



CSDI-12SR

1 by 2 3G-SDI Scaler



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
V1	11/12/13	Preliminary Release
VS1	23/12/14	Updated text/Diagrams

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1. INTRODUCTION

The 1 by 2 3G-SDI Scaler allows an SD-SDI, HD-SDI and 3G-SDI signal to be scaled and split to two simultaneous SDI outputs, providing bandwidth up to 2.970Gbps for 3G-SDI video support allowing the user to distribute and extend their SDI signal. The On-screen Display (OSD) menu can be controlled from the front panel, allowing quick and easy adjustment of all settings.

2. APPLICATIONS

- Distribute and extend a single SDI signal to 2 SDI displays
- Scale any SDI input resolution to any SDI output resolution to SDI standards

3. PACKAGE CONTENTS

- 1 by 2 3G-SDI Scaler
- 5V/2.6A DC Power Adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

SDI source equipment such as an SDI camera or any SDI signal with SDI connection cable and output to the SDI monitors or recorders with SDI connection cables.

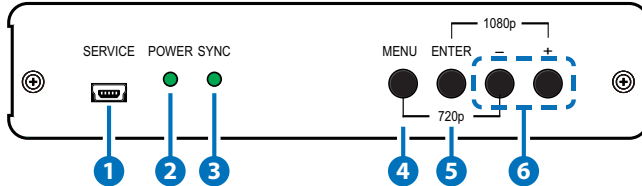
5. FEATURES

- Splits an SDI input to two SDI outputs with scaler function
- Supports scaling of any SDI input to any SDI output to SDI standards
- Supports SD-SDI, HD-SDI and 3G-SDI input/output signals with auto-detection
- SDI interface operates at bitrates of 2.970 Gbps, 2.970/1.001 Gbps, 1.485 Gbps, 1.485/1.001 Gbps and 270 Mbps
- Supports SDI input/output modes/standards:
 - SD-SDI: SMPTE 259M-C, at bitrates of 270 Mbps
 - HD-SDI: SMPTE 292M, at bitrates of 1.485 Gbps and 1.485/1.001 Gbps
 - 3G-SDI: SMPTE 424M/425M-A & B, at bitrates of 2.970 Gbps and 2.970/1.001 Gbps
- Supports up to 8 audio channels at 48 kHz
- Supports SDI input/output distances 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.

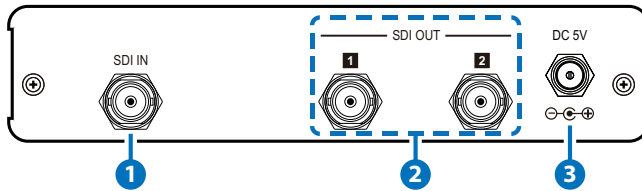
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 SERVICE:** Connect to a PC or Laptop with a mini USB B cable for firmware update only.
- 2 POWER LED:** The LED will illuminate when the unit is connected to an active power supply.
- 3 SYNC LED:** The LED will illuminate when the SDI input is connected to and detects an SDI source.
- 4 MENU:** Press to bring up the OSD menu. When in OSD menu mode, the 'MENU' button will function as the 'EXIT' button.
Press the 'MENU' and 'MINUS (-)' buttons simultaneously will immediately switch the output resolution to 720p@60Hz.
- 5 ENTER:** Press to confirm the selection in the OSD menu.
Press the 'ENTER' and 'PLUS (+)' buttons will immediately switch the output resolution to 1080p@60Hz.
- 6 MINUS (-)/PLUS (+):** Press these buttons to navigate up or down the OSD menu.
When in normal display mode (not in OSD menu), press the 'PLUS (+)' button to 'FREEZE' (pause) the video (Please refer to the section 6.3).

6.2 Rear Panel



- ❶ **SDI IN:** Connect to the SDI output of the SDI source device.
- ❷ **SDI OUT 1/2:** Connect to the SDI devices such as TV/displays or recorders.
- ❸ **DC 5V:** Connect the 5V DC power supply to the unit and plug the adaptor into an AC outlet.

6.3 OSD Menu

MAIN MENU	SUB MENU	ADJUSTMENTS	DEFAULT
OUTPUT	480I59, 576I50, 720P50, 720P59, 720P60, 1080P23, 1080P24, 1080P25, 1080P29, 1080P30, 1080I50, 1080P50, 1080I59, 1080P59, 1080I60, 1080P60		720P60
	EXIT		
PICTURE	CONTRAST	0 ~ 100	64
	BRIGHTNESS	0 ~ 100	64
	SATURATION	0 ~ 100	64
	HUE	0 ~ 100	64
	SHARPNESS	0 ~ 100	32
	PICTURE RESET		
	EXIT		
ASPECT RATIO ^{*1}	FULL		FULL
	16:9 TV		
	16:10 TV		
	4:3 TV		
	KEEP RATIO		
	EXIT		
	OVERSCAN	ENABLE	YES, NO
H SIZE%		0% ~ 50%	0%
V SIZE%		0% ~ 50%	0%
EXIT			

MAIN MENU	SUB MENU	ADJUSTMENTS	DEFAULT
AUDIO	ENABLE	YES, NO	YES
	SOURCE GROUP	1+2, 3+4, AUTO* ²	AUTO
	EXIT		
OSD SETTINGS	POSITION	LEFT-TOP, RIGHT-TOP, RIGHT-BTM, LEFT-BTM, CENTER	LEFT-TOP
	TRANSPARENCY	0~15	12
	MENU TIMEOUT	5~50, OFF* ³	20
	INFO. TIMEOUT	5~50, OFF* ³	10
	INFO. DISPLAY	ON, OFF, INFO	INFO
	EXIT		
ADVANCED	AUTO SYNC-OFF* ⁴	ON, OFF	OFF
	MIRROR-V	ON, OFF	OFF
	FREEZE* ⁵	FREEZE ONLY, FREEZE+MUTE, MUTE ONLY	FREEZE+MUTE
	EXIT		
PATTERN	OFF		OFF
	COLOR BAR		
	GRAY SCALE		
	CROSS HATCH		
	CROSS		
	WHITE WINDOW		
	RAMP		

MAIN MENU	SUB MENU	ADJUSTMENTS	DEFAULT
	EXIT		
FACTORY DEFAULT	NO		NO
	YES		
	EXIT		
INFORMATION	IN* ⁶		
	OUT* ⁶		
	AUDIO GROUP		
	DETECTION REPORT		
	FIRMWARE VERSION		
	EXIT		
EXIT			

Note: The OSD IN/OUT displays the current input/output resolution. If the source did not correctly connect to the input, the OSD will display 'No Signal'.

1. ASPECT RATIO

- **FULL:** Fills the screen (Fullscreen).
- **16:9 TV, 16:10 TV, 4:3 TV:** Adjusts the aspect ratio to match the display.
- **KEEP RATIO:** The ratio will depend on the output resolution. For example, if the output resolution is 1080p@60Hz (16:9) and the display is 4:3, then the image will output as Letterboxed (black bars top and bottom).

2. SOURCE GROUP

Selection of the audio source groups can be made from the OSD menu (Group 1+2/3+4 or Auto detection), the maximum audio output is 8 channels.

- **1+2:** Group 1 is Primary, Group 2 is Secondary.
- **3+4:** Group 3 is Primary, Group 4 is Secondary.
- **AUTO:** Primary > Secondary, Group 1 > 2 > 3 > 4.

3. MENU TIMEOUT

The menu/info display will remain on-screen when 'MENU TIMEOUT' is OFF.

4. AUTO SYNC-OFF

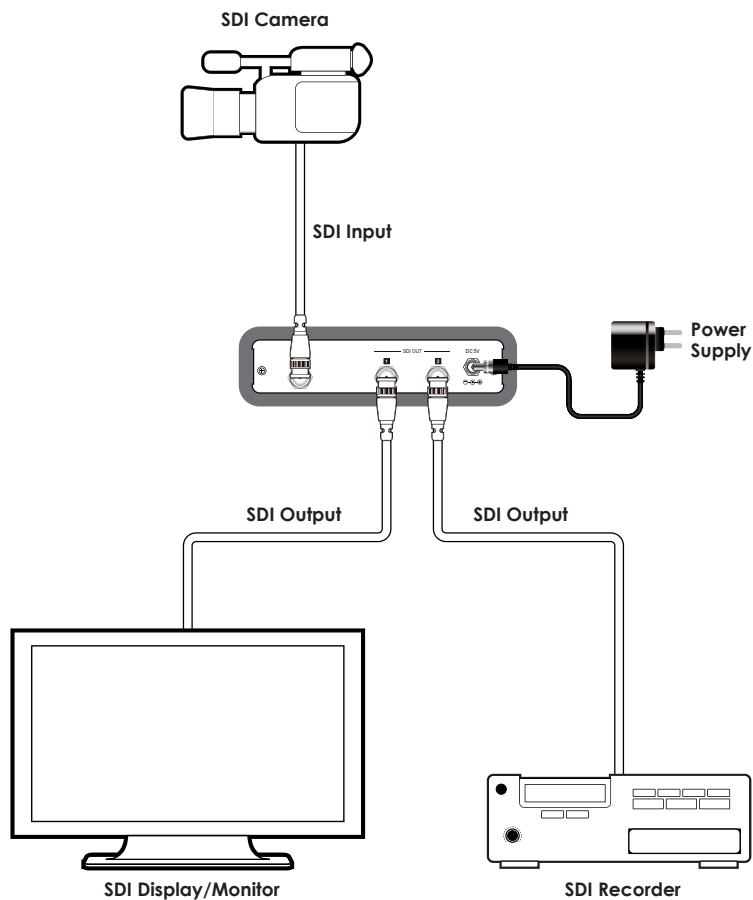
The system will automatically switch off the SYNC output when the output displays have been disconnected for 2 minutes.

5. FREEZE

Once activated, the unit will remain in 'FREEZE' mode even if the source changes resolution or there is no source input unless the output resolution is changed. The unit does not support last memory function, when the unit is rebooted will remain in 'FREEZE' mode.

- **FREEZE ONLY:** Video freeze and Audio is on.
- **FREEZE+MUTE:** Video freeze and Audio mute.
- **MUTE ONLY:** Video is on and Audio mute.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specification

SMPTE Standard	425M Level A & B, 424M, 292M, 259M-C
SDI Transmission Rates	2.970 Gbps, 2.970/1.001 Gbps, 1.485 Gbps, 1.485/1.001 Gbps & 270 Mbps
Video Bandwidth	148.5 MHz/link
Input Port	1×BNC (SD-SDI/HD-SDI/3G-SDI)
Output Ports	2×BNC (SD-SDI/HD-SDI/3G-SDI)
SD-SDI Timing	SMPTE 259M-C, 270 Mbps
HD-SDI Timing	SMPTE 292M, 1.485 & 1.485/1.001 Gbps
3G-SDI Timing	SMPTE 424M/425M-A & B, 2.970 & 2.970/1.001 Gbps
SDI Cable Distance	Up to 300m/200m/100m (SD/HD/3G)
ESD Protection	Human body model: ±8 kV (air-gap discharge) ±4 kV (contact discharge)
Power Supply	5V/2.6A DC (US/EU standards, CE/FCC/ UL certified)
Dimensions	145mm(W)×112.5mm(D)×30mm(H)/Exc. Connectors 145mm(W)×131mm(D)×30mm(H)/Inc. Connectors
Weight	354g
Chassis Material	Aluminum
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	3.1 W (Max)

8.2 Supported Input Resolutions

SDI STANDARD	INPUT TIMING
SD-SDI	480i@59 Hz
	576i@50 Hz
HD-SDI	720p@50/59.94/60 Hz
	1080i@50/59.94/60 Hz
	1080p@23.98/24/25/29.97/30 Hz
	1080sF@23.98/24/25/29.97/30 Hz
3G-SDI	1080p@50/59.94/60 Hz

Note:

1. When the input source resolution is 1080sF@23.98/24 Hz, 480i/576i output resolutions are not supported and will not be available for selection in the OSD menu.
2. When the input source is 1080sF@25/29.97/30 Hz, the option in the OSD IN/OUT menu will show 1080i@50/59.94/60 Hz.

8.3 Supported Output Resolutions

SDI STANDARD	OUTPUT TIMING
SD-SDI	480i@59 Hz
	576i@50 Hz
HD-SDI	720p@50/59.94/60 Hz
	1080i@50/59.94/60 Hz
	1080p@23.98/24/25/29.97/30 Hz
	1080sF@23.98/24/25/29.97/30 Hz
3G-SDI	1080p@50/59.94/60 Hz

9. ACRONYMS

ACRONYM	COMPLETE TERM
HD	High-definition
SDI	Serial Digital Interface



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