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Preface

About Thinklogical

Thinklogical is the leading manufacturer and provider of fiber optic KVM, video, audio, and peripheral extension and switching solutions used in video-rich, big-data computing environments.

Thinklogical offers the only fiber optic KVM matrix routers in the world that are accredited to The Common Criteria, EAL4 and TEMPEST.

Governments, entertainment, scientific and industrial customers worldwide rely on Thinklogical's products and solutions for security, high performance, continuous operation and ease of integration. Thinklogical products are designed and manufactured in the USA and are certified to the ISO 9001-2008 standard.

Thinklogical is headquartered in Milford, Connecticut and is privately held by Riverside Partners, LLC, Boston, MA (http://www.riversidepartners.com). For more information about Thinklogical products and services, please visit www.thinklogical.com.

Follow Thinklogical on LinkedIn at http://www.linkedin.com/company/thinklogical and on Facebook at http://www.facebook.com/ThinklogicalUSA
1. Introduction

1.1. Contents

Upon receiving your Thinklogical VelocityDVI Extension System® you should find the following items:

- DVI Extender Transmitter
- DVI Extender Receiver
- DVI-D Male to Male Cable, 2 Meter (CBL-000009-002MR)¹
- DVI-D Male to Male Dual-Link Cable, 2 Meters (CBL-000023-002MR)²
- Universal AC Power Adapters (PWR-000022-R) – Quantity 2 (Vel-3, -6)
- AC Power Cord (PWR-000006-R) – Quantity 2 (Vel-33, -63)
- CAT5 Cable Assembly (CBL000001-002MR)³
- 3.5mm Audio Cable, M-M – Quantity 2 (CBL000016-006FR)³
- DB9F Adapter (ADP-000025-R) and DB9M Adapter (ADP-000019-R)⁴
- CD Product Manual

¹ For VelocityDVI-3, Qty = 1 each. For VelocityDVI-33, Qty = 3 each
² For VelocityDVI-6, Qty = 1 each. For VelocityDVI-63, Qty = 3 each
³ With A/V+ and A/N+ models
⁴ With A/V+ models only

1.2. Product Overview

**MRTS** Technology 6.25 Gbps. allows for Full Frame Rate Transmission of uncompressed DVI.

Powered by Thinklogical’s® cutting edge, patent-pending MRTS (Multi Rate Transmission System) Technology, our DVI Extension Systems transport every frame of a DVI video stream seamlessly with no compression or dropped frames. In addition, all high speed peripherals function with no latency. Incorporating standard SFP+ transceivers, the system uses *multi-mode fiber optic cable* to permit the placement of a digital monitor or projector up to 1000 meters (3280 feet) away from the controlling computer without loss of resolution. Thinklogical® also offers optics that use *single-mode fiber optic cables* to allow the placement of video devices up to 10, 40 or 80 km (6.2/24.8/49.7 miles) away from the controlling computer without loss of resolution. Installation is plug-and-play and no adjustments are necessary.

Each VEL-3 (single-link) and VEL-6 (dual-link) system consists of one transmitter per chassis and one receiver per chassis. The rack-mountable VEL-33 system (single-link) and the rack-mountable VEL-63 system (dual-link) each feature three transmitters per chassis and three receivers per chassis. All models support Data Display Channel (DDC), with a variety of modes to meet each unique requirement. All models are connected by fiber optic cable(s), the count of which varies depending upon the DDC mode to provide communications to and from the transmitter. The transmitter unit connects to the CPU with supplied DVI-D cables (and audio, serial & network cables in A/V+ and A/N+ models). The receiver unit provides an interface to the monitor(s) (and audio, serial & network devices in A/V+ and A/N+ models).

Each Transmitter (TX) features a video input and local video output which can be used for DDC modification and for displaying video at the source. The TX also has fiber connectors used for transferring video and data to the Receiver. (For an *Automatic Fail-Over option*, see Appendix D, on page 47 for more details.) Status LEDs and DDC Mode buttons are provided for system configuration.

Each Receiver (RX) features two video outputs. *DVI to Display DDC* is the primary output and *DVI to Display* is an auxiliary output. The RX has fiber connectors used for transferring data to the TX and for receiving video and data from the TX. Status LEDs and DDC Mode buttons are provided for system configuration.
Velocity dvi Digital Video Extender-3

Transmitter: VEL-000M03-LCTX  
Receiver: VEL-000M03-LCRX

Velocity dvi Digital Video Extender-6

Transmitter: VEL-000M06-LCTX  
Receiver: VEL-000M06-LCRX

Velocity dvi Digital Video Extender-33  VEL-000M33-LCTX/RX

Velocity dvi Digital Video Extender-63  VEL-000M63-LCTX/RX
1.3. The VelocityDVI-3 and -6 Extender Models

VEL-000S03-SCRX VELOCITY 3 DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SINGLE MODE, SC/APC
VEL-000S03-SCTX VELOCITY 3 DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI OUTPUT, DDC, SINGLE MODE, SC/APC
VOP-S05 VELOCITY 3 optics option for TX or RX, SINGLE MODE, DUAL FIBERS, 10KM
VEL-000S06-SCRX VELOCITY 6 DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DUAL DVI OUTPUT, DDC, SINGLE MODE, SC/APC
VEL-000S06-SCTX VELOCITY 6 DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DUAL DVI OUTPUT, DDC, SINGLE MODE, SC/APC
VOP-S08 VELOCITY 6 optics option for TX or RX, SINGLE MODE, 3 FIBERS, 10KM
VEL-000M03-LCRX VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, RX, LC
VEL-000M03-LCTX VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, TX, LC
VEL-000M03-SCRX VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, RX, SC
VEL-000M03-SCTX VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, TX, SC
VEL-000M03-STRX VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, RX, ST
VEL-000M03-STTX VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, TX, ST
VEL-000M33-LCRX 3-in-1 VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, RX, LC
VEL-000M33-LCTX 3-in-1 VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, TX, LC
VEL-000M33-SCRX 3-in-1 VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, RX, SC
VEL-000M33-SCTX 3-in-1 VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, TX, SC
VEL-000M33-STRX 3-in-1 VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, RX, ST
VEL-000M33-STTX 3-in-1 VELOCITY 3, SINGLE LINK DVI, DDC, MULTIMODE, TX, ST
VEL-AV0S03-SCRX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, RX, SC/APC
VEL-AV0S03-SCTX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, TX, SC/APC
VEL-AV0S03-NKRX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, TX, SC/APC
VEL-AV0S03-NKTX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, TX, NEUTRIK LC
VOP-S05 VELOCITY 3 A/V+ optics option for TX or RX, SINGLE MODE, DUAL FIBER, 10KM, SC/APC
VOP-S11 VELOCITY 3 A/V+ optics option for TX or RX, SINGLE MODE, DUAL FIBER, 10KM, NEUTRIK LC
VEL-AV0M03-LCRX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, LC
VEL-AV0M03-LCTX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, LC
VEL-AV0M03-SCRX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, SC
VEL-AV0M03-SCTX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, SC
VEL-AV0M03-STRX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, ST
VEL-AV0M03-STTX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, ST
VEL-AV0M03-NKRX VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, NEUTRIK
<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>VEL-AV0M03-NKTX</td>
<td>VELOCITY 3 A/V+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI MODE, TX, NEUTRIK</td>
</tr>
<tr>
<td>VOP-M04</td>
<td>VELOCITY 3 A/V+ optics option for TX or RX, MULTI MODE, DUAL FIBER, 50M or 1000M, LC or NEUTRIK LC</td>
</tr>
<tr>
<td>VOP-M01</td>
<td>VELOCITY 3 A/V+ optics option for TX or RX, MULTI MODE, DUAL FIBER, 50M or 350M or 1000M, SC or ST</td>
</tr>
<tr>
<td>VEL-AN0S03-SCRX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, RX, SC/APC</td>
</tr>
<tr>
<td>VEL-AN0S03-SCTX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI MODE, TX, SC/APC</td>
</tr>
<tr>
<td>VEL-AN0S03-NKRX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, RX, NEUTRIK LC</td>
</tr>
<tr>
<td>VEL-AN0S03-NKTX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, TX, NEUTRIK LC</td>
</tr>
<tr>
<td>VOP-S05</td>
<td>VELOCITY 3 A/N+ optics option for TX or RX, SINGLE MODE, DUAL FIBER, 10KM, SC/APC</td>
</tr>
<tr>
<td>VOP-S11</td>
<td>VELOCITY 3 A/N+ optics option for TX or RX, SINGLE MODE, DUAL FIBER, 10KM, NEUTRIK LC</td>
</tr>
<tr>
<td>VEL-AN0M03-LCRX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, LC</td>
</tr>
<tr>
<td>VEL-AN0M03-LCTX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, LC</td>
</tr>
<tr>
<td>VEL-AN0M03-SCRX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, LC</td>
</tr>
<tr>
<td>VEL-AN0M03-SCTX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, SC</td>
</tr>
<tr>
<td>VEL-AN0M03-STRX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, ST</td>
</tr>
<tr>
<td>VEL-AN0M03-STTX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, ST</td>
</tr>
<tr>
<td>VEL-AN0M03-NKRX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, NEUTRIK</td>
</tr>
<tr>
<td>VEL-AN0M03-NKTX</td>
<td>VELOCITY 3 A/N+ DVI VIDEO EXTENDER, SINGLE LINK DVI, LOCAL DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, NEUTRIK</td>
</tr>
<tr>
<td>VOP-M04</td>
<td>VELOCITY 3 A/N+ optics option for TX or RX, MULTI MODE, DUAL FIBER, 50M or 350M or 1000M, LC or NEUTRIK LC</td>
</tr>
<tr>
<td>VOP-M01</td>
<td>VELOCITY 3 A/N+ optics option for TX or RX, MULTI MODE, DUAL FIBER, 50M or 350M or 1000M, SC or ST</td>
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<tr>
<td>VEL-000M06-LCRX</td>
<td>VELOCITY 6 DVI VIDEO EXTENDER, DUAL LINK DVI AUX DUAL DVI OUTPUT, DDC, MULTI-MODE, RX, LC</td>
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<td>VEL-000M06-LCTX</td>
<td>VELOCITY 6, DVI VIDEO EXTENDER, LOCAL DUAL DVI PORT, DDC, MULTI-MODE, TX, LC</td>
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<td>VEL-000M06-SCTX</td>
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<td>VELOCITY 6 DVI VIDEO EXTENDER, DUAL LINK DVI AUX DUAL DVI OUTPUT, DDC, MULTI-MODE, RX, ST</td>
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<tr>
<td>VEL-000M06-STTX</td>
<td>VELOCITY 6, DVI VIDEO EXTENDER, LOCAL DUAL DVI PORT, DDC, MULTI-MODE, TX, ST</td>
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<td>VEL-000M63-LCRX</td>
<td>3-in-1 VELOCITY 6 DVI VIDEO EXTENDER, DUAL LINK DVI AUX DUAL DVI OUTPUT, DDC, MULTI-MODE, RX, LC</td>
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<tr>
<td>Model</td>
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</tr>
<tr>
<td>VEL-000M63-LCTX</td>
<td>3-in-1 VELOCITY 6, DVI VIDEO EXTENDER, LOCAL DUAL DVI PORT, DDC, MULTI-MODE, TX, LC</td>
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<tr>
<td>VEL-000M63-SCRX</td>
<td>3-in-1 VELOCITY 6 DVI VIDEO EXTENDER, DUAL LINK DVI AUX DUAL DVI OUTPUT, DDC, MULTI-MODE, RX, SC</td>
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<tr>
<td>VEL-000M63-SCTX</td>
<td>3-in-1 VELOCITY 6, DVI VIDEO EXTENDER, LOCAL DUAL DVI PORT, DDC, MULTI-MODE, TX, SC</td>
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<tr>
<td>VEL-000M63-STRX</td>
<td>3-in-1 VELOCITY 6 DVI VIDEO EXTENDER, DUAL LINK DVI AUX DUAL DVI OUTPUT, DDC, MULTI-MODE, RX, ST</td>
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<tr>
<td>VEL-000M63-STTX</td>
<td>3-in-1 VELOCITY 6, DVI VIDEO EXTENDER, LOCAL DUAL DVI PORT, DDC, MULTI-MODE, TX, ST</td>
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<tr>
<td>VEL-AV0S06-SCRX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DUAL DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, RX, SC/APC</td>
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<tr>
<td>VEL-AV0S06-SCTX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DUAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, SC/APC</td>
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<tr>
<td>VEL-AV0S06-NKRX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DUAL DVI OUTPUT, DDC, SERIAL, AUDIO, SINGLE MODE, TX, SC/APC</td>
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<tr>
<td>VEL-AV0S06-NKTX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DUAL DVI PORT, DDC, SERIAL, AUDIO, SINGLE MODE, RX, NEUTRIK LC</td>
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<td>VOP-S08</td>
<td>VELOCITY 6 AV+ optics option for TX or RX, SINGLE MODE, 3 FIBERS, 10KM, SC/APC</td>
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<td>VOP-S12</td>
<td>VELOCITY 6 AV+ optics option for TX or RX, SINGLE MODE, 3 FIBERS, 10KM, NEUTRIK LC/APC</td>
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<td>VEL-AV0M06-LCRX</td>
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<tr>
<td>VEL-AV0M06-LCTX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, LC</td>
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<tr>
<td>VEL-AV0M06-SCRX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, LC</td>
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<td>VEL-AV0M06-SCTX</td>
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<td>VEL-AV0M06-NKRX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, NEUTRIK LC</td>
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<tr>
<td>VEL-AV0M06-NKTX</td>
<td>VELOCITY 6 A/V+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DUAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, NEUTRIK LC</td>
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<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>VOP-M05</td>
<td>VELOCITY 6 AV+ optics option for TX or RX, MULTIMODE, 3 FIBERS, 50M, or 350M or 1000M, LC or NEUTRIK LC</td>
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<tr>
<td>VOP-M02</td>
<td>VELOCITY 6 AV+ optics option for TX or RX, MULTIMODE, 3 FIBERS, 50M or 350M or 1000M, SC or ST</td>
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<tr>
<td>VEL-AN0S06-NKTX</td>
<td>VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DUAL DVI PORT, DDC, SERIAL, AUDIO, SINGLE-MODE, TX, NEUTRIK LC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOP-S08</td>
<td>VELOCITY 6 A/N+ optics option for TX or RX, SINGLE-MODE, 3 FIBERS, 10KM, SC/APC</td>
</tr>
<tr>
<td>VOP-S12</td>
<td>VELOCITY 6 A/N+ optics option for TX or RX, SINGLE-MODE, 3 FIBERS, 10KM, NEUTRIK LC/APC</td>
</tr>
</tbody>
</table>
VEL-AN0M06-LCRX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, LC
VEL-AN0M06-LCTX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, LC
VEL-AN0M06-SCRX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, SC
VEL-AN0M06-SCTX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, SC
VEL-AN0M06-STRX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, ST
VEL-AN0M06-STTX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, ST
VEL-AN0M06-NKRX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, AUX DVI OUTPUT, DDC, SERIAL, AUDIO, MULTI-MODE, RX, NEUTRIK
VEL-AN0M06-NKTX  VELOCITY 6 A/N+ DVI VIDEO EXTENDER, DUAL LINK DVI, LOCAL DVI PORT, DDC, SERIAL, AUDIO, MULTI-MODE, TX, NEUTRIK

VOP-M05  VELOCITY 6 A/N+ optics option for TX or RX, MULTI-MODE, 3 FIBERS, 50M or 350M or 1000M, LC or NEUTRIK LC
VOP-M02  VELOCITY 6 A/N+ optics option for TX or RX, MULTI-MODE, 3 FIBERS, 50M or 350M or 1000M, SC or ST
1.4. Laser Information

The DVI Extender models Velocity-3, -6, -33 and -63 are designed and identified as Class 1 LASER products.

CLASS 1 LASERS do not require any special precautions under conditions of normal use.

2. System Features

2.1. General System Features

Thinklogical’s VelocityDVI Extender Systems® are designed for high resolution video extension applications, such as remote projection centers, theaters and assembly halls, and for secure computer installations. The ability to remotely locate the CPU away from the monitor allows more control of your computer environment. It is now possible to position your monitor or projector in any setting from office to lecture hall to boardroom while keeping the computer secure in a remote, controlled location.

Each DVI Extender system includes the following features:

- Supports one Single-Link (System-3) or one Dual-Link (System-6) video signal.
- Supports three Single-Link (System-33) or three Dual-Link (System-63) video signals.
- DDC2B compliant
- Extends DVI up to 1000 meters (3280 feet) using OM4 multi-mode fiber
- Built-in Status LEDs
- Signal transmission via fiber optic cable; no RF interference
- Flawless image quality with no frame dropping
- Class 1 laser product
- Simple plug and play
- Small form factor
2.2. Basic operation

The system transmits video and data information from the Transmitter to the Receiver through fiber L1. The data return path from the Receiver to the Transmitter is fiber L2.

2.3 Single Fiber operation, System-3

The unit will operate with a single fiber from the TX to the RX. In this mode of operation the TX can transmit video and status LED information to the RX. The RX cannot send any information to the TX. In this mode the RX buttons are inoperative. Also, DDC information can only be gathered from the TX local port or the Thinklogical default EDID table.

2.4 Dual Fiber Operation, System-3

In this mode video information is transmitted from the TX to the RX over fiber L1. Fiber L2 is used as a data return path from the RX to the TX. Providing a back channel from the RX to the TX allows the RX to modify DDC configuration via the Acquire and Select buttons and allows the RX to send DDC information to the TX. DDC information exchange allows the PC to gather information about the connected monitor to determine the display properties.

2.5 Fiber Operation, System-6

System-6 operates in Dual-fiber or Triple-fiber operation. In dual-fiber operation, fibers L1 and L3 are used to transmit data and video from the TX to the RX and in three-fiber mode, fiber L2 transmits data from the RX back to the TX.
## 2.6. Technical Specifications (Systems-3, -6, -33 and -63)

<table>
<thead>
<tr>
<th>Technical Specifications (Systems-3, -6, -33, -63)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Resolution</strong></td>
</tr>
<tr>
<td>Vel-3: Any single-link DVI resolution</td>
</tr>
<tr>
<td>Vel-6: Any single-link or dual-link DVI resolution</td>
</tr>
<tr>
<td><strong>Panel Connections</strong></td>
</tr>
<tr>
<td><strong>Transmitter</strong></td>
</tr>
<tr>
<td>Video</td>
</tr>
<tr>
<td>Power</td>
</tr>
<tr>
<td>Fiber Connections</td>
</tr>
<tr>
<td><strong>Receiver</strong></td>
</tr>
<tr>
<td>Video</td>
</tr>
<tr>
<td>Power</td>
</tr>
<tr>
<td>Fiber Connections</td>
</tr>
<tr>
<td><strong>Operating Temperature and Humidity</strong></td>
</tr>
<tr>
<td>0-50 °C (32-122°F, 5-95% RH, non-condensing)</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
</tr>
<tr>
<td>-20 to 70°C (−4 to 158°F)</td>
</tr>
<tr>
<td><strong>Indicators</strong></td>
</tr>
<tr>
<td>LEDs on each DVI Extender unit:</td>
</tr>
<tr>
<td>Front: Power, Connection Status</td>
</tr>
<tr>
<td>Rear: DDC Modes - Local, Remote</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td>&lt;1 lb. (0.45 kg) each (Vel-3, Vel-6)</td>
</tr>
<tr>
<td>4 lb. (1.81 kg) each (Vel-33, Vel-63)</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
</tr>
<tr>
<td>See page 30.</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong></td>
</tr>
<tr>
<td>4 lb. (1.81 kg) pair (Vel-3, Vel-6)</td>
</tr>
<tr>
<td>13 lb. (5.89 kg) pair (Vel-33, Vel-63)</td>
</tr>
<tr>
<td><strong>Optical Cable</strong></td>
</tr>
<tr>
<td>Sys-3 = 2 fibers, Sys-33 = 6 fibers</td>
</tr>
<tr>
<td>Sys-6 = 3 fibers, Sys-63 = 9 fibers</td>
</tr>
<tr>
<td>(available, not supplied)</td>
</tr>
<tr>
<td><strong>Optical Distance</strong></td>
</tr>
<tr>
<td>Up to 350 meters using 50/125um, type OM2</td>
</tr>
<tr>
<td>Up to 1000 meters using 50/125um, type OM4</td>
</tr>
<tr>
<td>Up to 10/40/80 kilometers using 9/125um (Optics available)</td>
</tr>
<tr>
<td><strong>Supply Voltage</strong></td>
</tr>
<tr>
<td>+5.0 VDC (Vel-3, Vel-6)</td>
</tr>
<tr>
<td>90-264 VAC (Vel-33, Vel-63)</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
</tr>
<tr>
<td>6 watts per unit (Vel-3, Vel-6)</td>
</tr>
<tr>
<td>20 watts per unit (Vel-33, Vel-63)</td>
</tr>
<tr>
<td><strong>DC Adapter</strong></td>
</tr>
<tr>
<td>AC/DC adapter, universal input 90-264 VAC (supplied, Vel-3, -6)</td>
</tr>
<tr>
<td><strong>DB9 to RJ45 Adapters</strong></td>
</tr>
<tr>
<td>With AV+ models only:</td>
</tr>
<tr>
<td>DB9M to RJ45 (ADP-000019-R)</td>
</tr>
<tr>
<td>DB9F to RJ45 (ADP-000025-R)</td>
</tr>
<tr>
<td><strong>Copper Video Cables</strong></td>
</tr>
<tr>
<td>CBL000009-002MR Single-link DVI-D Male to Male, 2 meters</td>
</tr>
<tr>
<td>1 each, Vel-3  3 each, Vel-33</td>
</tr>
<tr>
<td>CBL000023-002MR Dual-link DVI-D Male to Male, 2 meters</td>
</tr>
<tr>
<td>1 each, Vel-6  3 each, Vel-63</td>
</tr>
<tr>
<td><strong>Compliance</strong></td>
</tr>
<tr>
<td>Approvals for US, Canada, and European Union</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
</tr>
<tr>
<td>12 months from date of shipment.</td>
</tr>
<tr>
<td>Extended warranties available at time of purchase.</td>
</tr>
</tbody>
</table>
2.7. Velocity Unbalanced Audio Specifications

**VELOCITY UNBALANCED AUDIO SPECIFICATIONS**

**AUDIO SAMPLING RATE:** 46.875kHz

**TRANSMITTER:**
- Line In Impedance: 10kΩ
- Line In (max): 2.5V p/p (0.884Vrms, 1.15dBu)
- Mic Out Impedance: 300Ω
- Mic Out (max): 0.45V p/p (0.159Vrms, -13.75dBu)

**RECEIVER:**
- Line Out Impedance: 560Ω
- Line Out (max) into 1K ohms: 3V p/p (1.06Vrms, 2.72dBu)
- Mic In Impedance: 5kΩ
- Mic In (max) : 0.24V p/p (0.085Vrms, -19.2dBu)

3. Installing DVI Extenders

*All physical connections to these products use industry-standard connectors.*

It is recommended that you securely mount each VelocityDVI chassis before installing the cabling and power sources. Please refer to the following appendices at the back of this manual:

- **Appendix A: Installation Overview** on pages 39-44
- **Appendix B: DVI Extender Mounting** on page 45
- **Appendix C: RJ-45 Adapter Pin-outs** on page 46
3.1. AC Power

Two wall pack AC/DC adapters (PWR-000022-R) are included with the VelocityDVI-3 and VelocityDVI-6 models. The AC wall pack has a universal power rating of 100-240VAC, 50-60Hz and also has interchangeable wall plug adapters for various international AC power receptacles (below).

+5VDC Power Supply
PWR-000022-R

- +5VDC
- Continuous Short Circuit Protection
- Over Voltage Protection
- Conductive EMI Meets CISPR/FCC Class B high efficiency, 75% Typical
- International Receptacle Adapters

International Receptacle Adapters for the PWR-000022-R +5VDC Power Supply
3.2. The VelocityDVI-3, -6, -33 and -63 Chassis Configurations

The models depicted on pages 14-30 provide an overview of the various dimensions, connectors and features available on Thinklogical's VelocityDVI-3 and -6 chassis. The VelocityDVI-33 and -63 back panels are shown on page 30.

**VelocityDVI-3**

Physical dimensions are the same for both the Transmitter and Receiver chassis.
VelocityDVI-3 with Neutrik® OpticalCon DUO Connector

Physical dimensions are the same for both the Transmitter and Receiver chassis.
VelocityDVI-3 A/V+

Physical dimensions are the same for both the Transmitter and Receiver chassis.
VelocityDVI-3 A/V+ with Neutrik® OpticalCon DUO Connector

TRANSMITTER

DVI to Local Display  DVI from CPU

RECEIVER

DVI to Display DDC  DVI to Display

Physical dimensions are the same for both the Transmitter and Receiver chassis.
VelocityDVI-3 A/N+ Transmitter (Audio Network)

Front Panel Network Status LEDS:
- FOL is ON when Fiber Optic Link is OK.
- TX is ON when data is transferring from TX to RX.
- RX is ON when data is transferring from RX to TX.
- LNK/ACT is ON when link is established. Flashes when actively transferring data.

Rear Panel Network Status LEDS:
- 10/100:
  - When lit, speed of link is 100 Mb/sec.
  - When off, speed of link is 10 Mb/sec.
- FD/COL:
  - When lit, indicates operation in Full Duplex.
  - When off, indicates operation in Half Duplex.
  - When blinking, indicates Collision.

On the RJ45 Connector:
- Green LED = Link
- Yellow LED (blinking) = Activity

Dimensions:
7.00" (177.80mm) L x 7.49" (190.25mm) W x 1.10" (27.94mm) H
VelocityDVI-3 A/N+ Receiver (Audio Network)

Front Panel Network Status LEDs:
- **FOL** is ON when Fiber Optic Link is OK.
- **TX** is ON when data is transferring from TX to RX.
- **RX** is ON when data is transferring from RX to TX.
- **LNK/ACT** is ON when link is established. **Flashes** when actively transferring data.

Rear Panel Network Status LEDs:
- **10/100:**
  - When **lit**, speed of link is **100 Mb/sec**.
  - When **off**, speed of link is **10 Mb/sec**.
- **FD/COL:**
  - When **lit**, indicates operation in **Full Duplex**.
  - When **off**, indicates operation in **Half Duplex**.
  - When **blinking**, indicates **Collision**.

On the RJ45 Connector:
- **Green LED** = **Link**
- **Yellow LED (blinking)** = **Activity**

VelocityDVI-3 A/N+ Transmitter with Neutrik® OpticalCon DUO Connector

Front Panel Network Status LEDS:
- **FOL** is ON when Fiber Optic Link is OK.
- **TX** is ON when data is transferring from TX to RX.
- **RX** is ON when data is transferring from RX to TX.
- **LNK/ACT** is ON when link is established. **Flashes** when actively transferring data.

Rear Panel Network Status LEDS:
- **10/100:**
  - When **lit**, speed of link is **100 Mb/sec**.
  - When **off**, speed of link is **10 Mb/sec**.
- **FD/COL:**
  - When **lit**, indicates operation in **Full Duplex**.
  - When **off**, indicates operation in **Half Duplex**.
  - When **blinking**, indicates **Collision**.

On the RJ45 Connector:
- **Green LED** = **Link**
- **Yellow LED (blinking)** = **Activity**
VelocityDVI-3 A/N+ Receiver with Neutrik®
OpticalCon DUO Connector

Front Panel Network Status LEDS:
FOL is ON when Fiber Optic Link is OK.
TX is ON when data is transferring from TX to RX.
RX is ON when data is transferring from RX to TX.
LNK/ACT is ON when link is established. Flashes when actively transferring data.

Rear Panel Network Status LEDS:
10/100:
- When lit, speed of link is 100 Mb/sec.
- When off, speed of link is 10 Mb/sec.
FD/COL:
- When lit, indicates operation in Full Duplex.
- When off, indicates operation in Half Duplex.
- When blinking, indicates Collision.

On the RJ45 Connector:
- Green LED = Link
- Yellow LED (blinking) = Activity
Velocity-6

TRANSMITTER

(27.94mm)

RECEIVER

(27.94mm)

Velocitydvi

Digital Video Extension System – 6
Dual-Link DVI Transmitter

Lower Connectors
L1 ▶ Video/Data
L3 ◀ Video

Upper Connector
L2 ▶ Data

Powered by MRTS Technology

Physical dimensions are the same for both the Transmitter and Receiver chassis.
Physical dimensions are the same for both the Transmitter and Receiver chassis.
VelocityDVI-6 A/V+

TRANSMITTER

1.10" (27.94mm) DVI to Local Display DVI from CPU

RECEIVER

1.10" (27.94mm) DVI to Display DDC DVI to Display

Physical dimensions are the same for both the Transmitter and Receiver chassis.
VelocityDVI-6 A/V+ with Neutrik®
OpticalCon QUAD Connector

Physical dimensions are the same for both the Transmitter and Receiver chassis.
VelocityDVI-6 A/N+ Transmitter

Front Panel Network Status LEDs:
FOL is ON when Fiber Optic Link is OK.
TX is ON when data is transferring from TX to RX.
RX is ON when data is transferring from RX to TX.
LNK/ACT is ON when link is established. Flashes when actively transferring data.

Rear Panel Network Status LEDs:
10/100:
When lit, speed of link is 100 Mb/sec.
When off, speed of link is 10 Mb/sec.
FD/COL:
When lit, indicates operation in Full Duplex.
When off, indicates operation in Half Duplex.
When blinking, indicates Collision.

On the RJ45 Connector:
Green LED = Link
Yellow LED (blinking) = Activity
VelocityDVI-6 A/N+ Receiver

Front Panel Network Status LEDS:
- FOL is ON when Fiber Optic Link is OK.
- TX is ON when data is transferring from TX to RX.
- RX is ON when data is transferring from RX to TX.
- LNK/ACT is ON when link is established. Flashes when actively transferring data.

Rear Panel Network Status LEDS:
- 10/100:
  - When lit, speed of link is 100 Mb/sec.
  - When off, speed of link is 10 Mb/sec.
- FD/COL:
  - When lit, indicates operation in Full Duplex.
  - When off, indicates operation in Half Duplex.
  - When blinking, indicates Collision.

On the RJ45 Connector:
- Green LED = Link
- Yellow LED (blinking) = Activity

7.00" (177.80mm) L x 7.49" (190.25mm) W x 1.10" (27.94mm) H
VelocityDVI-6 A/N+ Transmitter with Neutrik® QUAD OpticalCon Connector

Front Panel Network Status LEDs:
- **FOL** is ON when Fiber Optic Link is OK.
- **TX** is ON when data is transferring from TX to RX.
- **RX** is ON when data is transferring from RX to TX.
- **LNK/ACT** is ON when link is established. **Flashes** when actively transferring data.

Rear Panel Network Status LEDs:
- **10/100:**
  - *When lit,* speed of link is 100 Mb/sec.
  - *When off,* speed of link is 10 Mb/sec.
- **FD/COL:**
  - *When lit,* indicates operation in **Full Duplex**.
  - *When off,* indicates operation in **Half Duplex**.
  - *When blinking,* indicates **Collision**.

On the RJ45 Connector:
- **Green LED = Link**
- **Yellow LED (blinking) = Activity**
Velocity-6 A/N+ Receiver with Neutrik® QUAD OpticalCon Connector

Front Panel Network Status LEDs:
- FOL is ON when Fiber Optic Link is OK.
- TX is ON when data is transferring from TX to RX.
- RX is ON when data is transferring from RX to TX.
- LNK/ACT is ON when link is established. **Flashes** when actively transferring data.

Rear Panel Network Status LEDs:
- **10/100:**
  - When lit, speed of link is 100 Mb/sec.
  - When off, speed of link is 10 Mb/sec.
- **FD/COL:**
  - When lit, indicates operation in Full Duplex.
  - When off, indicates operation in Half Duplex.
  - When **blinking**, indicates Collision.

On the RJ45 Connector:
- **Green LED** = Link
- **Yellow LED (blinking)** = Activity

7.75” (196.85mm) L x 7.49” (190.25mm) W x 2.00” (50.80mm) H
Velocitydvi-33 and -63 Transmitter and Receiver Back Panels

3.2.1. Table of VelocityDVI Chassis Dimensions

<table>
<thead>
<tr>
<th>VelocityDVI Model</th>
<th>DIMENSIONS (inches)</th>
<th>DIMENSIONS (metric)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VEL-3</td>
<td>5.375&quot;W x 7.0&quot;D x 1.1&quot;H</td>
<td>136.65mm x 177.80mm x 27.94mm</td>
</tr>
<tr>
<td>VEL-3 with Neutrik®</td>
<td>5.375&quot;W x 7.0&quot;D x 2.0&quot;H</td>
<td>136.65mm x 177.80mm x 50.80mm</td>
</tr>
<tr>
<td>VEL-3 AV+</td>
<td>7.5&quot;W x 7.0&quot;D x 1.1&quot;H</td>
<td>190.50mm x 177.80mm x 27.94mm</td>
</tr>
<tr>
<td>VEL-3 AV+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.0&quot;D x 2.0&quot;H</td>
<td>190.50mm x 177.80mm x 50.80mm</td>
</tr>
<tr>
<td>VEL-3 AN+</td>
<td>7.5&quot;W x 7.0&quot;D x 1.1&quot;H</td>
<td>190.50mm x 254.00mm x 27.94mm</td>
</tr>
<tr>
<td>VEL-3 AN+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.0&quot;D x 2.0&quot;H</td>
<td>190.50mm x 177.80mm x 50.80mm</td>
</tr>
<tr>
<td>VEL-6</td>
<td>5.5&quot;W x 7.75&quot;D x 1.1&quot;H</td>
<td>139.65mm x 196.85mm x 27.94mm</td>
</tr>
<tr>
<td>VEL-6 with Neutrik®</td>
<td>5.375&quot;W x 7.0&quot;D x 2.44&quot;H</td>
<td>136.65mm x 177.80mm x 61.98mm</td>
</tr>
<tr>
<td>VEL-6 AV+</td>
<td>7.5&quot;W x 7.75&quot;D x 1.1&quot;H</td>
<td>190.50mm x 196.85mm x 27.94mm</td>
</tr>
<tr>
<td>VEL-6 AV+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.0&quot;D x 2.44&quot;H</td>
<td>190.50mm x 177.80mm x 61.98mm</td>
</tr>
<tr>
<td>VEL-6 AN+</td>
<td>7.5&quot;W x 7.75&quot;D x 1.1&quot;H</td>
<td>190.50mm x 196.85mm x 27.94mm</td>
</tr>
<tr>
<td>VEL-6 AN+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.75&quot;D x 2.0&quot;H</td>
<td>190.50mm x 196.85mm x 50.80mm</td>
</tr>
<tr>
<td>VEL-33 (rack-mount)</td>
<td>19.0&quot;W x 10.0&quot;D x 1.72&quot;H</td>
<td>482.60mm x 254.00mm x 43.69mm</td>
</tr>
<tr>
<td>VEL-63 (rack-mount)</td>
<td>19.0&quot;W x 7.84&quot;D x 1.72&quot;H</td>
<td>482.60mm x 199.14mm x 43.69mm</td>
</tr>
</tbody>
</table>

Refer to Paragraph 1.3 beginning on page 5 for the complete line of VelocityDVI-3 & -6 Extenders.
4. DDC and EDID

DDC (Display Data Channel) is a VESA standard transport medium between a CPU's graphics adapter and monitor. The DDC is used to pass EDID (Extended Display Identification Data), which is stored in the monitor and describes its characteristics (vendor name, serial number, frequency range, etc.). With this information the CPU and video card can determine what resolutions the monitor is capable of.

The DDC bus can be unidirectional or bidirectional. A bidirectional bus supports content protection (HDCP) and display calibration software. (High-bandwidth Digital Content Protection is a specification used to encrypt and protect digital video and audio signals transmitted between two HDCP-enabled devices.)

**NOTE:** Most DVI-D graphics adapters will not boot if a valid EDID table is not received at power up.

4.1. Default DDC Modes

4.1.1. Remote Dynamic Mode

**System-3: 2 fibers required, System-6: 3 fibers required**

The unit acts as a direct connection between the RX and TX. In this mode DDC data is read at the RX and sent to the TX. Once verified at the TX the information is written into a PROM on the TX and provided to the CPU video card. The RX will not send DDC data to the TX unless a different display is connected to the RX.

**Advantages:** Allows CPU video card to boot when there is no fiber connection to the RX.

**Limitations:** No communication link from the CPU to the display. Prevents the use of HDCP or monitor configuration/color tuning.

**NOTE:** When switching between DDC modes (except Pass-Thru), you will need to press the ACQUIRE button to activate the new mode.

4.1.2. Remote Static Mode

**Sys-3: 2 fibers required to acquire DDC data, 1 fiber thereafter  
Sys-6: 3 fibers required to acquire DDC data, 2 fibers thereafter**

Remote Static Mode is a subset of Dynamic Mode in that once a transfer from the RX to the TX is completed successfully no other transfer will be made unless specifically requested by using the ACQUIRE Button. The DDC data stored in the TX PROM will not change regardless of display changes.

**Advantages:** Allows the user to acquire and use an EDID table regardless of changes in connection at the RX.

**Limitations:** No communication link from the CPU to the display. Prevents the use of HDCP or monitor configuration/color tuning. May not produce video if a display with lower resolution capability is subsequently connected.

4.1.3. Pass-Thru Mode

**Sys-3: 2 fibers required, Sys-6: 3 fibers required**

The units act as a direct connection between the TX and RX. This mode allows the CPU to communicate directly with the monitor.

**Advantages:** Allows monitor color tuning and HDCP.

**Limitations:** If a monitor is not connected to the RX most video cards will not boot.

4.1.4. Local Static Mode

**Sys-3: 1 fiber required, Sys-6: 2 fibers required**

Local Static mode operates in the same manner as Remote Static mode except that the EDID table is read from a monitor plugged into the local port of the TX. Once the ACQUIRE button is pressed
the TX will begin reading the DDC from the locally connected monitor until a valid EDID table is read. The table will then be stored on the TX and presented to the CPU.

**Advantages:** The TX does not need to be connected to the video card or RX. The EDID table can be loaded before the TX is installed.

**Limitations:** No communication link from the CPU to the display. This prevents the use of HDCP or monitor configuration/color tuning and may result in loss of remote video if a display with lower resolution capability is connected to the RX.

### 4.2. Load Default EDID Table

Holding the **ACQUIRE** and **SELECT** buttons for 5 seconds will reload the default DDC table into the TX, and switch the DDC mode to Remote Static. The TX Status LED will turn Orange while the default table is loaded and then change to Green.

**Advantages:** Sends a valid EDID table to the CPU in order for the graphics adapter to boot.

**Limitations:** Default EDID table may not support required resolutions.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Remote Dynamic</th>
<th>Remote Static</th>
<th>Pass-Thru</th>
<th>Local Static</th>
<th>Load Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports HDCP</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Supports monitor calibration</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Monitor on RX side required to boot video</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>EDID table loaded from Rx</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>EDID table loaded from Tx</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>EDID table stored in non-volatile memory</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fibers required System-3</td>
<td>2</td>
<td>2 initially, then L1 only</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Fibers required System-6</td>
<td>3</td>
<td>3 initially, then L1 and L3 only</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**EDID Capability Summary**
4.2.1. DDC LEDs and Mode Button Operation

- **Acquire Button**
  The upper button is the Acquire Button. This button is used to initiate DDC collection. This button works with all modes except Pass-Thru.

- **Select Button**
  The lower button is used to select the DDC Mode of operation. The modes will cycle through Remote Dynamic, Remote Static, PassThru and Local Static.

- **Both Buttons Held 5 seconds**
  Holding both buttons for 5 seconds will reload the default DDC table into the TX and switch to Remote Static mode.

- **Local and Remote LED Mode Indication**

<table>
<thead>
<tr>
<th>LCL</th>
<th>REM</th>
<th>DDC MODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>GREEN</td>
<td>REMOTE DYNAMIC</td>
<td>EDID READ FROM REMOTE DISPLAY AND UPDATED EACH TIME REMOTE DISPLAY CHANGES.</td>
</tr>
<tr>
<td>ORANGE</td>
<td>GREEN</td>
<td>REMOTE STATIC</td>
<td>EDID READ FROM REMOTE DISPLAY WHEN ACQUIRE BUTTON IS PRESSED.</td>
</tr>
<tr>
<td>GREEN</td>
<td>GREEN</td>
<td>PASS-THRU</td>
<td>ACTS AS A DIRECT CONNECTION BETWEEN CPU AND DISPLAY. NO EMULATION IS PERFORMED.</td>
</tr>
<tr>
<td>GREEN</td>
<td>ORANGE</td>
<td>LOCAL STATIC</td>
<td>EDID READ FROM LOCAL DISPLAY WHEN ACQUIRE BUTTON IS PRESSED.</td>
</tr>
</tbody>
</table>

- **TX Status LED**
  The status LED indicates the connection status of the TX Extender. 
  **Green** = Fiber L2 is connected and a good link is established. 
  **Orange** = Local Static Mode selected and no fiber link from RX to TX (L2 is not connected), or both buttons are held down and the unit is waiting to reload the default DDC table.
Red Flashing = No Fiber Link from RX to TX (Not available in Local Static mode).
For VEL-6 models, there is no LED indication for Fiber L3. In single-link mode, video is not affected if L3 is not connected. In dual-link mode, there will be no video if L3 is not connected.

- **RX Status LED**
  The status LED indicates the connection status of the RX Extender.
  - **Green** = Good Link and DVI monitor connected to primary port (port on left looking at DVI connectors).
  - **Orange** = No DVI monitor connected to primary port.
  - **Red Flashing** = No Fiber Link from TX to RX (L1 is not connected).

- **Power LED**
  When lit, the **Green LED** near the power jack indicates that +5VDC power is applied to the unit.

- **Grounding Stud**
  A grounding stud located below the power jack allows the unit to be hard-wired to electrical ground if required.

### 5.0. Regulatory & Safety Compliance

#### 5.1. Safety Requirements

**Symbols found on the product**

Markings and labels on the product follow industry-standard conventions. Regulatory markings found on the products comply with domestic and many international requirements.

#### 5.1.1. Class 1 Laser Labeling

The DVI Extender models VEL-3, -6, -33 and -63 are designed and identified as Class 1 LASER products.

**CLASS 1 LASERS do not require any special precautions under conditions of normal use.**

**Regulatory Compliance**

Thinklogical's® products are designed and made in the U.S.A. These products have been tested by a certified testing laboratory and found to be compliant with the following standards (both domestic USA and many international locations):

**North America**

- **Safety**
  CAN/CSA C22.2 No. 60950-1-03

- **Electromagnetic Interference**
  FCC CFR47, Part 15, Class A
  Industry Canada ICES-003 Issue 2, Revision 1

**Australia & New Zealand**

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.
European Union

Declaration of Conformity
Manufacturer’s Name & Address: Thinklogical, LLC®
100 Washington Street
Milford, Connecticut 06460 USA

These products comply with the requirements of the Low Voltage Directive 72/23/EEC and the EMC Directive 89/336/EEC.

Standards Compliance

Safety
CENELEC EN 60950-1, 1st Edition (2001)

Electromagnetic Emissions
EN61000-3-2/A14: 2000
EN61000-3-3: 1994

Electromagnetic Immunity
EN55024: 1998 Information Technology Equipment-Immunity Characteristics
EN61000-4-2: 1995 Electro-Static Discharge Test
EN61000-4-3: 1996 Radiated Immunity Field Test
EN61000-4-4: 1995 Electrical Fast Transient Test
EN61000-4-5: 1995 Power Supply Surge Test
EN61000-4-6: 1996 Conducted Immunity Test
EN61000-4-8: 1993 Magnetic Field Test
EN61000-4-11: 1994 Voltage Dips & Interrupts Test

5.2. Supplementary Information

The following statements may be appropriate for certain geographical regions and might not apply to your location.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le matériel brouilleur du Canada.

Warning! This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take corrective measures.

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 in which case the user may be required to take adequate corrective measures at their own expense.
Note: This Class A digital apparatus complies with Canadian ICES-003 and has been verified as being compliant within the Class A limits of the FCC Radio Frequency Device Rules (FCC Title 47, Part 15, Subpart B CLASS A), measured to CISPR 22: 1993 limits and methods of measurement of Radio Disturbance Characteristics of Information Technology Equipment.

Note: The user may notice degraded audio performance in the presence of electromagnetic fields.

Product Serial Number
Thinklogical products have a unique serial number, which includes a date-code, printed on an adhesive label that is affixed to the unit. The format for the date-code is 2 digits for the month, dash, 2 digits for the year, plus at least four digits for a unique unit number. For example, 05-140125 indicates the unit was built in the 5th month of 2014, and is unit number 125.

Connection to the Product
Connections and installation hardware for our products use industry-standard devices and methods. All wiring connections to the customer equipment are designed to minimize proprietary or customized connectors and cabling. Power connections are made with regionally appropriate power cords and approved methods.

6.0. How to Contact Us
6.1. Customer Support
Thinklogical® is an engineering company and you will receive the information you require directly from our most knowledgeable engineers.

We believe that the first line of support comes from the design engineers that developed each particular product.

Therefore, your questions or issues will be handled promptly by our in-house engineers who are most familiar with your products.

Thank you for choosing Thinklogical® products for your application.
We appreciate your business and are dedicated to helping you successfully use our products.
thinklogical® is always here to help you.
To contact us, please use the following telephone numbers and internet-based methods:

Website
Check out our website for current product offerings, support information and general information about all of the products we offer.
Our internet website offers product information on all current systems, including technical specification sheets and installation guides (for viewing online or for download), product diagrams showing physical connections and other information you might need.
Internet: www.thinklogical.com
Email
Thinklogical® is staffed **Monday through Friday from 8:30am to 5:00pm**, Eastern Time Zone. We will do our best to respond to your email inquiries promptly. Please use the following email addresses:

- **info@thinklogical.com** – Information on Thinklogical® and our products.
- **sales@thinklogical.com** – Sales Department - orders, questions or issues.
- **support@thinklogical.com** – Product support, technical issues or questions, product repairs and request for Return Authorization.

Telephone

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Commercial &amp; Canada Sales:</td>
<td>1-203-647-8769</td>
</tr>
<tr>
<td>Toll Free in the Continental US:</td>
<td>1-800-291-3211</td>
</tr>
<tr>
<td>International Sales (Europe, Middle East, Africa):</td>
<td>1-203-647-8704</td>
</tr>
<tr>
<td>International Sales (Asia Pacific, Central &amp; Latin America):</td>
<td>1-203-647-8734</td>
</tr>
<tr>
<td>Fax:</td>
<td>1-203-783-9949</td>
</tr>
</tbody>
</table>

Please contact our expert sales staff in Milford, CT. We are here Monday through Friday from 8:30am to 5:00pm, Eastern Time Zone. We’ll provide a representative’s direct dial phone number when you call.

If leaving a voice message, please provide a preferred time to call back so we may reach you at your convenience.

Our switchboard attendant will direct your call during regular business hours. We have an automated attendant answering our main telephone switchboard after regular business hours and holidays. You can leave voice messages for individuals at any time.

Fax
Our company facsimile number is **1-203-783-9949**. Please indicate the nature of the fax on your cover sheet and provide return contact information.

6.2. Product Support

Thinklogical’s® support personnel are available **Monday through Friday from 8:30am to 5:00pm**, Eastern Time Zone. If your application requires assistance at some time outside of our normal business hours, please contact us beforehand and we will do our best to make arrangements to help you with your Thinklogical® products.

6.2.1. Warranty

Thinklogical, LLC® warrants this product against defects in materials and workmanship for a period of one year from the date of delivery. Thinklogical, LLC® and its suppliers disclaim any and all other warranties.
Note: Thinklogical, LLC® products carry a one year warranty, with longer term available at time of purchase on most products. Please refer to your product invoice for your products Warranty Terms & Conditions.

Defect remedy shall be the repair or replacement of the product, provided that the defective product is returned to the authorized dealer within a year from the date of delivery. If you wish to return your device, contact the Thinklogical, LLC® authorized dealer where you purchased the device, or if you purchased directly, call Thinklogical at 1-800-291-3211 (USA).

6.2.2. Return Authorization

If you need to return your Thinklogical® product to us for any reason, please get a Return Merchandise Authorization Number (RMA#) from Thinklogical’s Product Support Department (1-203-647-8700) before sending the unit in.

In the event you must return a product to Thinklogical directly, please contact Customer Support at 1-800-291-3211 or 1-203-647-8700. Customer Support will ask you to describe the problem and will issue you a Return Merchandise Authorization number (RMA#). Pack the device in its original box, if possible, and return it with the RMA# printed on the outside of the box.

Note: DO NOT return a product to Thinklogical® without a Return Material Authorization.

Our Address

If you have any product issues or questions or need technical assistance with your Thinklogical® system, please call us at 1-800-291-3211 (USA only) or 1-203-647-8700 and let us help. If you need to write us or return a product, please use the following address: Return address for products with Return Material Authorization: Thinklogical, LLC®

Attn: RMA#
100 Washington Street
Milford, CT 06460 USA

Thinklogical Innovation Leads the Way.
Performance • Security • Continuous Operation • Ease of Integration

www.thinklogical.com

VelocityDVI Extenders
Appendix A: Installation Overview
A.1. VEL-3

Velocity dvi
Digital Video Extender-3 Installation Overview

**STEP 1:** Connect multi-mode fiber optic cables (up to 1000 meters) between the Rx and Tx units.
L1: Data Tx to Rx & Video
L2: Data Rx to Tx

**STEP 2:** Connect the supplied AC Power Adapter (PWR-000022-R) to the Rx and plug it into a standard AC source.

**STEP 3:** Connect the DVI to Display DDC port to a video monitor (or projector or other viewing device) with a DVI-D M-M Cable. A second device can be installed at the DVI to Display port using a similar cable. Turn on the DVI video devices.

**STEP 4:** Connect the video source (CPU) to the Tx with a DVI-D M-M Cable. An optional local display can also be connected using a DVI-D M-M Cable.

**STEP 5:** Connect the supplied AC Power Adapter (PWR-000022-R) to the Tx and plug it into a standard AC source.
A.2. VEL- 3 A/V+

**Velocitydvi**
Digital Video Extender-3AV+ Installation Overview

**STEP 1:** Connect multi-mode fiber optic cables (up to 1000 meters) between the Rx and Tx units.
- L1: Data Tx to Rx & Video
- L2: Data Rx to Tx

**STEP 2:** Connect the supplied AC Power Adapter (PWR-000022-R) to the Rx and plug it into a standard AC source.

**STEP 3:** Connect the DVI to Display DDC port to a video monitor (or projector or other viewing device) with a DVI-D M-M Cable. A second device can be installed at the DVI to Display port using a similar cable. Connect the audio and serial devices with standard copper cables. Turn all the devices ON.

**STEP 4:** Connect the supplied AC Power Adapter (PWR-000022-R) to the Tx and plug it into a standard AC source.

**STEP 5:** Connect the video source (CPU) to the Tx with a DVI-D M-M Cable. An optional local display can also be connected using a DVI-D M-M Cable. Connect the Audio IN and OUT and Serial sources to the Tx with standard copper cables.
A.3. VEL-6

Velocity\textsuperscript{dvi}

Digital Video Extender-6 Dual-Link Installation Overview

STEP 1: Connect multi-mode fiber optic cables (up to 1000 meters) between the Rx and Tx units.
L1: Data Tx to Rx & Video Primary
L2: Data Rx to Tx
L3: Video Secondary

STEP 2: Connect the supplied AC Power Adapter (PWR-000022-R) to the Rx and plug it into a standard AC source.

STEP 3: Connect the DVI to Display DDC port to a video monitor (or projector or other viewing device) with a DVI-D M-M Cable. A second device can be installed at the DVI to Display port using a similar cable. Turn on the DVI video devices.

STEP 4: Connect the supplied AC Power Adapter (PWR-000022-R) to the Tx and plug it into a standard AC source.

STEP 5: Connect the video source (CPU) to the Tx with a DVI-D M-M Cable. An optional local display can also be connected using a DVI-D M-M Cable.
A.4. VEL-6 A/V+

**Velocitydvi**  
Digital Video Extender-6AV+ Installation Overview

**STEP 1:** Connect multi-mode fiber optic cables (up to 1000 meters) between the Rx and Tx units.  
L1: Data Tx to Rx & Video Primary  
L2: Data Rx to Tx  
L3: Video Secondary

**STEP 2:** Connect the supplied AC Power Adapter (PWR-000022-R) to the Rx and plug it into a standard AC source.

**STEP 3:** Connect the DVI to Display DDC port to a video monitor (or projector or other viewing device) with a DVI-D M-M Cable. A second device can be installed at the DVI to Display port using a similar cable. Connect the audio and serial devices with standard copper cables. Turn all the devices ON.

**STEP 4:** Connect the supplied AC Power Adapter (PWR-000022-R) to the Tx and plug it into a standard AC source.

**STEP 5:** Connect the video source (CPU) to the Tx with a DVI-D M-M Cable. An optional local display can also be connected using a DVI-D M-M Cable. Connect the Audio IN and OUT and Serial sources to the Tx with standard copper cables.
STEP 1: Connect the multi-mode fiber optic cables between the Tx and Rx Units (up to 1000 meters). Do not kink or pinch the cables and be sure to keep all bend radii to no less than 3 inches.

STEP 2: Ensure that the Power Switch is in the OFF (0) position. Connect the supplied AC Power Cord (PWR-00006-R) to the Transmitter’s power receptacle, plug it into a standard AC source and turn the unit ON (1).

STEP 3: Using standard DVI-D cables, connect the desired video output device to the Receiver Unit’s DVI OUT receptacles. For each of the three video output pairs, DVI OUT 1 is the DDC port.

STEP 4: Ensure that the Power Switch is in the OFF (0) position. Connect the supplied AC Power Cord (PWR-00006-R) to the Receiver’s power receptacle, plug it into a standard AC source and turn the unit ON (1).

STEP 5: Using the supplied DVI-D male to male cables, connect the desired video output device to the Transmitter Unit’s DVI IN receptacles.

STEP 6: Using the supplied DVI-D male to male cables, connect the video output sources to the Transmitter Unit’s DVI IN receptacles. Ensure that all system functions are operating properly.

Tx STATUS LEDs
GREEN: Fibers connected, good link established.
ORANGE: Local Status Mode selected, no fiber link from Rx to Tx, or both DDC Mode buttons held down (waiting to reload default DDC cable).
RED flashing: No fiber link from Rx to Tx.

Rx STATUS LEDs
GREEN: DVI monitor has good link to primary DVI OUT port (labeled DDC).
ORANGE: No DVI monitor connected to primary port.
RED flashing: No fiber link from Tx to Rx.

The Primary Port on the Rx is used for DDC. The Secondary Port carries video data only.

Optical Fibers (up to 1000 meters) available with ST-, SC- or LC-type connectors.
Using the supplied -D male to male cables connect the video output sources to the Transmitter Unit's DVI IN receptacles.

Ensure that the source is the DVI IN.

Ensure that all system functions are available with ST-, SC- or LC-type connectors.

Connect the desired video output devices to the Receiver Unit's DVI OUT receptacles.

Receivers power receptacle, plug it into a standard AC power source and turn the unit ON.

Using standard DVI cables, connect the video output devices to the Transmitter Unit's DVI OUT ports.

Using the supplied AC Power Cord, plug it into a standard AC power source and turn the unit ON.

For each of the three video output ports, the Transmitter Unit will have a power button labeled PWR-ACQUIRE. Connect the power button to the appropriate power source.

Optical Fibers (up to 1000 meters) available with ST-, SC- or LC-type connectors.

Replace with same type and rating fuse.

CAUTION: Local State laws may prohibit the use of fiber optic cables in residential areas.

RED flashing indicates a link to the Transmitter Unit.

ORANGE flashing indicates a link to the Receiver Unit.

GREEN DDC MODE: indicates the DDC Mode is on.

YELLOW DDC MODE: indicates the DDC Mode is off.

White: indicates a link is established.

Black: indicates a link is not established.

Duration: in milliseconds.
Appendix B: DVI Extender Mounting

Each VelocityDVI Extender-3 and -6 can be used as a desk top or wall-mounted device. Mounting centers are provided with keyhole slots. Users may choose the most appropriate fasteners and anchors to mount each unit according to the requirements of each application. VelocityDVI-33 and -63 chassis can be desk-top (feet provided) or standard EIA 19" rack-mounted.

![Note: Be sure to leave adequate clearance (3 inch minimum bend radius) for your Fiber Cable.]

<table>
<thead>
<tr>
<th>UNIT</th>
<th>DIMENSIONS (inches)</th>
<th>DIMENSIONS (metric)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vel-3</td>
<td>5.375&quot;W x 7.0&quot;D x 1.1&quot;H</td>
<td>136.65mm x 177.80mm x 27.94mm</td>
</tr>
<tr>
<td>Vel-3 with Neutrik®</td>
<td>5.375&quot;W x 7.0&quot;D x 2.0&quot;H</td>
<td>136.65mm x 177.80mm x 50.80mm</td>
</tr>
<tr>
<td>Vel-3 AV+</td>
<td>7.5&quot;W x 7.0&quot;D x 1.1&quot;H</td>
<td>190.50mm x 177.80mm x 27.94mm</td>
</tr>
<tr>
<td>Vel-3 AV+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.0&quot;D x 2.0&quot;H</td>
<td>190.50mm x 177.80mm x 50.80mm</td>
</tr>
<tr>
<td>Vel-3 AN+</td>
<td>7.5&quot;W x 7.0&quot;D x 1.1&quot;H</td>
<td>190.50mm x 254.00mm x 27.94mm</td>
</tr>
<tr>
<td>Vel-3 AN+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.0&quot;D x 2.0&quot;H</td>
<td>190.50mm x 177.80mm x 50.80mm</td>
</tr>
<tr>
<td>Vel-6</td>
<td>5.5&quot;W x 7.75&quot;D x 1.1&quot;H</td>
<td>139.65mm x 196.85mm x 27.94mm</td>
</tr>
<tr>
<td>Vel-6 with Neutrik®</td>
<td>5.375&quot;W x 7.0&quot;D x 2.44&quot;H</td>
<td>136.65mm x 177.80mm x 61.98mm</td>
</tr>
<tr>
<td>Vel-6 AV+</td>
<td>7.5&quot;W x 7.75&quot;D x 1.1&quot;H</td>
<td>190.50mm x 196.85mm x 27.94mm</td>
</tr>
<tr>
<td>Vel-6 AV+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.0&quot;D x 2.44&quot;H</td>
<td>190.50mm x 177.80mm x 61.98mm</td>
</tr>
<tr>
<td>Vel-6 AN+</td>
<td>7.5&quot;W x 7.75&quot; D x 1.1&quot;H</td>
<td>190.50mm x 196.85mm x 27.94mm</td>
</tr>
<tr>
<td>Vel-6 AN+ w/ Neutrik®</td>
<td>7.5&quot;W x 7.75&quot; D x 2.0&quot;H</td>
<td>190.50mm x 196.85mm x 50.80mm</td>
</tr>
<tr>
<td>Vel-33 (rack-mount)</td>
<td>19.0&quot;W x 10.0&quot;D x 1.72&quot;H</td>
<td>482.60mm x 254.00mm x 43.69mm</td>
</tr>
<tr>
<td>Vel-63 (rack-mount)</td>
<td>19.0&quot;W x 7.84&quot;D x 1.72&quot;H</td>
<td>482.60mm x 199.14mm x 43.69mm</td>
</tr>
</tbody>
</table>
Appendix C: RJ-45 Adapter Pin-outs

**Velocity-3/6 Rx**

- CD: 5
- RX: 6
- DSR: 7
- CTS: 8
- GND: 4
- RTS: 1
- DTR: 2
- TX: 3

**ADP-000019-R DB9M**

- CD: 1
- RX: 2
- DSR: 6
- CTS: 8
- GND: 5
- RTS: 7
- DTR: 4
- TX: 3

**ADP-000025-R DB9F**

**Velocity-3/6 Tx**

- CD: 5
- RX: 6
- DSR: 7
- CTS: 8
- GND: 4
- RTS: 1
- DTR: 2
- TX: 3
Appendix D: Automatic Fail-Over Option

For applications in need of an Automatic Fail-Over system, Thinklogical offers a solution to meet this need. This option allows for two separate fiber paths and the ability to select which of the two paths is the viable path. **This feature is available on the transmitter unit only.**

The transmitter contains all the same features as the standard Velocity products in addition to offering a redundant fiber connector (L1’) for each standard fiber connector (L1). All other features function as described previously in the manual.

**Velocity 3 TX with Automatic Fail-Over**

**Fiber Connections**
L1 and L1’ are redundant outputs, outputting the same video and KMASS data.

L2 and L2’ are redundant back-channel KMASS data inputs. There is an internal MUX which selects L2 or L2’ data. When the unit is powered on, it will select L2 first (if L2 is active). Otherwise, it will select L2’ (if L2’ is active). It will only switch from L2 to L2’ if L2 is inactive and L2’ is active. It will only switch from L2’ to L2 if L2’ is inactive and L2 is active.

![Velocitydvi-3 Transmitter with Automatic Fail-Over](image)
Appendix E: Velocity Systems 3 & 6 Enhanced LED Status Information*

*Applies to modules shipped after March, 2013.

### Velocity System-3 TX STATUS LEDs

<table>
<thead>
<tr>
<th>DDC MODE</th>
<th>DVI SOURCE</th>
<th>L2 ACTIVE</th>
<th>STATUS LED</th>
<th>NEW ENHANCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT LOCAL STATIC</td>
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<td>NO</td>
<td>RED FLASH</td>
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<td>DON'T CARE</td>
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### Velocity System-3 RX STATUS LEDs

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<th>MONITOR</th>
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<th>STATUS LED</th>
<th>NEW ENHANCEMENT</th>
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<tbody>
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<td>DON'T CARE</td>
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<td>RED FLASH</td>
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<tr>
<td>NOT IN DDC PORT</td>
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### Velocity System-6 TX STATUS LEDs

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<th>DDC MODE</th>
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<tr>
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<td>GREEN FLASH</td>
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### Velocity System-6 RX STATUS LEDs

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### Velocity System-3 TX SEPARATE AUDIO STATUS LEDs

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**HDCP Compliant**

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