



ORION TELECOM NETWORKS INC.

16 E1 + Gigabit Ethernet (Wire-Speed) Optical Multiplexer

Product Brochure

Headquarters: Phoenix, Arizona

Orion Telecom Networks Inc.

16810, Avenue of the Fountains,
Suite # 108, Fountain Hills, AZ 85268 U.S.A.
Phone: +1 480-816-8672,
Fax: +1 480-816-0115
E-mail: sales@oriontelecom.com
Website: <http://www.oriontelecom.com>

Regional Office: Miami, Florida

Orion Telecom Networks Inc.

4000 Ponce de Leon Blvd. Suite 470,
Coral Gables, FL 33146 U.S.A.
Phone: 1-305-777-0419,
Fax: 1-305-777-0201
E-mail: sales@oriontelecom.com
Website: <http://www.oriontelecom.com>

Product Overview

Orion's 16 E1 + Gigabit Ethernet (Wire-Speed) Optical Multiplexer is a unique Gigabit multi-service optical fiber transport solution which transmits both Gigabit Ethernet (Gigabit Wire-Speed) data along with upto 16 E1 (TDM) channels over an optical fiber link.



16 E1 + Gigabit Ethernet
(Wire-Speed) Optical Multiplexer

1+1 optical fiber redundancy is also available for minimizing the possibility of transmission loss due to an optical link failure.

The Gigabit (Wire-Speed) Ethernet traffic along with 16 E1's are multiplexed into 1.25Gbps optical link to provide a compact, high performance, high throughput and cost effective broadband network access solution.

Features

- 1U height, 19-Inch standard rack-mountable chassis
- Wire-Speed Gigabit Ethernet traffic with 16 E1 data are transported simultaneously
- Optical line bit rate 1.25Gbps
- 1 Gbps data throughput for aggregate Ethernet traffic
- Supports jumbo frame size (upto 2048 bytes) transmission
- Supports 1+1 optical link protection and APS with less than 50ms switching time
- MSA compliant SFP (Small Form-Factor) based design for improved and easy serviceability. SFP based design provides the flexibility to the customer to change service distance and support different types of optical fiber
- MSA standard compliant SFP (INF-8074i, ITU-T G.695 and FC-PI V2.0)
- Supports Automatic Laser Shutdown (ALS) option for added safety
- Performance analysis of optical ports Optical Transmission Failure, Loss of Optical Link, Loss of Frame and Errors (E-3 / E-6)
- E1 port complies to ITU-T G.703 and G.704
- Jitter tolerance, jitter transfer characteristic and jitter generation fully comply with ITU-T G.823 and G.742 recommendations
- Performance analysis of E1 ports Loss of Signal and Code Violation
- Performance Analysis of GigE port - All Received Packets, All Received Bytes, Received Broadcasts, All Transmitted Packets, All Transmitted Bytes, Transmitted Broadcasts, Received Error Packets
- Provides Engineering Order Wire (EOW)
- Remote access and management over TCP-IP Telnet and SNMP
- Supports SNMP V2 monitoring and traps
- Supports Command Line Interface (CLI) based on RS232 (COM Port) and TCP-IP (Telnet)
- Remote Power Down detection (RPD) alarm. Allows the local end to detect if the remote unit is unavailable due to optical link failure or due to power down
- Remote software ungradable
- AC and DC power redundancy {-48V DC (-18V to -72V) , 110-230V AC options available}
- Complies to electrostatic discharge immunity (ESD) IEC 61000-4-2 level 2
- RoHS and EMI/EMC compliant.

Highlights

- Gigabit (Wire Speed) data transmission
- Gigabit multi-service fiber optic transport solution - Transmits both E1s and Gigabit Ethernet data over an optical fiber link / or over 1+1 redundant optical fiber links for added protection against link failures
- Compact, high performance, high throughput and cost effective broadband network access solution
- SFP based design for customer convenience, flexibility to change services distance and serviceability
- Optical distance support for 550m, 10Kms, 20Kms, 40Kms and 80Kms
- Supports remote power down detect function
- Ethernet data port complies to IEEE 802.3, IEEE 802.3u, IEEE 802.ab, IEEE 802.3x recommendations
- Ethernet data port supports auto-negotiation function and can work in 10M full/half duplex, 100M full/half duplex, 1000M full duplex mode (1000M half duplex is not supported)
- Ethernet Transmission media is Category 6 UTP, RJ-45 connector (electrical) for Gigabit Ethernet channel with upto 1000Mb/s data rates
- Ethernet Transmission media is optical fiber pair, LC connector (optical), for Gigabit Ethernet electrical channel with up to 1000Mb/s bandwidth
- Engineering Order Wire (EOW)
- Supports Command Line Interface (CLI) for configuration and management
- Supports TELNET for remote configuration and management
- Supports SNMP V2
- GUI for easy configuration
- Network Management System for monitoring multiple units from a single, central location
- Supports multiple type of alarm notifications
- Supports E1 and optical loop back configuration, etc.
- 1U (44mm) high 19 Inch Rack Mount standard rack design
- Available with Single 110V-220V AC and / or -48V DC (18V to 72V) power supply
- Supports 110V-220V AC and -48V DC (18V to 72V) redundant power supply
- Low power consumption (Less than 11W)
- Provides E1's with 120 Ohms (RJ-45) or E1's with 75 Ohms (BNC) connections - optional
- E1 G.703, G.703 channels support all protocols sent over it, e.g. SS7 signaling, PRI for PABX interconnection
- Support for Base Station backbone development for CDMA, GSM, 3G and other applications where E1 G.703 channels and Gigabit Ethernet data are required to send over the same fiber link.

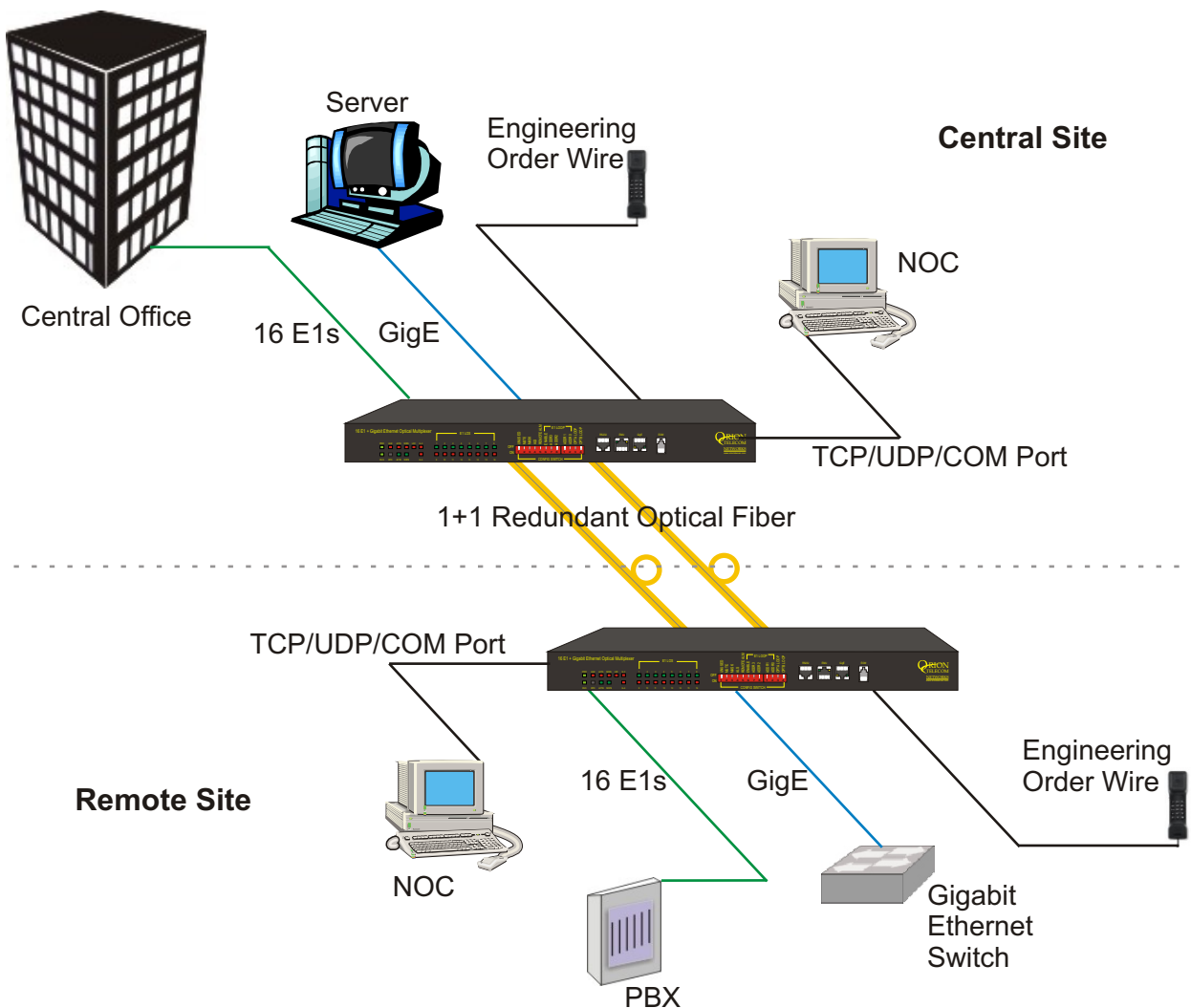
Configuration, Maintenance and Management options

- Serial Management Port – RS232 interface (COM Port)
- TCP/IP – 10/100BaseT for remote management over a LAN / TCP/IP network
- SNMP V2 (MIB File provided with the equipment)
- Telnet – CLI (Command Line Interface)
- Windows XP and Windows 7 compatible Graphical User Interface (GUI)
- Network Management System (to monitor multiple units from a single central location).

Alarm and Indicator Monitoring

- Power Indicator
- Current Status (integrity and activity) Indicator
- General Alarm Indicator (any alarm)
- Working Optical Link Indicator
- Optical Signal Loss Alarm Indicator
- Remote Device Power-Down (RPD) Indicator
- Ethernet Link Indicator
- Ethernet Speed Indicator
- E1 Signal Loss Alarm Indicator
- Frame Loss Indicator
- Optical Errors (E-3 / E-6) Indicator
- Audible Buzzer Alarm
- SNMP V2 Diagnostic and Monitoring.

Application



Technical Specifications

E1 Interface Specifications

Electrical Interface	E1
Channel capacity	16 E1
Bit rate	2.048 Mbps \pm 50 ppm
Line code	HDB3
Frame Structure	As per G.704
Electrical Interface	As per G.703
Nominal impedance	120 Ω balanced / 75 Ω unbalanced (optional)
Jitter character	ITU-T G.742, G.823 compliant
Connectors	RJ-45 connectors (120 Ω balanced) Or Male DB37 interface with BNC coaxial connectors (75 Ω unbalanced)

Gigabit Optical (Network Transmission Side) Interface options (SFP options)

S. No.	Wave Length	Distance	SFP Standards
1	850nm-LD	550m	1. Supports 1.25Gbps bit rate. 2. Connector type is LC 3. MSA (INF-8074i) Compliant and SFF-8472 v9.3 4. IEEE802.3z Gigabit Ethernet 5. DDM, RoHS & WEEE 6. International Class 1 laser safety certified (IEC 60825) 7. Complied to GR-468-CORE 8. Complied to ITU-T G.695 9. Complied to FC-PI V2.0 Standard
2	1310nmFP-LD	10km	
3	1310nmDFB-LD	20km	
4	1550nmDFB-LD	40km	
5	1550nmDFB-LD	40km	
6	1550nmDFB-LD	80km	

Gigabit Ethernet (customer side) Interface 10/100/1000BaseT (Electrical)

Number of Interfaces	1
Interface	RJ-45 Ethernet 10/100/1000BaseT (auto sensing) Full / Half Duplex
Interface Rate	Upto 1000 Mbps Ethernet data transmission rate
Connector	RJ-45

Configuration, Maintenance and Management Interfaces

- Serial Management Port – RS232 interface (COM Port)
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- Windows XP and Windows 7 compatible Graphical User Interface (GUI)
- Network Management System (to monitor multiple units from a single central location).

Safety

- Class 1 Laser
- Auto Laser Shut Down (ALS) in the event of fiber break.

Engineering Order Wire (EOW)

- EOW (Engineering Order Wire)- RJ11 Connector

Power Supply

Power Input	AC, DC, AC + DC
DC power	DC - 48V (Input range -18~-72V)
AC power	AC 110~240V, 50/60Hz
Power consumption	< 11 Watts

Environment

Temperature	- 5°C ~ +55°C for operation - 40°C to +70°C for storage
Humidity	5% to 95% (35°C)

Mechanical Specifications

Width	440 mm.
Depth	210 mm.
Height	44 mm.
Weight	2.7 kg
Rack Type	EIA 19 inch

Ordering Information

S. No.	Part #	Description
1	2016:1-16E1-GigE (Core System)	16 E1 + Gigabit Ethernet (Wire-Speed) Optical Multiplexer - 19" Metal box / case 1U High Rack Mount Version - EOW (order wire), SNMP, NMS & Telnet for Management - User Manual & User Disk - 1 x Gigabit Ethernet (10/100/1000BaseT Electrical RJ45F) Customer Side - 16 x E1 Ports – 120 Ohms / 75 Ohms (Please specify E1 Impedance option) - 2 x Gigabit Optical (SFP based - without SFPs) Network Transmission Side (Please specify SFP option) - AC / DC / AC+DC (Please specify power option)

E1 Impedance Options

S. No.	Part #	Description
1	16E1-75 Ohms	16 x E1 Ports 75 Ohms [DB-37(M)] DB-37(M) to 16 BNC(F) Converter will be supplied with the System
2	16E1-120 Ohms	16 x E1 Ports 120 Ohms [RJ45(F)] - Std*

Power Supply Options

S. No.	Part #	Description
1	AC	1 x 110-220V (Range: 85-264) AC power input
2	DC	1 x -48V (Range: 36-72) DC power input - Std*
3	AC+DC	1 x 110-220V (Range: 85-264) AC power input 1 x -48V (Range: 36-72) DC power input

Note: Std* denotes Standard configuration

SFP Options

S. No.	Part #	Description
1	GigE-850-550	1.25Gbps SFP Transceiver Gigabit Ethernet, 1000Base-LX, Duplex LC, 850nm, 550m, MMF, +3.3V, MSA, DDM, Internal Calibration, RoHS
2	GigE-1310-10	1.25Gbps SFP Transceiver Gigabit Ethernet, 1000Base-LX, Duplex LC, 1310nm, 10Km, SMF, +3.3V, MSA, DDM, Internal Calibration, RoHS
3	GigE-1310-20	1.25Gbps SFP Transceiver Gigabit Ethernet, 1000Base-LX, Duplex LC, 1310nm, 20Km, SMF, +3.3V, MSA, DDM, Internal Calibration, RoHS
4	GigE-1310-40	1.25Gbps SFP Transceiver Gigabit Ethernet, 1000Base-LHX, Duplex LC, 1310nm, 40Km, SMF, +3.3V, MSA, DDM, External Calibration, RoHS
5	GigE-1550-40	1.25Gbps SFP Transceiver Gigabit Ethernet, 1000Base-LX, Duplex LC, 1550nm, 40Km, SMF, +3.3V, MSA, DDM, External Calibration, RoHS
6	GigE-1550-80	1.25Gbps SFP Transceiver Gigabit Ethernet, 1000Base-LX, Duplex LC, 1550nm, 80Km, SMF, +3.3V, MSA, DDM, External Calibration, RoHS

Technical specifications are subject to changes without notice.
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16810, Avenue of the Fountains,
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