



# CMSDI-164

16×4 3G-SDI Matrix



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	23/02/12	First release
VS2	17/07/12	SDI standards updated
VR3	08/08/12	RS-232 command
VS4	12/01/16	Updated diagrams



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## 1. INTRODUCTION

The 3G-SDI Matrix series allows SD-SDI, HD-SDI and 3G-SDI signals to be shown on SDI displays while ensuring high bit-rates of 2.970 Gbps to give you fast signal transmission without signal loss. For professionals, this means that it is now easier to switch multiple 3G-SDI signals and split display of them on up to four SDI-equipped displays simultaneously. Additionally, these units can be controlled with the supplied IR remote, the front panel keys or RS-232 control functions.

## 2. APPLICATIONS

- Video broadcasting switching display
- Professional video program display
- Film studios program monitoring
- Video program switching display

## 3. PACKAGE CONTENTS

- 16 by 4 3G-SDI Matrix
- 5V/2.6 A DC Power Adaptor
- Remote Control (CR-101)
- Operation Manual

## 4. SYSTEM REQUIREMENTS

Source devices with SDI (SD/HD/3G) output, display devices with SDI Input and connected with SDI cables.

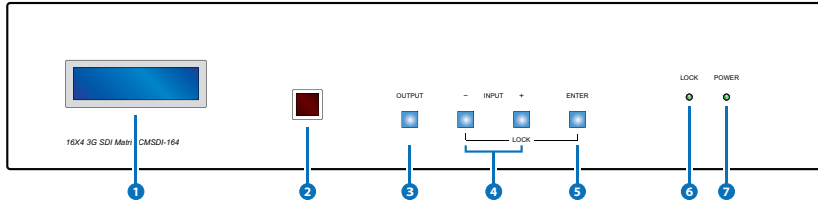
## 5. FEATURES

- 3G-SDI input sources can be selected and split or switched to four 3G-SDI displays simultaneously
- Operation at 2.970Gbps, 2.970/1.001 Gbps, 1.485Gbps, 1.485/1.001 Gbps and 270Mbps
- Supports SMPTE 425M (Level A & Level B), SMPTE 424M, SMPTE 292M, SMPTE 259M-C
- Connect using other units to extend your signal over long distances
- Signal is equalized and re-clocked
- Supports signal input and output distances of up to 300 meters for SD signals, 200 meters for HD signals and 100 meters for 3G signals

*Note: Tested with Belden 1694A cable. Operating distances may vary if used with another type of cable.*

## 6. OPERATION CONTROLS AND FUNCTIONS

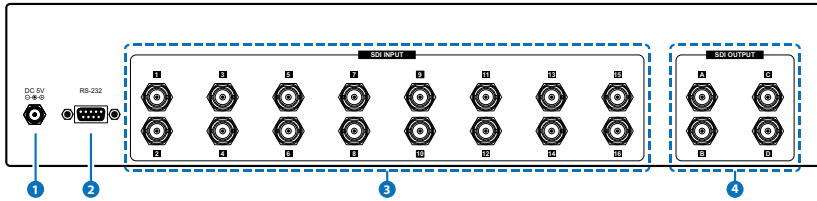
### 6.1 Front Panel



- 1 LCD:** This LCD monitor displays the configuration of the input and output selections. The upper line displays the outputs A, B, C, & D. The lower line displays each output's selected input.
- 2 IR Window:** Receives the IR signal from the remote control included in the package.
- 3 OUTPUT:** Press this button to select the output A~D the cursor will skip to the lower line of the LCD monitor then, select an input for highlighted output.
- 4 INPUT (-/+):** Press - or + button to select the input sources from 1~16, press ENTER to confirm the selection.  
*Note:* Depending on different models, the selectable input will be displayed on the LCD monitor.
- 5 LOCK:** Press both the '-' and 'ENTER' buttons together to lock all the function keys on the panel. To unlock, press both buttons again.
- 6 ENTER:** Press this button to confirm the selection. Press both the 'ENTER' key and '-' key together to lock all the keys on panel. To unlock, press both the 'ENTER' key and '-' key together again to release the locking system.
- 7 LOCK LED:** This LED will illuminate in green when the key lock is active.
- 8 POWER LED:** This LED will illuminate green when the device is switched ON. When in standby mode (Press the power key on the remote control) the LED will turn red.



## 6.2 Rear Panel



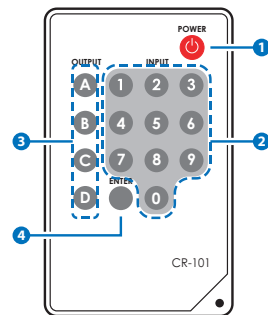
- 1 **DC 5V:** Plug the 5V DC power supply into the unit and connect the adaptor to AC wall outlet.
- 2 **RS-232:** Connect to a PC or laptop (with 9-pin D-sub female cable) to control the device via RS-232 commands..
- 3 **SDI INPUT:** Connect to the SDI source equipment such as video camera or SDI player. The amount of input slots will depend on the model.
- 4 **SDI OUTPUT:** Connect to the SDI displays with an SDI cables for displaying the output. It can also be connected to another SDI converter/extender to extend the signal.

## 6.3 Remote Control

- 1 **POWER:** Press the button to power the unit on/off.
- 2 **INPUT:** Press the number keys to select the desired input source from 01~16 after selecting the output then press enter to confirm the selection.

*Note: selectable inputs are dependant on the controlling device.*

- 3 **OUTPUT:** Press an output port from A~D first then select an input number and press enter to confirm the selection.
- 4 **ENTER:** Press this button to confirm each input/output selection.



## 6.4 RS-232 Protocol

MATRIX			REMOTE CONTROLLER	
Pin	Assignment		Pin	Assignment
1	NC		1	NC
2	TxD		2	RxD
3	RxD	▶	3	TxD
4	NC	◀	4	NC
5	GND		5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

Baud Rate: 19200bps

Data bit: 8-bit

Parity: None

Stop bit: 1-bit

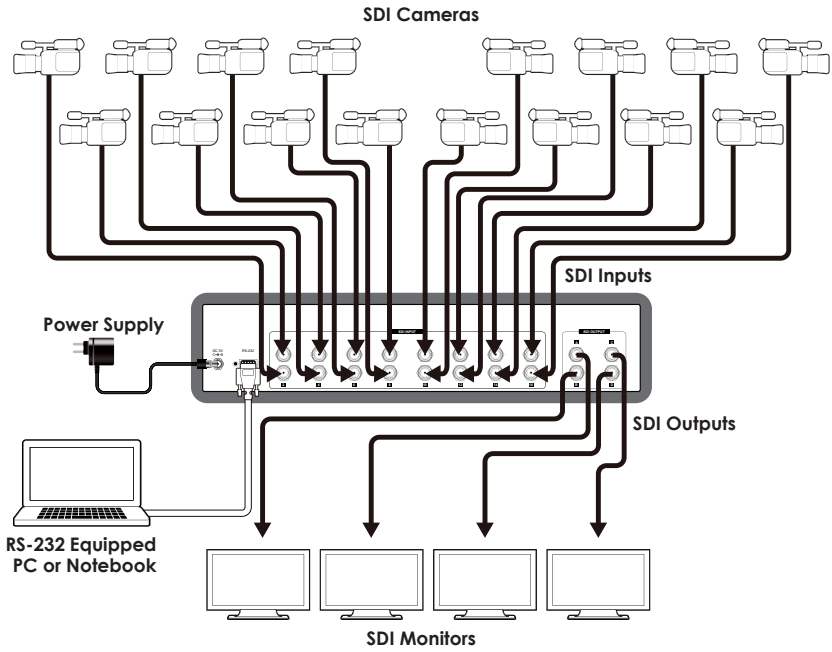
Flow Control: None

## 6.5 RS-232 Commands

COMMAND	DESCRIPTION
<b>poweron</b>	Power on
<b>poweroff</b>	Power off
<b>portx xx</b>	x=a~d (Output), xx=01~16 (Input) For example, when SDI output A needs to be SDI input 2, the command would be 'porta 02'.

*Note: All the RS-232 command will be not executed unless followed with a carriage return. Commands are not case-sensitive.*

## 7. CONNECTION DIAGRAM





## 8. SPECIFICATIONS

<b>SMPTE Standard</b>	259M-C, 292M, 424M/425M-AB
<b>Bit Rates</b>	270Mbps, 1.485Gbps & 1.485/1.001 Gbps, 2.970Gbps & 2.970/1.001 Gbps
<b>Input Ports</b>	16×BNC
<b>Output Ports</b>	4×BNC
<b>SDI Resolutions</b>	SMPTE 259M-C: 270Mbps; SMPTE 292M: 1.485Gbps & 1.485/1.001 Gbps; SMPTE 424M/425M-AB: 2.970Gbps & 2.970/1.001 Gbps
<b>HDMI Resolutions</b>	480i/576i, 720p@50/59.94/60, 1080i@50/59.94/60, 1080p@23. 98/24/25/29.97/30/50/59.94/60, 1080PsF@23.98/24/25/29.97/30
<b>Audio Sampling Rate</b>	48kHz
<b>SDI Cable Distance</b>	Up to 250m (SD-SDI), 200m (HD-SDI), 100m (3G-SDI)
<b>ESD Protection</b>	Human-body Model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
<b>Power Supply</b>	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
<b>Dimensions</b>	436mm (W)×132mm (D)×93mm (H)
<b>Weight</b>	2476g
<b>Chassis Material</b>	Metal
<b>Silkscreen Color</b>	Black
<b>Operating Temperature</b>	0°C~40°C/32°F~104°F
<b>Storage Temperature</b>	-20°C~60°C/-4°F~140°F
<b>Relative Humidity</b>	20~90% RH (non-condensing)
<b>Power Consumption</b>	8.5W

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>3G</b>	Bandwidth 2.97Gbit/s $\approx$ 3G
<b>BNC</b>	Bayonet Neill-Concelman
<b>SDI</b>	Serial Digital Interface







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