



Mobile Phone Sync Screen Rotator

LM-TN702



User Manual

Chapter I Installation Notes

For your safety and equipment security, please be sure reading the safety instructions carefully before 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, the product description

This document is general-purpose operating instructions of LM-TN701, LM -TN702, LM -TN703 three types, due to different model's features of product are not the same, if in doubt please contact us or refer to the product specifications of appropriate type. Here is the main difference among the three types of products:

Product Features	LM-TN701	LM -TN702	LM -TN703
The highest signal input of 3840 * 2160	√	√	√
3840 * 2160 resolution output	×	×	√
1920 * 1080 resolution output	√	√	√
image rotation of 90,180,270 degree	√	√	√
FIG cutting function for smart phones	×	√	√
HDMI compatible MOBILE PHONE PORT signal input	√	√	√

2, power supply:

This device uses 12V / 3A external power supply, power supports 100-240V AC input voltage, in order to enable the device to work properly, please do not easily replace the brand outside the company and power specifications.

3, Power:

When you need to move equipment or 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.

4, Cable:

The items can not put pressure on the power supply lines, signal lines, communication lines,

cable should keep from trample or extrusion, to prevent the risk of leakage or short circuit.

5, Signal cable:

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

6, 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.

7, 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.

8, 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.

9, 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.

10, 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, for bidding a device near the fire;
- 4, for adequate ventilation, equipment should be maintained at least 20CM 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.
 - 5) Regularly check the fan is working properly, if the fan does not work you should turn off the

device and disconnect the power supply immediately, handled by the professionals;

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.

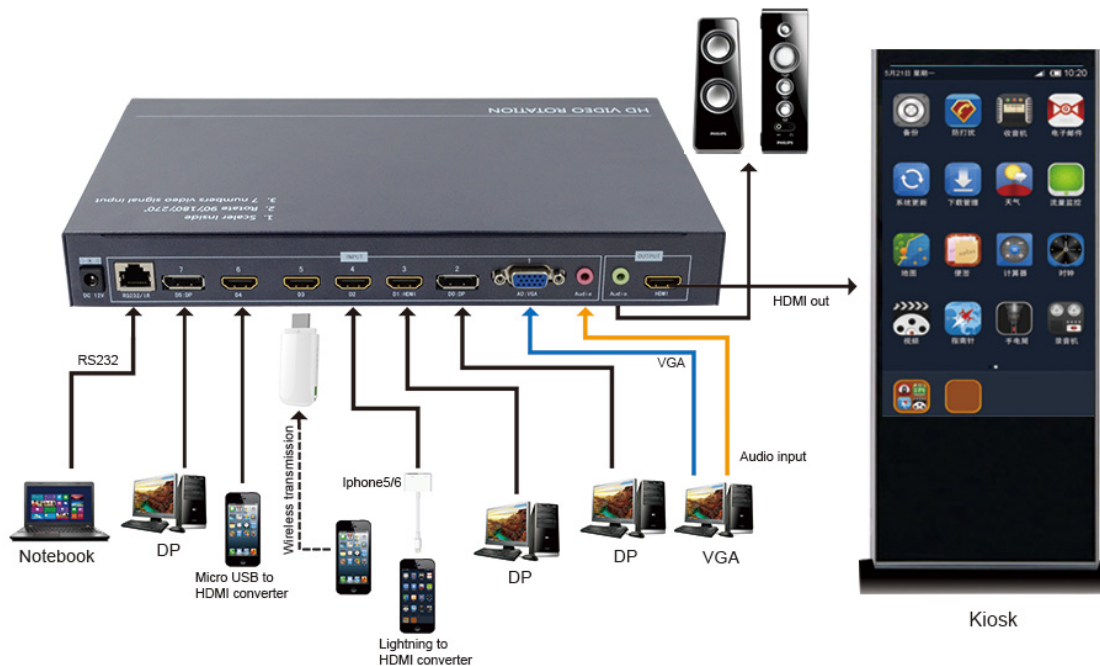
Chapter II Product Introduction

1 Overview:

LM-TN70x series fold line rotator is a high-performance switcher, the internal contain high-speed image processing chip. Its main function is to input 1 VGA, 2-way DP, 4-way HDMI signals, including 3-way HDMI signal compatible MOBILE PHONE PORT signal. Free to switch any signal to fold line into fixed resolution and refresh rate to the HDMI output.

Products can achieve sound and video signals synchronously switch in different formats, and achieve image the degree of 90,180,270rotation by setting. Product Design infrared remote control, users are more simple and intuitive in operation, the control can also control by RS-232.Users one-click shortcut control and full-function by remote, the operation is more humane, more simple.

2, the system topology



Panel Description



- | | |
|---|---|
| <ul style="list-style-type: none"> ① Power signal light ② IR Remote control ③ MENU button ④ Up/Down:For the menu up and down
Left/Right:For the menu left and right | <ul style="list-style-type: none"> ⑤ AO:VGA button DO:DP button D1:HDMI button D2:HDMI button D3:HDMI button D4:HDMI button D5:DP button |
|---|---|



- | | |
|---|--|
| <ul style="list-style-type: none"> ⑥ DC 12V Power port ⑦ RS232 port ⑧ D5:DP input ⑨ D4:HDMI input D3:HDMI input D2:HDMI input | <ul style="list-style-type: none"> ⑩ D1:HDMI input ⑪ D0:DP input ⑫ AO:VGA input ⑬ Audio input ⑭ Audio output ⑮ HDMI output |
|---|--|

Chapter III Machine Installation

1 Unpacking

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

2 Install the machine

2.1, setting the display unit: the LCD TV or other display device's input signal is set to HDMI status;

2.2 output connections: the HDMI cable allows HDMI input port of device's OUTPUT box and HDMI input port of the display unit is connected; if you need to use an external sound ,insert an external stereo's 3.5mm headphone jack into Audio port of OUTPUT box .

2.3, connect input signal

Product support 1 channel VGA, 2-way DP, 4-way HDMI and 1 left and right channel audio with binding VGA signal input. D1, D2, D3, D4 port can connect directly with PC, Blu-ray DVD and other equipment through ordinary HDMI cable; D2, D3, D4 can be connected with a simple Micro USB transferred HDMI cable, so that smart phones with MOBILE PHONE PORT-enabled can display on display unit , Micro USB transfer HDIM line as shown below:




3. Power on

After finishing connecting the cables that we have talked above , insert the12DC power supply, booting Via POWER button of infrared remote control, NOTE: Red is on standby, the green light is turned on.

Chapter IV Product Settings

1, Power:

Starting up through the power button  of remote control, if the corresponding port is connected with the video signal, the display unit will immediately display video images; if no image display or without any prompts on screen, please switch to resolution that match with the display unit by continuous pressing **SOURCE** key.

2 Signal switching:

1, a key switch function:

Number keys of remote control with number keys of the chassis are corresponding, will respectively call out different port's video signal by pressing 1,2,3,4,5,6,7 keys, the corresponding signal port for calling by number keys as follows:

- 1: VGA signal of AO port;
- 2: DP signal of D0 port;
- 3: HDMI signal of D1 port;
- 4: HDMI or MOBILE PHONE PORT signal of D2 port;
- 5: HDMI or MOBILE PHONE PORT signal of D3 port;



6: HDMI or MOBILE PHONE PORT signal of D4 port;

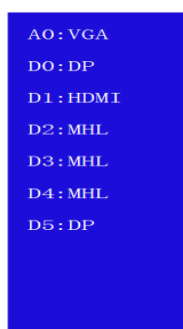
7: DP signal of D5 port;

2, through the **SOURCE** button to switch:

Press the **SOURCE** button of remote control pop-up below menu, the ,  navigation keys

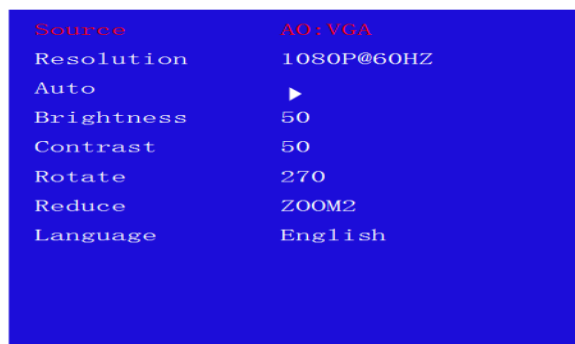
move the red mark cursor to the signal source you desired, then click **OK** button to select the

signal source, the menu as follows:  



3 Menu settings:





Clicking the **MENU** key of remote control or cabinet, bring up the following menu, the device can be seted through the menu, introduction of each menu's function as shown below:



1, source:

This menu item displays the current signal source channel of switching, is not recommended to switching signal source go through this;

2, the output resolution:

By ,  navigation keys move to this item so that display the red font, and then by   navigation keys to switch different resolution to match the resolution of the physical unit;



Switching by this method may make device's output resolution higher than the physical resolution of the display unit, can not display images correctly, we can also conduct quick switch resolution by **SWITCH** key of remote control until the output resolution of the device match

with display unit;



3, automatic adjustment

For not full screen, the image deviation of VGA input signal, a key correction by left or right navigation keys;



4, brightness

By   navigation keys to adjust the brightness of the image ;

5. Contrast

By   navigation keys to adjust the contrast of the image ;

6, flip

By   key to achieve 90 degrees, 180 degrees, 270 degree rotation of the image;





The initial image

Rotate 90 °

Rotate 180 °

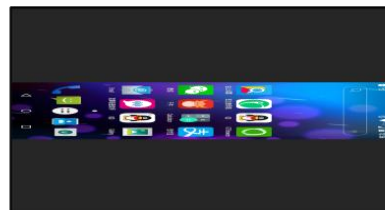
Rotate 270 °

7, cut

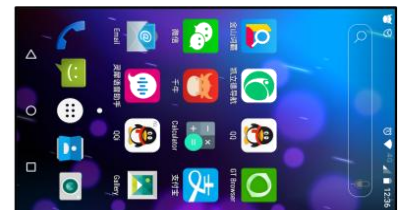
Achieving image cropping by   key, intercepting the image and display the middle part of the image, mainly for smart phones full-screen display on a vertical advisement player or vertical display unit after rotating, as shown below:



phone interface without rotation



after rotating 90 °



after rotation and screenshot

Chapter V RS232 serial control

Except for product can be controlled by the remote control and buttons of chassis, also can be controlled by RS-232 serial ,that is the user can switch the signal, mode selection, output resolution of the machine through enter code after download serial assistant, the following are the serial setting and frequently-used control codes:

Baud rate: 9600

BYTE0 ~ BYTE1: start code;

BYTE2: data;

BYTE3: check code ,sum of BYTE2 + BYTE1 ;

BYTE4: end code;

```
#define _RS232_MENU_MSG           0x22 0x10 0x10 0x20 0x33
#define _RS232_LEFT_MSG          0x22 0x10 0x11 0x21 0x33
#define _RS232_RIGHT_MSG         0x22 0x10 0x12 0x22 0x33
#define _RS232_EXIT_MSG          0x22 0x10 0x13 0x23 0x33
#define _RS232_POWER_MSG         0x22 0x10 0x14 0x24 0x33
#define _RS232_UP_MSG            0x22 0x10 0x15 0x25 0x33
#define _RS232_DOWN_MSG          0x22 0x10 0x16 0x26 0x33
#define _RS232_OUTPUT_1080P      0x22 0x10 0x41 0x51 0x33
#define _RS232_OUTPUT_2560x1440 0x22 0x10 0x42 0x52 0x33
#define _RS232_OUTPUT_4K30       0x22 0x10 0x43 0x53 0x33
#define _RS232_OUTPUT_4K60       0x22 0x10 0x44 0x54 0x33
#define _RS232_MUTE              0x22 0x10 0x45 0x55 0x33
#define _RS232_VOL_DEC           0x22 0x10 0x46 0x56 0x33
#define _RS232_VOL_INC           0x22 0x10 0x47 0x57 0x33
#define _RS232_VGA_MESSAGE        0x22 0x10 0x48 0x58 0x33
#define _RS232_DP1_MESSAGE        0x22 0x10 0x49 0x59 0x33
#define _RS232_HDMI1_MESSAGE      0x22 0x10 0x4A 0x5A 0x33
#define _RS232_HDMI2_MESSAGE      0x22 0x10 0x4B 0x5B 0x33
#define _RS232_HDMI3_MESSAGE      0x22 0x10 0x4C 0x5C 0x33
#define _RS232_HDMI4_MESSAGE      0x22 0x10 0x4D 0x5D 0x33
#define _RS232_DP2_MESSAGE        0x22 0x10 0x4E 0x5E 0x33
#define _RS232_ROTATE_0_MESSAGE   0x22 0x10 0x4F 0x5F 0x33
#define _RS232_ROTATE_90_MESSAGE  0x22 0x10 0x50 0x60 0x33
#define _RS232_ROTATE_180_MESSAGE 0x22 0x10 0x51 0x61 0x33
#define _RS232_ROTATE_270_MESSAGE 0x22 0x10 0x52 0x62 0x33
#define _RS232_ZOOM_OFF_MESSAGE   0x22 0x10 0x53 0x63 0x33
#define _RS232_ZOOM_1_MESSAGE     0x22 0x10 0x54 0x64 0x33
#define _RS232_ZOOM_2_MESSAGE     0x22 0x10 0x55 0x65 0x33
#define _RS232_Auto_MESSAGE       0x22 0x10 0x56 0x66 0x33
```

Specification

Input Signal	
1x VGA	HD15 port, supports 640x480@60Hz to 1920x1200@60Hz
2x DP	Display Port 1.1
4x HDMI	HDMI 1.4(HDCP 1.3), Compatible with smart phone signal
1x Audio	3.5mm earphone port, supports L/R stereo audio, bound with VGA Video signal
Output Signal	
1x HDMI	HDMI 2.0(HDCP 1.3), 3840x2160/60Hz, 1920x1080/60Hz, 1280x720/60Hz optional
1x Audio	3.5mm earphone port, supports L/R Stereo Audio
Others	
Control Mode	Remote Controller, Button, RS232 Serial port
Power Supply	DC 12V
Power Consumption	10w
Dimension (LxWxH)	280x170x35mm
Net Weight	1.1kg

Control Mode

Via Remote Controller, Button, RS232 Serial port to control image switch, image rotation and resolution switch, it is easy to use and convenience.

Product Dimension



Product Contents

1. One Mobile Phone Syn cscreen Rotator
2. One IR cable
3. One remote controller
4. One power adapter
5. One instruction manual



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