Bhumika International Inc.

VCL-WAN Access
2Mbps Multiplexer

Product Brochure & Data Sheet

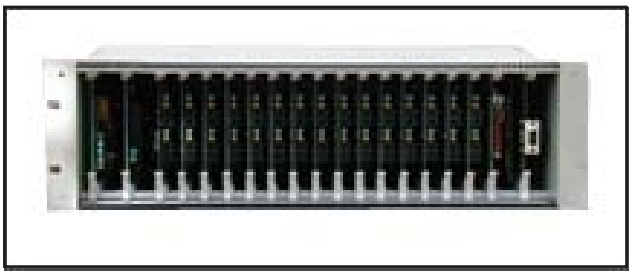
BHUMIKA INTERNATIONAL INC.
812 - 350 WEBB DRIVE
MISSISSAUGA, ONTARIO, L5B3W4, CANADA
Phone: +1 (416) 930 2931
E-mail: info@bhumika.ca
Website: http://www.bhumika.ca

PRODUCT OVERVIEW

VCL-WAN Access Multiplexer provides an efficient and cost-effective platform to convert 30, dial-up, analog voice circuits to a digital E1 interface. VCL-WAN Access Multiplexer may be used to connect fully digital Corporate LANs and ISP Equipment and Networks with E1 interfaces to analog PSTN circuits, or analog equipment. The VCL-WAN Access Multiplexer bridges the gap between the analog and the digital E1 world by providing an intelligent interface to interconnect the Analog and the Digital.

VCL-WAN Access Multiplexer is an ideal choice for Corporate and ISP customers who wish to connect their equipment with E1 digital interfaces to either analog equipment, or to analog PSTN lines.

The VCL-WAN Access Multiplexer offers all types of analog interfaces (FXO / FXS / 2W/4W E&M) that may be required to connect to E1 digital networks.



The VCL-WAN Access Multiplexer shall interface to the E1 port of any Switch / Server / PBX using Channel Associated Signaling (CAS, R2 digital signaling) as per ITU-T Rec. Q.421 /

Application Diagram

The VCL-WAN ACCESS , E1 Network Access Multiplexer is especially useful for providing an analog interface to the latest servers from the following companies:

- Cisco AS5300 Voice over IP servers
- Nuera 200 Voice over IP servers
- Mockingbird Voice over IP Servers
- Lucent ITS-SP, Voice over IP server
- Patton Voice over IP Server

Usually, the cable plant of most telecom service providers is not designed to deliver E1 services to connect the fully digital corporate LAN and ISP networks, which in such cases can only be accessed by dial-up, 2 wire analog lines - the only available links for connecting the Exchange (Central Office) to the corporate / ISP networks

E1 multiplexer application, the VCL-WAN ACCESS, E1 Network Access Multiplexer is especially useful in countries where the cable plant is not equipped to deliver E1 or T1 services to the customers, who are using the next generation network access equipment which can only connect to an E1 or a T1 interface.

The VCL WAN Access multiplexer may be used for terminating long distance traffic with PSTN lines that **shall support**, or, **Shall not support** "battery reversal/polarity reversal" (answer supervision).

The VCL-30, E1 channel banks are available in two versions:

- VCL-30, can be used with PSTN lines that **Shall Support** "battery reversal/polarity reversal" (answer supervision).
- VCL-30 "spoofs" battery reversal/polarity reversal (answer supervision), and can be used with PSTN lines even if they **shall not support**

Usually, inter-connectivity problems arise if only 2 wire, analog lines are being provided by the telephone company to the subscriber premises to connect the next generation, digital corporate, LAN and ISP networks which can only connect, directly, to an E1 or a T1 interface. Most of the next generation network access servers, available today, can only connect to the PSTN through digital E1 or T1 interfaces.

Installing multiple VCL-WAN ACCESS systems can provide multiple E1 Interfaces. The VCL-WAN ACCESS supports V.34, download data transmission rates of 33.6Kbps and upload transmission rate of 31.2kbps.

FEATURES

* VCL -WAN ACCESS system uses CAS (Channel Associated Signaling) R2 Digital Signaling, in accordance with ITU-T recommendations.
* VF (Voice Frequency) specifications are in accordance with G.712, ITU-T recommendations.
* Ideal Choice for corporate and ISP customers, who wish to connect their fully digital networks to the PSTN through the available analog dial-up PTT lines.
* Available with E1, 2Mbps interface or fractional E1 interface.

HIGHLIGHTS

* For terminating Long Distance Traffic
* Powerful Network Management System for monitoring and network control
* Compliance with all relevant ITU-T (CCITT) recommendations
* 3U high, compact construction
* Extensive set of alarms
* Synchronization to different user selectable clock sources (User Selectable Priority Assignment)
* Easy to install.

TECHNICAL SPECIFICATION

Digital Interface 2048 Kbps

Number of E1 Interfaces	1, (1 additional port for Drop-Insert applications)
Conformity (Electrical)	G. 703
Frame Structure	As per ITU (CCITT) G.704
Signaling	Channel Associated Signaling , (R2 Gen) R2 Generic in accordance with ITU-I Q.421 / Q.422 Rec.
PCM Sampling Rate	8000 samples/sec
Encoding Law	A Law as per ITU (CCITT) G.823
Bit Rate	2048 Kbps 50 ppm
Code	HDB3
Nominal impedance	120 Ω balanced (75 Ω unbalanced - option on request)
Peak Voltage of a mark	
For 120 Ω Balanced interface	3.0 V 0.3 V
75 Ω Unbalanced interface	2.37 V 0.237
Peak Voltage of a space	
For 120 Ω Balanced interface	0V± 0.3V
75 Ω Unbalanced interface	0V± 0.237 V
Nominal Pulse Width	244ns
Pulse Mask	As per ITU (CCITT) Rec. G.703
Output Jitter	<0.05 UI (in the frequency range of 20Hz to 100 Khz)
Permissible Attenuation	6dB at 1 MHz
Return Loss at:	
51.2 Khz to 102.4 KHz	>12dB
102.4 Khz to 2048 Khz	>18dB
2048KHz to 3072KHz	>14dB
Jitter Tolerance	As per ITU (CCITT) G.823
Loss and recovery of frame alignment : As per clause 3 of ITU (CCITT) G.732	
Loss and recovery of multi frame alignment: As per clause 5.2 of ITU (CCITT) G.732	

2 Wire , Analog PSTN Interface - POTS Interface

Maximum Number of Channels	30
Transmission performance	Fully compliant to ITU (CCITT) G.712 specifications
Line Impedance	600Ω (900Ω optional)
Voice Channel Frequency	300Hz-3400Hz
Insertion Loss	-1dB Nominal (User adjustable in steps of 1.0dBm through Network Management Software)
Idle Channel Noise	≤-65dB
Return Loss	300 Hz - 600Hz -≥12dB 600Hz - 3400Hz - ≥15 dB
Longitudinal Balance	≥ 46dB between 300Hz to 3400Hz
Ring frequency detection	25Hz and 20 Hz
Ring voltage detection	≥30 volts RMS
Overload Level	+3.14 dBm ± 0.5 dBm
Data Transmission	Supports V.34 modems 33.6Kbps (download data transmission rate)

Clock Synchronization

Synchronization Sources	Internal Clock, External Clock or timing derived From the E1 HDB3 link (Loop-Timed)
External Clock Input	As per ITU (CCITT) Rec G.703
Impedance of External Clock Input Port	120Ω balanced
Default Option	Internal Clock

Power Supply

Input DC voltage	-48V DC (nominal)
Range of Input	-40V to -60V DC
Input Voltage Reversal Protection	Provided

Environmental

Cooling	Natural, Convection cooling
Temperature	0°C to 50°C, Ambient

MECHANICAL SPECIFICATION

Rack Mounting	Standard 19 inch DIN rack
Height	3U (133.33 mm)
Depth	260 mm
Width	477 mm
Weight	8.50 Kgs.

ORDERING INFORMATION

Core System Composition:
(Common Equipment)

- Control Card 1
- Control Card 2
- Power Supply Card
- Backplane
- 19-Inch Shelf

Choice of Interface Cards:

- FXO (Central Office)
- FXS (Remote / Subscriber)
- Ring Generator
- E&M (2 Wire / 4 Wire)

Technical specification are subject to change without notice.
Windows is the registered Trademark of Microsoft Corporation, USA.
All brand names and trademarks are the property of their respective owners.
April 21th, 2006

BHUMIKA INTERNATIONAL INC.
812 - 350 WEBB DRIVE
MISSISSAUGA, ONTARIO, L5B3W4, CANADA
Phone: +1 (416) 930 2931 **E-mail:** info@bhumika.ca
Website: http://www.bhumika.ca