

NEW

Lentronics Multiplexer Family

Fiber Optic Multiplexers



TN1U SDH Multiplexer

TN1Ue SDH Multiplexer

JungleMUX SONET Multiplexer

Highly reliable fiber optic telecommunications multiplexers for electric utility, transportation, pipeline and industrial applications.

Electric Utility Applications

- Protective relaying
- Substation automation
- Telemetry/SCADA
- Video surveillance
- Ethernet WAN/IP
- Voice

Transportation Applications

- Video surveillance
- Toll collection
- Traffic monitoring and control
- Emergency voice
- Signaling
- Loop detection
- Variable message signs (VMS)

Pipeline Applications

- Oil, gas, refined products, water, slurry
- Leak detection
- Hydraulic control
- Pipeline SCADA
- Video surveillance
- Ethernet WAN/IP
- Voice

Industrial Applications

- Oil and gas production field SCADA
- Electric distribution network protection and control
- Energy management
- Ethernet WAN/IP
- Video surveillance
- Video process monitoring



Lentronics Multiplexer Family

Description

Facing increasingly complex demands for telecommunications services, organizations are looking for cost-effective, reliable solutions for managing mission critical operations.

Designed to meet international standards (ANSI/IEEE/IEC) for harsh environments, the Lentronics Multiplexer Family offers both SONET and SDH fiber optic telecommunications multiplexers. These include:

- JungleMUX SONET Multiplexer
- TN1U SDH Multiplexer
- TN1Ue SDH Multiplexer

Lentronics Multiplexers allow companies to consolidate all of their telecommunication applications into an integrated fiber optic network.

Lentronics Multiplexer Fiber Optic System Technology

This powerful family of multiplexers has a modular design for ease of maintenance, configuration flexibility, and expandability. Lentronics Multiplexers offer optional redundancy for critical modules, with guaranteed performance over an extended ambient temperature range. The robust design of these multiplexers meets Surge Withstand Capability (SWC) and Radio Frequency Interference (RFI) specifications providing secure performance in harsh environments.

Lentronics Multiplexers can be customized to the user's requirements by equipping each site with application specific modules as needed. These currently include data, voice, video, teleprotection, analog and FDM interfaces – with additional modules under design.

Lentronics Multiplexer Operations, Administration, Maintenance and Provisioning (OAM&P)

The GE Lentronics Multiplexer system takes advantage of the inherent network management capabilities provided by the SONET and SDH telecommunications standards. The OAM&P system provides network visibility down to the individual circuit level at every node, remote provisioning, and monitoring of the network from any node as well as alarm logging. This is done via Microsoft® Windows®-based personal computer, which can be used for system diagnostics and troubleshooting. The built-in test capabilities of the Lentronics Multiplexer can save the user the cost of purchasing SONET or SDH test equipment.

Features and Benefits

Cost-effective

- Combines optical transmission and channel circuit interfaces in a common package
- Expansion shelves allow flexible node growth, minimizing initial investment
- An integrated network management system provides network visibility down to the individual circuit level at every node, minimizing maintenance time and expense

- Built-in test capabilities eliminate the need for expensive SONET or SDH test equipment
- Integrates video codec and Ethernet bridging functionality into a common package simplifying procurement and installation

Goes beyond SONET and SDH standards

- Synchronous integration of individual circuits, minimizes re-synchronization outages
- Efficient use of VTs (SONET VT 1.5 share) and VCs (SDH VC 12 groomer) through multi-use termination
- Fast path protection switching (<3 ms) minimizes potential traffic interruption
- Harsh environment tolerant (excessive SWC and RFI)
- Extended ambient temperature operation
- Zone 4 earthquake certification

Flexible Network Architecture

- Supports point-to-point, linear add/drop, ring and multiple ring configurations
- Common software and firmware supports all configurations, simplifying maintenance
- Interoperates with high-capacity SONET or SDH multiplexers and microwave radios
- Easy growth of additional traffic or nodes, without interrupting existing traffic
- Synchronization via system internal clock or external BITS reference
- Remote video/data/audio fiber optic accessory

Technical Specifications

TELECOMMUNICATIONS			
Optical interfaces:	JungleMUX	TN1U	TN1Ue
OC-1 (51.84 Mbps)	✓		
OC-3 (155.52 Mbps)	✓		
OC-12 (622 Mbps)	✓		
STM-1 (155.52 Mbps)		✓	✓
FCPC connector	✓	✓	✓
1310 nm transmit laser	✓	✓	✓
1550 nm transmit laser	✓	✓	✓
Windows®-based PC NMS	✓	✓	✓
Optional SNMP manager	✓	✓	✓

POWER SUPPLY			
Power requirements:	JungleMUX	TN1U	TN1Ue
24 VDC	✓	✓	
48 VDC	✓	✓	✓
130 VDC	✓	✓	
115 VAC	✓		
230 VAC		✓	
Typical power consumption per node:			
10 to 25 Watts	✓	✓	✓

*Specifications subject to change without notice.

TELECOMMUNICATIONS STANDARDS			
Meets ANSI/IEEE C37.90.2 RFI			
Meets ANSI/IEEE C37.90.1 SWC			

ENVIRONMENTAL			
Operating temperatures:	JungleMUX	TN1U	TN1Ue
-20° C to +60° C (-4° F to +158° F)	✓		
-10° C to +60° C (+14° C to +140° F)		✓	✓
Storage temperature:			
-40° C to +70° C (-40° F to +140° F)	✓	✓	✓
Humidity:			
5 - 95% non-condensing	✓	✓	✓

PHYSICAL			
Common equipment shelf:	JungleMUX	TN1U	TN1Ue
Height: 178 mm (7 inches)	✓	✓	
223 mm (8.75 inches) 5U			✓
Width: 483 mm (19 inches)	✓	✓	✓
Depth: 260 mm (10.25 inches)	✓	✓	
409 mm (16.1 inches)			✓
Weight: 3.6 kg (8 pounds)	✓	✓	
7.3 kg (16 pounds)			✓

Unit Assembly Description

	JungleMUX Part Number	TN1U Part Number	TN1Ue Part Number
Data Interface Units:			
Low-Speed Data	86448	86448	6448
<ul style="list-style-type: none"> ■ RS232 interface ■ Sub-rate multiplexing ■ Point-to-point and multi-point 			
High-Speed Data	86446	86446	86446
<ul style="list-style-type: none"> ■ 64,000 (56,000) bps rates ■ RS422, V.35 and G.703 interfaces 			
Nx64,000 bps Data Electrical	86464-01	86464-01	86464-01
<ul style="list-style-type: none"> ■ N = 1 to 12 64,000 bps channels ■ V.35 interface 			
DS-1 (1.54 Mbps) Data	86437		
E-1 (2.048 Mbps) Data	86439	86439	86439
DS-3 (44.7 Mbps) Data	86491	86491	86491
<ul style="list-style-type: none"> ■ Establishes full duplex point-to-point DS3 circuit ■ Drop equipment connections for DACS, M13 multiplexer or any other DS3 terminating equipment 			
Ethernet	86438	86438	86438
<ul style="list-style-type: none"> ■ IP connectivity ■ LAN/WAN interconnect ■ 10/100 Mbps learning bridge ■ IEEE 802.3 			
Voice Units:			
4 Wire Voice Frequency	86444	86444	86444
<ul style="list-style-type: none"> ■ Optional E&M signaling ■ Point-to-point and multi-point 			
2 Wire Voice Frequency	86449	86449	86449
<ul style="list-style-type: none"> ■ Optional E&M signaling 			
2 Wire Foreign Exchange	86445-41	86445-41	86445-41
<ul style="list-style-type: none"> ■ Loop or ground start signaling 			
2 Wire Foreign Subscriber	86445-31	86445-31	86445-31
<ul style="list-style-type: none"> ■ Remote PABX extension 			

	JungleMUX Part Number	TN1U Part Number	TN1Ue Part Number
Video Units:			
Video Mapper 10 ■ Provides video WAN of 12 Mbps	86411-01	86411-01	86411-21
Video Mapper 40 ■ Provides video WAN of 48 Mbps	86410-01	86410-01	86410-01
Video Input/Output ■ NTSC or PAL analog video signal transport ■ Dynamically assigned compression scheme ■ 56,000 bps to 10 Mbps bandwidth ■ 1 to 30 frames/second update rate ■ PTZ camera control ■ Stereo quality audio	86412	86412	86412
Remote Video Housing	86414	86414	
Teleprotection Units:			
Transfer Trip ■ Separate transmit and receive units ■ Optional test panel	86441/86442	86441/86442	86441/86442
Current Differential Relay ■ Various pilot wire relay interfaces	86443	86443	86443
Nx64,000 bps Data Optical ■ N = 1 to 12 64,000 bps channels ■ IEEE PC37.94 standard for teleprotection equipment	86464-02	86464-02	
Additional Units:			
Analog Telemetry ■ Transport of telemetry voltage or current ■ Separate transmit and receive units	86461/86462	86461/86462	86461/86462
Contact Input/Output ■ Transport of contact closure	86463	86463	86463
FDM ■ Supergroup transport (60 FDM channels)	86483	86483	86483
Orderwire ■ Party line voice circuit carried on 64,000 bps channel of either transport or path overhead ■ DTMF signaling	86471	86471	86471

Ordering

To order Lentronics Multiplexer Family products please refer to the sales offices listing at the back of the catalog. Any individual contact listing with the annotation (T) for Telecommunications, can provide you with product and pricing information.