

eXmux 3501 IP Access Multiplexer

By RFL Electronics
Catalog # [RFL-ExMux-3501](#)



*Representative Image

The eXmux 3501 has features such as “Hitless Switching” for private ring networks with zero-data-loss path recovery technology, dual path communications for routing redundant paths over public networks and a (DACS) function for cross-connecting DSOs between T1/ E1 circuits and/or eXmux 3501 interface unit. The product is designed for harsh applications and is available in two chassis configurations; a mission-critical model that offers module hot-swap capabilities for all functional cards and a economical compact model for applications where module hot swap capability is not required.Both the 3500 and the 3501 models are interoperable within the same network.

Features

- Chassis Configurations / Hot Swap & Compact:For Mission Critical applications the eXmux 3501 is available with a Hot Swap Module option where all modules of the eXmux 3501 are field replaceable with the unit powered. All interfaces units, power supplies, and switch can be replaced in the field in seconds. The Hot Swap model is a 5RU high 19” rack mount chassis while the compact model is a 3RU high 19” rack mount chassis.
- Legacy Interfaces: Accommodates up to 7 different DSO or T1/E1 legacy interface units
- plus a standard T1/E1 interface and a 2-wire telephone service channel.
- Advanced VNMS with DSO Grooming: An advanced Visual Network Management Software for effortless configurations, port mapping, maintenance and remote firmware upgrade that includes an Integrated Digital Access Cross-Connect System (DACS), allowing individual DSO circuits from any legacy T1/E1 system to be connected to any DSO circuits within the eXmux 3501 network or to another TDM network.
- Interface Units (IU): Supports legacy IUs such as: RS-232, RS-485, Serial Server,RS-422/530, V.35, X.21, G.703, C37.94, Teleprotection, 2W & 4W E&M, 2W FXO, 2W FXS and T1/E1.Teleprotection System:An integrated end-to-end teleprotection function that provides 4 bi-directional transfer trips commands in addition to 2 controlling inputs logic and 2 outputs for alarming & status. It is mid-span compatible with the IMUX 2000 T1/E1 multiplexer MTS Teleprotection System.
- Value:A lower cost solution than SONET/SDH or even T1/E1.Along with a simple and more efficient network that reduces maintenance cost and increases user productivity.
- Cyber Security:SNMPv3 for Authentication and Encryption along with an embedded User Access Management System and other cyber security features meeting NERC requirements.
- Real Time Critical Applications:Designed for real-time critical data applications such as SCADA/RTU, Relaying and

Teleprotection with minimum latency.

- Hitless Switching:A field proven path redundancy feature for private ring networks with zero-data-loss, making it ideal for critical infrastructure and protective relay applications.
- Dual-Path Communications:A field-proven path redundancy feature designed for public networks, making it ideal for critical infrastructure and protective relay applications.
- Resilient & Dependable:Enhanced reliability by offering optional redundant power supplies and path redundancy using MSTP (Multiple Spanning Tree Protocol) or RSTP(Rapid Spanning Tree Protocol) technology.

General

Bandwidth	Gigabit Ethernet (GigE) speed, equivalent to about twice the speed of a SONET/SDH OC-12/STM-4.
Catalog Number	RFL-ExMux-3501
Cooling	Convection cooling (No Fans)
Interface/Ports	4 Port Synchronous Interface,4 Port RS-485 Interface,4 Port Serial Server Interface,4 Port G.703 Co-directional Synchronous Interface,4 Port C37.94 Synchronous Relaying Interface,8 Port Asynchronous Interface,8 Port 4-Wire & 4 Port 2-Wire E&M Audio Interface,8 Port 2-Wire FXO Interface,4 Port 2-Wire FXS Interface
Operating Temperature	-30°C to +65 °C
Power Supply	38-150 VDC/88-130 VAC, 200-300 VDC/200-275 VAC, 19-32 VDC
Protocol	RS-422/RS-530, V.35, X.21,RS-485,Raw socket mode, SSH,RS-232, V.24

Software

The eXmux 3501 IP Access Multiplexer comes with an advanced Graphical User Interface (GUI) Network Management Software for Operations, Administration, Maintenance and Provisioning (OAM&P). The intuitive and user friendly eXmux 3501 VNMS is designed to allow the user to manage their eXmux 3501 network, making configuration, port mapping, network monitoring and diagnostics simple and easy. Network Management Software V6.1 and above is required to manage both 3500 and 3501 models within the same network. The VNMS communicates using the latest SNMPv3 for authentication and encryption along with cyber security features meeting NERC requirements. The Network view provides the user an overall view of the network and the status of each node in the network and is further enhanced by allowing the user to graphically represent the physical interconnection of each node in the network. The Node view displays a virtual physical view of the unit as configured with real-time status information. Programming details of each module are easily accessible by a simple double click on the module. The uniquely designed Port Mapping interface allows the user to easily map any port on an eXmux 3501 to any other eXmux 3501 on the network by a simple point and click ("Map this Port") function. The dynamic Current Active Alarm view gives the user specific information as to which node is in alarm, the type of alarm, the source and the description of the alarm so that diagnostic can be straightforward and quick. The "Tooltip" function provides the user "On-demand" information on any setting, status and alarm from any screen without the need for a

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manual or cumbersome Help function.
TDM over IP technology that allows point-to-point legacy equipment to communicate over an IP network that includes an Integrated Layer 2 Managed Ethernet Switch including two GigE Uplink (WAN) Ports and four fast Ethernet (LAN) ports.
USB Port User Access for IP address setup FE/GE port for Visual NMS GUI 2-Wire Telephone Service Channel

User Interface

Dimensions

Cubic Capacity	1097.25 cu.in
Depth	11 in
Height	5.25 in
Width	19 in

Certifications And Compliance

Compliance	<ul style="list-style-type: none">• IEEE P1613• IEC61850-3• ANSI C37.90.2• ANSI C37.90.3• EN 60950: 2002 Safety of information technology equipment• EN 60825-2: 2004 Safety of laser products — Part 2• EN 55022: 1998 Information technology equipment - Radio disturbance characteristics• EN 55024: 1998 Information technology equipment - Immunity characteristics• EN 61000-4-2 (8/15 KV ESD) (front of chassis)• EN 61000-4-3 / EN 61000-6-4 - Radiated RFI immunity• EN 61000-4-6 / EN 61000-6-2 - Conducted RFI immunity• ANSI C37.90.2 - EMI Withstand• ANSI C37.90.3 - (ESD Withstand, front of chassis)• IEEE P1613 - (Environmental, ESD, RFI, Shock & Vibration)• EN 61000-4-4 / ANSI P1613 / ANSI C37.90.1(4 KV EFT)• EN 61000-4-5 (Surge withstand)• EN 60255-5 / ANSI P1613 (5 KV Impulse)
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- EN 60255-5 / ANSI P1613 (2.8 KV High Pot)
- EN 60255-22-1 (Damped Oscillatory Disturbance)
- ANSI C37.90.1 / ANSI P1613 (Oscillatory)
- IEC 60834-1 (Power supply disturbance tests)
- EN 60255-22-1 (2.5 KV, 1 MHz Damped Oscillatory)
- ANSI C37.90.1 / ANSI P1613 – (2.5 KV Oscillatory)

Industry Standard(s)

- EN 61000-4-2 / ANSI C37.90.3 / ANSI P1613(8/15 KV ESD)
- EN 60255-5 / EN 60834-1 / ANSI P1613 (0.72 KV High Pot, common mode)
- ANSI C37.94
- AT&T Publication 43801

Product Assets

[Brochures - EXMUX® 3501 IP ACCESS MULTIPLEXER](#)
[Specifications - RFLXMUX3501](#)



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