Description and Installation

Description

The Direct Digital Transmitter (DDTX) half of the DDTX/DDRX DVI pair accepts a Digital Visual Interface (DVI) signal or a Digital Flat Panel (DFP) signal (with a DFP-to-DVI adapter) from any device that outputs digital video. The DDTX creates proprietary digital signals, and outputs the signals over coaxial cable to the Direct Digital Receiver (DDRX) half of the pair. The transmitter also sends and receives the bidirectional Display Data Channel (DDC) signals on a separate set of connectors. The receiver converts the digital and DDC signals back to DVI video, and outputs it for use by a compatible display device. The maximum separation between the DDTX and DDRX depends on the cables used:

- **Maximum 150’ (45.72 meters)** — This limit applies to systems using cable of the quality of Extron High Resolution cable.
- **Maximum 330’ (100.58 meters)** — This limit applies to systems using cable of the quality of Extron Super High Resolution cable.

The DDTX is rack mountable and has an internal switching power supply.

The DDRX comes with its own external desktop power supply and a detachable bracket for mounting the unit to a projector mount or other convenient surface. The DDRX is also through-or under-desk mountable with optional mounting kits.

Installation

1. Power off the computer and its local monitor.
2. For optional rack mounting, mount the DDTX on one side of a 19” 1U Universal Rack Shelf (Extron part #60-190-01) (figure 1).

![Figure 1 — Rack mounting a DDTX](image)
Installation

a. If feet were previously installed on the bottom of the case, remove them.

b. Mount the DDTX on the rack shelf, using two 4-40 x 1/8 screws in opposite (diagonal) corners to secure the case to the shelf.

3. For optional bracket mounting, attach the included mounting bracket to the DDRX using the 3 bracket screws. The DDRX can then be attached to a projector mount or some other secure surface by inserting the mounting screw through the bracket’s slotted hole (figure 2).

**Figure 2 — Bracket mounting a DDRX**

4. Connect the DDTX DVI input cable (figure 3) to the DVI video output port of the computer (figure 4).

**Figure 3 — DDTX and DDRX connector panels**

5. Connect coax cable between the TX0, TX1, TX2, and TXC BNC connectors on the rear of the DDTX and those on the DDRX.

6. Connect a DDC cable between the DDC connectors on the rear of the DDTX and those on the DDRX, see DDC Cable, below.

7. Connect the desired DVI/DFP-compatible monitor, LCD panel, or projector to the Display connector on the rear of the DDRX.

**Figure 4 — DDTX/DDRX typical application**

- **NOTE** The maximum permissible length of the DVI input and output cables is 16.4 feet (5 meters). Ensure that the cables do not exceed the maximum permissible length, otherwise images may be distorted or missing. Extron does not guarantee signal integrity beyond 16.4 feet.

8. Connect a standard IEC power cord between the DDTX power connector and a 100 to 240VAC, 50 Hz or 60 Hz power source.

9. Connect 9-12VDC to the power connector on the DDRX, either from the included external power supply or from a source on the projector.

10. Power on the local monitor.

11. Power on the computer.

**DDC Cable**

The DDTX/DDRX DVI pair requires a DDC cable, up to 330’ in length. Extron’s Custom Cables on Call can make a DDC cable made-to-order, or it can be made on-site with Extron’s Plenum
Installation

Comm-Link cable and two 3.5 mm captive screw connectors. Wire the connectors as shown in figure 5.

Figure 5 — DDC Cable Connector

Paired Set

The DDTX and DDRX are a paired set, sharing a common serial number. Each half is specifically tailored to work with the other. Ensure that identically serial-numbered halves are kept together and are not intermixed with units from different sets. Units from different sets are not guaranteed to work together.

NOTE

When returning a DDTX or DDRX to Extron for service, ensure that the identically serial-numbered paired half is also returned.

DVI Connector Pin Assignments

Figure 7 and the table below define the pin assignments for the DVI protocol.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TMDS Data 2-</td>
<td>9</td>
<td>TMDS Data 1-</td>
<td>17</td>
<td>TMDS Data 0-</td>
</tr>
<tr>
<td>2</td>
<td>TMDS Data 2+</td>
<td>10</td>
<td>TMDS Data 1+</td>
<td>18</td>
<td>TMDS Data 0+</td>
</tr>
<tr>
<td>3</td>
<td>TMDS Data 2/4 Shield</td>
<td>11</td>
<td>TMDS Data 1/3 Shield</td>
<td>19</td>
<td>TMDS Data 0/5 Shield</td>
</tr>
<tr>
<td>4</td>
<td>TMDS Data 4-</td>
<td>12</td>
<td>TMDS Data 3-</td>
<td>20</td>
<td>TMDS Data 5-</td>
</tr>
<tr>
<td>5</td>
<td>TMDS Data 4+</td>
<td>13</td>
<td>TMDS Data 3+</td>
<td>21</td>
<td>TMDS Data 5+</td>
</tr>
<tr>
<td>6</td>
<td>DDC Clock</td>
<td>14</td>
<td>+5 V Power</td>
<td>22</td>
<td>TMDS Clock Shield</td>
</tr>
<tr>
<td>7</td>
<td>DDC Data</td>
<td>15</td>
<td>Ground (+5 V)</td>
<td>23</td>
<td>TMDS Clock+</td>
</tr>
<tr>
<td>8</td>
<td>No Connection</td>
<td>16</td>
<td>Hot Plug Detect</td>
<td>24</td>
<td>TMDS Clock-</td>
</tr>
</tbody>
</table>

Indicator

Power LEDs — Located on the front panel (figure 6), these light to indicate that the DDTX and DDRX are receiving power.

Figure 6 — DDTX/DDRX front panels

Operation

After the transmitter, the receiver, and their connected devices are powered up, the system is fully operational. If any problems are encountered, ensure all cables are routed and connected properly.

NOTE

Transmission distance is limited. The distance between the transmitter and receiver can be up to 150’ if using Extron High Resolution cable, or up to 330’ with Super High Resolution cable.

NOTE

Ensure that the computer and local monitor are properly connected to the DDTX/DDRX pair, and that the DDTX, the DDRX, and the monitor have power applied before power is applied to the computer. If all other devices are not turned on before the computer is powered on, the image will not appear.
Troubleshooting

DVI/DFP signals run at a very high frequency and are especially susceptible to bad video connections, too many adapters, or too long cables. To avoid the loss of an image or image jitter, follow these guidelines:

- Do not exceed 16.4 feet (5 meters) on the output of the DDRX.
- Use only cable designed for DVI signals.
- Limit or avoid the use of adapters.
- Use only approved DVI/DFP connectors.

Specifications

Video input (DDTX)
Number and connectors .......... 1 attached cable with DVI male connector
Minimum input voltage .......... 0.30V p-p

Video throughput (DDTX and DDRX)
Connectors .................. 4 BNC female connectors
1 female 3.5 mm 5-pole captive screw connector (DDC channel)
Maximum bit rate ............. 1.6 gigabits/second/color

Video signal characteristics (DDTX and DDRX)
Rise/fall time ................. 220 pS nominal, maximum 350 pS

Video output (DDRX)
Number and connectors .......... 1 DVI female
Maximum output cable length .. 16.4 feet (5 meters)
Minimum output voltage .......... 0.60V p-p

General
Power ............................ DDTX ...... 100VAC to 240VAC, 50/60 Hz, 12 watts, internal, auto-switchable
DDRX ...... 100VAC to 240VAC, 50/60 Hz, 7 watts, external, auto-switchable

Temperature/humidity .......... Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing
Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non-condensing

Mounting options 
DDTX ...... Rack mountable with optional rack shelf, part #60-190-01
DDRX ...... Bracket mountable with included mounting bracket
Under/thru-desk mountable with optional kit, part #70-077-01 or 70-077-02

Enclosure type ................... Two metal enclosures
Enclosure dimensions .......... DDTX 1.75” H x 8.75” W x 9.4” D
4.5 cm H x 22.2 cm W x 23.9 cm D
(depth excludes connectors)
DDRX 1.3” H x 5.7” W x 4.5” D
3.3 cm H x 14.5 cm W x 11.4 cm D
(depth excludes connectors)

Product weight .................. 3.6 lbs (1.6 kg)
Shipping weight (pair) ........ 8 lbs (3.6 kg) total
Vibration .......................... ISTA 1A in carton (International/National Safe Transit Association)

Listings .......................... UL, CUL
Compliances ..................... CE, FCC Class A
MTBF ............................ 30,000 hours
Warranty .......................... 3 years parts and labor

NOTE Specifications are subject to change without notice.

Optional Cables, Adapters, and Connectors
- 26-497-01 DVI (male) to DFP (female) adapter
- 26-498-01 DVI (female) to DFP (male) adapter
- 26-210-xx SuperFlex BNC-4 Mini HR Cable, up to 150’
- 26-368-xx SuperFlex SHR 4 Super High Resolution Cable, up to 330’
- 26-378-xx Plenum BNC-5 Cable, up to 150’
- 26-461-xx Plenum Comm-Link Cable, up to 150’
- 10-319-10 3.5 mm captive screw connector

FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.