

RGB Video to CAT5 Converter with Stereo Audio

RECEIVER MODEL CE Rx 1003 ; TRANSMITTER MODEL CE Tx 1003



Innovators in Audio Video
Integrations

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We also Manufacture:

1. Audio Follow Video OXGA PC Switcher (RS232 Controlled)
2. RGB to YUV Converter
3. 1 x 2 VGA Dist. Amp.
4. 1 x 4 VGA Dist. Amp With Stereo Audio
5. 1 x 8 VGA Dist. Amp With Stereo Audio
6. VGA Interface (Converts VGA to RGBHV on BNC)
7. Feed Back Logic Controller
8. 1 x 2 Audio Video Dist. Amp.
9. 1 x 4 Audio Video Dist. Amp.
10. Projection Screen Interface (Control 1 Motor & Rack Power)
11. Dual Function Screen Interface (Control 3 Motors & Rack Power)



Creative introduces a high-performance CAT5 Tx1003 Transmitter and Rx1003 Receiver to be used in pairs for the extension of VGA, Stereo Audio, and IR or RS-232 data. The RGB-to-CAT5 Converter (Tx1003) converts the RGB video, Stereo Audio, and IR or RS-232 to signal levels that can be transmitted up to 300M to the remotely installed CAT5-to-Display Device (Rx1003) using AT5/CAT5e/CAT6/7/8 UTP cable.

Timing to correct the delay differences between the pairs : These are very cost effective, third-generation products which utilize application specific linear devices to provide the fastest video rise times and pixel cycling possible over UTP cable.

Signal Loops and Dual Outputs, : The Tx1003 features loop thru VGA and stereo audio inputs, while the Rx1003 provides dual VGA and stereo audio outputs. **Eliminating need of Distribution amplifiers in many system configurations** Transporting video over UTP cable requires an infinitely variable, multi - pole, state-variable filters to allow the user to compensate for the exact cable characteristics unique to their system. Because the properties of UTP cables are so well documented, a computer modeled equalizer designed to allow a single external adjustment to compensate for the frequency, tilt, and gain loss characteristics of the UTP cable. Whether the distance between the transmitter and receiver is 25 feet or 1000 feet, only a single knob needs to be turned to calibrate the entire system, and to secure this calibration.

Extra Power Precaution: Both units offer real-world protection with auto-

matic reset fuses, and built-in power surge and transit protection. Rx Unit also includes an isolated power supply for protection against ground loops.

- Adaptable Gain/EQ using a single control
- Bidirectional RS-232 or IR-link control paths

Advanced Features

- Sync polarity preservation or conversion
- Line Level Audio inputs / outputs (-10dBv)
- Communication LEDs for reporting RS-232 or IR-link activity
- Duplex RS-232/IR + VGA + stereo audio over a single CAT5
- Dual Audio and Video outputs
- Uses easy to install, inexpensive CAT-5/5e/6/7/8
- Cable EQ / Gain range up to 1000 Feet
- Maximum RGB Resolution 2048 x 1536; Distance 1000 Feet
- Sends high-resolution UXGA, Stereo Audio and Compatible with Line Level Stereo Audio Signals.
- High ground loop immunity. For Better NOISE Reduction
- Built-in lightning, power surge and transient protection. Designated trimmer in the remote unit to compensate for cable length.
- Supports RS232 and IR

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Technical Specifications

Video

Gain	Unity
Bandwidth	Varies with EQ setting - max 450MHz

Video Input

Number / Signal Type	1 / RGB (computer video)
Connectors	1 female 15-pin HD
Impedance	75 ohms
Horizontal Frequency	15 kHz to 100 kHz
Vertical Frequency	30 Hz to 150 Hz

Video Output

Number / Signal Type	1 / RGB
Connectors	1 female 15-pin HD
Nominal Level	0.7 Vp-p for RGB
Impedance	75 ohms

Sync

Signal Compatibility	RGBHV
Input Level	1V to 5 Vp-p
Output Level	TTL
Input Impedance	TTL input ~ 2K
Output Impedance	47 ohms
Output Sync Polarity	By default Negative going H and V Sync. Can be Changed as required by Selection of Jumpers by removing Top Cover of Tx Unit

Audio Input

Number of Signal	1
Connectors	(1) 3.5 mm EP Socket
Impedance	10K ohms

Audio Output

Number Of Signal	2
Connectors	(2) 3.5 mm EP Socket
Impedance	47 ohms

General

Power	220v AC @ 50-60Hz
Enclosure Type	Metal
Enclosure Dimensions	Ht. - 26mm, W - 150mm, D - 74mm
Product Weight	
Shipping Weight	
Warranty	1 year with parts and labor

Cable Remote Control

Serial Control Port Type	RS-232
IR cable Remote Control	2 # - separate for Transmitter and Emitter 3.5 mm EP Socket

RS232 Control and Connectivity

DB9 Connectivity on CE Rx 1003 (Male)

Pin # 2	RxD	Receive DATA on DB9 Male
Pin # 3	TxD	Transmit DATA on DB9 Male
Pin # 5	Gnd	Ground

DB9 Connectivity on CE Tx 1003 (Female)

Pin # 2	TxD	Transmit DATA on DB9 Female
Pin # 3	RxD	Receive DATA on DB9 Female
Pin # 5	Gnd	Ground

Connect RS-232 9-pin cable to CAT5_Rx, and then, connect RS-232 9-pin cable to CAT5_Tx. Send commands back and forth between the Rx and Tx - just the same as you would if it was a 1000 foot RS-232 cable. Usually one end is controlling something on the other end. The data is bi-directional just like it would be if it was wire. The controlling end can be either at the Rx or Tx box, the controlled end can be at either the Rx or Tx box. Disregard the term Rx or Tx when it comes to data - this is bi-directional.

Connecting Transmitter Tx

1. Connect the output of the computer RGB Video to the RGB Video input of the Transmitter using the male to male 15 Pin "D" Sub cable.
2. Connect the output of the computer audio card to the audio input of the transmitter using 3.5mm audio male to male audio cable.
3. Connect local monitor to the VGA out of the Transmitter.
4. Connect external speakers to the transmitter's audio out Standard 3.5mm stereo mini plug.
5. In the back of the unit connect the CAT5 cable that will connect to the receiver (CE RX 1003).

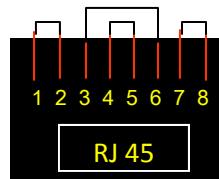
Connecting Receiver Rx

1. Connect CAT5 cable (coming from the Transmitter CE Tx 1003) to the back of the receiver (CE RX 1003).
2. Connect 1-2 display monitors to the VGA out connectors on the front of the receiver.
3. Connect 1-2 sets of external speakers to the audio output connections on the front of the unit. (Standard 3.5mm stereo Mini plug)

Cat 5 Cable Pin Connectivity

Following is the wiring standard for terminating CAT 5 cable using RJ-45 connector:

- Pair 1 Pins 1 & 2
- Pair 2 Pins 3 & 6
- Pair 3 Pins 4 & 5
- Pair 4 Pins 7 & 8



Connectivity for IR 3.5mm Transmitter & Receiver Plug



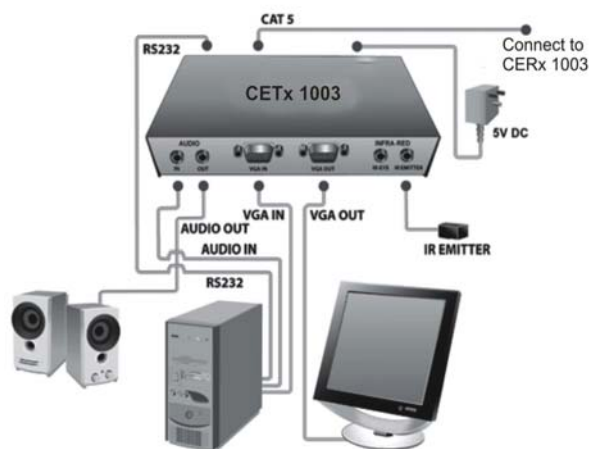
IR Emitter	TIP - Anode	5v	Ring Cathode
IR Receiver	TIP Receive In	Ring 5v	Sleeves Gnd.

Connectivity of IR Emitter Receiver at Rx Unit with IR Emitter Receiver of Tx Unit

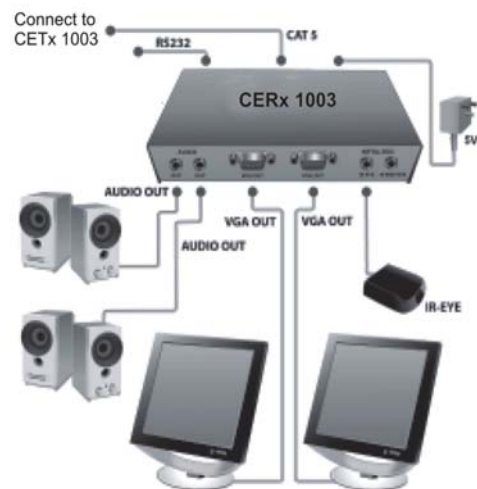
The IR Connectivity will be like this? * IR Cable Connectivity will be like this? *

1. IR Cable from IR Remote (hand Unit) to ----> Tx Board (On IR Remote IR ---> IR Eye ---> Rx or Tx IR Receiver jack >====>CAT5>====> Tx or Rx IR Emitter jack ---> IR Emitter ----> TV/Projector/Monitor Receiver Socket)
2. From Tx Board (From IR Emitter Socket) to ----> Rx Board (On IR Receiver Socket) and
3. From Rx Board (From IR Emitter Socket) to ----> Display Device

- **NOTE:** The control is set only one time - at the time of installation - not a user control - the installer sets this control for the best Picture at the receiver end.
- Please note that the IR path and the RS232 path can not be used together - its one or the other - they use the same wires - so you can't use them together.



CETx 1003 Transmitter Installation Diagram



CERx 1003 Transmitter Installation Diagram

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Installation Notes

Resolution v/s Distance:

In all analog CAT5 products there is a relationship between acceptable resolution and maximum distance and yet no manufacture tabulates this data for the end user possibly because of the variables of installation and accountability. **What this means to the user is that the maximum resolutions are only obtainable with the shortest CAT5 cables and the longer cables will require lower VGA resolutions.** Where this trade-off of VGA resolution v/s distance occurs depends upon the application and sophistication of the viewer. **Creative CAT5** products push the theoretical limits of what can be driven over copper twisted pairs.

Standard v/s video-twist CAT5:

Standard CAT5 has four different twist ratios to minimize crosstalk between the twisted pairs. This is desirable in data transmission, but in video transmission each different twist changes the amount of time that it takes for the video on that pair to get to the receiver end, and this produces color fringes. **This means that each Red , Green and Blue image arrives at a different time to the monitor. To compensate for this problem, the right-most image should be used as a reference**, and various lengths of coax cable should be inserted in the path of the offset images until they overlay the reference image.

Using Video-twist cable, all twist ratios are the same so there is usually not the need for any compensation.

Cable EQ :

CAT5 Tx1003 Transmitter and Rx1003 Receiver has tracking multi-pole, state-variable filters, for the RGB and sync channels.

NOTE: Because Syncs are equalized with the video, it is possible to set the EQ Tweak to where NO picture is produced. If the EQ is over-compensated, the video edges start appearing like sync signals which confuses the display. If the EQ under-compensated, the sync edges will be too attenuated and they can't be recovered. **The EQ Tweak should be set while viewing a large white window on a black background;** When viewing the right edge of the window signal, the EQ Tweak should be adjusted until the transition between the white and black is sharp with no trailing gray. There is only one optimum setting for the EQ Tweak control for each installation. After the optimum position is found, the plastic retaining plug can be removed and then the control knob can be removed, in effect making the adjustment tamper resistant.

The cable Equalizer control compensates for the CAT5 cable attenuation. The idea is to pass the signals - transparently between two distant points - not the equalize the video - we want whatever goes in to come out same at the other end.

RS232 v/s IR:

The **CAT5 Tx1003 Transmitter and Rx1003 Receiver** support bidirectional serial communications OR a dedicated IR link between the transmitter and receiver sites, but not both at the same time.

Sync Polarity:

The **CAT5 Tx1003 Transmitter and Rx1003 Receiver** defaults to negative going H and V sync outputs regardless of their input polarities. If the installation requires positive going sync for either H or V or both, removing the cover of the receiver provides access to two jumpers JP1 (V) and JP2 (H). These jumpers set the output H/V polarity independently of their input polarity at the transmitter.

Data Activity LED's:

IR/RS RECV/XMIT LED's are provided on both the **CAT5 Tx1003 Transmitter and Rx1003 Receiver** which indicate data activity in either direction. This is especially useful for verification of IR devices and for monitoring the integrity of serial communications. These LED's are only on for the duration of the data, so they tend to be low intensity – shaded viewing may be required.