



## Instruction Manual

### CAT.5 VGA Extenders

***1T-VGA-CAT, 1T-VGA-CAT-XL, 1T-VGAST-CAT-XL,  
1T-VGA4-CAT-TXL, 1T-VGA-CAT8-TXL,  
1T-VGA-CAT-RXT, 1T-RGB-DELAY***



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## **1.0 INTRODUCTION**

Thanks for purchasing this CAT.5 VGA Extender Product from TV One. The CAT. 5 VGA Extender Product line is designed to allow the remote location of up to 8 VGA displays using CAT5/5E 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 Video Scalers, Scan Converters, Analog-Digital (DV, SDI, DVI) Converters, Standards Converters, Digital Video Recorders, Frame Synchronizers, Time Base Correctors, LCD Monitors, Matrix Routing Switchers and Distribution Amplifiers.

### **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 CAT.5 VGA Extender product line has many features that enable it to perform in a superior manner. Among those features you will find:

- Remotely view PC displays via CAT 5 Cable
- Resolutions to 1280x1024
- Ranges up to 1000 Feet
- Up to 8 monitors fed from single transmitter
- Gain and equalization adjustments at each receiver
- Audio Integration (1T-VGAST-CAT-XL)

## 2.0 SPECIFICATIONS

<b>Video Inputs</b>	
1T-VGA-CAT (Transmitter)	1x HD-15 VGA Connector
1T-VGA-CAT-XL (Transmitter)	2x HD-15 (loop thru Connectors)
1T-VGAST-CAT-TXL	2x HD-15 (loop thru Connectors)
1T-VGA4-CAT-TXL	2x HD-15 (loop thru Connectors)
1T-VGA8-CAT-TXL	2x HD-15 (loop thru Connectors)
1T-RGB-DELAY	1x HD-15 VGA Connector
<b>Video Outputs</b>	
1T-VGA-CAT (Receiver)	1x HD-15 VGA Connector
1T-VGA-CAT-XL (Receiver)	1x HD-15 VGA Connector
1T-VGAST-CAT-RXL	1x HD-15 VGA Connector
1T-VGA-CAT-RXL	1x HD-15 VGA Connector
1T-RGB-DELAY	1x HD-15 VGA Connector
<b>Audio Inputs</b>	
1T-VGAST-CAT-TXL	2x 3.5mm (1x Line Level In, 1x Mic In)
<b>Audio Outputs</b>	
1T-VGAST-CAT-RXL	1x 3.5mm (Line Level Out)
<b>CAT 5 Connectors</b>	
1T-VGA-CAT	2x RJ-45 (1Transmit + 1Receive)
1T-VGA-CAT-XL	2x RJ-45 (1Transmit + 1Receive)
1T-VGAST-CAT-XL	2x RJ-45 (1Transmit + 1Receive)
1T-VGA4-CAT-TXL	4x RJ-45 (4 Transmit)
1T-VGA8-CAT-TXL	8x RJ-45 (8Transmit)
1T-VGA-CAT-RXL	1x RJ-45 (1 Receive)
<b>Resolution</b>	
All units	Up to 1280x1024
<b>Signal Adjustments</b>	
Equalization and Gain	All Receivers
<b>Range</b>	
1T-VGA-CAT	590 Ft (180m)
1T-VGA-CAT-XL	1000 Ft (300m)
1T-VGAST-CAT-XL	1000 Ft (300m)
1T-VGA4-CAT-TXL	1000 Ft (300m)
1T-VGA8-CAT-TXL	1000 Ft (300m)
1T-VGA-CAT-RXL	1000 Ft (300m)
<b>Cable Requirements</b>	
CAT 5/5E or CAT 6	Network Grade, Premium Cables
<b>Enclosure Type</b>	
Metal w/ scuff resistant feet	All Products
<b>Mechanical</b>	
Size (H-W-D)	
1T-VGA-CAT & XL (R&T)	0.86"x1.3"x3.6" (22x34x92mm)
1T-VGAST-CAT-XL (R&T)	1.00"x4.4"x5.1" (25x110.5x130mm)
1T-VGA4-CAT-TXL	1.16"x5.1"x3.3" (29.5x130x83.5mm)

1T-VGA8-CAT-TXL	1.16"x7.9"x3.3" (29.5x200x83.5mm)
1T-VGA-CAT-RXL	0.86"x1.3"x3.6" (22x34x92mm)
1T-RGB-DELAY	1.16"x5.1"x3.3" (29.5x130x83.5mm)
<b>Weight (Net)</b>	
1T-VGA-CAT & XL (R&T)	T=0.27lbs (135g), R=0.31lbs (140g)
1T-VGAST-CAT-XL (R&T)	0.6 lbs (270g) (Each Unit)
1T-VGA4-CAT-TXL	0.5 lbs (247g)
1T-VGA8-CAT-TXL	0.76 lbs (345g)
1T-VGA-CAT-RXL	0.31lbs (140g)
1T-RGB-DELAY	0.5 lbs (225g)
<b>Warranty</b>	
Limited Warranty	2 Years Parts and Labor
<b>Environmental</b>	
Operating Temperature	0° to +48° C (+32° to +120° F)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	-10° to +70° C (+14° to +158° F)
Storage Humidity	10% to 85%, Non-condensing
<b>Power Requirement</b>	
External Power Supply	+12 VDC@1A, Locking DC
<b>Regulatory Approvals</b>	
Encoder/Decoder Unit	FCC, CE, RoHS
Power Supply	UL, CE, CSA, RoHS
<b>Accessories Included</b>	
1x Power Adapter	(Per device), US, UK or Euro Type
1x VGA Cable	4 Ft (1.2m) HD-15 to HD-15 (Most models)
1x User Manual	CAT.5 VGA Extender Series
<b>Product Item Number</b>	
1T-VGA-CAT	CAT.5 VGA Extender, Std. Range
1T-VGA-CAT-XL	CAT.5 VGA Extender, Ext'd. Range
1T-VGAST-CAT-XL	CAT.5 VGA Extender, Ext'd. Range
1T-VGA4-CAT-TXL	4 output CAT.5 VGA Xmit., Ext Range
1T-VGA8-CAT-TXL	8 output CAT.5 VGA Xmit., Ext Range
1T-VGA-CAT-RXL	CAT.5 VGA Dedicated Receiver
1T-RGB-DELAY	Skew Corrector

## 2.1 Product Matrix

Prod ID	Xmitter	Rcvr	CAT.5 Channels	Max Range	Audio	Remarks
1T-VGA-CAT	Included	Included	1	590 Ft	N	Complete System
1T-VGA-CAT-XL	Included	Included	1	1000 Ft	N	Complete System
1T-VGAST-CAT-XL	Included	Included	1	1000 Ft	Y	Complete System
1T-VGA4-CAT-TXL	Included	None	4	1000 Ft	N	Multi-Channel Xmitter
1T-VGA8-CAT-TXL	Included	None	8	1000 Ft	N	Multi-Channel Xmitter
1T-VGA-CAT-RXL	None	Included	1	1000 Ft.	N	Dedicated Rcvr
1T-RGB-DELAY	None	None	1	N/A	N	Skew Corrector

### 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:

*For 1T-VGA-CAT, 1T-VGA-CAT-XL and 1T-VGAST-CAT-XL*

- 1 ea CAT 5 Transmitter
- 1 ea CAT 5 Receiver
- 1 ea VGA Cable
- 2 ea Power Adapters
- 1 ea Audio Cable (1T-VGAST-CAT-XL Only)
- 1 ea Operations Manual

*For 1T-VGA4-CAT-TXL*

- 1 ea 1T-VGA4-CAT-TXL Transmitter
- 1 ea Power Adapter
- 1 ea VGA Cable
- 1 ea Operations Manual

*For 1T-VGA8-CAT-TXL*

- 1 ea 1T-VGA8-CAT-TXL Transmitter
- 1 ea Power Adapter
- 1 ea VGA Cable
- 1 ea Operations Manual

*For 1T-VGA-CAT-RXL*

- 1 ea 1T-VGA-CAT-RXL Receiver
- 1 ea Power Adapter
- 1 ea Operations Manual

*For 1T-RGB-DELAY*

- 1 ea 1T-RGB-DELAY
- 1 ea Power Adapter
- 1 ea VGA Cable
- 1 ea 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.

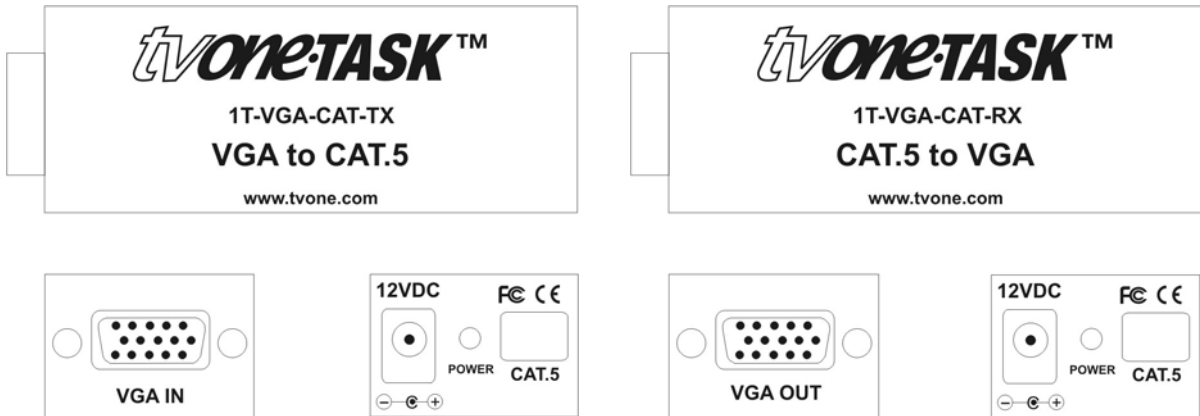
## 4.0 CONNECTING THE HARDWARE

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

*Note: Each product has somewhat different capabilities and therefore different cable connections are present. Locate the drawing for the item(s) you have purchased and become familiar with the connectors used in that product.*

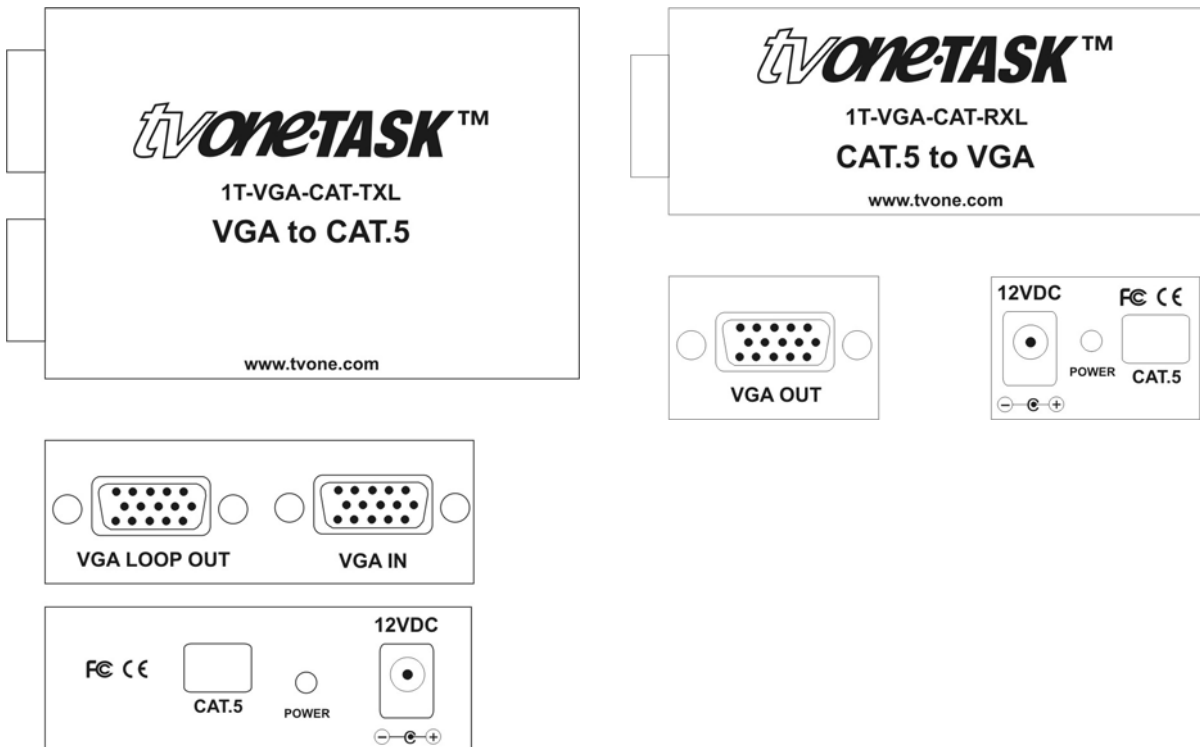
*Note: The resolution capability of the remotely located display devices must be capable of displaying the output of the PC. Before connecting the CAT 5 extender system, verify that the display device can accept the PC output by connecting it directly to the PC.*

### 4.1 1T-VGA-CAT Transmitter and Receiver



**1T-VGA-CAT:** Connect the PC's display output to the VGA IN connector on the transmitter. Connect a CAT 5 cable's RJ-45 connector to the CAT 5 RJ-45 receptacle on the Transmitter module. At the remote end (no more than 580 feet away for this product), connect the other end of the CAT 5 cable to the Receiver's RJ-45 receptacle then connect the remote display to the VGA OUT connector on the receiver. Connect the supplied AC adapters first to the respective transmitter and receiver and then to the AC sockets. Lastly, turn on the PC and displays. The PC's VGA output should now appear on the remotely located display device.

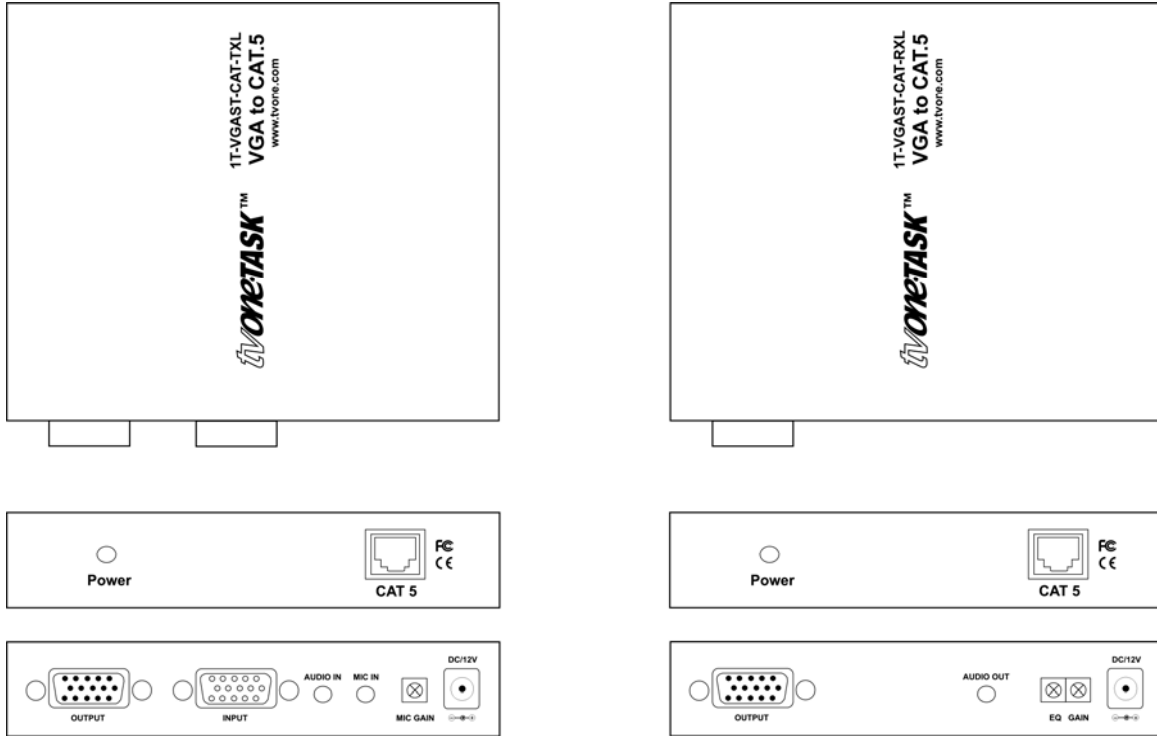
## 4.2 1T-VGA-CAT-XL Transmitter and Receiver



**1T-VGA-CAT-XL:** Connect the PC's display output to the VGA IN connector on the transmitter and then connect a monitor to the VGA LOOP OUT connector if you desire to observe the PC output locally. Connect a CAT 5 cable's RJ-45 connector to the CAT 5 RJ-45 receptacle on the Transmitter module. At the remote location (Up to 1000 feet away for this product), connect the other end of the CAT 5 cable to the Receiver's RJ-45 receptacle then connect the remote display to the VGA OUT connector on the receiver. Connect the supplied AC adapters first to the respective transmitter and receiver and then to the AC sockets. Lastly, turn on the PC and displays. The PC's VGA output should now appear on the remotely located display device.

*Note: The 1T-VGA-CAT, 1T-VGA-CAT-XL and 1T-VGAST-CAT-XL packages contain both a transmitter and a receiver module. The 1T-VGA4-CAT and 1T-VGA8-CAT are transmitters only, intended to feed either 4 or 8 separate CAT 5 cables to dedicated, remotely located 1T-VGA-CAT-RXL receivers.*

### 4.3 1T-VGAST-CAT-XL Transmitter and Receiver

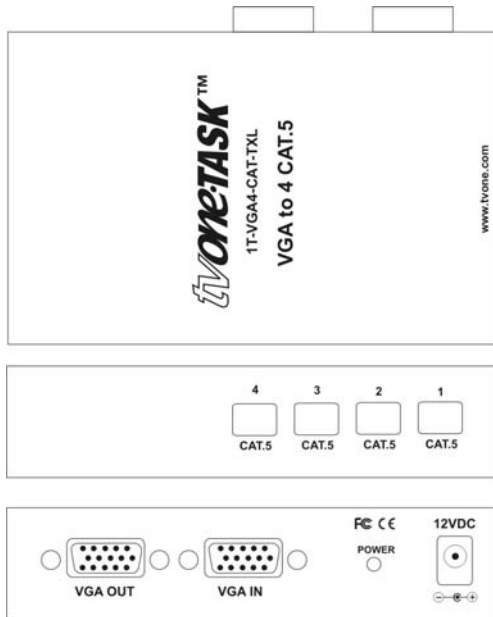


**1T-VGAST-CAT-XL:** Connect the PC's display output to the HD-15 INPUT connector on the transmitter and then connect a monitor to the HD-15 OUTPUT connector if you desire to observe the PC output locally. Connect a CAT 5 cable's RJ-45 connector to the CAT 5 RJ-45 receptacle on the Transmitter module. At the remote location (Up to 1000 feet away for this product), connect the other end of the CAT 5 cable to the Receiver's RJ-45 receptacle then connect the remote display to the HD-15 OUT connector on the receiver.

If integration of the PC's Audio is desired or if you wish to integrate the audio from a microphone for narration purposes, connect an audio cable from either the PC's line level audio out connector to the 1T-VGAST-CAT-XL's AUDIO IN connector or plug a microphone's 3.5mm plug into the 1T-VGAST-CAT-XL's MIC IN connector. Connect an amplifier input to the 1T-VGAST-CAT-XL Receiver's AUDIO OUTPUT connector. If a microphone is used, adjust the MIC GAIN on the 1T-VGAST-CAT-XL's transmitter module as required.

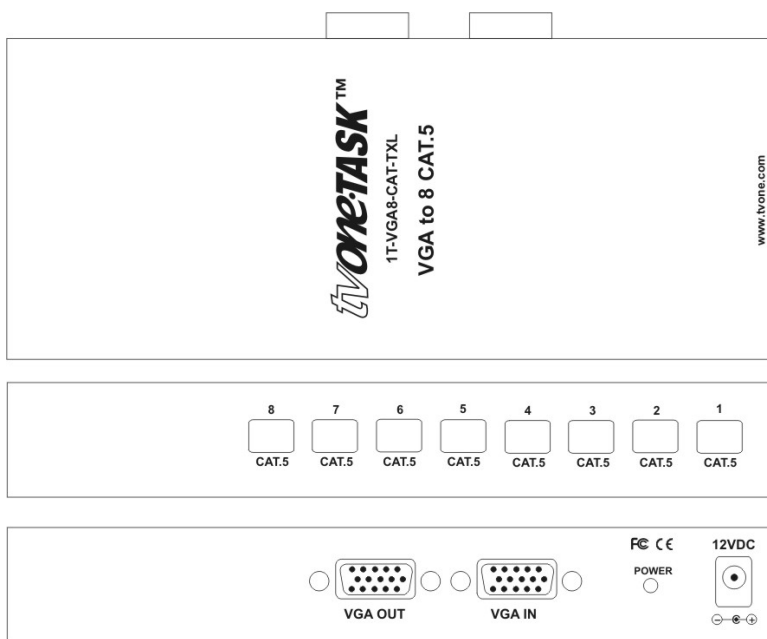
Connect the supplied AC adapters first to the respective transmitter and receiver and then to the AC sockets. Lastly, turn on the PC and displays. The PC's VGA output should now appear on the remotely located display device.

#### 4.4 1T-VGA4-CAT-TXL Transmitter



**1T-VGA4-CAT-TXL:** Connect the PC's VGA display output to the VGA IN connector on the 1T-VGA4-CAT-TXL transmitter and then connect a local VGA monitor to the VGA OUT connector. Connect from 1 to 4 CAT 5 cables to the CAT 5 RJ-45 connectors on the transmitter and lastly connect the AC adapter first to the unit and then to the AC wall socket. As explained in the notes above, you will need a dedicated 1T-VGA-CAT-RXL receiver at each remote viewing location to feed the remotely located VGA display device.

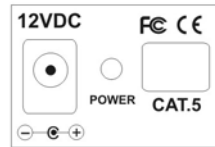
#### 4.5 1T-VGA8-CAT-TXL Transmitter



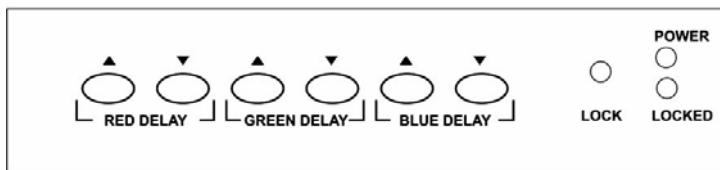
**1T-VGA8-CAT-TXL:** Connect the PC's VGA display output to the VGA IN connector on the 1T-VGA8-CAT-TXL transmitter and then connect a local VGA monitor to the VGA OUT connector. Connect from 1 to 8 CAT 5 cables to the CAT 5 RJ-45 connectors on the transmitter and lastly connect the AC adapter first to the unit and then to the AC wall socket. As explained in the notes above, you will need a dedicated 1T-VGA-CAT-RXL receiver at each remote viewing location to feed the remotely located VGA display device.



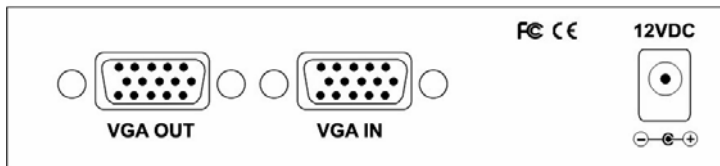
**1T-VGA-CAT-RXL:** Connect the VGA display's input to the VGA OUT connector on the 1T-VGA-CAT-RXL Receiver and then connect one of the CAT 5 cables to the CAT 5 RJ-45 connector on the Receiver. Lastly connect the AC adapter first to the unit and then to the AC wall socket. As explained in the notes above, you will need a dedicated 1T-VGA-CAT-RXL receiver at each remote viewing location to feed the remotely located VGA display device.



#### 4.6 1T-RGB-DELAY



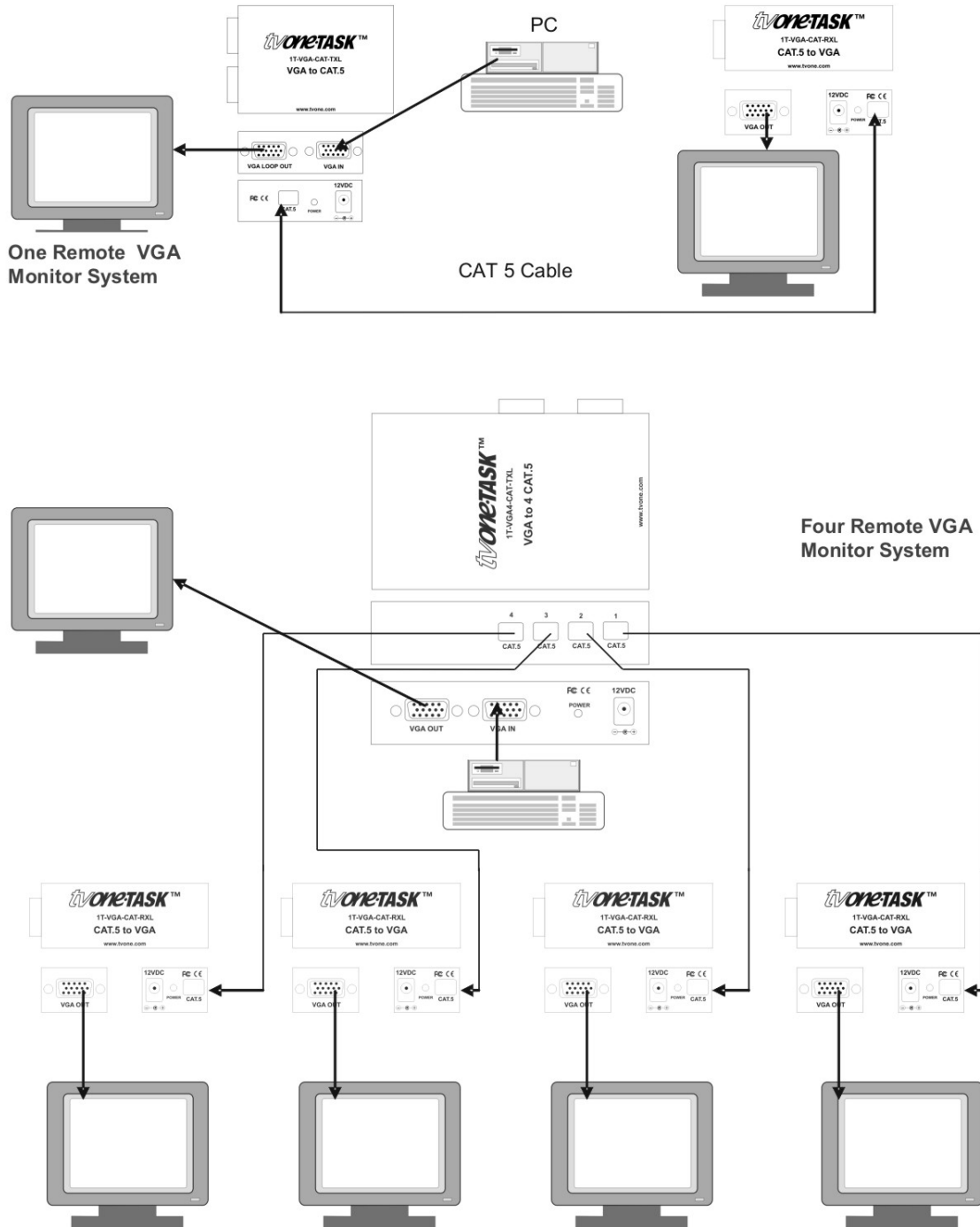
**1T-RGB-DELAY:** This is a special device required with longer CAT 5 cable runs. It corrects image timing problems.



Connect the PC's display output to the VGA IN connector and then connect the VGA OUT connector to the 1T-VGA-CAT transmitter being used. Connect the AC Adapter first to the 1T-RGB-DELAY unit and then to the AC wall socket.

## 4.7 Sample Systems

To better understand how to connect the various combinations of CAT.5 VGA Extender Products, Please refer to the drawings below.



## 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 exception of the MIC AUDIO adjustment on the 1T-VGAST-CAT-XL transmitter described above, only two adjustments are possible on the 1T-VGA-CAT product line and a total of three are possible on the 1T-RGB-DELAY product.

### 5.1 1T-VGAST-CAT-XL & 1T-VGA-CAT-RXL Adjustments

On the 1T-VGAST-CAT-XL receiver module and on the 1T-VGA-CAT-RXL receiver module, there are two adjustments.



1T-VGAST-CAT-XL

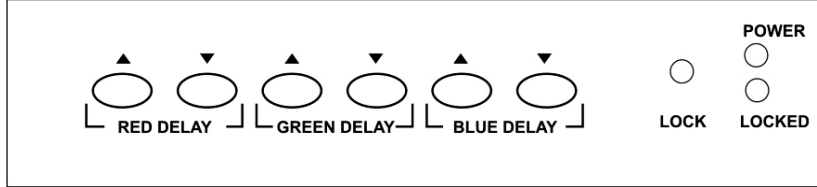


1T-VGA-CAT-RXL

If the picture appears to be “weak” or lacking in color fidelity, adjust the control labeled “GAIN” to improve the image. (Note that you will increase noise in the picture at higher gain settings so a compromise will have to be found if the CAT 5 cable run is at the limit.)

The other adjustment is for Equalization. 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 control labeled “EQ” to sharpen the image. As was true of the Gain control, you can introduce noise in the picture with this adjustment so seek a setting where the picture quality is improved without adding a great deal of noise (often called “Snow”) to the picture.

## 5.2 1T-RGB-DELAY Adjustments



VGA images transmitted over CAT 5 paths of more than 250 feet can sometimes arrive at the destination with the individual RGB pictures no longer in registration. The 1T-RGB-DELAY product allows delays to be introduced as required into the signal path to cause the image at the remote location to be displayed correctly. Using the buttons with the UP and DOWN arrows, the Red, Green and Blue channels are adjusted as required to provide a corrected signal. Once set, no further adjustment is required unless the cable length or actual cable is changed.

## 6.0 TROUBLESHOOTING

Other than faulty cables or attempting to use the product over too great a path, there are seldom problems with the CAT 5 VGA Extender products.

If there is no image present at the remote location, connect the display device directly to the PC 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 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-VGA Extender products have been tested for compliance with appropriate FCC and CE rules and regulations and are RoHS Compliant.

The Power Adaptor/Supply has been tested for compliance with UL, CSA, CE & RoHS rules and regulations.

## 11.0 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**

1350 Jamike Drive  
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## NOTES

## NOTES



## We Provide Solutions

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