# 6.25G VIDEO EXTENSION

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# VelocityDVI

Thinklogical's VelocityDVI systems offer best-in-class fiber optic performance with advanced video, audio and peripheral capabilities. VelocityDVI extenders offer 6.25Gbps bandwidth, to achieve *uncompressed, high resolution video with no latency, lost frames or artifacts*. Systems are simple plug and play designs, utilizing either multi-mode or single mode fiber. For routing applications, VelocityDVI systems are compatible with Thinklogical's MX and VX Series Routers, scalable from 5 to 640 ports.

Powered by

## MRTS Technology

VelocityDVI systems are powered by **Thinklogical's patented Multi-Rate Transmission System (MRTS) technology**, which enables multiple data streams (video, audio and peripheral) to be transmitted up to 80km, over a single data stream. MRTS completely reconstructs the data clock at the destination, to offer perfect synchronization with each transmitted stream.

**VelocityDVI systems are highly customizable, to ideally suit any application.**

**VelocityDVI systems offer support for:**

### Video Signals
- Single-Link DVI
- Dual-Link DVI
- RGB
- Component

### Audio Signals
- Bidirectional unbalanced analog stereo audio
- Bidirectional digital audio channel (AES3, TRS or S/PDIF, TOSLINK or RCA)

### Peripheral Signals
- DDC
- Serial (RS-232 or RS-422)
- 10/100 Network

## Optional Configurations

### Redundant Fiber Path

To further ensure system reliability, Thinklogical offers a Redundant Fiber Path. This intelligent fiber redundancy system uses twice the fiber from the transmitter, to provide two identical data streams. In the event of a loss of signal on one fiber stream, the system automatically switches over to the second stream, to maintain signal. For systems that cannot tolerate downtime, fiber redundancy provides continuous operation.

### Multipath

To incorporate VelocityDVI into a 4G system, Thinklogical splits the 6.25G signal over two 4G data streams. Multipath systems require an additional fiber per video stream.

### Separate Video from Audio and Peripheral Data

MRTS technology transmits video, audio and peripheral data over a single fiber, delivering data to a single destination. For applications where the video signal must be sent to a different location than the audio and peripheral signals, Thinklogical offers a Separate Data Path option. Video can be sent to a video wall, while the peripheral data from the same source is sent to a desktop. At the desktop, the user can control the video at the wall.

When a system requires only the separation of audio from video and peripheral data, Thinklogical offers a Separate Audio Path. The audio signal transmits independently of video and peripheral data, allowing the audio to be projected over a sound system, while the video is displayed at a desk or at the video wall.

### Color Correction Receivers

Thinklogical has integrated SpectraCal's color calibration technology into VelocityDVI Receivers. After accurate color specification is determined, the resulting lookup tables are downloaded into Thinklogical's receiver. The receiver then controls the display's settings to adjust the image to match the original content. This system eliminates the need for a set of color correction devices for each individual display, as well as the need to access those devices on a display by display basis. For more information on how Color Correction Receivers provide exceptional benefits for an easy integration and save install time and costs, please reference Thinklogical's Color Correction Receiver Data Sheet.

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VelocityDVI extenders are available in several form factors, from rack mount units, to compact chassis for use at the desktop. All chassis types are completely compatible, so users can mix-and-match to reduce the overall footprint of the design.

## Fixed Chassis

Thinklogical's fixed extenders offer advanced support for numerous video, audio and peripheral extension applications. Each unit is equipped with mounting ears and supports a single receiver or transmitter. As receivers are often co-located with users, Thinklogical utilizes exceptionally quiet fans, which only operate when the temperature of the unit begins to increase, to reduce noise and maximize workflow.

## Modular Chassis

Thinklogical offers a variety of modular chassis for VelocityDVI systems. Thinklogical's modular systems allow users to create a flexible, custom, space-saving and easily scalable product. Choose from the resilient, rack mount chassis, housing up to four extenders per single rack unit, or from a more compact design, to save space at the desktop or when mounting to a wall. For enhanced resiliency, each extender module is hot-swappable, complete with hot-swappable optical modules. As a system design evolves easily convert a unit from multi-mode to single mode or swap the module to easily reconfigure a system to meet new requirements. Modules include fans to keep the system cool and emit virtually no detectable sound to interfere with the local user.

### Modular Chassis

### Q-Series 1300 Chassis & Q-Series 2300 Chassis

***Space Saving at the Desktop & Wall*** The compact design of the ¼RU Q-1300 Chassis is ideal for use on or mounted below the desktop, or for wall mounting applications. The modular design is **configurable with a single Q-Series transmitter or receiver module**. The ½RU Q-2300 Chassis is **configurable with up to two Q-Series transmitter or receiver modules**, in any combination.

### Q-Series 4300 Chassis

***Space Saving at the Rack & Desktop***

The rack mountable Q-4300 chassis is ideal for high density applications, where space may be limited. The 1RU, modular design is **configurable with up to four Q-Series transmitter or receiver modules**, in any combination - as a dual transmitter, dual receiver or transceiver.

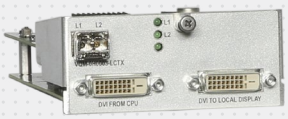
### T-Series Q-4200 Chassis

***T- and Q-Series in a Single Chassis***

The rack mountable T-Q4200 chassis offers increased flexibility, for systems utilzing both T-Series and Q-Series extender modules. The 1RU, modular design is **configurable with a single T-Series transmitter or receiver module and up to two Q-Series modules**, in any combination.

***Modular Extenders***

*enhance system*



*flexibility, customization, scalability, and space-savings.*

***Redundant Power Supplies***

The Q-4300 and T-Q4200 Chassis are ideal for 24/7 environments, where minimal downtime is critical. The system is designed with redundant, current-sharing and hot-swappable power supplies. In the unlikely event that one power module fails, the second automatically switches over to power the unit with no delay or data loss. The failed module may be swapped out, without ever powering down the unit or interrupting operations.

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Fixed Chassis

Q-Series 1300 Chassis


T-Series Q-4200 Chassis


Q-Series 2300 Chassis


Q-Series 4300 Chassis

Hot-Swappable Extender Modules

## Specifications

| | Fixed | Q-1300 | Q-2300 | Q-4300 | T-Q4200 |
|---|---|---|---|---|---|
| Environmental | Operating Temperature: 0°C-50°C; Humidity: 5-95% RH, non-condensing | | | | |
| Compliance | Approvals for United States of America, Canada, and European Union | | | | |
| Warranty | 12 months from date of shipment · Extended warranties available for purchase | | | | |
| Mounting Brackets | Surface Mounting Brackets Included<br>Call for Rack Mounting Brackets and Chassis | Surface Mounting Brackets Included<br>Call for Rack Mounting Brackets and Chassis | Surface Mounting Brackets Included<br>19" Rack Mounting Hardware, order (2) ENC-001541-R | 19" Rack Mounting Brackets Included<br>Surface Mounting Hardware, order (2) ENC-001598-R | 19" Rack Mounting Brackets Included<br>Surface Mounting Hardware, order (2) ENC-001598-R |
| Power Consumption | 10 Watts | 0 Watts (10 Watts Loaded) | 5 Watts (25 Watts Loaded) | 5 Watts (45 Watts Loaded) | 5 Watts (40 Watts Loaded) |
| Supply Voltage | See Extender Specifications | Universal AC Power Supply, 100-240VAC, 47-63Hz (1) | | Universal AC Power Supply, 100-240VAC, 47-63Hz (2) | |
| Weight | Weights vary dependent on extender, see extender spec | 1.00lb (0.45kg)<br>1.50lbs (0.68kg) Loaded | 3.00lbs (1.36kg)<br>4.00lbs (1.81kg) Loaded | 10.00lbs (4.54kg)<br>12.00lbs (5.44kg) Loaded | 8.00lbs (3.63kg)<br>10.00lbs (4.54kg) Loaded |
| **Dimensions** | | | | | |
| Rack Size (w/ mounting hardware) | Dimensions vary dependent on the extender, please see extender data sheet. | 5.48" (139.17mm) | 11.98" (304.24mm) | EIA 19" (483.36mm) | EIA 19" (483.36mm) |
| Width (w/o mounting hardware) | | 4.31" (109.50mm) | 10.74" (272.75mm) | 17.49" (444.25mm) | 17.49" (444.25mm) |
| Height | | 1RU · 1.72" (43.69mm) | 1RU · 1.72" (43.69mm) | 1RU · 1.72" (43.69mm) | 1RU · 1.72" (43.69mm) |
| Depth | | 11.44" (290.64mm) | 11.11" (282.27mm) | 14.62" (371.37mm) | 15.56" (395.22mm) |
| Tolerance | ± 0.039" (1.00mm) | ± 0.039" (1.00mm) | ± 0.039" (1.00mm) | ± 0.039" (1.00mm) | ± 0.039" (1.00mm) |
| **Connectors** | | | | | |
| Software Updates | See Extender Data Sheet | See Extender Module | See Extender Module | See Extender Module | See Extender Module |
| **Cables Included** | | | | | |
| | 5V 4A Wall Mount PWR-22 (1) | AC Power Cable (1) | AC Power Cable (1) | AC Power Cable (2) | AC Power Cable (2) |

## Ordering Information

**For use with Q-Series Modules.**
**Modules will not operate without a chassis.**

| Part Number | | VQS-001300 | VQS-002300 | VQS-004300 | VTS-Q04200 |
|---|---|---|---|---|---|
| Description | Fixed Extenders do not require an additional chassis, see Ordering Information on corresponding extender data sheet. | Q-Series 1300 Modular Chassis<br>Configure with a single Q-Series Module | Q-Series 2300 Modular Chassis<br>Configure with up to two Q-Series Modules | Q-Series 4300 Modular Chassis<br>Configure with up to four Q-Series Modules<br>Redundant power supplies | T-Series Q-4200 Modular Chassis<br>Configure with a single T-Series Module and up to two Q-Series Modules<br>Redundant power supplies |

# 6.25G VIDEO EXTENSION

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## VelocityDVI · Product Features

| PRODUCT FEATURES | STANDARD FEATURES | | | | | | | | | | CONFIGURABLE FEATURES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Product Name | Video Heads | | | Video Signals | | | Additional Features | | | | Control | | Peripheral Signals | | | Fiber Connectors | | | |
| All models available as Trasmitter or Receiver | 1 | 2 | 3 | Single Link DVI | Dual Link DVI | RGB | TX Local Output RX Aux Output | HDCP Compliant | Scaling | Fiber Count | DDC | RS-232 | Unbalanced Analog Stereo | Balanced Analog Stereo (Digital Audio) | 10/100 Network | LC | NK | SC | ST |
| **Fixed Extenders (19" Rackmount, 1RU)** | | | | | | | | | | | | | | | | | | | |
| VEL-03 | ✓ | | | ✓ | | | ✓ | ✓ | | 2 | ✓ | ✓ | ✓ | | ✓ | ✓ | Consult Thinklogical | | |
| VEL-S3 (RX Only) | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | 1-2 | ✓ | ✓ | ✓ | | | ✓ | | | |
| VEL-AB/AR3 | ✓ | | | ✓ | | | ✓ | | | 2 | ✓ | ✓ | | Terminal Block/Tip Ring Sleeve | | ✓ | ✓ | ✓ | ✓ |
| VEL-06 | ✓ | | | | ✓ | | ✓ | ✓ (RX Only) | | 3 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| VEL-AB/AR6 | ✓ | | | | ✓ | | ✓ | | | 3 | ✓ | ✓ | | Terminal Block/Tip Ring Sleeve | | ✓ | ✓ | ✓ | ✓ |
| VEL-AV9 | ✓ | | | | | ✓ | ✓ | | | 2 | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| VEL-AV10 | ✓ | | | ✓DVI-I | | ✓ | ✓ | | | 2 | ✓ | ✓ | ✓ | | | ✓ | | | |
| VEL-AV12 (TX Only) | ✓ | | | | | ✓Component | ✓ | | | 2 | ✓ | ✓ | ✓ | | | ✓ | | | |
| VEL-33 | | | ✓ | ✓ | | | ✓ | | | 6 | ✓ | | | | | ✓ | | ✓ | ✓ |
| VEL-63 | | | ✓ | | ✓ | | ✓ | | | 9 | ✓ | | | | | ✓ | | ✓ | ✓ |
| **Q-Series Modular Extenders (¼RU each: 1 Module per Q-1300 Chassis, 2 Modules per Q-2300 Chassis, 4 Modules per Q-4300 Chassis)** | | | | | | | | | | | | | | | | | | | |
| VQM-H3 | ✓ | | | ✓ | | | ✓ | ✓ | | 2 | ✓ | ✓ | ✓ | | ✓ | ✓ | | | |
| VQM-S3 (RX Only) | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | 1-2 | ✓ | ✓ | ✓ | | | ✓ | | | |
| VQM-V3 | | ✓ | | ✓ | | | | ✓ | | 4 | ✓ | ✓ | ✓ | | ✓ | ✓ | | | |
| VQM-06 | ✓ | | | | ✓ | | ✓ | | | 3 | ✓ | ✓ | ✓ | | ✓ | ✓ | | | |
| VQM-10 | ✓ | | | ✓DVI-I | | ✓ | ✓ | | | 2 | ✓ | ✓ | ✓ | | | ✓ | | | |

| **Additional Configurable Features**<br>Consult Thinklogical for availability | Additional Fibers Required |
|---|---|
| Multi-Mode (Extension up to 1000m) or Single Mode (Extension up to 80km) | 0 |
| Redundant Optic Path(s) | x2 |
| Separate Data Path | +1 |
| Separate Audio Paths | +2 |
| Color Correction (Receiver Only) | 0 |
| Multipath | +1/video stream |

### MRTS Technology

VelocityDVI extension systems utilize *Thinklogical's patented Multi-Rate Transmission System (MRTS) Technology*. MRTS enables multiple data streams of uncompressed video, audio and peripheral signals to be combined and transmitted over distances of up to 80km over a single fiber optic cable at 6.25Gbps bandwidth. This architecture enables a solution that delivers video content and data with no latency, artifcats or lost frames, and with a minimum number of system components and fiber connections.

# VelocityDVI 63 · Three Single Head Dual-Link DVI Displays


Transmitter
Front and Backpanel

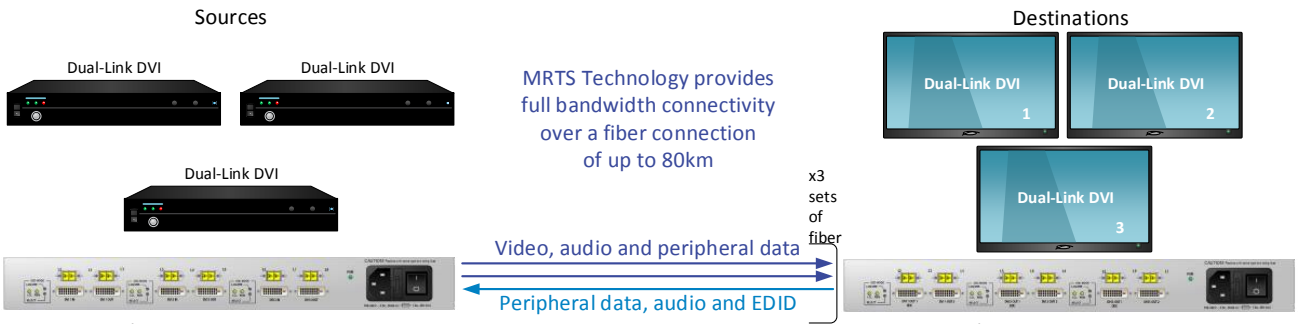

Receiver
Front and Backpanel

## The System

VelocityDVI systems have a simple transmit and receive design. The VelocityDVI Transmitter connects to the source to receive video, audio and peripheral data. The data is multiplexed with Thinklogical's patented MRTS Technology, and transmitted over 6.25Gbps SFP+ technology for up to 80 kilometers. Fiber provides a secure connection from the transmitter to the receiver, where MRTS Technology demultiplexes the data stream to deliver uncompressed, high resolution video, audio and peripheral data to the destination.

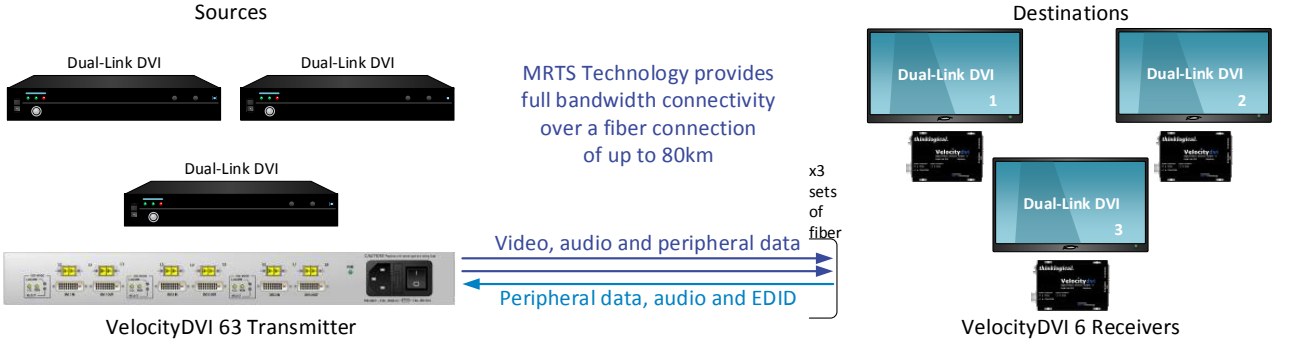
A VelocityDVI 63 system requires nine fibers for the standard configuration. The forward channels are dedicated to transmitting video, audio and peripheral data from the source to the destination. The return channels are dedicated to transmitting DDC/EDID and peripheral data from the destination to the source. All Thinklogical VelocityDVI systems are configurable with multi-mode or single mode fiber.

The VelocityDVI 63 extension systems are designed to support **three dual-link DVI displays** in a single rack mount, 1RU chassis.




VelocityDVI 63 Transmitter

VelocityDVI 63 Receiver

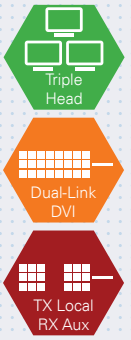



VelocityDVI 63 Transmitter

VelocityDVI 6 Receivers

## PRODUCT FEATURES

Standard




Configurable

# VelocityDVI 63 · Three Single Head Dual-Link DVI Displays

## Specifications

| Fixed Extenders (VEL) | |
|---|---|
| Video Resolution | DVI-D, all single-link and dual-link DVI resolutions (maximum 330MHz pixel clock) |
| Optical Cable | Nine (9) multi-mode or single mode fiber optic cables, for fewer fibers contact Thinklogical (fiber not supplied, available for purchase) |
| Optical Distance | Multi-Mode up to 1000m 65m: OM1 (62.5/125); 350m: OM2 (50/125); 750m: OM3 (50/125 SX+); 1000m: OM4 (50/125eSX+)<br>Single Mode up to 80km All Distances: OS2 (9/125) |
| Optical Wavelength | Multi-Mode: 850nm; Single Mode: 1310nm (CWDM and DWDM wavelengths available, contact Thinklogical for further information) |
| Data Rate | Forward channels: 6.25Gbps; Back Channels: 2Gbps |
| Environmental | Operating Temperature: 0°C-50°C; Humidity: 5-95% RH, non-condensing |
| Compliance | Approvals for United States of America, Canada, and European Union |
| Warranty | One year · Extended warranties available for purchase |
| Mounting Brackets | 19" Rack Mounting Brackets Included |
| Power Consumption | 20 Watts |
| Supply Voltage | Universal AC Power Supply, 100-240VAC, 47-63Hz |
| Weight | 4.00lbs (1.81kg) |
| **Dimensions** | |
| Rack Size | EIA 19" |
| Height x Width x Depth | 1RU 1.72" (43.69mm) x 17.49" (444.25mm) x 8.41" (213.64mm) |
| Tolerance | ± 0.039" (1.00mm) |
| **Connectors** | |
| Video | DVI-D (6) |
| Fiber Connectors | LC, SC, ST or Neutrik® (6) |
| **Cables Included** | |
| Transmitter | (1) AC Power Cable<br>(3) DVI-D Dual-Link Male to Male, 2 Meters (CBL000023-002MR) |
| Receiver | (1) AC Power Cable |

## Ordering Information

V E L – 0 0 0 ☐ 6 3 – ☐ ☐ ☐ ☐

| | |
|---|---|
| **LC** | LC Fiber Connectors |
| **SC** | SC Fiber Connectors |
| **ST** | ST Fiber Connectors |

| | |
|---|---|
| **TX** | Transmitter |
| **RX** | Receiver |
| **RC** | Receiver with Color Correction |

| | |
|---|---|
| **M** | Multi-Mode |
| **S** | Single Mode |

### Common Configurations

| | |
|---|---|
| **VEL-000M63-LCTX** | Velocity 63 Transmitter, Three Single Head, Dual-Link DVI, Multi-Mode, LC |
| **VEL-000M63-LCRX** | Velocity 63 Receiver, Three Single Head, Dual-Link DVI, Multi-Mode, LC |
| **VEL-000M63-SCTX** | Velocity 63 Transmitter, Three Single Head, Dual-Link DVI, Multi-Mode, SC |
| **VEL-000M63-SCRX** | Velocity 63 Receiver, Three Single Head, Dual-Link DVI, Multi-Mode, SC |
| **VEL-000M63-STTX** | Velocity 63 Transmitter, Three Single Head, Dual-Link DVI, Multi-Mode, ST |
| **VEL-000M63-STRX** | Velocity 63 Receiver, Three Single Head, Dual-Link DVI, Multi-Mode, ST |

For additional customization, Thinklogical utilizes a single **Optics Package (VOP)** per extender, available in Multi-Mode or Single Mode, allowing extension of up to 1000m, 10km, 40km or 80km.

For example, when ordering a Velocity 63 with LC fiber connectors, select from the following VOP's:

- **VOP-M08** for Multi-Mode Extension up to 1000m
- **VOP-S07** for Single Mode Extension up to 10km
- **VOP-TBD** for Single Mode Extension up to 40km

*Please consult Thinklogical for VOP Ordering Information.*