10G MATRIX SWITCHES

thinklogical®

Hybrid Switching Solution for Uncompressed, High Resolution Video & KVM Systems

Thinklogical's TLX Matrix Switches are *high performance, modular, non-blocking switches* for complete, end-to-end switching of video, audio and peripheral signals over multi-mode or single mode fiber optic cable or CATx cable. The bi-directional configuration capability adds simplicity and control over sophisticated video and KVM visual computing environments. TLX Matrix Switches offer scalability, flexibility, security and resiliency for any size switching application.

Router Features

Highest Performance with Easiest Integration

TLX Matrix Switches support **10Gbps per port**, preserving signal integrity to provide uncompressed, high resolution video with no artifacts, latency or lost frames. Thinklogical's **re-clocking technology** ensures that every video and data stream is delivered in perfect synchronization. TLX Switches are protocol agnostic, supporting numerous video, audio and peripheral signals, allowing users to consolidate all of their system switching requirements into a single chassis. Switching systems may be configured with **multi-mode or single mode fiber and/or CATx connections**, for increased flexibility. Designed with **completely non-blocking architectures**, Thinklogical Switches offer the ability to switch between all ports, maximizing system efficiency. Additionally, each port on the switch may be configured as an input or an ouptut. Scalable from **12 ports to 640 ports**, TLX Switches are ideal for small to large system applications.

Certified Security

Fiber-Based System

Fiber-based systems are inherently more secure than copper-based systems. Copper cabling presents security risks through electromagnetic interference, such as content sniffing and eavesdropping. Secure data transmitted over fiber optics cannot be compromised. Additionally, fiber extends content significantly greater distances than copper. Creating physical separation between potential threats (users) and the target (secure data) is essential to a secure system design. Thinklogical's fiber-based system permits users to **access sources up to 80 kilometers away**, with no performance degradation. System administrators can safeguard sources in a centralized location, while users maintain remote access to the sources without the ability to accidentally or intentionally breach the system (such as downloading sensitive information onto a USB drive).

Partitioned and Restricted Switching

Thinklogical protects user's critical data, and **maintains information assurance between multiple networks**, through partitioned and restricted switching. Partitioning allows the router resources to be divided to support more than one network, and does not allow for switching between networks. Restricted switching allows the administrator to manage access on a port-by-port basis. Partitioned and restricted switching are enabled through the router's firmware, and therefore, a threat would have to physically access the router to tamper with the settings.

Accreditations

Thinklogical's VX line of switches are the only fiber optic KVM and Video Switches in the world that have achieved accreditation to **The Common Criteria EAL4, TEMPEST Level B, and NATO (National Information Assurance Partnership) Green Status**, having met stringent criteria that support information assurance directives for military-intelligence secure facilities worldwide. The TLX switches have been designed to meet these specifications and are expected to achieve these, as well as additional, accreditations. Learn more at www.thinklogical.com/accreditations.

Exceptional Resiliency

TLX Switches are designed to maximize system uptime. In addition to a **Mean Time between Failure (MTBF) of over 100,000 hours**, the modular approach of the TLX Switches allow users to hot-swap all critical system components. **Power supplies, fan trays, control cards, input/output cards and pluggable optics are hot-swappable**, to minimize system downtime in the unlikely event a component should fail. Furthermore, the system can be easily reconfigured, such as adding additional input/output cards for expansion, without ever powering down the router or interrupting active signals. **Dual, redundant power supplies** ensure continuous, uninterrupted power to the router. Switches are also configurable to include **redundant control cards**. In the event the primary control card were to fail, the system will automatically failover to the redundant control card, with no delay or data loss. **Enhanced diagnostics and alarms** provide extensive real-time monitoring and diagnostics of the internal product operating temperature, power supply voltages, input and output fiber links, fans, and other critical functions of the router. Redundant control cards exhibit LED indicators to provide active and fault monitoring, while the system alarms can be configured to trigger an external control system, generate SNMP traps, or generate email notifications.

TLX Matrix Switches · Product Features

ROUTER FEATURES	PORT CONFIGURATIONS							ROUTER SPECIFICATIONS						
Router Name	Data Card Port Count	Max Data Cards	Max Port Count	Uni-Directional Configuration up to	Bi-Directional Configuration up to	Input/Output at any Port	Automatic Tie-Line Reclocking	Height (Rack Units)		Redundant Power Supplies	Hot-Swappable Switch Cards	Common Criteria EAL4	TEMPEST Level B	NATO (NAIPC) Green
Compact, Non-Modular Switches														
TLX-12	12	1	12	12x12	6x6	✓	✓	1RU						
TLX-24	24	1	24	24x24	12x12	✓	✓	1RU						
Modular Switches														
TLX-48	16	3	48	48x48	24x24	✓	✓	3RU		✓		In Testing		
TLX-320	16	20	320	320x320	160x160	✓	✓	13RU		✓		In Testing		
TLX-640	20	32	640	640x640	320x320	✓	✓	28RU		✓	✓	In Testing		

Hot-Swappable Router Modules

All Routers Feature

· 10Gbps per Port

· Modular Switches include Modular and Hot-Swappable Components:

· Control Cards

· Data Input and Output Cards

· Power Supplies

· Fan Trays

· Optical Modules

· Modular Switches Configurable to Include

Redundant Control Cards with Automatic Failover

· Multi-Mode, Single Mode and CATxl Configurations

· Compatibility with CWDM and DWDM Optical Modules

· Non-Blocking Architecture

TLX80 MATRIX SWITCH

The TLX80 is a high performance, non-blocking matrix switch for complete, end-to-end routing of video and peripheral signals. The TLX80 is **scalable in increments of 5 ports, up to 80 ports**, for a unidirectional 80x80 or a bidirectional 40x40 switch.

TLX80 Switch · Front

PRODUCT FEATURES

- Configurable up to an 80x80 switch
- Modular, 5 port data cards
- 10Gbps bandwidth per port
- Re-clocking technology maintains signal integrity
- Protocol agnostic
- Multi-mode fiber and single mode fiber applications
- Completely non-blocking architecture
- Switch video and data up to 80 kilometers
- MTBF over 100,000 hours
- Hot-swappable control cards, data input/output cards, power supplies, fan trays, optical modules
- Optional redundant control cards, with automatic failover
- Redundant, current-sharing power supplies
- System Management Portfolio for complete switch control and management

Specifications

Optical Distance	Single Mode: 80km · OS2 (9/125) Multi-Mode 400m · 33m: OM1; 82m: OM2; 300m: OM3; 400m: OM4
Optical Wavelength	Multi-Mode: 850nm; Single Mode: 1310nm (CWDM and DWDM wavelengths available, contact Thinklogical for information)
Data Rate	50Mbps to 10Gbps per port; Switching Capacity: 800Gbps
Environmental	Operating Temperature: 0°C-50°C Humidity: 5-95% RH, non-condensing
Compliance	Approvals for United States of America, Canada, and EU
Warranty	One year · Extended warranties available for purchase
Mounting Brackets	19" Rack Mounting Brackets Included
Power Consumption	850 Watts (fully loaded)
Supply Voltage	Universal AC Power Supply, 100-240VAC, 47-63Hz
Weight	35.5lbs (16.10kg)
Dimensions [Tolerance ± 0.039" (1.00mm)]	
Rack Size (Width)	EIA 19" (482.60mm)
Height x Depth	6RU 10.47" (265.94mm) x 16.26" (413.00mm)
Software Updates	Mini USB Connector (1)
RS-232 Serial Ports	DB9 Female Connectors (2)
10/100 Network	RJ45 Connector (1)
Alarm	Closed contact alarm, twelve position terminal block
Cables Included	(2) AC Power Cable & (1) CAT 5, 4.5m (CBL000001-015FR) (10) 24" 1.0/2.3 to Female BNC Cables per Coaxial Data Card

Ordering Information

Part Number	Description
Matrix Switch Chassis	
TLX-MSC-000080	TLX80 Matrix Switch Chassis, Single Control Card, Redundant Power Supplies
Data Input/Output Cards	
TLX-MSD-M00005	TLX80 5 Port Multi-Mode Data Input/Output Card
TLX-MSD-S00005	TLX80 5 Port Single Mode (10km) Data Input/Output Card
Spare Modules	
TLX-MSM-C00080	TLX80 Control Card
TLX-MSM-P00080	TLX80 Power Supply
TLX-MSM-F00080	TLX80 Fan Tray