
3 Overview

The **TP-577HDCP** accepts the following signals:

- DVI graphics video
- An RS-232 control or data signal
- An IR signal
- An unbalanced, stereo audio input (which can be embedded into the output signal)

The **TP-577HDCP** encodes these signals and transmits the encoded signal via DGKat cable to a compatible DGKat switcher or receiver (for example, the **VS-62D** or **TP-578HDCP**).

Using the **TP-577HDCP**, you can also communicate via the twisted pair cable:

- EDID (Extended Display Information Data)
- HPD (Hot Plug Detect) signals from the display device to the source

The **TP-577HDCP** features:

- HDCP support
- HDTV compatibility
- Support for HDMI with x.v. Color™ and 3D
- Support for digital audio formats
- Automatic analog audio detection and embedding
- I-EDIDPro™ Kramer Intelligent EDID Processing™ – Intelligent EDID handling & processing algorithm ensures Plug and Play operation for HDMI systems
- Compatibility with all Kramer K-LINK devices which allows the use of RS-232 for both control of other Kramer devices and sending data to remote, external RS-232 devices
- Equalization and reclocking of the data

- A DigiTOOLS® sized enclosure. Three devices can be mounted in a rack using the optional **RK-13** adapter
- A maximum data rate of 1.65Gbps bandwidth per graphic channel
- Support for Protocol 3000

The **TP-577HDCP** supports a range of:

- Up to 90m (295ft) at 1080i, or up to 30m (98ft) at 1080p on shielded **BC-DGKat524** cable
- Up to 90m (295ft) at 1080i, or up to 70m (230ft) at 1080p on shielded **BC-DGKat623** cable
- Up to 100m (330ft) at 1080i or up to 90m (295ft) at 1080p on shielded **BC-DGKat7a23** cable

Note: The transmission range depends on the signal resolution, graphics card and display used. The distance using non-Kramer CAT 6 and CAT 7a cables may not reach these ranges.

3.1 Using TP cables

Kramer engineers have developed special twisted pair cables to best match our digital twisted pair products; the Kramer **BC-DGKat524** (CAT 5 24 AWG), the Kramer **BC-DGKat623** (CAT 6 23 AWG), and the Kramer **BC-DGKat7a23** (CAT 7a 23 AWG) cables. These specially built cables significantly outperform regular CAT 5/CAT 6/CAT 7a cables.

Note: The **TP-577HDCP** cannot work with unshielded cables. The cable ground shield must be connected/soldered to the shield of both RJ-45 connectors.



Warning: Using a TP cable that is incorrectly wired will prevent Power Connect™ from working

3.2 About the Power Connect™ Feature

The Power Connect™ feature here means that only one unit in a system the transmitter or receiver needs to be connected to a power source when the devices

are within 90m (270ft) of each other. The Power Connect™ feature applies as long as the cable can carry power and the distance does not exceed 90m on standard TP cable. (Heavier gauge cable may be used to extend the Power Connect™ range).

4 Defining the TP-577HDCP DVI to DGKat Transmitter

Figure 1 defines the front panel of the TP-577HDCP.

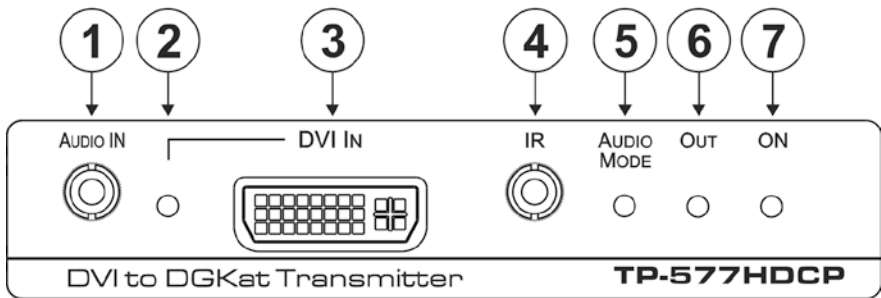


Figure 1: TP-577HDCP DVI to DGKat Transmitter Front Panel

#	Feature	Function
1	AUDIO IN 3.5mm Mini Jack	Connect to the unbalanced, stereo audio source for DVI embedding
2	DVI IN Signal LED	Lights green when all the following are true: • The port is selected • There is a valid DVI signal present • The signal is being routed via the DGKat output Flashes when: • No signal is connected • The signal is not valid • Routing is not working
3	DVI IN Connector	Connect to the DVI source
4	IR Input/Output 3.5mm Mini Jack	Connect to IR signal source or acceptor
5	AUDIO MODE LED	Lights green when analog audio is embedded
6	OUT LED	Indicates the following: • Green solid—the input signal and the DGKat link is valid • Flashes green—the input signal is not valid but the DGKat link is valid • Red—neither the input signal nor the DGKat link is valid
7	ON LED	The LED indicates the following: • Lights green—the device receives adequate power • Lights red—the power is insufficient and 24V is needed (see Section 3.2)

Figure 2 defines the rear panel of the **TP-577HDCP**.

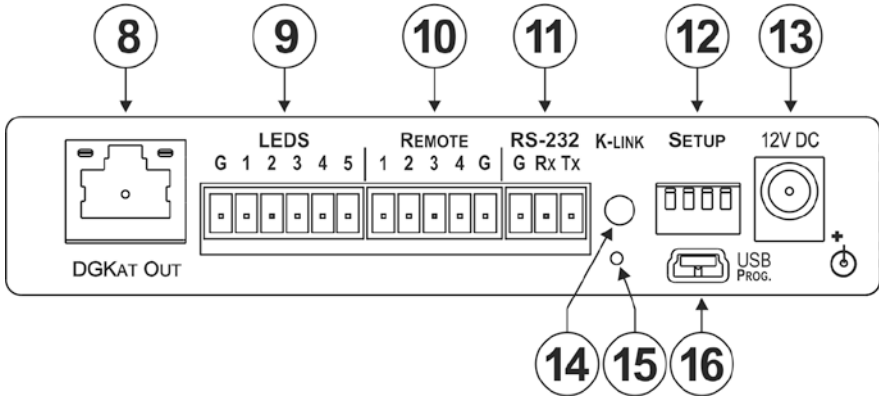


Figure 2: TP-577HDCP DVI to DGKat Transmitter Rear Panel

#	Feature		Function
8	DGKat OUT RJ-45 TP Connector		Connect to a compatible DGKat TP switcher or receiver (for example, VS-62D or TP-578HDCP)
9	LEDs 6-pin Terminal Block		Connect to up to five remote status LEDs (see Section 5.2)
10	REMOTE SWITCHES 5-pin Terminal Block		Connect to up to four remote contact-closure switches (see Section 5.2)
11	RS-232 3-pin Terminal Block		Connect to a remote, serial signal source or acceptor (for example, a PC or a device to be controlled via a serial port). Note: Serial commands are transmitted even when the video signal is absent
12	SETUP 4-way DIP-switch		Sets the behavior of the device (see Section 8.1)
13	12V DC Connector		Connect to the power adapter, center pin positive (see Section 3.2)
14	K-LINK Mode	Switch	Press the switch to toggle between active and passive data modes (see Section 7.2)
15		LED	The LED indicates the following: • Lights green—the device is in active mode • Lights blue—the device is in passive mode
16	USB (PROGRAM) Mini-USB Connector		For performing a firmware upgrade

5 Connecting the TP-577HDCP



Always switch off the power to all devices before connecting them to your **TP-577HDCP**. After connecting your **TP-577HDCP**, connect its power and then switch on the power to the other devices.

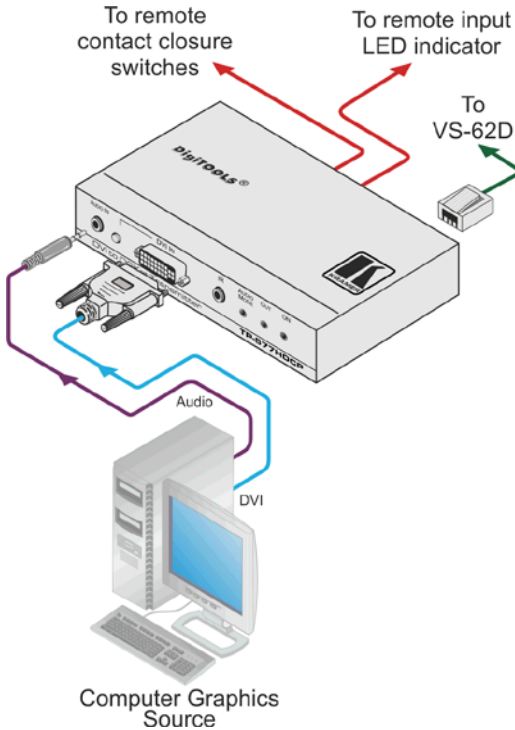


Figure 3: Connecting the TP-577HDCP DVI to DGKat Transmitter

To connect the **TP-577HDCP** as illustrated in the example in [Figure 3](#):

1. Connect a DVI source, (for example, a computer graphics source) to the DVI input on the **TP-577HDCP**.
2. Connect an unbalanced, stereo audio source, (for example, the audio output of the computer graphics source) to the Audio In 3.5mm mini jack on the **TP-577HDCP**.

3. Connect the DGKat Out RJ-45 connector on the **TP-577HDCP** to the Line In RJ-45 connector on the **VS-62D** using STP cable (see [Section 3.1](#)).
4. Connect the RS-232 3-pin terminal block to a remote serial device (controller or to be controlled).
5. Connect the Remote Switches 6-pin terminal block to up to five remote, contact-closure switches (see [Section 5.2](#)).
6. Connect the LEDs 5-pin terminal block to up to four remote, status indicator LEDs (see [Section 5.2](#)).
7. Connect the power adapter to the **TP-577HDCP** (see [Section 3.2](#)) and to the mains electricity (not shown in [Figure 3](#)).

5.1 Connecting the RS-232 Serial Port to a Remote Device

You can connect a serial controller or a device to be controlled to the RS-232 3-pin terminal block on the **TP-577HDCP**.

To connect a device to the RS-232 3-pin serial port:

- Connect the TX pin on the 3-pin terminal block to pin 2 (RX) on the 9-pin D-sub connector
- Connect the RX pin on the 3-pin terminal block to pin 3 (TX) on the 9-pin D-sub connector
- Connect the GND pin on the 3-pin terminal block to pin 5 (GND) on the 9-pin D-sub connector

5.2 Connecting the Remote LEDs and Selection Switches

You can connect up to four remote, momentary, contact-closure, input selection switches as well as up to five indicator LEDs to the terminal blocks on the rear panel of the **TP-577HDCP**.

Note: Do not connect more than one pin of the Remote switch terminal block to ground at the same time.

Figure 4 illustrates the connections from the terminal block to the LEDs and the switches.

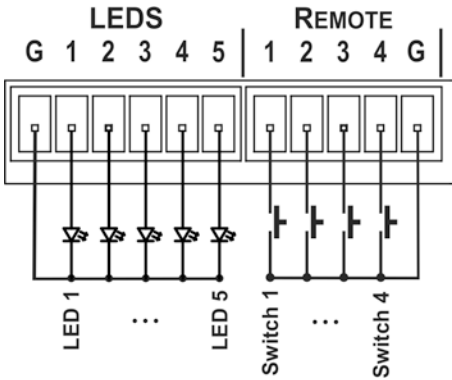


Figure 4: Connecting Remote LEDs and Switches

The following table describes the remote LED connections.

#	Connect to	Indication
G	The cathode of all LEDs	Common LED connection
1	The anode of LED 1	Audio mode
2	The anode of LED 2	Power indicator
3	The anode of LED 3	Remote button 1 LED
4	The anode of LED 4	Remote button 2 LED
5	The anode of LED 5	K-LINK

To connect a remote LED, (for example, LED 4 DVI input indicator):

1. Connect pin 4 from the LEDs terminal block to the anode of the remote selection LED.
2. Connect pin G from the LEDs terminal block to the cathode of the LED.

The following table describes the remote switch connections.

#	Connect to	Function
1	One side of switch 1	Remote button 1
2	One side of switch 2	Remote button 2
3	One side of switch 3	Remote button 3
4	One side of switch 4	Remote button 4
G	The common side of all switches	Common switch connection