

# Instruction Manual

**1T-CT-647**  
**7 Port HDBaseT-Lite Transmitter**



## Table of Contents

<b>1.0</b>	<b>Introduction</b>	<b>3</b>
<b>2.0</b>	<b>Specifications</b>	<b>4</b>
<b>3.0</b>	<b>Checking Package Contents</b>	<b>6</b>
<b>4.0</b>	<b>Connecting The Hardware</b>	<b>6</b>
<b>5.0</b>	<b>Operating The Unit</b>	<b>8</b>
<b>6.0</b>	<b>Troubleshooting</b>	<b>9</b>
<b>7.0</b>	<b>Limited Warranty</b>	<b>10</b>
<b>8.0</b>	<b>Regulatory Compliance</b>	<b>11</b>
<b>9.0</b>	<b>Contact Information</b>	<b>11</b>

## **1.0 INTRODUCTION**

Thank you for purchasing this HDMI over single Cat.5e or Cat.6 product from tvONE. The product group consists of a 1T-CT-647 Transmitter (which is normally coupled with a 1T-CT-642 Receiver that employs HDMI v1.4 capability and the HDBaseT-Lite technology to allow transmission of uncompressed, 1080p high definition television signals over a single Cat.5e or Cat.6 cable - a type of cable typically employed for Ethernet computer networks.) HDMI v1.4 signals - including 3D and 4k UHD formats - are supported and the system will also allow DVI signal transmission with appropriate DVI to HDMI cable adapters. In addition, embedded LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio capability is standard. The 1T-CT-647 can achieve signal distribution distances of up to 60 meters (197 feet) for uncompressed HDMI signals without signal degradation.

### **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.

tvONE 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.

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

The 1T-CT-647 HDMI over single Cat.5e/Cat.6 Transmitter has many features that enable it to perform in a superior manner. Among these features you will find:

- HDMI with 3D, 4k(24Hz/30Hz) support; HDCP and DVI compliant
- Uncompressed HDMI signal distribution to 60 meters (197 feet)
- Supports data rates from 250Mbps up to 10.2Gbps
- Provides seven Cat.5e/Cat.6 outputs and one local HDMI output simultaneously
- Uses HDBaseT-Lite Class B performance enhancing technology \*
- Supports Embedded HDMI Lossless Digital Audio
- Full HD resolution support (1080p@60Hz/36bit), UHD support (4k@30Hz), HD 3D formats & PC resolutions up to WUXGA
- Supports Standard or TV EDID
- Uses single Cat.5e/Cat.6 Ethernet cables via RJ45 connectors
- Output resolution follows input
- Bi-directional infrared remote control extension support
- Screw on +24VDC Connector for enhanced mechanical security

\* HDBaseT-Lite Class B performance enhancing technology provides a method for distribution of uncompressed video plus embedded audio at a bit rate of up to 10.2 Gbps over distances of up to 60 meters (197 ft.) via a single Cat.5e or Cat.6 cable. Video, audio and control can be placed on a single Cat.5e or Cat.6 cable connecting the transmitter and receiver units. Cascading multiple units is also possible.

**NOTE:** *Not all HDBaseT-Lite products will support all of the features listed.*

## 2.0 SPECIFICATIONS

<b>Video I/O</b>	
1T-CT-647 Tx-- HDMI Input	1x via HDMI Connector
1T-CT-647 Tx-- HDMI Output	1x via HDMI Connector
<b>Cat.5e/Cat.6 Cable I/O</b>	
1T-CT-647 Tx -- Cat.5e/Cat.6 Output	7x via RJ45 Connector
<b>Additional I/O</b>	
Connectors	2x 3.5mm mini-jack (Infrared), 1 mini USB (Service)
<b>Supported Signals &amp; Protocols</b>	
Industry Standards	HDMI v1.4 (3D, 4k), HDCP, DVI 1.0, Infrared
<b>Video Performance</b>	
Maximum Resolution	HD up to 1080p@60Hz/36bit, UHD to 4k@30Hz, PC to WUXGA

<b>Audio Support</b>	
Formats Supported	LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio
<b>HDBaseT-Lite Class B Support</b>	
Data Bandwidth	Uncompressed Video/Audio to 10.2Gbps/300MHz
<b>Maximum Range</b> (1T-CT-647/642 Tx/Rx System)	60m (197 ft.) at 1080p@60Hz 40m (131 ft.) at 4k@30Hz
<b>Environmental</b>	
Operating Temperature	0° to +40° C (+32° to +104° F)
Operating Humidity	20% to 90%, Non-condensing
Storage Temperature	-20° to +60° C (-4° to +140° F)
Storage Humidity	20% to 90%, Non-condensing
<b>Warranty</b>	
Limited Warranty	3 Years Parts and Labor
<b>Regulatory Approvals</b>	
Encoder Unit	FCC, CE, RoHS
Power Supply	UL, CUL, CE, PSE, GS, RoHS
<b>Cable Requirements (T/R)</b>	
Ethernet Cable (UTP or STP)	Highest quality Cat.5e or Cat.6 cable
<b>Mechanical (H-W-D)</b>	
1T-CT-647 (H-W-D)	44x482x179mm (1.75x19.0x7.0") w/Rack ears
<b>Weight</b>	
1T-CT-647 Transmitter	2122g (4.66 lbs.)
<b>Power Requirement</b>	
External Power Supply	1x 24VDC@2.7A, Screw Lock Connector
<b>Accessories Included</b>	
1x Power Adapter	US, UK or Euro
1x IR Transmitter	
1x IR Receiver	
1x Rack Ear Set	
4x Rubber Feet	
1x User Manual	
<b>Model Numbers</b>	
1T-CT-647	HDMI over single Cat.5e/Cat.6 1x7+1 Transmitter
1T-CT-642 (recommended receiver)	HDMI over single Cat.5e/Cat.6 Receiver

### 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-CT-647 Transmitter
- 1x 24 VDC Power Adapter
- 1x Power Cord
- 1x IR Transmitter Extension Device
- 1x IR Receiver Extension Device
- 1x Rack Ear Set
- 4x Rubber Feet
- 1x Operations Manual

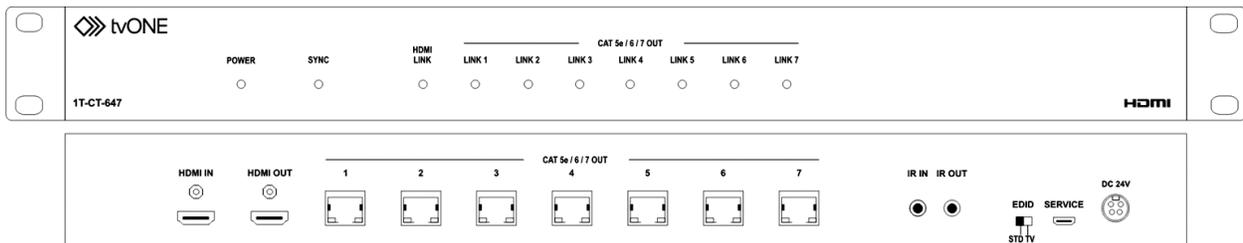
**Note:** Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or tvONE immediately. Have the Model, Serial Number and Invoice available for reference when you call.

### 4.0 CONNECTING THE HARDWARE

Please study the panel drawings below and become familiar with the HDMI signal input and output, Cat.5e/Cat.6 cable and power requirements.

*Note: The resolution capability of the remotely located display devices must be capable of displaying the output of the source device. Before using the extender system, verify that the display device on the receiving end can support the output resolution and signal format by connecting it directly to the source device.*

#### 4.1 1T-CT-647 Transmitter



*Note: It is recommended that you complete the systems using tvONE 1T-CT-642 receivers. The range and performance specifications contained in this manual are based on those receivers. 1T-CT-642 receivers are not provided with the 1T-CT-647 product and must be purchased separately.*

1. Connect the HDMI source device's output to the HDMI IN connector of the 1T-CT-647 Transmitter, using an appropriate HDMI cable, (10 Meter (~30') in length for 12 bit signals, 15 meters (~45') for 8 bit signals).
2. If desired, connect an HDMI capable monitor to the HDMI output connector for monitoring or cascading purposes. Keep the HDMI cable as short as possible.
3. (OPTIONAL) If there is an IR controllable device on the 1T-CT-647 side that you wish to control remotely from the receiver side, connect the IR Transmitter device to the IR1 OUT connector on the 1T-CT-647. If there is an IR controllable device on the receiver side that you wish to control remotely from the 1T-CT-647 side, connect the IR Receiver device to the IR2 IN connector on the 1T-CT-647.
4. Connect the Cat.5e or Cat.6 cables to the transmitter via the RJ45 connectors. Ensure that the RJ45 connectors achieve a positive lock into the transmitter's connectors.
5. Connect the AC power adapter's screw lock DC power connector to the Transmitter. The power LED on the front panel will illuminate when power is present. The SYNC LED will light when a valid HDMI signal is connected to the input. The HDMI Link LED will illuminate when an HDMI capable monitor is connected to the HDMI Output and Link LEDs 1 through 7 will light when an appropriate receiver is connected to each Ethernet cable at the far end.

#### 4.2 1T-CT-642 Receiver (Recommended – must be purchased separately)



1. At the remote location, connect the Cat.5e/Cat.6 cable to the Receiver's RJ45 connector. Ensure that the connector achieves a positive lock into the receiver's connector.
2. (OPTIONAL) If there is an IR controllable device on the 1T-CT-642 side that you wish to control remotely from the 1T-CT-647 side, connect the IR Transmitter device to the IR2 OUT connector on the 1T-CT-642. If there is an IR controllable device on the 1T-CT-647 side that you wish to control remotely from the 1T-CT-642 side, connect the IR Receiver device to the IR1 IN connector on the 1T-CT-642.
3. Connect the HDMI connector of the Receiver to the HDMI input of the remote display or other device, using an appropriate cable, (15 Meter (~30') in length for either 12 bit signals or 8 bit signals).
4. Connect the AC power adapter's screw lock DC power connector to the Receiver. The green LED on the RJ45 port will illuminate when power is present.
5. Turn on the source device and remote display. Observe the Link LED on the Transmitter and the Receiver. The LED on both RJ45 ports will remain lit when the link is complete and stable.

*Note: It's important that you verify that the HDMI source functions properly directly with the HDMI display device before you attempt to use the system components to extend the signal distribution distance. Failure to do this introduces an unwanted variable that would then have to be resolved should the system not function as expected.*

## **5.0 OPERATING THE UNITS**

Once the connections have been made and power applied as explained above, there are no operational adjustments required. It is recommended however that the power on sequence be as follows: HDMI over Cat.5e/Cat.6 Transmitter and HDMI over Cat.5e/Cat.6 Receiver, HDMI destination devices and HDMI source – in that order.

### **5.1 EDID Operation**

The 1T-CT-647'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 1T-CT-647 will detect and store the EDID from Cat5e/6 output port 1 and it will send that output's display format information to the connected source. The 1T-CT-647 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 1T-CT-647 to use a default EDID output. This sets the EDID’s native resolution to 1080p@60Hz and audio is limited to LPCM 2CH.

## 6.0 TROUBLESHOOTING

In the event of problems, first make certain that the input and output cables are no more than 15 meters long (for signals to 1080p resolution) and are of the highest possible quality. Next, make certain that both extender products are 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 HDMI over single Cat.5e or Cat.6 products, 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-CT-647 HDMI over single Cat.5e/Cat.6 cable product has 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.

### **tvONE USA**

2791 Circleport Drive  
Erlanger, KY 41018  
USA  
Tel 859-282-7303  
Fax 859-282-8225  
sales@tvone.com  
www.tvone.com

### **tvONE Europe**

Continental Approach  
Westwood Industrial Estate  
Margate, Kent CT9 4JG, UK  
Tel +44 (0)1843 873311  
Fax +44 (0)1843 873312  
sales.europe@tvone.com

### **tvONE Latin America**

6991 NW 82 Avenue #8  
Miami, FL 33166  
USA  
Tel 305-396-6275  
Fax 305-418-9306  
sales.latinamerica@tvone.com

### **tvONE Mercosur**

Av Diaz Velez 3965 PB  
Capital Federal (1200)  
Buenos Aires, Argentina  
Tel +54 11 5917-2525  
Fax +54 11 4032-0281  
sales.mercosur@tvone.com

### **tvONE Asia**

16F-4, No.75, Sec. 1  
Xintai 5<sup>th</sup> Rd, Xizhi Dist  
New Taipei City 22101  
Taiwan R.O.C.  
Tel +886 2 2698-2296  
Fax +886 2 2698-2297  
sales.asia@tvone.com

### **tvONE China**

Rm. 1007 Golden Peach Building  
No.1900 Shangcheng Road  
Pudong, Shanghai  
China 200120  
Tel +86 21 5830-2960  
Fax +86 21 5851-7949  
Email: sales.china@tvone.com

End of Manual