

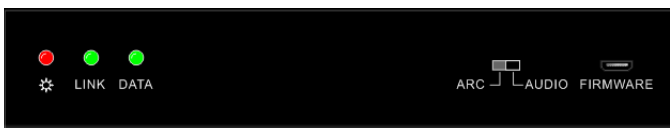
# The Case for Fiber Optics

HDMI cables are great for transmitting audio and video signals short distances, but larger buildings and larger rooms often need electronics inline to ensure signal performance. Simply pulling a long HDMI cable or connecting multiple HDMI cables together can cause signal drop out, interference, pixelization and a host of other signal and performance problems. Enter TechLogix fiber optic extenders. This cutting-edge technology future-proofs installations by offering industry-leading signal quality and bandwidth transmission. Plus, unlike copper HDMI cables and twisted pair extenders, fiber is immune to RF and EM interference ensuring performance for years to come.

## Product Snapshot



TL-FO2-HDC2 rear panel



TL-FO2-HDC2 front panel

| Specification          | Performance  |
|------------------------|--|
| Cabling requirement    | Two multimode fiber cables   |
| Max distance           | 4K@60: 1,000 ft. (300m)<br>1080p: 1,300 ft. (400m)   |
| Video performance      | 4K@60Hz 4:4:4 HDR  |
| Compliance             | HDMI 2.0a 18Gbps (600 MHz)<br>HDCP 2.2   |
| Transmitter Connectors | (1) female HDMI input<br>(1) pass-through 3.5mm IR in<br>(1) pass-through 3.5mm IR out<br>(1) pass-through phoenix RS232<br>(1) TOSLINK ARC output<br>(2) LC fiber optic outputs |
| Receiver Connectors    | (1) female HDMI output<br>(1) pass-through 3.5mm IR in<br>(1) pass-through 3.5mm IR out<br>(1) pass-through phoenix RS232<br>(1) TOSLINK ARC input<br>(2) LC fiber optic inputs  |
| Dimensions             | 6.0"W x 3.2"D x 0.9"H  |
| Power                  | 12V DC (required on TX/RX)   |
| Chassis                | Aluminum   |
| Warranty               | 2 years  |

## The Pitch

- **Professional 4K signal distribution requires fiber optics**
  - 4K over standard HDMI cables: 16 ft. (5m)
  - 4K over HDBaseT extenders: 130 ft. (40m)
  - 4K over Active Optical Cables: 200 ft. (60m)
  - 4K over fiber: 1,000 ft. (300m)
- **Both commercial and residential applications are installing 4K peripherals**
  - 50% of homes to have 4K TVs by 2020<sup>1</sup>
  - Classrooms and meetings spaces are leveraging higher resolutions (4x higher than 1080p)
- **4K content is readily available**
  - Netflix, Amazon, YouTube and Sony are streaming 4K
  - Dish and DirecTV offer 4K capable set-top boxes
  - Blu-ray will support 4K in 2016<sup>2</sup>
  - Computers are outputting resolutions of 3840x2160
- **4K displays are inexpensive and readily available<sup>3</sup>**
  - 55" 4K average prices: \$499 - \$899
  - 65" 4K average prices: \$1,350 - \$1,999
- **Bulk fiber is finally easy to work with<sup>4</sup>**
  - Stronger – 5x the pulling strength compared with twisted pair and more pliable
  - Safer – easy to handle and won't puncture soft tissue
  - Faster – terminates in under 1 minute with 5 minutes of training
  - More reliable – immune to EM and RF interference
- **Bulk fiber stacks up against twisted pair<sup>5</sup>**

|                | Cat 5e (U/UTP) | Cat 6 (F/UTP) | Cat 7 (S/FTP) | OM3 Fiber  |
|----------------|----------------|---------------|---------------|------------|
| Cable Cost     | \$0.09/ft.     | \$0.34/ft.    | \$0.50/ft.    | \$0.37/ft. |
| Connector Cost | \$0.25         | \$1.88        | \$14.00       | \$8.00     |
| Pull Tension   | 25 lbs.        | 25 lbs.       | 25 lbs.       | 225 lbs.   |

***Bottom line: customers will expect & deserve 4K compatible systems.***

<sup>1</sup>Strategy Analytics, March 2015







<sup>2</sup>Panasonic, Samsung, Philips CES 2016 announcements

<sup>3</sup>Ben Algaze, Extreme Tech, February 2015

<sup>4</sup>Cleerline SSF bulk fiber, <http://www.clrtec.com/>

<sup>5</sup>Cleerline SSF bulk fiber, <http://www.clrtec.com/>, average trade pricing

# Fiber Optic Extender Line Card

|   |   |   |
|---|---|---|
| <b>TL-FO-DVI</b><br>DVI over Fiber Optic Cable Extender Set   |   |    |
| <ul style="list-style-type: none"> <li>✦ Transmit DVI over a single fiber optic patch cable</li> <li>✦ Built-in LC connectors on both the transmitter &amp; receiver</li> <li>✦ Male DVI connectors for direct connection to devices</li> </ul>                               | <ul style="list-style-type: none"> <li>✦ Extend 1080p up to 1,000 ft. (300m)</li> <li>✦ Extend 1920x1200 video up to 1,000 ft. (300m)</li> <li>✦ Single or multimode fiber compatible</li> <li>✦ Powered via USB or standard AC</li> <li>✦ Immune to RF &amp; EM interference</li> </ul>                    |   |
| <b>TL-FO-HD</b><br>HDMI over Fiber Optic Cable Extender Set   |   |    |
| <ul style="list-style-type: none"> <li>✦ Transmit HDMI audio &amp; video over a single fiber optic patch cable</li> <li>✦ Built-in LC connectors on both the transmitter &amp; receiver</li> <li>✦ Male HDMI connectors for direct connection to devices</li> </ul>           | <ul style="list-style-type: none"> <li>✦ Extend 1080p up to 1,300 ft. (400m)</li> <li>✦ Extend 4K@30 up to 1,000 ft. (300m)</li> <li>✦ Single or multimode fiber compatible</li> <li>✦ Powered via USB or standard AC</li> <li>✦ Immune to RF &amp; EM interference</li> </ul>                              |   |
| <b>TL-FO-HD2</b><br>HDMI 2.0 over Fiber Optic Cable Extender Set  |   |    |
| <ul style="list-style-type: none"> <li>✦ Transmit HDMI audio &amp; video over a single multimode fiber optic patch cable</li> <li>✦ Built-in LC connectors on both the transmitter &amp; receiver</li> <li>✦ Male HDMI connectors for direct connection to devices</li> </ul> | <ul style="list-style-type: none"> <li>✦ Dongle design reduces stress on devices</li> <li>✦ Extend 1080p up to 1,300 ft. (400m)</li> <li>✦ Extend 4K@60 4:4:4 up to 1,000 ft. (300m)</li> <li>✦ Powered via USB or standard AC</li> <li>✦ HDMI 2.0 / HDCP 2.2</li> <li>✦ Supports EDID &amp; CEC</li> </ul> |   |
| <b>TL-FO-HDC2</b><br>HDMI 2.0 & Control over Fiber Optic Cable Extender Set   |   |  |
| <ul style="list-style-type: none"> <li>✦ Transmit HDMI, IR &amp; RS232 over a single multimode fiber optic patch cable</li> <li>✦ Built-in LC connectors on both the transmitter &amp; receiver</li> <li>✦ Slim chassis design</li> </ul>                                     | <ul style="list-style-type: none"> <li>✦ Extend 1080p up to 1,300 ft. (400m)</li> <li>✦ Extend 4K@60 4:4:4 up to 1,000 ft. (300m)</li> <li>✦ HDMI 2.0 / HDCP 2.2</li> <li>✦ Supports EDID &amp; CEC</li> <li>✦ Includes mounting hardware</li> </ul>  |   |
| <b>TL-FO2-HDC2</b><br>HDMI 2.0 & Control over Two Fiber Optic Cable Extender Set  |   |  |
| <ul style="list-style-type: none"> <li>✦ Transmit HDMI, IR &amp; RS232 over two multimode fiber optic patch cables</li> <li>✦ Built-in LC connectors on both the transmitter &amp; receiver</li> <li>✦ Slim chassis design</li> </ul>   | <ul style="list-style-type: none"> <li>✦ Extend 1080p up to 1,300 ft. (400m)</li> <li>✦ Extend 4K@60 4:4:4 up to 1,000 ft. (300m)</li> <li>✦ HDMI 2.0 / HDCP 2.2</li> <li>✦ Supports ARC, EDID &amp; CEC</li> <li>✦ Includes mounting hardware</li> </ul>   |   |
| <b>TL-FO4-HDC2</b><br>HDMI 2.0 & Control over Four Fiber Optic Cable Extender Set   |   |  |
| <ul style="list-style-type: none"> <li>✦ Transmit HDMI, IR &amp; RS232 over four multimode fiber optic patch cables</li> <li>✦ Built-in LC connectors on both the transmitter &amp; receiver</li> <li>✦ Slim chassis design</li> </ul>  | <ul style="list-style-type: none"> <li>✦ Extend 1080p up to 1,300 ft. (400m)</li> <li>✦ Extend 4K@60 4:4:4 up to 1,000 ft. (300m)</li> <li>✦ HDMI 2.0 / HDCP 2.2</li> <li>✦ Supports EDID &amp; CEC</li> <li>✦ Includes mounting hardware</li> </ul>  |   |