KRAMER

USER MANUAL
MODEL:

KDS-8, KDS-8F
SDVoE Streaming Transceivers

Contents

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!

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.

(i) Go to www.kramerav.com/downloads/KDS-8 to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).

- Do not secure the cables in tight bundles or roll the slack into tight coils.

- Avoid interference from neighboring electrical appliances that may adversely influence signal quality.

- Position your Kramer **KDS-8** away from moisture, excessive sunlight and dust.

⚠ This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

Safety Instructions

⚠ **Caution:**
- This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

- For products with relay terminals and GPI\O ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.

- There are no operator serviceable parts inside the unit.

⚠ **Warning:**
- Use only the power cord that is supplied with the unit.

- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which located on the bottom of the unit.

Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at www.kramerav.com/support/recycling.

Overview

Unless otherwise noted, when **KDS-8** is mentioned in this manual it refers to both **KDS-8** and **KDS-8F**.

Congratulations on purchasing your Kramer **KDS-8 SDVoE Streaming Transceiver**. **KDS-8** is a high-performance, zero latency, 4K@60Hz (4:4:4) video transceiver via Ethernet. **KDS-8** streams over copper cable and **KDS-8F** streams over fiber optic cable. **KDS-8** can be set as either an encoder or decoder. As an encoder, it encodes and streams the HDMI™ or DisplayPort (**KDS-8F** only) input along with IR, RS-232, analog audio, and USB (**KDS-8F** only) over an IP network. As a decoder, it receives the encoded signal and decodes it for output.

Benefits and Features

- High-Performance Video Streaming Transceiver – Streams up to 4K@60Hz (4:4:4) resolution signals over a 10G network interface, providing lossless compression.

- Maximum Compatibility – Fully standard and compliant SDVoE™ codec, enables compatibility with other software and hardware streaming platforms.

- HDCP 2.2 Compliant, HDR Support, Genlock and FastSwitch Support.

- High-Speed 10G Network Switch – Managed switch provides: multicast, jumbo frames, IGMP snooping and fast-leave.

- Analog Audio Embedding – Provides an unbalanced analog audio port for embedding audio into the streaming signal.

- USB Interface Extension (**KDS-8F** only) – Create a point-to-point USB interface extension between two transceivers where USB interface devices connected to one transceiver can communicate with a host computer connected to the other transceiver.

- Bi-directional IR and RS-232 over IP – Control an IR or serial device located on the decoder side from the encoder and vice versa.

- Video Wall Support.

- Multiview Support.

- Easy, Cost-Effective Maintenance – LED indicators for main power, Tx/Rx mode setting, HDMI video source detection, USB communication (**KDS-8F** only) and Tx/Rx transmission enable easy local maintenance and troubleshooting.

- Simple System Management – Remote system management support to enable quick and efficient remote system and device life-cycle management.

Typical Applications

KDS-8 is ideal for the following typical applications:

- Medical facilities and hospitals
- Government facilities
- Live entertainment
- Control centers
- Large scale matrixes

Defining KDS-8 SDVoE Streaming Transceiver

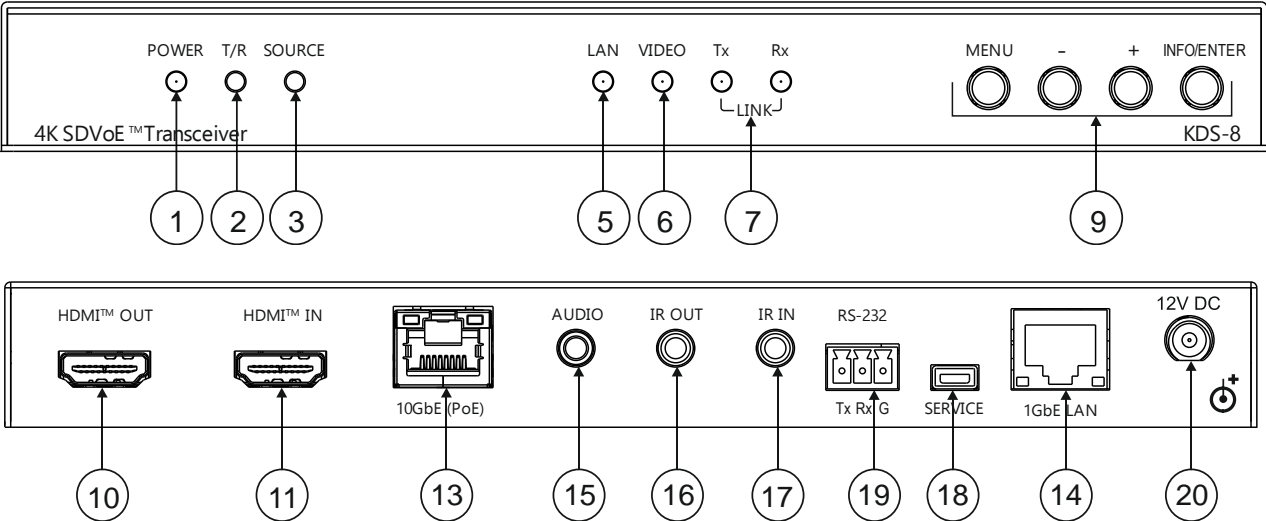This section defines **KDS-8** and **KDS-8F**.

KDS-8

Figure 1: **KDS-8** SDVoE Streaming Transceiver

#	Feature		Function	
1	POWER LED		Lights when the device is powered ON.	
2	T/R LED		• Encoder mode: Lights green. • Decoder mode: Lights amber.	
3	SOURCE LED		Decoder mode: Lights when the HDMI input is live and selected.	
5	LAN LED		Lights when the 1GbE LAN connection is active.	
6	VIDEO LED		• Encoder mode: Lights when HDMI input signal is detected. • Decoder mode: ▪ Genlock mode – Lights when streaming video is detected. ▪ FastSwitch mode – Lights constantly.	
7	LINK Tx and Rx LEDs		Lights to indicate data transmission and reception activity over the 10GbE streaming connection.	
9	OSD Navigation Buttons	MENU	Press to enter the configuration OSD menu, or to exit menu items.	
		+	When in OSD: Press to move up or adjust selections.	When not in OSD: • Press and hold both buttons simultaneously for 10 seconds to change the mode from encoder to decoder or decoder to encoder. • Decoder mode: Press one of the buttons to toggle the video source between 10GbE (PoE) and HDMI IN.
		-	When in OSD: Press to move down or adjust selections.	

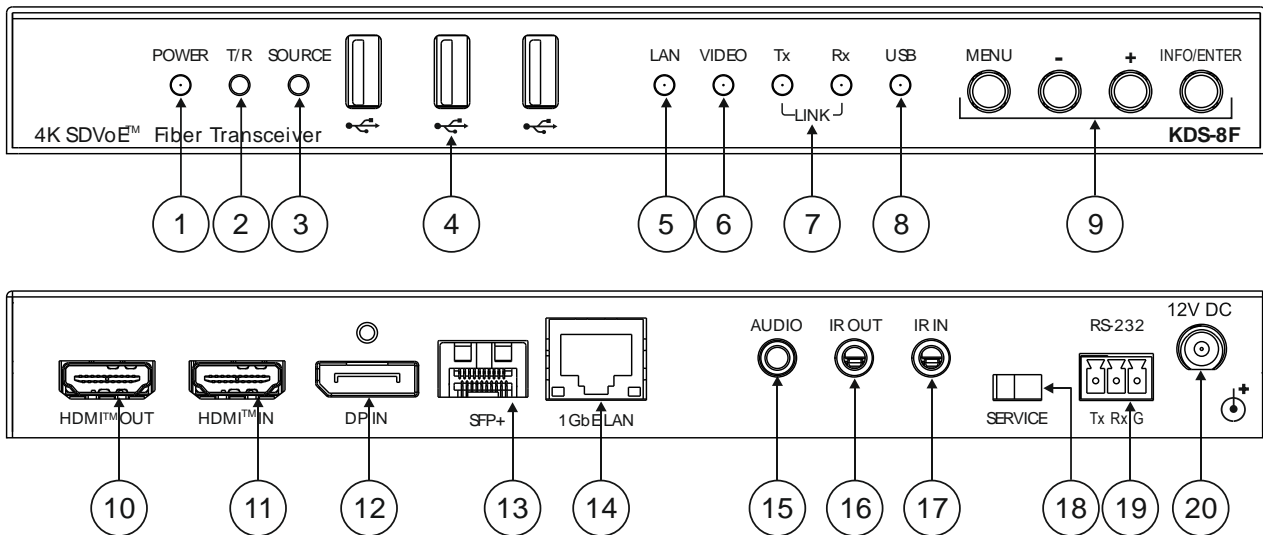| #	Feature		Function
		INFO/ENTER	When in OSD: Press to confirm a selection or to go deeper into a menu item. Not in a menu: Press to activate the information OSD (see Configuring Information OSD on page 15).
10	HDMI OUT Connector		• Encoder mode: Connect to a video acceptor for local viewing of the video source connected to HDMI IN. • Decoder mode: Connect to a video acceptor for viewing the video streamed from the encoder.
11	HDMI IN Connector		• Encoder mode: Connect to a video source for streaming. • Decoder mode: Connect to a video source for a local video input.
13	10GbE (PoE) RJ-45 Connector		Connect to another SDVoE™ unit or to another device for streaming video.
14	1GbE LAN RJ-45 Connector		Connect to a 1G device.
15	AUDIO 3.5mm Jack		• Encoder mode: Connect to an unbalanced analog audio source for embedding audio in the streaming signal. • Decoder mode: Connect to an unbalanced analog audio acceptor for de-embedding audio from the streaming signal.
16	IR OUT 3.5mm Jack		Connect to a 38kHz IR transmitter for transmitting the IR signal that was extended via the streaming line. For example, connect to an IR transmitter to control a display.
17	IR IN 3.5mm Jack		Connect to a 38kHz IR sensor for extending the IR signal via the streaming line.
18	SERVICE Mini USB Connector		For internal use.
19	RS-232 3-Pin Terminal Block		Connect to a serial controller or controlled device for extending the serial control signal via the streaming line to an external device.
20	12V DC Connector		Connect to the power adapter.

KDS-8F

Figure 2: **KDS-8F** SDVoE Streaming Transceiver over Fiber Optic

#	Feature		Function	
1	POWER LED		Lights when the device is powered ON.	
2	T/R LED		• Encoder mode: Lights green. • Decoder mode: Lights amber.	
3	SOURCE LED		• Encoder/Decoder mode: ▪ Lights green when the HDMI input is selected. ▪ Lights orange when the DP input is selected. • Decoder mode: Light is off when SFP+ source is selected.	
4	USB Connectors		Connect to keyboard, camera, and mouse (KVM) to communicate with a host computer connected to another **KDS-8F** transceiver.	
5	LAN LED		Lights when the 1GbE LAN connection is active.	
6	VIDEO LED		• Encoder mode: Lights when HDMI input signal is detected. • Decoder mode: ▪ Genlock mode – Lights when streaming video is detected. ▪ FastSwitch mode – Lights constantly.	
7	LINK Tx and Rx LEDs		Lights to indicate data transmission and reception activity over the SPF+ 10GbE streaming connection.	
8	USB LED		Lights constantly when USB connection is active and synced.	
9	OSD Navigation Buttons	MENU	Press to enter the OSD menu, or to exit menu items.	
		+	When in OSD: Press to move up or adjust selections.	When not in OSD: Press and hold both buttons simultaneously for 10 seconds to change the mode from encoder to decoder or decoder to encoder. Decoder mode: Press one of the buttons to toggle the video source between SFP+, HDMI IN or DP IN.
		-	When in OSD: Press to move down or adjust selections.	
		INFO/ENTER	• When in OSD: Press to confirm a selection or to go deeper into a menu item. • When not in OSD: Press to activate the Information OSD (see Configuring Information OSD on page 15).	

#	Feature	Function
⑩	HDMI OUT Connector	• Encoder mode: Connect to a video acceptor for local viewing of the video source connected to HDMI IN. • Decoder mode: Connect to a video acceptor for viewing the video streamed from the encoder.
⑪	HDMI IN Connector	• Encoder mode: Connect to a video source for streaming. • Decoder mode: Connect to a video source for a local video input.
⑫	DP IN Connector	• Encoder mode: Connect to a DisplayPort video source for streaming. • Decoder mode: Connect to a DisplayPort video source for a local video input.
⑬	SFP+ Connector	Connect to a fiber switch or directly to another SDVoE™ device for streaming video.
⑭	1GbE LAN RJ-45 Connector	Connect to a 1G device for device configuration.
⑮	AUDIO 3.5mm Jack	• Encoder mode: Connect to an unbalanced analog audio source for embedding audio in the streaming signal. • Decoder mode: Connect to an unbalanced analog audio acceptor for de-embedding audio from the streaming signal.
⑯	IR OUT 3.5mm Jack	Connect to a 38kHz IR transmitter for transmitting the IR signal that was extended via the streaming line. For example, connect to an IR transmitter to control a display.
⑰	IR IN 3.5mm Jack	Connect to a 38kHz IR sensor for extending the IR signal via the streaming line.
⑱	SERVICE Mini USB Connector	Connect to a host (PC) for communicating with USB devices connected to another **KDS-8F** transceiver.
⑲	RS-232 3-Pin Terminal Block	Connect to a serial controller or serial controlled device for extending the serial control signal via the streaming line to control an external device.
⑳	12V DC Connector	Connect to the power adapter.

Mounting KDS-8

This section provides instructions for mounting **KDS-8**. Before installing, verify that the environment is within the recommended range:

- Operation temperature – 0° to 40°C (32 to 104°F).
- Storage temperature – -40° to +70°C (-40 to +158°F).
- Humidity – 10% to 90%, RHL non-condensing.

- **KDS-8** must be placed upright in the correct horizontal position.

Caution:
- Mount **KDS-8** before connecting any cables or power.

Warning:
- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- Avoid uneven mechanical loading.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.

You can install KDS-8 using one of the following methods:

- Mount to a flat surface using the attached mounting brackets.
- Place on a flat surface.

Connecting KDS-8

(i) Always switch off the power to each device before connecting it to your **KDS-8**. After connecting your **KDS-8**, connect its power and then switch on the power of the device.
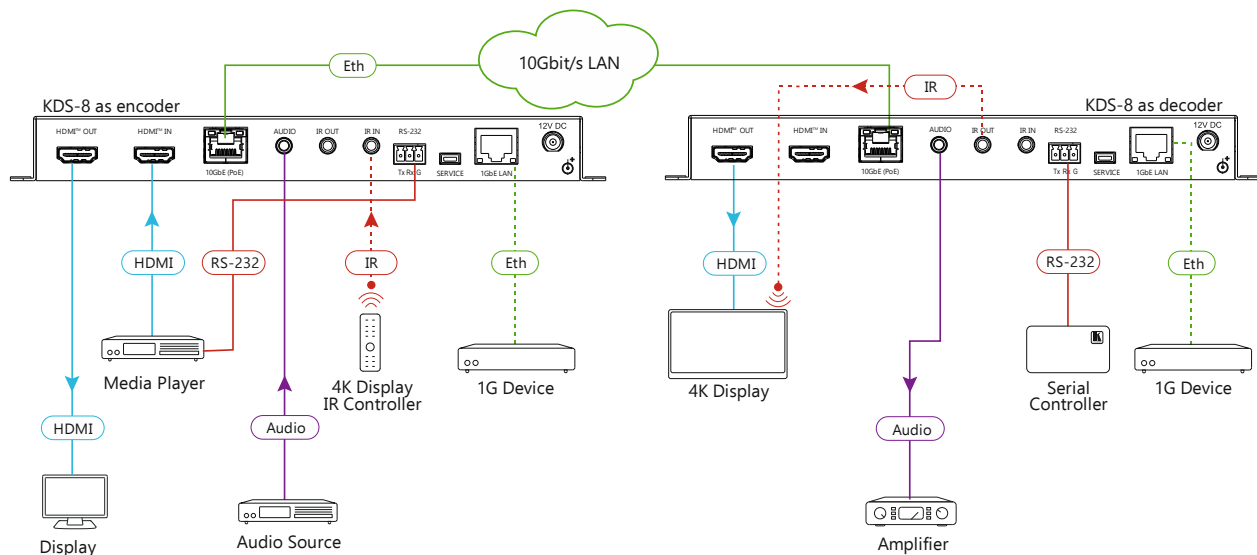
Connecting KDS-8

Figure 3: Connecting a **KDS-8** in Encoder Mode to Another **KDS-8** in Decoder Mode

(i) To change the encoder/decoder mode of a unit see Changing Encoder/Decoder Mode – Front Panel on page 12.

To connect KDS-8 as illustrated in Figure 3:

1. Connect the 10GbE (PoE) RJ-45 Connector ⑬ on each unit to the LAN.

2. Connect the **KDS-8** configured as an encoder:

   a. Connect an HDMI video source (for example, media player) to:

      · HDMI IN Connector ⑪.

      · RS-232 3-Pin Terminal Block ⑲ for controlling the video source via a serial controller on the decoder side.

   b. Connect the AUDIO 3.5mm Jack ⑮ to an unbalanced analog audio source.

   c. Connect the 1GbE LAN RJ-45 Connector ⑭ to a 1G device.

   d. Connect the HDMI OUT Connector ⑩ to a display.

3. Connect the **KDS-8** configured as an decoder:

   a. Connect the HDMI OUT Connector ⑩ to a video acceptor (for example, 4K display).

   b. Connect the AUDIO 3.5mm Jack ⑮ to an audio amplifier.

   c. Connect the RS-232 3-Pin Terminal Block ⑲ to a serial controller to control a serial device on the encoder side.

d. Connect the 1GbE LAN RJ-45 Connector ⑭ to a 1G device.

4. If PoE is not available, connect a 12V power supply (not included) to the DC 12V Connector ⑳ on each unit.

Connecting KDS-8F

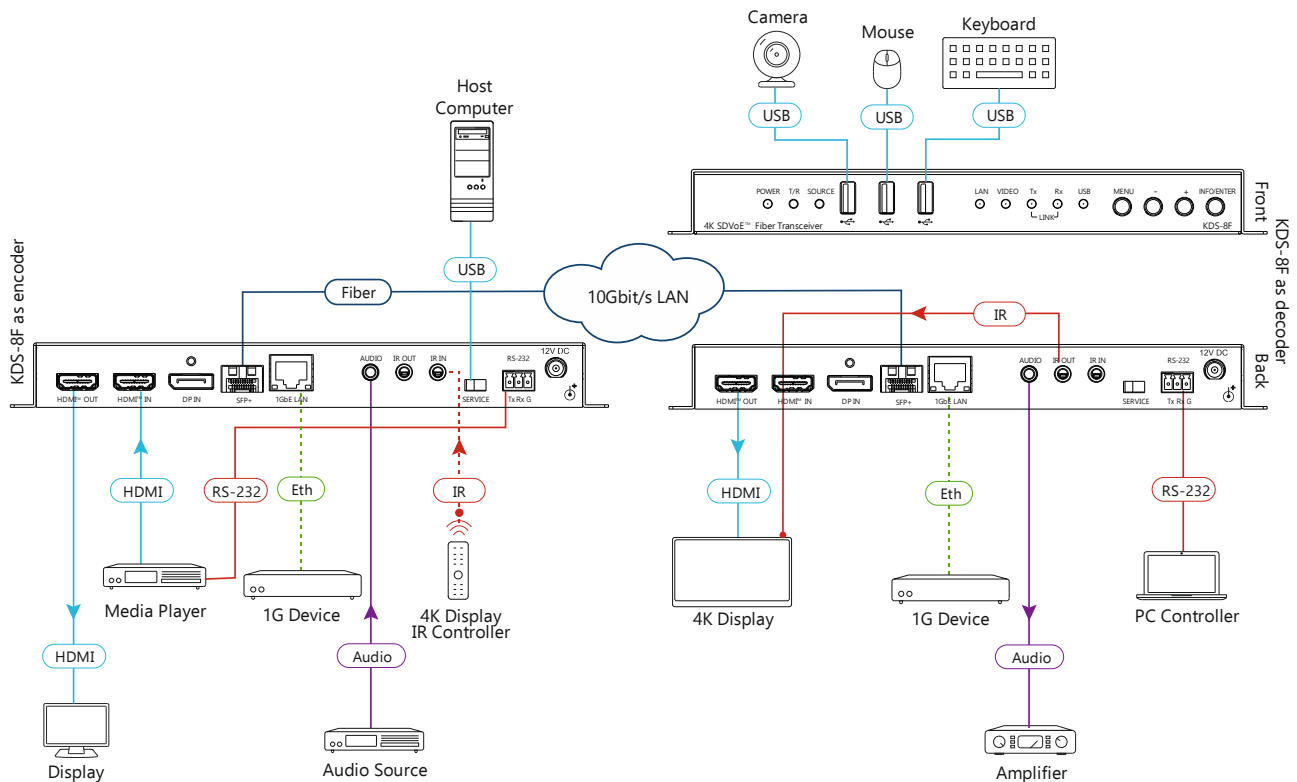ⓘ USB extension can only be used when the transceivers are connected point-to-point.

Figure 4: Connecting a **KDS-8F** in Encoder Mode to Another **KDS-8F** in Decoder Mode

To connect KDS-8F as illustrated in [Figure 3](#):

1. Connect the SFP+ Connector ⑬ on each unit to the LAN.

2. Connect the **KDS-8F** configured as an encoder:

   a. Connect the HDMI IN Connector ⑪ to an HDMI video source (for example, media player).

   b. Connect the RS-232 3-Pin Terminal Block ⑲ to the HDMI video source for controlling the video source via a serial controller on the decoder side.

   c. Connect the AUDIO 3.5mm Jack ⑮ to an unbalanced analog audio source.

   d. Connect the 1GbE LAN RJ-45 Connector ⑭ to a 1G device.

   e. Connect the HDMI OUT Connector ⑩ to a display.

   f. Connect a host computer to the SERVICE Mini USB Connector ⑱ for extension to USB devices connected to the other **KDS-8F** transceiver.

3. Connect the **KDS-8F** configured as a decoder:

   a. Connect the HDMI OUT Connector ⑩ to a video acceptor (for example, 4K display).

   b. Connect the AUDIO 3.5mm Jack ⑮ to an audio amplifier.

   c. Connect the RS-232 3-Pin Terminal Block ⑲ to a serial controller to control a serial device on the encoder side.

   d. Connect the 1GbE LAN RJ-45 Connector ⑭ to a 1G device.

   e. Connect a camera, mouse, and keyboard to the USB connectors ④ on the front panel for USB interface extension to a host computer connected to the other **KDS-8F** transceiver.

4. If PoE is not available, connect a 12V power supply (not included) to the DC 12V Connector ⑳ on each unit.

Operating KDS-8

Configure and control your **KDS-8** using any of the following methods:

- Kramer Network Enterprise Management Platform (version 2.2 or higher – go to www.kramerav.com/product/KDS-8 for more information).

- Via the front panel buttons (see Changing Encoder/Decoder Mode – Front Panel on page 12).

- Via the configuration OSD (see Configuring Settings – OSD on page 13).

Changing Encoder/Decoder Mode – Front Panel

By default, **KDS-8** is defined to operate in encoder mode. You can easily change the encoder/decoder mode using the front panel buttons.

(i) To change the encoder/decoder mode from the configuration OSD, see Changing Encoder/Decoder Mode – OSD on page 18.

To change the mode from encoder to decoder or vice versa:

- Press and hold the + (plus) and – (minus) buttons ⑨ simultaneously for about 10 seconds.
The device reboots and the encoder / decoder mode changes.

(i) Press the INFO/ENTER button ⑨ to display the encoder/decoder mode status (TX = encoder, RX = decoder) on the display connected to the HDMI OUT Connector ⑩.

Configuring Settings – OSD

The configuration OSD enables you to configure **KDS-8**. When using the menu, it appears as an overlay on top of any image that appears on the display. The menu is operated using the front panel buttons.

ⓘ Unless otherwise noted, the instructions in this section apply to **KDS-8** and **KDS-8F**.

KDS-8 configuration OSD enables performing the following:

Navigating Configuration OSD

Navigate the configuration OSD using the four OSD Navigation Buttons ⑨ on the front panel, as follows:

- MENU button – Open the configuration OSD on your screen or exit a menu option.

ⓘ When **KDS-8** is in encoder mode the OSD appears on the bottom left of the screen and when it is in decoder mode it appears on the bottom right of the screen.

- + or – buttons – Move up or down in the menu / sub-menu or scroll through parameter options.

- INFO/ENTER button – Open a menu / sub-menu item, activate a menu / sub-menu item to edit it or select the required value.

ⓘ When a menu item is selected, it turns green.

When a menu / sub-menu item is activated and editable, the item turns red.

For example, to change the local priority setting:

1. Press the Menu button.

The MAIN MENU appears with OSD selected.

```
RX          MAIN MENU
  OSD
  EDID
  HDCP
  DEVICE SETTING
  INFORMATION
  FACTORY SETTING
```

Figure 5: MAIN MENU with OSD selected

5. Press the – button three times.
   DEVICE SETTING is selected.

```
RX          MAIN MENU
  OSD
  EDID
  HDCP
  DEVICE SETTING
  INFORMATION
  FACTORY SETTING
```

Figure 6: MAIN MENU with DEVICE SETTING selected

6. Press the INFO/ENTER button.
   The DEVICE SETTING menu appears.

```
RX          DEVICE SETTING
  STATUS         :  RECEIVER
  FAN MODE       :  FOLLOW TEMP
  INPUT          :  INPUT 2
  LOCAL PRIORITY:  OFF
```

Figure 7: DEVICE SETTING Menu

7. Press the + button once.
   LOCAL PRIORITY is selected.

```
RX          DEVICE SETTING
  STATUS         :  RECEIVER
  FAN MODE       :  FOLLOW TEMP
  INPUT          :  INPUT 2
  LOCAL PRIORITY:  OFF
```

Figure 8: DEVICE SETTING Menu with LOCAL PRIORITY Selected

8. Press the INFO/ENTER button.

LOCAL PRIORITY is activated and editable.

```
RX          DEVICE SETTING

  STATUS          :   RECEIVER
  FAN MODE        :   FOLLOW TEMP
  INPUT           :   INPUT 2
  LOCAL PRIORITY:   OFF
```

Figure 9: DEVICE SETTING Menu with Editable LOCAL PRIORITY

9. Use the + or – button to toggle ON or OFF.

10. Press the INFO/ENTER button.
The selected value (ON or OFF) is set.

Configuring Information OSD

When you press the INFO/ENTER button, the following information appears on the connected display:

- Output resolution.

- Encoder/decoder mode status.

- Device IP address.

```
TX
  RESOLUTION: 1920X1080P @60 (RGB)
  STATUS      : TRANSMITTER
  IP          : 169.254.64.180
```

Figure 10: Information OSD

This information OSD, if enabled, also appears automatically when you connect the HDMI cable from the device to the display.

Enabling/Disabling Automatic Information Display

To enable/disable the automatic information display upon connection:

1. In the OSD, go to OSD > DISPLAY INFORMATION.

2. Select ON or OFF.

The automatic information display is enabled.

Defining Information Display Duration

To define the amount of time the Information display remains on the screen:

1. In the OSD, go to OSD > INFORMATION TIMEOUT.

2. Set the timeout value in seconds.

   The information display duration is defined.

Defining Configuration OSD Duration

When you press the MENU button, the configuration OSD appears on the screen. If no other buttons are pressed, it remains on the screen for a user-defined amount of time.

To define the amount of time the configuration OSD remains on the screen:

1. In the OSD, go to OSD > MENU TIMEOUT.

2. Set the timeout value in seconds.

   The configuration OSD duration is defined.

Changing Configuration OSD Position

This section applies only to **KDS-8F**.

KDS-8F enables you to change the horizontal or vertical position of where the configuration OSD appears on the display.

The OSD position defined when in encoder mode is set independently from the OSD position defined when in decoder mode.

To change the configuration OSD horizontal position:

1. In the OSD, go to OSD > MENU H POSITION.

2. Increase or decrease the value as needed.

   The OSD configuration menu moves left or right on the display.

To change the configuration OSD vertical position:

1. In the OSD, go to OSD > MENU V POSITION.

2. Increase or decrease the value as needed.

   The OSD configuration menu moves up or down on the display.

Defining EDID

KDS-8 enables you to manually define the EDID. KDS-8 provides the following EDID options:

Name	Description
Internal 1	FHD (2CH): 1920×1080p@60Hz (4.95Gbps), 8-bit color, LPCM 2.0.
Internal 2	FHD (MCh): 1920×1080p@60Hz (4.95Gbps), 8-bit color, LPCM 7.1 & Bitstream.
Internal 3	UHD (2Ch): 3840×2160p@30Hz (10.2Gbps), 12-bit Deep Color, LPCM 2.0.
Internal 4	UHD (MCh): 3840×2160p@30Hz (10.2Gbps), 12-bit Deep Color, LPCM 7.1 & Bitstream.
Internal 5	UHD + (2Ch): 3840×2160p@60Hz (18Gbps), 12-bit Deep Color, LPCM 2.0.
Internal 6	UHD + (MCh): 3840×2160p@60Hz (18Gbps), 12-bit Deep Color, LPCM 7.1 & Bitstream.
External A	Encoder mode: Follows video accepter connected to Local HDMI OUT. Decoder mode: Follows video accepter connected to HDMI OUT.
External B (Transmitter Mode only)	Encoder mode for KDS-8F: Follows video accepter connected to HDMI OUT of Decoder.
User 1	User defined through API.
User 2	User defined through API.

To define the EDID:

1. In the OSD, go to EDID > EDID SELECT.

For KDS-8F, select either HDMI EDID when defining for the HDMI input or DP EDID when defining for the DisplayPort input.

2. Select the required EDID option.

The EDID source is defined.

Defining HDCP

KDS-8 enables you to define the HDCP status of the input.

To define the HDCP status of the input:

1. In the OSD, go to HDCP.

2. Go to one of the following:

   ▪ HDMI HDCP – defines the HDCP status of the HDMI input.

   ▪ DP HDCP – for KDS-8F to define the HDCP status of the DisplayPort input.

3. Select one of the following options:

   ▪ Follow In – HDCP follows the input source device.

   ▪ Follow Out – HDCP follows the output acceptor display.

   ▪ Disable – HDCP is disabled.

   ▪ Follow API – Follow the HDCP setting defined by the API.

   HDCP status of the device is defined.

Changing Encoder/Decoder Mode – OSD

By default, **KDS-8** is defined to operate in encoder mode. You can easily change the encoder/decoder mode using the configuration OSD.

(i) To change the encoder/decoder mode using front panel buttons, see <u>Changing Encoder/Decoder Mode – Front Panel</u> on page <u>12</u>.

To change the mode from encoder to decoder or vice versa:

1. In the OSD, go to DEVICE SETTINGS > STATUS.

2. Select TRANSMITTER (encoder) or RECEIVER (decoder).
   The device reboots and the encoder/decoder mode changes.

(i) Press the INFO/ENTER button (9) to display the encoder/decoder mode status (TX = encoder, RX = decoder) on the display connected to the HDMI OUT Connector (10).

Defining Cooling Fan Operation

KDS-8 enables you to define when the cooling fan operates. By default, it is set to operate continuously, to ensure proper cooling at all times and you can set it to operate only when it reaches a certain temperature.

To define when the cooling fan operates:

1. In the OSD, go to DEVICE SETTINGS > FAN MODE.

2. Select one of the following:

   - FOLLOW TEMP – Fan operates when the device reaches the maximum operating temperature

   - ALWAYS ON – Fan operates continuously

   Cooling fan operation is defined.

Selecting Active Input

(i) This section is only relevant for a device in decoder mode.

When the device is in decoder (receiver) mode, you can select the input to route to the HDMI output.

To select the active input:

1. In the OSD, go to DEVICE SETTINGS > INPUT.

2. Select one of the following:

   ▪ INPUT 1 – 10G Ethernet

   ▪ INPUT 2 – HDMI input

   ▪ INPUT 3 – DisplayPort input (for **KDS-8F** only).

   The active input is selected.

Setting Up USB Interface Extension

(i) This section applies only to **KDS-8F.**

KDS-8F enables you to set up USB extension between one **KDS-8F** transceiver connected to a host computer and another **KDS-8F** transceiver connected to USB interface devices such as a mouse, keyboard, and camera. The two transceivers must be connected point-to-point.

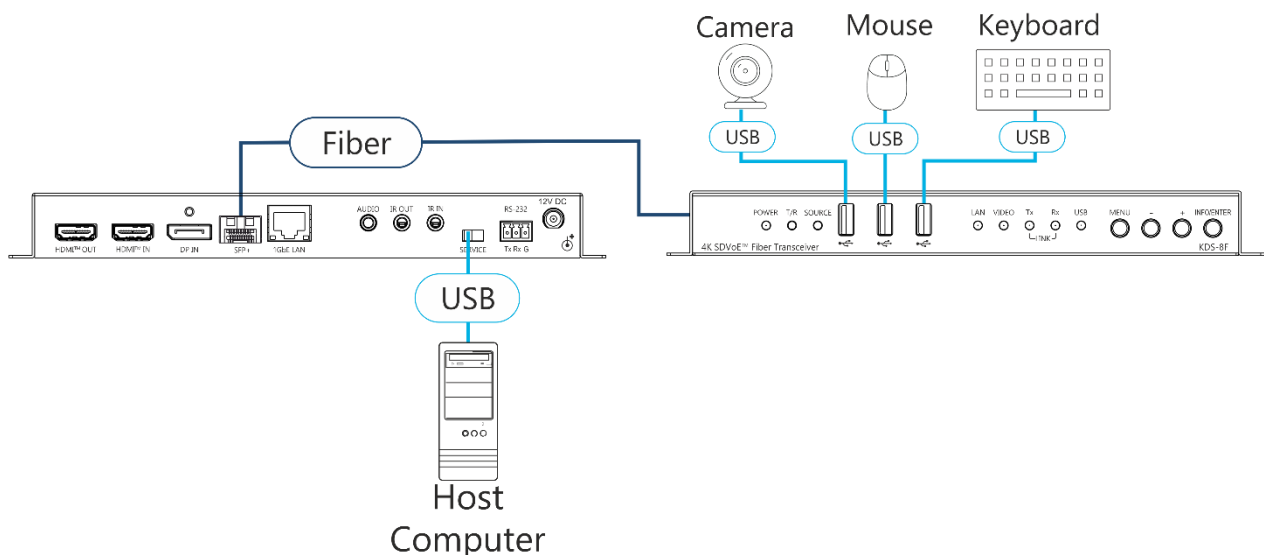
Figure 11: USB Interface Extension

To set up a USB interface extension:

1. Connect two **KDS-8F** transceivers point-to-point with a fiber cable.

2. Connect a host computer to the SERVICE Mini USB Connector ⑱ of one **KDS-8F** transceiver.

3. Connect a camera, mouse, and keyboard to the USB connectors ④ on the front panel of the other **KDS-8F** transceiver.

4. In the OSD of the transceiver connected to the host computer, go to DEVICE SETTINGS > USB CONTROL MODE and select DEVICE.

5. In DEVICE SETTINGS > USB VIRTUAL HUB, select ON.

6. In the OSD of the transceiver that is connected to USB devices, go to DEVICE SETTINGS > USB CONTROL MODE and select HOST.

7. In DEVICE SETTINGS > USB VIRTUAL HUB and select OFF.

   USB interface extension is set up and ready to use.

Setting Overlay Priority

This section is only relevant for a device in decoder mode.

To set on-screen display overlay priority:

1. In the OSD, go to DEVICE SETTINGS > LOCAL PRIORITY.

2. Select ON or OFF.

   Overlay display priority is set.

Resetting Unit

Resetting the device to factory default settings can be accomplished by using:

- Kramer Network Enterprise Management Platform (version 2.2 or higher – go to www.kramerav.com/product/KDS-8 for more information).

- OSD

To reset a unit using the OSD:

1. Go to FACTORY SETTING.
   A confirmation message appears.

Figure 12: Factory Reset Confirmation Message

2. Select YES.
   The device reboots and resets to the factory default settings.

Verifying Device Information

KDS-8 enables you to display and verify the following information:

- Output resolution.

- Whether the device is defined as an encoder or decoder.

- FW Version.

- IP Address.

- MAC address.

- Serial Number.

- Fan Operation Status.

To verify information about KDS-8:

- In the OSD, go to INFORMATION.
  Device information is displayed.

Technical Specifications

KDS-8		
Inputs	1 HDMI	On a female HDMI connector
	1 IR	On a 3.5mm mini jack
Outputs	1 HDMI	On a female HDMI connector
	1 IR	On a 3.5mm mini jack
Ports	1 10GbE Ethernet	On an RJ-45 connector
	1 Unbalanced Stereo Audio	On a 3.5mm mini jack
	1 1GbE Ethernet	On an RJ-45 connector
	1 RS-232	On a 3-pin terminal block connector
KDS-8F		
Inputs	1 HDMI	On a female HDMI connector
	1 DisplayPort	On a female DisplayPort connector
	1 IR	On a 3.5mm mini jack
Outputs	1 HDMI	On a female HDMI connector
	1 IR	On a 3.5mm mini jack
Ports	1 SFP+ Fiber	On LC connector(s) for10GbE Ethernet
	1 Unbalanced Stereo Audio	On a 3.5mm mini jack
	1 1GbE Ethernet	On an RJ-45 connector
	1 RS-232	On a 3-pin terminal block connector
	3 USB	On USB type A connectors
	1 Host Computer	On a mini-USB connector
General		
Video	Standards Compliance	10/12-bit HDR (Point-to-Point and Genlock mode only), HDCP 2.2 &1.4, DVI 1.0,
Extension Line	Signal Compression	Ultra-light compression, lossless for most content
	Maximum Range in Point-to-Point Mode **KDS-8**	Up to 100m (328ft)
	Maximum Range in Point-to-Point Mode **KDS-8F**	Using OM3 multi–mode fiber — 300m (980ft) Using OM4 multi–mode fiber — 550m (1800ft) Using single–mode fiber — 30km (18.6 miles)
Audio	Standards Compliance	Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream and HD Bitstream from HDMI sources
Power	Source	12V DC
	Consumption	**KDS-8:** 3A, **KDS-8F**: 1A
Accessories	Included	Power adapter, multimode SFP+ transceiver module (**KDS-8F** only), rubber feet
	Optional	Single-mode SFP+ transceiver module (**KDS-8F** only)
Environmental Conditions	Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing
	Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing
	Humidity	10% to 90%, non-condensing
Physical **KDS-8**	Product Dimension	23.10cm x 11.60cm x 2.50cm (9.09" x 4.57" x 0.98") W, D, H
	Product Weight	0.5kg (1.1lbs) approx.
	Shipping Dimension	35.10cm x 21.20cm x 7.20cm (13.82" x 8.35" x 2.83") W, D, H
	Shipping Weight	1.2kg (2.6lbs) approx.

Physical **KDS-8F**	Product Dimension	20.00cm x 23.10cm x 2.50cm (7.87" x 9.09" x 0.98") W, D, H
	Product Weight	1.9kg (4.2lbs) approx.
	Shipping Dimension	38.20cm x 20.00cm x 7.00cm (15.04" x 7.87" x 2.76") W, D, H
	Shipping Weight	1.6kg (3.4lbs) approx.
Specifications are subject to change without notice at www.kramerav.com		

The warranty obligations of Kramer Electronics Inc. ("Kramer Electronics") for this product are limited to the terms set forth below:

What is Covered
This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered
This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.
Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long this Coverage Lasts
The standard limited warranty for Kramer products is seven (7) years from the date of original purchase, with the following exceptions:
1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates; all Kramer VIA accessories, adapters, tags, and dongles are covered by a standard one (1) year warranty.
2. Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, ring mounted adapters, portable power chargers, Kramer speakers, and Kramer touch panels are all covered by a standard one (1) year warranty.
3. All Kramer Cobra products, all Kramer Calibre products, all Kramer Minicom digital signage products, all HighSecLabs products, all streaming, and all wireless products are covered by a standard three (3) year warranty.
4. All Sierra Video MultiViewers are covered by a standard five (5) year warranty.
5. Sierra switchers & control panels are covered by a standard seven (7) year warranty (excluding power supplies and fans that are covered for three (3) years).
6. K-Touch software is covered by a standard one (1) year warranty for software updates.
7. All Kramer passive cables are covered by a ten (10) year warranty.

Who is Covered
Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics Will Do
Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:
1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product. If a direct or similar replacement product is supplied, the original product's end warranty date remains unchanged and is transferred to the replacement product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics Will Not Do Under This Limited Warranty
If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy Under This Limited Warranty
To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, visit our web site at www.kramerav.com or contact the Kramer Electronics office nearest you.
In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number). You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.
If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

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Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.

KRAMER

P/N: 2900- 301167   **Rev:** 2

⚠️ **SAFETY WARNING**
Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

www.KramerAV.com

info@KramerAV.com