6.25G VIDEO EXTENSION

thinklogical®

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.

6.25G VIDEO EXTENSION

thinklogical®

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.

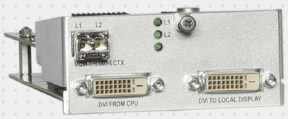
T-Series Q-4200 Chassis

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.

6.25G VIDEO EXTENSION

thinklogical®

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 Call for Rack Mounting Brackets and Chassis	Surface Mounting Brackets Included Call for Rack Mounting Brackets and Chassis	Surface Mounting Brackets Included 19" Rack Mounting Hardware, order (2) ENC-001541-R	19" Rack Mounting Brackets Included Surface Mounting Hardware, order (2) ENC-001598-R	19" Rack Mounting Brackets Included 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) 1.50lbs (0.68kg) Loaded	3.00lbs (1.36kg) 4.00lbs (1.81kg) Loaded	10.00lbs (4.54kg) 12.00lbs (5.44kg) Loaded	8.00lbs (3.63kg) 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 Configure with a single Q-Series Module	Q-Series 2300 Modular Chassis Configure with up to two Q-Series Modules	Q-Series 4300 Modular Chassis Configure with up to four Q-Series Modules Redundant power supplies	T-Series Q-4200 Modular Chassis Configure with a single T-Series Module and up to two Q-Series Modules Redundant power supplies

6.25G VIDEO EXTENSION

thinklogical®

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	✓	✓	✓			✓			

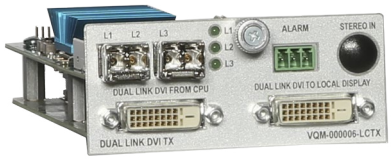
Additional Configurable Features Consult Thinklogical for availability	Additional Fibers Required
Multi-Mode (Extension up to 1000m) or Single Mode (Extension up to 80km)	0
Redundant Optic Path(s)	x2
Separate Data Path	+1
Separate Audio Paths	+2
Color Correction (Receiver Only)	0
Multipath	+1/video stream

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 6 · Single Head Dual-Link DVI Display with optional Audio and Serial or Audio and Network

Fixed Extender



Modular Transmitter

Modular Receiver

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.

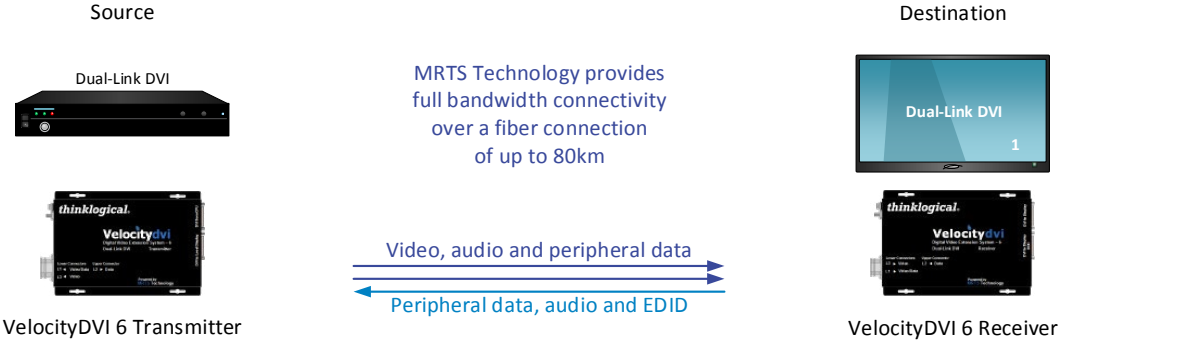
A VelocityDVI 6 system requires three fibers for the standard configuration. The forward channels are dedicated to transmitting video, audio and peripheral data from the source to the destination. The return channel is dedicated to transmitting DDC/EDID and peripheral data from the destination to the source. All Thinklogical VelocityDVI systems are configurable with multi-mode or single mode fiber.

The VelocityDVI 6 extension systems are designed to support **one dual-link DVI display**. Extenders are custom configurable to also support **full duplex stereo audio and either serial (RS-232) or 10/100 Network**.

Extenders may be further configured with redundant data paths and separate audio and/or peripheral data paths.

FORM FACTOR

VelocityDVI 6 systems are available in two, completely compatible form factors. The fixed extenders are factory configured, as a single unit chassis. The modular extenders are compact and hot-swappable, enabling users to field configure any modular chassis. Additionally, the optical modules within the modular extenders are hot-swappable. The modular systems promote system flexibility, scalability and a reduced maintenance effort. For additional information, please see Fixed and Modular Chassis specifications.



VelocityDVI 6 Transmitter

VelocityDVI 6 Receiver

PRODUCT FEATURES

Standard

- Single Head
- Dual-Link DVI
- TX Local RX Aux

Configurable

- RS-232
- Analog Audio
- Network 10/100
- Fiber Connectors (SC, ST, LC) — Modules LC Only
- HDCP Compatible — RX Only

VelocityDVI 6 · Single Head Dual-Link DVI Display with optional Audio and Serial or Audio and Network

Fixed Extender with Audio and Serial

Fixed Extender with Audio and Network

Specifications	Q-Series Extender Modules (VQM)	Fixed Extenders (VEL)
Video Resolution	DVI-D, all single-link and dual-link DVI resolutions (maximum 330MHz pixel clock)	
Optical Cable	Three (3) 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+) 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 Channel: 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	See Modular Chassis Specifications	Surface Mounting Brackets Included
Power Consumption	10 Watts	10 Watts
Supply Voltage	Universal AC Power Supply, 100-240VAC, 47-63Hz	+5V DC, 4A, AC/DC Adapter Universal Input 100-240VAC, 50/60Hz
Weight	0.50lb (0.23kg)	1.00lb (0.45kg)
Dimensions		
Rack Size	See Modular Chassis Specifications	EIA 19" 5RU Rackmount for 12 Extenders, See RAC-000002 (not included)
Height x Width x Depth	1.59" (40.42mm) x 3.69" (93.80mm) x 7.25" (184.04mm)	1.19"(30.15mm) x 5.44"(138.13mm) w/mounting brackets x 8.57"(217.60mm) *Audio/Serial & Audio Network Width:* 7.49"(190.17mm) w/mounting brackets
Tolerance	± 0.039" (1.00mm)	± 0.039" (1.00mm)
Connectors		
Video	DVI-D (2)	DVI-D (2)
Audio MIC/LINE (Configurable)	3.5mm Jack (2)	3.5mm Jack (2)
RS-232 Serial Port (Configurable)	RJ45 (1)	RJ45 (1)
10/100 Network (Configurable)	RJ45 (1)	RJ45 (1)
Software Updates	USB B (1) with Q-Series 2300, 4300 and T-Series Q-4200 Chassis	Mini USB (1)
Fiber Connectors	LC (1)	LC, SC, ST or Neutrik® (1)
Cables Included		
Transmitter	(1) 5 Volt, 4 Amp Wall Mount (PWR-000022-R) [For Fixed Extenders, for Extender Modules see Modular Chassis Specifications] (1) DVI-D Dual-Link Male to Male, 2 Meters (CBL000023-002MR) *Audio & Serial Configuration*: (1) CAT 5, 2 Meters (CBL000001-002MR); (1) DB9 Female RJ45 Modem (ADP-000025-R) (2) 3.5mm Male to 3.5mm Male Plug, 1.8 Meters (CBL000016-006FR) *Audio & Network Configuration*: (1) CAT 5, 2 Meters (CBL000001-002MR); (2) 3.5mm Male to 3.5mm Male Plug, 1.8 Meters (CBL000016-006FR)	
Receiver	(1) 5 Volt, 4 Amp Wall Mount (PWR-000022-R) [For Fixed Extenders, for Extender Modules see Modular Chassis Specifications] *Audio & Serial Configuration*: (1) CAT 5, 2 Meters (CBL000001-002MR); (1) DB9 Male RJ45 Modem (ADP-000019-R) *Audio & Network Configuration*: (1) CAT 5, 2 Meters (CBL000001-002MR)	
Contact Thinklogical for additional specifications for redundant, separate data, separate audio and multipath extenders.		

VelocityDVI 6 · Single Head Dual-Link DVI Display with optional Audio and Serial or Audio and Network

Ordering Information

Fixed Extenders

V E L – [ ] [ ] [ ] [ ] 0 6 – L C [ ] [ ]

00	Standard Transmitter
AV	Unbalanced Audio & Serial RS-232 TX
AN	Unbalanced Audio & 10/100 Network TX
0H	Standard Receiver
AH	Unbalanced Audio & Serial RS-232 RX
NH	Unbalanced Audio & 10/100 Network RX

LC	LC Fiber Connectors
SC	SC Fiber Connectors
ST	ST Fiber Connectors

0	Multi-Mode or Single Mode Receiver
M	Multi-Mode Transmitter
S	Single Mode Transmitter

TX	Transmitter
RX	Receiver

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 6 with LC fiber connectors, select from the following VOP's:

- **VOP-M05** for Multi-Mode Extension up to 1000m
- **VOP-S12** for Single Mode Extension up to 10km
- **VOP-S87** for Single Mode Extension up to 40km

Please consult Thinklogical for VOP Ordering Information.

Common Fixed Extender Configurations

VEL-000M06-LCTX	Velocity 6 Transmitter, Dual-Link DVI, HDCP Compatible, Multi-Mode, LC
VEL-0H0006-LCRX	Velocity 6 Receiver, Dual-Link DVI, HDCP Compatible, Multi-Mode, LC
VEL-AV0M06-LCTX	Velocity 6 Transmitter, Dual-Link DVI, HDCP Compatible, Audio, Serial, Multi-Mode, LC
VEL-AH0006-LCRX	Velocity 6 Receiver, Dual-Link DVI, HDCP Compatible, Audio, Serial, Multi-Mode, LC
VEL-AN0M06-LCTX	Velocity 6 Transmitter, Dual-Link DVI, HDCP Compatible, Audio, Network, Multi-Mode, LC
VEL-NH0006-LCRX	Velocity 6 Receiver, Dual-Link DVI, HDCP Compatible, Audio, Network, Multi-Mode, LC

Modular Extenders

V Q M – [ ] [ ] 0 0 0 6 – L C [ ] [ ]

00	Standard
AV	Unbalanced Audio & Serial RS-232
AN	Unbalanced Audio & 10/100 Network

TX	Transmitter Module
RX	Receiver Module

LC	LC Fiber Connectors

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 6 Module, select from the following VOP's:

- **VOP-M30** for Multi-Mode Extension up to 1000m
- **VOP-S06** for Single Mode Extension up to 10km
- **VOP-S89** for Single Mode Extension up to 40km

Please consult Thinklogical for VOP Ordering Information.

Common Modular Extender Configurations

VQM-000006-LCTX	Velocity Q-Series 6 Transmitter Module, Dual-Link DVI, Multi-Mode, LC
VQM-000006-LCRX	Velocity Q-Series 6 Receiver Module, Dual-Link DVI, Multi-Mode, LC
VQM-AV0006-LCTX	Velocity Q-Series 6 Transmitter Module, Dual-Link DVI, Audio, Serial, Multi-Mode, LC
VQM-AV0006-LCRX	Velocity Q-Series 6 Receiver Module, Dual-Link DVI, Audio, Serial, Multi-Mode, LC

Each Extender Module requires a Modular Chassis; for further information, see Modular Chassis Specifications.

VQS-001300	Velocity Q-Series 1300 Chassis · Configurable with a single Q-Series Module
VQS-002300	Velocity Q-Series 1300 Chassis · Configurable with up to two Q-Series Modules
VQS-004300	Velocity Q-Series 1300 Chassis · Configurable with up to four Q-Series Modules
VTS-Q04200	Velocity T-Series Q-4200 Chassis · Configurable with a single T-Series Module & two Q-Series Modules