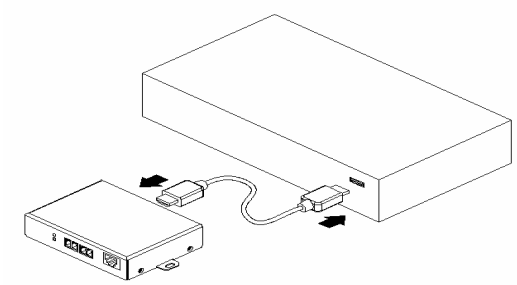
Installation

Important: Please follow the installation procedure below. Improper operation may result if the start-up sequence is not correctly followed.

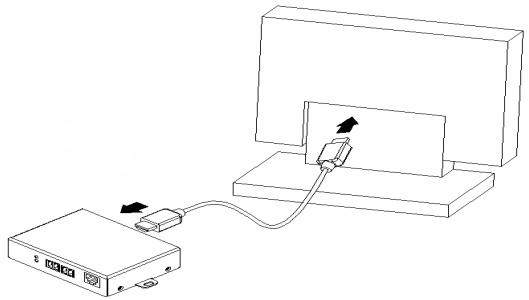
Step 1
Carefully unpack the package contents.

Step 2
With the system power turned **off**, connect the transmitter module to the HDMI receptacle on the media receiver or computer, using an HDMI or HDMI to DVI cable.



Connecting an HDMI cable between the transmitter module and media receiver

Step 3
In the same way as above, connect the receiver module to the HDMI receptacle on the display using another HDMI / HDMI to DVI cable.



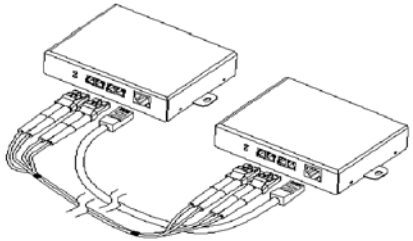
Connecting an HDMI cable between the Receiver box and display

IMPORTANT SAFETY NOTE: Although this product operates under the Laser Class 1 CDRH/FDA classification for eye safety, you should still not look directly into the LC receptacles of the transmitter module when it is powered on.

Step 4
Label one of your LC Duplex cables with '**1**' at both ends; label the other with '**2**' at both ends. This helps to avoid mixing them up when they are installed.

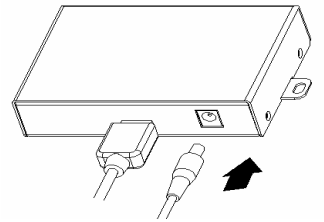
Step 5
Remove the dust covers from the LC receptacles and from the connectors. The LC receptacles on the Tx module are labelled (left to right) **R, G, B** and **C** (Red, Green, Blue & Clock); on the Rx module they are labelled **G, R, C, B**. Connect each fibre to the corresponding port on each module - **R** to **R**, **G** to **G, B** to **B** and **C** to **C**. Make sure you do not mix up the TR and RC fibre in each LCD Duplex cable - normally they are colour coded. Carefully recheck polarities and ensure the duplex connectors are fully engaged.

Step 6
Connect the RJ-45 plugs on the Ethernet cable to each RJ-45 DDC receptacle on the Tx and Rx modules.



Duplex LC fibre cable connection

Step 7
You can connect the AC/DC power adapter to either of the transmitter and receiver modules depending on the availability of the AC outlets.



Power adapter connection

Step 8
Power on the devices in this order: first, the transmitter and receiver modules, then the display and finally the source (computer/DVD).

Tip 1: If the connection is interrupted and the display does not recover automatically, then power off and on all devices in the order described above.
Tip 2: Avoid "hot plugging" the Tx or Rx modules as this is not a recommended practice with live digital voltages.

Troubleshooting

There is no display on the screen.

- Check that all AC and DC plugs and jacks used by external power supplies (both the extender units and others) are firmly connected.
- Ensure that the Tx and Rx modules are plugged correctly into the media receiver/computer and display
- Check that the media receiver/computer and display are both powered on and properly booted
- Power off all the devices, then power on in this order: first, the transmitter and receiver modules, then the display and finally the source (computer/DVD).
- Make sure you have not mixed up the LC Duplex fibres with each other at one end
- Ensure you have not exchanged the TR and RC, LC Duplex fibres with each other at one end
- Exchange both LC Duplex fibres with each other at both units. If a single colour picture is displayed, one of the LC Duplex fibres may be damaged (or TR and RC may be mixed up). Try replacing it with another one.

The display is distorted or displays noise.

- Check that the display resolution is properly set. At 100m, ensure that the resolution is set no higher than UXGA (1600 x 1200) at 60Hz.
- Reset the system
- Power down, disconnect and reconnect the fibre optic cables or DC power adapters, and power up
- If one of the 3 RGB colours is completely missing this indicates that one of your fibre cables may be damaged. Try exchanging them one by one. If this doesn't solve the problem, please contact LINDY.

Maintenance

No special maintenance is required for the fibre optic cables and extender modules. Ensure that the cables and modules are stored and used in an environment free from liquid and dirt contamination. There are no user serviceable parts. Refer all servicing and repair issues to LINDY.

Technical Support and Service

For technical support, please contact LINDY. Visit our website at www.lindy.com.

System Requirements

Hardware Requirements

- A DVI/HDMI equipped Media Receiver (e.g. DVD player) or a computer equipped with an HDMI or DVI graphics controller card.
- A HDMI/DVI equipped display which supports the resolutions of the devices to which it is connected.

Note: You can also connect a DVI display to an HDMI source by using the HDMI/HDMI cable at the transmitter and HDMI/DVI cable at the receiver. The DVI display should be HDCP compliant so it can encrypt HDCP decrypted HDMI signals. This HDCP enabled DVI display will not be able to output the audio signals included in the HDMI signal as DVI displays are generally not able to output this from a DVI input connector (as of May 2005). If and when the standard is changed some time in the future, and the DVI display supports DVI-Audio, then it may work.

Software Requirements

- There are no special software requirements. As long as the graphic controller and display function correctly when connected using standard HDMI/DVI cables, everything should be OK. We recommend you perform a trial installation using an HDMI (or HDMI to DVI) cable to connect your computer to your display, prior to the installation with the optical link.

AC/DC Power Adapter Technical Advisory

Power is supplied to both modules over the DDC cable. This means you can connect the power supply to either of the modules!

Introduction

The LINDY HDMI & DVI Optical Extender allows high-resolution digital video and multi-channel digital audio to be sent between devices at distances of up to 100m using fibre optic cable.

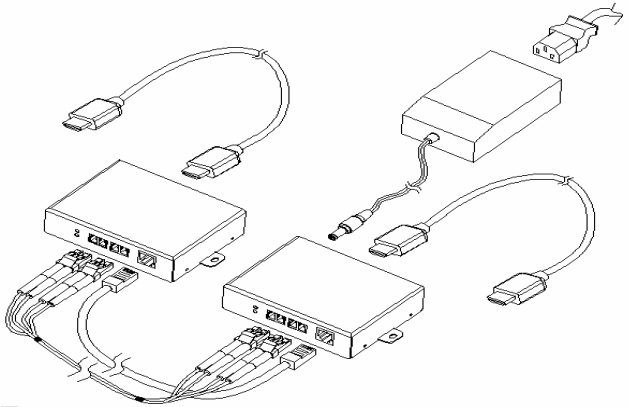
The extender uses two modules - one transmitter and one receiver. The transmitter connects to a computer/DVD player etc., by means of a standard HDMI cable or HDMI to DVI cable. The receiver connects to a display in the same way. Between the two modules 2 LC Duplex fibre optic patch cables are used to transmit the video and audio signals. A UTP/STP Ethernet cable is used as a DDC cable to transmit the HDCP and Digital Display Channel (DDC2B) signals.

Package Contents

- Tx and Rx modules: One (1) Transmitter (Tx) module and one (1) Receiver (Rx) module
- AC/DC power adapter: One (1) +12V unit
- This User Manual

Additional Requirements

- Fibre Optic Patch cable: 2 x LC Duplex Multimode fibre cable, 50/125 or 62/125µm (of required length up to 100m)
- DDC Cable: RJ-45 UTP/STP Ethernet cable (of required length up to 100m)
- HDMI Cables: HDMI Type A Male to Type A Male
  or
- HDMI to DVI-D Cables: HDMI Type A Male to DVI-D Male



Overall Optical HDMI installation

Product Features

- For Home Cinema HDMI and computer DVI-D signals
- Extends HDMI or DVI-D signals over distances of up to 100m via 2 x LC duplex multimode cables (50/125 or 62/125µm) and 1 UTP/STP cable
- Supports HDMI signals including HDCP, audio and RC
- Supports DVI-D single link resolutions including DVI audio
- Supports HDTV 480P, 720P, 1080i and 1080p
- Complies with HDMI standards: supports HDMI 1.0, using fibre-optic communication links and DDC2B
- Extension limit: 100m (330 feet) for UXGA (1600 x 1200) @ 60Hz
- Graphic Transmission Bandwidth: supports up to 1.65Gbps bandwidth per graphic channel at UXGA @ 60Hz
- Fibre-optic Connection: The transmitter and receiver modules feature 2 duplex LC receptacles which can be connected to 2 LC duplex 62.5/125µm or 50/125µm multi-mode fibre optic cables

Specifications

- Mechanical specifications of the Tx and Rx modules:
  - Dimensions: 130 x 85 x 30mm (WxDxH)
  - Weight: 0.3kg (each module)
- Environmental Specifications:
  - Operating temperature: -10°C to 50°C
  - Storage temperature: - 30°C to 60°C
- Power Input: Universal AC 100-240V, 50/60Hz, AC power cable with IEC connector
- Power Output: +12V, 3.0A (regulated) SMPS DC-Power Adapter
- Power DC cable jack & length: + on centre and outer cylinder is GND.
- AC Cable length: 2m (approx.)
- Certification: PSE, UL, cUL, FCC, CE, TUV-GS

FCC/CE Statements

This device complies with part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 and 2 of FCC Rules, EN 55022/55024/61000-3 for CE certification. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a service representative for help.

Properly shielded and grounded cables and connectors must be used in order to comply with FCC/CE emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user s authority to operate the equipment.

Certification for Safety

The extension system is certified pursuant to IEC60065 and its AC/DC power adapter is certified by UL1310, 1950, 60950 for North America, cUL or CSA for Canada, TUV-CE & GS for EU and PSE for Japan.

Certification of Eye Safety

This laser product is inside implemented by using 850nm VCSEL (Vertical Cavity Surface Emitting Laser) Transceivers, which are all certified by CDRH/FDA referred in Accession Number 0210774 as classified in Laser Class 1.

Manual Contents

LINDY No. 32304

Version 1
May 2005

COMPUTER CONNECTION TECHNOLOGY

HDMI & DVI
Optical Extender

User Guide *English*

LINDY No. 32304

www.lindy.com