PRO-3GSDIHDMI

3G-SDI Extender with HDMI Scaler

OPERATION MANUAL

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Version 1.1 August 2011

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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	SUMMARY OF CHANGE
VR0	25/03/11	Preliminary Release
VR1	28/09/11	Add Support Timing
VS2	11/07/12	Updated format/diagrams/SDI standards
VS3	19/07/12	First release
VR4	18/12/13	SDI Cable Spec. Distance Typo

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1. INTRODUCTION

The PRO-3GSDIHDMI Extender with HDMI Scaler allows SD-SDI, HD-SDI, and 3G-SDI signals to be displayed on HDMI or SDI screens. These signals can be extended over long distances using the SDI 'loop-though' facility which equalises and re-clocks the signal each time it is cascaded, whilst simultaneously outputting the source signal via the HDMI output.

2. APPLICATIONS

- Broadcast video signal to HDMI/SDI display
- Broadcast video signal extension
- 3G SDI signal conversion into HDMI signal

3. PACKAGE CONTENTS

- SDI to HDMI Scaler with Audio
- 5V/2.6A DC power adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

Input source equipment such as SNG camera or any SDI signal with connection cables and output to LCD TV or SDI monitor with connection cables.

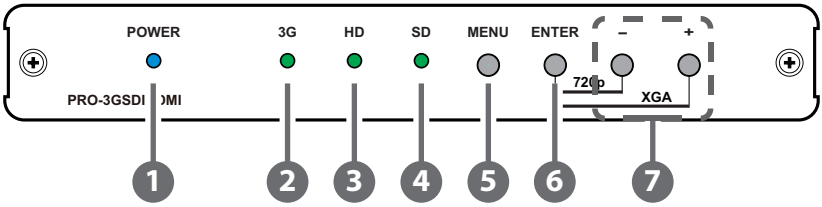
5. FEATURES

- Supports SD-SDI, HD-SDI and 3G-SDI input signals with auto-detection
- Supports HDMI and SDI (bypass) output simultaneously
- SDI interface operates at bitrates of 2.970 Gbit/s, 2.970/1.001 Gbit/s, 1.485 Gbit/s, 1.485/1.001 Gbit/s and 270 Mb/s
- Scale any SDI input signal to HDMI:
    1. PC – SVGA@60 ~ WUXGA@60 (RB)
    2. HDTV – 480p/576p ~ 1080p@50/60
- Supports SDI input modes:
    1. SD-SDI (SMPTE 259M-C, at bitrates of 270 Mbit/s)
    2. HD-SDI (SMPTE 292M, at bitrates of 1.485 Gbit/s and 1.485/1.001 Gbit/s)
    3. 3G-SDI (SMPTE 424M/425M-AB, at bitrates of 2.970 Gbit/s and 2.970/1.001 Gbit/s)
- Equalised and re-clocked loop output
- Alternative audio output to coaxial and analog 2 CH
- Integrated audio de-embedder for up to 8 channels of 48 kHz audio
- Supports SDI input/output distance up to 100 meters (3G-SDI), 200 meters (HD-SDI), or 300 meters (SD-SDI)

Note: *Tested with Belden 1694A Cable. Operating distances may vary if used with cables of different specifications.*

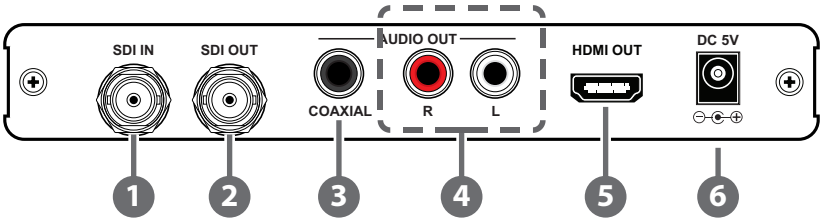
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1. **Power LED:** The LED will illuminate blue when the device is connected to a power supply.
2. **3G LED:** This LED illuminate green when a 3G-SDI input signal is detected.
3. **HD LED:** This LED illuminate green when a HD-SDI input signal is detected.
4. **SD LED:** This LED illuminate green when a SD-SDI input signal is detected.
5. **MENU:** Press this button to enter/exit the On-Screen Display (OSD) menu.
6. **ENTER:** Press this button to confirm your selection. Press both ENTER and 'Minus' (–) buttons together to switch the display output to 720p or press both ENTER and 'Plus' (+) buttons together to switch to XGA. After making the selection, press ENTER to confirm the output format.
7. **–/+:** Press these buttons to move up or down the OSD selections.

6.2 Rear Panel



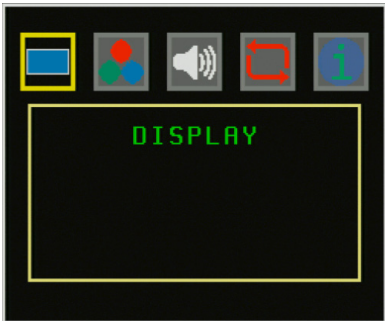
1. **SDI IN:** Connect to the SDI output of the SDI source device. Accepts SD,HD or 3G SDI signals.
2. **SDI OUT:** Provides a 'loop-through' SDI signal output for connection to a SDI display.
3. **AUDIO OUT COAXIAL:** Digital Audio output (SP/DIF). Connect to an amplifier or recording device with a suitable digital coaxial input.
4. **AUDIO OUT R/L:** Analogue audio output (L/R Stereo). Connect to an amplifier or recording device with a suitable analogue input.
5. **HDMI Out:**Connect a HDMI equipped display or to a DVI Display with a HDMI to DVI cable.
6. **DC 5V:** Plug the 5V DC power supply into the unit and connect the adaptor to an AC outlet. The 'POWER' LED will illuminate blue when the power is ON.

6.3 OSD Menu and Function List

1st Layer	2nd Layer	3rd Layer
Display	Output	NATIVE
		800 x 600 @60
		1024 x 768 @60
		1280 x 768 @60
		1360 x 768 @60
		1280 x 800 @60
		1280 x 1024 @60
		1440 x 900 @60
		1400 x 1050 @60
		1680 x 1050 @60
		1600 x 1200 @60
		1920 x 1200 @60
		720 x 480p @60
		1280 x 720p @60
		1920 x 1080p @60
		720 x 576p @50
		1280 x 720p @50
		1920 x 1080p @50
		1920 x 1080i @60
		1920 x 1080i @50
	Size	Full
		Over Scan
		Under 1
		Under 2
		Letter Box
		Pan Scan
	Exit	

Color	Contrast	0~255 (105)
	Brightness	0~192 (96)
	R	0~255 (128)
	G	0~255 (128)
	B	0~255 (128)
	R Offset	0~63 (32)
	G Offset	0~63 (32)
	B Offset	0~63 (32)
	Exit	
SDI Audio	Group 1	
	Group 2	
	Group 3	
	Group 4	
	Auto	
	Off	
Factory Reset	Yes	
Information	Input Timing, Output Timing & Version	

6.3.1 Display



Output Timings: There are a total of 20 timings available for selection.

Size: Adjusts the displayed screen size from Full, Over Scan, Under Scan, Letter box or Pan scan to fit the current display size or aspect ratio.

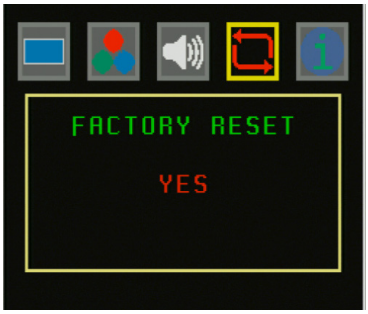
6.3.2 Colour

Adjusts the screen's RGB Color, Contrast and/or Brightness.

6.3.3 SDI Audio

Selects the SDI audio output from 4 different audio groups and each group's 2CH contents or can be set to 'Auto' which contain up to 7.1 Channels of audio (dependent on the input source signal). If no audio output is required, the audio can also be muted by selecting 'OFF'.

6.3.4 Factory Reset

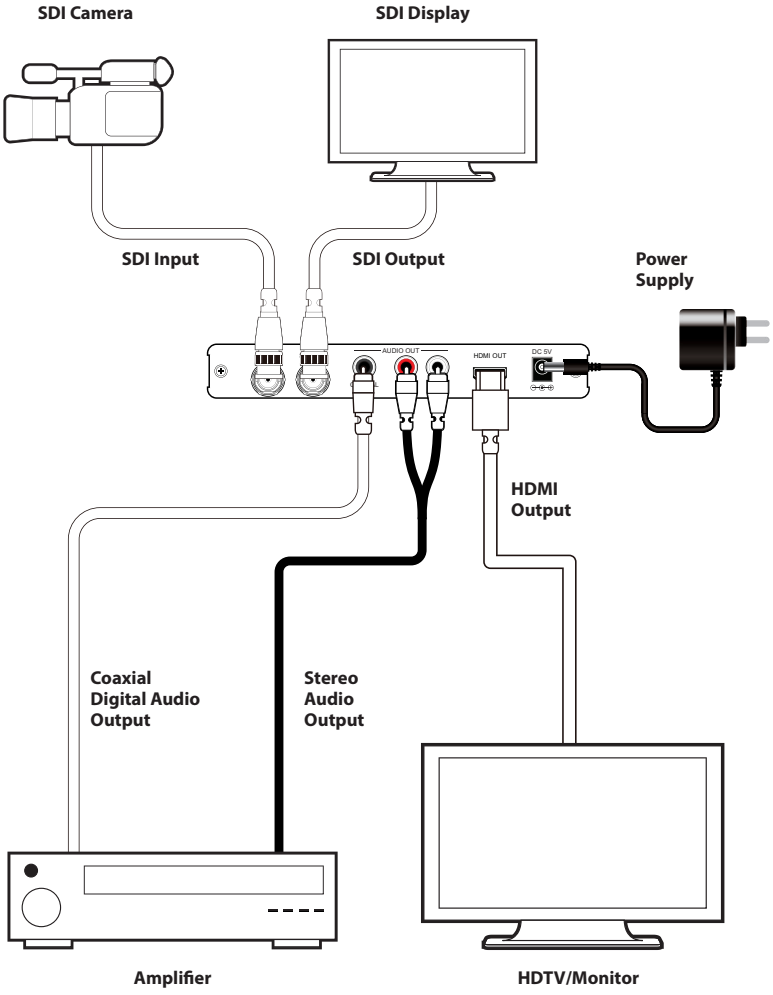


Select YES to return the unit to the factory settings. The default Factory Setting for Video display is 'Full Screen' (1280×720@60Hz), Color setting's factory default rate is the same as shown on the OSD and SDI audio is 'AUTO'.

6.3.5 Information

Displays the source input format, the output display format and the unit's software version.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

SMPTE Standard	425M Level A & B, 424M, 292M, 259M-C
SDI Transmission Rates	2.970 Gbps, 2.970/1.001 Gpbs 1.48 5 Gbps, 1.485/1.001Gbps and 270 Mbps
Video Bandwidth	165 MHz/link
Input	1×BNC (SD/HD/3G-SDI)
Output	1×BNC (SD/HD/3G-SDI), 1×HDMI, 1×Coaxial, 1×L/R (RCA)
SDI Timing Support	SD-SDI: SMPTE 259M-C, 270 Mbit/s HD-SDI: SMPTE 292M, 1.485 & 1.485/1.001 Gbit/s 3G-SDI: SMPTE 424M/425M-AB, 2.970 & 2.970/1.001 Gbit/s
HDMI Timing Support	480i, 576i, 720p@50/59.94/60 1080i@50/59.94/60 1080p@23.98/24/25/29.97/30/50/59.94/60
Power Supply	5 V DC/ 2.6 A (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human-body Model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
SDI Cable Distance	3G/HD/SD-SDI up to 100 /200/300 meters with BELDEN 1694A Cable
Dimension	180 mm (W)×142 mm (D)×25 mm (H)
Weight	460 g
Chassis Material	Aluminum
Chassis Colour	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	4 W

9. ACRONYMS

ACRONYM	COMPLETE TERM
3G	Bandwidth 2.97G bps ≈ 3G
SDI	Serial Digital Interface
HD	High Definition

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