



CH-A1

Mini HDMI 3D Analyzer



Operation Manual

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

REVISION HISTORY

VERSION NO.	DATE DD/MM/YY	SUMMARY OF CHANGE
VS1	09/02/12	First Release
VS2	25/01/13	Updated Format



CONTENTS

- 1. Introduction..... 1**
- 2. Applications..... 1**
- 3. Package Contents 1**
- 4. System Requirements..... 1**
- 5. Features 2**
- 6. Operation Controls and Functions..... 3**
 - 6.1 Front Panel 3
 - 6.2 Rear Panel..... 4
 - 6.3 Top Panel 5
 - 6.4 OLED Display 7
 - 6.5 OSD Menu 8
 - 6.6 Supported Timings Table 11
 - 6.7 Supported Patterns Table 12
- 7. Connection Diagram 13**
- 8. Specifications 14**
- 9. Acronyms 16**



1. INTRODUCTION

The Mini HDMI 3D Analyzer is a tool for checking both source (Blu-ray or DVD players) and display devices (TV or monitors). With touch button controls and built-in OLED display it can show the status and information of both the input and output devices connected to it by HDMI.

The analyzer can be used to analyze the input source device info-frame and output sink device EDID. It also has a built-in pattern generator that can be used to test the capabilities of the output device including 3D and resolution/timing support.

2. APPLICATIONS

- Apparatus testing
- Equipment checking
- EDID checking
- HDCP or 3D support verification
- Production testing
- R&D design and debug

3. PACKAGE CONTENTS

- Mini HDMI 3D Analyzer
- 5V Power Adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

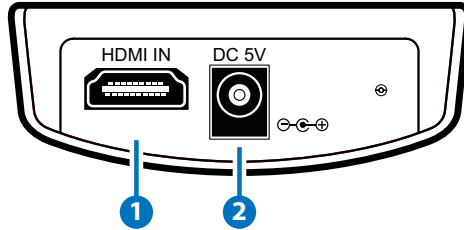
HDMI input port connected to the source/HDMI system with HDMI cable and HDMI output connected to the display/HDMI system with HDMI and/or amplifier.

5. FEATURES

- Supports Timing include SD, HD up to 1080p, PC up to WUXGA and 3D
- Provides 25 timings, 6 patterns and 1 pattern for 3D timing
- 'Deep color' video support (up to 12-bit, 1080p@60Hz)
- Supports input signal bypass, digital video formats in 'Deep Color' Mode up to 36-bit (12-bit/color) and new lossless compressed digital audio (Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio)
- Supports internal pattern audio LPCM 2CH 48/96/192kHz, LPCM 5.1CH 48/96kHz, LPCM 7.1CH 48/96kHz
- Analyze the input source info-frame and output sink EDID information
- Touch button control function
- OLED display shows Input/Output timing information
- Supports ARC (Audio Return Channel) following HDMI specifications
- Supports 'Deep Color' (8/10/12-bit) output
- Supports HDCP repeater function and complaint with HDCP
- Supports CEC bypass

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



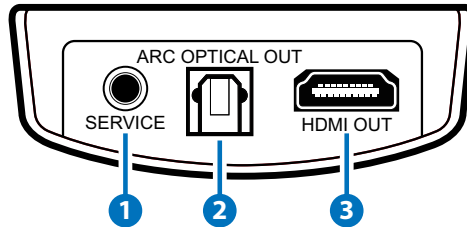
1 HDMI IN

Connect the HDMI input port to the HDMI output port of the source device for testing and displaying the EDID information.

2 DC 5V

Plug the DC 5V power supply into the Mini-HDMI Analyzer and connect the adaptor to an AC wall outlet.

6.2 Rear Panel



1 SERVICE

Use a DB9 (RS-232) to 3.5mm (phone jack) cable to do the software upgrade.

NOTE: This feature is not available to the end user. The DB9 to 3.5mm phone jack is not included in the package.

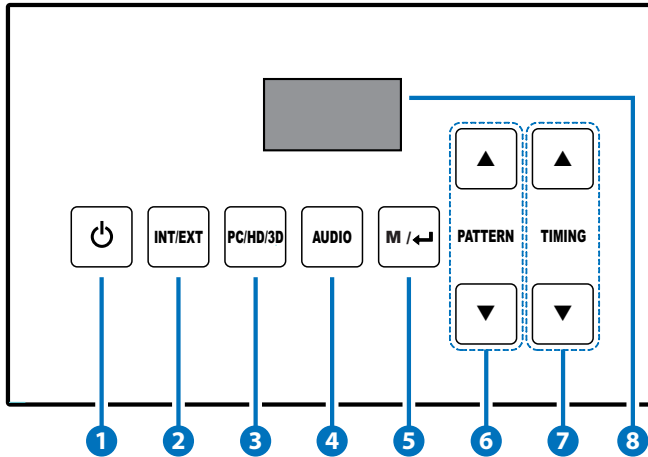
2 ARC OPTICAL OUT

Optical digital out for testing the ARC function of a TV connected to the HDMI. Connect to the optical digital input of an audio system (such as an AV receiver) to monitor the audio output of the attached sink device.

3 HDMI OUT

Connects the Analyzer to a display or to devices connected to the display when testing the capabilities of the system.

6.3 Top Panel



Note: Please remove the protective plastic film from the top panel before using the touch key function.

1 POWER

Press this button to turn on the device, the LED will turn blue. Press again to switch the unit to standby mode, the LED will turn red.

2 INT/EXT

Press this button to toggle between the built-in internal pattern generator or the external source device. The LED will illuminate in blue when the external input is selected. To retrieve the external EDID information, an external source device must be connected otherwise the device will only generate the test patterns to display on the TV/monitor.

3 PC/HD/3D

Press this button to cycle through the test patterns (PC/HD or 3D timings). The OLED display will show the timing currently selected.

4 AUDIO

Press this button to select the audio sample rate from LPCM 2CH, LPCM 5.1CH and LPCM 7.1CH 48kHz or LPCM 2CH, LPCM 5.1CH and LPCM 7.1CH 96kHz or LPCM 2CH and LPCM 5.1CH 192kHz.

Note: Press and hold for 3 seconds to select Audio mute function.

5 M/↵

Press this button to enter the main menu and/or to confirm the selection.

6 PATTERN (▲/▼)

Press these keys to select the patterns or when in OSD manu press these keys to select for option.

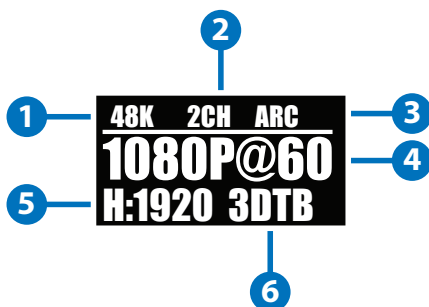
7 TIMING (▲/▼)

Press these keys to select the required timings.

8 OLED Display

Displays the relevant Information about attached devices. See Section 8 for details.

6.4 OLED Display



1 Sampling Rate

The Analyzer supports audio sampling rates of 48/96/192kHz, display will show the signals current sample rate. If external audio is selected the OLED will display 'BYPASS'.

2 Audio Channels

The device supports audio channels from LPCM 2, 5.1 and 7.1CH. If external audio is selected the OLED will display 'BYPASS'.

Note: When the audio button is held down for 3 seconds, both 1 & 2 will show AUDIO MUTE.

3 ARC

Audio Return Channel, when this function is selected the OLED display will show 'ARC' if an ARC signal is present.

4 V Timing

Please refer to the Timing Table in Section 9 for details of the supported timing and V sync.

5 H Timing

Please refer to the Timing Table in Section 9 for details of the supported H Sync.

6 3D Format

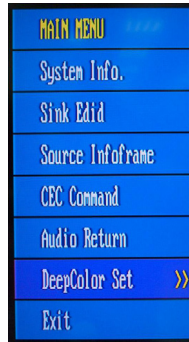
Only when the 3D pattern is selected, the OLED display will show the pattern details.

Note: When in EXT Mode, the OLED display will show the input H/V Sync with the timing frequency and 3D pattern if any.

6.5 OSD Menu

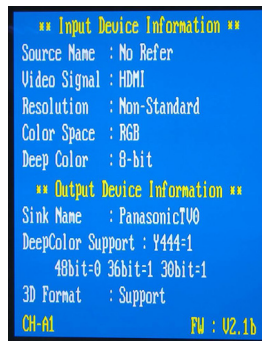
Press the M/← button from the device to bring up the OSD on the display.

- Press pattern's [▲/▼] to highlight on option
- Press [M/←] to confirm the selection



System Info

Press this button to show the EDID information for any connected device. When an output display is connected, press this button repeatedly to bring up the patterns for display (Refer to Section 10 for pattern details).



Press [M/←] to check the input/output device information and software version.

Sink Edid

OPTION	DESCRIPTION
Block Data	To check the sink Block0 and Block1's EDID table
Description	To check the sink description of EDID

Source Infoframe

OPTION	DESCRIPTION
AVI (AVI infoframe data)	To check the source video infoFrame Packet
AUD (Audio infoframe data)	To check the source audio infoFrame Packet

CEC Command

OPTION	DESCRIPTION
Stand By	To set the source to standby mode
Active Source	To turn on the source
Monitor (Read)	To detect the command data on the CEC Bus

Note: Source equipment must support CEC function in order to activate this function.

Audio Return

OPTION	DESCRIPTION
Audio Return	On/Off

Deep Color Set

OPTION	DESCRIPTION
8-bit	On/Off
10-bit	On/Off
12-bit	On/Off

Note: The device will auto-detect the sink device's 'Deep Color' setting and if any of the settings are not supported, the option in the Deep Color set will not be selectable.




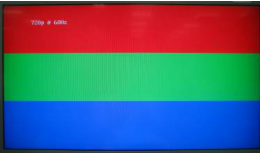

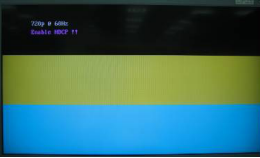
Exit


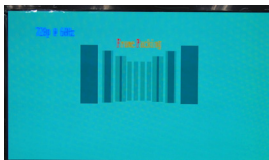
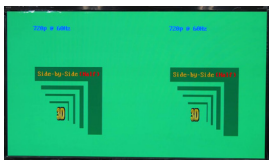

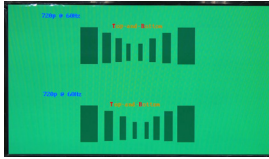
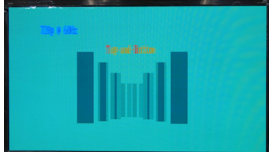
Select to Exit the OSD menu.

6.6 Supported Timings Table

NO.	TIMING	V (HZ)
T01	480p	60
T02	480i	60
T03	720P	60
T04	1080i	60
T05	1080p	60
T06	576i	50
T07	576p	50
T08	720p	50
T09	1080i	50
T10	1080p	50
T11	1080p	24
T12	640×480	60
T13	800×600	60
T14	1024×768	60
T15	1280×1024	60
T16	1920×1200	60
T17	720p (3D Frame Packing)	60
T18	720p (3D Side-by-Side)	60
T19	720p (3D Top-and-Bottom)	60
T20	720p (3D Frame Packing)	50
T21	720p (3D Side-by-Side)	50
T22	720p (3D Top-and-Bottom)	50
T23	1080p (3D Frame Packing)	24
T24	1080p (3D Side-by-Side)	24
T25	1080p (3D Top-and-Bottom)	24

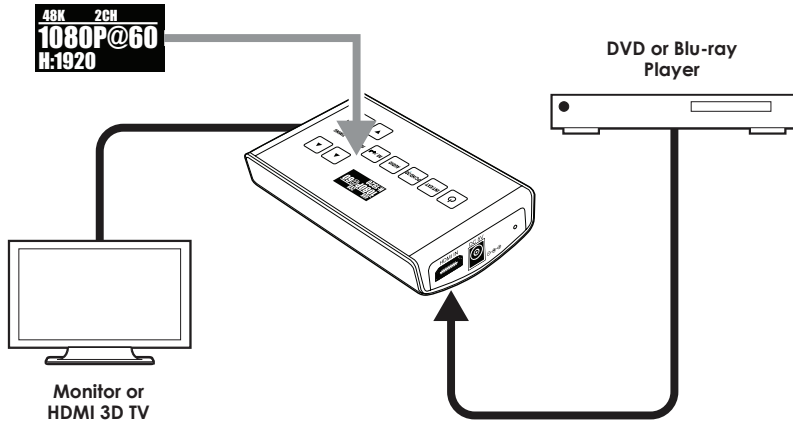
6.7 Supported Patterns Table

GROUP	NO.	PATTERN	DESCRIPTION
Standard Type	1		Primary Colors: Red, Green, Blue P1: Red P2: Green P3: Blue
	2		
	3		
	4		P4: Horizontal RGB Bar
	5		P5: H Grey Scale
	6		P6: HDCP Handshaking and Link-integrity Test

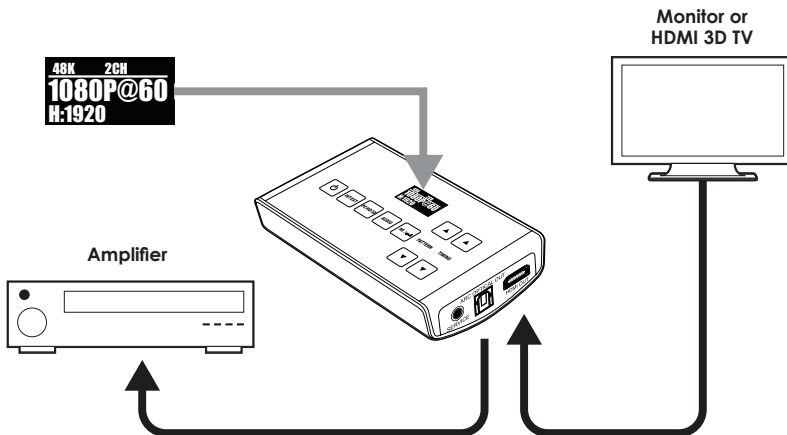
GROUP	NO.	PATTERN	DESCRIPTION
3D Type	*7(FP)		P7 (FP): Frame Packing Non-3D Display
			P7 (FP): Frame Packing 3D Display
	*7 (SH)		P7 (SH): Side-by-Side (Half) Non-3D Display
			P7 (SH): Side-by-Side (Half) 3D Display
	*7(TB)		P7 (TB): Top-and-Bottom Non-3D Display
			P7 (TB): Top-and-Bottom 3D Display

7. CONNECTION DIAGRAM

For checking both the source and display device's information, press M/↵ to display the System Information.



For checking only the display device's supported timings, connect the HDMI output only to the display device and press the PATTERN and TIMING buttons.





8. SPECIFICATIONS

TMDS Clock Frequency	225 MHz
Input Port	1×HDMI (Female type)
Output Port	1×HDMI (Female type)
EXT Mode (HDMI input)	
HDMI Resolution	480i/p, 576i/p, 720p ~ 1080p
PC Resolution	VGA ~ WUXGA
INT Mode (Internal pattern)	
HDMI Resolution	480i/p, 576i/p, 720p ~ 1080p
PC Resolution	VGA ~ SXGA & WUXGA
3D Resolution	Frame Packing (1080p@24, 720p@50/60)
	Side-by-Side (Half) (1080p@24, 20p@50/60)
	Top-and-Bottom (1080p@24/, 20p@50/60)
Audio Format	480i/p, 576i/p or VGA~SVGA support LPCM 2CH 48/96/192kHz, LPCM 5.1CH 48kHz, LPCM 7.1CH 48kHz
	720p~1080p or XGA~WUXGA support LPCM 2CH, 48/96/192kHz, LPCM 5.1CH 48/96 kHz, LPCM 7.1CH, 48/96 kHz
HDMI Cable In	15 m@1080p/8-bit, 10 m@1080p/12-bit
HDMI Cable Out	15 m@1080p/8-bit, 10 m@1080p/12-bit
ESD Protection	Human Body model:
	±8kV (air-gap discharge)
	±4kV (contact discharge)
Power Supply	5V/1 A DC (US/EU standards, CE/FCC/UL certified)
Dimensions	119.5mm (W)×70mm (D)×25mm (H)
Weight	128g
Chassis Material	Plastic
Silkscreen Color	Black

Operating Temperature	0 °C~40 °C/32 °F~104 °F
Storage temperature	-20 °C~60 °C/-4 °F~140 °F
Relative Humidity	20~90 % RH (no condensation)
Power Consumption	4 W (Max)

Note:

1. *This system was tested with 24AWG cables if using cables of another type, the performance of this system may be different.*
2. *Cable distance tested with a PS3 and 40" Samsung UA40B700 12-bit LED TV.*
3. *Figures provided in this manual are for reference only, actual figures may depend on the source and display used along with the cables specifications.*

9. ACRONYMS

ACRONYM	COMPLETE TERM
3D	3 Dimension
ARC	Audio Return Channel
CEC	Consumer Electronic Control
EDID	Extended Display Identification Data
HD	High Definition
HDCP	High-bandwidth Digital content protection
HDMI	High-Definition Multimedia Interface
OLED	Organic Light Emitting Diode
SD	Standard Definition



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