

※ No compression

4K

3840x2160 HDMI1.4 DVI1.0

※ No latency

※ 10.2G SerDes



※ Clock Data Recovery



※ EDID Learning



※ Mouse,Keyboard,Touch Screen



※ Audio In and Audio Out



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4K HDMI KVM Fiber Optic Extender

(with 2-ways Audio and PC remote control)

Model: KHX-5247T/R-X0

Datasheet (Release V1.0)



Features

- ※ Real-time direct transmission technology,no video compression, no signal delay
- ※ Supports HDMI v1.4,DVI 1.0,single link, up to 3.4 Gbps/color,10.2 Gbps total
- ※ Applies duplex fiber or single fiber to connect the transmitter and the receiver
- ※ Supports lossless 4K video up to 3840x2160/30P,4096x2160/24P,3840x2160/60P(4:2:0),4096*2160/60P(4:2:0), 1920x1080/60P, Compatible with other VESA standard resolutions and user-defined resolutions
- ※ Support 3840*2160/30P resolution with color depth up to 8 bits/pixe
- ※ Support HDMI bit-rates up to 3.4 Gbps/color,10.2 Gbps total
- ※ HDCP/EDID pass-through is not supported,Support 3D TV pass-through
- ※ Support EDID learning,transmitter includes EDID memory to cache the EDID from any display
- ※ Transmitter Support Stereo Audio in,and HDMI audio decoding output(SPDIF out and Stereo Audio out)
- ※ Automatic switching between external Stereo Audio in and HDMI internal audio
- ※ Receiver Support HDMI audio decoding output(SPDIF out and Stereo Audio out)
- ※ Receiver Support Stereo Audio return
- ※ Support USB Mouse,USB Keyboard or USB Touch Screen
- ※ Support PC remote control,such as "Power on/off" and "Reset", extension for Power LED and HDD LED
- ※ Receiver built-in Re-time chip, jitter Cleaning for best compliance
- ※ Supports ultra long distance transmission up to 80 km*(default SFP+ only 1.4km)
- ※ Low RFI / EMI profile for sensitive applications
- ※ Plug-and-play,Hot-pluggable,Rack-mountable

Note:The maximum transmission distance may vary depending on the fiber type, bandwidth, connector splicing, losses, model, chromatic dispersion, environmental factor,and kinks.

Applications

- ※ KVM Seat Collaboration Manage System
- ※ Remote monitor for traffic, industrial, military control
- ※ Airplane On-board Video System
- ※ Passenger Information System
- ※ Factory assembly line
- ※ TV Broadcast Station
- ※ LED signboards in streets and in stadiums
- ※ Large video wall system
- ※ LCD, Projector, Plasma display connection
- ※ Medical Imaging Equipment
- ※ Conference Room Video Equipment
- ※ Home Theater

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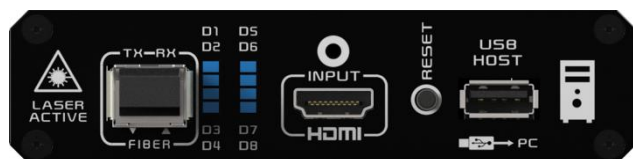
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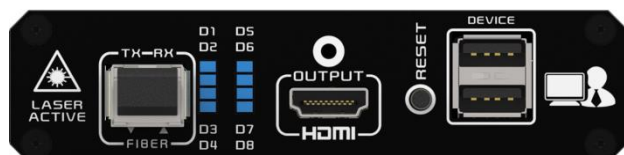
Specification

Video	HDMI v1.4,DVI 1.0
Max. Pixel Clock	340 MHz
Max. Data Rate	10.2 Gbps (3.4 Gbps Per Lane)
Max. Resolution	3840x2160/60P(YCbCr 420),4096*2160/60P(YCbCr 420) 3840x2160/30P,4096x2160/24P, 1920x1200/60P,1920x1080/60P, Compatible with other VESA standard resolutions and user-defined resolutions
Digital Audio Support	7.1 channel LPCM, 192 KHz, 24-bit
Connections	
HDMI Input / Output	TX: 1 x HDMI Type A Female RX: 1 x HDMI Type A Female
FIBER	1x SFP+
Audio	Transmitter:1x Stereo Jack Female(Green),1x Stereo Jack Female(Blue),1x RCA Receiver:1x Stereo Jack Female(Green), 1x RCA
Fiber Optics	
Fiber Cable Type /Max. Length	50/125μ OM3: ≤300m (Default)
	9/125μ Single mode fiber: ≤1.4km (Default)
	9/125μ Single mode fiber: ≤80km (Max. Length)
Control	
KVM	USB Mouse x1, USB Keyboard x1 or USB Touch Screen x1
Audio	Transmitter: Stereo Audio in,and HDMI audio decoding output(SPDIF and Stereo Audio out) Receiver : HDMI audio output(SPDIF out and Stereo Audio out) and Stereo Audio return
PC REMOTE CONTROL	“Power on/off” and “Reset”, extension for Power LED and HDD LED
DDC (Digital Display Channel) /HDCP	
EDID	EDID Quick Copy,User-programmable EDID memory, eliminates the need for DDC connection
HDCP	N/A
Physical Properties	
Housing	Alufer enclosure
Dimensions (W x D x H)	117.4mm x 114mm x 29 mm (without bracket) 160.4mm x 114mm x 29 mm (with bracket)
Weight	KHX-5247T: 400g KHX-5247R: 450g
Environmental	
Operating Temperature	0 to +50° C
Storage Temperature	-40°C to +85°C
Operating Humidity	5% to 80% (non-condensing)
Storage Humidity	5% to 95% (non-condensing)
Power Requirements	
External AC Power Adapter	Input: 100-240VAC / 50-60Hz 0.2A Output: DC 5V, 2.0A 5/2.5mm jack
Power Consumption	KHX-5247T: 5 W KHX-5247R: 5W
Warranty	
Limited Warranty	2 year warranty

TRANSMITTER

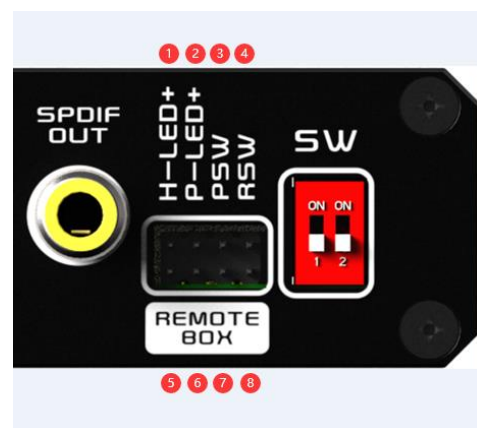
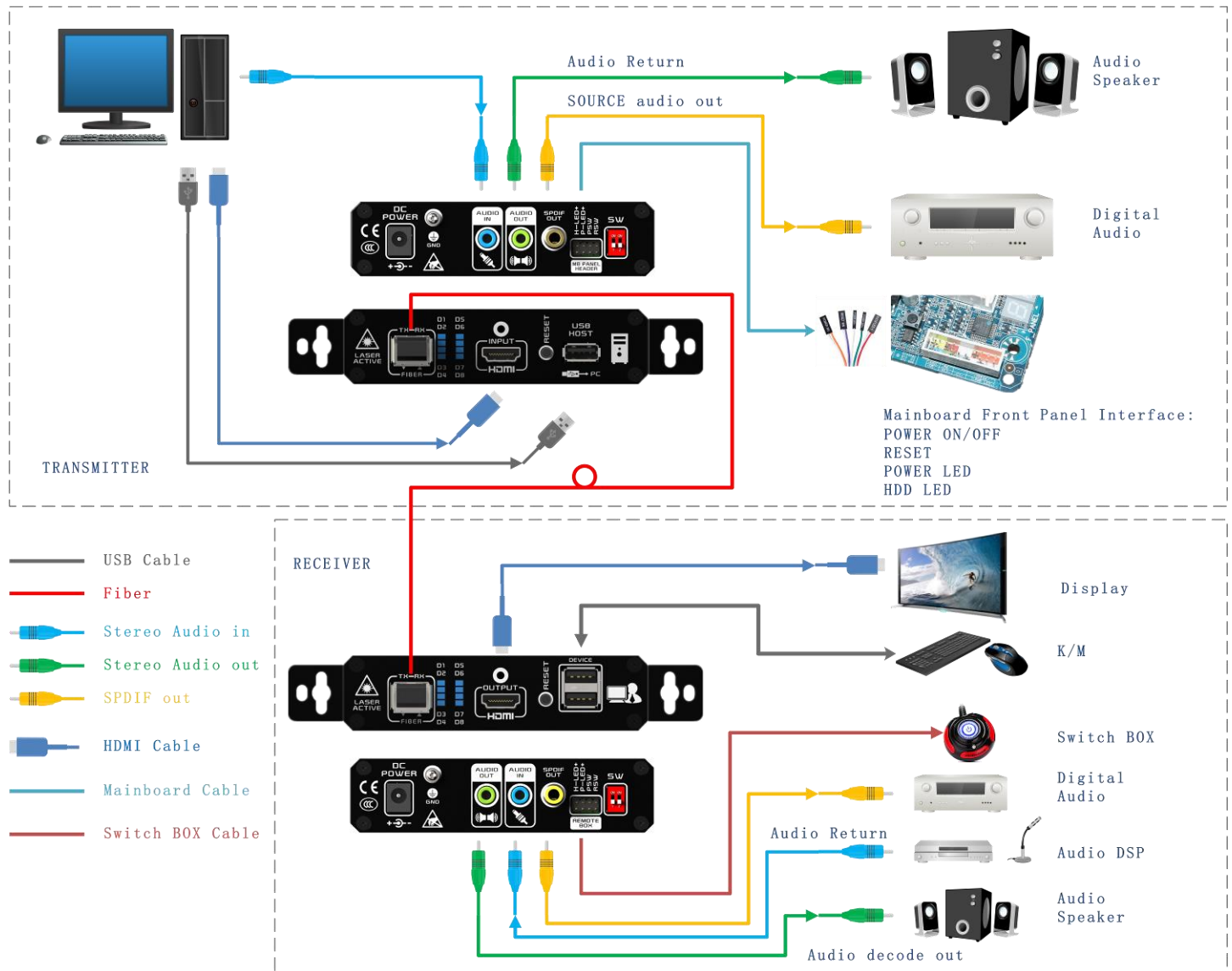


RECEIVER

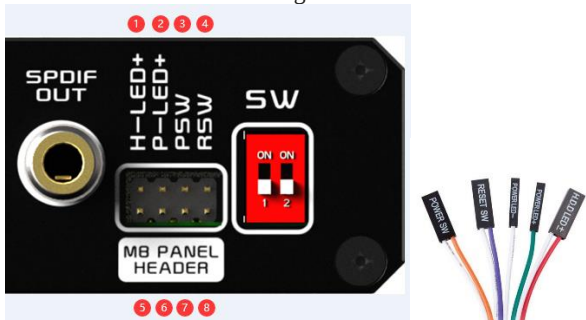


Port	TRANSMITTER	RECEIVER
HDMI Port	HDMI INPUT: HDMI signal input	HDMI OUTPUT: HDMI signal output
RESET	System reset botton /EDID R/W botton	System reset botton
POWER	Power adapter socket	Power adapter socket
FIBER	SFP+ Module Cage	SFP+ Module Cage
USB	Connect to PC USB Host Controller	USB Keyboard x1 and USB Mouse x1 or USB Touch Screen x1
Audio	Stereo Jack Female(Blue):Stereo Audio in Stereo Jack Female(Green): Stereo Audio out RCA Jack:SPDIF out	Stereo Jack Female(Green): Stereo Audio out Stereo Jack Female(Blue):Stereo Audio in RCA Jack:SPDIF out
PC REMOTE CONTROL	MB PANEL HEADER（Mainboard Front Panel Interface）	REMOTE BOX（Switch BOX）
	H-LED+: HDD LED+,other HDD LED- P-LED+: POWER LED+,other POWER LED- PSW: POWER ON Button RSW: RESET Button	H-LED+: HDD LED+,other HDD LED- P-LED+: POWER LED+,other POWER LED- PSW: POWER ON Button RSW: RESET Button
GND	Equipment grounding should be connected to the lightning protection grounding or static grounding of the machine room	
LED indicator		
D1	ON: Power on OFF: Power off	ON: Power on OFF: Power off
D2	ON: External audio OFF: HDMI Internal audio EDID Copy: When the monitor is connected to the HDMI input, press the reset button, the LED will flash rapidly for 32 times, and the LED will turn off after the copy is successful	Reserve
D3	OFF:SFP+ RX is normal ON: SFP+ RX lost Optical signal	OFF:SFP+ RX is normal ON: SFP+ RX lost Optical signal
D4	ON: Source connected Blinking:Output signal	ON: Monitor connected Blinking:Output signal
D5	ON: SFP+ TX is normal OFF: SFP+ TX is Fault	ON: SFP+ TX is normal OFF: SFP+ TX is Fault
D6	ON:USB Device1 Link OK Blinking:Commuication	ON:USB Device1 Link OK Blinking:Commuication
D7	ON:USB Device2 Link OK Blinking:Commuication	ON:USB Device2 Link OK Blinking:Commuication
D8	ON: Error OFF:Normal	ON: Error OFF:Normal

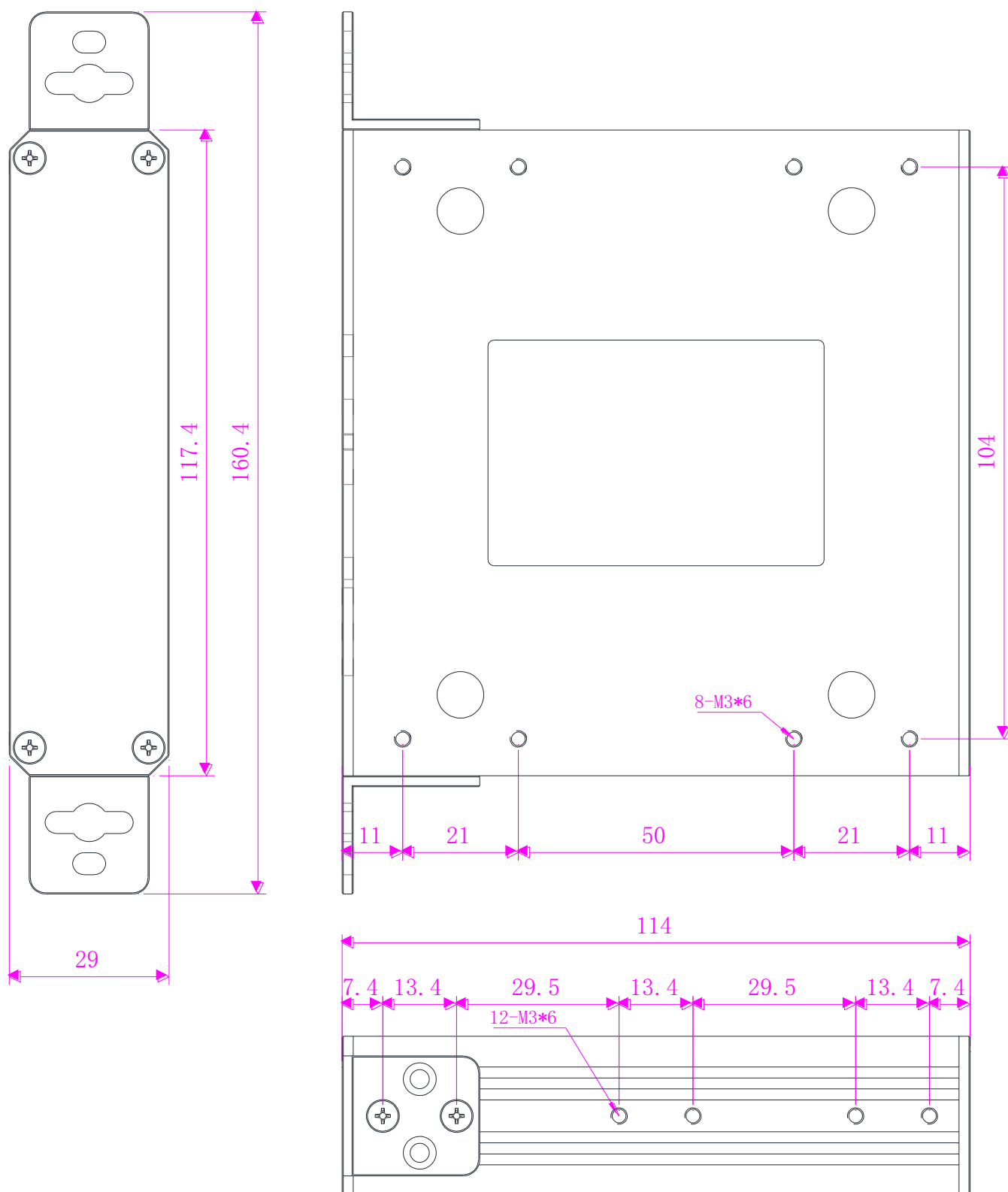
Diagram



Instructions

Video	
1.	TX: Connect the source device's HDMI Out port to the TX unit.
2.	RX: Use an HDMI cable to connect your video display to the HDMI Out port on the RX unit.
Fiber	
3.	Plug the SFP+ Modules to the Optical Ports on your TX unit and RX unit, and then connect the two SFP+ modules using a duplex fiber optic cable.
EDID Copy	
4.	1. Connect your display to the TX unit. Power on the TX unit, display. 2. pressing the reset button, D2 indicator will flash for a few seconds, The D2 turn off indicates that the program is completed. 3. Connect your source device to the TX unit. Connect your display to the RX unit, Power on the TX unit and RX unit again.
Keyboard and Mouse	
5.	1. Use an USB cable to connect PC USB port to the TRANSMITTER usb host port. 2. Plug the Keyboard and Mouse to the RECEIVER USB device port.
Audio	
6.	TRANSMITTER unit: 1. Connect the source device's Audio Out port to the Stereo Audio In(Blue). 2. Connect the Stereo Audio Out and SPDIF out port to the audio device's Audio in. RECEIVER unit: 2. Connect the Stereo Audio Out and SPDIF out port to the audio device's Audio in.
PC REMOTE CONTROL	
7.	MB PANEL HEADER (Mainboard Front Panel Interface) MB PANEL HEADER can be used to be connected to the Mainboard Front Panel Interface, such as power on/off button and indicator as designed.  (1) HDD Indicator (1,5pin HDD LED, the 1st pin is positive of LED). (2) Power Indicator (2,6pin POWER LED, the 2nd pin is positive of LED) When the system is powered on, the power indicator light; When the system is powered down, the power light does not shine. (3) Reset button (3,7pin RESET BUTTON) System failure can not continue to work, can start working again by Reset. (4) POWER BUTTON (4,8pin POWER BUTTON) These two pins connected to bounce switch on the front panel can be used to connect or disconnect the power. REMOTE BOX (Switch BOX) REMOTE BOX header can be used to be connected to the Switch BOX, such as power on/off button and indicator as designed.  (1) HDD Indicator (1,5pin HDD LED, the 1st pin is positive of LED) Hard disk during read and write operations, the indicating lamp will flicker, hard disk is running. (2) Power Indicator (2,6pin POWER LED, the 2nd pin is positive of LED) When the system is powered on, the power indicator light; When the system is powered down, the power light does not shine. (3) Reset button (3,7pin RESET BUTTON) System failure can not continue to work, can start working again by Reset. (4) POWER BUTTON (4,8pin POWER BUTTON) These two pins connected to bounce switch on the front panel can be used to connect or disconnect the power.
Power	
8.	Plug the Power Adapter cable into the Power Jack on the TX unit and RX unit. Power on the TX unit, RX unit, and the connected devices.
Reset	
9.	If the Extender fault during operation, the system can be reset by pressing the reset button, which can solve some Extender faults. If the fault cannot be eliminated by pressing the reset button, please power on the equipment again.

Dimensions (mm)



Packing list

The 4K HDMI KVM Fiber Optic Extender ships with the items listed below. If any of these items are not present in the box when you first open it, immediately contact your dealer or Smartopcom.

- ※ 1 x KHX-5247T (TX)
- ※ 1 x KHX-5247R (RX)
- ※ 2 x 5V/2A DC Power adapter
- ※ 1 x 0.6m USB2.0 Male A-Male A Cable
- ※ 1 x Datasheet

Ordering information

P/N	Description
KHX-5246T/R	Duplex Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,300m
KHX-5247T/R-D1.4	Duplex Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,1.4Km
KHX-5247T/R-D10	Duplex Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,10Km
KHX-5247T/R-D20	Duplex Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,20Km
KHX-5247T/R-D40	Duplex Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,40Km
KHX-5247T/R-D60	Duplex Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,60Km
KHX-5247T/R-D80	Duplex Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,80Km
KHX-5247T/R-S10	Single Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,10Km
KHX-5247T/R-S20	Single Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,20Km
KHX-5247T/R-S40	Single Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,40Km
KHX-5247T/R-S60	Single Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,60Km
KHX-5247T/R-S80	Single Fiber 4K HDMI KVM Fiber Optic Extender with 2-ways Audio and PC remote control,80Km
FSE-01	Bracket

Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your.
13. hands are wet or damp. Do not expose this product to rain or moisture.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Unplug this apparatus during lightning storms or when unused for long periods of time.
16. Batteries that may be included with this product and/or accessories should never be exposed to open flame or excessive heat. Always dispose of used batteries according to the instructions.

Rack Mounting

1. Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.
2. Always load the rack from the bottom up, and load the heaviest item in the rack first.
3. Make sure that the rack is level and stable before extending a device from the rack.
4. Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.
5. Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.
6. Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.
7. Ensure that proper airflow is provided to devices in the rack.
8. Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer.
9. Do not step on or stand on any device when servicing other devices in a rack.