CM-388MN2

HDMI Repeater with SD Video Output

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE

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.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

REVISION HISTORY

REVISION	DATE	SUMMARY OF CHANGE
VS1	26/07/18	Final technical review

CONTENTS

1. INTRODUCTION

This HDMI Repeater with Video Output is designed to convert digital HDMI (or DVI plus Coaxial) sources into SD analog video (NTSC or PAL) with analog stereo audio. On the input side, an HDMI port and digital coaxial audio input are provided. For output, composite and s-video ports plus stereo RCA connections are provided to handle the down-converted analog signal. Additionally, HDMI and coaxial bypass outputs are provided to let the original signal continue on to a digital display or amplifier. This unit provides a convenient method to convert non-HDCP high-definition content to standard 480i or 576i resolutions for monitoring or recording with analog equipment.

2. APPLICATIONS

- HDMI/DVI to Composite Video or S-Video signal conversion
- HDMI/DVI to NTSC/PAL system conversion
- HDMI/DVI to SD resolution for recording/monitoring

3. PACKAGE CONTENTS

- 1×HDMI Repeater with SD Video Output
- 1×5V/2.6A DC Power Adapter
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

- HDMI source equipment such as a media player, video game console or set-top box.
- Composite or S-video receiving equipment such as a TV, VCR or broadcast monitor.

5. FEATURES

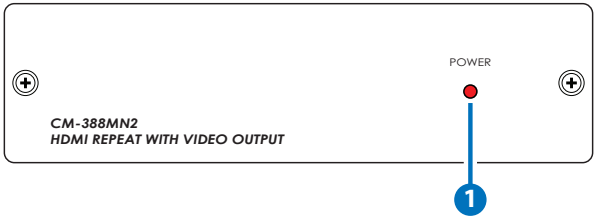
- HDMI 1.2, DVI 1.0 and HDCP 1.x compliant
- Supports a wide range of HD and PC input resolutions up to WUXGA@60Hz (RB) and 1080p@60Hz (8-bit)
- Converts and scales the HDMI input signal to composite and s-video (NTSC or PAL) output with an unscaled HDMI bypass output

  Note: HDCP encrypted sources can't be output over the analog ports and will be blanked out.
- HDMI audio extraction to digital coaxial (LPCM 2.0 & Bitstream) and analog stereo RCA outputs (LPCM 2.0 only)
- Automatic embedding of the digital coaxial audio source into the HDMI output and analog outputs when a DVI-D video source is used

  Note: Analog audio output will be muted if the source is in Bitstream format.
- Coaxial audio input and output supports Bitstream and LPCM 2.0 digital audio

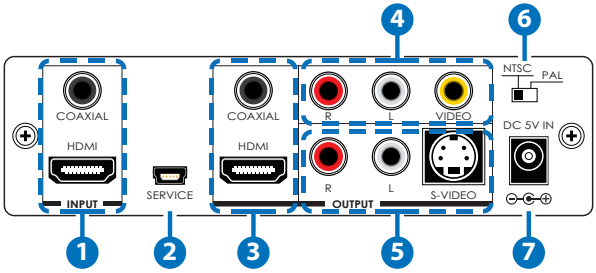
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1. **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.

6.2 Rear Panel



1. **HDMI INPUT PORT:** Connect to HDMI/DVI source equipment such as a media player, game console or PC.

   COAXIAL INPUT PORT: Connect to the coaxial audio output of a device such as an audio player or PC.

   Note: The coaxial audio input is only active when the video input is in DVI format.

2. **SERVICE PORT:** This port is reserved for firmware update use only.
3. **HDMI OUTPUT PORT (Bypass):** Connect to an HDMI TV, monitor or amplifier for digital video and audio output.

   COAXIAL OUTPUT PORT (Bypass): Connect to powered speakers or an amplifier for digital audio output using an appropriate coaxial cable.

4 **VIDEO & L/R OUTPUT PORTS:** Connect to composite video display equipment with stereo audio support such as a TV, VCR or studio monitor for analog video and audio output.

Note 1: Analog audio output will be muted if the source is in Bitstream format.

Note 2: HDCP encrypted sources can't be output over the composite video port and will be blanked out.

5 **S-VIDEO & L/R OUTPUT PORTS:** Connect to s-video display equipment with stereo audio support such as a TV, VCR or studio monitor for analog video and audio output.

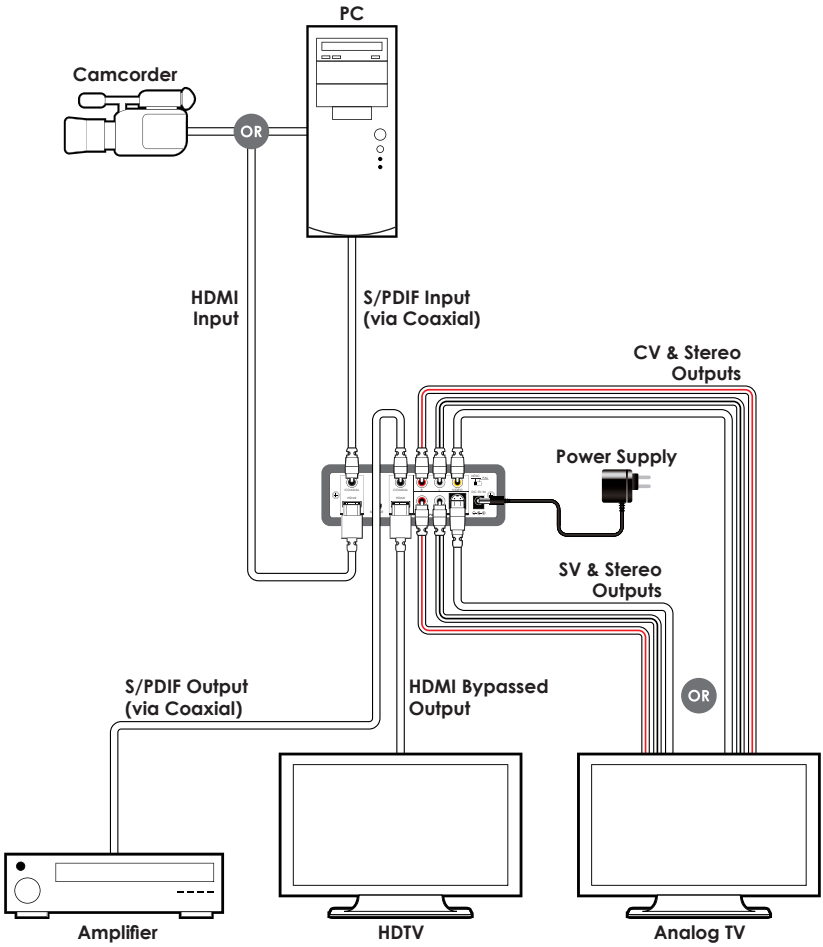
Note 1: Analog audio output will be muted if the source is in Bitstream format.

Note 2: HDCP encrypted sources can't be output over the s-video port and will be blanked out.

6 **NTSC/PAL SWITCH:** Move this switch to select between outputting in the NTSC or PAL video format. (Analog outputs only)

7 **DC 5V PORT:** Plug the 5V DC power adapter into this port and connect it to an AC wall outlet for power.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	165MHz/4.95Gbps
Input Ports	1×HDMI 1×S/PDIF (RCA)
Output Ports	1×HDMI 1×Composite Video (RCA) 1×S-Video (4-pin mini-DIN) 1×S/PDIF (RCA) 2×Stereo (4×RCA)
Other Port	1×Service (USB Mini-B)
Power Supply	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±8kV (Air Discharge) ±12kV (Contact Discharge)
Dimensions	141mm×38mm×120mm (W×H×D) [Case Only] 141mm×38mm×127mm (W×H×D) [All Inclusive]
Weight	510g
Chassis Material	Metal (Aluminum)
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 (Non-condensing)
Power Consumption	3.5W

8.2 Video Specifications

Supported Resolutions (Hz)	Input	Output	
	HDMI	Bypass HDMI	Scaled CV/SV
640×480@60/72/75/85	✓	✓	✓
800×600@56/60/72/75/85	✓	✓	✓
1024×768@60/70/75/85	✓	✓	✓
1152×864@75	✓	✓	✓
1280×768@60	✓	✓	✓
1280×800@60 (RB)/60	✓	✓	✓
1280×960@60	✓	✓	✓
1280×1024@60	✓	✓	✓
1366×768@60	✓	✓	✓
1400×1050@60 (RB)/60	✓	✓	✓
1440×900@60 (RB)/60	✓	✓	✓
1600×900@60	✓	✓	✓
1600×1200@60	✓	✓	✓
1680×1050@60 (RB)/60	✓	✓	✓
1920×1200@60 (RB)	✓	✓	✓
720×480i@60	✓	✓	✓
720×576i@50	✓	✓	✓
720×480p@60	✓	✓	✓
720×576p@50	✓	✓	✓
1280×720p@50/60	✓	✓	✓
1920×1080i@50/60	✓	✓	✓
1920×1080p@50/60	✓	✓	✓

Note: 480i and 576i video signals are not supported by DVI.

8.3 Audio Specifications

Analog Input	
Max Audio Level	2Vrms
Impedance	47kΩ
Type	Unbalanced

Analog Output	
Max Audio Level	2Vrms
THD+N	< −80dB@0dBFS 1kHz (A-wt)
SNR	> 105dB@0dBFS
Frequency Response	< ±1dB@20Hz~20kHz
Crosstalk	< −123dB@10kHz
Impedance	600Ω
Type	Unbalanced

Digital (S/PDIF) Input	
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96

Digital (S/PDIF) Output	
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96

8.4 Cable Specifications

HDMI Cable Length	1080p
Input	5m
Output	5m

9. ACRONYMS

ACRONYM	COMPLETE TERM
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
NTSC	National Television System Committee
PAL	Phase Alternating Line
PC	Personal Computer
SD	Standard-Definition
S/PDIF	Sony/Philips Digital Interface Format
SNR	Signal-to-Noise Ratio
THD+N	Total Harmonic Distortion plus Noise
USB	Universal Serial Bus
VCR	Videocassette Recorder
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)

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