



1T-CT-631A



1T-CT-632



1T-CT-633

# Instruction Manual

1T-CT-630 Series  
HDMI to CAT.6 Extender System





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## 1.0 INTRODUCTION

Thanks for purchasing these 1T-CT-630 Series HDMI Extender products from TV One. The individual components of this HDMI to Cat.6 Extender system consist of the 1T-CT-631A Transmitter, 1T-CT-632 Receiver and the 1T-CT-633 Repeater which constitutes a system used to transmit deep color (12 bits) v1.3 HDMI or DVI-D signals at resolutions up to 1920x1200 and 1080p, plus transmission of embedded lossless audio, over one Cat.6 cable. The 1T-CT-631A-632 Transmit/Receive system can achieve signal distribution distances of up to 38 meters (125 feet) for 1080p signals, 50 meters (165 feet) for 720p/1080i signals and 60 meters (195 feet) for 480p signals. Typical distance for the 1T-CT-633 Repeater is 76 meters (250 feet)<sup>1</sup> when operating in the 8 Bit (1080p) mode and 30 meters (98 feet)<sup>1</sup> when operating in the 12 Bit (1080P) mode. The three products also feature the unique TV One-task locking power connectors to enhance overall system mechanical security.

*Note 1: 1/2 of the total cable distance is on the input side and 1/2 on the output side.*

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

This series of HDMI to Cat.6 Extender systems have many features that enable them to perform in a superior manner. Among these features you will find:

- Resolutions to 1920x1200, 1080p @ 60Hz
- 1080p signal distribution up to 38 meters (125 feet)
- 1T-CT-633 Repeater extends 1080p range another 38 meters (125 feet)
- Supports Embedded HDMI v1.3 Lossless Digital Audio
- Compliant with HDMI v1.3, HDCP 1.1 and DVI 1.0 specifications
- Supports xvYCC protocols
- Supports Cat.6 & Cat.6e cables (solid core only)
- Supports high definition input up to 1080P, output resolution follows input
- Locking +5VDC Connectors for enhanced mechanical security

## 2.0 SPECIFICATIONS

<b>Video I/O</b>	
1T-CT-631A Tx-HDMI Input	1x via HDMI Connector
1T-CT-632 Rx-HDMI Output	1x via HDMI Connector
1T-CT-633 Repeater Input	1x via HDMI Connector
<b>Cat.6 I/O</b>	
1T-CT-631A Tx – Cat.6 Output	1x via RJ-45 (Video & Embedded Audio)
1T-CT-632 Rx – Cat.6 Input	1x via RJ-45 (Video & Embedded Audio)
1T-CT-633 Repeater – Cat.6 I/O	2x via RJ-45 (Video & Embedded Audio)
<b>Cat.6 Structure</b>	
Video Connector	HDMI Video/Audio Signal
<b>Supported Signals &amp; Protocols</b>	
Industry Standards	HDMI v1.3, HDCP 1.1, DVI 1.0, xvYCC
<b>Video Performance</b>	
Maximum Resolution	Up to 1920x1200, 1080p/60Hz
Video Bandwidth	2.25Gbps
<b>Maximum Range</b>	
1T-CT-631A/632 System	1080p up to 38 meters (125 ft) 720p/1080i up to 50 meters (165 ft) 480p up to 60 meters (195 ft)
1T-CT-633 Repeater	1080p up to an additional 38 meters (125 ft) 720p/1080i up to an additional 50 meters (165 ft) 480p up to an additional 60 meters (195 ft)
<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/Decoder Unit	FCC, CE, RoHS
Power Supply	UL, CUL, CE, PSE, GS, RoHS
<b>Cable Requirements</b>	
Cat.6	Network Grade, Premium, Shielded, Solid Core
<b>Mechanical (H-W-D)</b>	
1T-CT-632 (HWD)	30x78.5x72mm (1.2x3.1x2.83")
1T-CT-631A, 1T-CT-633 (HWD)	30x78.3x102mm (1.2x3.1x4.1")
<b>Weight</b>	
1T-CT-632	90g (0.20 lbs) each
1T-CT-631A, 1T-CT-633	182g (0.40 lbs)
<b>Power Requirement</b>	
External Power Supply	5 VDC@2A, Locking DC
<b>Accessories Included</b>	
1x Power Adapter	US, UK or Euro
1x User Manual	
<b>Model Numbers</b>	
1T-CT-631A	Cat.6 HDMI Transmitter
1T-CT-632	Cat.6 HDMI Receiver
1T-CT-633	Cat.6 HDMI Repeater

### 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 Transmitter, Receiver or Repeater
- 1x Power Adapter
- 1x Operations Manual

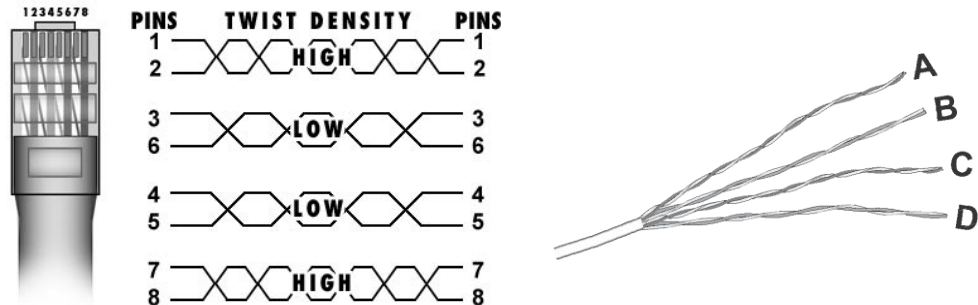
**Note:** Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or TV One immediately. Have the Model and Serial Number and Invoice available for reference when you call.

### 4.0 CONNECTING THE HARDWARE

Please study the panel drawings below and become familiar with the signal input, outputs, power requirements/inputs plus any controls present. *Note: The resolution capability of the remotely located display devices must be capable of displaying the output of the source device. Before connecting the Cat.6 repeater 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 Cat.5e/6 Cable Notes

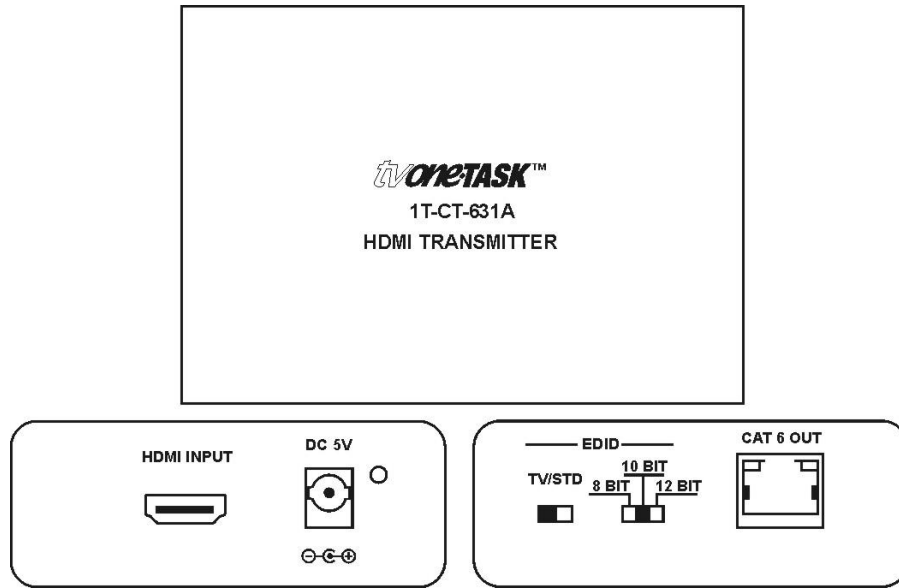
**Pins and pairing.** Make sure the Cat.6 cable pin assignments are standard. The correct pairing is straight through, pin-to-pin, with pairing as follows.



**Twist density.** UTP cable pairs have different twist densities (twist pitches). There are two pairs with high density twist and two pairs with low density. Colors vary by manufacturer. Twist densities can be seen by stripping off about 10 cm (4') of insulation and visually inspecting. Pairs 1-2 and 7-8 should be assigned to high density twists. Failure to assign correct twist densities can result in image jitter. The ABCD picture shows typical UTP cable, with pairs A and C showing a high pitch twist (assigned to pin pairs 1-2 & 7-8), and B and D with low pitch twist (assigned to pin pairs 3-6 & 4-5).



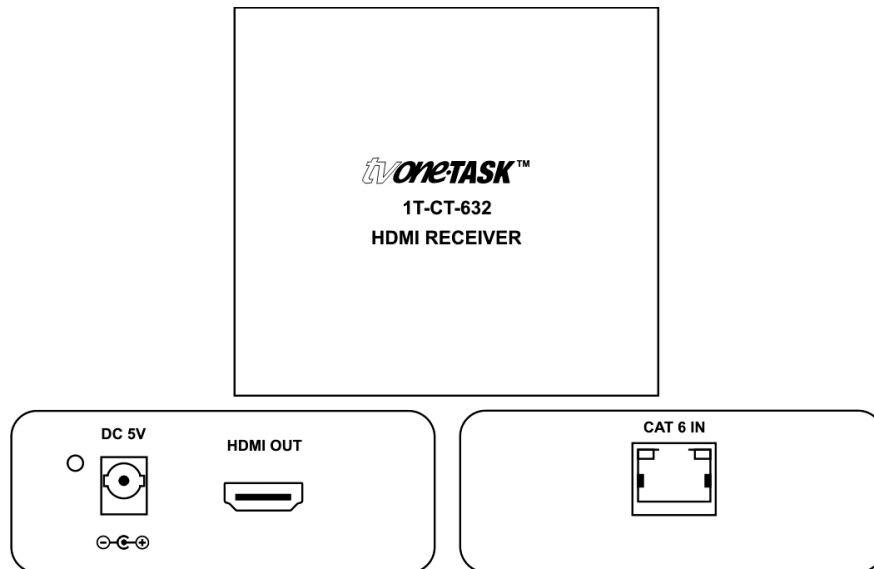
## 4.2 1T-CT-631A HDMI Transmitter



Connect the HDMI source device's output to the HDMI IN connector of the 1T-CT-631A Transmitter, using an appropriate HDMI cable of no more than 10 meters (33') in length.

Set the TV/STD switch to TV for the initial setting and connect a Cat.6 cable to the Cat.6 output connector of the Transmitter. Defer connecting the AC adapter until the Cat.6 cable is connected to both the Transmitter and the Receiver.

## 4.3 1T-CT-632 HDMI Receiver



At the remote location, connect the Cat.6 cable to the Cat.6 input of the Receiver.

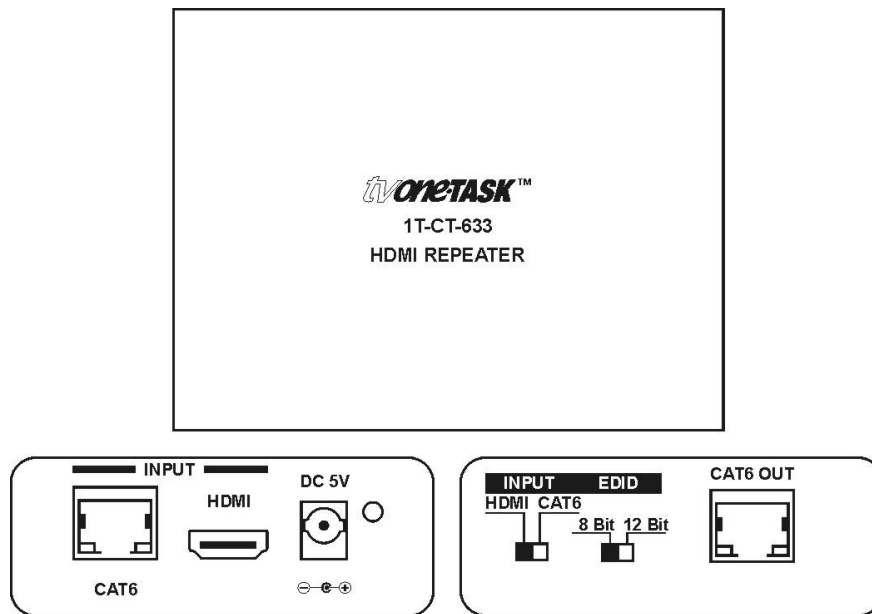
Connect the HDMI Out connector of the Receiver to the HDMI input of the remote display or other device, using an appropriate cable no more than 10 meters (33') in length.

Connect the supplied AC adapters first to the Transmitter and Receiver and then to the AC sockets.

Lastly, turn on the source device and remote display. The source signal should now appear on the remotely located display. If not, consult the Troubleshooting section of this manual.

*Before placing a basic Transmitter/Receiver Cat.6 system into operation, consult the maximum allowable cable length table on page 8.*

#### 4.4 1T-CT-633 HDMI Repeater



The 1T-CT-633 HDMI Repeater is used to extend the range of the 1T-CT-631A/1T-CT-632 system. As long as you do not exceed the maximum allowable Cat.6 or HDMI cable lengths, you can cascade repeaters beyond the distance provided by just one repeater.

Normally, you would insert a repeater into the Cat.6 cabling as follows:

Switch the HDMI/Cat.6 switch to the Cat.6 position.

Assuming you have a working system comprised of the 1T-CT-631A and the 1T-CT-632 and you wish to place the display device farther away, unplug the cable attached to the

1T-CT-632 receiver's input and attach it to the Cat.6 input socket on the 1T-CT-633 Repeater.

Attach a new Cat.6 cable to the Cat.6 output of the 1T-CT-633 unit and plug the remote end of the new cable into the 1T-CT-632's Cat.6 input connector.

(If you wish, you can use the 1T-CT-633 Repeater as a Transmitter. In that case, switch the HDMI/Cat.6 switch to the HDMI position and connect the HDMI source to the 1T-CT-633 via the HDMI input socket.)

Connect the supplied AC adapters first to the Transmitter, Repeater and Receiver and then to the AC sockets.

Lastly, turn on the source device and remote display. The source signal should now appear on the remotely located display. If not, consult the Troubleshooting section of this manual.

*If you are placing a Cat.6 system into initial operation with a repeater included, consult the maximum allowable cable length table below.*

Product ID	Max HDMI In	Max HDMI Out	Max Cat.6	
1T-CT-631A 1T-CT-632 System	10M (33')	10M (33')	1080p (12 bit): 15M (49') 1080p (8 bit): 38M (125') 720p/1080i: 50M (165') 480p: 60M (195')	
Product ID	Max HDMI In	Max HDMI Out	Max Cat.6 In	Max Cat.6 Out
1T-CT-633	10M (33')	X	1080p: 38M(125') 480p: 60M(195')	1080p:38M(125') 480p: 60M(195')

## 5.0 OPERATING THE 1T-CT-631A / 1T-CT-632 / 1T-CT-633 SYSTEM

### 5.1 Operating the Transmitter/Receiver link

Once the connections have been made and power applied, Check to see if there is a picture on the display device at the receiver end and that audio is being received. If the display and audio are working, there are no additional operational adjustments required.

If there is no picture, or if the audio is either missing or has a problem, place the TV/STD switch on the 1T-CT-631A in the STD position and then try moving the adjacent 8 Bit/10Bit/12Bit switch to each of its three positions while you recheck for a picture and correct audio on the remotely located display device.

*Note: For either initial power up or after you change the TV/STD switch setting, it is recommended that the power on sequence be as follows: HDMI to Cat.6 Transmitter, HDMI to Cat.6 Receiver, HDMI source and HDMI destination device – in that order.*

## 5.2 Operating the 1T-CT-633 Extender

Once the connections have been made and power applied, Check to see if there is a picture on the display device at the receiver end and audio is being received. If the display and audio are working, there are no additional operational adjustments required.

If there is no picture, or if the audio is either missing or has a problem, make certain that the HDMI/Cat.6 switch is in the correct position and then try moving the 8 Bit/12Bit switch to each of its two positions while you recheck for a picture and correct audio on the remotely located display device.

*Note: For either initial power up or after you change the HDMI/Cat.6 switch setting, it is recommended that the power on sequence be as follows: HDMI to Cat.6 Transmitter, Cat.6 Repeater, HDMI to Cat.6 Receiver, HDMI source and HDMI destination device – in that order.*

## 6.0 TROUBLESHOOTING

Other than faulty cables or attempting to use the product over too great a distance, there are seldom problems with these Video Extender products.

If there is no image present at the remote location, connect the display device directly to the source to make certain that the problem is not in the display. If an image is present under those circumstances, make certain the transmitter and receiver(s) are receiving power. Next make certain your Cat.6 cable is defect free and the RJ-45 connectors are securely attached to the cable at each end. 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-CT-630 Series HDMI to Cat.6 Extender 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 TV One at the appropriate location shown below.

### **TV One USA**

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*END OF MANUAL*