Instruction Manual

1T-MX-6344
4x4 HDMI v1.3 Matrix Switcher

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1.0   INTRODUCTION

Thanks for purchasing this HDMI 4x4 Matrix Switcher from TV One. The 1T-MX-6344 is designed to allow distribution of four HDMI sources (or DVI with appropriate cable adapter) to four devices independently. HDMI v1.3 supports Deep Color (10 bit color) video and new lossless, compressed Dolby TrueHD, Dolby Digital Plus as well as DTS-HD Master Audio digital audio. HDCP (High Definition Content Protection) encryption is supported and all signal paths are fully buffered to prevent cross talk. Our professional video conversion products have been serving the industry for over twenty years. TV One offers a full line of high quality Seamless Switchers, Video Scalers, Up/Down/Cross Converters, Analog-Digital Converters (SD/HD-SDI, HDMI, DVI), Format Converters, Standards Converters, TBC/Frame Synchronizers, Matrix Routing Switchers, Signal Distribution Amplifiers and Cat.5 Transmission Systems.

1.1   Liability Statement

Every effort has been made to ensure that this product is free of errors. TV One cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

TV One reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

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1.2   FEATURES

The 1T-MX-6344 has many features that enable it to perform in a superior manner. Among those features you will find:
- 4x4 Matrix Switching for HDMI or DVI Video Signals
- Full HDCP Support
- Deep Color (10 bit) Color Processing
- RC-44 IR Remote Control
- RS-232 Control
- Rack Mount Kit included
- IR Extender Included

2.0   SPECIFICATIONS

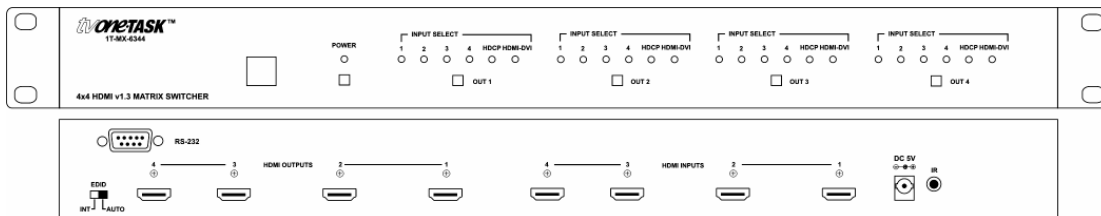|	
Video Inputs	
HDMI Video (DVI w/Cable Adapters)	4x via HDMI Type A Connectors (Note 1)
Video Outputs	
HDMI Video (DVI w/Cable Adapters)	4x via HDMI Type A Connectors (Note 1)
Audio Inputs	
Embedded Digital Audio	Dolby TrueHD, Dolby Digital Plus, DTS-HD
Audio Outputs	
Embedded Digital Audio	Dolby TrueHD, Dolby Digital Plus, DTS-HD
Performance	
Compliance	HDMI v1.3, HDCP 1.1, DVI 1.0
Signal Processing	Compensated, Clock Phase Adjusted
Jitter Processing	Reconstituted Signal; Jitter Free
Color Processing	30 bit (10 bit/color)
Frequency Bandwidth	2.25Gbps (Single Link)
Video Resolutions	480i through 1080p, VGA through UXGA
Audio Processing	Dolby, DTS 32-192fs sample, LPCM 7.1/Ch
EDID	Automatic or Manual Monitor Discovery
Maximum Cable Distance – Input	20m (66 ft.) @ 1080p/8 bit
Maximum Cable Distance - Output	15m (49 ft.) @ 1080p/8 bit
Device Control Methods	Front Panel, Infrared, RS-232
Mechanical	
Size (H-W-D)	1.75"x17.2"x 6.9" (44x438x175mm)
Weight (Net)	6.8 lbs (3.1Kgs)
Warranty	
Limited Warranty	3 Years Parts and Labor
Environmental	
Operating Temperature	0° to +50°C (+32° to +122°F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-10° to +60° C (+14° to +140° F)
Storage Humidity	10% to 90%, Non-condensing
Power Requirement	
External Power Supply	5VDC - Locking DC
Regulatory Approvals	
Switcher Units	FCC, CE, RoHS
Power Supplies	UL, CUL, CE, PSE, GS, RoHS
Accessories Included	
1x AC Power Adapter	US, UK or European Type
1x RC-44 IR Remote Control	Infrared
1x Rack Mount Kit	
1x IR Extender	
1x Operations Manual	
Optional Accessories	
Cables	Various Types and Lengths
Note	
(1) Provisions have been made to accommodate locking type HDMI connectors.	

3.0   CHECKING PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

- 1x 1T-MX-6344 Matrix Switcher
- 1x AC Power Adapter
- 1x IR Remote Control
- 1x IR Extender
- 1x Rack Mount Kit
- 1x Operations Manual

Note: Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or TV One immediately. Have the Model Number, Serial Number and Invoice available for reference when you call.

4.0   CONNECTING THE HARDWARE

Please study the panel drawings below and become familiar with the signal inputs, outputs, power requirements plus any controls present.

The 1T-MX-6344 is a 4x4 HDMI v1.3 Matrix Switcher capable of switching HDMI video signals (or DVI signals with cable adapters),

To begin to configure the system, mount the unit with the supplied rack mounting hardware if desired or place the unit on a flat surface that offers security and accessibility. Insure that there is adequate ventilation and make sure that there is access to the rear and front panels.

Turn off any equipment that will be part of the installed system and then connect the inputs and outputs as required. If you are using standard HDMI cables, simply plug them in securely and relieve the strain on the cables as much as possible so that they will not become unplugged. If HDMI cables are used that are equipped with Locking type connectors, an added step is necessary. Remove the Philips head screws from the rear of the unit just above the HDMI connectors and replace them with the Hex Nut/Screws that came in the accessory pack. After screwing these into the threaded holes vacated by the Philips head screws, the Hex Nut provides a threaded receptacle for the screw that is part of the

locking HDMI connector on the cable. Plug in the cable's Locking HDMI connector and secure it to the unit with its integral screw. This fastens the cable to the unit and prevents its inadvertent removal.

Next connect the supplied AC adapter to a working AC outlet and then to the 1T-MX-6344, twisting the TV One exclusive DC locking connector 90 degrees to lock it into position. If you are using the Infrared Extension function, connect the Extension sensor cable at this time and position the sensor as required. If you are using the RS-232 control function, connect the RS-232 cable at this time.

Turn the input and destination equipment on and then turn on the 1T-MX-6344 Matrix Switcher.
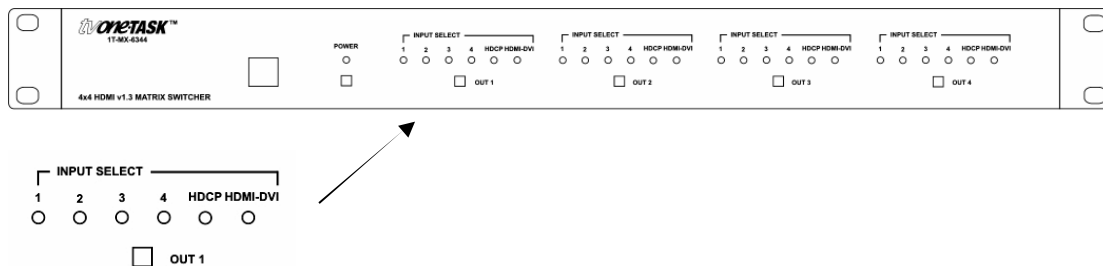
5.0   OPERATING THE UNIT

The 1T-MX-6344 is a special type of device called a Matrix Routing Switcher. A Matrix Switcher allows any input to be routed to any (or all) outputs whereas a regular routing switcher only allows the operator to select an input that will be sent to one, dedicated output.

The 1T-MX-6344 can be controlled via any of three (3) methods: From the front panel, by use of the included Infrared Remote Controller, or via the RS-232 functionality.

If you have not done so already, press the Power Switch and observe that the Power "On" LED illuminates. If it does not, make certain that the AC adapter is plugged in to both the unit and the AC socket and that appropriate AC voltage is available at the socket.

5.1 Control via the Front Panel Switches

Decide on an output (1 through 4) and repeatedly press the small button associated with that output as shown in the example above to select the input. LEDs will illuminate as you step through the possible inputs, showing the input number you have selected. When you arrive at the input you wish to associate with the selected output, merely stop pressing the button.

Using this method, you can make any of the inputs appear on any of the outputs or you can make the same input appear on all or some of the outputs. Decide the

input you wish to associate with an output and press the appropriate output button until the input signal you want appears on that output.

As selections are made, the LEDs will indicate your input selection plus additional LEDs, to the right of the input selection LEDs will indicate whether HDCP encryption is present on the selected input signal and if the signals are HDMI or DVI compliant.

5.2 Control via the Infrared Controller

The included Infrared Remote Controller has a Power Switch at the top right that can be used to turn the 1T-MX-6344 on and off. Beneath that switch you'll find four rows of selector buttons. The top row controls selections for output number one, the second row controls input selections for output two and the third and fourth rows control input selections for outputs number three and four respectively.

Operation is similar to front panel operation but instead of stepping through the available inputs, you simply press the appropriate input button for the output you wish to control.

As an example, pressing the second button from the left on the second row of buttons will cause input number two to appear on output number two. Pressing the third button from the left on the second row of buttons will cause input three to appear on output two and so on.

5.3 Control via the RS-232 Option

Using appropriate control codes, it is possible to switch power on and off plus switch any input to any output under control of a computer or other hardware control device.

To use this functionality, first prepare a control cable by reference to the table below. Make certain that you have continuity between the pins as shown.

The RS-232 control connections are as follows:

1T-MX-6344			Controller	
Pin Number	Definition		Pin Number	Definition
1	NC		1	NC
2	Tx	⟶	2	Rx
3	Rx	⟵	3	Tx
4	NC		4	NC
5	GND		5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

RS-232 transmission format:
Baud Rate: 9600 bps
Data bit: 8 Bits
Parity: None
Stop Bit: 1 bit
The RS-232 control codes used by the 1T-MX-6344 are as follows:

Code	Meaning
POWER 00	Power Off (Standby)
POWER 01	Power On
PORT 11	Output 1, Select Input 1
PORT 12	Output 1, Select Input 2
PORT 13	Output 1, Select Input 3
PORT 14	Output 1, Select Input 4
PORT 21	Output 2, Select Input 1
PORT 22	Output 2, Select Input 2
PORT 23	Output 2, Select Input 3
PORT 24	Output 2, Select Input 4
PORT 31	Output 3, Select Input 1
PORT 32	Output 3, Select Input 2
PORT 33	Output 3, Select Input 3
PORT 34	Output 3, Select Input 4
PORT 41	Output 4, Select Input 1
PORT 42	Output 4, Select Input 2
PORT 43	Output 4, Select Input 3
PORT 44	Output 4, Select Input 4

6.0   TROUBLESHOOTING

Aside from faulty AC or DC power, most problems with the 1T-MX-6344 relate to damaged or poor quality cables. You must use only the highest quality cables in order to achieve the stated cable length performance. Low cost cables are unfortunately seldom high quality. Beyond faulty/poor quality cables, another possible cause of unacceptable performance is low level signals from the source(s).

If some inputs function correctly and others do not, interchange cables between sources and see if the problem moves with the cables. If it moves, a bad cable or cable connector is the probable reason for the trouble. If the problem remains with one particular input, connect that source to a different input using the same cable and see if the problem moves to the new input. If it does, the problem is with the source.

After trying the above suggestions should the problem still persist, contact your dealer for additional suggestions before contacting TV One. Should the dealer's technical personnel be unable to assist you, contact TV One via our support website: *http://tvone.crmdesk.com.*   Create a technical support request on the site and our support team will respond within a short period of time.

7.0   LIMITED WARRANTY

TV One warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a fixed term from the date of purchase. The warranty term for specific product lines is defined below.

1. TV One branded products based on TV One's CORIO technology are warranted for a period of five years from the date of purchase. This includes products with the model number prefix of C2, 1T-C2, CX, A2 or S2.

2. TV One-task branded products, other than those based on TV One's CORIO technology mentioned above, are warranted for a period of three years from the date of purchase. This includes products with the model number prefix of 1T, with the exception of 1T-C2.

3. LCD Monitors are warranted for a period of three years from the date of purchase, with the exception of the LCD panels integrated into the monitors that are supplied by third parties. LCD panels are limited to the term and conditions of the warranty offered by the respective LCD panel manufacturer. Such specific LCD panel warranties are available upon request to TV One.

Should a product, in TV One's opinion, prove defective within this warranty period, TV One, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of TV One. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from TV One and return the product to a location designated by TV One, freight prepaid. After repairs are complete, the product will be returned, freight prepaid.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to two years from the date of purchase. TV One assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

TV One makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of TV One with respect to any defective products will be limited to the repair or replacement of such products. In no event shall TV One be responsible or liable for any damage arising from the use of such defective products whether

such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

8.0   REGULATORY COMPLIANCE

The 1T-MX-6344 has been tested for compliance with appropriate FCC and CE rules and regulations. The Power Adaptor/Supplies have been tested for compliance with appropriate UL, CUL, CE, PSE, GS Rules, Regulations and/or Guidelines. These Products and Power Adapters are RoHS Compliant.

9.0   CONTACT INFORMATION

Should you have questions or require assistance with this product in areas not covered by this manual, please contact TV One at the appropriate location.

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