



**ORION TELECOM NETWORKS INC.**

# **VCL-PRI ISDN**

## **Primary Rate (Euro-ISDN) Multiplexer**

---

**Product Brochure & Data Sheet**

**Orion Telecom Networks Inc.**

16810, Avenue of Fountains, Suite # 108,  
Fountain Hills,  
AZ 85268 USA

PH: (+1) 480-816-8672, FAX: (+1) 480-816-0115  
E-mail: [sales@oriontelecom.com](mailto:sales@oriontelecom.com)  
Web Site: <http://www.oriontelecom.com>

## INDEX

<b>S.No.</b>	<b>Particulars</b>	<b>Pg. No.</b>
1.	Product Overview - VCL-PRI ISDN (Euro ISDN Multiplexer)	3
2.	Features and Highlights	4
3.	Technical Specifications	4
4.	Front View	6
5.	Mechnicall Specifications	7
6.	Ordering Information	8



### Product Overview

Orion's VCL-PRI (Primary Rate Interface) ISDN Multiplexer (TE) provides an efficient and cost-effective platform to convert 30, dial-up, analog voice circuits to a digital E1, PRI ISDN interface, as per ITU-T Q.931 recommendations. VCL-PRI ISDN (Euro ISDN) Multiplexer may be used to connect fully digital Corporate LANs and Call Centre Equipment and Networks with E1, PRI ISDN interfaces to analog telephone set. The VCL-PRI ISDN (Euro ISDN) Multiplexer bridges the gap between the analog and the digital E1 world by providing an intelligent interface to connect E1, PRI ISDN to 30 analog telephone sets.

VCL-PRI ISDN (Euro ISDN) Multiplexer is an ideal choice for Corporate and ISP customers who wish to connect their equipment with E1, PRI ISDN digital interfaces to analog telephone sets.

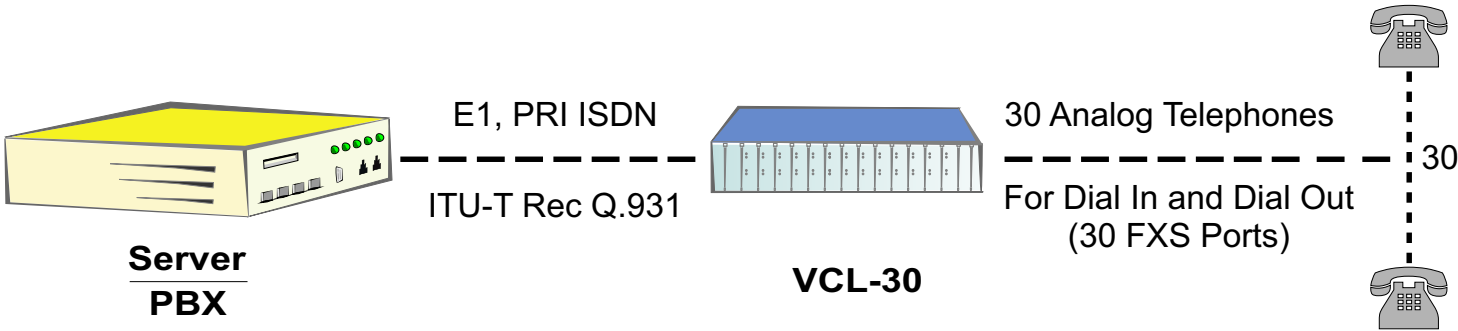
### VCL-PRI ISDN (Euro ISDN) Multiplexer with FXS Interfaces



The VCL-PRI ISDN (Euro ISDN) Multiplexer (TE) shall interface to the E1, PRI ISDN port of any Switch/Server/PBX (NT) using PRI ISDN (Euro ISDN) signaling as per ITU-T Rec. Q.931 to connect to 30, analog telephone set to the E1, PRI ISDN port.

Alternately, the VCL-PRI ISDN (Euro ISDN) Multiplexer can also be configured as a NT to connect to Cisco VoIP etc (TE) equipment and provides 30 FXS interfaces.

### Application Diagram



### VCL-PRI ISDN (Euro ISDN) Multiplexer with FXS Interfaces

Features	Highlights
<ul style="list-style-type: none"> <li>• VCL-PRI ISDN (Euro ISDN) Multiplexer system uses PRI ISDN (Euro ISDN) signaling as per ITU-T Rec. Q.931, in accordance with ITU-T recommendations</li> <li>• VF (Voice Frequency) specifications are in accordance with G.712, ITU-T recommendations</li> <li>• Ideal Choice for corporate and ISP customers, who wish to connect their fully digital PRI ISDN networks to analog telephone sets</li> <li>• Available with E1, PRI ISDN 2Mbps interface or fractional E1, PRI ISDN interface</li> <li>• Supports/provides DTMF caller ID on all 30 (FXS) analog circuits</li> </ul>	<ul style="list-style-type: none"> <li>• Network Access Equipment</li> <li>• Powerful System Management utility</li> <li>• Compliance with all relevant ITU-T (CCITT) recommendations</li> <li>• 3U high, compact construction</li> <li>• Extensive set of alarms</li> <li>• Synchronization to different user selectable clock sources (User Selectable Priority Assignment)</li> <li>• Easy to install</li> <li>• User assigned TEI value - user selectable (If required by network)</li> </ul>

## Technical Specifications

### Digital Interface 2048 Kbps

Number of E1, PRI ISDN interfaces	1, (User or Network Modes - Configurable)
Conformity (Electrical)	G. 703
Frame Structure	As per ITU (CCITT) G.704
Signaling	PRI ISDN (Euro ISDN) signaling As per ITU-T Rec. Q.921, Q.931
PCM Sampling Rate	8000 samples/sec
Encoding Law	A Law as per ITU (CCITT) G.823
Bit Rate	2048 Kbps $\pm$ 50 ppm
Code	HDB3
Nominal impedance	120 $\Omega$ balanced
Peak Voltage of a mark For 120 $\Omega$ Balanced interface	3.0 V $\pm$ 0.3 V
Peak Voltage of a space For 120 $\Omega$ Balanced interface	0V $\pm$ 0.3V
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 102.4 KHz to 2048 KHz 2048KHz to 3072KHz	>12dB >18dB >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 Interface - FXS

Number of Interfaces per card	2
Interface Type(s)	FXS
Maximum Number of Channels	30
Transmission performance	Fully compliant to ITU (CCITT) G.712 specifications
Line Impedance	600 W
Connector	RJ-11
Voice Channel Frequency	300Hz-3400Hz
Insertion Loss	-2dB Nominal (User adjustable range of -2dB to -7dB)
Idle Channel Noise	≤-65dB
Return Loss	300Hz - 600Hz - ≥12dB 600Hz - 3400Hz - ≥15dB
Longitudinal Balance	≥46dB between 300 Hz to 3400 Hz
Ring Voltage (FXS)	≥75 volts RMS into a load of 3 R.E.N.
Ring Frequency	20 Hz/25 Hz (User Selectable)
Subscriber Loop Current (FXS)	≥23mA into a subscriber loop of 1000 ohms
Dial Tone	400 Hz modulated by 25 Hz
Dial Tone Timeout	12 seconds
Dialing	DTMF
Overload Level	+3.14 dBm ± 0.5 dBm
Data Transmission	Supports V.34 modems 33.6Kbps (download data transmission rate)
Caller ID	DTMF (provides Caller ID to all DTMF based Called ID decoders).

## Clock Synchronization

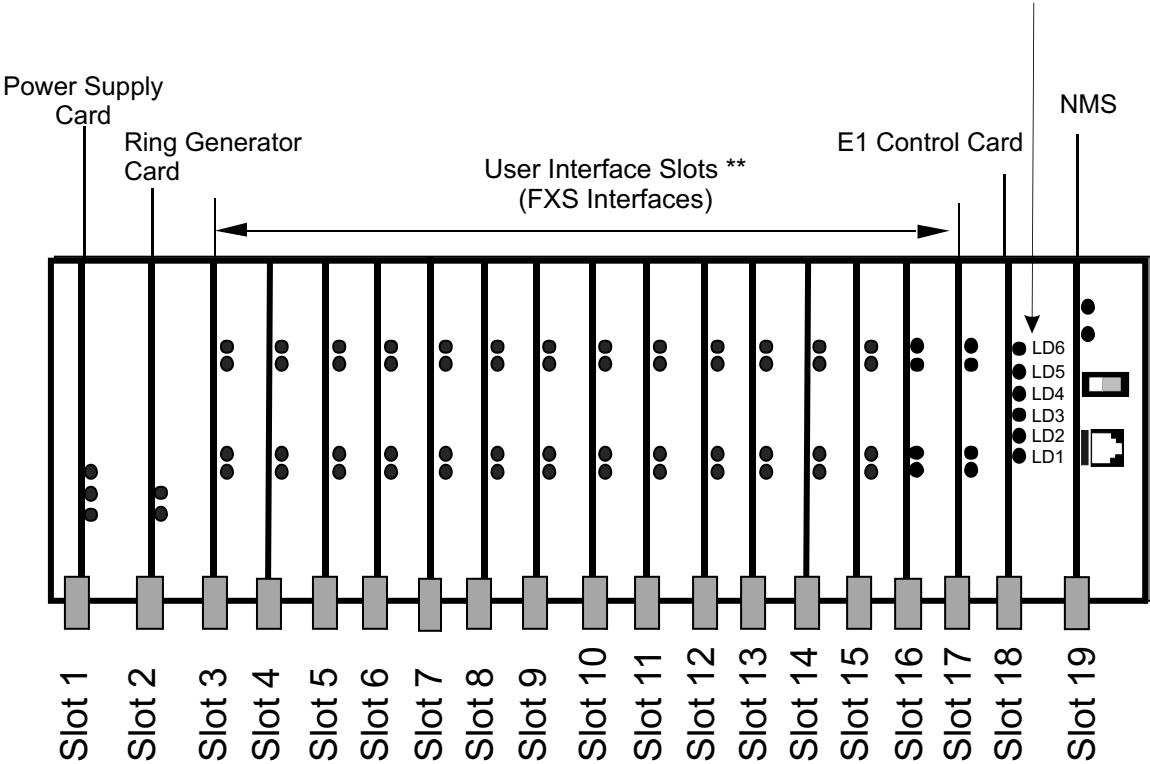
Synchronization Sources	Internal Clock, or timing derived From the E1 HDB3 link (Loop-Timed)
External Clock Input	As per ITU (CCITT) Rec G.703
Impedance of External Clock Input Port	120Ω balanced
Default Option	Internal Clock

## Power Supply

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

## Front View of VCL-30, PRI ISDN Multiplexer (Left to Right - front view)

- LEDs which indicate the following:
- LD6 E1 in SYNC
  - LD5 (LOS) Loss of Signal
  - LD4 (LOF) Loss of Frame
  - LD3 PRI in SYNC
  - LD2 (RA) Remote Alarm
  - LD1 (AIS) Alarm Indication Signal



Front View (Left to Right)	Card Details	Part No.
Slot 1	Power Supply Card	VCL-30-010
Slot 2	Ringer Generator Card	VCL-30-040
** Slot 3 to 17	FXS, Dual Port Interface Card	VCL-1153-PRI-FXS
Slot 18	Control Card (CC) E1 PRI ISDN Interface Card	VCL-1150-PRI-ISDN (TE/NT Mode)
Slot 19	NMS Card	VCL-1247-NMS

**NMS (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 & 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 EN55024:1998 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

**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	292 mm
Width	482 mm
Weight	8.50 kgs.

**Power Consumption**

Power Consumption	24 Watts (Full Load)
-------------------	----------------------

**Choice of Interface Cards**

FXS (Remote/Subscriber)

**Ordering Information**

<b>VCL-30, PRI ISDN (Euro ISDN) E1 CORE SYSTEM (Common Equipment)</b>			
<b>Sr. No.</b>	<b>Part No.</b>	<b>Product Description</b>	<b>Qty.</b>
1.	VCL-1150-PRI-ISDN	E1 PRI ISDN Control Card – TE/NT Mode	1
2.	VCL-1247-NMS	NMS Card with Telnet support	1
3.	VCL-1154-PRI-ISDN	19" Shelf 3U High (sub-rack) to accommodate 30 Channels with Connectorised Backplane	1
4.	VCL-30-010	(-) 48V DC Input Power Supply Card, 30 Channel Power Supply Card	1

<b>VCL-30, PRI ISDN (Euro ISDN) User Configurable Interface</b>			
<b>Sr. No.</b>	<b>Part No.</b>	<b>Product Description</b>	<b>Qty.</b>
1.	VCL-1153-PRI-FXS	Dual Port VF, RT (FXS) Line Interface Card 2, 64Kbps/Sec. VF Channels per Remote Terminal Line Card 15 (max) per system	15
2.	VCL-30-040	Ring Generator Card, Central Office Ring Generator Card 1 per system	1

Technical specifications are subject to changes without notice.  
Revision 07 - December 05, 2006.

**Orion Telecom Networks Inc.**

**16810, Avenue of Fountains,  
Suite # 108, Fountain Hills,  
AZ 85268 USA**

**PH: (+1) 480-816-8672, FAX: (+1) 480-816-0115**

**E-mail: [sales@oriontelecom.com](mailto:sales@oriontelecom.com)**

**Web Site: <http://www.oriontelecom.com>**