HD Quad Video Multi viewer

LM-TS71

User Manual

HD Quad Video Multi viewer
Operating Instructions

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Chapter One Installation Notes

For your safety and equipment security, please be sure reading the safety instructions carefullybefore using the machine.

If you have doubts in the use, please read this manual first. Described in detail in the body of the device's operation. If you still have questions, please contact us, we will give you a satisfactory answer as soon as possible.

Specifications subject to release to change without notice, please understand.

When installing, please note the following:

1. power supply:

Please use with protection to single-phase three-wire AC 100-240V power supply, and ensure that the entire engineering system using the same protected. You can not use unprotected power, the power cord ground pin can not be destroyed.

2. Power:

When you need tomove equipmentor other work must outage, to shut off all power, including the power switch, unplug the power plug, so as to ensure the safety of your equipment.

3. Cable:

Thegoods can not put pressure on the power supply lines, signal lines, communication lines, cable should keep fromtrample or extrusion, to prevent the risk of leakage or short circuit.

4. Signal cable:

Inserting or pulling the signal line to the device, the device needs outage, so as not to damage the device. Hot plug caused damage not covered under warranty.

5. Vents:

The outer surface of the device may have openings for heat dissipation, do not block these openings, in order to avoid heat build-up, the risk of damage to the equipment or cause fire.

6. Equipment placement:

Should a reasonable settlement for devices such as standard rack mount, chassis, cabinets, or placed on a stable flat work surface to prevent the unit from dropping.

7.Surroundings:

Equipment working environment should pay attention to dust, moisture, in particular, to prevent the liquid from soaking and splashing into the interior of the device.

8.Service:

All repairs should be done by qualified service personnel , untrained Never attempt to repair equipment. To prevent the risk of electric shock, do not open the cabinet.

9. Safety Precautions:

1.The internal high-voltage equipment, non-professional maintenance personnel shall not open the case, to avoid danger;

2.Non-dripping or splashing, prohibited place any container with liquid items on the device;

3.For the prevention of fire, Prohibited a device near the fire;

4.For adequate ventilation, equipment should be maintained at least20CM void of the front and rear panels;

5. Devices should be immediately unplug the power cord and handled by professional maintenance personnel such as eerie noise, smell or smoke;

6. In the case of lightning or unused for long periods, unplug the power cord;

7.Not stuffed any object to ventilation holes of the device to avoid damage to the equipment or electric shock;

8.Not to place the device near water or other damp places;

9.The device should not be placed near heat sink or other high temperature places;

10.Properly organize the power cord to prevent breakage;

11.The following conditions should unplug the device power cord, handled by qualified service personnel:

1) The power cord is damaged or frayed;

2) When the liquid has been spilled into the device;

3) The device is dropped or the cabinet damaged;

4) This device malfunction or significant performance changes.

This device is not suitable for non-professionals to operate the debugger, users are subject to professional training and guidance.

Please read carefully before using and this manual should be properly preserved for later use.

Chapter two Product Introduction

1. Product description

Multiviewer is a high-performance, its main function is to make the four HD or analog signals displayed simultaneously on a super-high-definition display unit under quad mode , and contain PIP, POP function.

This type of HD Quad video multi viewer supports 1 channel VGA, 2-way DP, 4-way HDMI signal input. Maximum input signal of DP supports 1920X1080 @ 60HZ, the highest HDMI input signal can support 1920X1080 @ 60HZ,and the maximum output resolution up to 1920X1080 @ 60HZ.

Support 1 HDMI signal output, the output resolution and refresh rate up to 1920X1080 @ 6OHZ.

HD Quad video multiplexers is currently use a relatively large number of standard products on the market, products are mainly used in where need to use a single display unit simultaneously display multiple HD signals workplace like video conferencing, teaching, exhibitions .

2.The main function

● Support one VGA, 2-way DP, 4-way HDMI (including 3-way compatible Mobile Signal) input signal, the input resolution up to 1920X1080 @ 60HZ, backward compatible

● Support 1 channel HDMI output, the output resolution up to 1920X1080 @ 60HZ

● Support display 4-way full HD signal simultaneously

●Input and output signal widely support audio, and 3.5mm headphone jack support the left and right channel stereo output

●Single screen simultaneously displays four HD digital / analog signals, or switching to a signal full-screen display

● Support image fixed position function of POP, PIP

● Support 12V DC input

● Support control by a chassis button, IR remote control, RS-232 serial control and the control

3.System topology

4.Machines pictures and size

5.HD video multi viewer Specifications

Name	Specification
Signal input	
Input port	1 channel VGA, 2-way DP, 4-way HDMI, 4-way USB, 1 left and right channelaudio
Resolution	DP supports a maximum resolution of 1920 X 1080 @ 60HZ, backward compatible; HDMI supports a maximum resolution of 1920X1080 @ 60HZ, downward compatible
Audio	Input audio supports 3.5mm audio interface for binding VGA
Color depth	24bit,1677 ten thousand
POP,PIP mode	Fixed model
Output	
interface	1 channel HDMI output connected display devices that support audio and video sync output; A 3.5mm audio left and right channel stereo, for connecting stereo
Resolution	1920 X 1080 @ 60HZ optional
Color depth	24bit,1677 ten thousand
Control mode	RS232、IR、case key
Control software	Not available
Voltage	DC:12V
Dimension	280mm(L)X35mm(H)X170mm(W)
Power	Maximum 15W

Chapter Three Machine installation

1.Unpacking

Check the host and accessories. Including the host, CD, power cable, remote control, warranty card, manual.

2.Install the machine

Display unit setting: HD Quad video multi viewersupport 1 channel HDMI output, the display unit input signal is set to HDMI; if there are several HDMI input signals simultaneously, the signal source is set to HDMI input port.

Output and display unit is connected: place the Quad video multi viewer, a signal output via HDMI cable docking with HDMIport of thecorresponding display unit.

If you need an external audio, devices connect with external audio through the headphone jack at both ends 3.5mm of audio cable

Input Signal Connection: Connect the computer or other signal source output devices with input port of splittervia HDMI cable, VGA cable or DP line ;

If VGA require audio feature, use both ends with 3.5MM headphone jack cable to connect the computer and the input Audio ports of device ;

3. Power on

After finishing connecting the cables that we have talked above , insert the 12V DC power supply, turn on the power switch, power indicator lights isgreen for power-on , the light is red for standby mode;

Chapter Four Device Port Description

In the process of using the device, you need to first get to know each input and output video port so that operate the equipment more skilled. Device input and output ports consists of three parts, namely, an input section, output section, USB section.

1.Input section

Input portion of the chassis rear panel INPUT box ,by A0: VGA, D0: DP, D1: HDMI, D2: Mobile Signal, D3: Mobile Signal, D4: Mobile Signal, D5: DP, RS232 / IR, Audio composed of nine input port, under function for each port:
A0:VGA : VGA signal input;

D0:DP :DP signal input,the maximum input resolution / refresh rate to 1920X1080 @ 60HZ, backward compatible;

D1:HDMI : HDMI input signal, the input resolution up to 1920X1080 @ 60HZ, backward compatible;

D2:Mobile Signal : HDMI input signal, the input resolution up to 1920X1080 @ 60HZ, backward compatible; compatible Mobile Signal mobile phone signal through the Micro USB to HDMI input;

D3:Mobile Signal : HDMI input signal, the input resolution up to 1920X1080 @ 60HZ, backward compatible; compatible Mobile Signal mobile phone signal through the Micro USB to HDMI input;

D4:Mobile Signal: HDMI input signal, the input resolution up to 1920X1080 @ 60HZ, backward compatible; compatible Mobile Signal mobile phone signal through the Micro USB to HDMI input;

D5: DP: DP signal input,the maximum input resolution / refresh rate to 1920X1080 @ 60HZ, backward compatible;

RS232/IR: Using RJ45 to RS232 line, control through computer control software or in the control; IR signals can also be transferred via cable, the remote control receiver away from the device may also be implemented by infrared remote control;

Audio: Bind VGA video signal input, can be synchronized switching with the VGA signal;

2.Output section:

The input section of the chassis's rear panel OUTPUT frame, HDMI interface directly connected to the display unit; Audio can be directly connected to an external sound, high power audio playback.

Chapter Five Remote control operation

Properly connect the output signal and display terminal , then you need to properly connect theinput signal source and the device . via remote control, chassis button and control software to set different display modes, such as quad display, select a signal full-screen display, the PIP and other functions . This chapter describes how to operate the equipment via infrared remote control, if you are use our devices for the first time, configure or settings as follows

1.The window position of signal definition:

Beforeusing Quad video multi viewer, we must understand the definition of signal 1, signal 2, signal 3 and signal 4:

Signal 1 is also called window1,in the top left corner of the screen;

Signal 2 is also known as window 2, in the lower left corner of the screen;

Signal 3 also known as window 3, in the upper right corner of the screen;

Signal 4also known as window 4, in the lower right corner of the screen;

As the picture show:

2. Setting the resolution

If the output resolution ofthe device is higher than the physical resolution of the display unit, the display may not display images ; if the output resolution ofthe device is lower than the physical resolution of the display unit, the image display but not the best, so we must select identical or similar resolution output .

SWITCH button on the remote control switchingthe output resolution ofthe device in turn, so that the output resolution of device with physical resolution of the display unit fit that achieve optimal effect, when switching the resolution we must note the following:

☆Each time you press the SWITCH of remote control, need about 2 seconds before you can switch to the next resolution;

☆If the output resolution of device is higher than the physical resolution of the display unit, the display unit will not display images, or display does not support ,and press the MENU button of remote control does not pop up any menu;

☆After switching resolution, if the display unit can support the resolution, will pop up enter resolution at side of the screen, you can selected the best resolution that support the display unit by switching.

☆Press the MENU key, pop up menu, shows that the resolution setting can be displayed properly.

3. Set the quad display mode:

First press buttons0 of the remote control or cabinet ,so display under Quad mode,but press the 0 key may not post an image, you need to operate the followingsteps.

4.Enter the setup menu:

Press the MENU key of remote control, pop-up menu like Figure 1, the signal source menu in red press theOK key or the → key appears input signal selection menu as Figure 2, you can choose the signal, as shown below:

Source	▶
Resolution	1080P@60HZ
Auto	▶
Brightness	50
Contrast	50
Select Region	Full
Language	English

Source1	AO:VGA
Source2	DO:DP
Source3	D1:HDMI
Source4	D3:MHL

Signal 1	Signal 3
Signal 2	Signal 4

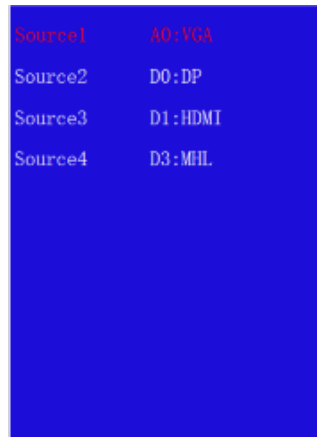Figure 1,main menu   Figure 2,signal menu   Figure3,signal path definitions
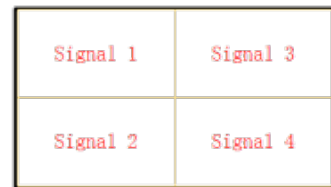
5.Settings of the window displays signal

Signal 1, Signal 2, Signal 3, Signal 4 shows a fixed position, but four signal ports can choose a different input source, as follows:

1.The upper left corner shows AO: VGA port input signal,so the signal 1 select AO: VGA

2.The lower left corner shows DO: DP port input signal, so the signal 2 select D0: DP

3. The top right corner shows D1: HDMI port signal, so the signal 3 select D1: HDMI

4.The bottom right corner shows D3: Mobile Signal port signal, so the signal 4 select D3: Mobile Signal

6.The screen mode switching:

By clicking the shortcut keys on the remote control, you can achieve fast switching signal or mode, the following is the definitions of each key:

key**1**: Signal1 full screen display, audio, video sync switch;

Key**2**: Signal2 full screen display, audio, video sync switch;

key**3**: Signal3 full screen display, audio, video sync switch;

keys**4**: Signal 4 full-screen display, audio, video sync switch;

Key**0**: 4 split screen display;

UA1 Key: sound switch to signal1 channel;

UA2 Key: sound switch to signal 1 channel;

UA3 Key: sound switch to signal 1 channel;

UA4 Key: sound switch to signal 1 channel;

7. Brightness and contrast adjustment

7.1 While adjusting all signals window:

Press the MENU key to pop-up menu , then the region is set to Full state, and respectively adjust brightness or contrast, all windows can change the brightness or contrast simultaneously;

7.2 Adjust one single channel:

Press the MENU key to pop-up menu, then the region is set to 1, and adjust the brightness or contrast, that is you can only adjust the signal 1 window; other windows similar to that.

8.Other keys functions

SOURCEKey: 4 split screen, 2 split screen, POP and PIP various modes switch by turns;

Keys: Power on / off;

Key: Mute on / off;

Key: volume -, press sound reduction;

◀+ Key: volume + press to increase the sound

SWITCH: Switch different resolutions, after each press, please interval 2-3 seconds

↩:Return key;

AUTO : VGA signal correct, for the VGA input signal offset or not full screen situation, one-click calibration;

Chapter Six button operation

Through the chassis button, you can easily call in quick mode, call mode are correspond with the remote controller. the following only describes the purpose of each button:

Menu:

↑, ↓, ←,→: Up, down, left and right navigation keys;

1: The first window full-screen ;

2: The 2nd window full-screen ;

3: The3rd window full-screen ;

4: The 4th window full-screen;

0: Four split screen display;

Mode: Split screen mode switch turns;

Resolution: Resolution switching;

UA1: Audio switch to the first window;

UA2: Audio switch to the second window;

UA3: Audio switch to the third window;

UA4: Audio switch to the 4th window;

Chapter Seven Software Operation

1. RS-232 serial cable connection

First, the RS-232 line connect with cable which supporting RS-232 port to RJ45 network, the other end of the RS-232 is connected with the equipment.

2.Check the computer settings

View computer COM port if is normal to see these steps: Right-click the desktop "My Computer" - "Properties" - "Device Manager", as shown below COM port number:
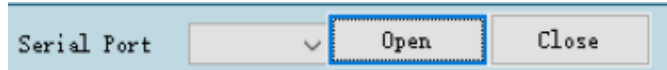

USB-SERIAL CH340 (COM3)
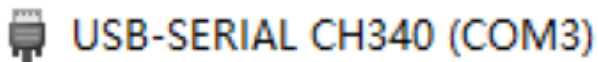
3.Run the software

The random distribution of the CD-ROM control software folder copy to control computer, and open Video Converter file, such as on the following screen:

4.The communication settings

 Click on the right end of the list of serial port drop-down menu → select serial number → click open, you can control the device.


5.Resolution settings

Click on the right side of the resolution ,Resolution drop-down menu, select the appropriate resolution and refresh rate depending on the physical resolution of the monitor.Such as the physical resolution of display unit is 1920*1080, so you should choose 1920X1080 @ 60HZ in this item.

6.Switch the mode

By clicking the icon of display mode, shortcut control the mode, as shown below, respectively: 1,2,3,4 window full screen, quad mode, the left and right split mode, down and up two split mode, PIP display mode.
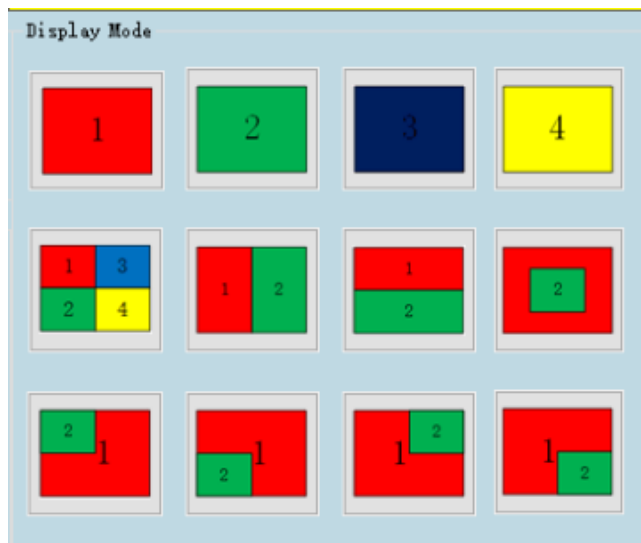
7.The audio portion

As shown below, each menu definition of the audio portion:

Switch : Device on / off; Volume - : volume down;
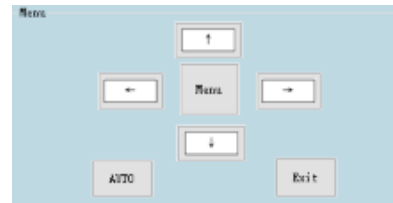
Volume +: volume increase; Mute : Mute on / off;

USB / Audio 1: audio switch to the first window;

USB / Audio 2: audio switch to the second window;

USB / Audio 3: audio switch to the third window;

USB / Audio 4: audio switch to the fourth window;

| Power SW | volume- | volume+ | Mute |
| USB/Audio1 | USB/Audio2 | USB/Audio3 | USB/Audio4 |

8.Menu settings

Through the menu settings,it can be switched signals of each window, adjust the brightness, resolution adjustment, language setting, each keys definition of the setup menu (below):

↑: Up navigation key ;   ↓: down navigation key;

←: Left navigation key;   →: Right navigation key;

Menu: The menu key;   AUTO: VGA signals automatically corrected;

Exit: Exit menu

Chapter Eight Control Code

Baud Rate: 9600 Data Bits: 8

Stop bits: 1Checksum: None

#define _RS232_MENU_MSG（menu）	0x22 0x10 0x10 0x20 0x33
#define _RS232_LEFT_MSG（left navigation）	0x22 0x10 0x11 0x21 0x33
#define _RS232_RIGHT_MSG（right navigation）	0x22 0x10 0x12 0x22 0x33
#define _RS232_EXIT_MSG（back/exit ）	0x22 0x10 0x13 0x23 0x33
#define _RS232_POWER_MSG（on/off）	0x22 0x10 0x14 0x24 0x33
#define _RS232_UP_MSG（up navigation）	0x22 0x10 0x15 0x25 0x33
#define _RS232_DOWN_MSG（down navigation）	0x22 0x10 0x16 0x26 0x33
#define _RS232_4P（quad mode）	0x22 0x10 0x30 0x40 0x33
#define _RS232_1P_FULL（window1 full-screen）	0x22 0x10 0x31 0x41 0x33
#define _RS232_2P_FULL（window2 full-screen）	0x22 0x10 0x32 0x42 0x33
#define _RS232_3P_FULL（window3 full-screen）	0x22 0x10 0x33 0x43 0x33
#define _RS232_4P_FULL（window4 full-screen）	0x22 0x10 0x34 0x44 0x33
#define _RS232_POP_LR（left and right）	0x22 0x10 0x35 0x45 0x33
#define _RS232_POP_TB（up and down）	0x22 0x10 0x36 0x46 0x33

```
#define _RS232_PIP_LT（top left）          0x22   0x10   0x37   0x47   0x33
#define _RS232_PIP_LB（bottom left）       0x22   0x10   0x38   0x48   0x33
#define _RS232_PIP_RT（top right）         0x22   0x10   0x39   0X49   0x33
#define _RS232_PIP_RB（bottom right）      0x22   0x10   0x3A   0x4A   0x33
#define _RS232_PIP_MID（center）           0x22   0x10   0x3B   0x4B   0x33
#define _RS232_L_MODE（UA1）               0x22   0x10   0x3C   0x4C   0x33
#define _RS232_N_MODE (UA2)               0x22   0x10   0x3D   0x4D   0x33
#define _RS232_M_MODE (UA3)               0x22   0x10   0x3E   0x4e   0x33
#define _RS232_K_MODE (UA4)               0x22   0x10   0x3F   0x4F   0x33
#define _RS232_OUTPUT_1920*1080@60HZ      0x22   0x10   0x41   0x51   0x33
#define _RS232_MUTE(mute on/off)          0x22   0x10   0x45   0x55   0x33
#define _RS232_VOL_DEC（volume-）          0x22   0x10   0X46   0x56   0x33
#define _RS232_VOL_INC( volume +）         0x22   0x10   0x47   0x57   0x33
#define _RS232_Auto_MESSAGE（VGA correction）0x22  0x10   0x56   0x66   0x33
```