BLACK BOX KVXLCF-R2 KVX Series DVI KVM Extender Transmitter User Manual

Contents

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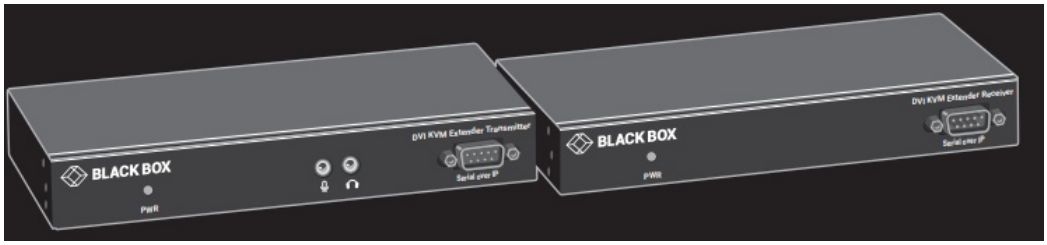

QUICK INSTALLATION GUIDE

Follow these steps to install the extender:

1. If you have the fiber models, install the SFPs in the transmitter and receiver. Compatible SFPs from Black Box

are listed in the table below.

COMPATIBLE SFP MODULES		
PART NUMBER	**DESCRIPTION**	**DISTANCE**
1-GBPS CONNECTIONS		
LFP441	SFP 1.25-Gb, 850-nm Multimode Fiber, LC	550 m
LFP442	SFP 1.25-Gb, 1310-nm Single-mode Fiber, LC	20 km
LFP412	SFP with Extended Diagnostics – 1250-Mbps Multimode Fiber, 1310-nm	2 km
LFP413	SFP with Extended Diagnostics – 1250-Mbps Single-Mode Fiber, 1310-nm	10 km
LFP414	SFP with Extended Diagnostics – 1250-Mbps, Singlemode Fiber, 1310-nm	30 km
LFP416	SFP 1250-Mbps, Extended Diagnostics, 10/100/1000BASE-T, SGMII Interface, RJ-45	100 m

NOTE: Other SFPs may work but have not been validated by Black Box, we recommend you use the suggested SFPs to avoid technical incompatibilities.
NOTE: SFP is not included, must be ordered separately.

2. Connect the video source(s) to the Transmitter (Computer Unit).
3. Connect the monitor(s) to the Receiver unit.
4. Use CATx cables (EIA/TIA 568B industry standard compliant) or fiber cables for connection between Transmitter/Receiver.
5. Apply the proper power to all connecting devices.

NOTES:

- We recommend using the highest quality materials (cables, SFP, etc.) to ensure optimal transmission quality.
- If the screen does not display when you connect the computer:
    1. Make sure the device cables are correctly and firmly attached.
    2. Set your display device's (TV, monitor, etc.) input source as DVI.
    3. Check the PC BIOS configuration of the video output setting.
    4. Connect your video source to the Display DIRECTLY to check if the video signal gets through.

SPECIFICATIONS

	TABLE 1-1. TRANSMITTER SPECIFICATIONS
Console Connection	

Video Output	N/A
Serial Control Port	N/A
Host Connection	
Video Input	KVXLC-100-R2, KVXLCF-100-R2: (1) DVI-D female; KVXLC-200-R2, KVXLCF-200-R2: (2) DVI-D female
Local Out Video Connection	
Local Out	KVXLC-100-R2, KVXLCF-100-R2: (1) DVI-D female; KVXLC-200-R2, KVXLCF-200-R2: (2) DVI-D female
Link Port	
RJ-45	KVXLC-100-R2: (1) RJ-45 using CATx cable – max. length: 330 feet (100 meters); KVXLC-200-R2: (2) RJ-45 using CATx cable – max. length: 330 feet (100 meters)
SFP	KVXLCF-100-R2: (1) SFP cage using Fiberoptic cable – max. length: 18.6 miles (30 km), depending on SFP; KVXLCF-200-R2: (2) SFP cages using Fiberoptic cable – max. length: 18.6 miles (30 km), depending on SFP NOTE: SFP is not included. Must be ordered separately.
USB Interface	
Host	(1) USB Type B female
Device	N/A
Audio	
2-way analog audio	(1) Line In, (1) Line Out
General	
LED indicator	Power: White LED
DDC Supported	DDC, DDC2, DDC2B
Max. Video Resolution	1920 x 1200 @ 60 Hz
OS Compatibility	OS Independent
Housing material	Chassis Metal
Operating Temperature	32 to 122° F (0 to 50° C)
Storage Temperature	-4 to +140° F (-20 to +60° C)
Relative Humidity	0 to 80%
Power Supply	External 5-VDC, 2-A power supply

Dimensions	KVXLC-100-R2, KVXLCF-100-R2 transmitters: 1.06″ H x 7.09″ W x 3.27″ D (2.7 x 18.0 x 8.3 cm); KVXLC-200-R2, KVXLCF-200-R2 transmitters: 1.71″ H x 7.09″ W x 3.27″ D (4.4 x 18.0 x 8.3 cm)
Weight	KVXLC-100-R2 transmitter: 0.79 lb. (0.36 kg); KVXLCF-100-R2 transmitter: 0.77 lb. (0.35 kg); KVXLC-200-R2, KVXLCF-200-R2 transmitter: 1.12 lb. (0.51 kg)

	TABLE 1-2. RECEIVER SPECIFICATIONS
Console Connection	
Video Output	KVXLC-100-R2, KVXLCF-100-R2: (1) DVI-D female; KVXLC-200-R2, KVXLCF-200-R2: (2) DVI-D female
Serial Control Port	(1) DB9 male
Host Connection	
Video Input	N/A
Link Port	
RJ-45	KVXLC-100-R2: (1) RJ-45 using CATx cable – max. length: 330 feet (100 meters); KVXLC-200-R2: (2) RJ-45 using CATx cable – max. length: 330 feet (100 meters)
SFP	KVXLCF-100-R2: (1) SFP cage using Fiberoptic cable – max. length: 18.6 miles (30 km), depending on SFP; KVXLCF-200:-R2 (2) SFP cages using Fiberoptic cable – max. length: 18.6 miles (30 km), depending on SFP NOTE: SFP is not included. Must be ordered separately.
USB Interface	
Host	N/A
Device	(2) USB 2.0 Type A female for USB device extension; (2) USB HID ports for keyboard and mouse
Audio	
2-way analog audio	(1) MIC In, (1) Speaker Out
General	
LED indicator	Power: White LED
DDC Supported	DDC, DDC2, DDC2B
Max. Video Resolution	1920 x 1200 @ 60 Hz

OS Compatibility	OS Independent
Housing material	Chassis Metal
Operating Temperature	32 to 122° F (0 to 50° C)
Storage Temperature	-4 to +140° F (-20 to +60° C)
Relative Humidity	0 to 80%
Power Supply	External 5-VDC, 2-A power supply
Dimensions	KVXLC-100-R2, KVXLCF-100-R2 receivers: 1.06” H x 7.09” W x 3.27” D (2.7 x 18.0 x 8.3 cm); KVXLC-200-R2, KVXLCF-200-R2 receivers: 1.71” H x 7.09” W x 3.27” D (4.4 x 18.0 x 8.3 cm)
Weight	KVXLC-100-R2 receiver: 0.84 lb. (0.38 kg); KVXLCF-100-R2 receiver: 0.81 lb. (0.37 kg); KVXLC-200-R2, KVXLCF-200-R2 receiver: 1.12 lb. (0.51 kg)

OVERVIEW

INTRODUCTION

The KVX Series DVI KVM Extender enables you to locally use one or two DVI monitors, USB keyboard/mouse/other devices, speaker, and microphone to operate a remote computer, server or other IT device. There are four models of the KVX Series DVI KVM Extender: a single-head KVXLC-100-R2 and dual-head KVXLC-200-R2 version via a CATx link, and a single-head KVXLCF-100-R2 and dual-head KVXLCF-200-R2 version via a fiberoptic link. Each extender consists of a transmitter (TX) and a receiver (RX).

FEATURES

- Š Supports DVI input/output video quality up to 1920 x 1200 @ 60 Hz.
- Š Provides remote access for video/USB/RS-232/audio extension distance up to 330 feet (100 meters) over CATx cable for model KVXLC-100-R2 or KVXLC-200-R2; up to 18.6 miles (30 km) over fiberoptic cable for model KVXLCF-100-R2 or KVXLCF-200-R2, depending on the SFP used.
- The DVI KVM Console Extender lets you control a server, or computer over single-mode or multimode fiber optic cable at distances of up to 30 km (depending on the SFP used, fiber type, and fiber bandwidth*).
- Single-head models with (1) DVI connector and dual-head models with (2) DVI connectors are available.
- Offers transparent USB 2.0/1.1 extension.
- Uses analog audio LINE-IN/LINE-OUT extension.
- Supports bi-directional RS-232 control communication.
- Firmware upgradable.

  ***NOTE:** Reference the supported SFP chart on page 3.

WHAT’S INCLUDED

- **KVXLC-100-R2:**
  - Š (1) Transmitter (TX)

- Š (1) Receiver (RX)
- (2) 5V, 2A Power Supplies (includes US, EU, and UK plug types)
- (1) DVI-D cable 1.8m (6 ft.)
- (1) 3.5mm audio cable 1.8m (6 ft.)
- (1) USB-B to USB-A cable 1.8m (6 ft.)
- (2) Deskmount Kits with Screws (KVXLC-DMK)

- **KVXLCF-100-R2:**
  - Š (1) Transmitter (TX)
  - Š (1) Receiver (RX)
  - (2) 5V, 2A Power Supplies (includes US, EU, and UK plug types)
  - (1) DVI-D cable , M/M 1.8m (6 ft.)
  - (1) USB Type A to B cable, M/M 1.8m (6 ft.)
  - (1) 3.5mm Dual Audio/Mic cable, M/M 1.8m (6 ft.)
  - (2) Deskmount Kits with Screws (KVXLC-DMK)

ARDWARE DESCRIPTION

- **TRANSMITTER**
  - **FRONT PANEL**

    Figure 2-1 shows the front panel that is common to the single-head CATx and fiber transmitters. Table 2-1 describes its components.

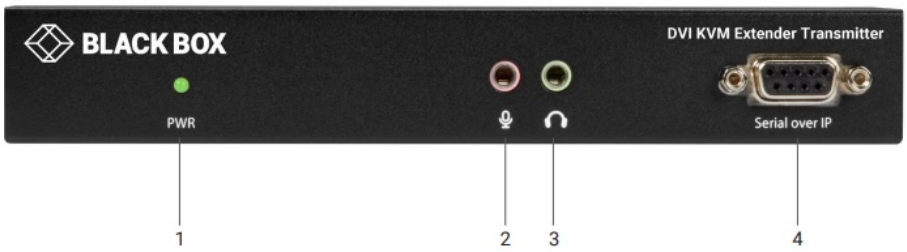

FIGURE 2-1. TRANSMITTER FRONT PANEL

Figure 2-2 shows the front panel that is common to the dual-head CATx and fiber transmitters. Table 2-1 describes its components.

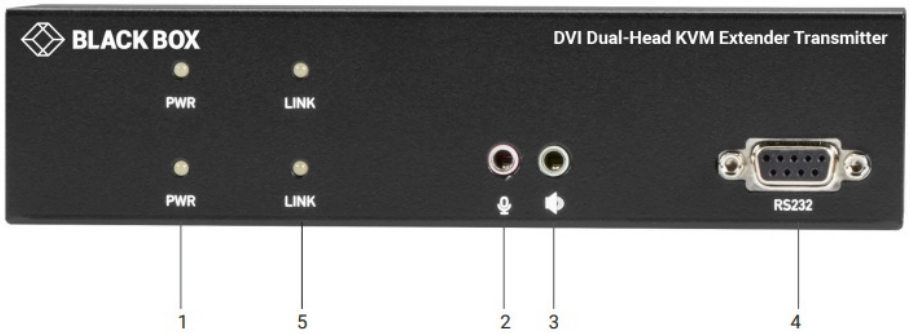

FIGURE 2-2. DUAL-HEAD TRANSMITTER FRONT PANEL

NUMBER IN FIGURE 2-1 OR 2-2	COMPONENT	DESCRIPTION
1	PWR LED	Lights when power to the transmitter is ON
2	Audio jack	Connects to analog audio input for audio extension
3	Audio jack	Connects to analog audio output for audio extension
4	DB9 female connector	Connects to source device's RS-232 port for serial extension
5	Link LED	Lights when the TX/RX link is active

- **BACK PANEL**

  Figures 2-3 and 2-4 show the back panels of the single-head CATx and fiber transmitters. Table 2-2 describes their components.

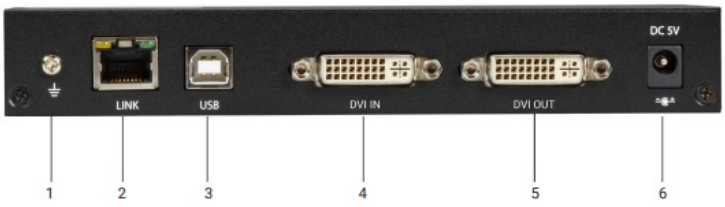

FIGURE 2-3. SINGLE-HEAD CATX TRANSMITTER BACK PANEL

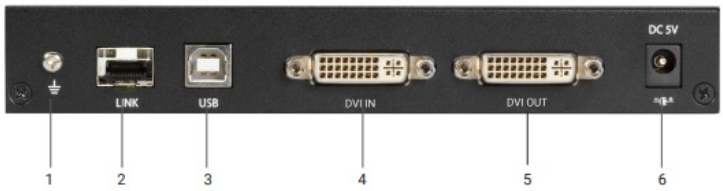

FIGURE 2-4. SINGLE-HEAD FIBER TRANSMITTER BACK PANEL

NUMBER IN FIGURE 2-3 OR 2-4	COMPONENT	DESCRIPTION
1	Ground screw	Links to ground
2	For CATx model: RJ-45 connector For Fiber model: SFP c age	For CATx Model: CATx link For Fiber model: Install fiber SFP module here
3	USB Type B connector	Connects to source device’s USB port
4	DVI In port	Connects to source device’s signal for DVI extension
5	DVI Out port	Connects to local out
6	Power connector	Links to 5-VDC power supply

Figures 2-5 and 2-6 show the back panels of the dual-head CATx and fiber transmitters. Table 2-3 describes their components.

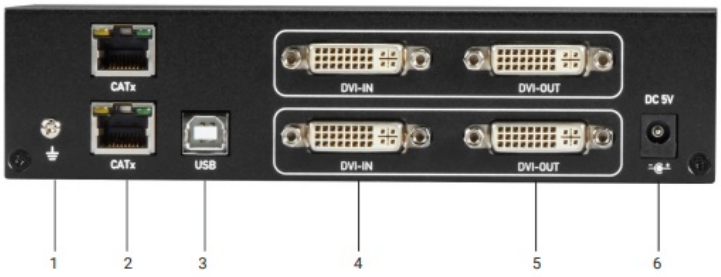

FIGURE 2-5. DUAL-HEAD CATX TRANSMITTER BACK PANEL

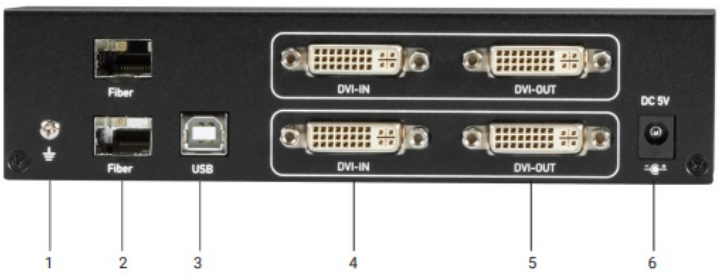

FIGURE 2-6. DUAL-HEAD FIBER TRANSMITTER BACK PANEL

TABLE 2-3. DUAL-HEAD TRANSMITTER BACK-PANEL COMPONENTS		
NUMBER IN FIGURE 2-5 OR 2-6	COMPONENT	DESCRIPTION
1	Ground screw	Links to ground
2	For CATx model: (2) RJ-45 connectors For Fiber model: (2) SFP cages	For CATx Model: CATx links For Fiber model: Install fiber SFP modules here
3	USB Type B connector	Connects to source device's USB port
4	(2) DVI In ports	Connect to source devices' signals for DVI extension
5	(2) DVI Out ports	Connect to local out
6	Power connector	Links to 5-VDC power supply

- **RECEIVER**
  - **FRONT PANEL**

    Figure 2-7 shows the front panel that is common to the single-head CATx and fiber receivers. Figure 2-8 shows the front panel that is common to the dual-head CATx and fiber receivers. Table 2-4 describes the components.

FIGURE 2-7. SINGLE-HEAD RECEIVER FRONT PANEL

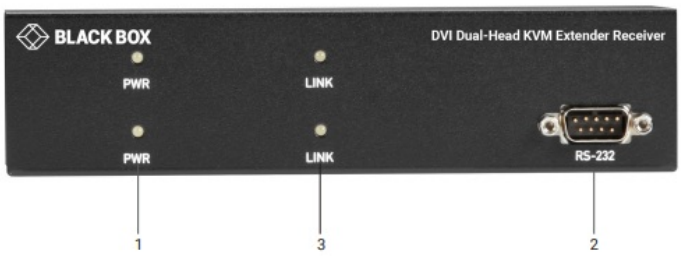

FIGURE 2-8. DUAL-HEAD RECEIVER FRONT PANEL

TABLE 2-4. RECEIVER FRONT-PANEL COMPONENTS		
NUMBER IN FIGURE 2-7 OR 2-8	COMPONENT	DESCRIPTION
1	PWR LED	Lights when power to the receiver is ON
2	DB9 male connector	Connects to sink device's RS-232 port for serial extension
3	Link LED	Lights when the TX/RX link is active

- **BACK PANEL**

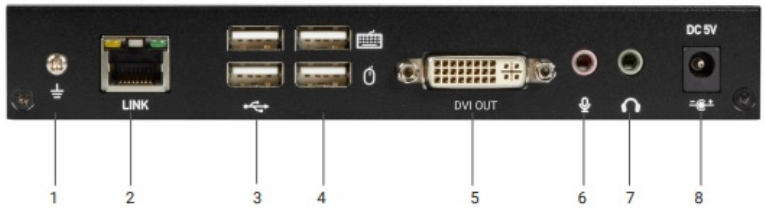

FIGURE 2-9. SINGLE-HEAD CATX RECEIVER BACK PANEL

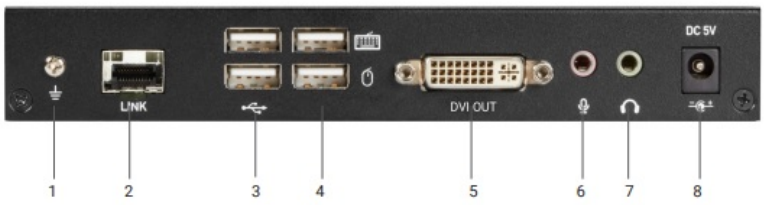

FIGURE 2-10. SINGLE-HEAD FIBER RECEIVER BACK PANEL

NUMBER IN FIGURE 2-9 OR 2-10	COMPONENT	DESCRIPTION
1	Ground screw	Links to ground
2	For CATx model: (1) RJ-45 connector For Fiber model: (1) SFP cage	For CATx Model: CATx link For Fiber model: Install fiber SFP module here
3	(2) USB 2.0 ports	Connects to USB device's ports for extension
4	(2) USB HID ports	Connects to USB keyboard and mouse
5	DVI Out port	Connects to sink device's signal for DVI extension
6	Audio jack	Links to analog audio input for audio extension
7	Audio jack	Links to analog audio output for audio extension
8	Power connector	Links to 5-VDC power supply

Figures 2-11 and 2-12 show the back panels of the dual-head CATx and fiber receivers. Table 2-6 describes their components.

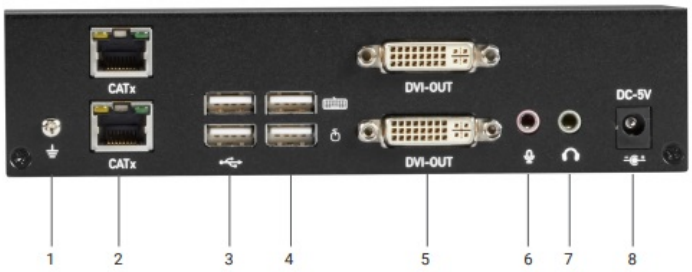

FIGURE 2-11. DUAL-HEAD CATX RECEIVER BACK PANEL

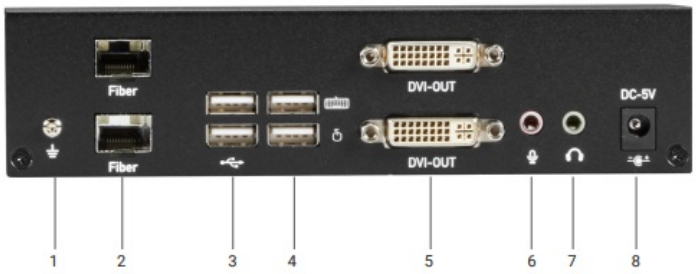

FIGURE 2-12. DUAL-HEAD FIBER RECEIVER BACK PANEL

NUMBER IN FIGURE 2-11 OR 2-12	COMPONENT	DESCRIPTION
1	Ground screw	Links to ground
2	For CATx model: (2) RJ-45 connectors For Fiber model: (2) SFP cages	For CATx Model: CATx links For Fiber model: Install fiber SFP modules here
3	(2) USB 2.0 ports	Connects to USB device's ports for extension
4	(2) USB HID ports	Connects to USB keyboard and mouse
5	(2) DVI Out ports	Connect to sink devices' signals for DVI extension
6	Audio jack	Links to analog audio input for audio extension
7	Audio jack	Links to analog audio output for audio extension
8	Power connector	Links to 5-VDC power supply

CONNECTION DIAGRAM

Figures 3-1 and 3-2 show a typical connection.

Figures 3-1 and 3-2 show a typical connection.

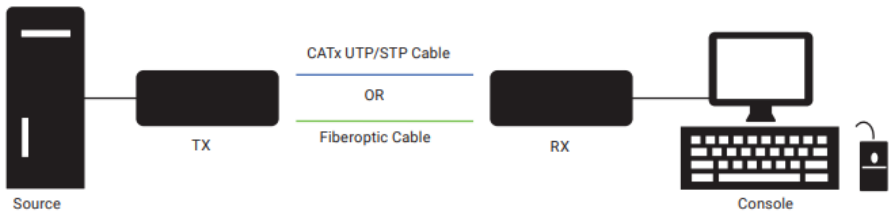

FIGURE 3-1. SINGLE-HEAD CONNECTION DIAGRAM

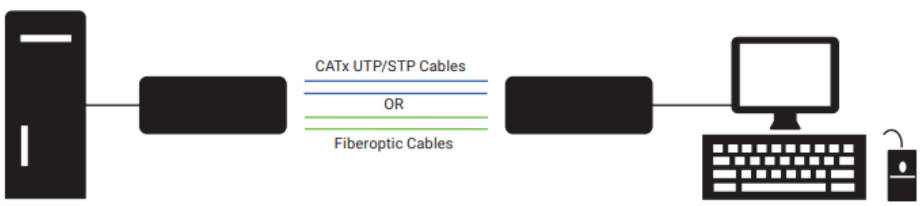

FIGURE 3-2. DUAL-HEAD CONNECTION DIAGRAM

For dual-head fiber setups, two SFPs are required per unit (4 totals SFPs) to support both heads. Refer to Figure 3-3 for proper connection.

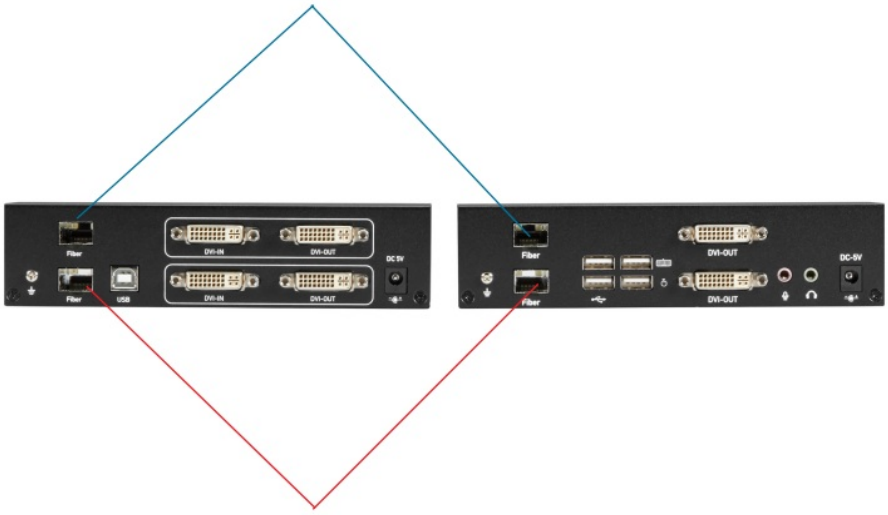

FIGURE 3-3. DUAL-HEAD FIBER SFP CONNECTION DIAGRAM

INSTALLATION

FACTORY DEFAULT SETTINGS

Below are the factory default baud rate settings for the DVI KVM Extender's serial ports.

- **Š Baud rate:** 115,200 bps
- **Š Data bits:** 8
- **Parity:** None
- **Stop bits:** 1

REGULATORY INFORMATION

FCC CLASS A STATEMENT

- This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio
- Interference Regulation of Industry Canada.

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- **DISCLAIMER**

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Documents / Resources

	BLACK BOX KVXLCF-R2 KVX Series DVI KVM Extender Transmitter [pdf] User Manual KVXLC-100-R2, KVXLCF-100-R2, KVXLC-200-R2, KVXLCF-200-R2, KVXLCF-R2, KVX Series, DVI KVM Extender Transmitter, KVX Series DVI KVM Extender Transmitter, KVXLCF-R2 KVX Series DVI KVM Extender Transmitter

References

- User Manual