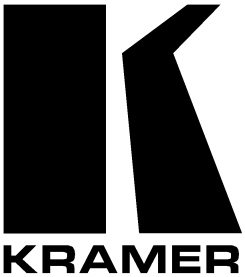
Kramer Electronics, Ltd.



USER MANUAL

Model:

TA-110HD

XGA Line Transmitter

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer **TA-110HD** *XGA Line Transmitter*, which is ideal for:

- Presentation and multimedia applications
- Long range graphics distribution for schools, hospitals, security, and stores

The package includes the following items:

- **TA-110HD** XGA Line Transmitter
- Power adapter (12V DC Input) and this user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

3 Overview

This section describes:

- The power connect feature, see section 3.1
- Using shielded twisted pair (STP) / unshielded twisted pair (UTP), see section 3.2
- A summary of the **TA-110HD** *XGA Line Transmitter*, see section 3.3
- Recommendations for achieving the best performance, see section 3.4

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

3.1 About the Power Connect Feature

The Power Connect feature applies as long as the cable can carry power. The distance does not exceed 50 meters on standard CAT5 cable, for longer distances, heavy gauge cable should be used[1].

For a CAT5 cable exceeding a distance of 50 meters, separate power supplies should be connected to the transmitter and to the receiver simultaneously.

3.2 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

The decision whether to use shielded twisted pair (STP) cable or unshielded twisted pair (UTP) cable depends on the nature of the application.

It is recommended that in applications with high interference, shielded twisted pair (STP) cable is used. However, the shield itself does create a capacitance that degrades the frequency response of the machines. For shorter distances, of 50m or so, shielded twisted pair (STP) cable is preferred because it provides protection from interference (degradation is not apparent).

For a long range applications, unshielded twisted pair (UTP) cable is preferred. However, the unshielded twisted pair (UTP) cable should be installed far away from electric cables, motors and so on, which are prone to create electrical interference.

1 CAT5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances

3.3 TA-110HD XGA Line Transmitter

The **TA-110HD** is a modular unit that can be mounted inside the *Power Tower*, by sliding the unit onto the rails on the connection panel[1].

Using a XGA Line Transmitter—the **TA-110HD** with a receiver (for example, the **PT-120** or **TP-120)** constitutes a VGA/XGA-to-Twisted Pair Transmitter and Receiver.

The Kramer **TA-110HD** is an XGA line transmitter that receives an XGA signal and transmits it over a CAT 5 cable to the **PT-120** or **TP-120** receiver. In particular, the **TA-110HD**:

- Has a resolution of up to UXGA
- Can use the simplest UTP CAT 5 cables, and performs even better with higher quality cables
- Has the power connect feature[2]
- Is 12VDC fed

3.4 Achieving the Best Performance

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoiding interference from neighboring electrical appliances and positioning your *XGA Line Transmitter(s) / Receiver* away from moisture, excessive sunlight and dust

Caution – No operator-serviceable parts inside unit.

Warning – Use only the Kramer Electronics input power wall adapter that is provided with this unit[3].

Warning – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

1 The TA-110HD is also available for use with the Kramer TBUS-2

2 Powering via the CAT5 cable from either the receiver or the transmitter is good for 50 meters. Above it, both sides should be fed with power

3 For example: model number AD2512C, part number 2535-000251

4 Your TA-110HD XGA Line Transmitter

Figure 1 and Table 1 define the **TA-110HD**:

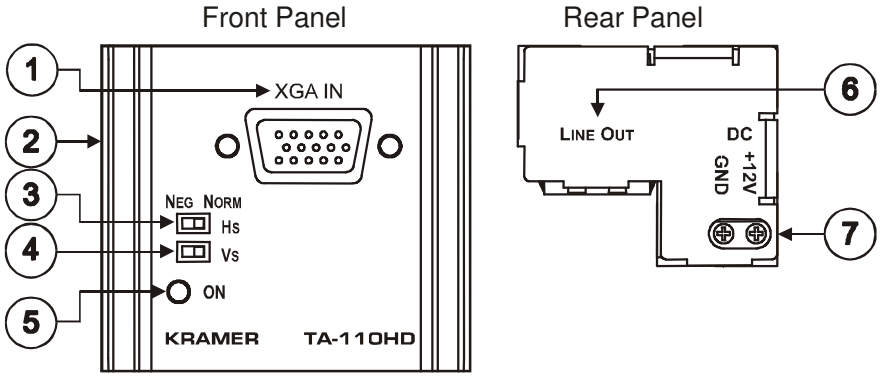

Figure 1: TA-110HD XGA Line Transmitter (Front and Rear Panels)

Table 1: TA-110HD XGA Line Transmitter Features

#	Feature		Function
1	*XGA IN* HD15F Connector		Connect to the XGA source
2	Side Rails		For sliding onto the rails of the Power Tower Plus
3	*HS*[1] Switch		Slide the switch to the left[2] to change the HS[1] polarity to (NEG.) negative polarity[3]; slide the switch to the right (NORM) to retain the polarity
4	*VS*[4] Switch		Slide the switch to the left[2] to change the VS[4] polarity to (NEG.) negative polarity[3]; slide the switch to the right (NORM) to retain the polarity
5	*ON* LED		Illuminates when receiving power
6	*LINE OUTPUT* RJ-45 Connector		Connects to the *LINE IN* RJ-45 connector on a transmitter (for example, the **PT-120** or **TP-120** *XGA Line Receiver*[5])
7	*DC*	*+12V* PIN	Connects (+) to the connector for powering the unit
		GND PIN	Connects (-) to the Ground

1 Horizontal Sync

2 By default, both switches are set to the right

3 Downgoing syncs

4 Vertical Sync

5 Using a UTP cable with CAT 5 connectors at both ends (the PINOUT is defined in Table 2 and Figure 3)

5 Mounting the TA-110HD

To mount the **TA-110HD** in the Power Tower, do the following:

1. Remove the three base screws from the underside of the Power Tower, and open the base cover (saving the screws).
2. Slide out the blank panel and any modules/panels.
3. Connect the **TA-110HD** (see section 6) and then slide the **TA-110HD** into place.
4. Replace the other modules/panels and the blank panel.
5. Replace the base cover and fasten the three base screws back in place.

6 Using the XGA Line Transmitter(s) / Receiver

You can use the **TA-110HD** *XGA Line Transmitter* and the **TP-120** *XGA Line Receiver* to configure an XGA-to-Twisted Pair Transmitter and Receiver system.

To connect the **TA-110HD** *XGA Line Transmitter* with the **TP-120** *XGA Line Receiver*, as the example in Figure 2 illustrates, do the following:

1. On the **TA-110HD**, connect the XGA source (for example, the HD-15 output from a computer's graphics card) to the XGA IN HD15F connector.
2. On the **TP-120**, connect the XGA OUT HD15F connector to the XGA acceptor (for example, a monitor).
3. Connect the LINE OUT RJ-45 connector on the **TA-110HD** to the LINE IN RJ-45 connector on the **TP-120**, via UTP cabling (transmission can exceed 300ft (>100m)).
4. On both[1] the **TA-110HD** and the **TP-120**, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
   The signal from the XGA source is transmitted via CAT 5 cable, decoded and converted at the XGA OUT HD15F connector to the XGA acceptor.
5. On the **TP-120**, adjust[2] the output signal level and/or cable compensation equalization level, if required.
6. If necessary, set the HS and VS switches[3], on the units.

1 For distances of up to 50 meters you can connect a power adapter to either the TA-110HD or TP-120. Above it, both sides should be fed with power

2 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

3 By default, both switches are set for normal H SYNC and V SYNC polarity

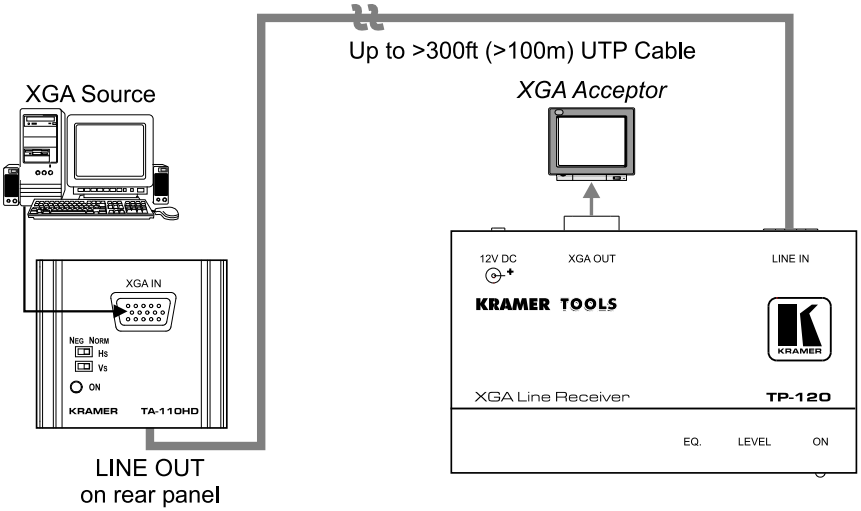

Figure 2: XGA-to-Twisted Pair Transmitter and Receiver System via UTP Cable

6.1 Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors

Table 2 and Figure 3 define the CAT 5 PINOUT, using a straight pin to pin cable with RJ-45 connectors:

Figure 3: CAT 5 PINOUT

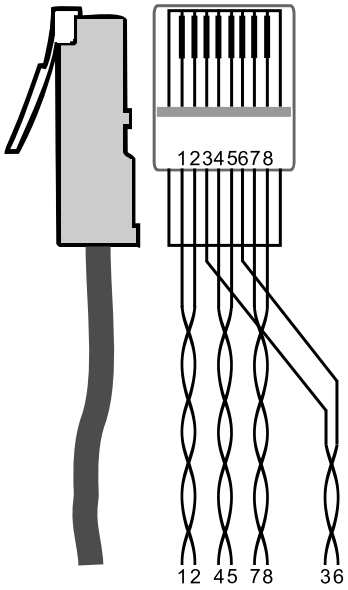

Table 2: CAT 5 PINOUT

EIA /TIA 568A	
PIN	**Wire Color**
1	Green / White
2	Green
3	Orange / White
4	Blue
5	Blue / White
6	Orange
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	3 and 6
Pair 3	1 and 2
Pair 4	7 and 8

EIA /TIA 568B	
PIN	**Wire Color**
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6
Pair 4	7 and 8

7 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications[1] of the TA-110HD

INPUT:	1 VGA / UXGA on an HD15 connector
OUTPUT:	1 RJ-45 LINE OUTPUT connector
RESOLUTION:	Up to UXGA
DIFF. GAIN[2]:	2.9%
DIFF. PHASE[2]	0.3 Deg
K-FACTOR[2]:	<0.05%
S/N RATIO[2]:	69dB
COUPLING:	AC
POWER SOURCE:	12 VDC 60mA
DIMENSIONS:	5.67cm x 5.0cm x 4.3cm (2.23" x 1.97" x 1.7", W, D, H)
WEIGHT:	0.14 kg. (0.31 lbs.) approx.
ACCESSORIES:	Power supply

1 Specifications are subject to change without notice

2 For the Transmitter/Receiver pair

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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