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PRO-SDI44/84/124/164
4x4/8x4/12x4/16x4 3G-SDI Matrix Switchers

/// **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	SUMMARY OF CHANGE
VR0	18/10/11	First release
VS1	30/01/12	Updated format/diagrams

CONTENTS

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 fast signal transmission without signal loss. The PRO-SDI164 allows 16 3G-SDI sources to be switched between 4 SDI equipped displays to distances of up to 300m. Additionally, LPCM Multi-channel and LPCM stereo audio signals are supported. Control of the matrix is via 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 4/12 by 4/8 by 4/4 by 4 3G-SDI Matrix

/// Remote Control (CR-101)

/// 5 V/2.6 A DC power adaptor

/// 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 2.970 Gbps, 2.970/1.001 Gbps, 1.485 Gbps, 1.485/1.001 Gbps and 270 Mbps

/// Supports SMPTE 425M (Level A and Level B), SMPTE 424M, SMPTE 292M, SMPTE 259M-C

/// Provides the Equalized and re-clocked transmission

/// Supports signal input and output distance of up to 300m for SD signals, 200m for HD signals and 100m for 3G signals

NOTE

Tested with Belden 1694A cable. Results may vary with cables that have a different specification.

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
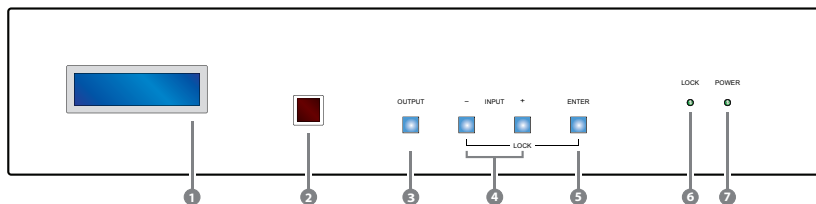
1 **LCD Monitor**: This LCD monitor displays the configuration of the input and output selections. The upper line displays the outputs A, B, C, & D. The lower line displays each output's selected input.

2 **IR receiver:** Receives the IR signal from the remote control included in the package.

**3** **OUTPUT Button:** 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 −/+ Button**: 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 Button**: Press both the '−' and 'ENTER' buttons together to lock all the function keys on the panel. To unlock, press both buttons again.

6 **ENTER Button**: 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
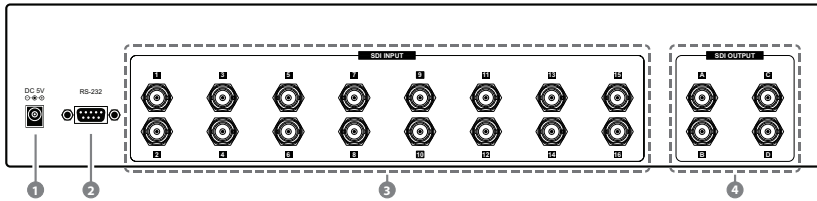
1 **DC 5V**: Plug the 5V DC power supply into the unit and connect the adaptor to AC wall outlet.

2 **RS-232:** Connect to a PC or laptop (with D-Sub 9 pin 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.

MODEL	INPUTS	OUTPUTS
PRO-SDI164	16	4
PRO-SDI124	12	4
PRO-SDI84	8	4
PRO-SDI44	4	4

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.

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7. RS-232 PROTOCOLS

7.1 Pin Assignment

Pins definition of modem cable

Unit			Remote Controller	
PIN	**Definition**		**PIN**	**Definition**
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: 19200 bps
Data bit: 8-bits
Parity: None
Stop bit: 1-bit

7.2 Commands

Command	Description
poweron enter	Power ON
poweroff enter	Power OFF
portx xx enter	x= a~d output, xx=01~16 input

For example: When SDI Output A needs to be set to SDI input 2, the command would be porta02.

8. REMOTE CONTROL
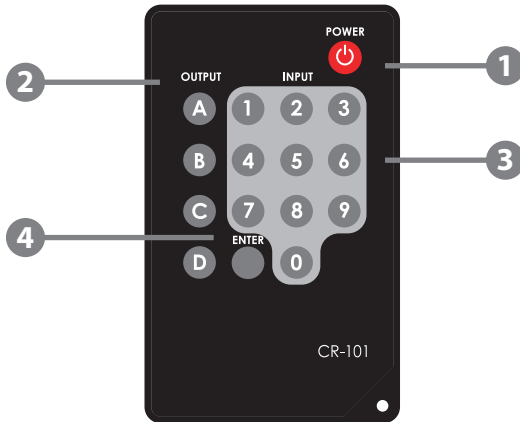
1. **Power:** Press the button to power the unit on/off.

2. **OUTPUT:** Press an output port from A~D first then select an input number and press enter to confirm the selection.

3. **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.

4. **ENTER**: Press this button to confirm each input/output selection.

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9. CONNECTION DIAGRAM
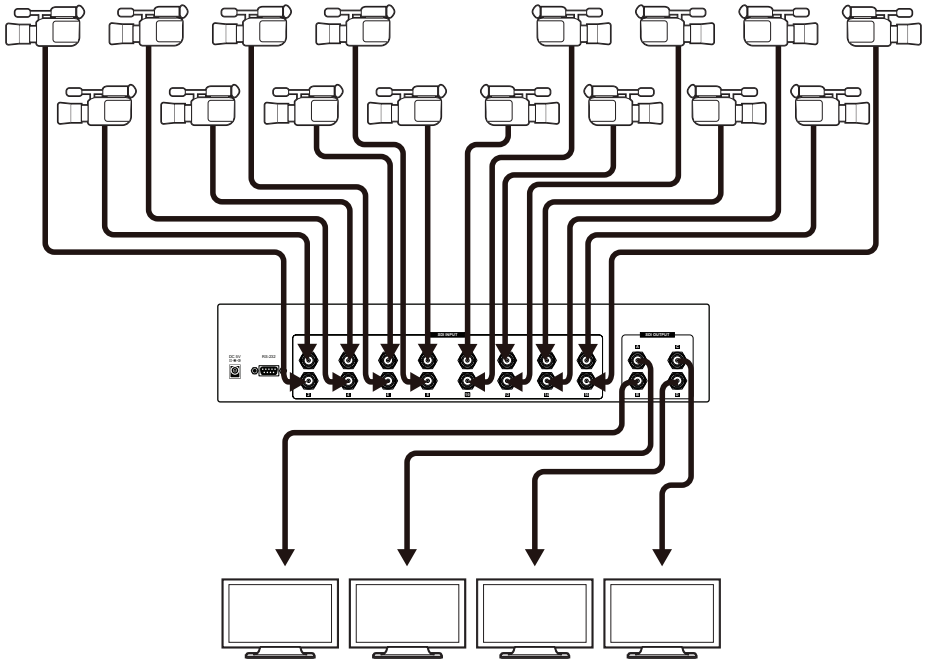
Note: The above diagram shows the 16 by 4 SDI matrix (PRO-SDI164).

10. SPECIFICATIONS

SMPTE Standard	425M Level A & B, 424M, 292M, 259M-C
SDI Transmission Rates	2.970 Gbps and 2.970/1.001 Gbps, 1.485Gbps, 1.485/1.001 Gbps and 270 Mbps
Input Ports	16/12/8/4×BNC (SDI/HD-SDI/3G-SDI)
Output Ports	4×BNC (SDI/HD-SDI/3G-SDI)
SDI Support Resolution	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
Power Supply	5V DC/2.6A (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human body model: ± 8 kV (air-gap discharge)
	± 4 kV (contact discharge)
	3G-SDI up to 100m (BELDEN 1694A)
	HD-SDI up to 200m (BELDEN 1694A)
	SD-SDI up to 300m (BELDEN 1694A)
Dimension	436 (W) x 132 (D) x 93 (H) mm
Weight	2476g (164), 2420g (124), 2380g (84), 2340g (44)
Chassis Material	Metal
Silkscreen Color	Black
Operating Temperature	0 ˚C~40 ˚C/32 ˚F~104 ˚F
Storage Temperature	−20 ˚C~60 ˚C/−4 ˚F~104 ˚F
Relative Humidity	20~90 % RH (non-condensing)
Power Consumption (W)	8.5 W (164), 7.5 W (124), 6.5 W (84), 5.5 W (44)

11. ACRONYMS

ACRONYM	COMPLETE TERM
3G	Bandwidth 2.97Gbit/s ≈ 3G
BNC	Bayonet Neill-Concelman
SDI	Serial Digital Interface