
18. **Video Input: LINE2(Pr) IN, feed the component Pr signal.**
19. **Video Output: LINE2(Pr) OUT, output the component Pr signal.**

4.2.2 Operations of Rear Panel

The details of these interfaces at the rear panel are described as follows:

1. **Power Switch**

It provides one power switch to switch on or switch off. As shown in Figure 4.2-2, push the button to the direction “-” to switch on the power, or push the button to the direction “O” to switch off the power.

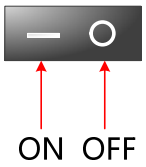


Figure 4.2-2 Power Switch

2. Power Input

It provides one power input interface, the specification is 19V4.74ADC. The corresponding indicator is at the front panel. If the light is green, the monitor is powered on, and if the light is off, the monitor has not put through the power.

Warning

- Only use the adapter and the power cord specified by the manufacture for your safety!

3. Video Input Interface (BNC)

It provides two SDI input interfaces, one is labeled as SDI1 IN, and the other is SDI2 IN.

4. HDMI

It provides one HDMI input interface, HDMI Type-A connector with a fastener compatible with DVI-D.

5. Video Output Interface (BNC)

It provides two SDI output interfaces. One is labeled as SDI1 OUT, the other is SDI2 OUT, active loop.

6. Ethernet (RJ-45)

It provides one 10/100M Ethernet connector. It is used to connect with a computer to modify the network settings.

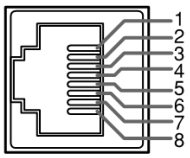
7. GPI(RJ-45)

It assigns a function to each pin of the GPI interface to realize a remote control mode. Define a function to the GPI pin. Refer to “5.1.10 GPI Menu” for the definition of the pins and the functions.
The relationship of the pins of GPI interface and its channel value is shown in Table 4.2-1.

Table 4.2-1 The Relationship of GPI Pins and Channel Values

Pin No.	Channel Value
Pin 1	GPI1
Pin 2	GPI2
Pin 3	GPI3
Pin 4	GPI4
Pin 5	GPI5
Pin 6	GPI6
Pin 7	NC
Pin 8	GND

8. IN/ OUT RS485 Interface (RJ-45)



Support for dynamic IMD and updating the new firmware.

The Comparison of Pins and Input/output connectors for RS485 is shown as in Table 4.2-2:

Table 4.2-2 The Comparison of Pins and Input/output connectors for RS485

PIN No.	RS485 IN Terminal Signal	RS485 OUT Terminal Signal
1,2	GND	GND
3	Tx-	Tx-
4	Rx+	Rx+
5	Rx-	Rx-
6	Tx+	Tx+
7,8	NC	NC

9. Audio Input interface

It provides four audio(2 pairs) input interfaces, 5dBu, impedance≥47K, RCA connector.

10. Audio Output interface

It provides two audio output interfaces, 5dBu, impedance≤500Ω, RCA connector.

11. Headphone jack

It provides one interface for the headphone at the position of Ω icon.

The audio signal which is selected by the input button is output in stereo sound.

12. Video Input/Output Interface (BNC)

It provides two pairs of Composited Video input/output interfaces(LINE1, LINE2), and a group of component signals(YPbPr, Y/C), the Y/C signal is also called as S-Video. It will transmit the corresponding component signal to different signal type according to the selection of the signal source.

As shown in Figure 4.2-3, the relationship of the signal sources and the interfaces are shown as in Table 4.2-3:

Table 4.2-3 The Relationship of the Signal Sources and Input/output Interfaces

Signal Source	Video Input	Video Output
LINE1	LINE1 IN	LINE1 OUT
LINE2(CVBS)	LINE2(CVBS/Y) IN	LINE2(CVBS/Y) OUT
LINE2(Y/C)	LINE2(CVBS/Y) IN LINE2(Pb/C) IN	LINE2(CVBS/Y) OUT LINE2(Pb/C) OUT
LINE2(YPBPR)	LINE2(CVBS/Y) IN LINE2(Pb/C) IN LINE2(Pr) IN	LINE2(CVBS/Y) OUT LINE2(Pb/C) OUT LINE2(Pr) OUT

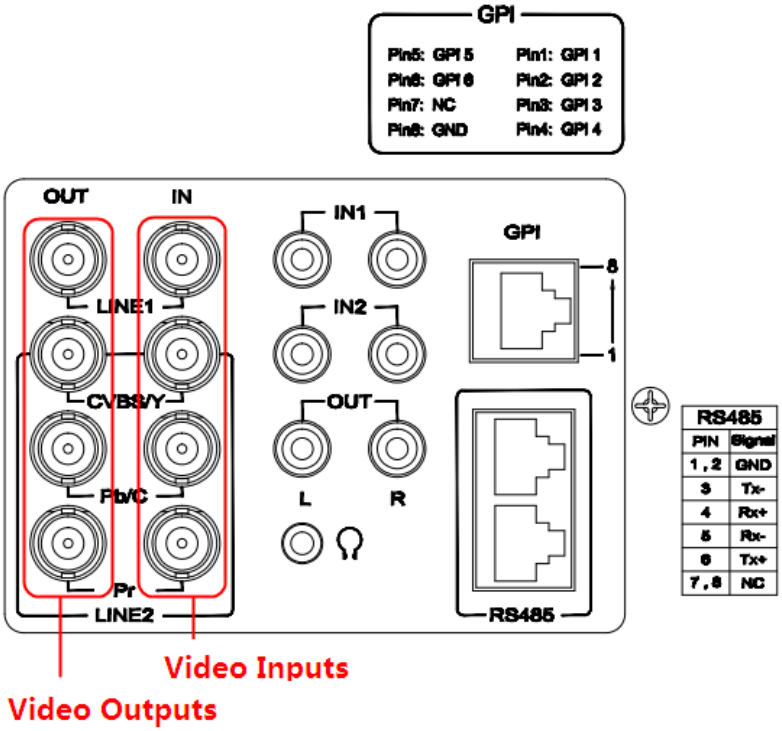


Figure 4.2-3 Video Input/Output Interfaces

4.3 Supported Signal Format

The supported signal format for this device is as shown in Table 4.3-1:

Table 4.3-1 Supported Signal Format

	SDI	VIDEO	HDMI	YC	YPBPR
PAL		✓		✓	
NTSC		✓		✓	
480I60/59.94	✓		✓		✓
576I50	✓		✓		✓
480P60/59.94			✓		✓
576P50			✓		✓
720P24/23.97	✓				✓
720P25	✓		✓		✓
720P30/29.97	✓		✓		✓
720P50	✓		✓		✓
720P60/59.94	✓		✓		✓
1080SF24/23.97	✓		✓		✓
1035I60/59.94	✓		✓		✓
1080I50	✓		✓		✓
1080I60/59.94	✓		✓		✓
1080P24/23.97	✓		✓		✓
1080P25	✓		✓		✓
1080P30/29.97	✓		✓		✓
1080P50	✓		✓		✓
1080P60/59.94	✓		✓		✓
2048X1080PSF24/23.97	✓				
2048X1080PSF25	✓				
2048X1080PSF30/29.97	✓				
2048X1080P24/23.97	✓				
2048X1080P25	✓				
2048X1080P30/29.97	✓				
2048X1080P48/47.94	✓				

	SDI	VIDEO	HDMI	YC	YPBPR
2048X1080P50	✓				
2048X1080P60/59.94	✓				
VGA(640X480)			✓		
SVGA(800X600)			✓		
XGA(1024X768)			✓		
SXGA(1280X1024)			✓		
WXGA(1360X768)			✓		
WXGA+(1440X900)			✓		
WXGA+(1400X1050)			✓		
UXGA(1600X1200)			✓		
UXGA+(1680X1050)			✓		
WUXGA(1920X1080)			✓		
WUXGA(1920X1200)			✓		

Chapter 5 Functionality of the Main Menu

This chapter describes the structure and functionality of the main menu, and introduces how to modify and customize the menu settings.
The main menu includes the following menu items, as shown in Figure5-1.

Figure 5-1 Main Menu

5.1 Main Menu

Press the **MENU** button at the bottom of the front panel, the main menu is displayed at the top left corner of the screen, as shown in Figure 5.1-1:

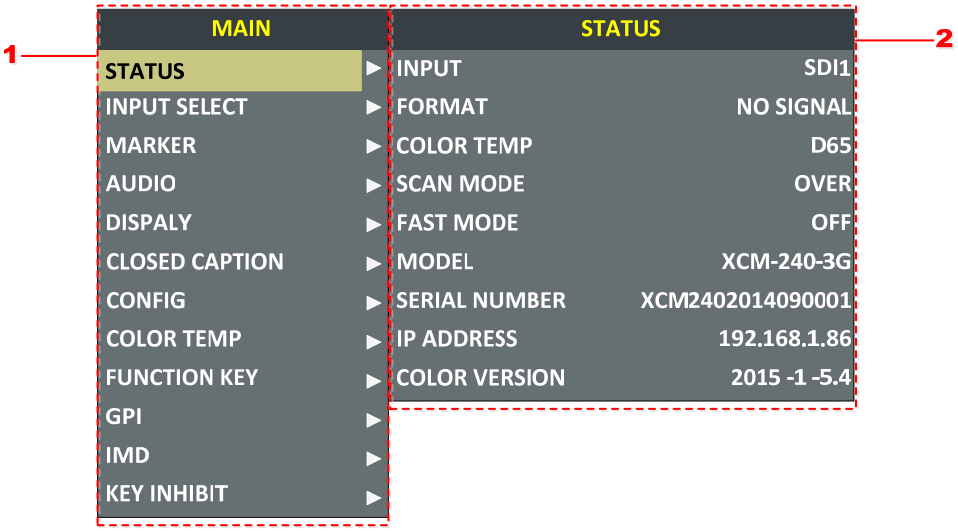


Figure 5.1-1 the Structure of the Main Menu

The menu interface is divided into two panes:

1. **Main Menu List**

   It contains the title of the Main menu and several sub-menu items. The title of this list is **MAIN**. Press **UP** or **DOWN** to access the corresponding menu item.

2. **Sub-menu list**

   As shown in Figure 5.1-2, it lists the title of the **Sub-menu**, the sub-menu item and the value of the item. After pressing **Menu** button, press **UP**, **DOWN** button and **Enter** button to modify the value of the sub-menu. Refer to “5.2 Menu Settings” for details.

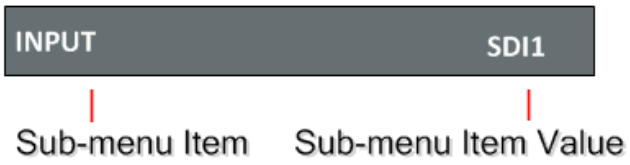


Figure 5.1-2 the Sub-menu Value List

There is a yellow control icon where you select the menu or its value presently.

Tips

- The sub-menu item is selected when the control icon which is in yellow highlight is at the back of the item name.
- The sub-menu item value is editable when the control icon which is in yellow highlight is at the back of the item value.

The control icon of the main menu has the following status when in different positions, as shown in the red rectangle of the following figures:

- when in the main menu, it shows that this menu item is selected, as shown in Figure 5.1-3:

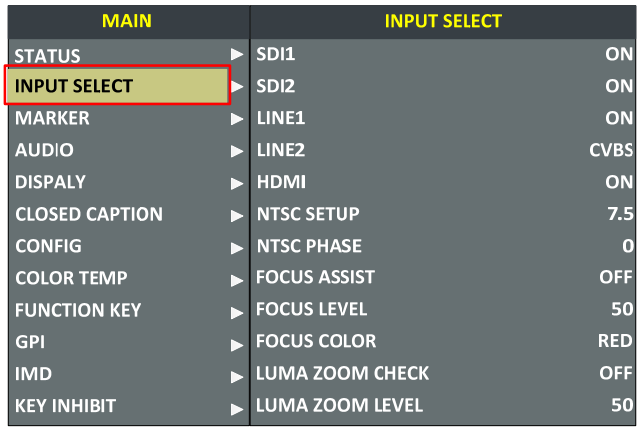


Figure 5.1-3 A Main Menu Item Is Selected

- when in the sub-menu item, it shows that this sub-menu item is selected, and the control icon is displayed as a yellow rectangle in front of it, as shown in Figure 5.1-4:

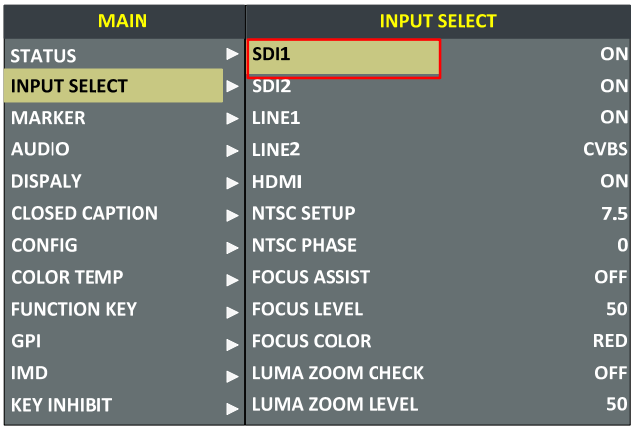


Figure 5.1-4 A Sub-menu Item Is Selected

- when in the sub-menu item value, it shows that this sub-menu item value is selected, and the value is displayed in yellow, as shown in Figure 5.1-5:

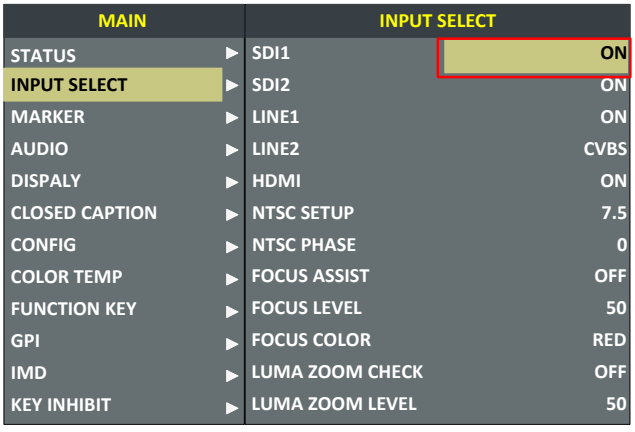


Figure 5.1-5 A Sub-menu Item Value Is Selected

The following will introduce the contents and functionality of these sub-menu items in sorts.

5.1.1 STATUS Menu

The STATUS menu items are used to describe the current status information of the monitor, the menu items are as shown in Figure 5.1-6:

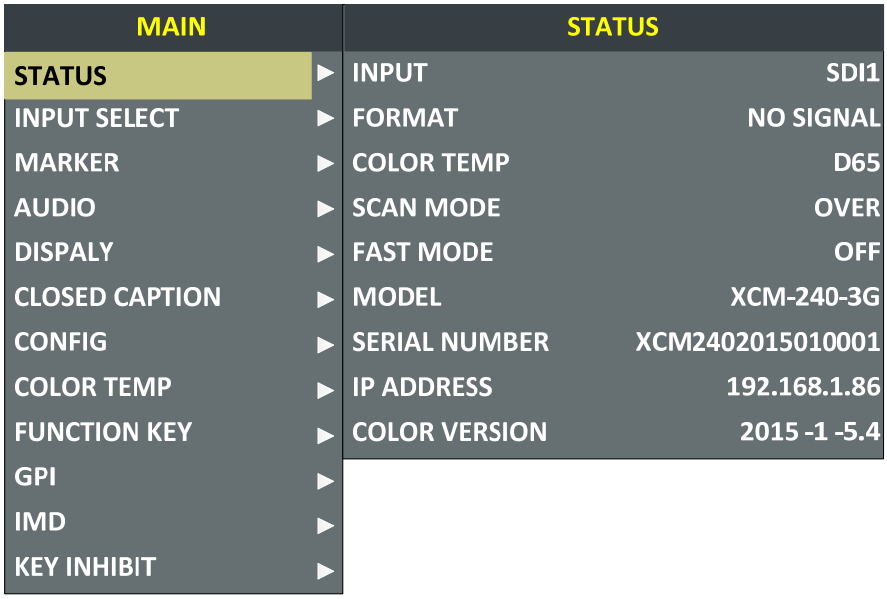


Figure 5.1-6 STATUS Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-1:

Table 5.1-1 The Description of STATUS Menu Items

Items	Default Value	Domain Range	Description
INPUT	SDI1	• SDI1/SDI2 • LINE1(CVBS) • LINE2(CVBS) • LINE2(Y/C) • LINE2(YPBPR) • HDMI	Show the Input format.
FORMAT	NO SGINAL	--	Show the format of the input signal.
COLOR TEMP	D65	--	Show the color temperature.
SCAN MODE	NORMAL	• NORMAL • OVER	Show the scan mode.

Items	Default Value	Domain Range	Description
		• UNDER	
FAST MODE	OFF	OFF/ON	Show the fast mode.
MODEL	XCM-240-3G	--	Show the production model.
SERIAL NUMBER	XCM2402014090001	--	Show the serial number.
IP ADDRESS	192.168.1.86	--	Show the IP address.
COLOR VERSION	2015-1-5.4	--	Show the color version according to its adjusted date.

Tips

- The sub-menu values in **STATUS** menu can't be modified, they are displayed the actual status of the monitor.

5.1.2 INPUT SELECT Menu

The INPUT SELECT menu items are used to set the source of the input signals, the menu items are as shown in Figure 5.1-7:

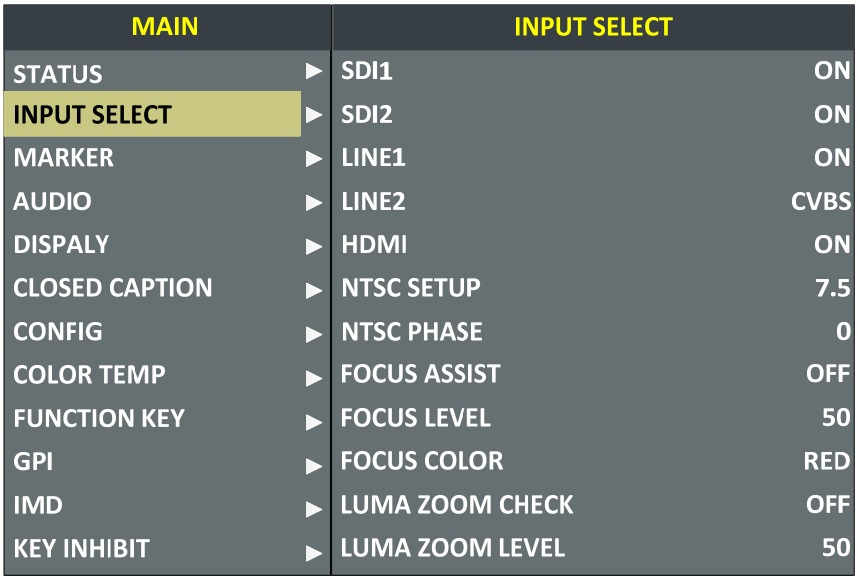


Figure 5.1-7 INPUT SELECT Menu

The relationship of Items, Default Value, Domain Range and Description

of the sub-item is shown in Table 5.1-2:

Table 5.1-2 The Description of INPUT SELECT Menu Items

Items	Default Value	Domain Range	Description
SDI1	ON	ON/OFF	Enable/Disable SDI1 input.
SDI2	ON	ON/OFF	Enable/Disable SDI2 input.
LINE1	ON	ON/OFF	Enable/Disable LINE1 input.
LINE2	ON	• CVBS • LINE2(Y/C) • LINE2(YPBPR) • OFF	Enable/Disable LINE2 input, and select the input source format.
HDMI	ON	ON/OFF	Enable/Disable HDMI input.
NTSC SETUP	7.5	0/7.5	Select the NTSC mode.
NTSC PHASE	0	-50~50	Set the NTSC phase.
FOCUS ASSIST	OFF	• OFF • STANDARD: An image with sharpened edges is displayed. • COLOR: Displays the intensified areas of images with color selected in FOCUS COLOR.	Enable/Disable the focus assist function, and set the focus assist mode.
FOCUS LEVEL	50	0~100	Set the level of edge sharpening.
FOCUS COLOR	RED	RED/GREEN/BLUE	Set the color for the sharpened edge.
LUMA ZOOM CHECK	OFF	ON/OFF	Enable/Disable the luma zoom check function that will compare the signal luminance with the **LUMA ZOOM LEVEL**, and fill the relevant image area whose luminance is higher than the **LUMA ZOOM LEVEL** with a zebra pattern.
LUMA ZOOM LEVEL	50	0~100	Set the level of detecting luminance.

1. FOCUS ASSIST

The FOCUS ASSIST function is used to display images on the screen with sharpened edges to help camera focus operation. The sharpened edges are the compared area whose luminance is beyond the reference level, and the edges are displayed in the pointed color.

For example, set the **FOCUS COLOR** as RED, and set the **FOCUS LEVEL** as 80, the compared results are as shown Figure 5.1-8:

ORIGINAL IMAGE　　FOCUS ASSIST=STANDARD　　FOCUS ASSIST=COLOR

Figure 5.1-8　Illustration for FOCUS ASSIST Function

2. LUMA ZOOM CHECK

The LUMA ZOOM CHECK function is used to display images on the screen with a zebra pattern to adjust the camera exposure parameter. It will compare the signal luminance with the **LUMA ZOOM LEVEL**, and fill the relevant image area whose luminance is higher than the **LUMA ZOOM LEVEL** with a zebra pattern.

For example, set the **LUMA ZOOM LEVEL** as 80, the compared results are as shown in Figure 5.1-9, the special area is filled with a zebra pattern.

ORIGINAL IMAGE　　LUMA ZOOM CHCEK

Figure 5.1-9　Illustration for LUMA ZOOM CHECK Function

Tips

- Select input source format for LINE2: For the LINE2(CVBS) interface, the LINE2(Y/C) interface and the LINE2(YPSPR) interface share the same group of physical interfaces, select the signal source format for LINE2 according to the line connection mode. When select a signal source format

for LINE2, you can set the menu item **INPUT SELECT→LINE2** as CVBS, LINE2(Y/C) or LINE2(YPBPR), in addition, press **INPUT** button to pop up the source list for LINE2 selection.

5.1.3 MARKER Menu

The MARKER menu items are used to adjust the marker parameters, the menu items are as shown in Figure 5.1-10:

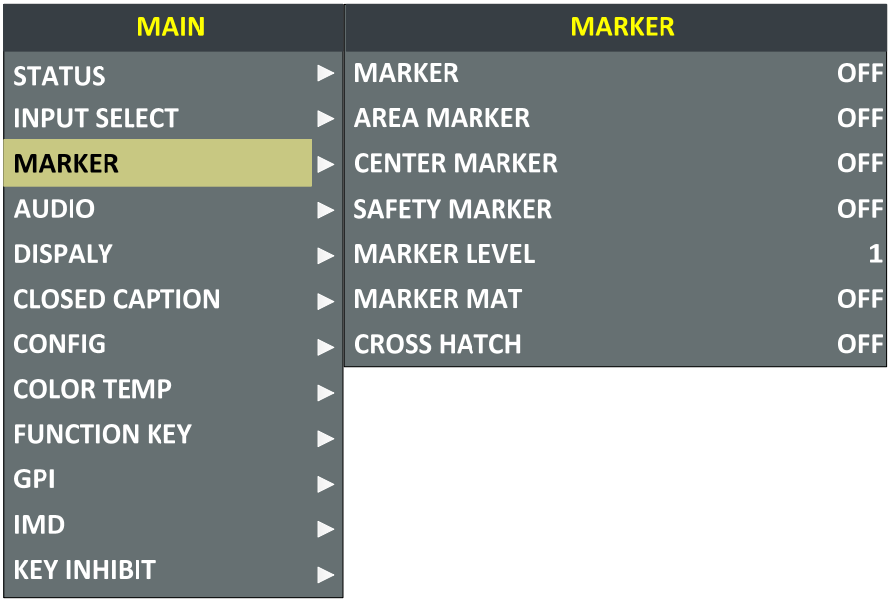


Figure 5.1-10 MARKER Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-3:

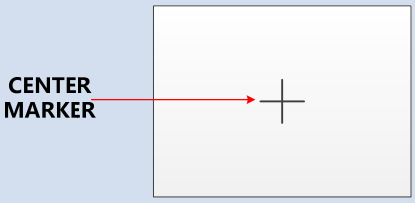
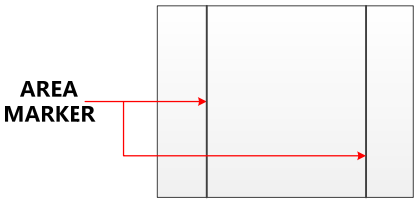
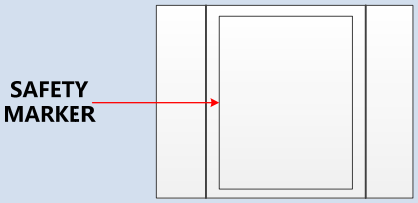
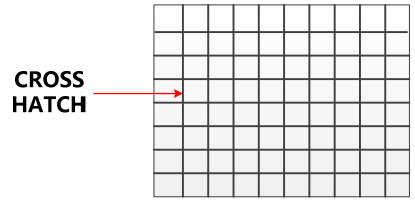
Table 5.1-3 The Description of MARKER Menu Items

Items	Default Value	Domain Range	Description
MARKER	OFF	OFF/ON	Set whether to show all of the markers. It is the main switch for area marker, center marker and safety marker.
AREA MARKER	OFF	when the display aspect is 16:9, images show with	Select the area marker aspect ratio according to

Items	Default Value	Domain Range	Description
		the following scale: • OFF: close area marker • 4:3 • 15:9 • 14:9 • 13:9 • 1.85:1 • 2.35:1 when the display aspect is 4:3, images show with the following scale: • OFF: close area marker • 16:9	the display aspect ratio.
CENTER MARKER	OFF	OFF/ON	Set whether to show the center marker.
SAFETY MARKER	OFF	• OFF • 80% • 85% • 88% • 90% • 93% • 95%	Set the safety area size according to the aspect ratio and scan mode.
MARKER LEVEL	1	• 1: 20% • 2: 50% • 3: 75%	Set the luminance of marker line, including safety marker, center marker, area marker and cross hatch.
MARKER MAT	OFF	• OFF: Normal background, use line for area marker edge only • HALF: 50% Background brightness • BLACK: all black	Set the transparency of area marker mat which is on the outside of the marker display.
CROSS HATCH	OFF	OFF/ON	Set whether to show the cross hatch.

■ Markers

Marker	Illustration	Description

Marker	Illustration	Description
CENTER MARKER		This marker enables easier checking the center portion's focus.
AREA MARKER		This marker displays two lines to identify an area with a specified ratio.
SAFETY MARKER		This marker displays a rectangle to identify the safety area with a specified percentage.
CROSS HATCH		This marker displays multiple vertical and horizontal lines to help when users check the composition of a picture.

■ MARKER MAT

The marker mat marks the outside area of the marker display with the appointed transparency.

For example, set ASPECT as 16:9, AREA MARKER as 4:3, and SAFETY AREA as 95%, then, the comparison of the three MARKER MATs are as shown in Figure 5.1-11:

Figure 5.1-11 MARKER MAT

Tips

- All markers will be hidden in the following modes though the corresponding marker is enabled (the value is not OFF): NATIVE, H/V DELAY, PBP, WIPE

or BLENDING).

- The AREA MARKER, CENTER MARKER and SAFETY MARKER feature are available only when the MARKER item is set to ON.
- The safety marker area will change with the area marker.
- The cross hatch lines will display only in the single image or in PIP mode when **CROSS HATCH** is **ON**.

5.1.4 AUDIO Menu

The AUDIO menu items are used to adjust the audio parameters, the menu items are as shown in Figure 5.1-12:

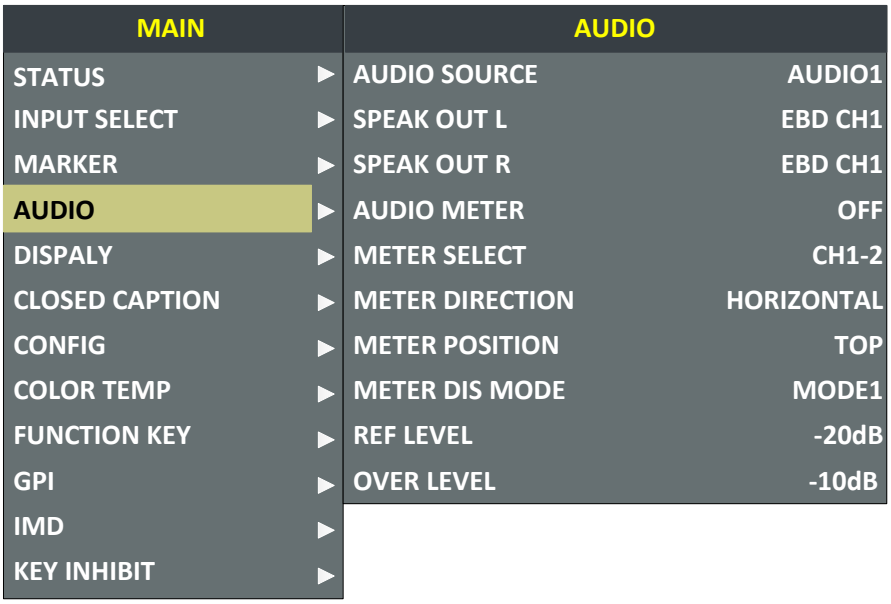


Figure 5.1-12 AUDIO Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-4:

Table 5.1-4 The Description of AUDIO Menu Items

Items	Default Value	Domain Range	Description
AUDIO SOURCE	EDB	• EDB: embedded signal • AUDIO1: external signal1	Select the audio source. When there is no sync in and the input signal is

Items	Default Value	Domain Range	Description
		• AUDIO2: external signal2 • UNDEF: no signal	not HDMI/SDI1/SDI2, you can select only UNDEF, AUDIO1 or AUDIO2.
SPEAK OUT L	EBD CH1	When the audio source is EBD, the range of this item is EDB CH1~ EDB CH16.	Left speaker, select a channel according to the type of audio source.
SPEAK OUT R	EDB CH2	When the audio source is EBD, the range of this item is EDB CH1~ EDB CH16.	Right speaker, select a channel according to the type of audio source.
AUDIO METER	OFF	OFF/ON	Set whether to display the audio meter.
METER SELECT	CH1-2	• CH1-2 • G1 • G2 • G3 • G4 • G1+G2 • G1+G3 • G1+G4 • G2+G3 • G2+G4 • G3+G4 • G1-G4	Select a meter display mode. Each G* contains four channels, and each CH* means a channel with number.
METER DIRECTION	VERTICAL	• VERTICAL • HORIZONTAL	Select the displayed direction of audio meter.
METER POSITION	BOT LEFT/ BOTTOM	When the value of METER DIRECTION is VERTICAL , you can choose the followings for Meter Position: • BOT LEFT: bottom left • BOT RIGHT: bottom right • TOP RIGHT: top right • TOP LEFT: top left When the value of METER DIRECTION is HORIZONTAL, you can choose the followings for Meter Position: • BOTTOM • TOP	Select the displayed position of audio meter.

Items	Default Value	Domain Range	Description
METER DIS MODE	MODE1	• MODE1: simple audio meter • MODE2: audio meter with channel number • MODE3: audio meter with channel number and dB value	Select the displayed mode for audio meter.
REF LEVEL	-20dB	-20dB/-18dB	Select the reference level.
OVER LEVEL	-10dB	• -10dB • -8dB • -6dB • -4dB • -2dB	Select the overload level.

The appearance of Meter is as shown in Figure 5.1-13:

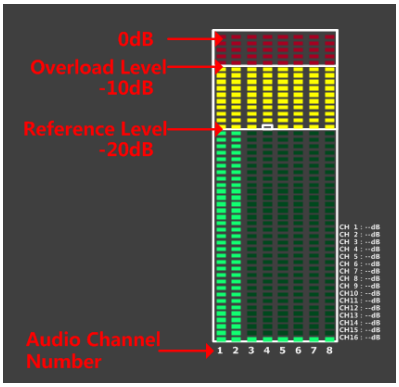


Figure 5.1-13 Audio Meter

- **METER SELECT** and **METER DIS MODE** control the operational characteristics of Audio Metering, the former controls the amount of channels displayed in a meter.

  As shown in Figure 5.1-14, the meter displays at the left of the screen vertically, the **METER SELECT** is **G1+G2**, and the **METER DIS MODE** is **MODE3**, you can see the meter displays audio channel numbers and audio values beside the meter. There is a white rectangle frame with two white level lines in the meter, the upper is the over level line, and the lower is the reference level line. If the audio value is higher than the reference level, the audio bar over the reference level line will display yellow, and if the audio value is higher than the over level, the audio bar over the over level line will display red.

Figure 5.1-14 The Position of the Audio Meter On Screen

- The position of Meter is controlled by **METER DIRECTION** and **METER POSITION**, the position of the meter on the screen is as follows: BOT LEFT VERTICAL, BOT RIGHT VERTICAL, TOP LEFT VERTICAL, TOP RIGHT VERTICAL, BOTTOM HORIZONTAL and TOP HORIZONTAL. For example, the illustrations of some of the positions are as shown in Figure 5.1-15:

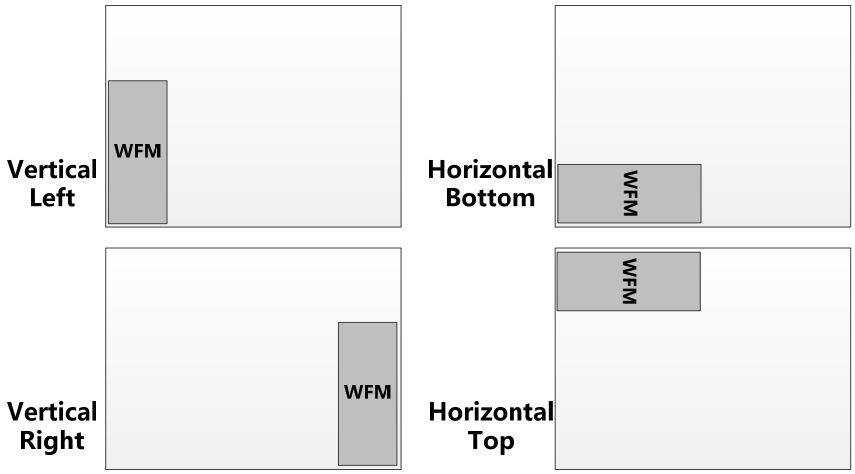


Figure 5.1-15 the Positions of Meter

- Particularly, if the **METER SELECT** is **G1-4**, there will be 16 channels displayed in audio meter, and if the **METER DIRECTION** is **Horizontal**, the audio meter will display two meters separately on both sides of the screen. One displays 8 channels(1~8) on the bottom or top left of the screen, and the other displays 8 channels(9~10) on the bottom or top right of the screen, the bottom or top is decided by **METER POSITION**, as shown in Figure 5.1-16:

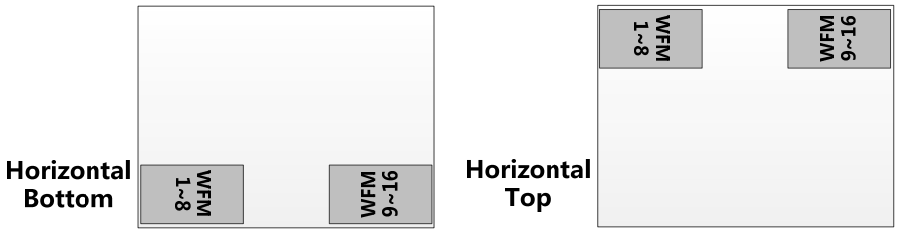


Figure 5.1-16 the Positions of the 16-channels Meter

Tips

- The prerequisite for the available settings of the display mode and the position of audio meter is that the **AUDIO METER** is **ON**.

5.1.5 DISPLAY Menu

The DISPLAY menu items are used to adjust the parameters displayed on the screen, the menu items are as shown in Figure 5.1-17:

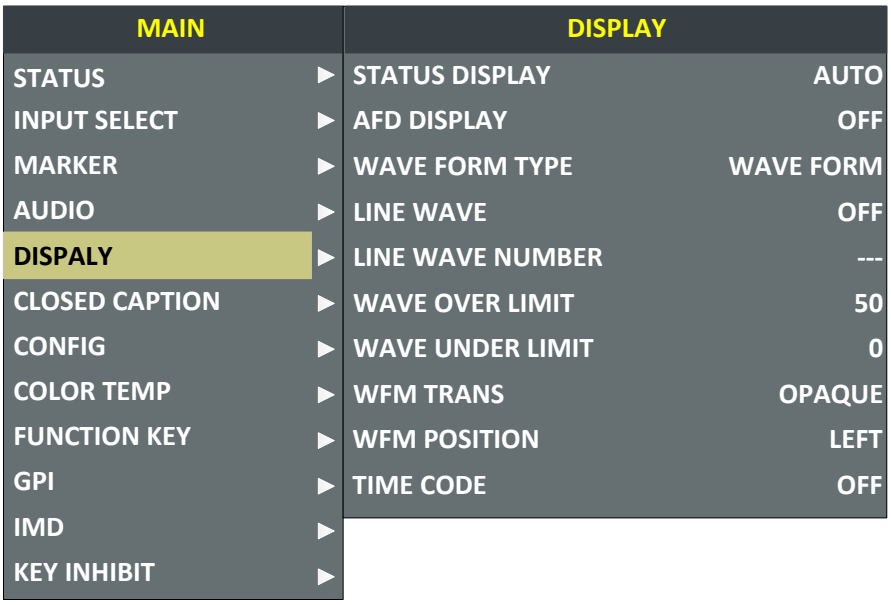


Figure 5.1-17 DISPLAY SETUP Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-5:

Table 5.1-5 The Description of DISPLAY SETUP Menu Items

Items	Default Value	Domain Range	Description
STATUS DISPLAY	AUTO	OFF/AUTO	Set whether to display STD information. If the signal input is not equal to "No signal" and this item is auto, the status information will show 15 seconds when the status changed, and then closed automatically.

Items	Default Value	Domain Range	Description
AFD DISPLAY	OFF	OFF/ON	Set whether to display AFD information. ON is an effective value to AFD DISPLAY item only if the value of STATUS DISPLAY is AUTO or ON.
WFM FORM TYPE	NORMAL	• MODE1 • MODE2 • VECT100 • VECT75 • WAVE FORM • OFF	Switch the display mode among mode1, mode2, vector100, vector75 and wave form.
LINE WAVE	OFF	OFF/ON	Set whether to show line wave, as shown in Figure 5.1-18.
LINE WAVE NUMBER	260	As shown in Table 5.1-6.	Set the position of line WFM.
WFM OVER LIMIT	50	50~100	Set the over limit of WFM.
WFM UNDER LIMIT	0	0~50	Set the under limit of WFM.
WFM TRANS	OPAQUE	• OPAQUE • TRANS1 • TRANS2 • TRANS3	Set the transparency of the WFM.
WFM POSITION	LEFT	• LEFT: LEFT BOT • RIGHT: BOT RIGHT	Select the displayed position for WFM.
TIME CODE	OFF	• OFF • D-VITC • LTC • VITC	Set whether to display TC, and select a mode for TC display.

Thereinto, the value of LINE WFM is different according to the type of input signal, as shown in Table 5.1-6.

Table 5.1-6 The Description for LINE WFM Item

Input Signal	Default	Domain Range
576i50	310	23~623
480i60	261	22~524

Input Signal	Default	Domain Range
720p	386	26~745
1080i50	560	21~1123
1080i60/59.94		
1080sf23/23.97		
1035i60	557	41~1120
1080p	561	42~1121

The comparison of a normal WFM/Vector and a Line WFM is as shown in Figure 5.1-18:

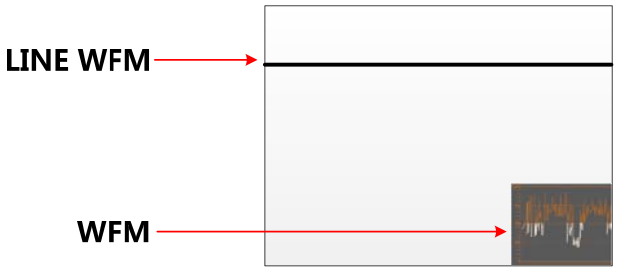


Figure 5.1-18 The LINE WFM and the WFM

Tips

- You can call out the vectorscope or wave form and configure its display mode through **DISPLAY→WAVE FORM TYPE**, and configure its display position through **DISPLAY →WFM POSITION**.
- Please refer to the international standard SMPTE2016-1-2007 for the details about AFD display.

5.1.6 CLOSED CAPTION Menu

The CLOSED CAPTION menu items are used to set whether to display caption on screen and set the display mode, the menu items are as shown in Figure 5.1-19:

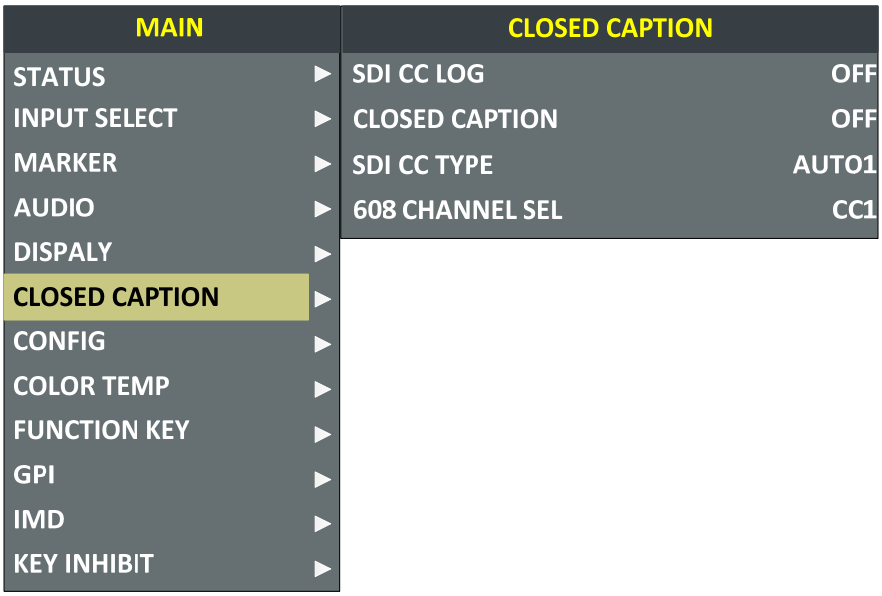


Figure 5.1-19 CLOSED CAPTION Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-7:

Table 5.1-7 The Description of CLOSED CAPTION Menu Items

Items	Default Value	Domain Range	Description
SDI CC LOG	OFF	OFF/ON	Set whether to display CC information.
CLOSED CAPTION	OFF	OFF/ON	Set whether to display caption information.
SDI CC TYPE	AUTO1	• AUTO1: Select to set to 608(VBI) when the SD-SDI signal is input or 608(708) when the HD-SDI signal is input. • AUTO2: Select to set to 608(ANC) when the SD-SDI signal is input or 608(708) when the HD-SDI signal is input. • 608(708): Select to display the closed caption signal transmitted by EIA/CEA-708 standards. • 608(ANC): Select to display the closed caption signal transmitted by EIA/CEA-608 or	Set the closed caption type.

Items	Default Value	Domain Range	Description
		EIA/CEA-708standards. • 608(VBI): Select to display the closed caption signal of the EIA/CEA-608 standards • transmitted by using the line 21.	
608 CHANNEL SEL	CC1	CC1/CC2/CC3/CC4/TEXT1/ TEXT2/TEXT3/TEXT4	Set the display mode for closed caption for 608(708), 608(ANC) and 608(VBI).

5.1.7 CONFIG Menu

The CONFIG menu items are used to adjust the parameters defined by customers, the menu items are as shown in Figure 5.1-20:

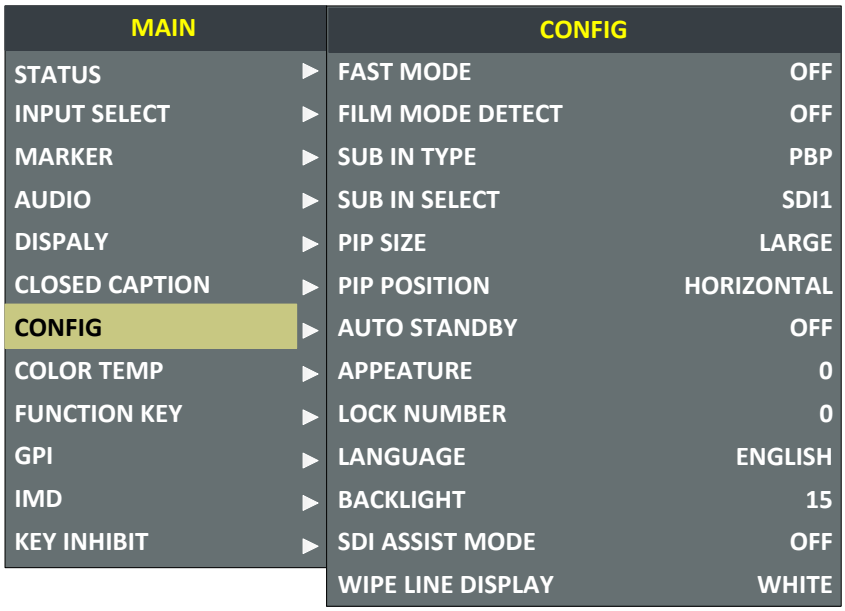


Figure 5.1-20 CONFIG Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-8:

Table 5.1-8 The Description of CONFIG Menu Items

Items	Default Value	Domain Range	Description
FAST MODE	OFF	OFF/ON	Set whether to display in fast mode.

Items	Default Value	Domain Range	Description
FILM MODE DETECT	OFF	OFF/ON	Set whether to detect film mode.
SUB IN TYPE	PBP	OFF/PBP/PIP /WIPE/BLENDING	Set the display mode of the multiple images on screen.
SUB IN SELECT	SDI1	• SDI1 • SDI2 • LINE1(CVBS) • LINE2(CVBS) • LINE2(Y/C) • LINE2(YPBPR) • HDMI	Set the source of slave picture, refer to Table 5.1-10 for the details.
PIP SIZE	LARGE	SMALL/LARGE	Set the size of PIP.
PIP POSITION	BOT LEFT	• BOT LEFT: bottom left • BOT RIGHT: bottom right • TOP RIGHT • TOP LEFT	Set the position of PIP.
BACK LIGHT	15	0~30	Adjust the back light.
AUTO STANDBY	OFF	OFF/ON	Set whether to enable the auto standby mode.
APPERTURE	0	0~24	Set the picture sharpness.
LOCK NUMBER	XXXXXXXX	--	Set the lock number.
LANGUAGE	ENGLISH	ENGLISH/CHINESE/ DEUTSCH	Select a language mode.
BACK LIGHT	15	0~30	Adjust the back light
SDI ASSIST MODE	OFF	• OFF: to display normally. • INTERLACE MODE: to insert the black line within the interlace signal. • H FLIP: to reverse the picture horizontally.	Enable/disable to display in the interlace mode or the flip mode.
WIPE LINE DISPLAY	OFF	OFF/WHITE/RED/GREEN /BLUE/YELLOW/CYAN /MEGENTA/BLACK/	Set whether to display the wipe line, and select a color for it.

1. Display Multiple Images

This monitor allows simultaneous display of two input signals on the monitor's screen. This function is convenient for making instant adjustments between two input signals in just one monitor, and it helps with color adjustment, setting of camera frames, special effects creation and computer graphics (CG) work etc.

It will introduce the display mode, settings and signal source selection for the multiple images on screen as follows.

(1) Display Mode

This device provides four modes for picture & picture display: PIP, PBP, WIPE, BLENDING, and the relevant relationship of the two pictures are as shown in Figure 5.1-21:

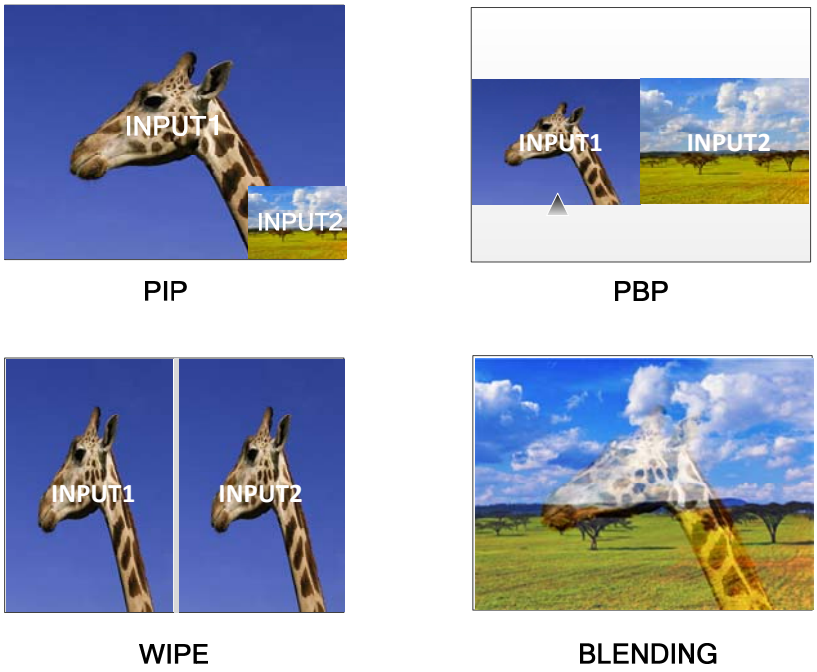


Figure 5.1-21 Multiple Inputs

■ **PIP** (Picture in Picture)

The two pictures generated by two input signals separately are displayed one in another. One is displayed on full screen, called as the main picture, and the other is displayed in an inset window, called as the slave picture. In PIP mode, the relevant position relationship of the main picture and the slave picture is as shown in Figure 5.1-22 :

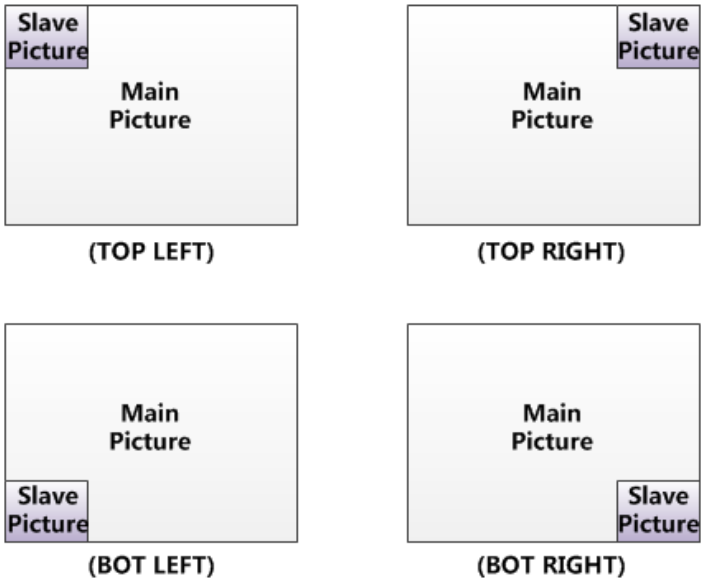


Figure 5.1-22 The Position Relationship in PIP Mode

And you can adjust the display size by the **PIP SIZE** item, and there are two kinds of outlines for the slave picture, as shown in Figure 5.1-23:

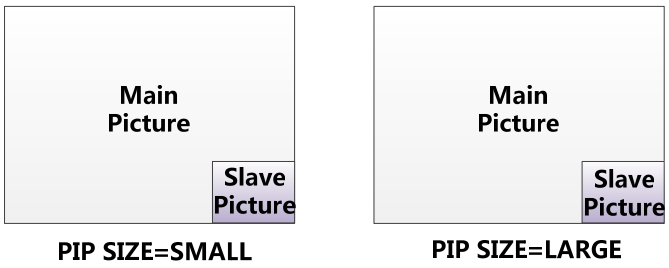


Figure 5.1-23 The Size for the Slave Picture

In PIP mode, it displays the WFM or Audio Meter only for the signal of the main picture.

- **PBP**(Picture by Picture)

The two pictures generated by two input signals separately are displayed side by side, and this function helps with white balance adjustment, and determining shooting angles between two cameras etc. In PBP mode, the size of the main picture is as large as the slave picture's, and the position relationship of the main picture and the slave picture is as shown Figure 5.1-24:

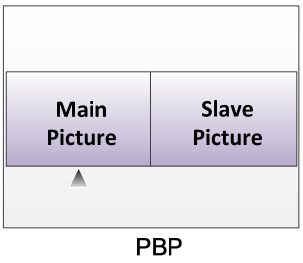


Figure 5.1-24 PBP Mode

In PBP mode, it displays the WFM or Audio Meter only for the signal of the current picture.
The current picture is labeled by a triangle, as shown in Figure 5.1-24, at the bottom center of the picture. You can select the current picture by the **WIN SELECT** command assigned to a function key.
When the main picture is set as the current picture, and the WFM is set as displayed, the WFM could only be displayed at the left bottom of the screen, as shown in ***Figure 5.1-25***, and meantime, the Audio Meter will be display only at the top position (Top left or Top right) at the screen in case of collision.

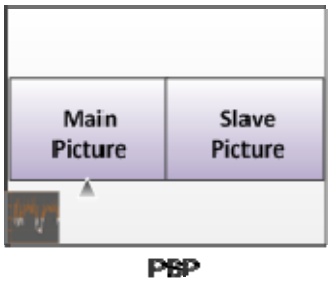


Figure 5.1-25 Position Relationship of WFM and the Current Picture

When the slave picture is set as the current picture, and the WFM is set as displayed, the WFM could only be displayed at the right bottom of the screen, as shown in Figure 5.1-26, and meantime, the Audio Meter will be display only at the top position (Top left or Top right) at the screen in case of collision.

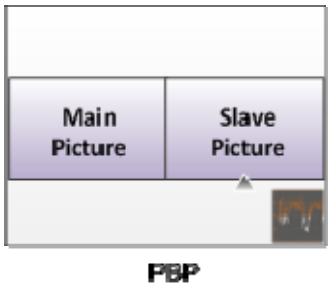


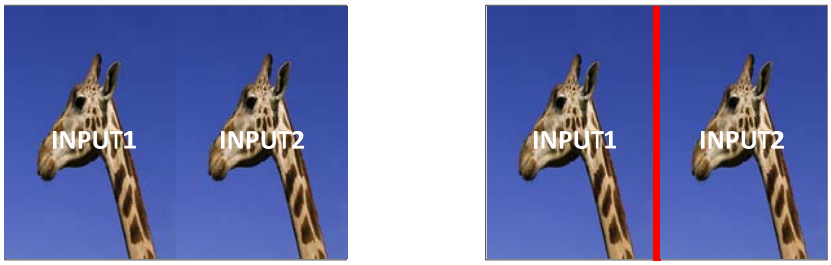
Figure 5.1-26 Position Relationship of WFM and the Current Picture

■ **WIPE**

The area of the two pictures to be displayed is selected using a vertical WIPE pattern. This function is convenient when picture detail of the two images must be examined on a pixel basis, and it is normally used to review still images.

☐ Set the ratio of the two pictures: In WIPE mode, use **UP** or **DOWN** key to adjust the compared ratio of the two pictures on screen. The range is from -64 to 64.

☐ Set the color of wipe line: In WIPE mode, select the menu item **Config →WIPE LINE DISPLAY** for the color and the appearance of wipe line, as shown in Figure 5.1-27:



WIPE LINE DISPLAY=OFF　　WIPE LINE DISPLAY=RED

Figure 5.1-27　Wipe Line Display Mode

■ **BLENDING**

The two pictures are overlapped for display in blending mode, and the mix ratio is adjustable. This function is useful to verify whether a foreground signal is accurately keyed into the background signal, or when combining shoots with live action and computer-generated effects.
In BLENDING mode, use **UP** or **DOWN** key to adjust the mix ratio of the two pictures on screen.

Tips

- Make sure the two input signals compared in WIPE mode or BLENDING mode must be full synchronization.
- Set a mode for picture & picture display in the menu item **CONFIG →SUB IN TYPE DISPLAY**.

(2) Set Display Mode

The selection for picture & picture display mode contains the following items: OFF, PBP, PIP, WIPE and BLENDING, you can switch the selection as instructed below:

■ Method 1: By menu item.

Select the menu item **Config →SUB IN TYPE**, use **ENTER**, **UP** or **DOWN** key to select a display mode.

■ Method 2: By function key.

Set **PBP** function to one function key (F1~F5). Select the menu item **FUNCTION KEY →F1** for example, and assign its sub-item value as PBP, as shown in Figure 5.1-28:

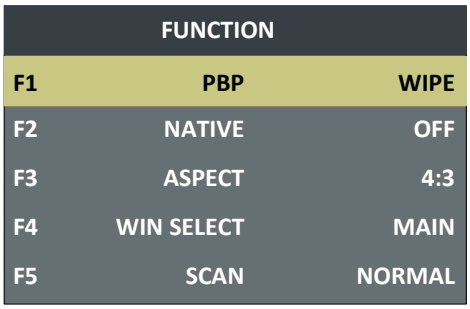


Figure 5.1-28 Set the Function Key as PBP

(3) Scope for the signal source of the slave picture

The selection scope of the signal source for the slave picture will be changing with the main picture's source, as shown in Table 5.1-10:

Table 5.1-9 The Relationship of the Signal Source for Slave Picture and Main Picture

Signal Source for Main Picture \ Signal Source for Slave Picture	SDI1	SDI2	LINE1 (CVBS)	LINE2 (CVBS)	LINE2 (Y/C)	LINE2 (YPSPR)	HDMI
SDI1	×	✓	✓	✓	✓	✓	✓
SDI2	✓	×	✓	✓	✓	✓	✓
LINE1(CVBS)	✓	✓	×	×	✓	✓	✓
LINE2(CVBS)	✓	✓	×	×	✓	✓	✓
LINE2(Y/C)	✓	✓	×	×	✓	✓	✓
LINE2(YPBPR)	✓	✓	✓	✓	✓	✓	✓
HDMI	✓	✓	✓	✓	×	×	×

The input signal information of the main picture displays at the top left corner of the screen, and the one of the slave picture displays at the top right corner of the screen.

- Set the signal source for the main picture: press **INPUT** key on the front panel to display the SOURCE list, select an input signal source as the main source.
- Set the signal source for the slave picture: press **MENU** key on the front panel to display the OSD menu list, and select the menu item **CONFIG →SUB IN SELECT** to set an input signal source as the slave source.

Tips

- Select input source format for LINE2: For the LINE2(CVBS) interface, the LINE2(Y/C) interface and the LINE2(YPSPR) interface share the same group of physical interfaces, select the signal source format for LINE2 according to the line connection mode. When select a signal source format for LINE2, you can set the menu item **INPUT SELECT→LINE2** as CVBS, LINE2(Y/C) or LINE2(YPBPR), in addition, press INPUT button to pop up the source list for LINE2 selection.

2. Set SDI ASSIST MODE

- Interlace Mode

Interlace Display mode offers faithful reproduction of the input signal, the picture is displayed in interlace mode by inserting the black line without I/P conversion processing. The picture near the original quality of the input signal is monitored.

Select the menu item **CONFIG →SDI ASSIST MODEN** to be set to **ITERLACE MODE,** thus to display these inputs as a true interlace display.

The display result in the **INTERLACE MODE** is as shown in Figure 5.1-29:

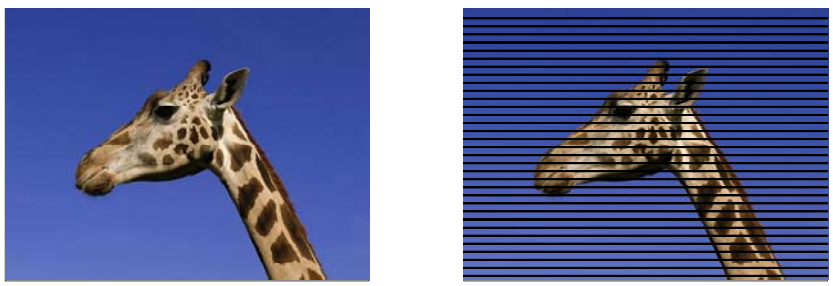


Figure 5.1-29 Interlace Mode

Tips

- The **INTERLACE MODE** function is not available in PIP, PBP, WIPE, FLIP, or BLENDING mode.
- The **INTERLACE MODE** function is available for SDI inputs.

■ FLIP Mode

The input signal has been inverted horizontally by a mirror type in FLIP Display mode.

Select the menu item **CONFIG →SDI ASSIST MODEN** to be set to **H FLIP,** thus to inverse these inputs horizontally.

The display result in the **Horizontal FLIP MODE** is as shown in Figure 5.1-30:

Figure 5.1-30 Horizontal Flip Mode

Tips

- The **H FLIP MODE** function is not available in WIPE, INTERLACE, or BLENDING mode.
- The Wave Form of the input signal in **H FLIP** mode will not be inversed horizontally.

3. Auto Standby

The Auto Standby function is used to set the status of the monitor when the Power button is turned on or off.

■ **ON**: **AUTO STANDBY** is set to **ON** to enable the auto standby mode. Thus, the auto standby will be activated when detecting no signal input or signal disappeared, and there will be a prompt during the process, as shown in Figure 5.1-31:

Figure 5.1-31 Entering the Auto Standby Mode

When detecting no signal input or signal disappeared, the power indicator will be lit in flash green for 10 seconds, and showing the standby prompt, after that, the monitor screen will be turned off, and it will be in auto standby mode, the POWER indicator is lit in green. Then, if the signal input is correct, the monitor screen will be lit up automatically.

- **OFF**: **AUTO STANDBY** is set to **OFF** to disable the auto standby mode. It will prompt a power off confirmation window when turning off the monitor by press the **POWER** button.

Press **POWER** button when the monitor is in operation mode, it will power off the monitor, otherwise, press **POWER** button when the monitor is off, thus it will power on the monitor, and the **POWER** indicator is lit in green.

Tips

- The length of LOCK NUMBER is up to 8 characters, you can use the combination of these characters: number (0 to 9) and letter (A to Z). Press **ENTER** to edit the LOCK NUMBER, than use **UP** or **DOWN** to select characters, than press **ENTER** to go to next character, press **MENU** to exit editor.

5.1.8 COLOR TEMP Menu

The COLOR TEMP menu items are used to adjust GAMMA, the color temperature parameters and the color balance, etc. The menu items are as shown in Figure 5.1-32:

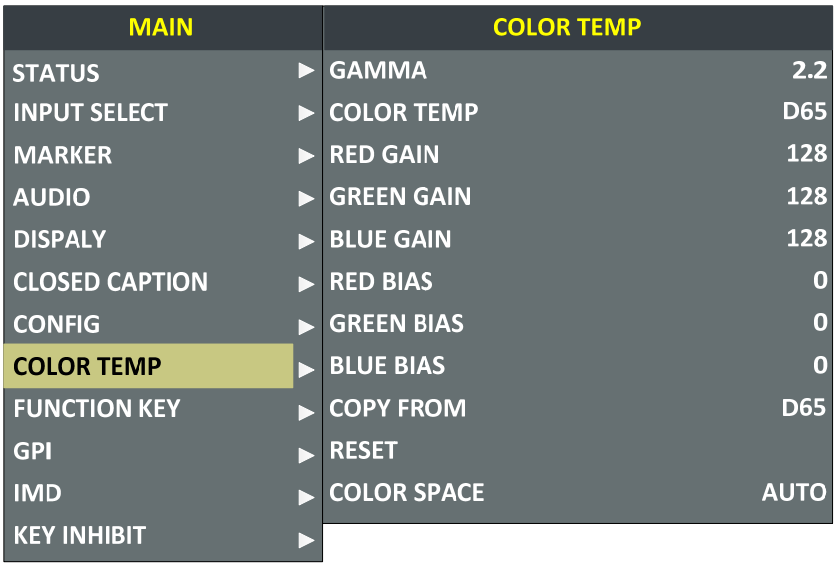


Figure 5.1-32 COLOR TEMP Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-10:

Table 5.1-10 The Description of COLOR TEMP Menu Items

Items	Default Value	Domain Range	Description
GAMMA	2.2	• 2.2 • 2.4 • D-CINE	Set GAMMA.
COLOR TEMP	D65	• USER1: Customized by user • USER2: Customized by user • D55: 5500K • D61: 6100K • D65: 6500K • D93: 9300K • D-CINE	Set color temperature
RED GAIN	128	0~256	Adjust the Red Gain
GREEN GAIN	128	0~256	Adjust the Green Gain
BLUE GAIN	128	0~256	Adjust the Blue Gain
RED BIAS	0	-127~127	Adjust the Red Offset
GREEN BIAS	0	-127~127	Adjust the Green Offset
BLUE BIAS	0	-127~127	Adjust the Blue Offset

Items	Default Value	Domain Range	Description
COPY FROM	D65	• D55: 5500K • D61: 6100K • D65: 6500K • D93: 9300K	Copy this parameter value to USER
RESET	--	--	Reset the Gain and Offset values to the product originals
COLOR SPACE	EBU	AUTO/EBU/SMPTE-C/ ITU-709/D-CINE/USER	Select the color matrix

Hereinto, the available range for various color space and color temperature is different from the value of GAMMA, the details are as shown in Table 5.1-11:

Table 5.1-11 The Relationship of COLOR TEMP and GAMMA and COLOR SPACE

GAMMA	COLOR SPACE						COLOR TEMPERATURE
	AUTO	EBU	SMPTE-C	ITU-709	D-CINE	USER	
2.2	✓	✓	✓	✓		✓	USER1/USER2/D55/D61/D65/D93
2.4	✓	✓	✓	✓		✓	USER1/USER2/D55/D61/D65/D93
2.6(D-CINE)					✓	✓	USER1/USER2/D-CINE

Tips

- The items about RED/GREEN/BLUE GAIN and BIAS are available only in USER1 and USER2 mode. If the COLOR TEMP is set to **USER1** or **USER2** with customized settings, you can select the menu item **COLOR TEMP** →**RESET** command to restore product originals for Gains and Offsets, and press **ENTER** button to confirm the reset operation.
- The default luminance is 48cd/m2 if GAMMA is set as D-CINE, and the default luminance is 100cd/m2 if GAMMA is set as 2.2 or 2.4.

5.1.9 FUNCTION KEY Menu

The FUNCTION KEY menu items are used to assign function to the function key (F1~F5) on the front panel, and adjust the value of the

function parameter. The menu items of FUNCTION KEY are as shown in Figure 5.1-33:

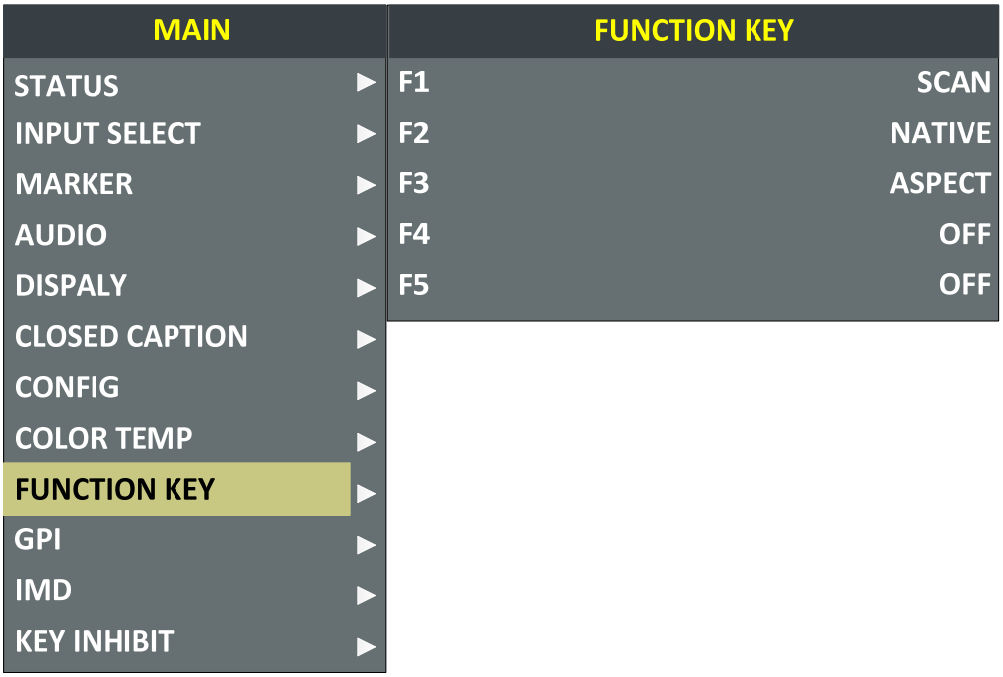


Figure 5.1-33 FUNCTION KEY Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-12:

Table 5.1-12 The Description of FUNCTION KEY Menu Items

Items	Default Value	Domain Range	Description
F1	SCAN	SCAN, NATIVE, ASPECT, BLUE ONLY, MONO, MARKER, H/V DELAY, AUDIO METER, FAST MODE, TC, IMD, MUTE, PBP, CC, FREEZE, WIN SELECT, FOCUS ASSIST, LUMA ZOOM CHECK, UNDEF	Set a function to F1 button
F2	NATIVE	the same as F1	Set a function to F2 button
F3	ASPECT	the same as F1	Set a function to F3 button
F4	UNDEF	the same as F1	Set a function to F4 button
F5	UNDEF	the same as F1	Set a function to F5 button

1. SCAN

This product supports the following scan modes:

NORMAL→ OVER→ UNDER

Set the function button as [SCAN], press the button continuously to activate various scan modes.

- ☐ OVER: Zooms in/out of the image to 96% of its original size without changing the aspect ratio.
- ☐ NORMAL: Zooms in/out of the image without changing the aspect ratio.
- ☐ UNDER: Zooms in/out of the image without changing the aspect ratio. Also, displays the data at the top of the horizontal blanking block.

2. ASPECT

Set the aspect ratio of the screen, it is different from the formats of the input signals, and the details are as shown in Table 5.1-13:

Table 5.1-13 The Relationship of Input Signal Formats and Its Aspects

Input Signal	Default	Value Range	Input Signal Formats	
SD	4:3	• 4:3 • 16:9	PAL NTSC 480I60/59.94	576I50 480P60/59.94 576P50
HD	16:9	• 16:9 • 2.39:1	720P24/23.97 720P25 720P30/29.97 720P50 720P60/59.94 1080SF24/23.97 1035I60/59.94	1080I50 1080I60/59.94 1080P24/23.97 1080P25 1080P30/29.97 1080P50 1080P60/59.94
2K	1.896:1	• 1.896:1 • 2.39:1	2048X1080PSF24/23.97 2048X1080PSF25 2048X1080PSF30/29.97 2048X1080P24/23.97 2048X1080P25	2048X1080P30/29.97 2048X1080P48/47.94 2048X1080P50 2048X1080P60/59.94

3. FREEZE

Active this function to freeze the current frame displayed, press the function button again to release the freeze and continue to display.

4. BLUE ONLY

It is to activate BLUE ONLY mode that will remove red and green from the input signal and display the screen only under a blue signal.

5. MONO

It is to activate MONO mode that will display the screen in monochrome presentation, inactivate this mode to display the screen in color mode.

6. Value for function keys

The indicator of the function key will light in white when press it down, and it will light in green when the value of the function key is assigned as the special value, the values of the function keys and their special values are listed as shown in Table 5.1-14:

Table 5.1-14 The Value Range and the Special Value for FUNCTION Keys

Value Items	Special Value	Value Range	Description
SCAN	• OVER SCAN • UNDER SCAN	• OVER SCAN • NORMAL • UNDER SCAN	Set the scan mode
NATIVE	ON	ON/OFF	Enable or disable the native mode
ASPECT	As shown in Table 5.1-13	As shown in Table 5.1-13	Set the aspect ration
BLUE ONLY	ON	ON/OFF	Enable or disable the blue only mode
MONO	ON	ON/OFF	Enable or disable the mono mode
MARKER	ON	ON/OFF	Enable or disable the display of markers, the function is as the same as the setting of the menu item “MARKER”→” MARKER”
H/V DELAY	• H DELAY • V DELAY • H/V DELAY	• OFF • H DELAY • V DELAY • H/V DELAY	Enable or disable the display of H/V DELAY, and set its display mode
AUDIO METER	ON	ON/OFF	Enable or disable the audio meter
FAST MODE	ON	ON/OFF	Enable or disable the fast mode
TC	• VITC • LTC • D-VITC	• OFF • VITC • LTC	Enable or disable the display of TC, and set its display mode

Value Items	Special Value	Value Range	Description
		• D-VITC	
IMD	ON	ON/OFF	Enable or disable the display of IMD
MUTE	ON	ON/OFF	Enable or disable the mute function
PBP	• PBP • PIP • WIPE • BLENDING	• OFF • PBP • PIP • WIPE • BLENDING	Enable or disable the display of multiple screens, and set its display mode
CC	ON	ON/OFF	Enable or disable the close caption function
FREEZE	ON	ON/OFF	Enable or disable the screen freeze mode
WIN SELECT	SUB	MAIN/SUB	Set the current screen icon in PBP mode
FOCUS ASSIST	ON	ON/OFF	Enable or disable the focus assist function
LUMA ZOOM CHECK	ON	ON/OFF	Enable or disable the luma zoom check function
SDI ASSIST MODE	• INTERLACE MODE • H FLIP	• OFF • INTERLACE MODE • H FLIP	Enable/disable to display in the interlace mode or the flip mode.

Tips

- Press F1~F5 button to activate the assigned function and adjust the parameter value.
- The **SCAN** mode or the ASPECT mode is not selectable when Native mode is set to ON.
- Particularly, when the **PBP** function is assigned to a function key, press this function key to select the display mode for picture & picture display, and if the function value is **WIPE** or **BLENDING**, you can use ∧(**UP)** or ∨ (**DOWN)** key to assist in adjusting the compared ratio for WIPE or the mix ratio for BLENDING.

5.1.10 GPI Menu

The GPI menu items are used to define functions to GPI1~GPI6, the menu items are as shown in Figure 5.1-34:

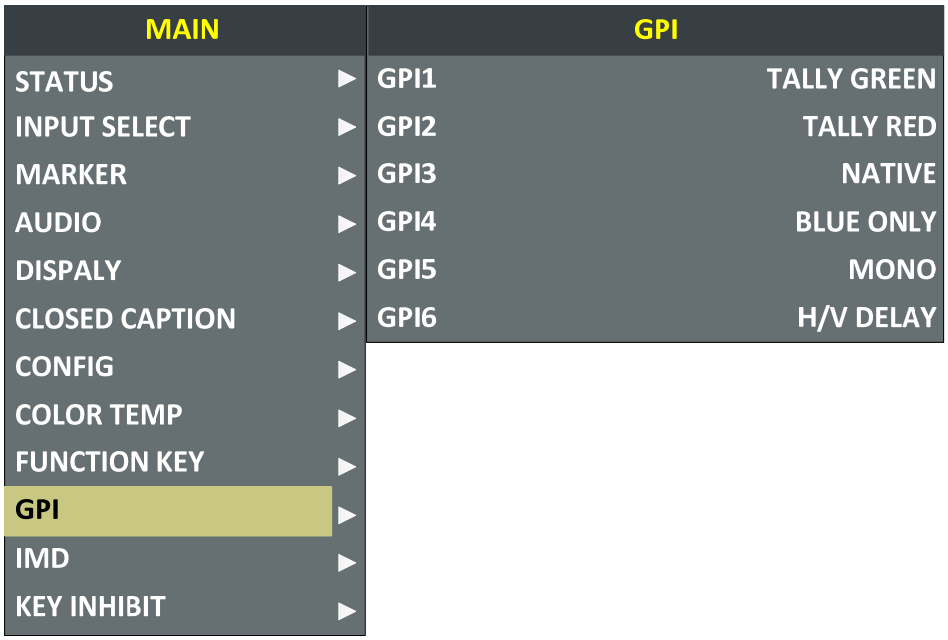


Figure 5.1-34 GPI Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-15:

Table 5.1-15 The Description of GPI Menu Items

Items	Default Value	Domain Range	Description
GPI1	TALLY GREEN	UNDEF, AREA MARKER, CENTER MARKER, SAFETY MARKER, ASPECT, NATIVE, OVER SCAN, UNDER SCAN, BLUE ONLY, MONO, H DELAY, V DELAY, H/V DELAY, SDI1, SDI2, LINE1, LINE2, HDMI, TALLY GREEN, TALLY RED	Set a function to GPI1
GPI2	TALLY RED	the same as GPI1	Set a function to GPI2
GPI3	UNDEF	the same as GPI1	Set a function to GPI3
GPI4	UNDEF	the same as GPI1	Set a function to GPI4
GPI5	UNDEF	the same as GPI1	Set a function to GPI5

Items	Default Value	Domain Range	Description
GPI6	UNDEF	the same as GPI1	Set a function to GPI6

Tips

- Assign functions to GPI1~GPI6, some is level triggered, and some is edge triggered, refer to Table 5.1-16 for the details.
- GPI control: when it changes it would be as a control value of response control. If the level does not change, but there are other control caused by changes in the control value, perform this change. When boot, detect the GPI input status after initialization. If a GPI value is low, the monitor will control the corresponding operation. The TALLY is directly control by the level.

Table 5.1-16 The Description for GPI Items and Their Trigger

Items	Function	Trigger
AREA MARKER	Enable/Disable the display of area marker.	Low: Enabled; High: Disabled
CENTER MARKER	Enable/Disable the display of center marker.	Low: Enabled; High: Disabled
SAFETY MARKER	Enable/Disable the display of safety marker.	Low: Enabled; High: Disabled
ASPECT	Set the aspect ratio.	Low: 16:9; High: 4:3
MONO	Switch between the monochrome and color.	Low: MONO; High: NORMAL
OVER SCAN	Switch scan mode between over and normal.	Low: OVER; High: NORMAL
UNDER SCAN	Switch scan mode between under and normal.	Low: UNDER; High: NORMAL
BLUE ONLY	Switch between blue only and normal.	Low: BLUE ONLY; High: NORMAL
NATIVE	Switch between native and normal.	Low: NATIVE(In center); High: NORMAL
H DELAY	Switch between H delay and normal.	Low: H DELAY; High: NORMAL
V DELAY	Switch between V delay and	Low: V DELAY; High: NORMAL

Items	Function	Trigger
	normal.	
H/V DELAY	Switch between H/V delay and normal.	Low: H/V DELAY; High: NORMAL
SDI1	Switch the input source to SDI1.	Switch at the falling edge, when switching to the other input, exit.
SDI2	Switch the input source to SDI2.	Switch at the falling edge, when switching to the other input, exit.
LINE1	Switch the input source to LINE1.	Switch at the falling edge, when switching to the other input, exit.
LINE2	Switch the input source to LINE2.	Switch at the falling edge, when switching to the other input, exit.
HDMI	Switch the input source to HDMI.	Switch at the falling edge, when switching to the other input, exit.
TALLY GREEN	Light the green tally.	Low: ON; High: OFF
TALLY RED	Light the red tally.	Low: ON; High: OFF

5.1.11 IMD Menu

The IMD menu items are used to adjust the parameters defined for IMD display, the menu items are as shown in Figure 5.1-35:

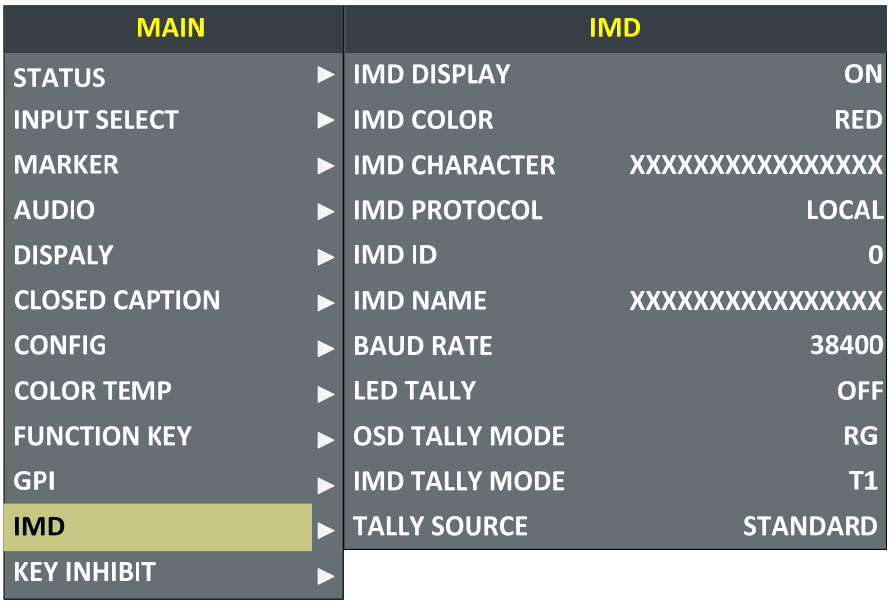


Figure 5.1-35 IMD Menu

The relationship of Items, Default Value, Domain Range and Description

of the sub-item is shown in Table 5.1-17:

Table 5.1-17 The Description of IMD Menu Items

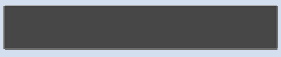
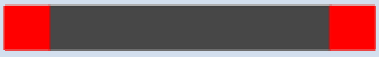
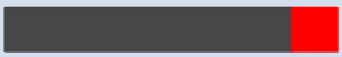
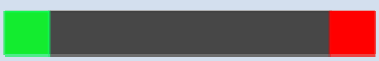
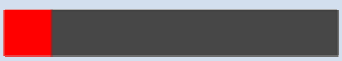
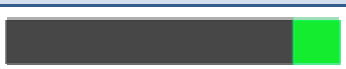
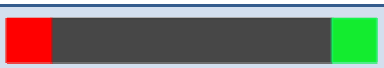
Items	Default Value	Domain Range	Description
IMD DISPLAY	ON	OFF/ON	Set whether to display IMD CHARACTER on screen.
IMD COLOR	RED	RED GREEN YELLOW WHITE	Set the color for IMD CHARACTER.
IMD CHARACTER	XXXXXXXX	--	Set the IMD string displayed on the screen. After entering this item, press Up or Down to choose your character for this IMD string.
IMD PROTOCAL	LOCAL	LOCAL TSL3.1 TSL4.0 TSL5.0 IMAGE VIDEO NETWORK	Select an IMD protocol
IMD ID	0	0~255	Set the ID number for each monitor
IMD NAME	XXXXXXXX		Set an IMD name for each screen.
BAUD RATE	38400	2400/4800/9600/19200 /38400/57600/115200	Select a baud rate for communication.
LED TALLY	ON	OFF/ON	Set whether to switch on tally light.
OSD TALLY MODE	RG	RG: Red/Green GR: Green only RGY: Red/Green/Yellow OFF: No tally light	Select the OSD Tally mode. Only the TALLY SOURCE is STANDARD, the setting is available.
IMD TALLY MODE	T1	T1/T2/T1T2/T2T1/T1-/ T2-/T1T2-/T2T1-	Select the IMD Tally mode. Use this setting when using the Image Video tally control, this item will determine the IMD state as the

Items	Default Value	Domain Range	Description
			selected value.
TALLY SOURCE	STANDARD	STANDARD/IMAGE VIDEO/TSL	Select the source for OSD Tally source

1. OSD TALLY MODE

When setting IMD Menu→TALLY SOURCE item is set to be Standard, and IMD PROTOCAL is set to be Local, the TALLY lights are triggered by the GPI interface. Set GPI1 as TALLY GREEN and GPI2 as TALLY RED in GPI menu, the status of OSD TALLY and LED TALLY when the Tally connector gets the high/low level are listed as shown in ***Table 5.1-18***:

Table 5.1-18 The status of OSD TALLY and LED TALLY When Triggering the Tally Pins

OSD TALLY MODE	Green TALLY	Red TALLY	Illustration	LED TALLY
OFF	0/1	0/1		
RGY	0	0		
	0	1		
	1	0		
	1	1		
GR	0	0		
	0	1		
	1	0		
	1	1		
RG	0	0		
	0	1		
	1	0		
	1	1		

Tips

- If IMD DISPLAY item is ON, the IMD CHARACTER in the black bar will display on the bottom of the screen.
- The length of IMD NAME and IMD CHARACTER is up to 16 characters. The character range is from 0x00 to 0x7F of ASCII. Press **ENTER** to edit the IMD characters, than use **UP** or **DOWN** to select characters, than press **ENTER** to go to next character, press **MENU** to exit editor.
- When the IMD PROTOCAL is set to be **Local**, the IMD CHARACTER can only be modified through the control buttons(∧**(Up)** and ∨**(Down)**), and the IMD CHARACTER could be composed of up to 16 characters. When the IMD PROTOCAL is set to be NETWORK, the IMD CHARACTER should be modified through the IMD page in the network control page, and the IMD CHARACTER could be composed of up to 16 characters or up to 12 Chinese characters. For other values of IMD PROTOCAL, the IMD CHARACTER abides by the corresponding protocol.

The XCM-240 monitor could receive the Tally control signal from a TSL server, and display the Tally information on XCM-240 through the LED tally and OSD tally. We support the TSI3000 and TSL TallyMan Controller as the TSL server, and it will be introduce how to connect with them, and how to set the IMD parameters for various IMD protocol.

5.1.11.1 Device Connection

Follow the instructions below to connect monitor with TSL server.

1. TSI-3000--XCM-240

Connect the TSI-3000 with XCM-240, as shown in ***Figure 5.1-36***:

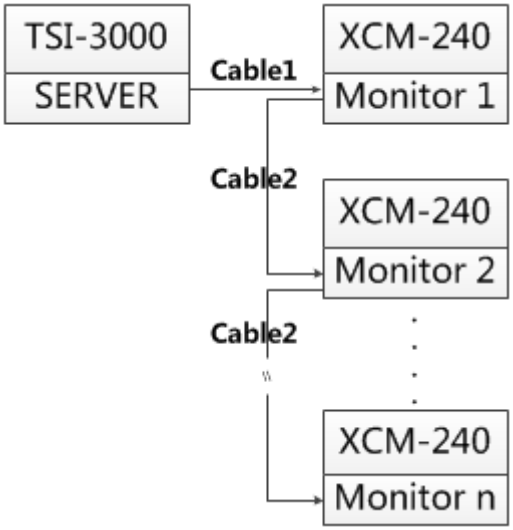


Figure 5.1-36 TSL Server and Display Monitor

We recommend the following two methods according to the different interface of TSI-3000 which is selected to connect with XCM-240.

METHOD1

Use the COM7~COM12 interface of TSI-3000 to connect with XCM-240

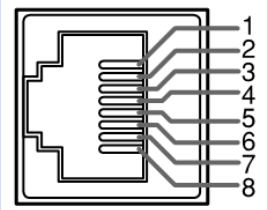
- **Cable1**

Use Cable1 to connect one of the COM7~COM12 interface at the rear panel of TSI-3000 with the RS485 Interface of XCM-240, the functionality of the interfaces are as shown in the following table.

- ☐ **RS485(XCM-240): RJ45**

Use the RS485 interface to connect with TSI-3000, the RS485 uses the RJ45 connector, and the function of RS485 interface of XCM-240 is defined as in ***Table 5.1-19***:

Table 5.1-19 The Pins Input/output connectors for RS485 of XCM-240

PIN No.	RS485 IN Terminal Signal	RS485 OUT Terminal Signal	Illustration
1,2	GND	GND	
3	Tx-	Tx-	
4	Rx+	Rx+	
5	Rx-	Rx-	
6	Tx+	Tx+	

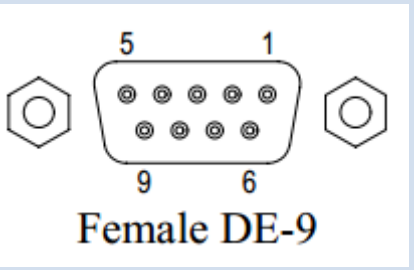
PIN No.	RS485 IN Terminal Signal	RS485 OUT Terminal Signal	Illustration
7,8	NC	NC	

☐ **COM(TSI-3000): DB9**

Use one of the **COM7~COM12** interface at the rear panel of TSI-3000 to connect with XCM-240 monitor, the **COM7~COM12** has the female DB9 connector, and the function of **COM7~COM12** interface of TSI-3000 is defined as in ***Table 5.1-20***:

Table 5.1-20 The Pins of COM* in TSI-3000

PIN No.	DB9	Illustration
1	GND	
2	Rx-(data from external device)	
3	Tx+(data to external device)	
4	GND(Tx Data Common)	
5	NC	
6	GND(Rx Data Common)	
7	Rx+(data from external device)	
8	Tx-(data to external device)	
9	GND	



The connection should obey the rules below to set up the communication between one of **COM7~COM12** and RS485, as shown in ***Table 5.1-21***:

Table 5.1-21 Connection Between COM7~COM12 of TSI-3000 and RS485 of XCM-240

DB9(COM7~COM12)	RJ45(RS485)
2	3
3	4
4	2
6	1
7	6

DB9(COM7~COM12)	RJ45(RS485)
8	5

☐ **Cable1**

The connectors at the two ends of **CABLE1** should be one male RJ45 connector and one Male DB9 connector, as shown in ***Figure 5.1-37***:

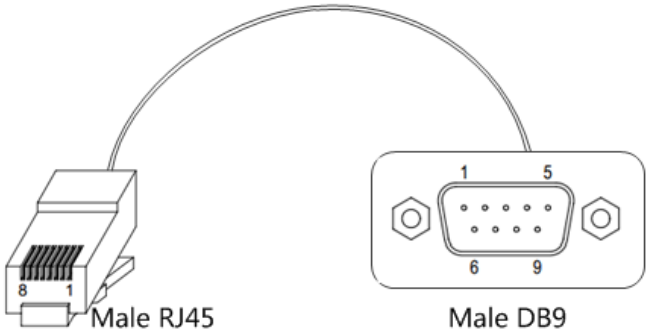


Figure 5.1-37 Cable1

The pin sequence should be defined as in ***Figure 5.1-38***:

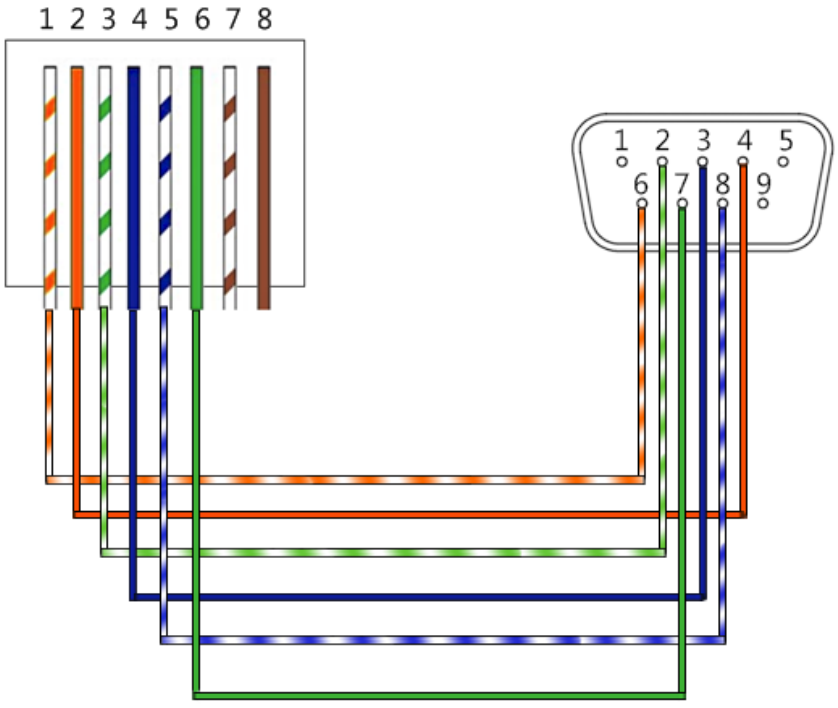


Figure 5.1-38 Pin Sequence of Cable1

METHOD2

Use the COM3~COM6 interface of TSI-3000 to connect with

XCM-240

■ Cable1

Use Cable1 to connect one of the COM3~COM6 interface at the rear panel of TSI-3000 with the RS485 Interface of XCM-240, the functionality of the interfaces are as shown in the following table.

☐ RS485(XCM-240): RJ45

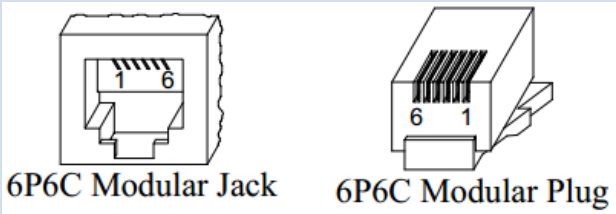
Use the RS485 interface to connect with TSI-3000, the RS485 uses the RJ45 connector, and the function of RS485 interface of XCM-240 is defined as in ***Table 5.1-19***, please refer to the above ***Table 5.1-19*** for the details, no repeat here.

☐ COM(TSI-3000): 6P6C

Use one of the **COM3~COM6** interface at the rear panel of TSI-3000 to connect with XCM-240 monitor, the **COM3~COM6** has the 6P6C connector, and the function of **COM3~COM6** interface of TSI-3000 is defined as in ***Table 5.1-22***:

Table 5.1-22 The Pins of COM* in TSI-3000

PIN No.	6P6C	Illustration
1	Rx-(data from external device)	
2	GND(Data Common)	
3	Tx+(data to external device)	
4	Tx-(data to external device)	
5	Not connected	
6	Rx+(data from external device)	



The connection should obey the rules below to set up the communication between one of **COM3~COM6** and RS485, as shown in ***Table 5.1-23***:

Table 5.1-23 Connection Between COM3~COM6 of TSI-3000 and RS485 of XCM-240

6P6C(COM3~COM6)	RJ45(RS485)
1	3
3	4
2	2
5 (Not connected)	1(Not connected)

6P6C(COM3~COM6)	RJ45(RS485)
6	6
4	5

☐ **Cable1**

The connectors at the two ends of **CABLE1** should be one male RJ45 connector and one Male 6P6C connector, as shown in ***Figure 5.1-39***:

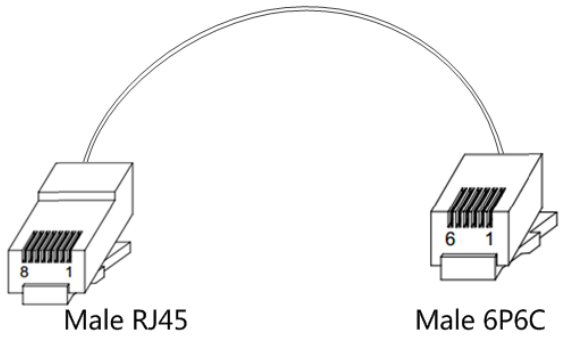


Figure 5.1-39 Cable1

The pin sequence should be defined as in ***Figure 5.1-40***:

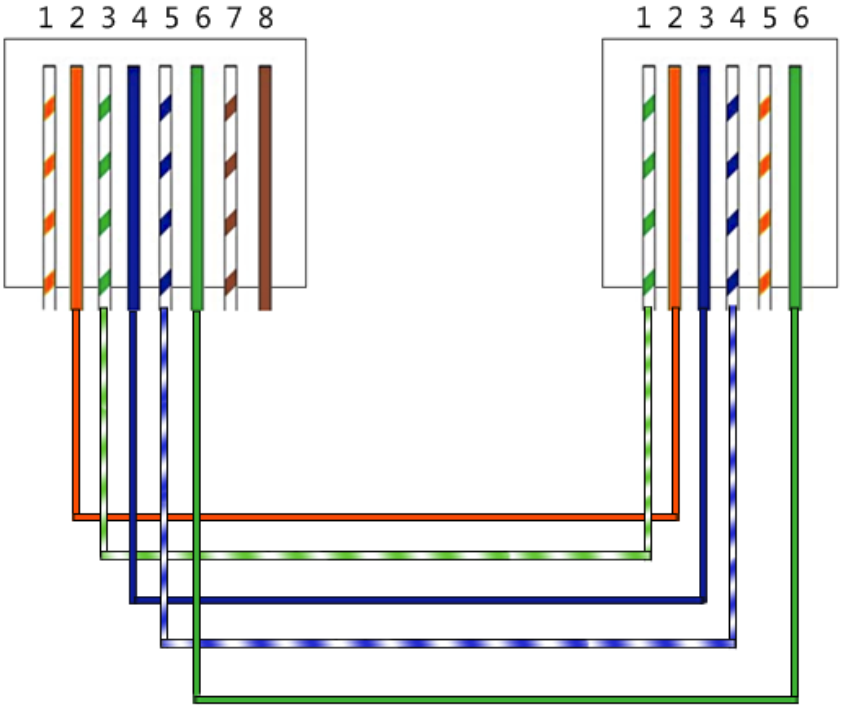


Figure 5.1-40 Pin Sequence of Cable1

2. TallyMan--XCM-240

Connect the TallyMan Controller TM1/TM2/TM2 PLUS with XCM-240, as shown in ***Figure 5.1-41***:

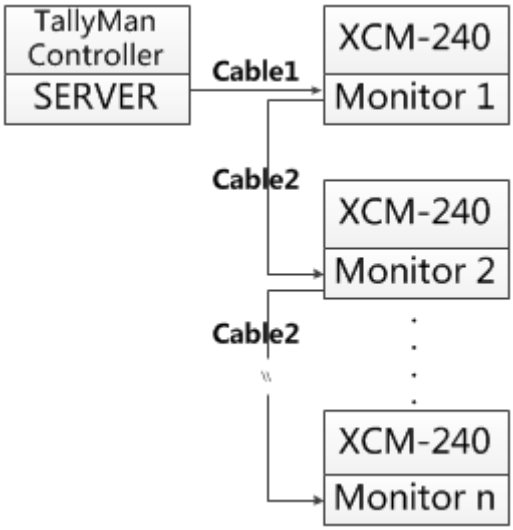


Figure 5.1-41 TSL Server and Display Monitor

■ **Cable1**

Use Cable1 to connect one of the CONTROL1/CONTROL2(RS422) interface at the rear panel of TallyMan Controller with the RS485 Interface of XCM-240, the functionality of the interfaces are as shown in the following table.

☐ **RS485(XCM-240): RJ45**

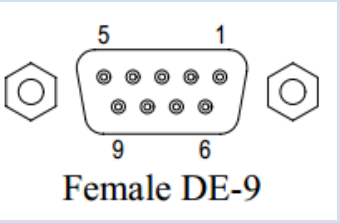
The definition of RS485 interface of XCM-240 is as the same as in TSI-3000-XCM-240 system, please refer to the above ***Table 5.1-19*** for the details, no repeat here.

☐ **RS422(TallyMan Controller): DB9**

Use one of the **CONTROL1/CONTROL2** interface at the rear panel of TallyMan Controller to connect with XCM-240 monitor, the **CONTROL1/CONTROL2** is a **RS422** interface using female DB9 connector, and the pins of DB9 is defined as in ***Table 5.1-24***:

Table 5.1-24 The Pins of CONTROL1/CONTROL2 in TallyMan Controller

PIN No.	DB9	Illustration
1	0v/Chassis	
2	Tx-	
3	Rx+	

PIN No.	DB9	Illustration
4	0v	
5	-	
6	0v	
7	Tx+	
8	Rx-	
9	0v	

The connection should obey the rules below to set up the communication between one of **CONTROL1/CONTROL2** and RS485, as shown in ***Table 5.1-25***:

Table 5.1-25 Connection Between CONTROL1/CONTROL2 of TallyMan Controller and RS485 of XCM-240

DB9(CONTROL1/CONTROL2)	RJ45(RS485)
2	5
3	6
4	2
6	1
7	4
8	3

Tips

- TSL TallyMan Controller TM1, TSL TallyMan Controller TM2, TSL TallyMan Controller TM2 PLUS all comfort to the above definition about the connection and the pins relationship. Refer to the user manuals of these devices for details.

☐ **Cable1**

The connectors at the two ends of **CABLE1** should be one male RJ45 connector and one Male DB9 connector, as shown in ***Figure 5.1-42***:

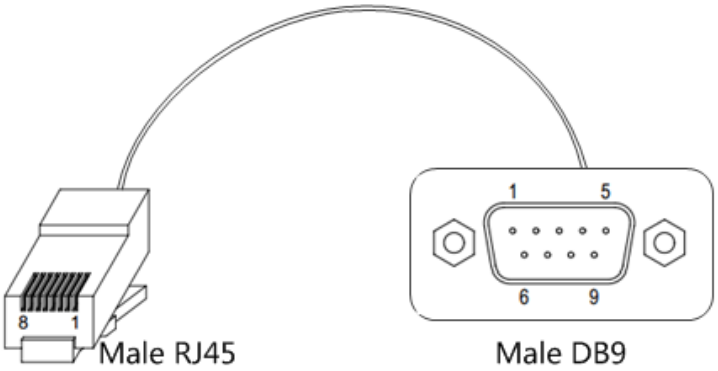


Figure 5.1-42 Cable1

The pin sequence should be defined as in ***Figure 5.1-43***:

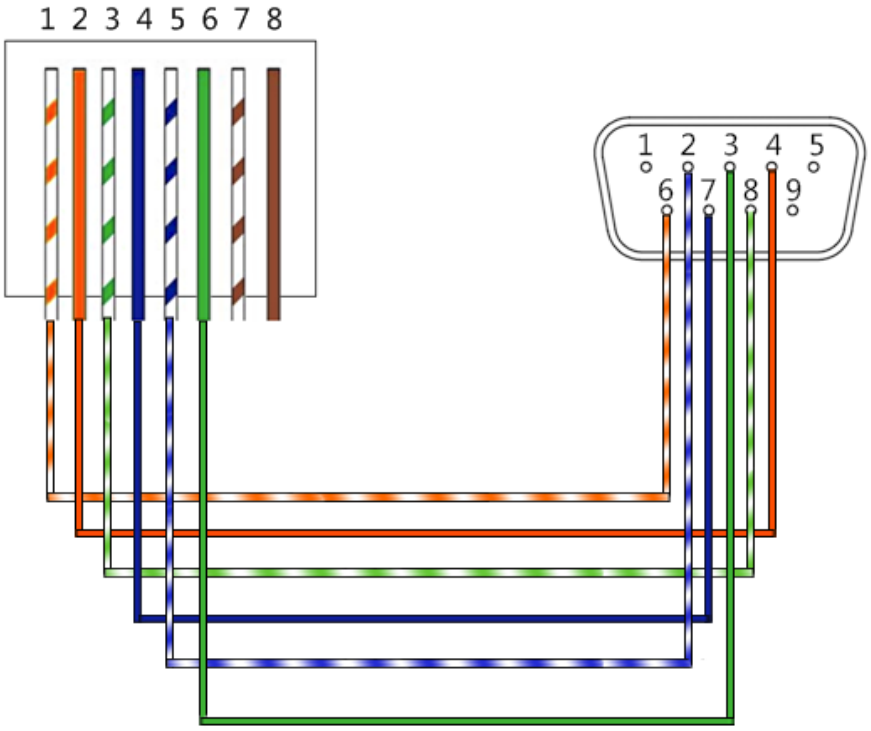


Figure 5.1-43 Pin Sequence of Cable1

- **Cable2**

Use **Cable2** to connect every two XCM-240 monitors through the RS485 Interface, the **Cable2** is a straight through line, and the connectors at the two ends of **Cable2** should both be male RJ45. The pin sequence of **Cable2** should be defined as in ***Figure 5.1-44***:

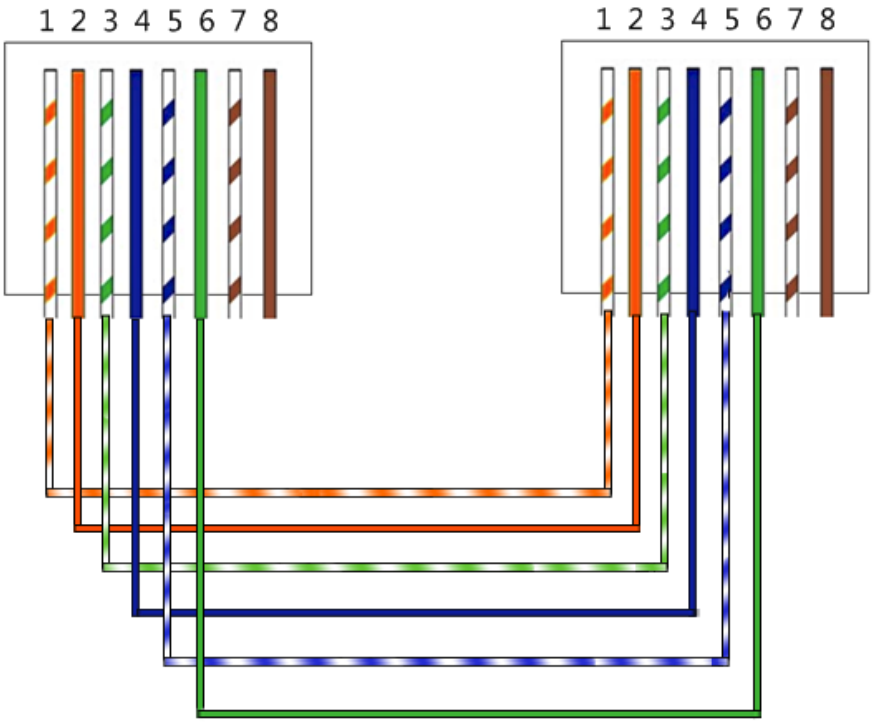


Figure 5.1-44 Pin Sequence of Cable2

5.1.11.2 IMD Settings

The position of Tally display on the XCM-240 monitor is as shown in ***Figure 5.1-45***. The **LED Tally** indicator is displayed at the top center of the monitor, and the two **OSD Tally** lights are displayed at the bottom of the monitor screen, separately at the left and right side of the IMD characters.

The tally lights will be in various color when selecting different values for the **IMD Protocol** item. It will introduce one by one in the below.

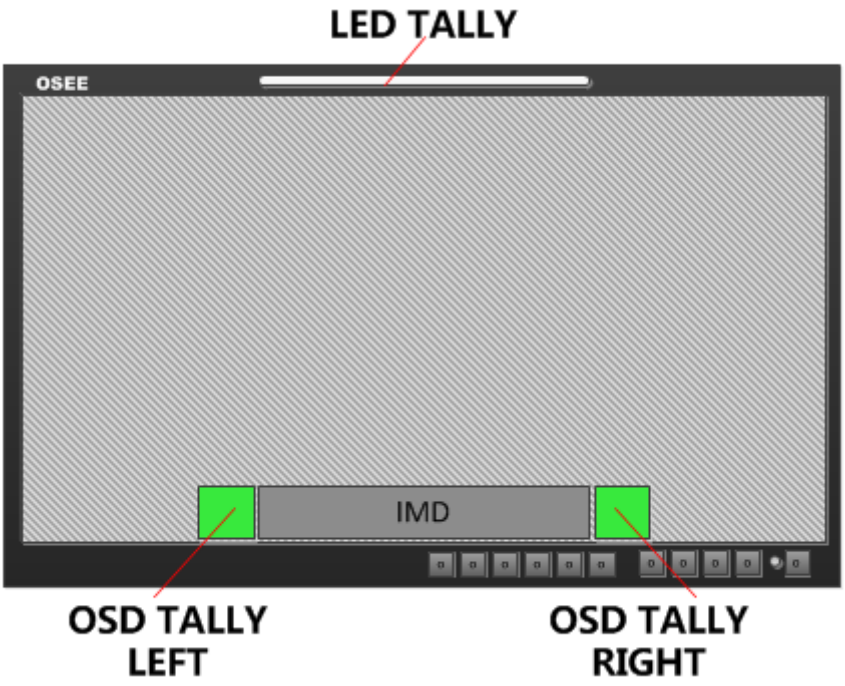


Figure 5.1-45 Tally Display

Tips

- When receiving data of TSL3.1 or TSL4.0 protocol, we support the data length to be 0~126 and 128~254. When the data is in 128~254, the result will be equal to subtract 128 from the IMD ID, in addition, the data length is 0~255 when receiving data of MAGE VIDEO protocol.

1. TSL3.1

Set **IMD→IMD Protocol** item to be TSL3.1, the monitor could receive the tally control command from a TSL Tally controller or other control devices conforming to TSL3.1 protocol.

■ Physical characteristic

Com Port:	RS232/RS422/RS485
DataBits:	8
StopBits:	1
Parity:	Even
Baud Rate:	38400

■ IMD Items

Items	Value	Description
IMD DISPLAY	ON	
IMD PROTOCAL	TSL3.1	it could receive the data of TSL4.0 protocol
IMD ID	0	
BAUD RATE	38400	
LED TALLY	ON	It will display as the result of OR relationship of LEFT OSD Tally and RIGHT OSD Tally. When only one of the two lights is lit, the LED Tally will light in the same color as the lit OSD Tally's, otherwise, when the two lights of OSD Tally are lit, the LED Tally will light in yellow. (This rule is not fit for LED Tally when the OSD TALLY MODE item is set to be GR.)
OSD TALLY MODE	RG	  
	GR	  
	RGY	  
	OFF	Close the OSD TALLY
TALLY SOURCE	TSL	

2. TSL4.0

Set **IMD→IMD Protocol** item to be TSL4.0, the monitor could receive the tally control command from a TSL Tally controller or other control devices conforming to TSL4.0 protocol.

■ Physical characteristic

Com Port:	RS232/RS422/RS485
DataBits:	8
StopBits:	1
Parity:	Even
Baud Rate:	38400

■ IMD Items

Items	Value	Description
IMD DISPLAY	ON	
IMD PROTOCAL	TSL4.0	
IMD ID	0	
BAUD RATE	38400	
LED TALLY	ON	It will display as the result of OR relationship of LEFT OSD Tally and RIGHT OSD Tally. When only one of the two lights is lit, the LED Tally will light in the same color as the lit OSD Tally's, otherwise, when the two lights of OSD Tally are lit, the LED Tally will light in yellow. (This rule is not fit for LED Tally when the OSD TALLY MODE item is set to be GR.)
OSD TALLY MODE	RG/GR/RGY	Select anyone of these three items to open the OSD TALLY, the color and the status of the LEFT OSD TALLY and RIGHT OSD TALLY will comfort to the receiving instructions of the corresponding TSL protocol.
	OFF	Close the OSD TALLY
TALLY SOURCE	TSL	

3. Image Video

Set **IMD→IMD Protocol** item to be IMAGE VIDEO, the monitor could receive the tally control command from an IMAGE VIDEO controller or other control devices conforming to IMAGE VIDEO protocol.

- Physical characteristic

Com Port:	RS232/RS485
DataBits:	7
StopBits:	2
Parity:	Even
Baud Rate:	38400

- IMD Items

Items	Value	Description
IMD DISPLAY	ON	
IMD PROTOCAL	IMAGE VIDEO	
IMD ID	0	

Items	Value	Description
BAUD RATE	38400	
LED TALLY	ON	It will display as the result of OR relationship of LEFT OSD Tally and RIGHT OSD Tally. When only one of the two lights is lit, the LED Tally will light in the same color as the lit OSD Tally's, otherwise, when the two lights of OSD Tally are lit, the LED Tally will light in yellow. (This rule is not fit for LED Tally when the OSD TALLY MODE item is set to be GR.)
OSD TALLY MODE	RG/GR/RGY	Select anyone of these three items to open the OSD TALLY, the color and the status of the LEFT OSD TALLY and RIGHT OSD TALLY will comfort to the receiving instructions of the IMAGE VIDEO protocol.
	OFF	Close the OSD TALLY
IMD TALLY MODE	T1	T1/T2/T1T2/T2T1/T1-/T2-/T1T2-/T2T1-(Comfort to the receiving instructions of the IMAGE VIDEO protocol, refer to IMAGE VIDEO protocol for details)
TALLY SOURCE	IMAGE VIDEO	

The monitor supports the following command set in IMAGE VIDEO 1510 protocol: D(d), S(s), C(c), J(j), O(o), U(u), Z(z). And the following command set are not supported currently: F(f), T(t), A(a), 1Y(y), I(i), 1L(l), V(v), Q(q), N(n),X(x).

We has only one IMD information on the screen, so in S(s) command, the line number for the UMD text can just be 1, for example, the command should be:

%0D%1Sone line%z.

4. TSL5.0

Set **IMD→IMD Protocol** item to be TSL5.0, the monitor could receive the tally control command from network devices conforming to UDP protocol.

- Physical characteristic

Use RJ45 interface in UDP protocol, the maximum length of data package is 2048 Bytes, and the port number is 5000.

5.1.12 KEY INHIBIT Menu

The KEY INHIBIT menu item is used to lock the setting so that they can't be changed by an unauthorized user, and the menu item is as shown in Figure 5.1-46:

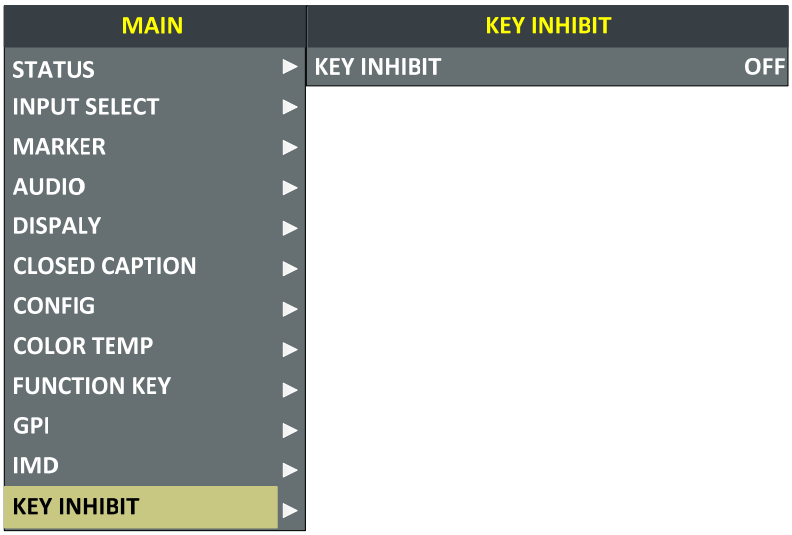


Figure 5.1-46 KEY INHIBIT Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 5.1-7:

Table 5.1-26 The Description of KEY INHIBIT Menu Items

Items	Default Value	Domain Range	Description
KEY INHIBIT	OFF	OFF/ON	Enable/Disable the key.

Tips

- When the KEY INHIBIT is ON, KEY INHIBIT is enabled and press the POWER key, the device would turn on or off. MENU, UP, DOWN, ENTER key can be enable but only to set the KEY INHIBIT item, or there is a “KEY INHIBIT” prompt displayed on the screen when using other keys.

5.2 Menu Settings

When checking or modifying the value of the menu item, cooperating with the following buttons: MENU, **UP**, **DOWN**, ENTER.

1. Operations to the Main menu

- **Display the Main Menu**

  Press **MENU** button to enter into the main menu, it displays at the top left corner of the screen.

- **Switch menu items**

After displaying the main menu, press **UP** or **DOWN** button to choose a menu item, the menu item selected is in yellow. For example, you have selected **Status** menu, as shown in Figure 5.2-1.

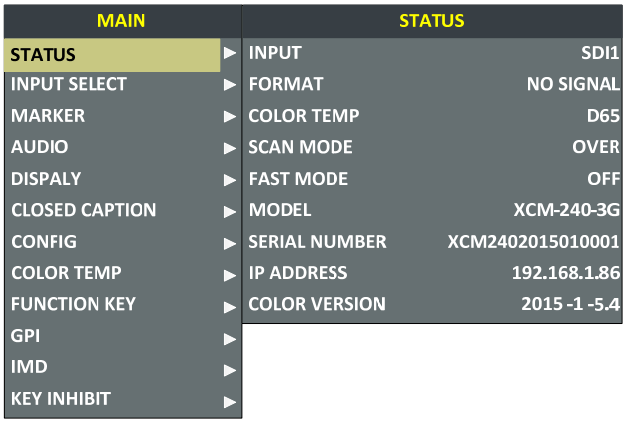


Figure 5.2-1 Selecting STATUS Menu

- **Back to the Main menu**

  After entering to a sub-menu item or a sub-menu item value, press **MENU** button to back to the upper level menu area.

- **Close the Main menu**

  Press **MENU** button to close the Main menu when the control icon is in the Main menu item.

Tips

- After you have loaded the Main menu, it will be closed automatically if you do nothing operation with it in 60s.

2. Operations to sub-menu item

- **Display the sub-menu item**

  After display the Main menu, press **UP** or **DOWN** button to select a menu item, and the right part displays its sub-menu items according to the current selected menu item.

- **Switch sub-menu items**

  After displaying the sub-menu items list, press **ENTER** button to enter into the sub-menu items list, press **UP** or **DOWN** button to choose a sub-menu item, a yellow rectangle is in front of the selected sub-menu item.

- **Back to menu item**

After entering to the sub-menu item value, press **MENU** button to back to menu items, or after setting the sub-menu item value and press **Enter** button to firm the modification, the control icon is back to the corresponding sub-menu item, as shown in Figure 5.2-2:

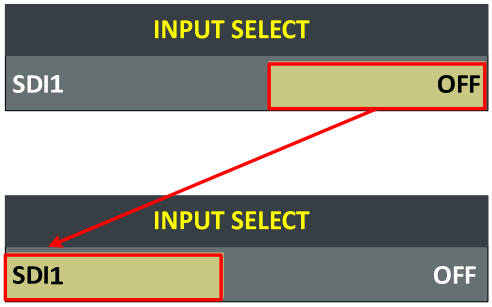


Figure 5.2-2 The Control Icon Moves from the Sub-menu Item Value to the Corresponding Sub-menu Item

3. Operations to sub-menu item value

- **Switch sub-menu item value**

  When the control icon is in sub-menu item value, press **UP** or **DOWN** button to switch among its value list.

- **Confirm the modification to sub-menu item value**

  Press **ENTER** button to confirm the selection of a value, and the control icon is back to the corresponding sub-menu item.

- **Abandon the modification to sub-menu item value**

  Press **MENU** button to give up the modification to sub-menu item value, and the control icon is back to the corresponding sub-menu item.

Tips

- The value in white color is modifiable, and the value in blue color is unmodifiable.

4. Selecting the Menu Language

You can select one of languages (English or Chinese) for displaying the menu. The default language for the menu is ENGLISH. The following will teach you how to switch to Chinese.

- Operation:

Step 1 Select CONFIG menu

Press **MENU** button to display the OSD menu, click **DOWN** button to

select **CONFIG** menu.

Step 2 Select the value of the Language item

Press **ENTER** button to get into the **CONFIG** menu items, and click **DOWN** button to select the sub-item **LANGUAGE**, then, click **ENTER** button to get into the sub-value list, as shown in Figure 5.2-3, the current control icon is in **ENGLISH**.

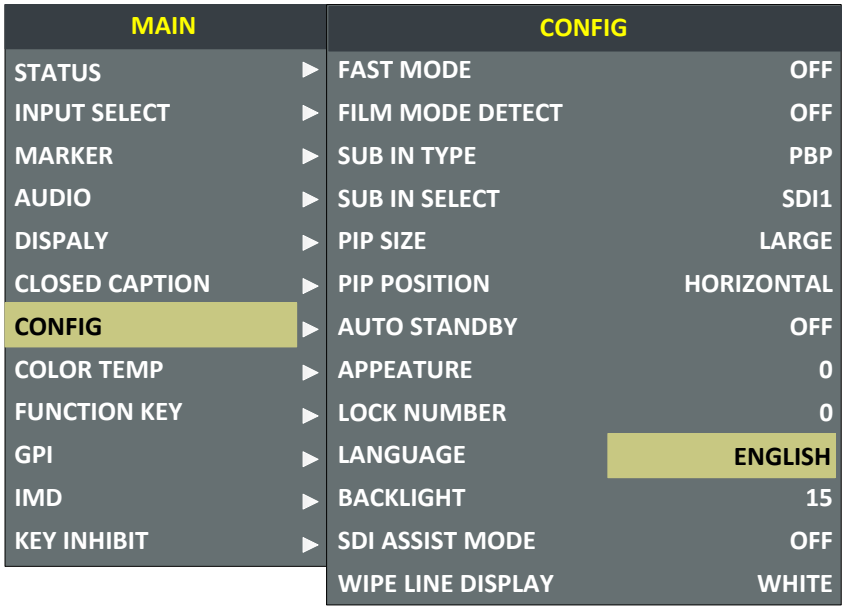


Figure 5.2-3 Select the Value of Language

Step 3 Confirm the modification of the value of sub-item

Click **DOWN** button to select the sub-item **LANGUAGE** to **Chinese**, as shown in Figure 5.2-4, press **ENTER** button to confirm the modification.

Figure 5.2-4 Switching the Value of LANGUAGE

Step 4 Exit the main menu

Click MENU button to exit the main menu.

Chapter 6 Network Control

XCM-240 supports network interface. Connect a computer with XCM-240 through this interface to achieve the network control to XCM-240.

Tips

- The network address of the computer which is connected with XCM-240 and the network address of XCM-240 must be in the same segment.

This chapter will introduce how to set and check the parameters of XCM-240 in Internet Explorer.

6.1 Access the settings

Use Internet Explorer to enter into a web control page. For example, input http://192.168.1.86 in address bar, it will display the then, press Enter key, the management interface of XCM-240 is shown as in Figure 6.1-1:

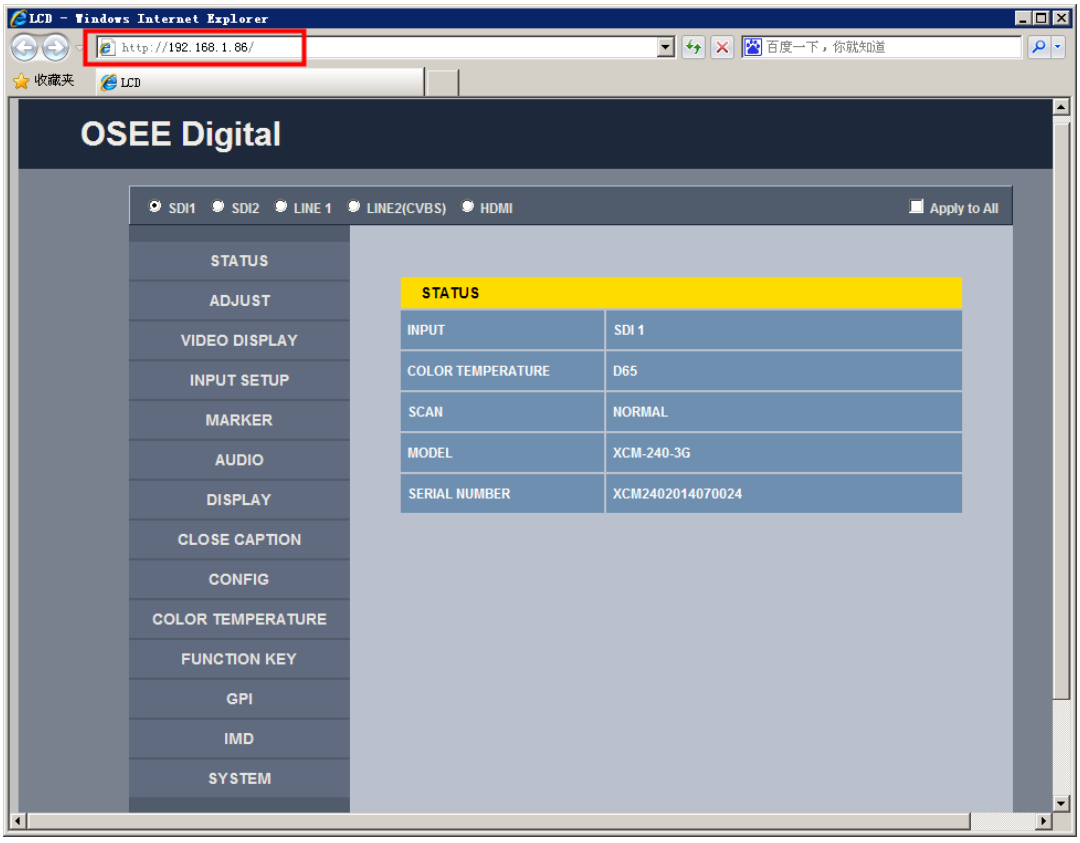


Figure 6.1-1 Network Control Page

6.2 Menu Control

Open the management interface as shown in Figure 6.2-1, the menu items listed in the left part are almost as the same as the main menu items.

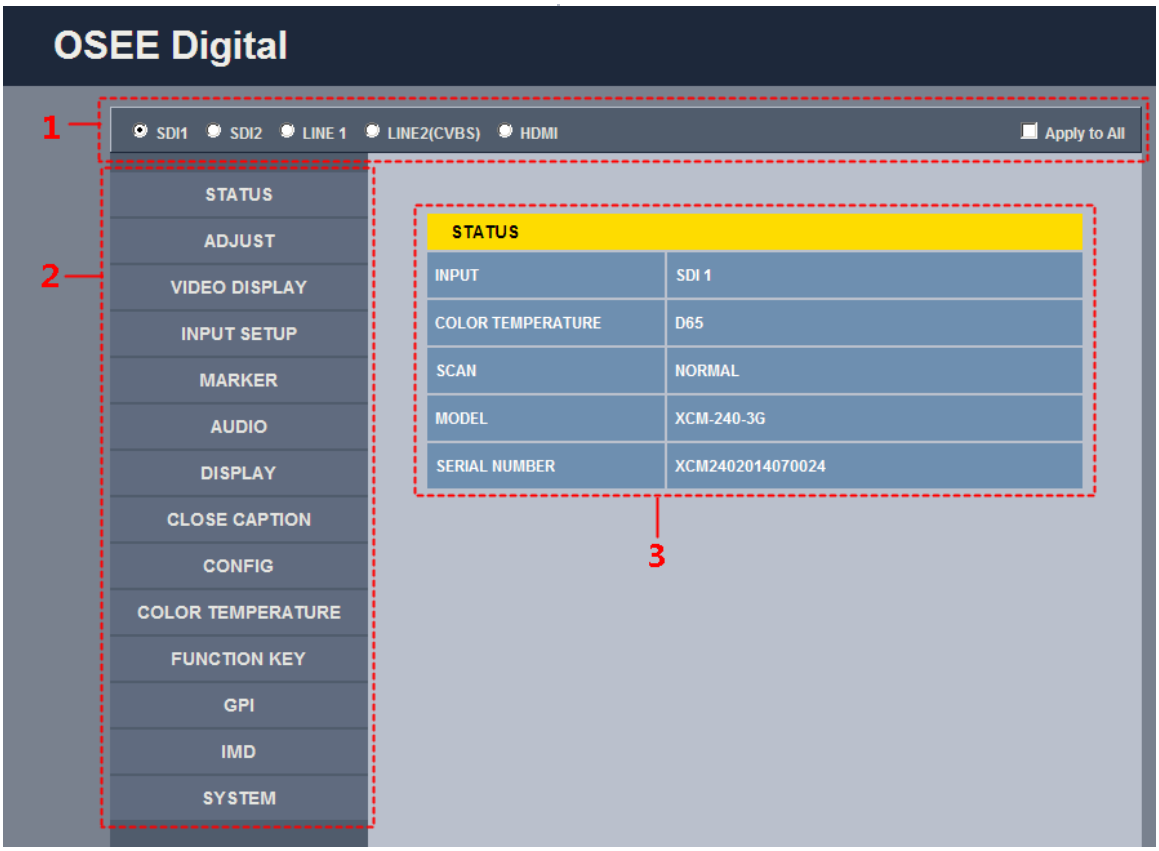


Figure 6.2-1 Management Interface

As shown in Figure 6.2-1, the management interface is divided into the following parts:

1. **Input Source Selection Button**

   It is used to selecting an input source as the input signal, such as: SDI1, SDI2, LINE1, LINE2(CVBS), HDMI. The selecting box of "Apply to All" at the right side is used to synchronize the settings for all the other kinds of input sources.

2. **Navigation menu list**

   It shows the navigation menus: **STATUS**, **ADJUST**, **VIDEO DISPLAY**, **INPUT SETUP**, **MARKER**, **AUDIO, DISPLAY**, **CLOSE CAPTION**, **CONFIG**, **COLOR TEMPERATURE**, **FUNCTION KEY**, **GPI**, **IMD** and **SYSTEM**. Click the navigation menu, it will show the corresponding settings on the right side. The menu items in main menu on screen

display are mostly as the same as the menu items listed in navigation menus except **SYSTEM**, **ADJUST** and **VIDEO DISPLAY**.

3. Parameter list

It shows the parameter names, values and operation buttons of the selected navigation menu, as shown in the red rectangle in Figure 6.2-2. The title in the yellow rectangle of the parameter list and the parameter list will change with the navigation menu when switched.

Figure 6.2-2 Parameter List

Tips

- There may be a “(S)” icon followed by some parameter name in the parameter list, it is mean that this parameter is only a local parameter for the current selected signal source, otherwise, the parameter is global and the modification is valid for all signal sources.
- The **SET** button is used to confirm the modification of the parameter value.

6.2.1 ADJUST Menu

It will introduce **ADJUST** menu.
Click **ADJUST** button at the left navigation menu list, it will display the adjust parameters, as shown in Figure 6.2-3:

Figure 6.2-3 ADJUST Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 6.2-1:

Table 6.2-1 The Description of ADJUST Menu Items

Items	Default Value	Domain Range	Description
CONTRAST	50	0~100	Adjust the picture contrast
BRIGHTNESS	50	0~100	Adjust the picture brightness
CHROMA	50	0~100	Adjust the picture monochroma
MONO	NORMAL	NORMAL/MONO	Enable/disable Monochrome mode, normal mode is actually

Items	Default Value	Domain Range	Description
			the color mode
MUTE	Current Audio Level	Current Audio Level /MUTE	Enable/disable the audio monitor
FREEZE	OFF	OFF/ON	Enable/disable the current picture to be stopped or played.
WIN SOURCE	MAIN	MAIN/SUB	Set the picture displaying mode in full mode or in sub-picture mode.
SD ASPECT	16:9	4:3/16:9	Set the aspect ratio
WIPE H SHIFT	0	-64~64	Set the wipe line position according to the wipe ratio.
BLENDING LEVEL	0	-64~64	Set the blending ratio.
VOLUME	16	0~31	Adjust the volume

6.2.2 VIDEO DISPLAY Menu

It will introduce **VIDEO DISPLAY** menu.
Click **VIDEO DISPLAY** button at the left navigation menu list, it will display the video display parameters, as shown in Figure 6.2-4:

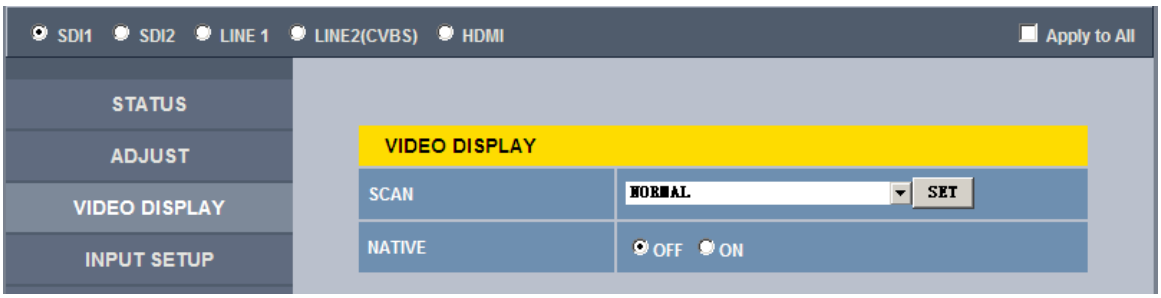


Figure 6.2-4 VIDEO DISPLAY Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 6.2-2:

Table 6.2-2 The Description of VIDEO DISPLAY Menu Items

Items	Default Value	Domain Range	Description
SCAN	NORMAL	• NORMAL	Set the scan mode

Items	Default Value	Domain Range	Description
		• OVERSCAN • UNDERSCAN	
NATIVE	OFF	OFF/ON	Whether to display the picture dot by dot

6.2.3 SYSTEM Menu

It will introduce **SYSTEM** menu.
Click **SYSTEM** button at the left navigation menu list, it will display the system parameters, as shown in Figure 6.2-5:

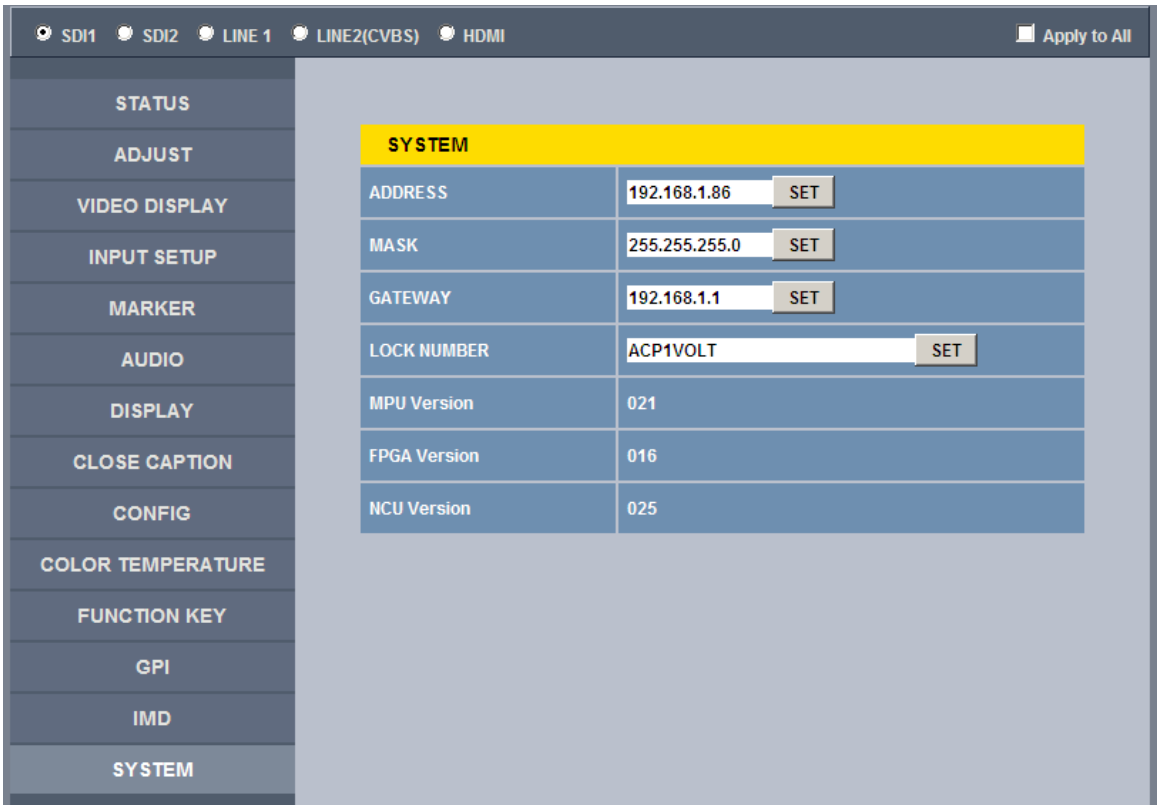


Figure 6.2-5 System Menu

The relationship of Items, Default Value, Domain Range and Description of the sub-item is shown in Table 6.2-3:

Table 6.2-3 The Description of System Menu Items

Items	Default Value	Domain Range	Description
ADDRESS	192.168.1.86	-	IP address

Items	Default Value	Domain Range	Description
MASK	255.255.255.0	-	Subnet mask
GATEWAY	192.168.1.1	-	Gateway address
LOCK NUMBER	XXXXXX	-	Set the Serial Number
MPU Version	021	-	Product information
FPGA Version	016	-	Product information
NCU Version	025	-	Product information

6.2.4 Other Menus

For the menu items in management interface are almost as the same as the menu items in the Main menu on screen, there will be no further description about their meanings and value range in this chapter, refer to “Chapter 5 Functionality of the Main Menu” for the details about **STATUS**, **VIDEO CONFIG**, **AUDIO CONFIG**, **MARKER**, **DISPLAY**, **USER CONFIG**, **COLOR TEMPERATURE** and so on.

6.3 Parameter Settings

It will introduce how to modify parameter values in management interface in the followings.

For example: modify **Meter Select** in **AUDIO** menu. Click **AUDIO** button to display its parameter list, as shown in Figure 6.3-1, the corresponding screen main menu is shown as in Figure 6.3-2:

Figure 6.3-1 Parameter List for AUDIO

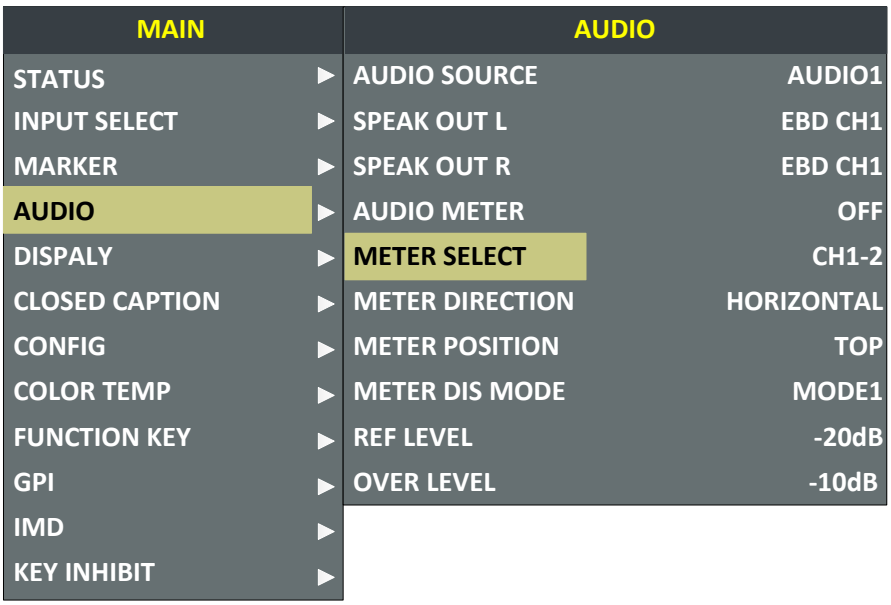


Figure 6.3-2 Screen Main Menu for AUDIO

Click button to display the drop-down value list for the parameter, as shown in Figure 6.3-3, for example, modify “CH1-2” to “G1”.

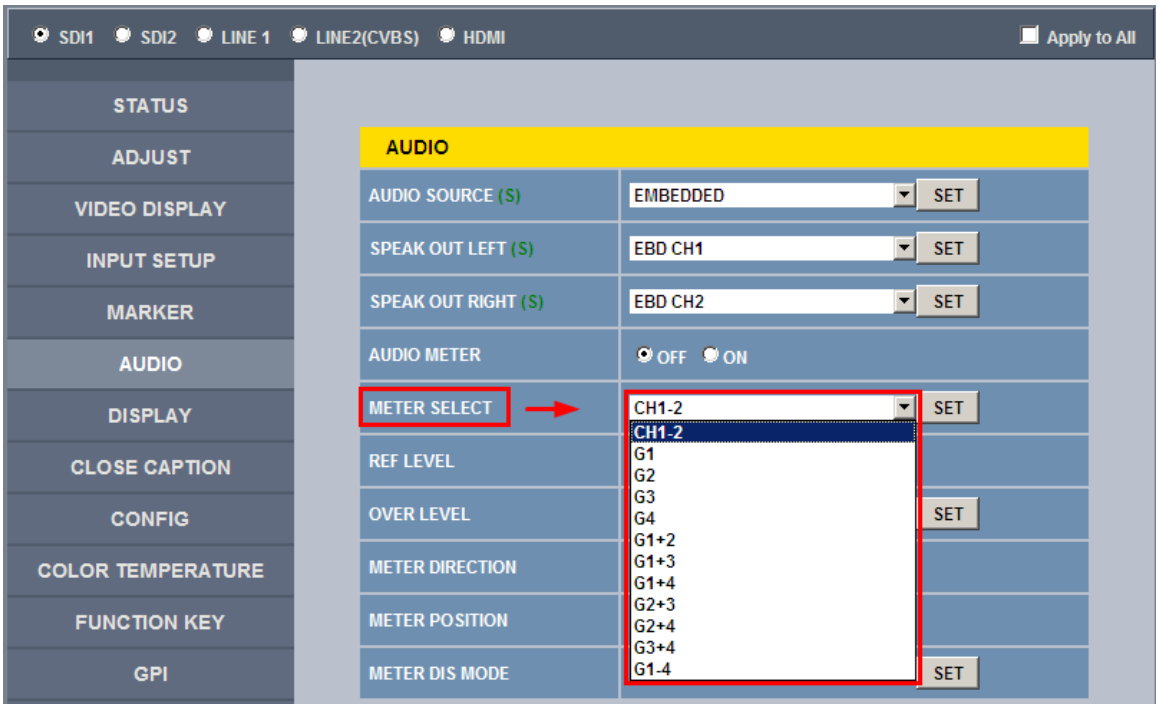


Figure 6.3-3 Display the Drop Down Value List of Meter Select(S)

Click SET button to confirm the selection and the page is refreshed. You can check the modification on the screen menu, the results are the same as shown in Figure 6.3-4 and Figure 6.3-5:

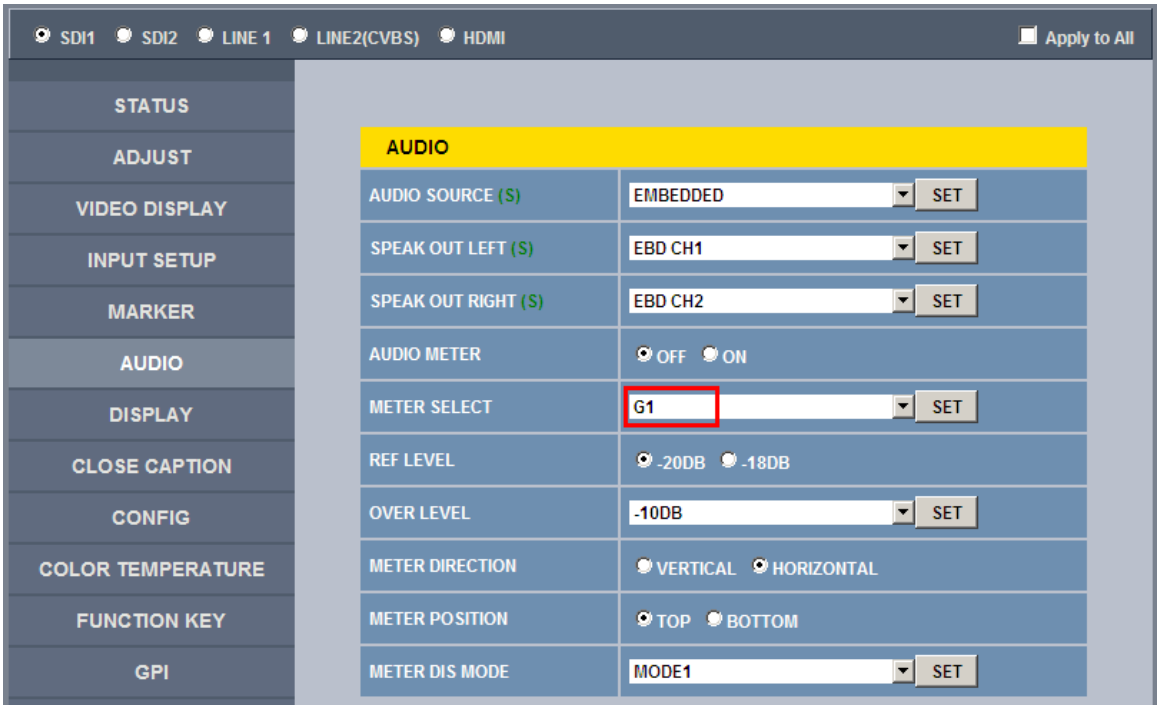


Figure 6.3-4 Modify the Value of a Parameter

Tips

- The volume can be checked and modified in adjust menu on screen adjustment, or in **Volume** item of **ADJUST** menu in management interface.

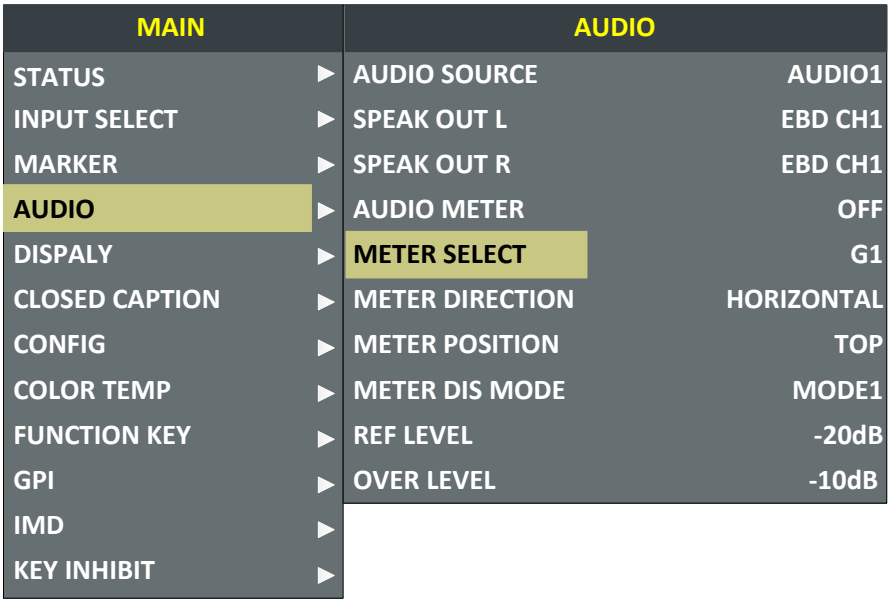


Figure 6.3-5 The Value is Modified Simultaneously on Screen Menu

Likewise, if you modify the value of a parameter on screen menu first, you may check the same changing result in management interface through network connection.

Chapter 7 Specifications

1. Product detailed information

Specification	Values
Picture performance	
Picture size (Diagonal)	24”
Screen Dimension	569.9(H) x 380.7(V) x 97.4(D)
Aspect Ratio	16:10
Display Area(mm)	518.4(H)×324.0(V)
Viewing Angle	178° (H)x178° (V)
Color Depth	1.073G colors (RGB 10-bits)
Resolution	1920(H)×1200(V)
Pixel Pitch(mm)	0.270(H)×0.270(V)
Pixel Efficiency	99.99%
Panel Frame Rate	48Hz, 50Hz, 60Hz
Standard Luminance	100 cd/㎡(100% white signal input)
Color Temperature	D55/D61/D65/ D93/User Defined
Color Space	ITU-R BT.709/EBU/SMPTE-C/D-Cine
Interface Characteristic	
Video Input Interface	CVBS, YPbPr, 3G/HD/SD-SDI, HDMI
Video Output Interface	CVBS, YPbPr, 3G/HD/SD-SDI
Audio Input Interface	2CH analog stereo, 5dBu , Impedance ⩾ 47K, RCA(X4)
Audio Output Interface	1CH analog stereo, 5dBu, Impedance ⩽ 500Ω, RCA(X2)
Audio Output Interface	Headphone output (mini jack 3.5mm)
Control Interface	GPI(6GPI input RJ45)X1
	RS485(Cascade RJ45) X2
	Ethernet(10/100M adaptive RJ45) X1
Signal Standard	SMPTE 424M, SMPTE 292M, SMPTE 259M, SMPTE 297M, SMPTE ST 2048-2
SDI Connector	BNC per IEC 169-8

Specification	Values
Input/Output Impedance	SDI 75Ω(unbalanced)
	LINE 75Ω(loop-through, with automatic termination)
SDI Transmission Distance	3G –SDI: 70m (max.)
	HD –SDI: 100m (max.)
	SD-SDI: 200m (max.)
General	
Power Adapter	DC 19V 4.74A
Power Consumption	45W(avg.)
Operating Temperature	0° C~35° C
Operating Humidity	0%~90% (no condensation)
Storage Temperature	-20° C~60° C
Storage Humidity	0%~90%
Operating Pressure	Lower than 2000 meter(above sea level)

2. Input/Output Resolution, Aspect Ratio and Native

Input Signal	ASPECT RATIO	NORMAL SCAN		OVER SCAN		UNDER SCAN		NATIVE
		Input	Output	Input	Output	Input	Output	Input
PAL	4:3	720X576	1440x1080	684x547	1440x1080	720X576	1368X1026	720X576
	16:9		1920X1080		1920X1080		1824X1026	
NTSC	4:3	720X483	1440x1080	684x458	1440x1080	720X483	1368X1026	720X483
	16:9		1920X1080		1920X1080		1824X1026	
480I60/59.94	4:3	720X483	1440x1080	684x458	1440x1080	720X483	1368X1026	720X483
	16:9		1920X1080		1920X1080		1824X1026	
576I50	4:3	720X576	1440x1080	684x547	1440x1080	720X576	1368X1026	720X576
	16:9		1920X1080		1920X1080		1824X1026	
480P60/59.94	4:3	720X483	1440x1080	684x458	1440x1080	720X483	1368X1026	720X483
	16:9		1920X1080		1920X1080		1824X1026	
576P50	4:3	720X576	1440x1080	684x547	1440x1080	720X576	1368X1026	720X576
	16:9		1920X1080		1920X1080		1824X1026	
720P24/23.97	16：9	1280X720	1920X1080	1216X684	1920X1080	1280X720	1824X1026	1280X720
	2.39：1		1920X803		1920X803		1824X763	
720P25	16：9	1280X720	1920X1080	1216X684	1920X1080	1280X720	1824X1026	1280X720
	2.39：1		1920X803		1920X803		1824X763	
720P30/29.97	16：9	1280X720	1920X1080	1216X684	1920X1080	1280X720	1824X1026	1280X720
	2.39：1		1920X803		1920X803		1824X763	

Input Signal	ASPECT RATIO	NORMAL SCAN		OVER SCAN		UNDER SCAN		NATIVE
		Input	Output	Input	Output	Input	Output	Input
720P50	16：9	1280X720	1920X1080	1216X684	1920X1080	1280X720	1824X1026	1280X720
	2.39：1		1920X803		1920X803		1824X763	
720P60/59.94	16：9	1280X720	1920X1080	1216X684	1920X1080	1280X720	1824X1026	1280X720
	2.39：1		1920X803		1920X803		1824X763	
1080SF24/23.97	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
1035I60/59.94	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1035
	2.39：1		1920X803		1920X803		1824X763	
1080I50	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
1080I60/59.94	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
1080P24/23.97	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
1080P25	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
1080P30/29.97	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
1080P50	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
1080P60/59.94	16：9	1920X1080	1920X1080	1824X1026	1920X1080	1920X1080	1824X1026	1920X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080PSF24/23.97	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080PSF25	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080PSF30/29.97	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080P24/23.97	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080P25	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080P30/29.97	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080P4	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080

Input Signal	ASPECT RATIO	NORMAL SCAN		OVER SCAN		UNDER SCAN		NATIVE
		Input	Output	Input	Output	Input	Output	Input
8/47.94	2.39：1		1920X803		1920X803		1824X763	
2048X1080P50	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	
2048X1080P60/59.94	1.896:1	2048X1080	1920X1013	1946X1026	1920X1013	2048X1080	1824X962	2048X1080
	2.39：1		1920X803		1920X803		1824X763	

*Don’t display all OSD when SCAN is NATIVE.
*Don’t display MARKER when SCAN is NATIVE.

3. Dimensions

The description of the product dimensions is shown as in the following figures:

Figure 7-1 Front Panel(Unit: mm)

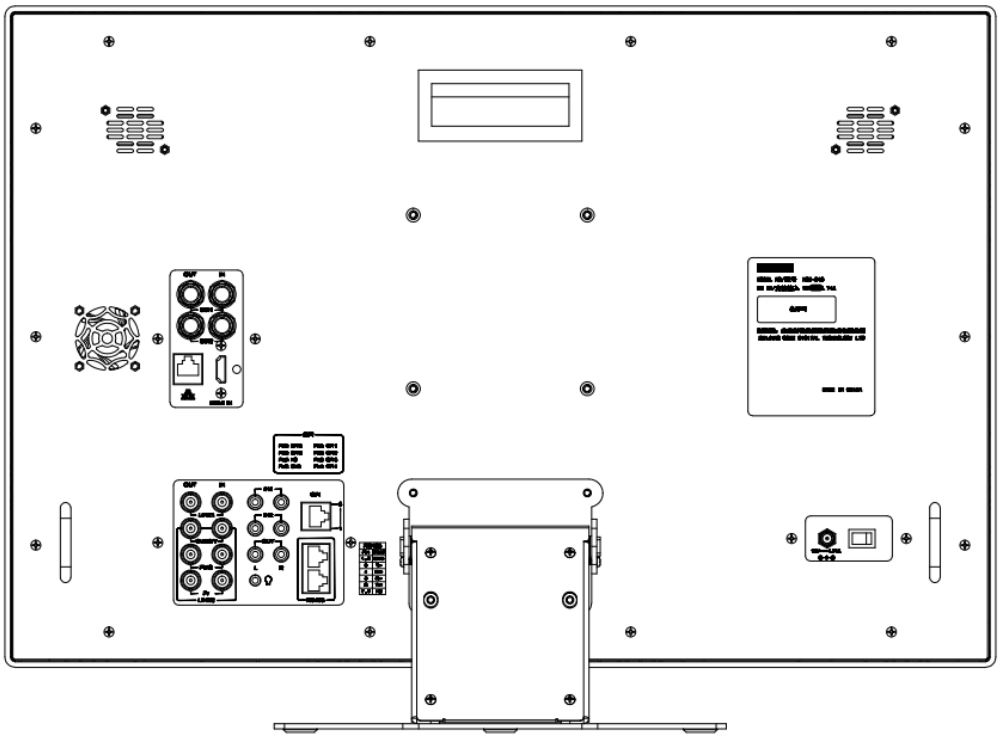


Figure 7-2 Rear Panel(Unit: mm)

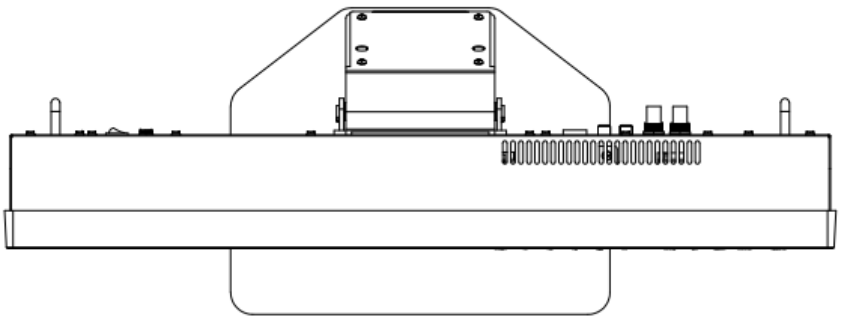


Figure 7-3 Top View(Unit: mm)

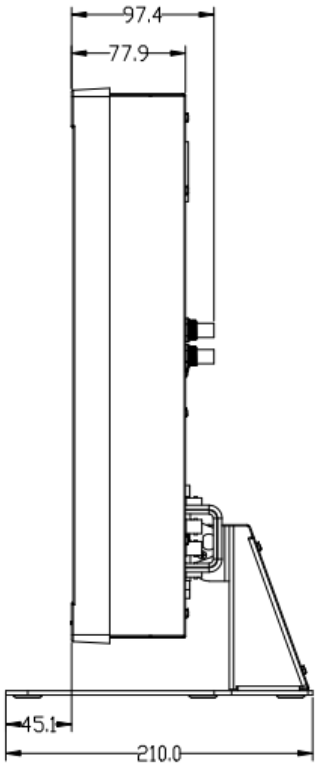


Figure 7-4 Side View(Unit: mm)

Tips

- Specifications are subject to change without notice.

----------No Text Below----------

FOR MORE INFORMATION PLEASE VISIT: http://www.osee-dig.com/

OSEE TECHNOLOGY CO., LTD.

Address: No.22 Building, No.68 zone, Beiqing Road, Haidian District, Beijing, China

Tel: (+86) 010-62434168

Fax: (+86) 010-62434169

OSEE AMERICAS, LTD.

Address: 43218 Christy Street Fremont, CA 94368

Toll Free: 866-625-6106

Tel: (+1) 510-966-4499

Fax: (+1) 510-966-4492

E-mail: sales@osee-dig.com