

Kramer Electronics, Ltd.



USER MANUAL

Models:

640T *HDMI-Coax Transmitter*

640R *Coax-HDMI Receiver*

Contents

1	Introduction	1
2	Getting Started	1
2.1	Quick Start	2
3	Overview	3
3.1	640T HDMI-Coax Transmitter	3
3.2	640R Coax-HDMI Receiver	3
3.3	Achieving the Best Performance	3
4	Your 640T / 640R HDMI-Coax Transmitter / Receiver	4
4.1	Your 640T HDMI-Coax Transmitter	4
4.2	Your 640R Coax-HDMI Receiver	6
5	Using the HDMI-Coax Transmitter/Receiver	7
6	Technical Specifications	9

Figures

Figure 1: 640T HDMI-Coax Transmitter Features	5
Figure 2: 640R Coax-HDMI Receiver	6
Figure 3: HDMI-to-Coax Transmitter and Receiver System	8

Tables

Table 1: 640T HDMI-Coax Transmitter Features	5
Table 2: 640R Coax-HDMI Receiver Features	6
Table 3: 640T / 640R Technical Specifications	9
Table 4: 640T / 640R Range Chart	9

1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups¹ that are clearly defined by function.

Thank you for purchasing the Kramer TOOLS **640T** *HDMI-Coax Transmitter* and Kramer TOOLS **640R** *Coax-HDMI Receiver*, which are ideal for:

- Boardroom and projection applications
- Long-range multimedia extension for schools, hospitals, security, and stores
- Upgrading a legacy analog installation to a digital installation

The package includes the following items:

- **640T** *HDMI-Coax Transmitter* and/or **640R** *Coax-HDMI Receiver*
- Power adapter (12V DC input)
- This user manual²

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 cables³

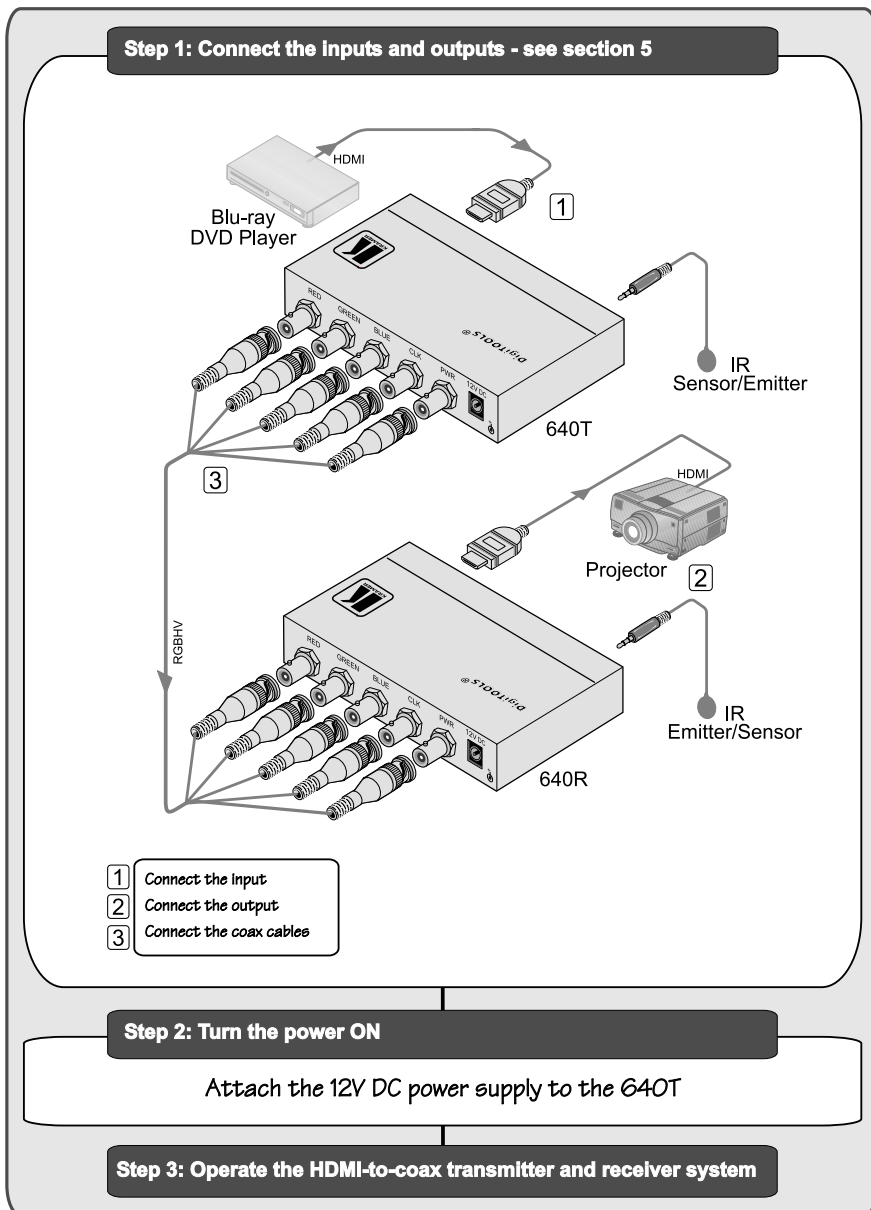
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

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>

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



3 Overview

This section describes:

- The **640T** *HDMI-Coax Transmitter*, see section 3.1
- The **640R** *Coax-HDMI Receiver*, see section 3.2
- How to achieve the best performance from your equipment, see section 3.3

3.1 640T HDMI-Coax Transmitter

The Kramer DigiTOOLS® **640T** is an HDMI-Coax Transmitter that receives an HDMI signal, codes it, and transmits red, green, blue, clock and data signals, as well as power and infrared signals over coax cable to the **640R** receiver.

The **640T** features:

- Full support for HDMI 1.3 up to 10.2Gbps and HDCP
- Digital signal transmission without compression or conversion
- Power feeding to the **640R**¹
- Plug and Play installation with no adjustments

3.2 640R Coax-HDMI Receiver

The Kramer DigiTOOLS® **640R** is a Coax-HDMI Receiver that receives a coded coax signal transmitted by the **640T**, decodes R-G-B, clock and data components and converts them to an HDMI output. The **640R** features:

- Full support for HDMI 1.3 up to 10.2 Gbps and HDCP
- Power feeding to the **640T**¹
- Plug and Play installation with no adjustments

3.3 Achieving the Best Performance

To achieve the best performance with your Kramer equipment:

- Use only high-quality connection cables² to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your **640T** / **640R** away from moisture, excessive sunlight and dust

¹ Power feeding is available only when using a 5-plug coax cable and the power coax line is connected

² Available from Kramer on our Web site at <http://www.kramerelectronics.com>



Caution – No operator-serviceable parts inside unit.

Warning – Use only the Kramer Electronics input power wall adapter that is provided with this unit¹.

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

4 Your 640T / 640R HDMI-Coax Transmitter / Receiver

This section defines the HDMI-Coax Transmitter/Receiver:

- **640T** *HDMI-Coax Transmitter* (see section 4.1)
- **640R** *Coax-HDMI Receiver* (see section 4.2)

4.1 Your 640T HDMI-Coax Transmitter

Figure 1 and *Table 1* define the **640T**:

¹ For example, part number 2535-000251

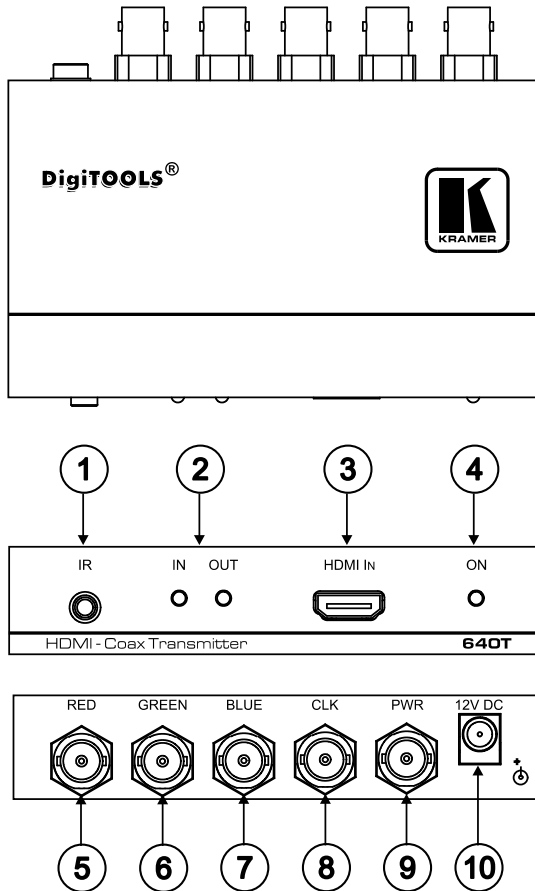


Figure 1: 640T HDMI-Coax Transmitter Features

Table 1: 640T HDMI-Coax Transmitter Features

#	Feature	Function
1	IR Connector	Connects to an IR sensor or transmitter
2	IN / OUT LED	The IN LED illuminates when an input source is connected. The OUT LED illuminates when an output acceptor is connected
3	HDMI IN Connector	Connects to an HDMI source
4	ON LED	Illuminates when receiving power
5	RED Output BNC Connector	Transmits the red signal to the 640R
6	GREEN Output BNC Connector	Transmits the green signal to the 640R
7	BLUE Output BNC Connector	Transmits the blue signal to the 640R
8	CLK Output BNC Connector	Transmits the clock signal to the 640R
9	PWR Output BNC Connector	Transmits power and the IR signal to the 640R
10	12V DC	+12V DC connector for powering the unit

4.2 Your 640R Coax-HDMI Receiver

Figure 2 and Table 2 define the **640R**:

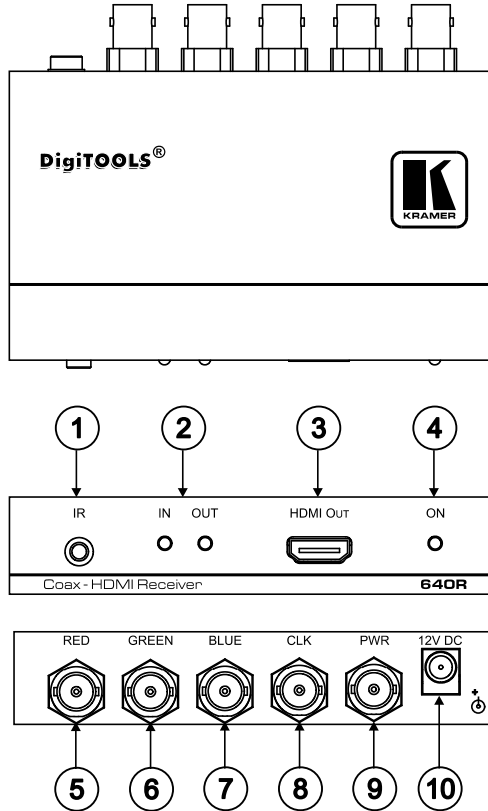


Figure 2: 640R Coax-HDMI Receiver

Table 2: 640R Coax-HDMI Receiver Features

#	Feature	Function
1	IR Connector	Connects to an IR sensor or transmitter
2	IN / OUT LED	The IN LED illuminates when an input source is connected. The OUT LED illuminates when an output acceptor is connected
3	HDMI OUT Connector	Connects to the HDMI acceptor
4	ON LED	Illuminates when receiving power
5	RED Output BNC Connector	Receives the red signal from the 640T
6	GREEN Output BNC Connector	Receives the green signal from the 640T
7	BLUE Output BNC Connector	Receives the blue signal from the 640T
8	CLK Output BNC Connector	Receives the clock signal from the 640T
9	PWR Output BNC Connector	Receives power and the IR signal from the 640T
10	12V DC	+12V DC connector for powering the unit

5 Using the HDMI-Coax Transmitter/Receiver

You can use the **640T HDMI-Coax Transmitter** and the **640R Coax-HDMI Receiver** to configure an HDMI-to-Coax Transmitter and Receiver system (see *Figure 3*).

To connect the HDMI-to-Coax Transmitter and Receiver system as shown in the example in *Figure 3*, do the following:

1. Connect an HDMI source, for example, the HDMI output from a Blu-ray DVD player, to the **640T** HDMI IN connector.
 2. Connect the **640R** HDMI OUT connector to the HDMI acceptor, for example, a projector.
 3. If using a 4-plug coax cable or 4 coax cables:
 - Connect the **640T** red, green, blue, and clock BNC connectors to the **640R** red, green, blue and, clock BNC connectors
 - Connect 12V DC power supplies to both the **640T** and the **640R** (not shown in *Figure 3*). The remote power and IR remote control functions are not available
 4. If using a 5-plug coax cable or 5 coax cables:
 - Connect the **640T** red, green, blue, clock, and power BNC connectors to the **640R** red, green, blue, clock, and power BNC connectors
 - Connect one 12V DC power supply to either the **640T** or the **640R** (not shown in *Figure 3*). Power and the IR remote control function are transmitted over the power coax connection to the second device
- Note:** All coax cables must be the same length. There can be no more than 6 inches (15cm) difference in length between any of the cables.
5. Connect the power supply(s) to the mains electricity.

After all connections are made and the units are powered ON, the system operates.

Using the HDMI-Coax Transmitter/Receiver

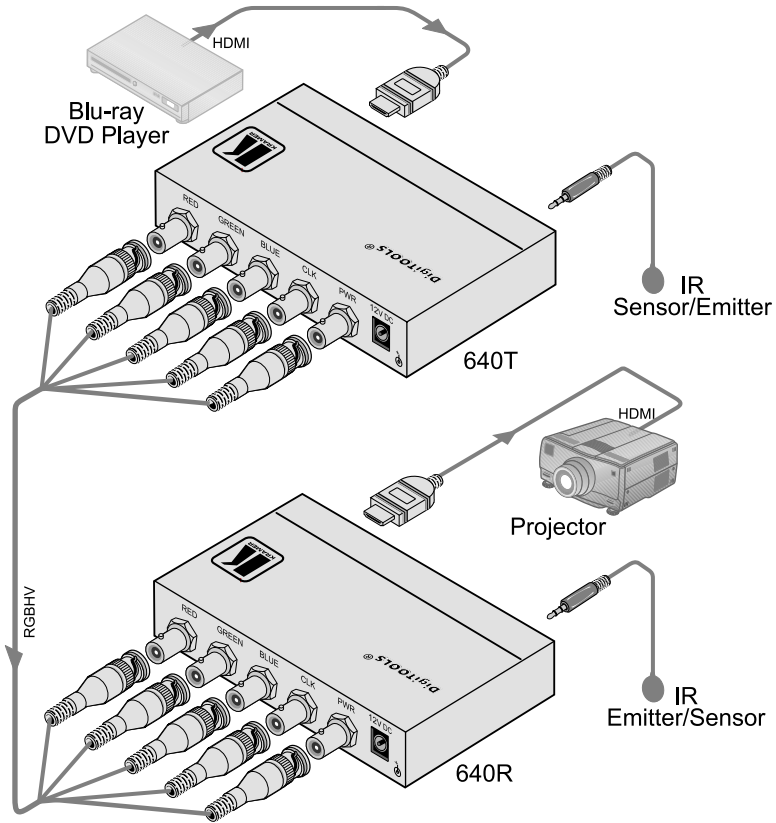


Figure 3: HDMI-to-Coax Transmitter and Receiver System

6 Technical Specifications

640T / 640R technical specifications are shown in *Table 3*:

Table 3: 640T / 640R Technical Specifications¹

	640T	640R
INPUTS:	1 HDMI connector	5 BNC connectors, IR on 3.5mm mini jack
OUTPUTS:	5 BNC connectors	1 HDMI connector, IR on 3.5mm mini jack
BANDWIDTH:	Supports up to 1.65Gbps bandwidth per graphic channel	
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI 1.3 up to 10.2Gbps and HDCP	
POWER SOURCE:	12V DC, 440mA	12V DC, 330mA
DIMENSIONS:	12.1cm x 7.2cm x 2.4cm (4.7" x 2.8" x 1.0"), W, D, H	
WEIGHT:	0.3kg (0.7lbs) approx.	
ACCESSORIES:	Power supply	

Table 4: 640T / 640R Range Chart

Cable Type	Max Range
BC-5 (28AWG)	50m
BC-5 (26AWG)	60m
RG-59	115m
RG-6	150m

¹ Specifications are subject to change without notice

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, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
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 your 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.
* FCC and CE approved using STP cable (for twisted pair products)



**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.**



Caution

Safety Warning:

Disconnect the unit from the power supply before opening/servicing.



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