



CREATOR[®]
CREATOR CORPORATION(CHINA)

**CR-iMAX901HD Multi-Signal Scaler
User Manual**

V1.0 Version

CREATOR CORPORATION

The meaning of symbols

■ Safety instructions

For your safe and correct use of equipments, we use a lot of symbols on the equipments and in the manuals, demonstrating the risk of body hurt or possible damage to property for the user or others. Indications and their meanings are as follow. Please make sure to correctly understand these instructions before reading the manual.

	<p>This is A level product, which may cause radio interference in the living environment. In this case,users may need to take the feasible measures to get around the interference.</p>
	<p>Remind users that the dangerous voltage without insulation occurring within the equipment may cause people suffer from shock</p>
	<p>CE certification means that the product has reached the directive safety requirements defined by the European Union. Users can be assured about the use of it</p>
	<p>SGS certification means that the product has reached the quality inspection standards proposed by the world's largest SGS.</p>
	<p>This product passed the ISO9001 international quality certification (certification body: TUV Rheinland,Germany).</p>
	<p>Warning: in order to avoid electrical shock, do not open the machine cover, nor is the useless part allowed to be placed in the box. Please contact the qualified service personnel.</p>

■ General information instructions

	<p>It lists the factors leading to the unsuccessful operation or set and the relevant information to pay attention to</p>
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Important note



Warning

In order to ensure the reliable performance of the equipment and the safety of the user, please observe the following matters during the process of installation, use and maintenance:

The matters needing attention of installation

- ◆ Please do not use this product in the following places: the place of dust, soot and electric conductivity dust, corrosive gas, combustible gas; the place exposed to high temperature, condensation, wind and rain; the occasion of vibration and impact. Electric shock, fire, wrong operation can lead to damage and deterioration to the product, either;
- ◆ In processing the screw holes and wiring, make sure that metal scraps and wire head will not fall into the shaft of controller, as it could cause a fire, fault, or incorrect operation;
- ◆ When the installation work is over, it should be assured there is nothing on the ventilated face, including packaging items like dust paper. Otherwise this may cause a fire, fault, incorrect operation for the cooling is not free;
- ◆ Should avoid wiring and inserting cable plug in charged state, otherwise it is easy to cause the shock, or electrical damage;
- ◆ The installation and wiring should be strong and reliable, contact undesirable may lead to false action;
- ◆ For a serious interference in applications, should choose shield cable as the high frequency signal input or output cable, so as to improve the anti-jamming ability of the system.

Attention in the wiring

- ◆ Only after cutting down all external power source, can install, wiring operation begin, or it may cause electric shock or equipment damage;
- ◆ This product grounds by the grounding wires. To avoid electric shocks, grounding wires and the earth must be linked together. Before the

connection of input or output terminal, please make sure this product is correctly grounded;

- ◆ Immediately remove all other things after the wiring installation. Please cover the terminals of the products cover before electrification so as to avoid cause electric shock.

Matters needing attention during operation and maintenance

- ◆ Please do not touch terminals in a current state, or it may cause a shock, incorrect operation;
 - ◆ Please do cleaning and terminal tighten work after turning off the power supply. These operations can lead to electric shock in a current state;
 - ◆ Please do the connection or dismantle work of the communication signal cable, the expansion module cable or control unit cable after turning off the power supply, or it may cause damage to the equipment, incorrect operation;
 - ◆ Please do not dismantle the equipment, avoid damaging the internal electrical component;
 - ◆ Should be sure to read the manual, fully confirm the safety, only after that can do program changes, commissioning, start and stop operation;
- ### **Matters needing attention in discarding product**
- ◆ Electrolytic explosion: the burning of electrolytic capacitor on circuit boards may lead to explosion;
 - ◆ Please collect and process according to the classification, do not put into life garbage;
 - ◆ Please process it as industrial waste, or according to the local environmental protection regulations.

Preface

Video Converter User's Manual mainly introduces the operation methods of CR-iMAX901HD, their main performance parameters and common fault solutions.

This manual is only used as user instruction, not for a repair service usage. The functions or related parameters may be changed since the date of issue, please inquire the supplemental information from CREATOR Electronics or local distributors.

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Contents

Chapter One Overview.....	1
1.1 Features	1
1.2 Installation	1
Chapter Two System Introduction	2
2.1 Panel instructions	2
2.2 Interface description	3
2.2.1 COM port description	3
2.2 RJ45 network cable producing methods	4
2.3 Diagram of system connection.....	5
2.4 Panel operating instructions.....	5
2.4.1 LCD display	5
2.4.2 Button lights.....	5
2.4.3 Operation introduction.....	5
2.4.4 Operation examples.....	6
2.5 Menu structure.....	8
Chapter Three Code Instructions	9
Chapter Four Specifications	12
Chapter Five Common Trouble Solution.....	15

Chapter One Overview

New generation of CR-iMAX901HD is a kind of scaler that can switch different types of signal input to HDMI and HDBase output. It has 9 input video signal source:

CVBS,(Y,Pb/Cb,Pr/Cr),VGA ,HDMI and HDBaseT signal convert/switch to unified HDMI/HDBaseT signal output,all input signals can fold lines to a user-defined output resolution.

The product also supports 9 unbalanced analog stereo audio inputs,by switching to the audio amplifier output. HDMI input and output can support audio signal synthesis or separation. Scaler using the front panel buttons,RS232,IR and Ethernet control and HDBaseT remote control,can be widely used in broadcast television engineering, multimedia conference room, large screen display engineering, television education, command and control centers and other occasions.

1.1 Features

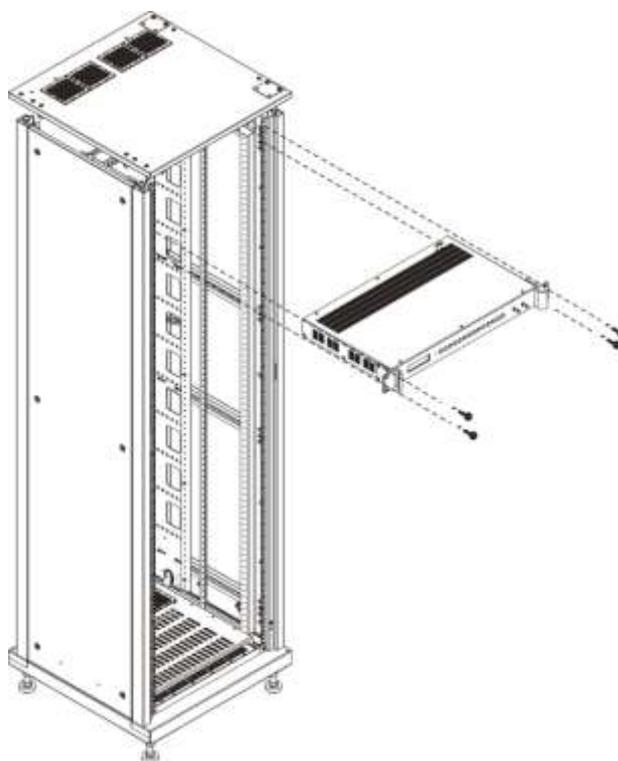
- ◆ Support 9 video signal input; 1CVBS,1Y,Pb/Cb,Pr/Cr,2VGA,3HDMI, 1DisplayPort, 1HDBaseT input;
- ◆ 2 video signal output; 1 HDMI,1 HDBaseT output;
- ◆ Support 9 analog audio inputs;unbalanced stereo, 20Hz~20KHz;
- ◆ Support 1 balanced stereo audio amplifier output;2x10W @ 8Ω,2x20W@4Ω;
- ◆ Each audio input has 8 degree coarse control of volume,the output has 100 degree fine control of volume;
- ◆ Input and output resolution maximum support WUXGA;
- ◆ Audio and video switching;truly realizing switch with no blank screen, no debris;
- ◆ Support for HDM 1.2a, HDCP1.3,Display

Port 1.1;

- ◆ HDMI inputs and outputs can isolate or synthesize audio;
- ◆ Support brightness,contrast adjustment, VGA screen automatically adjustment,thus to meet your different needs for image screen visual effects;
- ◆ Support brightness,contrast adjustment,VGA screen automatically adjustment,thus to meet your different needs for image screen visual effects;
- ◆ EDID manager;
- ◆ With the function of restoring factory defaults.

1.2 Installation

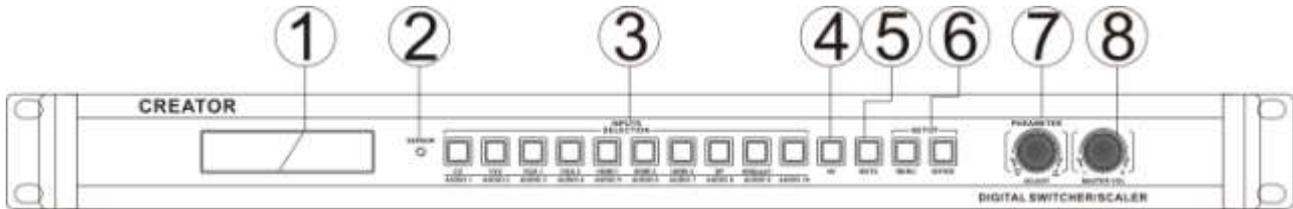
Matrix host with all-metal chassis can be installed on the standard 19-inch rack,as shown below:



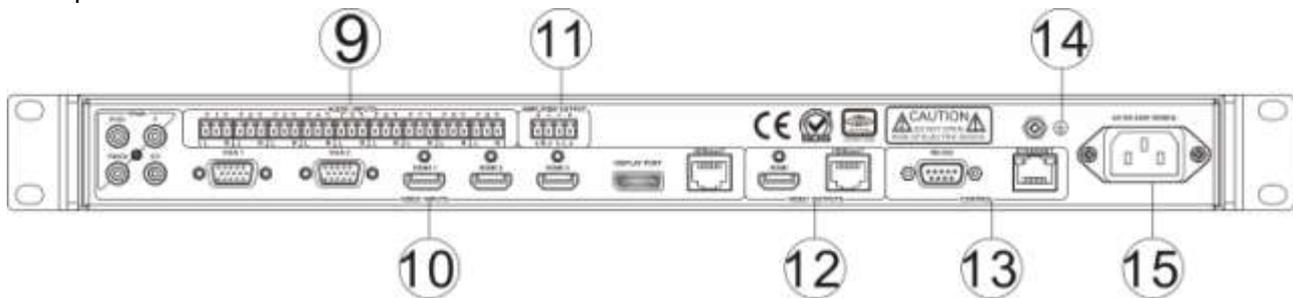
Chapter Two System Introduction

2.1 Panel instructions

Front panel:



Rear panel:



① LCD display

Display the current status of output screen and operating information.

② SENSOR——infrared receiver

Use with the dedicated remote control of CREATOR.

③ INPUTS SELECTION——input source type, input audio channel selection keys

It is used to select the input source type. If you need to select VGA1 source signal input, you need to press the corresponding button, similarly, if you need to select 1-10 channel input audio signal source, just press the corresponding button.

④ AV——video/ audio setting button

If you need to select the video input signal from the INPUTS SELECTION, you must set the current state of switching the video through AV firstly; if you need to select the audio input signal,

you must set the current state of switching the audio through AV. AV button lights, INPUTS SELECTION select the audio input signal.

⑤ MUTE——normal audio/ silent mode

MUTE button light is silent mode, MUTE button lights off is normal mode.



The silent mode set by the MUTE button is invalid to the DisplayPort interface input audio signal.

⑥ SETUP

MENU——Menu setting button

With this button, you can enter the LCD menu to set the corresponding function

ENTER——OK

The OK button to set the MENU function

⑦ PARAMETER——check knob

Cooperate with MENU settings, to be as a menu direction arrow.

⑧ MASTER VOL——master volume control knob

This knob can help to adjust the analog output volume,each step is 0.5Db.

⑨ AUDIO INPUTS——9 unbalanced audio inputs

AUDIO INPUTS1~9 unbalanced audio input interface,wherein when the AUDIO INPUTS 1~4 audio interfaces have access to the audio source,CV,YPbPr,VGA1,VGA2 and other video input interface have access to signals:

AUDIO INPUTS 1 and CV signal default fixed synthesis HDIM output.

AUDIO INPUTS 2 and YPbPr signal default fixed synthesis HDIM output.

AUDIO INPUTS 3 and VGA1 signal default fixed synthesis HDIM output.

AUDIO INPUTS 4 and VGA2 signal default fixed synthesis HDIM output.

⑩ VIDEO INPUTS——1 CVBS, 1 component video YPbPr,2 VGA,3 HDMI,1 DisplayPort,1 HDBaseT input.



DisplayPort audio interface input signal can not be output from the amplifier balanced audio interface.

11 AMPLIFIER OUTPUT ——1 amplifier balanced audio output

12 VIDEO OUTPUT——1 HDMI, 1 HDBaseT output;

Wherein when the CV, YPbPr, VGA1,VGA2 video input interface and AUDIO INPUTS 1~4 audio interface have access to signals:

AUDIO INPUTS 1 and CV signal default fixed synthesis HDIM output.

AUDIO INPUTS 2 and YPbPr signal default fixed synthesis HDIM output.

AUDIO INPUTS 3 and VGA1 signal default fixed

synthesis HDIM output.

AUDIO INPUTS 4 and VGA2 signal default fixed synthesis HDIM output.

13 CONTROL——signal control district

RS-232——RS-232 control port, with the baud rate of 115200,is to connect a computer or other equipment with RS232 control interface to achieve the goal of controlling the device.

ETHERNET——Ethernet control port can get into the internet to achieve the goal of controlling the device.

14 Ground column

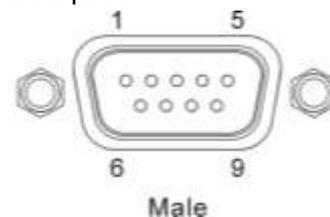
15 System power input port

Controller power input,support AC100~240V 50/60Hz.

2.2 Interface description

2.2.1 COM port description

Professional CR-iMAX901HD switching scaler can control via RS-232 serial interface or optional Ethernet control port.



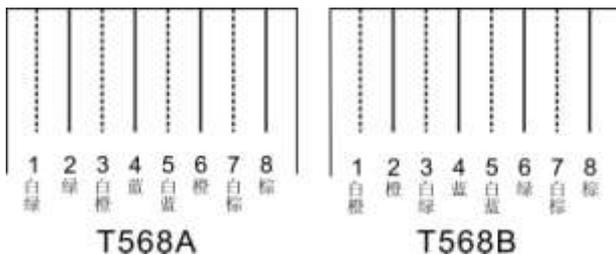
COM port pin description is as follows:

Pin-out	signal	description
1	-	-
2	TXD	Sending data
3	RXD	Receiving data
4	-	-
5	GND	Signal ground
6	-	-
7	-	-
8	-	-
9	-	-

2.2 RJ45 network cable

producing methods

This system used CAT-5 (five wire) as materials, and installed RJ45 connectors at both ends of CAT-5 (commonly known as crystal head), thus to connect the network device. Twisted Pair standard connection provisions is designed to ensure the layout symmetry of the cable connector, thus you can make the interference between the cable connector cancel each other out. General UTP cable has four pairs of thin twisted lines, and marked with different colors. There are two methods of twisted pair connection: EIA/TIA 568B standard and EIA/TIA 568A standard.



T568A line order							
1	2	3	4	5	6	7	8
White and green	green	White and orange	blue	White and blue	orange	White and brown	brown

T568B line order							
1	2	3	4	5	6	7	8
White and orange	orange	White and green	blue	White and blue	green	White and brown	brown

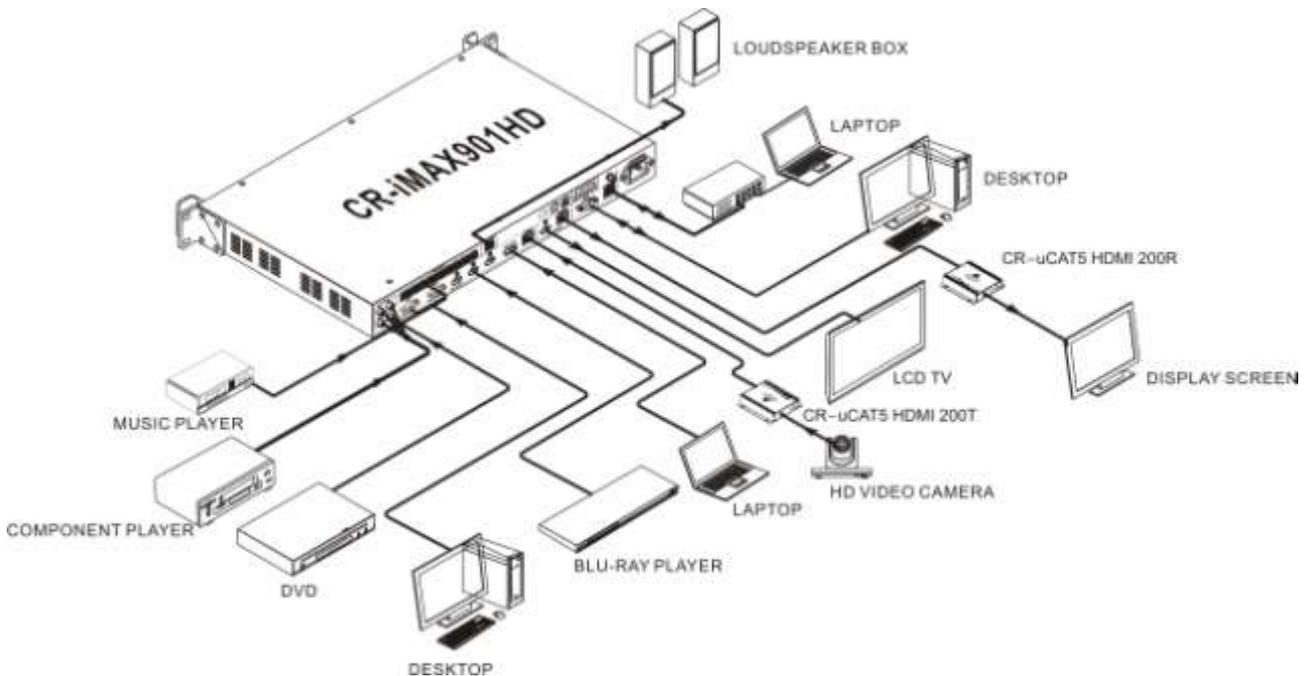
Straight-through line: both ends are connected according to T568B standard.

Crossover cable: one end is connected according to T568A standard, the other end is connected according to T568B standard.



When connected to the network router, we use the straight-through line connection method. When connected to a PC computer control, we use crossover cable connection method.

2.3 Diagram of system connection



2.4 Panel operating instructions

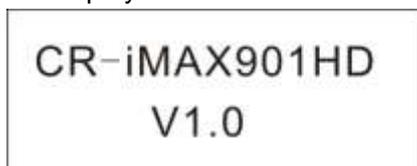
2.4.1 LCD display

10 seconds without operation, LCD backlight will turn off. Press any key, you can light it up.

2.4.2 Button lights

The front panel has a button operation light, which flashes in red. When you press a button, the button lights will shine inside.

When it is charged, LCD display backlight also lights up and show that system is starting Loading..., when startup is completed, the main screen will be displayed.



Menu operation steps can be summarized as:

Enter the menu → select setting →
Option → select the option parameter
information → determine the setting
After setting 10 seconds without operation, the

system will automatically save parameter settings.

2.4.3 Operation introduction

1, video channel switching

Step one: AV button lights off (the default video channel), simply press the corresponding button. (CV, YPbPr, VGA1, VGA2, HDMI1, HDMI2, HDMI3, DisplayPort, HDBaseT) buttons, the lighting lights is the choice.

Step two: The current state is the audio channel settings (AV button lights), then press the AV button again to reset to the video channel, just repeating the first step.

2, Audio channel switching

Step one: AV button lights (set audio channel), simply press the corresponding (AUDIO INPUTS 1~9) buttons, the lighting light is the choice.

Step two: the current state is the video channel setting (AV button lights off), and then press the AV button once again to set audio channel. Just to repeat the first step.

3,Setting the menu options

Step one:press any button to light up the LCD screen,then press the “MENU”to enter the menu option.

Step two:turn the PARAMETER knob to select the needed setting item, then press “ENTER” to enter.

Step three:after entering the Selecting Setting Item, turn the PARAMETER knob to select the desired setting parameters,and then press “ENTER”to confirm the selection. Each press of LCD screen,it will display the corresponding parameter information.

Step four:when you need to set many parameters,just press the “MENU”to return to the previous menu after confirming each parameter, then you just need to repeat the operation of the second, third and fourth steps.



If the current operation is in the menu structure (as shown below), press “MENU” to return to the previous menu. If the current state is audio and video channel switch, press “MENU” to display the main menu page of scaler.

2.4.4 Operation examples

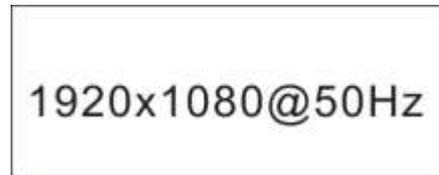
Such as:set the output resolution to 1280X1024@60Hz,the brightness to 60 and adjust the output volume to + 10.5dB.

1.Press “MENU” to enter into the menu option settings to set the resolution to 1280X1024@60Hz, LCD will display as follows:

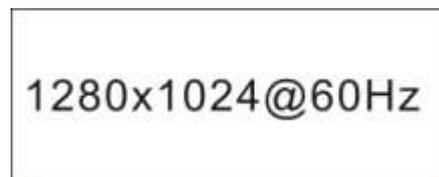
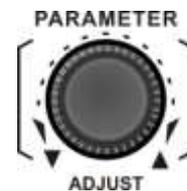


Press “ENTER” to enter into the menu option settings, turn the PARAMETER knob to set the “OUTPUT Format”parameter. For example: when you enter the menu, the resolution will display as

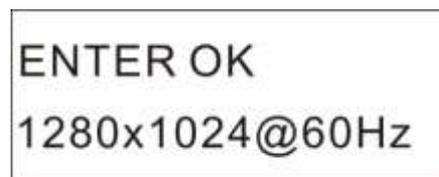
1920X1080@50Hz.



3.The LCD display shows the current status of the option,then turn the PARAMETER knob to select the desired parameter 1280X1024@60Hz.



4.When you selected the parameters,press “ENTER”to confirm the changes,LCD screen will display the setting parameters.



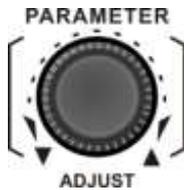
5.Set the brightness parameter to 60. After you setting the resolution,press the “MENU” to return to the previous menu option,turn the PARAMETER knob to select until the LCD screen display the “Image Setting” option.

Image Setting

6. Press "ENTER" to enter the menu option settings, turn the PARAMETER knob to select until the LCD screen displays the "Bright Adjust" option.

Bright Adjust

7. Press "ENTER" to confirm the option, thus to enter the option parameter settings. Now the LCD screen shows the current status of the option, then use "PARAMETER" to set the parameter to "60".



Bright ness 60

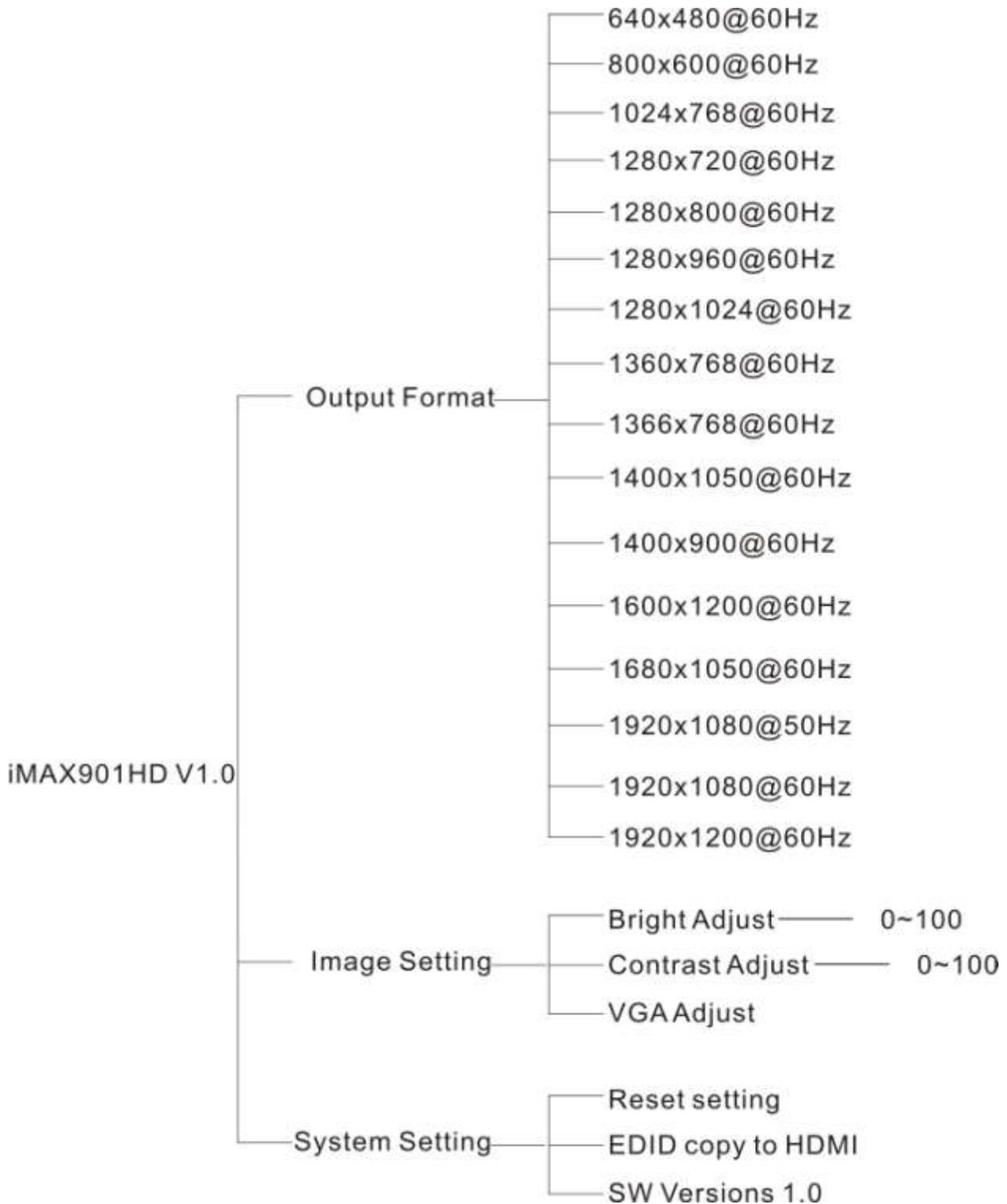
8. Press "ENTER" to confirm the changes, then the LCD screen will display the parameter information that has been set successfully.

ENTER OK
Bright ness 60

9. Adjust the output volume to +10.5dB, then turn the MASTER VOL knob until the LCD displays the parameters to + 10.5dB, thus the operation is completed.



2.5 Menu structure



“VGA Adjust” is only valid when the VGA input channel is inserted; the “COPY TO HDMI” in EDID menu is only valid when it is inserted to the display terminal.

Chapter Three Code Instructions

Serial protocol:Baud rate:115200 Data bits:8 Stop bits:1 Parity bit:none

Ethernet:Agreement :TCP,IP:192.168.1.190 PORT:6666

Video Switch Command

Command	Response	Description
S SOURCE 0.	>SOURCE CV	CV INPUT
S SOURCE 1.	>SOURCE YPbPr	YPbPr INPUT
S SOURCE 2.	>SOURCE VGA1	VGA1 INPUT
S SOURCE 3.	>SOURCE VGA2	VGA2 INPUT
S SOURCE 4.	>SOURCE HDMI1	HDMI1 INPUT
S SOURCE 5.	>SOURCE HDMI2	HDMI2 INPUT
S SOURCE 6.	>SOURCE HDMI3	HDMI3 INPUT
S SOURCE 7.	>SOURCE DisplayPort	DisplayPort INPUT
S SOURCE 8.	>SOURCE HDBaseT	HDBaseT INPUT
R SOURCE.	>Video Input: YPbPr	Read Current Video input

Audio Switch Command

Command	Response	Description
S AUDIO 0.	>AUDIO 1 INPUT	AUDIO 1 INPUT
S AUDIO 1.	>AUDIO 2 INPUT	AUDIO 2 INPUT
S AUDIO 2.	>AUDIO 3 INPUT	AUDIO 3 INPUT
S AUDIO 3.	>AUDIO 4 INPUT	AUDIO 4 INPUT
S AUDIO 4.	>AUDIO 5 INPUT	AUDIO 5 INPUT
S AUDIO 5.	>AUDIO 6 INPUT	AUDIO 6 INPUT
S AUDIO 6.	>AUDIO 7 INPUT	AUDIO 7 INPUT
S AUDIO 7.	>AUDIO 8 INPUT	AUDIO 8 INPUT
S AUDIO 8.	>AUDIO 9 INPUT	AUDIO 9 INPUT
S AUDIO 9.	>HDMI&HDBaseT AUDIO INPUT	HDMI&HDBaseT Audio Input for Video is HDMI&HDBaseT
R AUDIO.	>Audio Input: AudioAnalog 1	Read Current Audio Input

Resolution Command

Command	Response	Description
S OUTPUT 0!	>OUTPUT 640x480@60Hz	Resolution Output 640x480@60Hz
S OUTPUT 1!	>OUTPUT 800x600@60Hz	Resolution Output 800x600@60Hz
S OUTPUT 2!	>OUTPUT 1024x768@60Hz	Resolution Output 1024x768@60Hz
S OUTPUT 3!	>OUTPUT 1280x720@60Hz	Resolution Output 1280x720@60Hz
S OUTPUT 4!	>OUTPUT 1280x800@60Hz	Resolution Output 1280x800@60Hz
S OUTPUT 5!	>OUTPUT 1280x960@60Hz	Resolution Output 1280x960@60Hz
S OUTPUT 6!	>OUTPUT 1280x1024@60Hz	Resolution Output 1280x1024@60Hz

S OUTPUT 7!	>OUTPUT 1360x768@60Hz	Resolution Output 1360x768@60Hz
S OUTPUT 8!	>OUTPUT 1366x768@60Hz	Resolution Output 1366x768@60Hz
S OUTPUT 9!	>OUTPUT 1400x1050@60Hz	Resolution Output 1400x1050@60Hz
S OUTPUT A!	>OUTPUT 1440x900@60Hz	Resolution Output 1440x900@60Hz
S OUTPUT B!	>OUTPUT 1600x1200@60Hz	Resolution Output 1600x1200@60Hz
S OUTPUT C!	>OUTPUT 1680x1050@60Hz	Resolution Output 1680x1050@60Hz
S OUTPUT D!	>OUTPUT 1920x1080@50Hz	Resolution Output 1920x1080@50Hz
S OUTPUT E!	>OUTPUT 1920x1080@60Hz	Resolution Output 1920x1080@60Hz
S OUTPUT F!	>OUTPUT 1920x1200@60Hz	Resolution Output 1920x1200@60Hz
R OUTPUT!	>Output Resolution: 800x600@60Hz	Read Current Output Format

Audio Input Volume Adjust Command

Command	Response	Description
A [X] INPUT 0%	>AUDIO INPUT [X+1] 0dB	Audio Input [x] setting 0dB
A [X] INPUT 1%	>AUDIO INPUT [X+1] -3dB	Audio Input [x] setting -3dB
A [X] INPUT 2%	>AUDIO INPUT [X+1] -6dB	Audio Input [x] setting -6dB
A [X] INPUT 3%	>AUDIO INPUT [X+1] -9dB	Audio Input [x] setting -9dB
A [X] INPUT 4%	>AUDIO INPUT [X+1] -12dB	Audio Input [x] setting -12dB
A [X] INPUT 5%	>AUDIO INPUT [X] -15dB	Audio Input [x] setting -15dB
A [X] INPUT 6%	>AUDIO INPUT [X] -18dB	Audio Input [x] setting -18dB
A [X] INPUT 7%	>AUDIO INPUT [X] -21dB	Audio Input [x] setting -21dB

[X] represents the which audio to input. When the [X] is 9, it means that the audio inputs is HDMI1, HMDI2, HDMI3 and HDBaseT. For example: The second input audio is adjusted -12dB, its command is as follows:

A 1 INPUT 4%

Audio Output Volume Adjust Command

Command	Response	Description
A+ OUTPUT%	>Analog AUDIO OUTPUT + 0.5dB	Analog Audio Output setting + 0.5dB
A- OUTPUT%	>Analog AUDIO OUTPUT - 0.5dB	Analog Audio Output setting - 0.5dB
B+ OUTPUT%	>HDMI AUDIO OUTPUT + 0.5dB	HDMI Audio Output setting + 0.5dB
B- OUTPUT%	>HDMI AUDIO OUTPUT - 0.5dB	HDMI Audio Output setting - 0.5dB
MUTE ON%	>MUTE ON	Audio Output Mute On
MUTE OFF%	>MUTE OFF	Audio Output Mute Off
CLOSE 0%	>Analog AUDIO MUTE ON	Analog Audio MUTE ON
OPEN 0%	>Analog AUDIO MUTE OFF	Analog Audio MUTE OFF
CLOSE 1%	>HDMI AUDIO MUTE ON	HDMI Audio MUTE ON
OPEN 1%	>HDMI AUDIO MUTE OFF	HDMI Audio MUTE OFF

Image adjustment commands

Command	Response	Description
Auto Adjust*	>VGA Input Auto Adjust	VGA Image auto adjust
VStart+*	>VGA Input V Start + 1	Move the VGA input image one column up
VStart-*	>VGA Input V Start - 1	Move the VGA input image one column down
HStart+*	>VGA Input H Start + 1	Move the VGA input image one column left
HStart-*	>VGA Input H Start - 1	Move the VGA input image one column right
HTotal+*	>VGA Input H Total + 1	Add 1 column to the total of VGA input images
HTotal-*	>VGA Input H Total - 1	Remove 1 column of the total of VGA input images
Brightness 000*	>Brightness Value: 000	Set Brightness
Brightness*	>Brightness Value: 000	Read Brightness
Contrast 000*	>Contrast Value: 000	Set Contrast
Contrast*	>Contrast Value: 000	Read Contrast

Other commands

Command	Response	Description
<DEFAULT>	>DEFAULT OK	Restore factory defaults in next charge
<COPYEDID>	>COPY EDID OK	Copy EDID display device to HDMI interface
<SIPR[192-168-1-190]>	>SIPR:192.168.1.190	Set the IP address
<GAR[192-168-1-1]>	>GAR:192.168.1.1	Set the gateway address
<SUBR[255-255-255-0]>	>SUBR:255.255.255.0	Set the subnet source address
<SPORT[6666]>	>SPORT:6666	Set the port number
<SIPR>	>SIPR:192.168.1.190	Query the IP address
<GAR>	>GAR:192.168.1.1	Query the gateway address
<SUBR>	>SUBR:255.255.255.0	Query the subnet mask
<SPORT>	>SPORT:6666	Query the port number
<BellOn>	>Bell On	Open the buzzer
<BellOff>	>Bell Off	Close the buzzer
<BellStatus>	>Bell Status: ON	Query buzzer status
<SW>	>LPMCU SW Versions: V1.0 >FPMCU SW Versions: V1.0 >FLMCU SW Versions: V1.0	Check the software version

Chapter Four Specifications

model	CR-iMAX901HD
Technical Specifications	
Analog CV video/YPbPr video	
Gain	0dB
Bandwidth	150MHz @ -3dB
Format	NTSC,PAL,SECAM
Differential phase error	0.1°,3.58-4.43 MHz
Differential gain error	0.1%,3.58-4.43 MHz
Switching speed	200 ns(the maximum time)
Signal type	Composite video(CVBS), Component video(YPbPr/YCbCr)
Interface	RCA female joint(4PIN),1(CVBS),1(YPbPr/YCbCr)
Minimum / maximum level	Analog signal: -2V/+2V
Impedance	75 Ω
Return loss	<-30dB@5MHz
Analog VGA video	
Gain	0 dB
Bandwidth	380 MHz
Signal type	VGA
Interface	15-pin HD female interface,2 VGA input
Signal strength	0.63V p-p to 0.9 V p-p
Impedance	75 Ω
Return loss	<-40dB@5MHz
DC compensation	Maximum ±5mV
Supported resolution	640x480@60Hz;800x600@60Hz;1024x768@60Hz;1280x720@60Hz;1280x800@60Hz;1280x960@60Hz;1280x1024@60Hz;1360x768@60Hz;1366x768@60Hz;1400x1050@60Hz;1440x900@60Hz;1600x1200@60Hz;1680x1050@60Hz;1920x1080@50Hz;1920x1080@60Hz;1920x1200@60Hz
HDMI video	
Supported protocols	HDMI1.3a,DVI1.0,HDCP1.3
Maximum pixel clock	225MHz
Interface bandwidth	6.75Gbps(RGB:2.25 Gbps/per lane)
Signal type	In HDMI 1.3a / DVI 1.0 specifications HDMI / DVI-D all-digital T.M.D.S. signal
Interface	HDMI-A interface (Type A connector),3 HDMI input,1HDMI output
Minimum / maximum level	T.M.D.S.2.9V/3.3V

Impedance	100 Ω
Input EDID	Use the system default EDID,(Supports EDID mapped to the input terminal)
The maximum DC bias error	15mV
Recommended maximum input distance	The input distance is less than 25 meters;output less than 10 meters,in 1920x1080p@60(you're recommended to use the certified HDMI dedicated wire, such as the Molex TM wire.)
Supported resolution	640x480@60Hz;800x600@60Hz;1024x768@60Hz;1280x720@60Hz;1280x800@60Hz;1280x960@60Hz;1280x1024@60Hz;1360x768@60Hz;1366x768@60Hz;1400x1050@60Hz;1440x900@60Hz;1600x1200@60Hz;1680x1050@60Hz;1920x1080@50Hz;1920x1080@60Hz;1920x1200@60Hz
DisplayPort video	
Interface	20-pin DP interface, standard,1 DisplayPort input
Supported protocols	DisplayPort 1.1
Maximum transmission delay	500us
Transmission bandwidth	The maximum of transmission bandwidth is 10.8Gb/S
Supported resolution	640x480@60Hz;800x600@60Hz;1024x768@60Hz;1280x720@60Hz;1280x800@60Hz;1280x960@60Hz;1280x1024@60Hz;1360x768@60Hz;1366x768@60Hz;1400x1050@60Hz;1440x900@60Hz;1600x1200@60Hz;1680x1050@60Hz;1920x1080@50Hz;1920x1080@60Hz;1920x1200@60Hz
HDBaseT video	
Interface	RJ-45 female interface;1 HDBaseT input,1 HDBaseT output
Supported protocols	Conform to HDCP standard
Maximum pixel clock	225MHz
Impedance	100 Ω
Recommended maximum input distance	The maximum transmission distance is \leq 100m(use standard Cat5 enhanced or Cat6 cable)
Supported resolution	640x480@60Hz;800x600@60Hz;1024x768@60Hz;1280x720@60Hz;1280x800@60Hz;1280x960@60Hz;1280x1024@60Hz;1360x768@60Hz;1366x768@60Hz;1400x1050@60Hz;1440x900@60Hz;1600x1200@60Hz;1680x1050@60Hz;1920x1080@50Hz;1920x1080@60Hz;1920x1200@60Hz
Audio signal	
Input/output interface	9 3-pin phoenix joint/each has unbalanced audio input,Balanced audio amplifier output of 1 4-pin phoenix joint
Gain	0 dB
Frequency response	20 Hz~20 kHz,
THD + Noise	0.05%@1 kHz (with rated voltage)
Signal-to-Noise(S/N)	>80dB
Stereo separation	>80dB@1 kHz

Common-mode rejection ratio(CMRR)	>75dB@:20 Hz ~ 20 kHz
Signal type	stereo
Impedance	input:>10 kΩ(Unbalanced)
maximum input level	+19.5dBu,
Gain error	±0.1dB @ 20 Hz ~ 20 kHz
Control types	
button	Front panel, LCD screen status display
serial control interface	RS-232,9-pin female D-type interface
Baud rate and protocol	Baud rate:115200,Data bits:8 bits,stop bits:1,No parity
The serial control port structure	2=TX,3=RX,5=GND
Ethernet control interface	RJ-45 female interface
Ethernet control protocol	TCP/IP
Ethernet control rate	Adaptive 10M/100M,full-duplex or half-duplex
HDBaseT remote	HDBaseT remote RS232 control
Specification	
Power supply	100VAC~240VAC,50/60Hz
Temperature	Storage and operation temperature:-20°~+70°C
Humidity	Storage and operation humidity:0 ~.95%
Chassis Size	483(L)X230(W)X44mm(H)
Product weight	About 2.3kg
MTBF	30,000 hours
Warranty	1 year free warranty and lifetime maintenance

Chapter Five Common Trouble Solution

Trouble Phenomenon	Troubleshooting methods
When the color is missing or no video signal output appears	<ul style="list-style-type: none"> ● May be the VGA signal lines on both ends of the joint are not well connected or the wires has open circuit or short circuit.
When a serial port (generally refers to:computer serial port) can not control CR-iMAX901HD matrix	<ul style="list-style-type: none"> ● Check whether the communication port of the control software is corresponding to the serial of the connected equipment, whether the communication port of the computer is good,whether the communication protocol is correct.
When switching CR-iMAX901HD,there is return code but no corresponding image output	<ul style="list-style-type: none"> ● Check whether the corresponding input end has signal or not (you can use oscilloscope or multimeter to test),if there is no signal, maybe the input wire is loose or broken, just to replace the connection cable.
If the POWER light is not bright and the LCD has no display and the operation has no response	<ul style="list-style-type: none"> ● Check whether the power input is good or not.
If the image output has been jammed	<ul style="list-style-type: none"> ● It is possible that the input and output line are not connected well or there is no well-grounded.
If you can feel significant static electricity when you pull and plug audio and video interface	<ul style="list-style-type: none"> ● It is possible that the power of the device is not well grounded. Please follow the correct way to ground,otherwise it is easy to damage the host and shorten the life of the it.
If the LCD display is normal,the communication port has return code,but there is no image output or audio output	<ul style="list-style-type: none"> ● It is possible that the audio or video interface is loose,just replace it. ● It is possible that there is a short in the wire, just replace it. ● It is possible that the circuit is broken,just replace it.
If the panel buttons and the communication ports of CR-iMAX901HD can not be controlled	<ul style="list-style-type: none"> ● It is possible that the inside pieces of the host has been damaged.Please send it to the professionals to repair.

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