



Instruction Manual

**1T-DA-674, 1T-DA-678
HDMI V1.4 Distribution Amplifiers**

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1.0 INTRODUCTION

The tvONE 1T-DA-674 and tvONE 1T-DA-678 HDMI Distribution Amplifiers provide multiple outputs from a single HDMI input for distribution to devices capable of receiving and/or displaying such signals. The 1T-DA-674 provides 4 HDMI compliant outputs and the 1T-DA-678 provides 8 HDMI compliant outputs. Each product in this series is compatible with HDMI v1.4 specifications; a cutting-edge technology that supports Deep Color (10-bit and 12-bit) video. In addition, all devices exhibit high bandwidth (up to 300MHz - 9Gbps) and provide signal amplification and equalization for high performance processing of audio and video allowing the signals to travel great distances without quality loss. As a bonus feature, all HDMI outputs can also be cascaded.

1.1 Liability Statement

Every effort has been made to ensure that this product is free of errors. tvONE 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.

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All third party trademarks and copyrights are recognised. The tvONE logo, Magenta logo, CORIO word and the CORIO logo are registered trademarks of tvONE. All other trademarks are the property of their respective holders.

1.2 Features

- HDMI v1.4, HDCP 1.1 and DVI 1.0 Compliant
- Allows distribution of 4 or 8 outputs (1T-DA-674 and 1T-DA-678)
- Supports 3D video resolutions (Frame Packing, Side by Side)
- Supports 10/12-bit color depth display
- Supports PC resolutions to 4kx2k
- Supports HDTV resolutions to 1080p
- Supports SDTV resolutions of 480i and 576i
- Supports DVI when using optional HDMI to DVI adaptors
- Signal Equalization feature enables longer cable runs
- Supports automatic discovery of monitor EDID

1.3 Getting the Best Results

There are many factors affecting the quality of results when distributing HDMI type signals. Some basic precautions will ensure the best possible performance from your new HDMI DA.

- **Output display device** – The quality of the output signal will depend largely upon the type and quality of the HDMI display device used. For instance, some video projectors just look better than others.
- **Distance between the DA sources and the display** – This plays a major role in the final result. Long distances are possible, but special measures should be taken in order to avoid signal loss. These include using high quality cables. Line amplifiers may also be necessary for the longest runs.
- **Input/Output connection cables** – Low quality cables are susceptible to interference. They degrade signal quality due to poor matching and can cause elevated noise levels. Cables should be of the best quality.
- **Interference from nearby electrical devices** – These can have an adverse effect on signal quality. For example, an older computer monitor often emits very high electromagnetic fields that can interfere with the performance of video equipment in its proximity.

2.0 SPECIFICATIONS

Video Inputs	
HDMI (Both Models)	1x via HDMI connector
Video Output	
HDMI	4x via HDMI connector (1T-DA-674) 8x via HDMI connector (1T-DA-678)
General	
Video Bandwidth	300MHz/9Gbps
Color Depth	10/12-bit Color depth display
Maximum PC/DVI Resolutions	4kx2k (3840x2160@24/25/30Hz, 4096x2160@24Hz)
Supported HDTV Formats	480i, 480p, 576i, 576p, 720p, 1080i and 1080p
Compliance	HDMI V1.4, HDCP V1.1, DVI V1.0
Signal Equalization	Internal
Maximum Distances	
Source to DA	20m (60') for 1080p/8-bit, 15m (45') for 1080p/12-bit
DA to Display	15m (45') for 1080p/8-bit, 10m (30') for 1080p/12-bit
Warranty	
Limited Warranty	3 Years Parts and Labor
Mechanical	
1T-DA-674 (H-W-D)	41.5 x 218 x 133.4mm (1.6" x 8.6" x 5.25")
1T-DA-678 (H-W-D)	44 x 436 x 150mm (1.7" x 17.2" x 5.9")
1T-DA-674 Weight	0.85 kg (1.87 lbs.)
1T-DA-678 Weight	2 kg (4.4 lbs.)
Environmental	
Operating Temperature	0° to +40°C (+32° to +104°F)
Operating Humidity	20% to 90%, Non-condensing
Storage Temperature	0° to +60°C (+32° to +140°F)
Storage Humidity	20% to 90%, Non-condensing
Power Requirement	
External Power Supply	5VDC@2.6A (5VDC@3A 1T-DA-678)
Regulatory Approvals	
HDMI DAs	FCC, CE, RoHS
Power Supply	UL, CUL, CE, PSE, GS, RoHS
Accessories Included	
1x AC Power Adapter	US, UK or Euro
1x Instruction Manual	
4x Rubber Feet	
1x Rack Ear Set (1T-DA-678)	
Optional Accessories	
RM-220 Rack Mount Kit	For 1T-DA-674 (Dual Product Mounting)
Product Item Numbers	
1T-DA-674	1x4 HDMI DA
1T-DA-678	1x8 HDMI DA

3.0 CHECKING PACKAGE CONTENTS

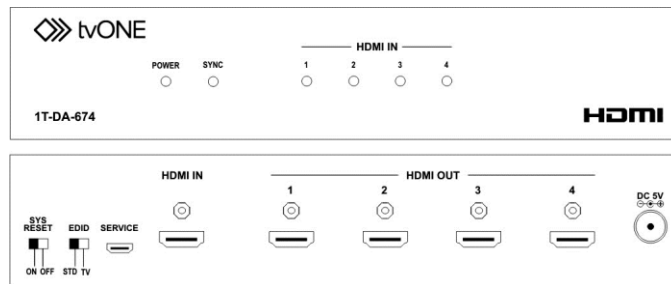
Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

- 1x 1T-DA-674 or 1T-DA-678 HDMI DA
- 1x 100~240VAC to 5VDC Power Adapter
- 1x Instruction Manual
- 4x Rubber Feet
- 1x Rack Ear Set (1T-DA-678 only)

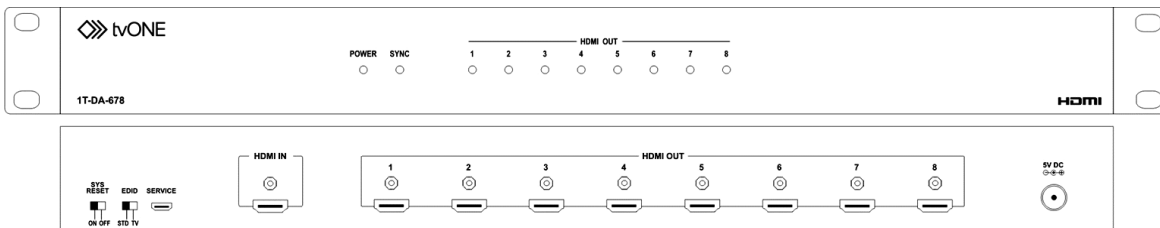
Note: Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or tvONE immediately. Have the Model Number, Serial Number and Invoice available for reference when you call.

4.0 CONNECTING THE HARDWARE

Connect the HDMI Video Source to the input of the 1T-DA-674 or 1T-DA-678 Distribution Amplifier, connect its outputs to HDMI compliant devices or monitors and lastly connect the AC to DC Power Adapter. The drawings below show the locations of the input, outputs and power connector.



1T-DA-674 HDMI DA



1T-DA-678 HDMI DA

4.1 Connecting the Inputs to the Distribution Amplifiers

You can connect any HDMI compliant device's output to the HDMI input. Make certain that the HDMI cable is securely plugged into the source device as well as the HDMI DA. Always use a high quality cable, as short a length as possible, for best results.

4.2 Connecting the Outputs to the Destination Devices

Using a high quality HDMI cable, connect the output of the HDMI DA to an HDMI compliant display device. Use the shortest cable run possible.

4.3 Connecting Power

All units are shipped with a Power Adapter to convert 100~240VAC@50-60Hz to 5VDC. Connect the DC Output Cable from the Power Adapter to the back of the unit and then plug the Power Adapter into an AC Receptacle. There is no power switch. The unit begins to function as soon as it is plugged into AC.

4.4 Using the Positive Cable Securing Feature

If HDMI cables are used that are equipped with Locking type connectors, an added step is necessary. Each Input and Output has a Hex Nut installed above it. 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.

4.5 Rack Mount Kits

The Distribution Amplifiers can be mounted in a standard 19" equipment rack. To mount the 1T-DA-674 in a rack the optional RM-220 Rack Mount kit must be purchased. Using this kit, up to 2 units can be mounted in a single 1U rack space. A blank panel is provided when only 1 unit is mounted in the frame. To mount the 1T-DA-678 in a rack, use the included Rack Ears. Attach these to the sides of the unit for installation into a 19" rack.

5.0 OPERATING THE HDMI DISTRIBUTION AMPLIFIERS

Once the input, output and power cables are connected, plug the AC adaptor into the wall and the Distribution Amplifier will begin to function. A Power LED on the front of the unit will confirm power is present. On the rear of the units, you'll find the System Reset Switch, the EDID selector and a Mini USB port used for factory service. Other than connecting cables and applying power, there are no other routine operator interventions required with the possible exception of the EDID jumper.

SYS RESET On/Off:

Not normally used, this switch, when turned on, forces all connected displays to switch to their primary HDMI input via a CEC system command. By switching the System Reset ON, the unit will perform a reset every 8~10 minutes. The default setting is OFF, and is the position for normal use.

***Note:** The system reset will not be performed on displays that do not support CEC commands.*

SERVICE Port:

This Mini-USB port is reserved for factory service only.

EDID Operation:

The distribution amplifier's default factory setting is "TV". Leave the switch in this position so that the unit can sense the proper EDID setting based on the display's requirements.

When first powered on in "TV" mode, the distribution amplifier will detect and store the EDID from HDMI output port 1 and it will send that output's display format information to the connected source. The distribution amplifier retains in memory the last EDID decision it made, therefore the device will use the last EDID it stored if output port 1 is not connected to a display after being power cycled.

Selecting the "STD" position on the EDID switch will force the amplifier to use a default EDID output. This sets the EDID's native resolution to 1080p@60Hz and audio is limited to LPCM 2CH.

** The Extended display identification data (EDID) is a data structure provided by a computer display to describe its capabilities. It's what enables the HDMI DA to know what kind of monitor is connected to the unit. EDID is defined by a standard published by the Video Electronics Standards Association (VESA). The EDID includes manufacturer name, product type, phosphor or filter type, timings supported by the display, display size, luminance data and (for digital displays only) pixel mapping data.*

Operation Notification LEDs

Besides the Power LED, there is a status LED as well as other LEDs showing the unit's condition with respect to successfully executed output connections.

A "Sync" LED shows if an HDMI source has been detected and there are also LEDs for each output which show whether or not the output has successfully made a connection with the source device. The number of LEDs showing a successful connection varies depending on the model. The 1T-DA-674 has four LEDs and the 1T-DA-678 has eight.

6.0 TROUBLESHOOTING

In the event of problems, first make certain that the input and output cables are no more than 30 meters long (for signals to 1080p resolution) and are of the highest possible quality. Next, make certain that the Distribution Amplifier is receiving power.

If all is well in these areas, remember that HDMI devices communicate with one another so the source devices and destination device must be fully HDMI capable. In addition, HDCP encryption requires additional processing which also is dependent on the equipment you have connected to the sources and destination device. If you experience problems using the 1T-DA-674 or 1T-DA-678 HDMI Distribution Amplifier, you should attempt to determine what is wrong by attaching each of the source devices – one at a time – directly to the destination device using the same cables you are using with the expanded system. This is a way of determining if the problem is due to bad cables or a problem with the other devices. If you are unable to obtain a signal using this simplified path, suspect the cables, the source device or the destination device.

After trying the above suggestions should the problem still persist, contact your dealer for additional suggestions before contacting tvONE. Should the dealer's technical personnel be unable to assist you, contact tvONE 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

tvONE 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. tvONE branded products based on tvONE'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. tvONE products, other than those based on tvONE'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 tvONE.

Should a product, in tvONE's opinion, prove defective within this warranty period, tvONE, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of tvONE. 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 tvONE and return the product to a location designated by tvONE, 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. tvONE assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

tvONE 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 tvONE with respect to any defective products will be limited to the repair or replacement of such products. In no event shall tvONE 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-DA-674 and 1T-DA-678 HDMI distribution amp products have been tested for compliance with appropriate FCC and CE rules and regulations. The power adaptor/supply has been tested for compliance with appropriate UL, CUL, CE, PSE, GS Rules, regulations and/or guidelines. This product and power adapter is 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 tvONE at the appropriate location shown below.

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