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※ No compression

**4K**

3840x2160 HDMI1.4 DVI1.0

※ No latency

※ 10.2G SerDes



※ Clock Data Recovery



※ HDCP/EDID Passthrough



※ Mouse,Keyboard,Touch Screen



※ Audio In and Audio Out



※ 4K Local Loop Out



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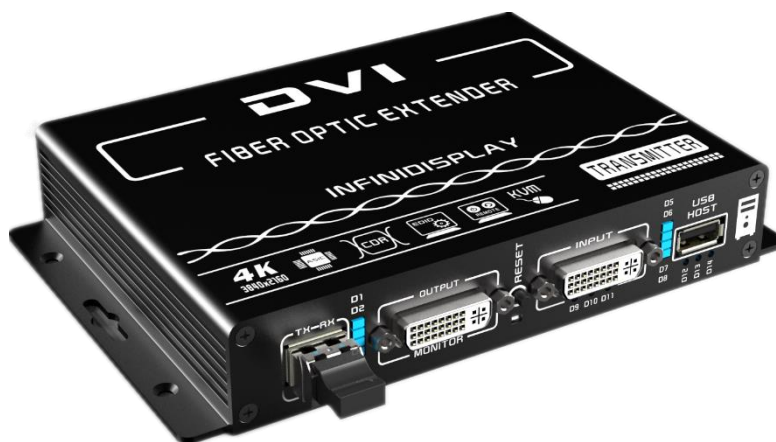
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## 4K DVI KVM Fiber Optic Extender

(With PC Remote Control)

Model: KDX-2541T/R

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 1.4 Compatible
- ※ EDID pass-through,Support 3D TV pass-through
- ※ 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
- ※ Up to 300m by 9/125μm Single-Mode Fiber or Multimode 50/125μm OM3-300
- ※ 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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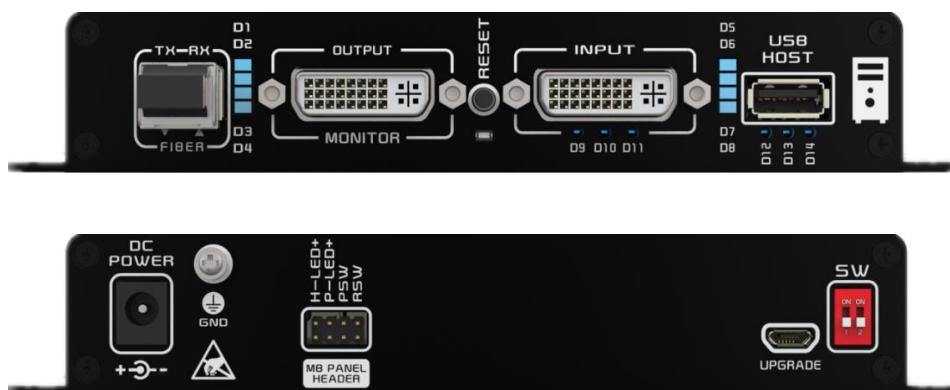
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## Specification

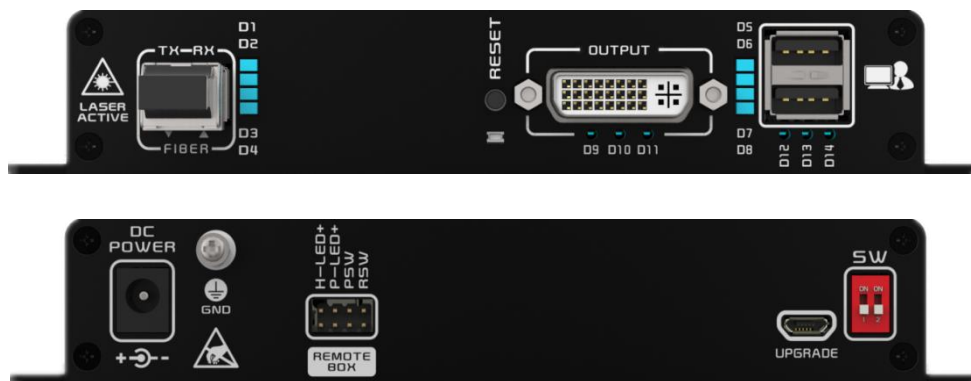
|                                     |                                                                                                                                                                                                |  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Video                               | HDMI v1.4,HDCP 1.4,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)<br>3840x2160/30P,4096x2160/24P, 1920x1200/60P,1920x1080/60P,<br>Compatible with other VESA standard resolutions and user-defined resolutions |  |
| Digital Audio Support               | 7.1 channel LPCM, 192 kHz, 24-bit                                                                                                                                                              |  |
| Connections                         |                                                                                                                                                                                                |  |
| DVI Input / Output                  | TX: 2 x DVI 24+1 Female      RX: 1 x DVI 24+1 Female                                                                                                                                           |  |
| FIBER                               | 1x SFP+                                                                                                                                                                                        |  |
| Fiber Optics                        |                                                                                                                                                                                                |  |
| Fiber Cable Type /Max. Length       | 50/125μm OM3: ≤300m (Default)                                                                                                                                                                  |  |
|                                     | 9/125μm Single mode fiber: ≤300m (Default)                                                                                                                                                     |  |
| Control                             |                                                                                                                                                                                                |  |
| KVM                                 | USB Mouse x1, USB Keyboard x1 or USB Touch Screen x1                                                                                                                                           |  |
| Audio                               | N/A                                                                                                                                                                                            |  |
| IR/RS232/RS485/CEC                  | N/A                                                                                                                                                                                            |  |
| DDC (Digital Display Channel) /HDCP |                                                                                                                                                                                                |  |
| EDID                                | Passthrough                                                                                                                                                                                    |  |
| HDCP                                | Passthrough                                                                                                                                                                                    |  |
| Physical Properties                 |                                                                                                                                                                                                |  |
| Housing                             | Alufer enclosure                                                                                                                                                                               |  |
| Dimensions (W x D x H)              | 175mm x 110 mm x 29.5 mm                                                                                                                                                                       |  |
| Weight                              | KDX-2541T: 450g      KDX-2541R: 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<br>Output: DC 5V, 2.0A    5/2.5mm jack                                                                                                                        |  |
| Power Consumption                   | KDX-2541T: 5 W      KDX-2541R: 5W                                                                                                                                                              |  |
| Warranty                            |                                                                                                                                                                                                |  |
| Limited Warranty                    | 2 year warranty                                                                                                                                                                                |  |

## TRANSMITTER



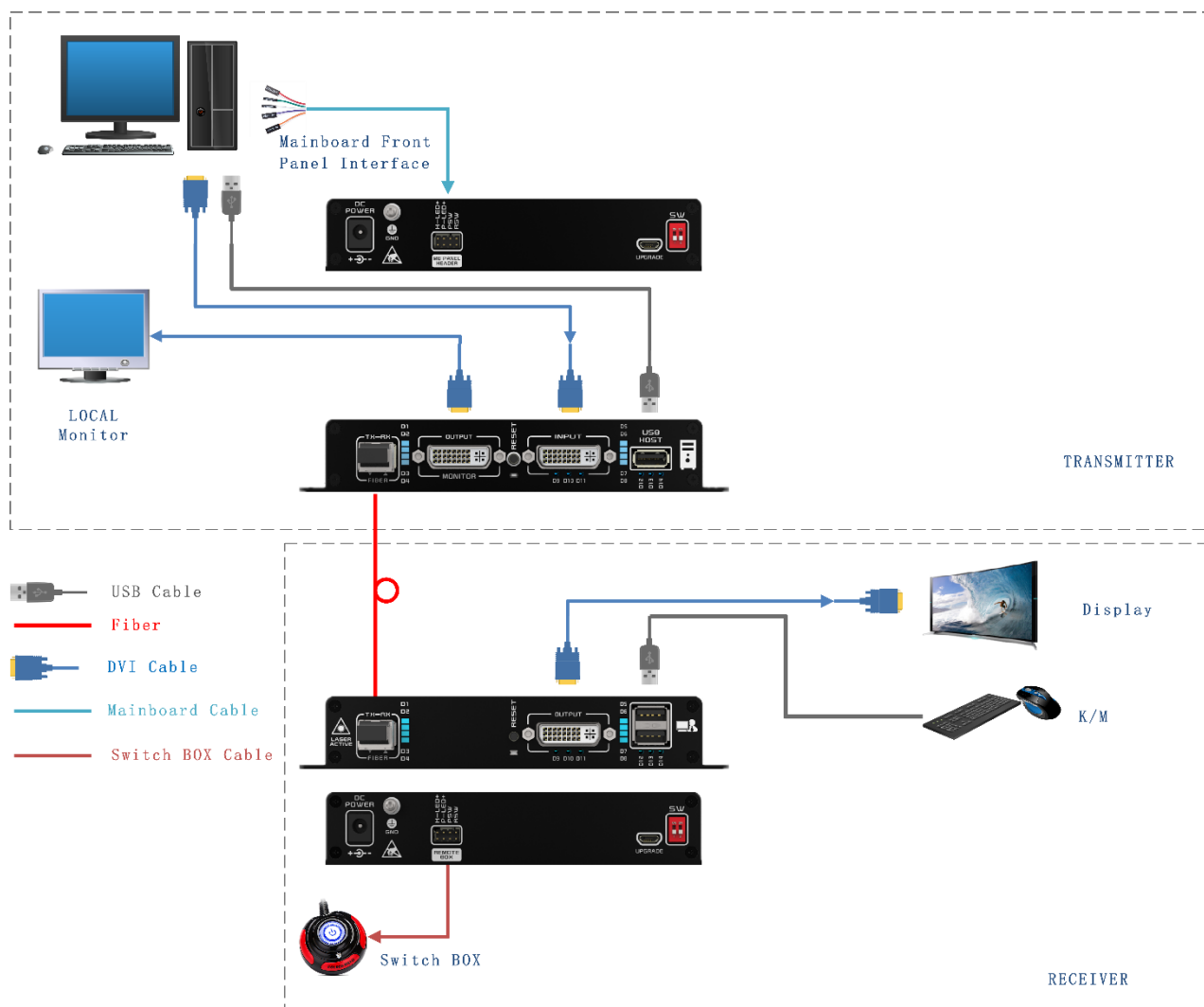
| Port            | TRANSMITTER                                                                                                                                            |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| DVI INPUT       | DVI input                                                                                                                                              |
| DVI OUTPUT      | DVI loop out                                                                                                                                           |
| RESET           | System reset button                                                                                                                                    |
| POWER           | Power adapter socket                                                                                                                                   |
| FIBER           | SFP+ Module Cage                                                                                                                                       |
| USB HOST        | Connect to PC USB Host Controller                                                                                                                      |
| MB PANEL HEADER | Mainboard Front Panel Interface<br>H-LED+: HDD LED+,other HDD LED-<br>P-LED+: POWER LED+,other POWER LED-<br>PSW: POWER ON Button<br>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                                                                                                                       |
| D2              | ON: SFP+ RX lost Optical signal      OFF:SFP+ RX is normal                                                                                             |
| D3              | Reserve                                                                                                                                                |
| D4              | ON: Source connected      Blinking:Output signal                                                                                                       |
| D5              | Blinking: USB commuication                                                                                                                             |
| D6              | Blinking: USB commuication                                                                                                                             |
| D7              | Reserve                                                                                                                                                |
| D8              | Reserve                                                                                                                                                |
| D9              | ON: DVI Source connected      OFF: DVI Source unconnected                                                                                              |
| D10             | ON: DVI loop oout display connected      OFF: DVI loop oout display unconnected                                                                        |
| D11             | Reserve                                                                                                                                                |
| D12             | ON: Error      OFF:Normal                                                                                                                              |
| D13             | ON:USB Device2 Link OK      Blinking:Commuication                                                                                                      |
| D14             | ON:USB Device1 Link OK      Blinking:Commuication                                                                                                      |

RECEIVER



| Port            | RECEIVER                                                                                                                                       |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| DVI OUTPUT      | DVI loop out                                                                                                                                   |
| RESET           | System reset button                                                                                                                            |
| POWER           | Power adapter socket                                                                                                                           |
| FIBER           | SFP+ Module Cage                                                                                                                               |
| USB             | USB Keyboard x1 and USB Mouse x1 or USB Touch Screen x1                                                                                        |
| MB PANEL HEADER | REMOTE BOX (Switch BOX)<br>H-LED+: HDD LED+,other HDD LED-<br>P-LED+: POWER LED+,other POWER LED-<br>PSW: POWER ON Button<br>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                                                                                                               |
| D2              | ON: SFP+ RX lost Optical signal      OFF:SFP+ RX is normal                                                                                     |
| D3              | Reserve                                                                                                                                        |
| D4              | ON: Display connected      Blinking:Output signal                                                                                              |
| D5              | Blinking: USB commuication                                                                                                                     |
| D6              | Blinking: USB commuication                                                                                                                     |
| D7              | Reserve                                                                                                                                        |
| D8              | Reserve                                                                                                                                        |
| D9              | Reserve                                                                                                                                        |
| D10             | ON: Display connected      OFF: Display unconnected                                                                                            |
| D11             | Reserve                                                                                                                                        |
| D12             | ON: Error      OFF:Normal                                                                                                                      |
| D13             | ON:USB Device2 Link OK      Blinking:Commuication                                                                                              |
| D14             | ON:USB Device1 Link OK      Blinking:Commuication                                                                                              |

## Diagram



## Instructions

| Video              |                                                                                                                                                                                                                                          |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                 | TX: Connect the source device's DVI Out port to DVI INPUT. Connect local display to the DVI OUTPUT port.                                                                                                                                 |
| 2.                 | RX: Use an DVI cable to connect your video display to the DVI 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.                                                                                          |
| Keyboard and Mouse |                                                                                                                                                                                                                                          |
| 4.                 | 1. Use an USB cable to connect PC usb port to the TRANSMITTER usb host port.<br>2. Plug the Keyboard and Mouse to the RECEIVER usb device port.                                                                                          |
| Power              |                                                                                                                                                                                                                                          |
| 5.                 | 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              |                                                                                                                                                                                                                                          |
| 6.                 | 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. |

**Packing list**

The 4K DVI 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 KDX-2541T (TX)
- ※ 1 x KDX-2541R (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                                                               |
|------------------|---------------------------------------------------------------------------|
| KDX-2540T/R      | Duplex Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,300m  |
| KDX-2541T/R-D1.4 | Duplex Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,1.4Km |
| KDX-2541T/R-D10  | Duplex Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,10Km  |
| KDX-2541T/R-D20  | Duplex Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,20Km  |
| KDX-2541T/R-D40  | Duplex Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,40Km  |
| KDX-2541T/R-D60  | Duplex Fiber 4K DVI KVM Fiber Optic Extende with PC remote control ,60Km  |
| KDX-2541T/R-D80  | Duplex Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,80Km  |
| KDX-2541T/R-S10  | Single Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,10Km  |
| KDX-2541T/R-S20  | Single Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,20Km  |
| KDX-2541T/R-S40  | Single Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,40Km  |
| KDX-2541T/R-S60  | Single Fiber 4K DVI KVM Fiber Optic Extender with PC remote control,60Km  |
| KDX-2541T/R-S80  | Single Fiber 4K DVI KVM Fiber Optic Extender with 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.