



# Instruction Manual

**1T-CT-420 Series  
RGBHV Cat.5 Extender**



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## **1.0 INTRODUCTION**

Thanks for purchasing this Cat.5 Extender Product from TV One. This Product line is designed to transport VGA signals using CAT.5/5E or CAT.6 premium grade network cables. 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.

All third party trademarks and copyrights are recognized. The TV One logo, TV One-task and CORIO are the registered Trademarks of TV One. All other trademarks are the property of their respective holders.

### **1.2 Features**

The 1T-CT-420 Series VGA Extender product line has many features that enable it to perform in a superior manner. Among those features you will find:

- Transmit PC Video content via Cat.5/5E or 6 Cable
- Resolutions to 1280x1024 @ 60Hz
- Range up to 180 meters (590')
- Gain and Equalization adjustments on the Receiver
- Small Footprint and light weight
- Exclusive TV One Captive DC Power Plug

## 2.0 SPECIFICATIONS

<b>Video Inputs</b>	
1T-CT-421	1x RGBHV via HD-15
<b>Video Outputs</b>	
1T-CT-422	1x RGBHV via HD-15
<b>UTP I/O</b>	
1T-CT-421, 422	1x Ea. via RJ-45 Connector
<b>Video Performance</b>	
Maximum Resolutions	Up to 1280x1024 / 60Hz
Video Bandwidth	350MHz
Input Signal Levels	Video 0.75mV, Sync 5V TTL
Horizontal Freq Range	15-70KHz
Vertical Freq Range	30-170Hz
<b>Signal Adjustments</b>	
1T-CT-422 Receiver	Equalization and Gain
<b>Maximum Range</b>	
1T-CT-421, 422 System	180 Meters (590')
<b>Mechanical (H-W-D)</b>	
1T-CT-421, 422	25.5x44.3x72.5mm (1"x1.75"x2.85") Ea.
<b>Weight</b>	
1T-CT-421, 422	90g (0.2 lbs) Ea.
<b>Power Requirement</b>	
Each Unit	External Power Supply +5 VDC@2A, Locking DC
<b>Environmental</b>	
Operating Temperature	0° to +70° C (+32° to +158° F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-40° to +70° C (-40° to +158° F)
Storage Humidity	10% to 90%, Non-condensing
<b>Warranty</b>	
Limited Warranty	2 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.5/5E or CAT 6	Network Grade, Premium Cables
<b>Model Numbers</b>	
1T-CT-421	Transmitter for RGBHV
1T-CT-422	Receiver for RGBHV
<b>Accessories Included</b>	
2x Power Adapter	US, UK or Euro
1x User Manual	CAT.5 Extender Series

### 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, 1x Receiver unit
- 2x Power Adapters
- 1x Operations Manual

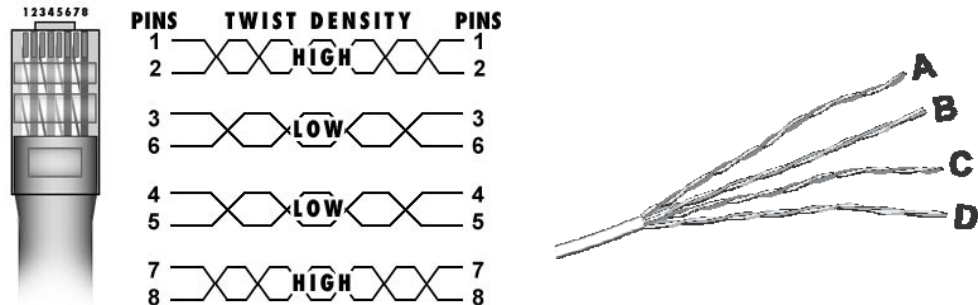
**Note:** Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or TV One immediately. Have the Model and Serial Number and Invoice available for reference when you call.

### 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.5 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.*

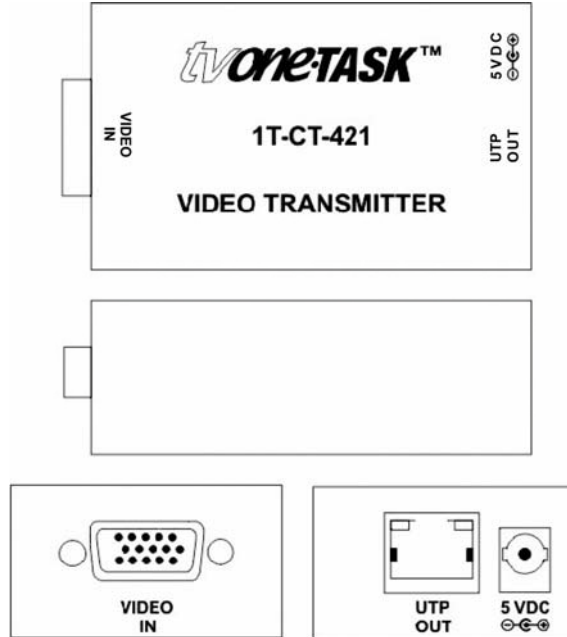
#### 4.1 Cat.5/5E/6 Cable Notes

**Pins and pairing.** Make sure the CAT5/5E/6 cable pin assignments are standard. The correct pairing is straight through pin-to-pin, with pairing as follows.



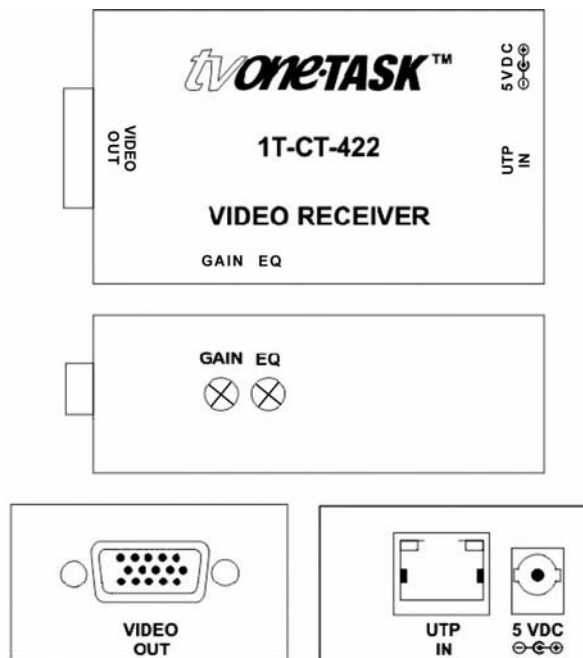
**Twist density.** UTP cable pairs have different twist densities (twist pitches). There are two pairs with high density twist and two pairs with low density. Colors vary by manufacturer. Twist densities can be seen by stripping off about 10 cm (4') of insulation and visually inspecting. Pairs 1-2 and 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 (assign to pin pairs 1-2 & 7-8), and B and D with low pitch twist (assign to pin pairs 3-6 & 4-5).

## 4.2 1T-CT-421 Transmitter



1. Connect the source device's video output to the VIDEO IN connector of the Transmitter, using the appropriate cable.
2. Connect a Cat.5/5E or Cat.6 cable to the UTP OUT connector of the Transmitter.

## 4.3 1T-CT-422 Receiver



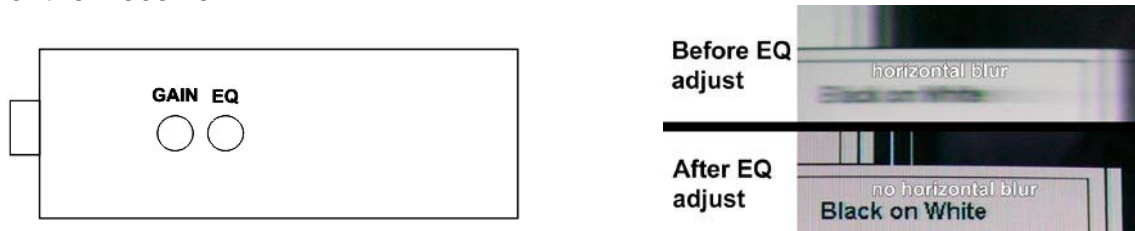
1. At the remote location, connect the other end of the Cat.5/5E or Cat.6 cable to the UTP IN connector of the Receiver.
2. Connect the VIDEO OUT connector of the Receiver to the video input of the remote display or other device, using the appropriate cable.
3. Connect the DC power supplies to the units and then to the AC outlets.
4. 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.

## 5.0 OPERATING THE UNITS

Once the connections have been made and power applied, there is little in the way of operational adjustments required with the possible exception of the Equalization and Gain adjustments.

### 5.1 Equalization and Gain Adjustments

On the 1T-CT-422 Receiver, locate the GAIN and EQ (Equalization) adjustments on the side of the Receiver.



On long cable runs, the high frequency detail can be lost resulting in a “soft” looking picture. This will first show up in text where the characters will lose their sharp edges. Adjust the EQ can sharpen the image. While viewing an image on a display connected to the Receiver, insert a small screwdriver into the EQ adjustment on the side panel of the Receiver. Rotate gently until the best EQ setting, as determined by image clarity, is achieved.

Then insert the screwdriver into the GAIN adjustment, and rotate gently until the best Gain setting, as determined by the brightness of the image is achieved. You may notice an increase in video noise (sometimes called “snow”) in the picture at higher gain settings so a compromise will have to be found if the cable run is at or near the maximum length. EQ and GAIN settings are retained by the Receiver.

## 6.0 TROUBLESHOOTING

Other than faulty cables or attempting to use the product over too great of distances, 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.5/5E/6 cable is defect free and the RJ-45 connectors are securely attached to the cable at both ends.

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**

LIMITED WARRANTY – With the exceptions noted in the next paragraph, TV One warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this 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.

Items integrated into TV One products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to TV One.

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-420 Series Extender 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 TV One at the appropriate location shown below.

### **TV One USA**

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

### **TV One 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  
www.tvone.eu

### **TV One Latin America**

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

### **TV One Mercosur**

Honduras 5849, 2<sup>nd</sup> Floor, Office C  
(C1414BNI) Capital Federal  
Buenos Aires, Argentina  
Tel +54 11 4771-5570  
Fax +54 11 4771-5570  
sales.latinoamerica@tvone.com  
www.tvonela.com

### **TV One Asia**

11F, NO.28, Sec. 2  
San-Min Rd, Panchiao City  
Taipei Hsien 220  
Taiwan R.O.C.  
Tel +886 2 8951-0674  
Fax +886 2 8951-0675  
sales.asia@tvone.com  
www.tvoneasia.com

### **TV One China**

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

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