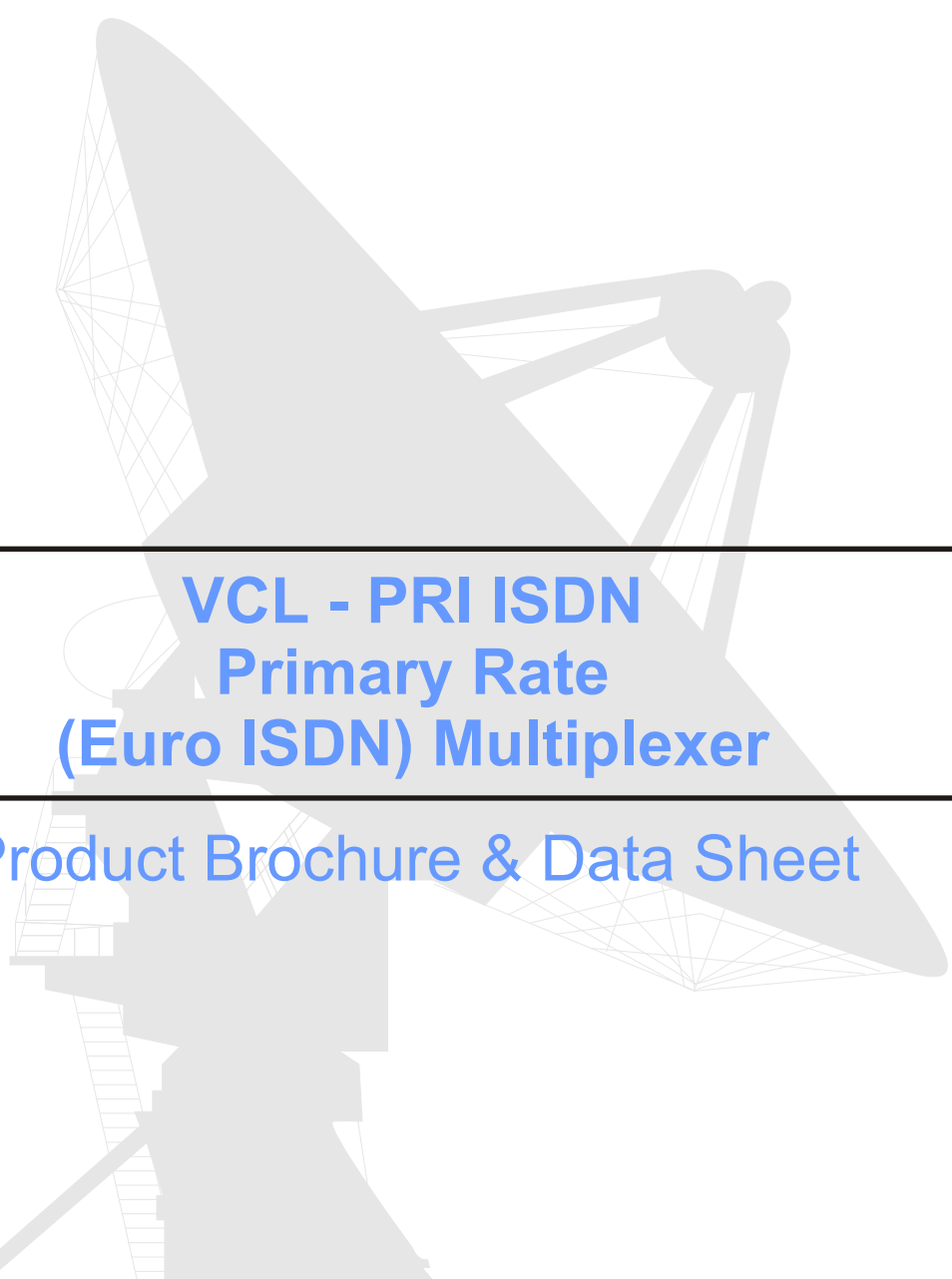


# COMARRA

TELECOM TRANSMISSION SOLUTION



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## VCL - PRI ISDN Primary Rate (Euro ISDN) Multiplexer

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Product Brochure & Data Sheet

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# COMARRA

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## PRODUCT OVERVIEW

Comarra'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.

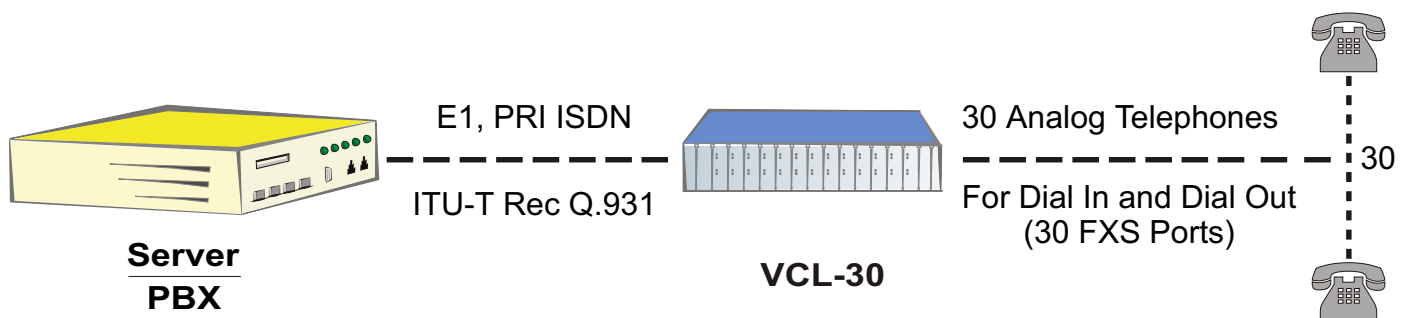


## VCL-PRI ISDN (Euro-ISDN) Multiplexer

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



**FEATURES**

- 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.
- 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 PRI ISDN networks to analog telephone sets.
- Available with E1, PRI ISDN 2Mbps interface or fractional E1, PRI ISDN interface.
- Supports / provides DTMF caller ID on all 30 ( FXS) analog circuits.

**HIGHLIGHTS**

- Network Access Equipment.
- Powerful System Management utility.
- 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.
- User assigned TEI value - user selectable (If required by network).

**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 ± 50 ppm
Code	HDB3
Nominal impedance	120 Ω balanced
Peak Voltage of a mark	
For 120 Ω Balanced interface	3.0 V ± 0.3 V
Peak Voltage of a space	
For 120 Ω Balanced interface	0V± 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	>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 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	300 Hz - 600Hz ≥ 12dB 600Hz - 3400Hz ≥ 15 dB
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).

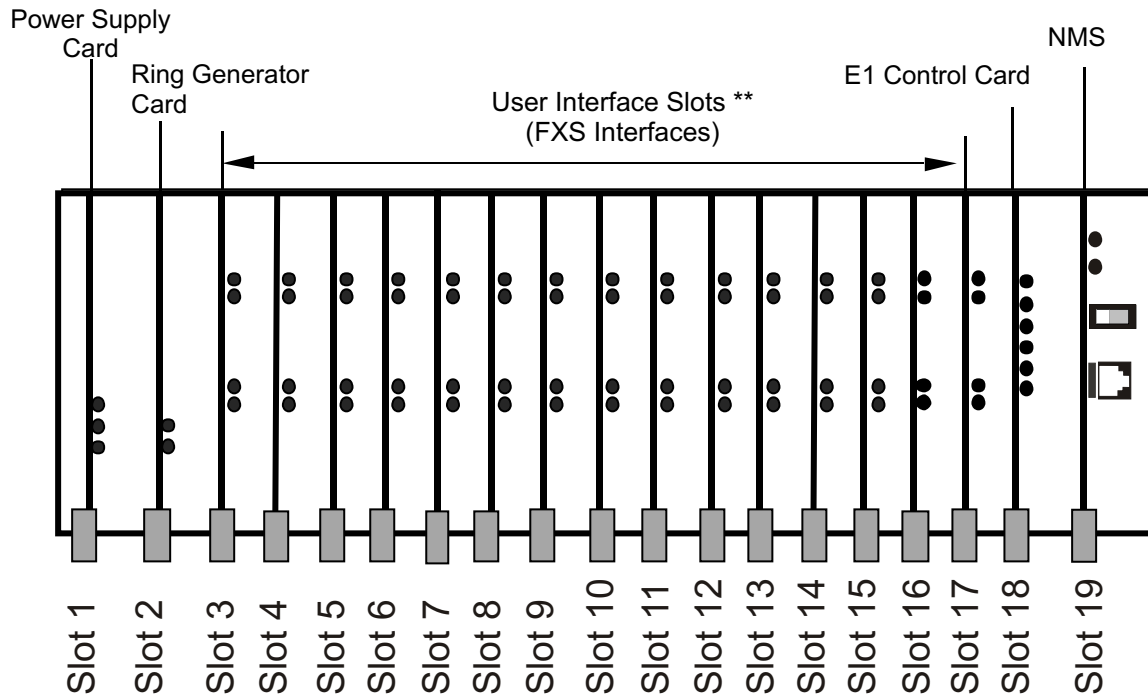
## Clock Synchronization

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	120W balanced
Input Port	
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)



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 & conducted emissions - complies with Class B limits of EN 55022:1998 Direct & 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

## 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)
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## ORDERING INFORMATION

### Core System Composition: (Common Equipment)

- Control Card      ■ NMS Card      ■ Ring Generator
- Power Supply Card ■ Connectorized Backplane
- 19-Inch Shelf

### Choice of Interface Cards:

FXS (Remote / Subscriber)

Notes : \_\_\_\_\_

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Technical specification are subject to change without notice.  
Revision 06. March 12th, 2006



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