



ORION TELECOM NETWORKS INC.

VCL-2/34 Mbps PDH Multiplexer E3, PDH Multiplexer

Product Brochure & Data Sheet

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VCL - E3, 2/34 Mbps PDH Multiplexer

Product Description

VCL E3-2/34Mbps, PDH Multiplexer is a third order skip multiplexer/demultiplexer unit, based on PDH (Plesiochronous Digital Hierarchy) technology. It multiplexes sixteen 2.048Mbps (hereafter referred to as 2Mbps) E1 tributaries into a single 34.368Mbps (hereafter referred to as 34Mbps) E3 tributary. The multiplexer/demultiplexer also does the reverse processing i.e. demultiplexing a received 34Mbps stream into 16, 2Mbps E1 tributaries.

The VCL-2/34 Mbps Multiplexer system consists of two VCL-2/34 Mbps terminals, one each at the local and remote ends, connected

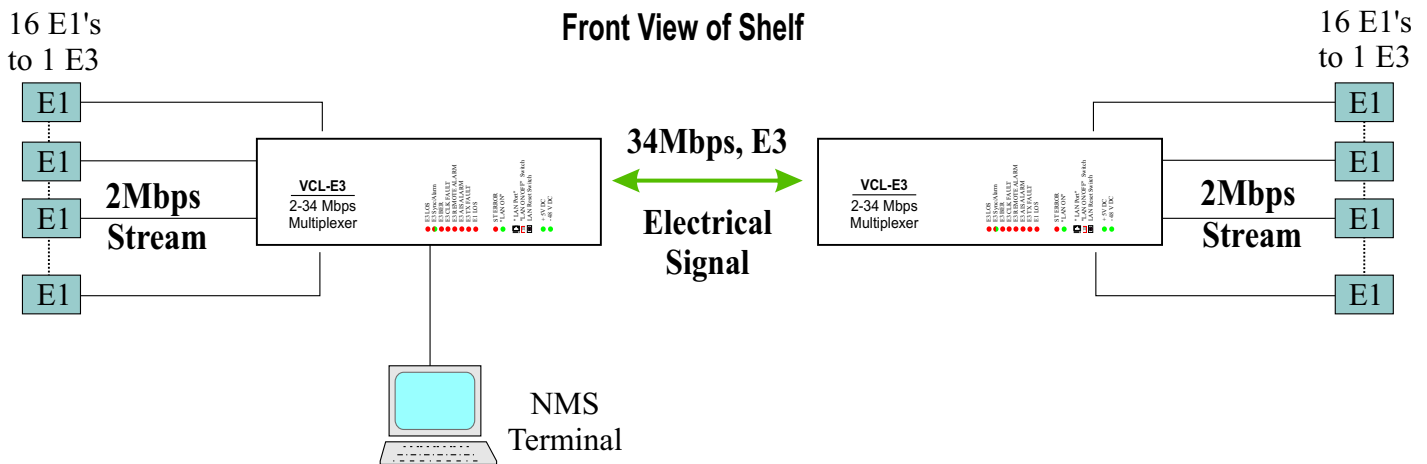
through a 34Mbps stream, providing end to end services for sixteen 2 Mbps streams. The VCL-2/34 Mbps PDH Multiplexer provides 16, 2Mbps

Front View



VCL - E3, 2/34 Mbps PDH Multiplexer

E1 electrical interfaces which are multiplexed to 1, ITU-T compliant E3, 34Mbps G.703 electrical interface.



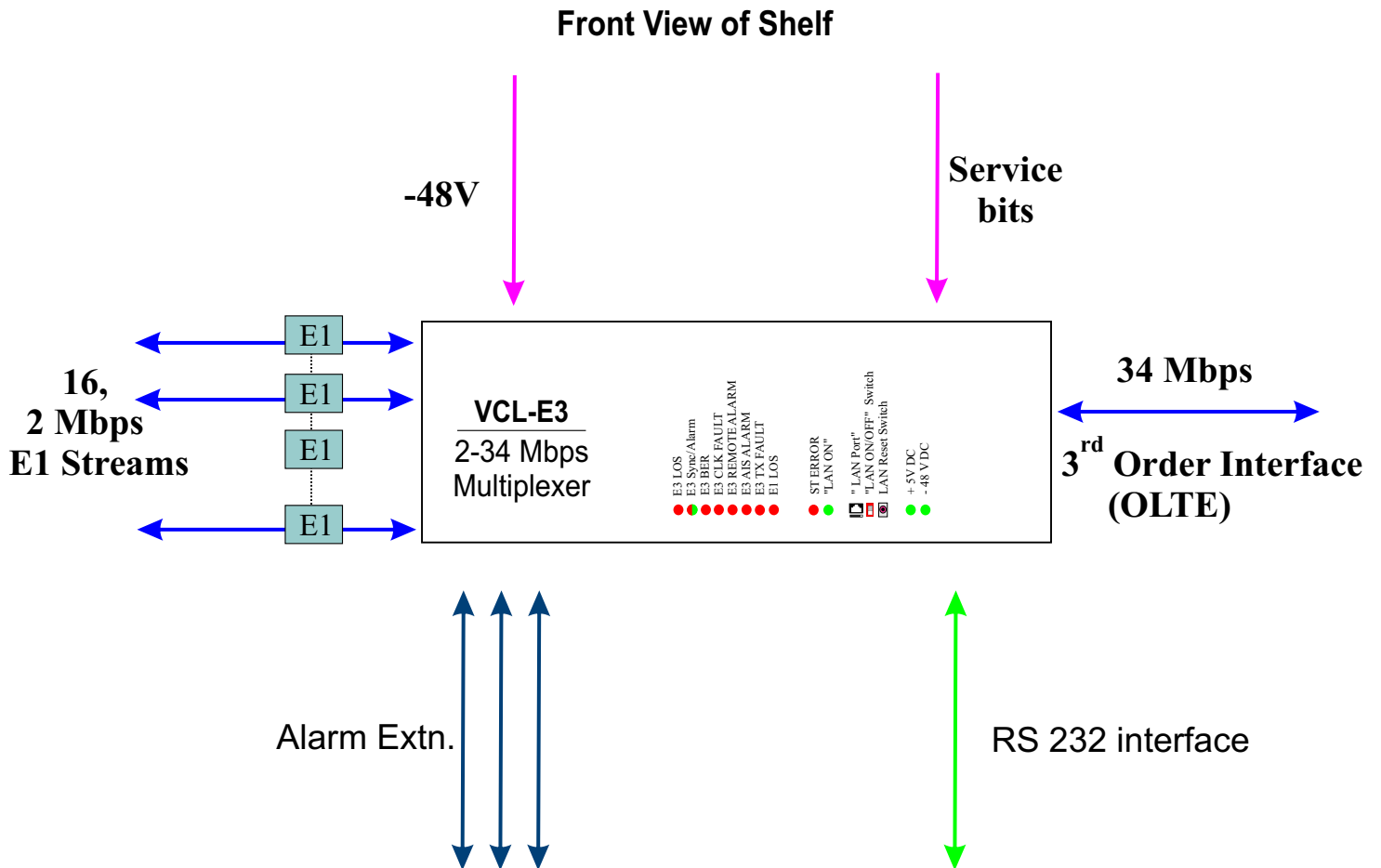
Features and Highlights

<ul style="list-style-type: none"> • Single - card implementation • Plug and Play Multiplexers • Modular 2Mbps transmission units • Standard CCITT (ITU-T) compliant interfaces • Monitoring and control by CLI (Command Line Interface) • TCP/IP Remote Access for monitoring alarms and management • Extensive alarms and status indication facility 	<ul style="list-style-type: none"> • Service bit monitoring and insertion • Operates on nominal -48V DC input • Distributed on-board power supply • Microprocessor controlled with powerful diagnostic facilities • Loopback facility for 34Mbps stream • Stored program controlled • Highly reliable and compact
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External Interfaces

VCL-E3 unit provides the following interfaces to the external world:

- 16 primary rate, 2Mbps, 120 □ balanced interface
- 1 third order, 34Mbps, 75 □ unbalanced interface
- -48V input for VCL-2/34 on-board power supply
- RS232 interface for connection to Local Management System, used for configuration and monitoring of the VCL-2/34 multiplexer
- NO/ NC Dry contact Relay alarm.



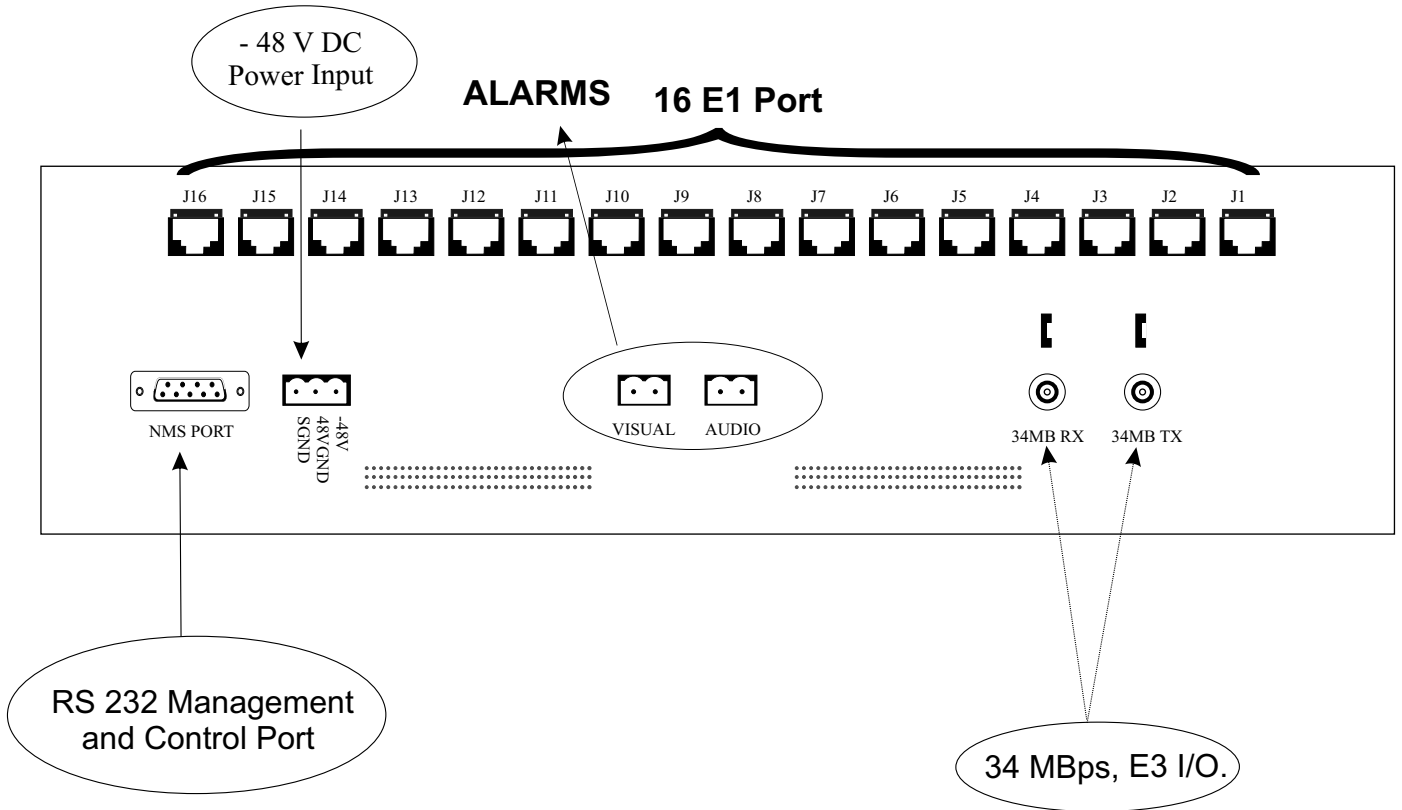
The front panel LEDs provide the following indications:

- | | |
|---------------------|---------------------------------|
| L1 - E3 LOS | L7- E3 TX FAULT |
| L2- E3 Sync/Alarm | L8- E1 LOS |
| L3- E3 BER | L9- ST ERROR |
| L4- E3 CLK FAULT | L10- "LAN ON" |
| L5- E3 REMOTE ALARM | L11- Positive 5V present |
| L6- E3 AIS ALARM | L12- Negative 48V input present |

RJ-45 "LAN Port"

- SW1 "LAN ON/OFF" Toggle Switch
 SW2 LAN Reset Switch

Back Panel of E3, 2/34Mbps Multiplexer RJ-45 Version



Programming and Monitoring

VCL-2/34 Mbps Multiplexer offers programming via an RS232 port for control and monitoring of the terminals. Multiplexer can be monitored and controlled using a PC with the Hyperterminal connected to the local terminal.

Programming Features

- Setting loopbacks on 2Mbps or 34Mbps
- Enabling or disabling 2Mbps channels
- Initiating self tests
- Alarm acknowledgment option

Status Monitoring

- Priority sequence of clock selection and current clock on which the system is working
- Status of alarm
- Presence or absence of loop-back on 34Mbps and 2Mbps streams
- Enabled/disabled status of 2Mbps channels
- Monitoring healthy/unhealthy state of micro controller and 2Mbps line interface units

Alarm Status Monitoring

- Loss of incoming signal at all 2Mbps ports
- Loss of incoming signal at 34Mbps Port
- Loss of frame alignment at 34Mbps
- Remote Alarm at 34Mbps
- AIS at 34Mbps
- Excessive Error Rate at 34Mbps
- Status of audible alarm

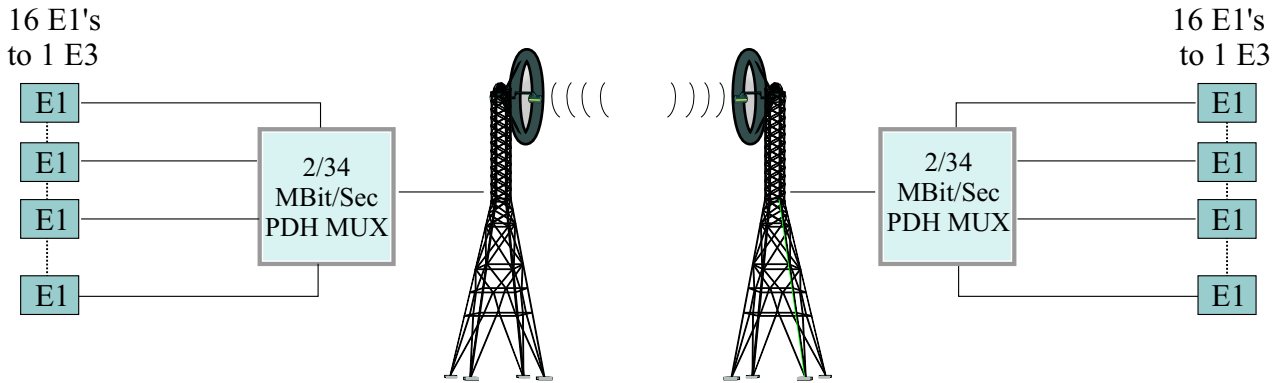
Monitoring VCL-E3 via LED Indications

- Loss of signal at 2Mbps
- Loss of signal at 34Mbps
- Loss of frame alignment at 34Mbps
- Remote Alarm at 34Mbps
- AIS at 34Mbps
- Excessive Error Rate at 34Mbps
- +5V failure
- 48V input failure
- Processor unhealthy alarm
- Prompt Maintenance alarm

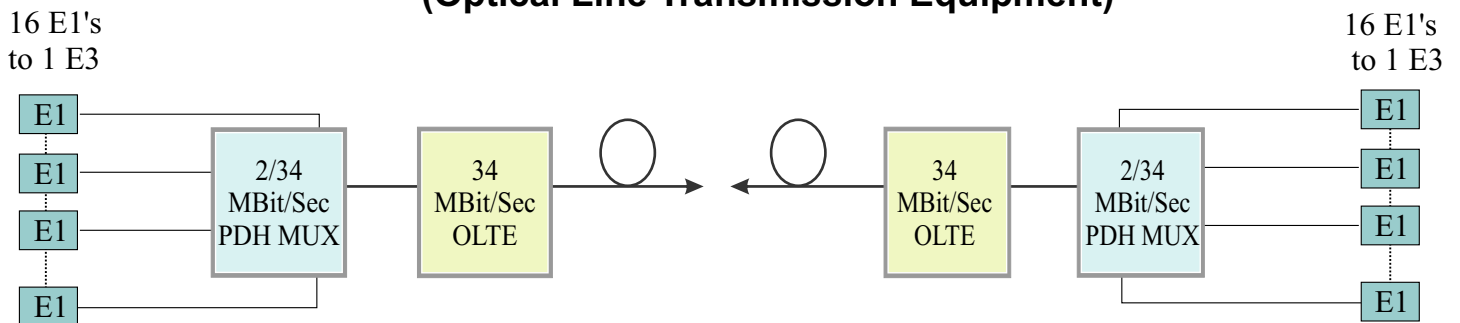
In addition to the above monitoring facilities, VCL-2/34Mbps Multiplexer is provided with LEDs on the front panel of the multiplexer, which indicate various fault conditions.

Application Diagram of VCL-2/34 Mbps PDH Multiplexer

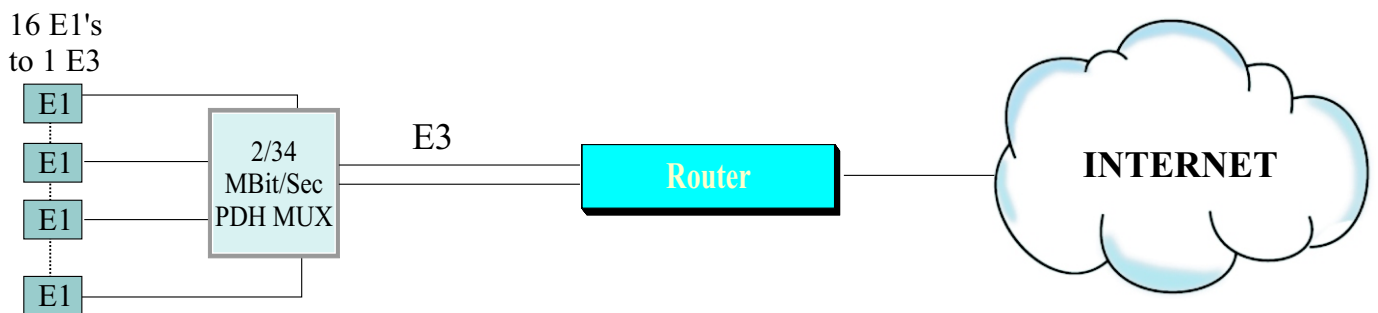
VCL 2/34 Mbps multiplexer with Digital Microwave Radio



VCL-2/34 Mbps multiplexer with 34 Mbps OLTE (Optical Line Transmission Equipment)



VCL-2/34 Mbps multiplexer - Internet Access Application



Technical Specifications

34Mbps, Third Order Interface

Number	1
Nominal bit rate	34368kbps
Bit rate tolerance	± 20ppm
Line code	HDB3
Frame structure	As per G.751
Interfaces	As per G.703
Connectivity	BNC connector (75 Ohms)
Cable	75 Ω unbalanced
Permissible attenuation	12dB at 17184KHz

2Mbps Primary Rate Interface

Number	16
Nominal bit rate	2048kbps
Bit rate tolerance	±50ppm
Line code	HDB3
Frame structure	As per G.704
Interfaces	As per G.703
Connectivity	RJ-45 Female connector (120 Ohms)
Cable	120 Ω balanced
Permissible attenuation	6dB at 1024 KHz

NMS (with Telnet)

xPort Specifications

Network Interface	RJ-45 Ethernet 10BaseT or 100BaseT-TX (auto sensing)
Compatibility	Ethernet Version 2.0 IEEE802.3
Protocols Supported	ARP, UDP/IP, TCP/IP, Telnet, ICMP, SNMP, DHCP, BOOTP, TFTP, Auto IP, SMTP and HTTP
LEDs	10Base-T and 100Base-TX Activity, Full/half duplex.
Management	Internal web server, SNMP (read only), Serial login, Telnet login
EMI Compliance	Radiated and conducted emissions - complies with Class B limits of EN 55022:1998 Direct and Indirect ESD - complies with EN55024:1998 RF Electromagnetic Field Immunity - complies with EN 55024:1998 Electrical Fast Transient/Burst Immunity - complies with EN55024:1998 Power Frequency Magnetic Field Immunity - complies with EN55024:1998 RF Common Mode Conducted Susceptibility - complies with EN55024:1998

Power Consumption

Power Consumption	7.20 Watt
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Ordering Information

Sr. No.	Product Description	Part No.
1.	E3, 2/34 Mbps PDH Multiplexer: 16, E1 Interfaces 1, E3 Interface (with On-Board Power Supplies) - Stand Alone 19-inch Rack Mount Version - E3, 75 Ohms - E1, 120 Ohms (standard - RJ-45)	234010RK

Notes: _____

Technical specifications are subject to change without notice.
All brand names and trademarks are the property of their respective owners.
VCL-E3 2/34 Mbps Multiplexer Brochure. Revision 04. - December 5th, 2006.

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