

Introduction:

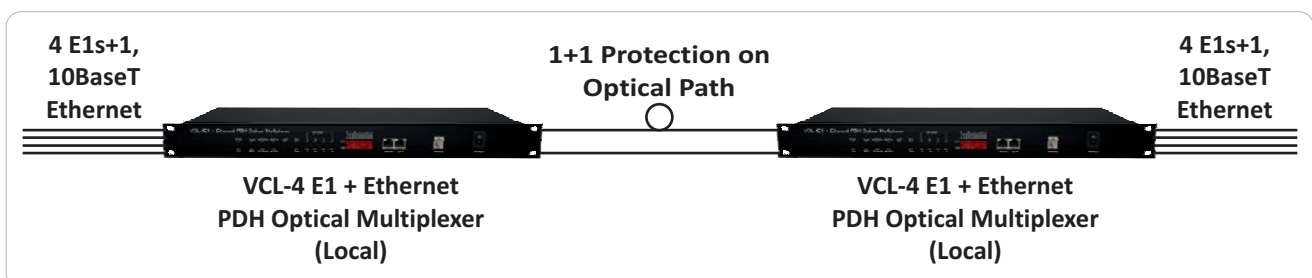
VCL-4E1 plus Ethernet - Optical Multiplexer is a high performance optical line transmission equipment, combines 4, ITU-T G.703 compliant standard electrical E1s plus 100BaseT ethernet signal into an optical data stream for transport over fiber optic pairs. Several transmitter options for different cable types and wavelengths are available. 1+1 optical path redundancy is offered and available as an option. The option of 1+1 Optical Redundancy (Protection Switching), the transmission automatically switches to a 'standby' optical link in the event of a failure of the 'primary' optical link.



Features and Highlights:

- Compact design (1U -44mm high) that performs E1 and Ethernet channel multiplexing & de-multiplexing to an optical output
- Provides visible and audible alarm indication
- Orderwire (EOW) channel for end to end installation and maintenance
- Local and remote loop back test for diagnostics
- 1+1 Fiber Path protection
- Clock options: internal/loop-timed
- Provides visible and audible alarm indications
- Local & remote loopback controls for diagnostics and troubleshooting
- Local configuration management through RS232 Serial Port
- Low power consumption (< 10 Watts)
- Integrated E1 plus Ethernet - optical multiplexer
- 10/100M Ethernet port - 100Mbps Ethernet data transmission rate
- Powered by grade Class I Laser
- EMI/EMC complaint
- 4E1 interfaces
- E1 120 Ohms / 75 Ohms - options available
- SNMP
- Remote configuration and management through 10/100BaseT Ethernet Port - Telnet
- Extensive alarms and status indication facility
- Easy operation
- Standard ITU-T compliant interfaces
- Laser Shut Off facility

Application Diagram



Technical Specifications

E1 Interface

Electrical Interface	E1
Channel Capacity	Upto 4E1
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 Ohms balanced / 75 Ohms unbalanced (optional)
Jitter Character	ITU-T G.742, G.823 compliant
Connectors	DB37 interface with RJ-45 connectors (120 Ohms balanced) DB37 interface with BNC coaxial connectors (75 Ohms unbalanced)

Optical Interface

Type of Transmitter	Class 1 Laser
Transmitter power	\geq -3dBm, \geq -6dBm, \geq -9dBm options, as ordered
Bit rate	155 Mbps
Wavelength	850/1310/1550nm (optional)
Optical connector	FC/PC
Receiver Sensitivity	\leq -36 dBm
Typical output power	\geq -9dBm
Fully Compliant with ITU-T G.957, G.958 Specification	
Class 1 Laser Product, Compliant with IEC 60825-1	
Compliant with Telcordia (Bellcore) GR-468-CORE	

Ethernet Interface - 10/100BaseT (optional)

Number of Interfaces	1
Interface	RJ45 Ethernet 10BaseT or 100BaseT-TX (auto sensing)
Compliance	Ethernet Version 2.0 IEEE802.3 10Base-T & 100Base-TX Activity, Full/half duplex.
Interface Rate	100 Mbps Ethernet data transmission rate
Connector	RJ-45
Flow Control	Pause

Order Wire Interface

Phone set	Standard 2-wire phone set
Bandwidth	64Kb/s
Coding	PCM

RS232 Interface

Bit Rate	19200 b/s
Data Width	8 Bits
Stop Bit	1 Bit
Parity Check Bit	None
Connector	Db9

Safety

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

System Management and Access

- Windows XP, Windows 7 and Windows 10 compatible Graphical User Interface (GUI)
- Telnet - CLI (Command Line Interface)
- SNMP V2 (MIB File provided with the equipment).

Management and Control Ports

- Serial Management Port (RS232) - COM Port
- 10/100BaseT for remote management over a LAN / TCP/IP network.

Environment

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

Mechanical

Height	44 mm
Width	434 mm
Depth	155 mm
Weight	2 kg.
Rack Type	EIA 19-Inch

Power Supply

Power Input	AC, DC, AC + DC
DC Power	DC - 48V (-36~-72V) / DC 24V Optional
AC Power	AC 220V (100~240V)
Power Consumption	12 Watts Maximum

Ordering Information**VCL-4E1 + Ethernet PDH Optical (1+1) Multiplexer (CORE UNIT Without PSUs)**

Part No.	Description
2041:1-4E1-120-ETH-1310SM-040	VCL-4E1 + Ethernet PDH Optical (1+1) Multiplexer 19" Metal box / case 1U High Rack Mount Version Supports: – 4 x E1 [120 Ohm DB37 (M)] – 1 x Ethernet [100Mbps, Electrical RJ45 (F)] – 2 x Optical [155Mbps, Duplex FC, 1310nm, 40Km, Single-Mode, Dual-Fiber] – 1 x System Core Cables, Installation accessories, Documentation, System User Manual / Disk etc (Set) – OAM: EOW (order wire), SNMP, NMS & Telnet * Add Power Supply Option from below
2041:1-4E1-075-ETH-1310SM-040	VCL-4E1 + Ethernet PDH Optical (1+1) Multiplexer 19" Metal box / case 1U High Rack Mount Version Supports: – 4 x E1 [75 Ohms DB37 (M)] – 1 x Ethernet [100Mbps, Electrical RJ45 (F)] – 2 x Optical [155Mbps, Duplex FC, 1310nm, 40Km, Single-Mode, Dual-Fiber] – 1 x System Core Cables, Installation accessories, Documentation, System User Manual / Disk etc (Set) – OAM: EOW (order wire), SNMP, NMS & Telnet * Add Power Supply Option from below

Part No.	Description
2041:1-4E1-120-ETH-1550SM-080	VCL-4E1 + Ethernet PDH Optical (1+1) Multiplexer 19" Metal box / case 1U High Rack Mount Version Supports: – 4 x E1 [120 Ohms DB37 (M)] – 1 x Ethernet [100Mbps, Electrical RJ45 (F)] – 2 x Optical [155Mbps, Duplex FC, 1550nm, 80Km, Single-Mode, Dual-Fiber] – 1 x System Core Cables, Installation accessories, Documentation, System User Manual / Disk etc (Set) – OAM: EOW (order wire), SNMP, NMS & Telnet * Add Power Supply Option from below
2041:1-4E1-075-ETH-1550SM-080	VCL-4E1 + Ethernet PDH Optical (1+1) Multiplexer 19" Metal box / case 1U High Rack Mount Version Supports: – 4 x E1 [75 Ohms DB37 (M)] – 1 x Ethernet [100Mbps, Electrical RJ45 (F)] – 2 x Optical [155Mbps, Duplex FC, 1550nm, 80Km, Single-Mode, Dual-Fiber] – 1 x System Core Cables, Installation accessories, Documentation, System User Manual / Disk etc (Set) – OAM: EOW (order wire), SNMP, NMS & Telnet * Add Power Supply Option from below

Ordering Information

Cables and Accessories Options (As per Site requirement)

Part No.	Description
VCL-HRNS 1260	4E1 120 Ohm Connectorized Cable [DB37F-4RJ45F]
VCL-HRNS-1245	4E1 75 Ohms Connectorized Cable [DB37F-8BNCF]
VCL-HRNS 1240	Optical Patch Cord Connectorized Cable [FC-FC, 10m, SM]
VCL-HRNS 1242	Optical Patch Cord Connectorized Cable [FC-LC, 10m, SM]
VCL-HRNS 1276	Optical Patch Cord Connectorized Cable [2FC-2FC, 10m, SM]
VCL-HRNS 1243	Optical Patch Cord Connectorized Cable [2FC-2LC, 10m, SM]
VCL-HRNS 1257	Optical Patch Cord Connectorized Cable [2FC-2SC, 10m, SM]
VCL-ECON 1173	Connector (Attenuator LC-LC (20 db.))
VCL-ECON 1187	Connector (Attenuator FC-FC (20 db.))
VCL-ECON 1198	Connector (Attenuator SC-SC (20 db.))

Power Supply Option (Any one Option)

Part No.	Description
AC220	1 x 100-240V AC Power Supply Input
DC048	1 x (-) 48V DC Power Supply Input
ACDC	1 x 100-240V AC Power Supply Input 1 x (-) 48V DC Power Supply Input

Technical specifications are subject to changes without notice.
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