MVM230
Quad Split LCD Monitor

USER MANUAL

osee 时代奥视

北京时代奥视数码技术有限公司
BEIJING OSEE DIGITAL TECHNOLOGY LTD.

PRODUCT INFORMATION

MODEL: MVM230 Quad Split LCD Monitor
Version: V010001
Modified: August 17, 2011

COMPANY NAME

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MVM230 Quad Split LCD Monitor

Chapter 1 Overview

Introduction

The MVM230 Quad Split LCD Monitor is a high-performance 23" professional LCD monitor featuring quad split display. It supports high quality quad split displays and is designed to tailor the extensive needs for programming, concentrated on download and upload, broadcast master control, studio, centralized monitoring and so on.

The MVM230 Quad Split LCD Monitor supports the advanced 10- bit digital processing technology and also supports 3D comb filter and de-interlace, accurate scaling engine, GAMMA correction and color temperature adjustment function, in order to achieve the best possible image display. Each display screen of the MVM230 is an independent professional monitor. So it can achieve the various professional parameters and can be adjusted independently, including GAMMA, color temperature, brightness, and so on.

The MVM230 Quad Split LCD Monitor supports 4ch 3G/HD/SD-SDI/CVBS signal and 1-way HDMI / DIV-D signal input. It can simultaneously display four signal inputs, with three typical display modes (including one full screen display, one - big with three - small screen display and four uniform size screen display). Each display screen can achieve professional monitor display functions, including embedded audio solution, audio monitoring, audio meter display, TC code display, IMD, various Markers and so on.

Feature

- 178-degree viewing angle
- Multi-format analog and digital audio signals
- Support select 4 from 5 input signals to display
- Support a single screen display as a professional monitor
- Support the independent adjustment of the parameters for single screen

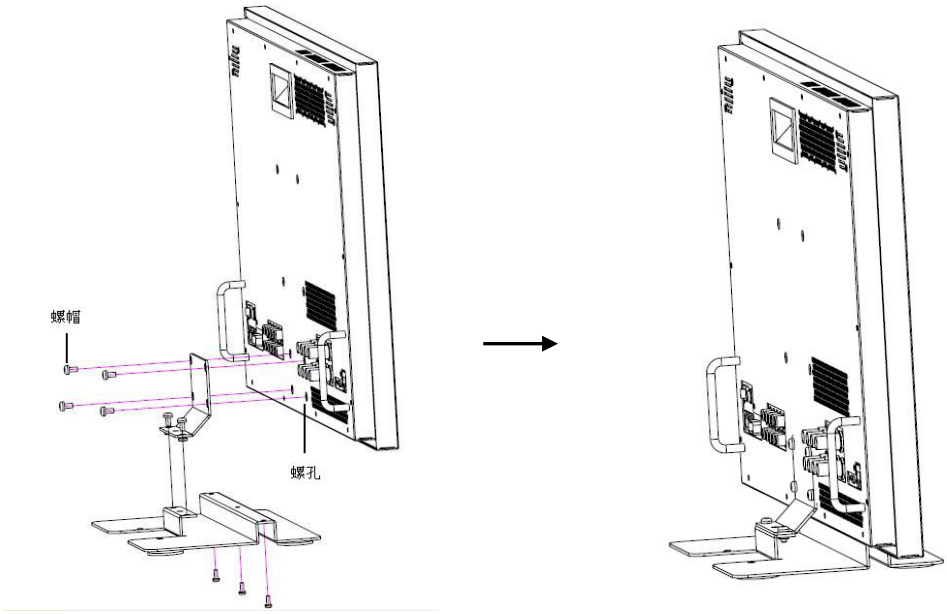
- With all the important functions of multi-view processor
- Support high-quality waveform, vector monitoring
- Support HDMI output or HD-SD display, can achieve the cascade and copy output of devices
- MARKER, Time Code, MET display
- Pre-set the color temperature, user-adjustable color temperature

Chapter 2 Unpackaging and installation

Opening the box, please check whether the device has been damaged during transport. Check all the things listed is received: the host, a base, a 19V adapter and power cord, 1 base board with screws, the base installation instruction, the user manual and warranty card. If there is any missing, contact your distributors or Beijing Osee Digital Technology Ltd. for it.

We recommend that you should save the packing materials for future needs.

1. Install the base.

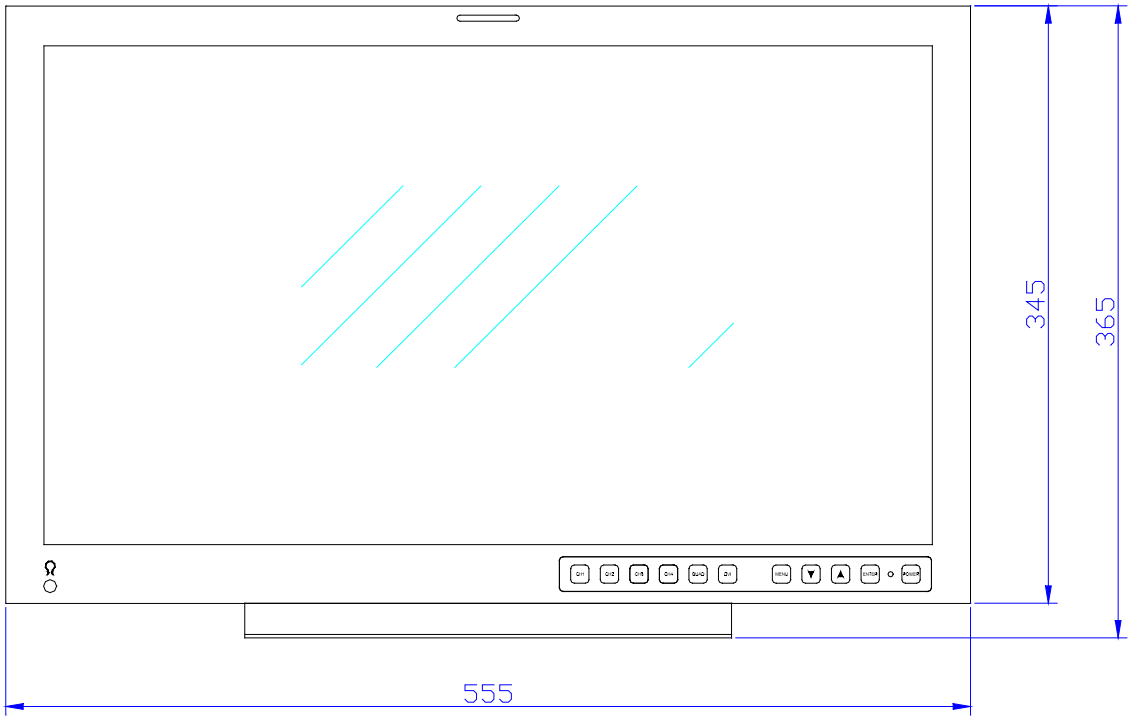


Installation

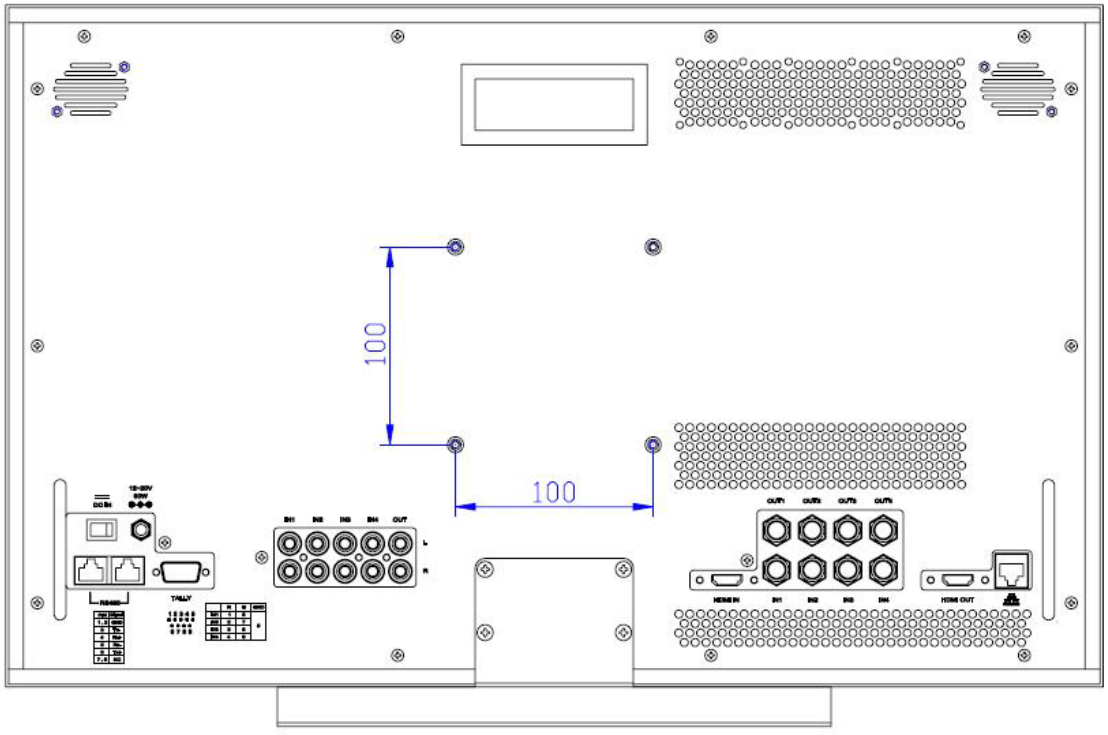
2. Put the MVM230 on the position you need for installing, and connect the power. Please make sure the place you put is safety.
3. Connect a standard signal lines to the corresponding input port. All BNC connector impedance must be 75Ω.
4. Use the power adapter and cord to connect single-phase three-wire AC power or following the local power supply conditions. Make sure the power cord grounding well.
5. Finally, turn on the power switch, so that the device will be ready for work.

Chapter 3 Description of product structure

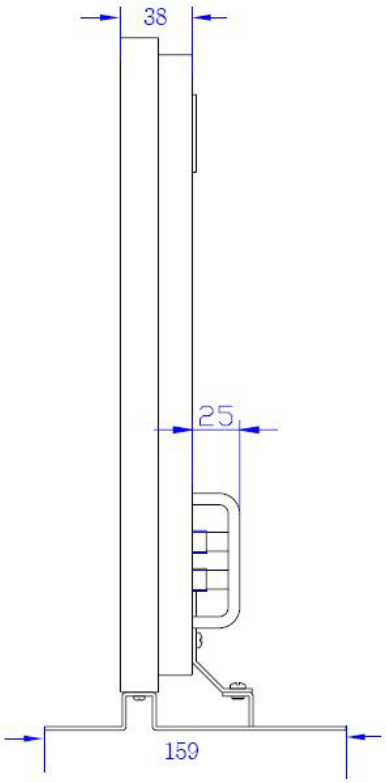
Front panel (Unit: mm)



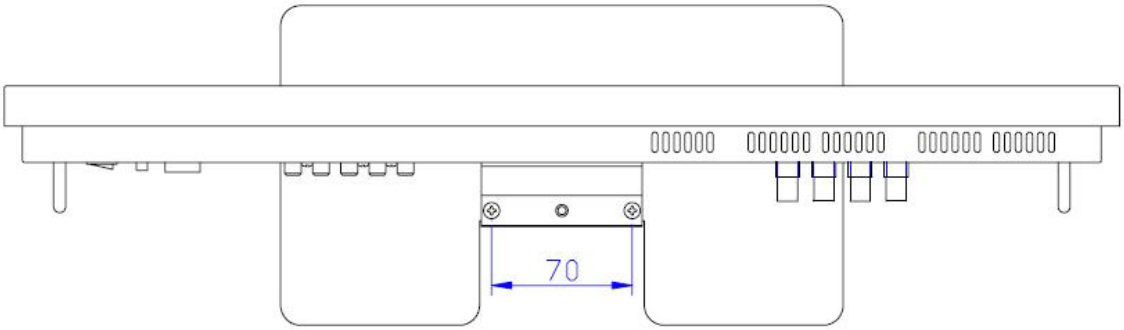
Rear panel (Unit: mm)



Side view (Unit: mm)

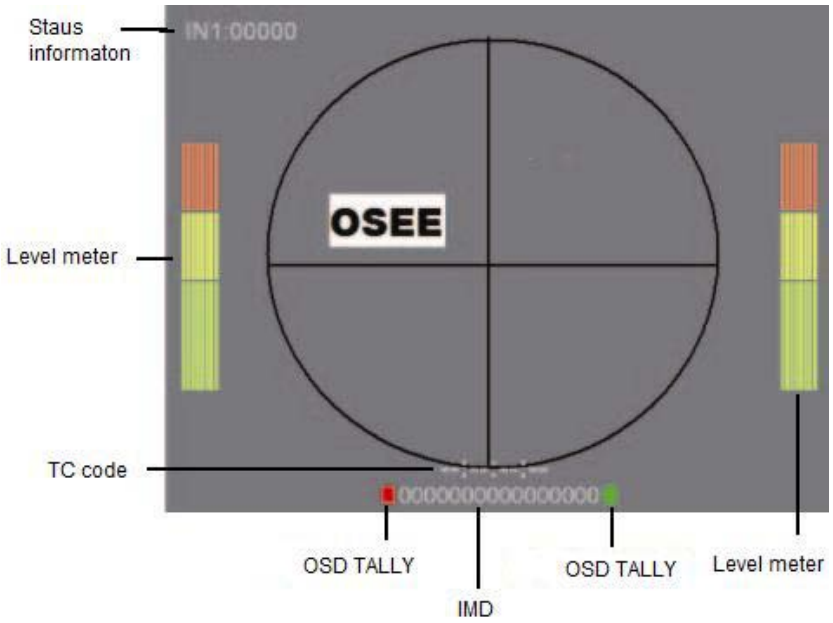


Top view (Unit: mm)

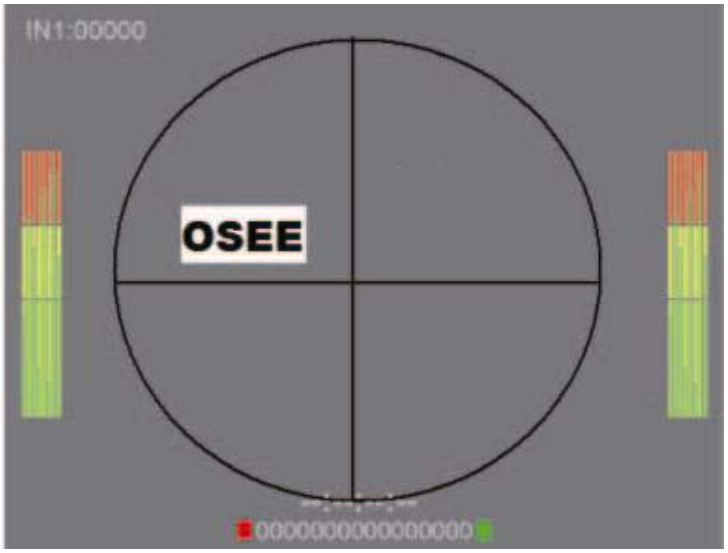


Chapter 4 Usage

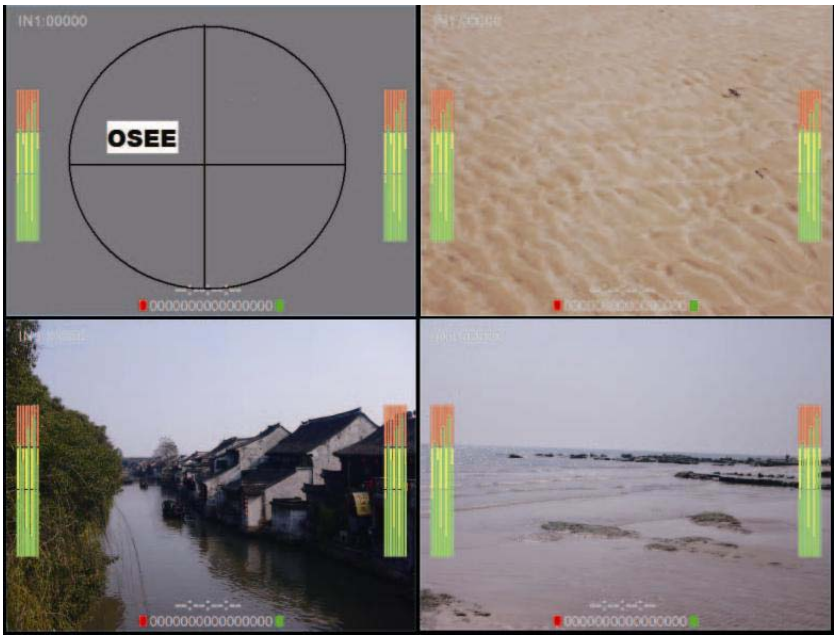
4.1 Description for Display status



- **Status information:** Displayed in the upper left corner of each window, including the input channel number and signal format.
- **TC code:** Display Format: HH: MM: SS: FF and if there is no TC code, display --:--:--:--.
- **IMD：** 16 characters can be displayed. Support the character color change (red, green, yellow, white).
- **OSD TALLY:** Display OSD TALLY. Supports color change (red, green, yellow, white).
- **Level meter:** Display audio meter. Support for semi-transparent display, can reduce the impact for the image.



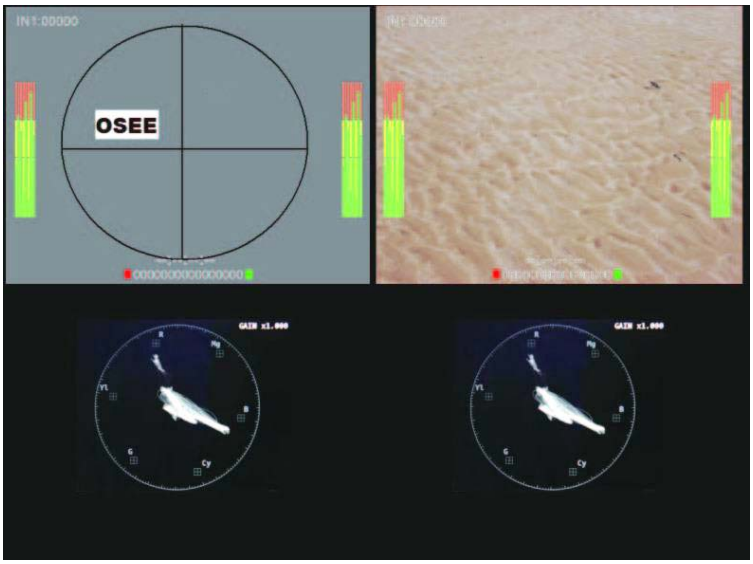
Single-screen, full 16-channel audio meter



Four-screen, full 16-channel audio meter

One-big and with three-small screen, full 16-channel audio meter

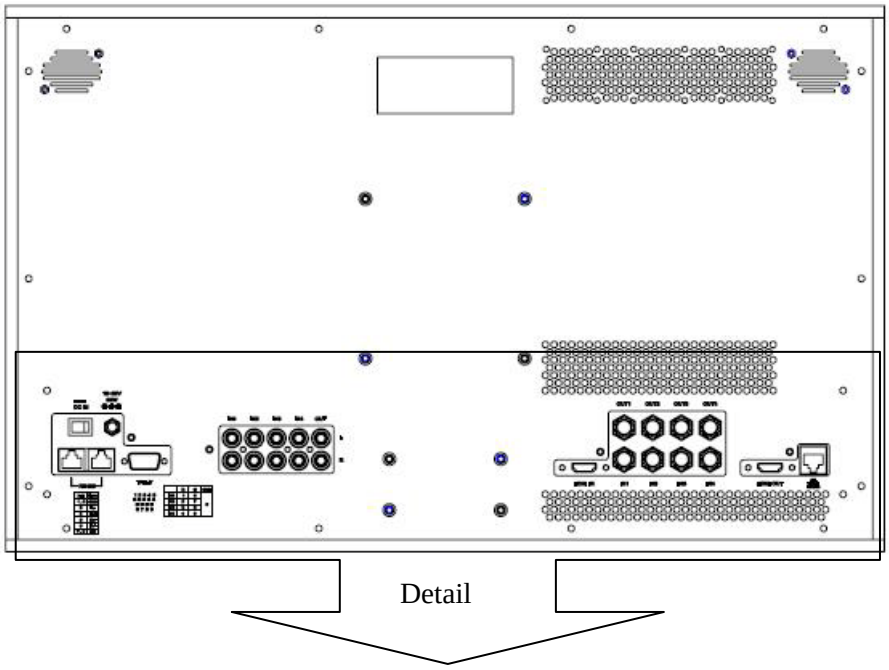
☞ **Waveform and vector display:** Display in the screen. As below.



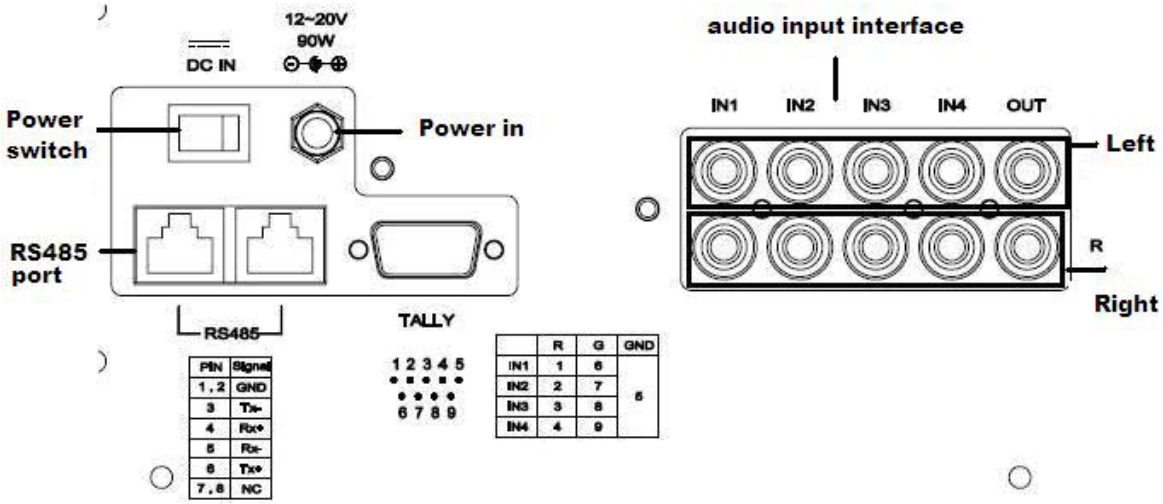
4.2 Signal Format

Video input signal:	4 adaptive CVBS, SD/HD/3G-SDI video (supports embedded audio) and one DVI -D/ HDMI (as the same as IN1).
Audio input signal:	Four pairs of stereo analog audio.
Video output signal:	1 DVI-D/HDMI (with audio).
Audio output signal:	1 audio monitor output and 1 headphone output.
Other:	RS-485, GPIO, LAN, etc.

4.3 Interface of rear panel



(Left)

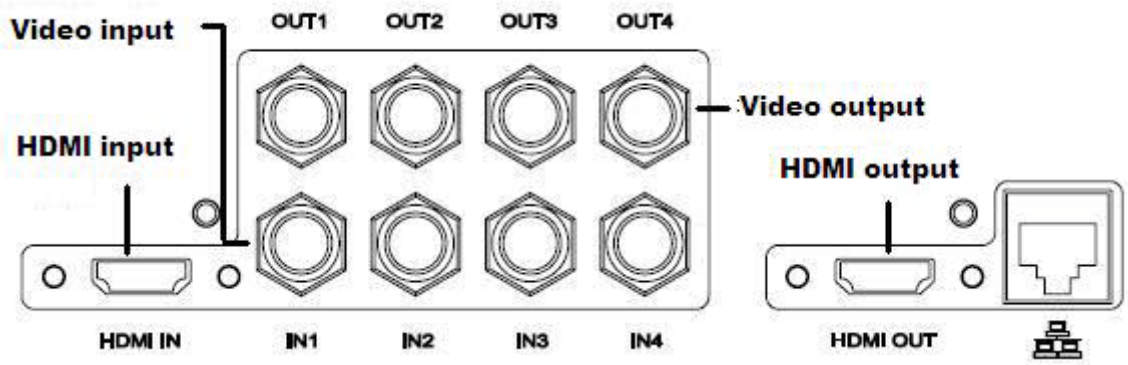


PIN	Signal
1, 2	GND
3	Tx-
4	Rx+
5	Rx-
6	Tx+
7, 8	NC

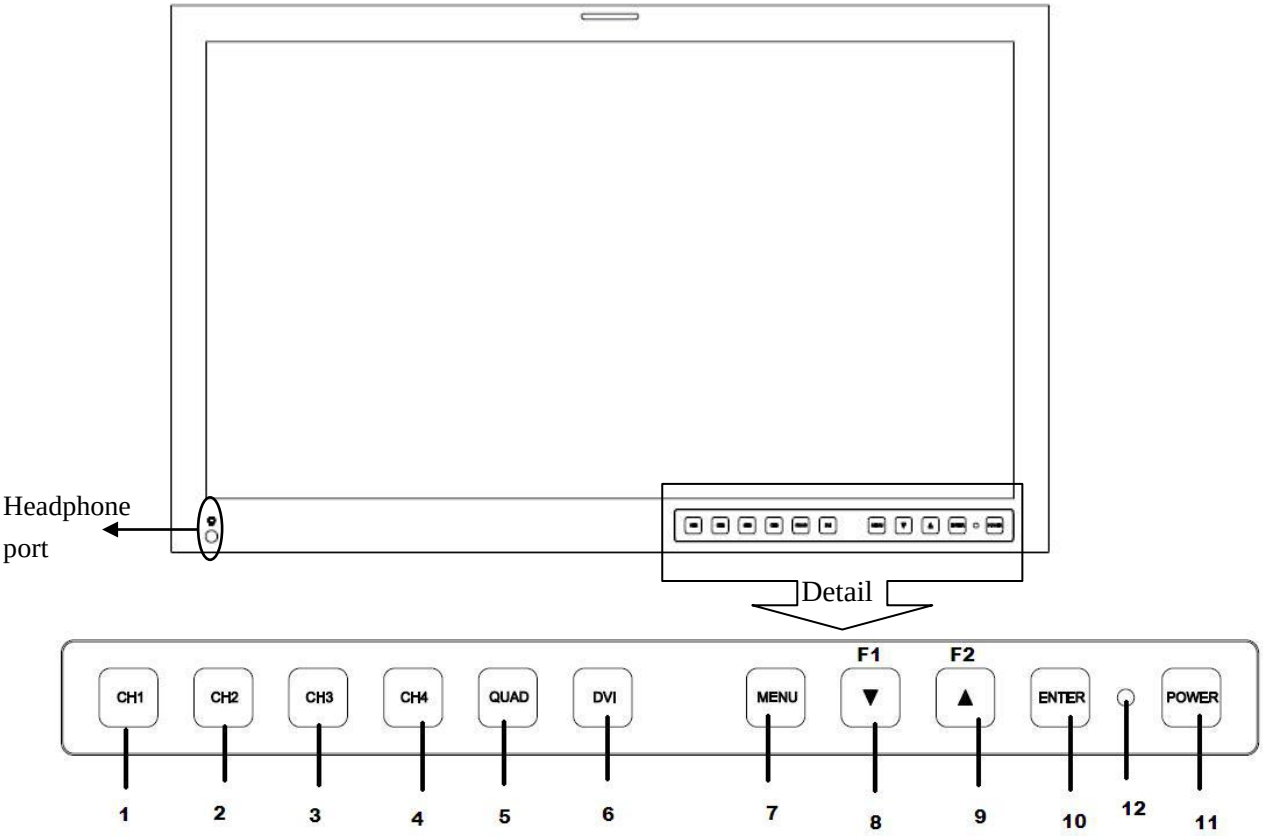
	R	G	GND
IN1	1	6	5
IN2	2	7	
IN3	3	8	
IN4	4	9	

Note: The specs are subject to change without prior notice.

(Right)



4.4 Interface of front panel



1~4： Channel 1-4, switch to full screen for CH.

5：Layout, there are two modes to choose.

6：DVI input, there are two formats: HDMI or NONE (OFF).

7：MENU, enter the menu item.

8：DOWN/F1, function key and DOWN.

9：UP/F2, function key and UP.

10：ENTER, save the setup or enter the item selected.

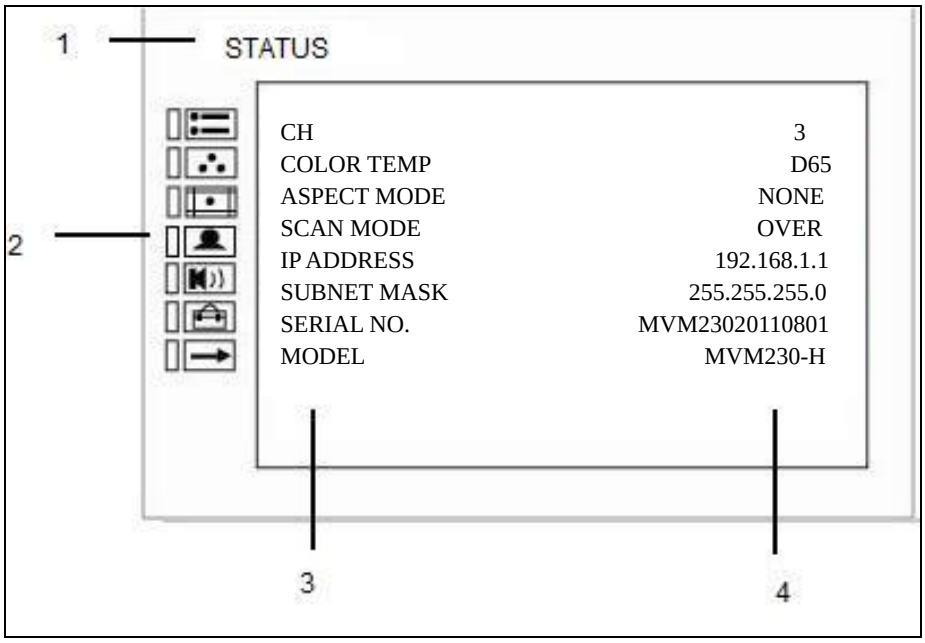
11：Power switch

12：Power indicator, Red: standby, Green: normal.

Chapter 5 Menu Description

5.1 Main menu

It displays by pressing the MENU button.



Menu

1- MENU name, it shows the menu item.

2- Main menu item selection part and it shows the menu item icons. It includes the main menu items.

3- Menu setup item, it shows the setup parameter of main menu items. Press ENTER and UP/DOWN to select the items.

4- Parameter information of the items. Changes the item setup parameter of the item you selected, press ENTER and it will also save your setup. If you don't want to change the parameter, press MENU to turn back to the previous menu. The item selected will be yellow and when the character is white it can be changed and when the character is blue it can not be changed.

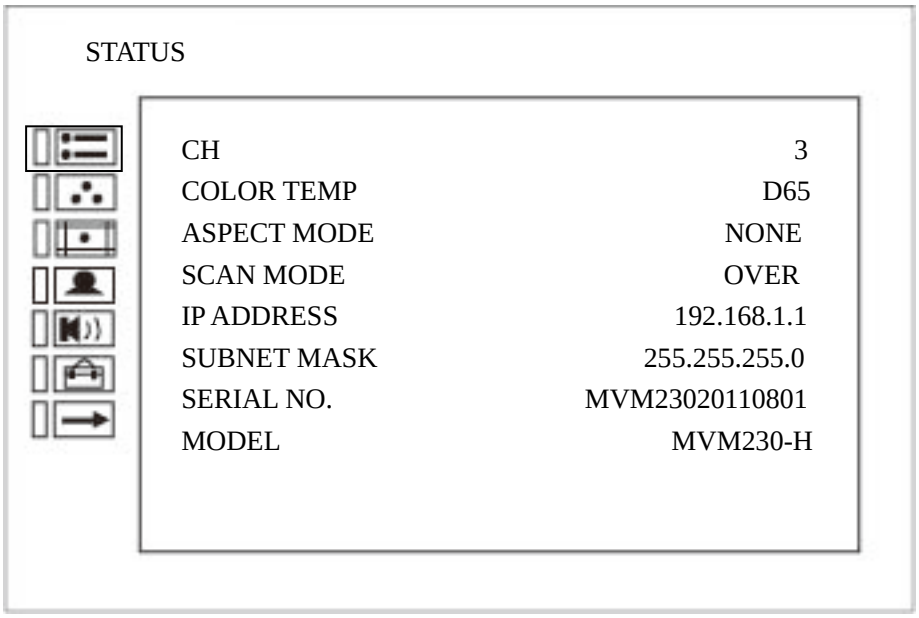
There are 6 items, including: STATUS (), COLOR TEMP (),

MARKER (), AUDIO CONFIG (), USER CONFIG () and OSD CONFIG (). By pressing UP and DOWN, select the 6 items and when selected one press ENTER key to enter the sub-menu. Press UP or DOWN to select the items to setup.

Note: One of the sub-menu is not in use, icon is ().

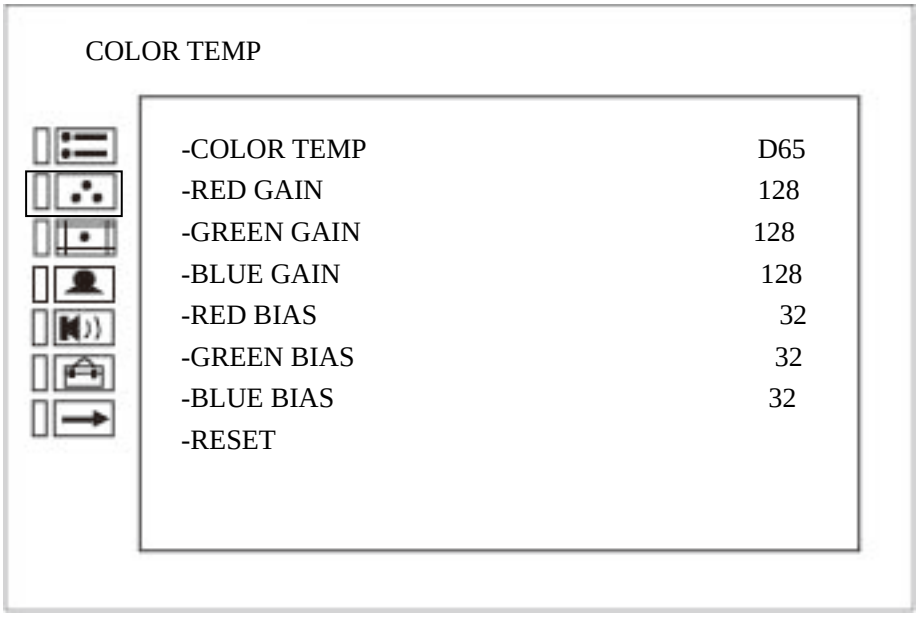
Detail information of the menu is as follow:

(1) STATUS



This item displays the monitor information, and the parameters can not be adjusted.

(2) COLOR TEMP



***COLOR TEMP** includes for modes: D65, D56, D93 and USER (User setup).
In USER, RED GAIN, GREEN GAIN, BLUE GAIN, RED BIAS, GREEN BIAS, BLUE BIAS and RESET can be adjusted.

***RED GAIN**
Red gain adjustment, range from 0 to 255.

***GREEN GAIN**
Green gain adjustment, range from 0 to 255.

***BLUE GAIN**
Blue gain adjustment, range from 0 to 255.

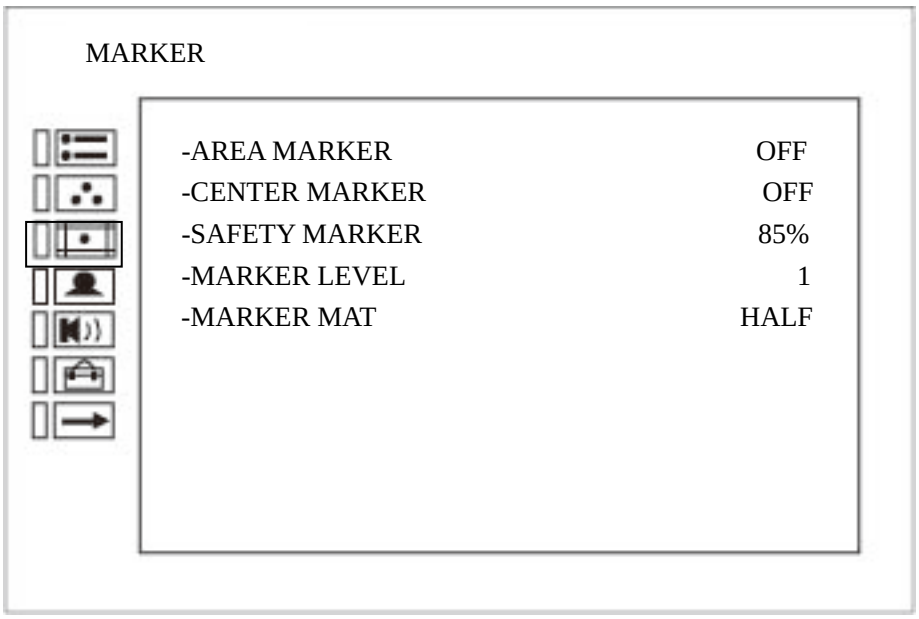
***RED BIAS**
Red offset adjustment, range from 0 to 63.

***GREEN BIAS**
Green offset adjustment, range from 0 to 63.

***BLUE BIAS**
Blue offset adjustment, range from 0 to 63.

***RESET**
Color temperature reset, when enabled, RED GAIN, GREEN GAIN, BLUE GAIN, RED BIAS, GREEN BIAS and BLUE BIAS will return to the default values.

(3) MARKER



Only when one single screen displays as full-screen, MARKER is enabled. The current state is NATIVE or DVI input, MARKER is disenabled.

***AREA MARKER**

Area marker includes OFF,4:3,15:9,14:9,13:9,1.85:1,2.35:1 area marker scaling. The adjustment is enabled only when the output format is 16:9.

***CENTER MARKER**

It controls Center marker ON and OFF.

***SAFETY MARKER**

Safety marker includes OFF, 80%, 85%, 88%, 90%, 93%, and 95%.

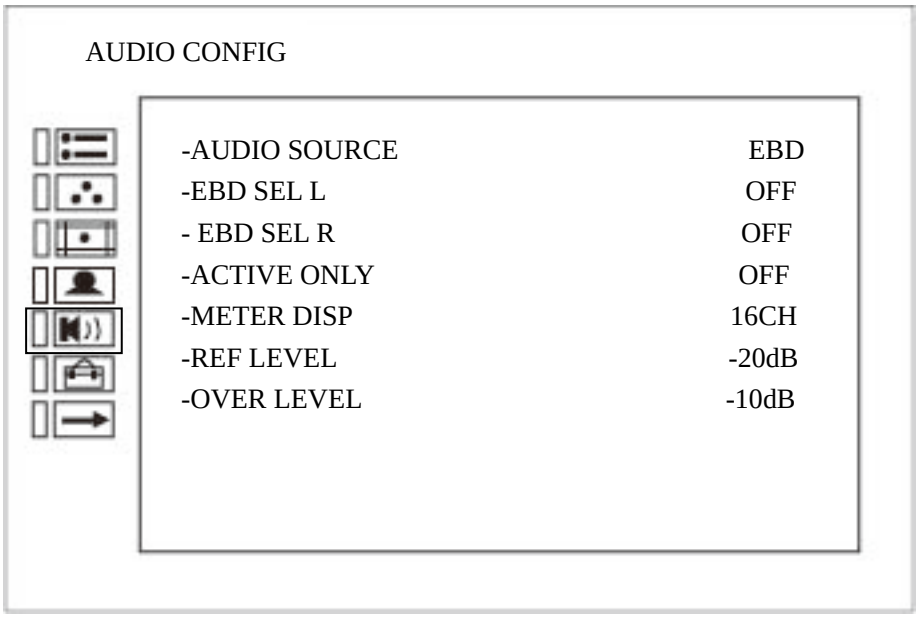
***MARKER LEVEL**

Shows marker brightness control, contains three options 1, 2, 3.

***MARKER MAT**

Shows area marker selected area transparency control, there is OFF, HALF BLACK and three options.

(4) AUDIO CONFIG



***AUDIO SRC**

Show audio source options, including OFF, EXT and EBD.

***EBD SEL L**

Left channel embedded audio options, including OFF, CH1 - CH16 total of 17 options.

***EBD SEL R**

Right channel embedded audio options, including OFF, CH1 - CH16 total of 17 options.

***METER DIS**

Audio level meter load specified, including OFF, 2CH, 4CH, 6CH, 8CH, 10CH, 12CH, 14CH, 16CH options.

***ACTIVE ONLY**

Control the audio level meter with the audio source on and off.

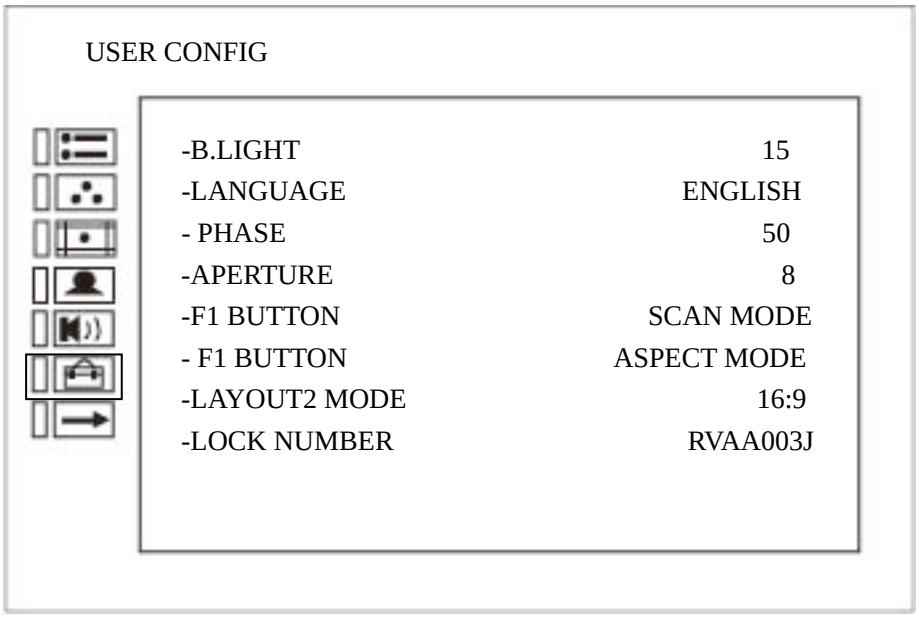
***REF LEVEL**

Reference level, includes -20dB and -18dB two options.

***OVER LEVEL**

Overload level, includes -10dB, -8dB, -6dB, -4dB and -2dB five options.

（5） USER CONFIG



***BACK LIGHT**

Monitor backlight brightness adjustment, range from 0 to 30.

***LANGUAGE**

Menu language selection, ENGLISH and 中文 two options.

***PHASE**

Color adjustment, when the input image is NTSC format, range from 0 to 100.

***APPERTURE**

Sharpness adjustment, range from 0 to 100.

***F1 BUTTON**

F1 key options includes MARKER, AUD METER, WAVEFORM, H/V DELAY, NATIVE, BLUE ONLY, MONO, ASPECT, SCAN and NONE.

***F2 BUTTON**

F2 key options are the same as F1.

***LAYOUT 2 MODE**

One-big with three-small screen has two layout formats: 16:9 and 4:3.

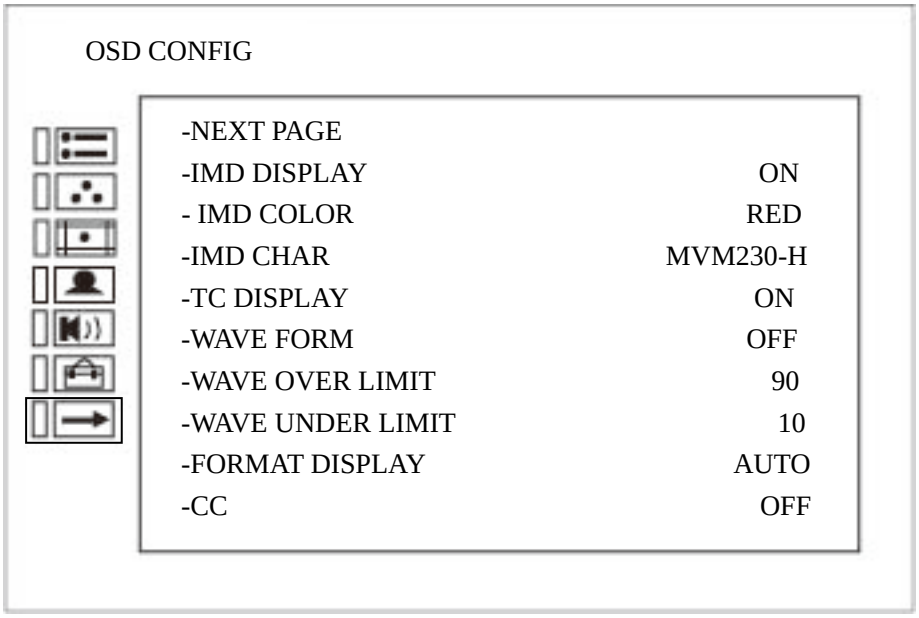
***LOCK NUMBER**

Function lock code input, 8 characters. Each character can input number or letter.

Note: Be careful to adjust this option to avoid unnecessary mistakes.

(6) OSD CONFIG

- **PAGE 1：OSD DISPLAY**



***IMD DISPLAY**

IMD turns on and off.

***IMD COLOR**

IMD color includes RED, GREEN, BLUE, and WHITE four options.

***IMD CHARACTER**

IMD character editor and it can contain 16 characters.

***TC DISPLAY**

TC code displays.

***WAVE FORM**

Waveform and vector control includes OFF, WAVE FORM, VECTOR 75 and VECTOR 100 four options.

***WAVE OVER LIMIT**

Waveform overload limit is range of 0 to 100.

***WAVE UNDER LIMIT**

Waveform under limit is range of 0 to 100.

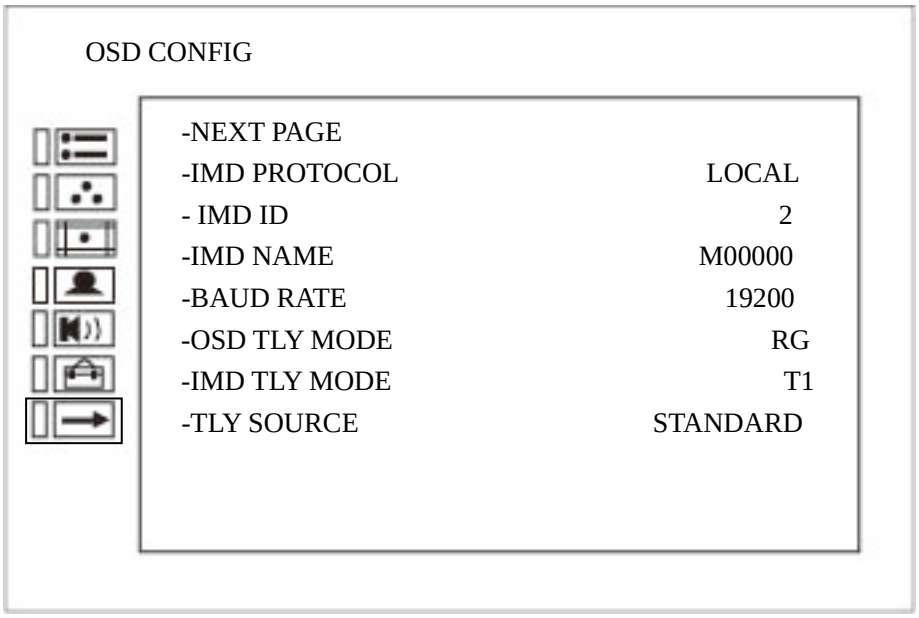
***SATAUS DISPLAY**

Status information control includes OFF, AUTO and ON three options.

***CC**

Closed captioning control includes OFF, CC1, CC2, CC3, CC4, TEXT1, TEXT2, TEXT3, TEXT4 and XDS ten options.

➢ **PAGE 2：IMD DISPLAY**



***IMD PROTOCOL**

IMD protocol includes LOCAL, TSL3.1, TSL4.0 and IMAGE VIDEO four options.

***IMD ID**

IMD ID is range of 0 to 255.

***IMD NAME（S/N）**

IMD serial number contains 16 characters.

***BAUD RATE**

Baud rate selection includes 9600, 19200 and 38400 three options.

***OSD TLY MODE**

OSD TALLY control includes RG, GR, RGY and OFF four options.

***IMD TLY MODE**

IMD TALLY mode selection includes T1, T2, T1T2, T2T1, T1-, T2-, T1T2- and T2T1- eight options.

***TLY SOURCE**

TALLY source selection includes STANDARD, IMAGE VIDEO HW, IMAGE VIDEO 422, STANDARD+IM422 and TSL five options.

5.2 Function menu

Press F1 or F2 to enter the function menu. It displays as follow:

5.3 Adjustment menu

Press ENTER to enter the adjustment menu. It includes VOLUME, BRIGHTNESS, CONTRAST, and CHROMA. It displays as follow:

Press UP and DOWN to adjust the parameter of the current item and press ENTER to enter the next item of the adjustment menu. Press MENU to esc the adjustment menu.

5.4 Screen mode

The screen can be displayed as one full screen display, one-big with three-small screen display and four uniform size screen display.

Press key (CH1, CH2, CH3, and CH4) can enter one full screen display.

Press key (QUAD) can switch within one-big with three-small screen display and four uniform size screen display.

Mode 1: Four uniform size screen display

Window 1	Window 2
Window 4	Window 3

Mode 2: three-small screen display layout as 16:9 or 4:3

<table>
<tr><td rowspan="3">Window 1</td><td>Window 2</td></tr>
<tr><td>Window 3</td></tr>
<tr><td>Window 4</td></tr>
</table>

All images show the biggest screen in center under the premise of keeping the same aspect ratio.

IMD, audio level meter and other kinds of information show in the window without affecting the image display.

Window and the enter channel is correspondence. Channel 1 corresponds to window 1 and channel 2 corresponds to window 2, etc. And the windows serial number can not change.

Chapter 6 Specification

6.1 Description For Specification

LCD Dimension	23”
Screen Scale	4:3/16:9
Resolution	1920 (H) x 1080 (V)
Color Depth	16.7M, 24-bit
Viewing Angle	178°（H/V)
Brightness	250 cd/m^2
Contrast Ratio	1000:1
Video Input	BNC x 4, SDI/ CVBS; HDMI x 1, HDMI/DVI-D
Video Output	HDMI x 1, HDMI/DVI（composite signal，1080p50 or 1080p60）
Audio Input	RCA x 8, 4 analog stereo，SDI embedded audio
Audio Output	RCA x 2, analog stereo(monitoring signal)

6.2 Input signal format

Analog Composite:	PAL, NTSC
SD-SDI:	480i、576i
HD-SDI:	1080i50、1080i 59.94、 1080i 60， 720p50、720p 59.94、720p 60，1035i59.94、1035i 60
3G-SDI:	1080p50、1080p 59.94、1080p 60

6.3 Specifications

CVBS Input/ Output:

Signal Type	NTSC, PAL
Signal Amplitude	1Vp-p+/-3dB
Impedance	75 ohms
Return Loss	>40 dB 到 5 MHz
DC Offset	0V±0.05 V
Frequency Response	±0.2 dB to 5 MHz
Differential Gain	<1%
Differential Phase	<1.5°

3G-SDI /HD-SDI /SDI-SDI Input/ Output:

Signal Type	SMPTE 424M, SMPTE 292M, SMPTE 259M, SMPTE 297M
Connector	BNC per IEC 169-8
Impedance	75 ohms
Return Loss	>18 dB 5 to 270 MHz >15 dB 270 MHz to 1.5 GHz >10 dB up to 3 GHz
Maximum Signal Level	800 mV pk-pk 10%
Signal Amplitude	800 mV pk-pk 10%
DC Offset	0 V ±0.5 V
Overshoot	<10%
Total Jitter	<0.2 UI
Rise and Fall Time	<700 ps for SD <270 ps for 1.5 Gb/s HD <135 ps for 3 Gb/s HD
Wavelength	1310 nm +/-30 nm FP, 1270 nm, 1290 nm, 1310 nm, 1330 nm, 1350 nm, 1370 nm, 1430 nm, 1450 nm, 1470 nm, 1490 nm, 1510 nm, 1530 nm, 1550 nm, 1570 nm, 1590 nm, 1610 nm DFB
Extinction Ratio	>8
Back Reflection	<-14 dB

Note: The specs are subject to change without prior notice!