



coral cmux 128

PRIMARY DIGITAL MULTIPLEXER



The CMUX 128 is a Primary Digital Multiplexer platform that provides a high performance solution for wide area inter-connectivity. The intelligent CMUX 128 provides a cost-effective solution for the interconnection of a wide range of voice and data interfaces into communication networks which may include microwave radios, higher order multiplexers and optical transmission equipment. The unit provides full featured, Drop-and-Insert capability for each voice frequency circuit or any signal that can be transmitted in a 64kbps channel.

The CMUX 128 is designed to continuously meet the needs of a changing telecommunications landscape. The platform delivers key benefits that service providers and private customers are demanding today including consolidation, cost savings, investment protection, simplified operations, and more. With its advanced modular architecture, voice and data services can be deployed quickly and cost effectively.

ECONOMICAL, SCALABLE AND RELIABLE

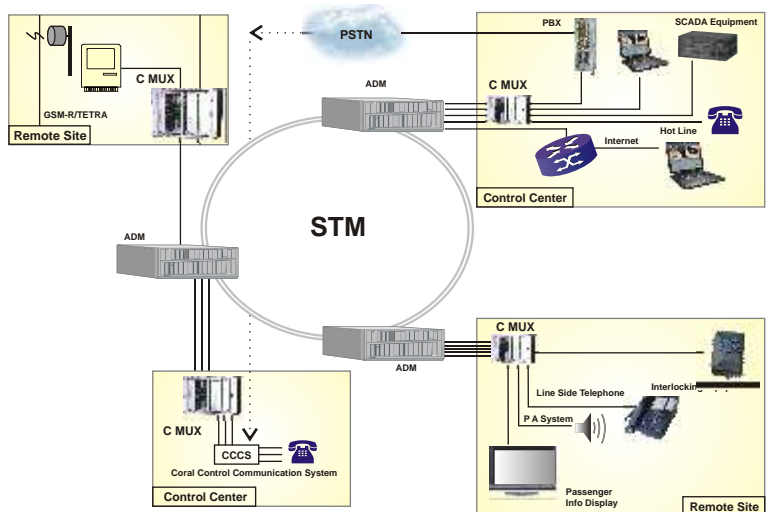
The unit can be easily configured as a Terminal, Drop Insert, Non-blocking or Branching/Cross Connect Multiplex, simply by installing the appropriate cards in the shelf. The multiplexer has cards which support a wide variety of interfaces. Channel cards are available for voice and data applications.

The software-controllable concept enables a powerful method for configuring the equipment. The flexibility of the CMUX 128 provides network operators the ability to configure all performance parameters, including time slot assignment, gain level and data transmission parameters either locally, using a PC/Laptop, or via the network. In both cases user-friendly software enables reconfiguration at any time, should the requirements for voice and data transmission grow or change. All the settings are stored in a non-volatile memory, that retains information even in power-down conditions.

ABUNDANT APPLICATIONS

As a multi-service solution, the CMUX 128 can be used for voice or data access in public and private networks. It combines E1 network lines with G.703, RS232, V.35, E&M, FXS, and FXO client interfaces in a compact package.

You can configure the CMUX 128 in a variety of ways, from simple primary multiplexer for drop and insert functionality to sophisticated digital cross-connect for concentration and grooming. Its Voice application modules such as E&M, FXS and FXO support telephony connections to POTs or private branch exchanges (PBX). These modules also support networking between a PBX to central office (CO), or a PBX to another PBX using tie lines. They can also provide extensions for telephones in remote 'points of presence' (POPs) or branch offices, as well as modem or fax terminals. In addition to its versatility of application in public telecommunication networks, the CMUX 128 is ideal for use by utility companies like railways, electricity, oil, gas and



mining and for private telecommunication networks. Easy to install and economical to maintain, the versatility and features of the CMUX 128 position this MUX as the ideal choice for meeting today's changing network needs.

REDUNDANT ARCHITECTURE

The CMUX 128 uses a distributed architecture design. This removes the inherent limitations of centralized architecture, providing a scalable system with no single point of failure.

Users can choose the level of network availability required for their application through various redundancy options. In the CMUX 128, the CPU redundancy (1:1) and power supply redundancy (1:1) protect against hardware failures. The E1 facility redundancy protects against network failures as the CMUX18 can switch traffic to an alternate facility in the event of a link failure.

SYSTEM AND NETWORK MANAGEMENT

Today's critical networks require extensive monitoring, diagnostics and control capabilities. The CMUX 128 supports two management options: ASCII VT100 terminal and SNMP which are accessible by a front panel serial port or Ethernet interface.

SNMP provides alarms and access to configuration and text parameters for remote network management. The CMUX 128 offers the ultimate network management system, which operates in a Windows™ point-and-click environment. This NMS provides network visibility and provides configuration management, performance management, fault management and security management.

In addition, utilities such as TELNET and the Trivial File Transfer Protocol (TFTP) assist in the ease of software and configuration downloads.

VOICE AND DATA FLEXIBILITY

There are a total of 20 slots available in the chassis of which 2 slots are reserved for the CPU cards and another 2 slots are reserved for the power supply unit. The remaining 16 slots can be used for installing access cards. The unit supports a wide variety of interface options including Voice cards (FXS, FXO, E&M), Data cards (64kbps co-directional, V.24, V.35, X.21, Ethernet, nx64kbps) and Network cards (E1). The unit comes in a compact, metal chassis of 3U height, which uses a minimum amount of rack space. All cards are fully configurable and have remote diagnostics through the CMUX 128 user interface. Using these flexible configuration options, the MUX can be deployed in integrated voice and data networks across the globe.



TECHNICAL SPECIFICATIONS

E1 NETWORK INTERFACE

Interface : Conforms to ITU G.703
Line Rate : 2.048 Mbps \pm 50 PPM
Physical Interface : RJ-48C (Modular, 8-pin)
Framing : As per ITU G.704
Line Code : HDB3
Input Signal : 0 to -36 dB
Times lot Assignment : User selectable
E1 Transmit Timing : Loop and local

CLOCK SYNCHRONIZATION

Clock Source : Internal, External, Loop timed
Fallback : Automatically enabled in case of primary timing failure.
Timing Output : E1: 2.048 Mbps, G.703 (RJ45 connector)

VOICE INTERFACES E&M VOICE CARD

Encoding : A-law
Impedence : Balanced 600 ohms
Wire mode : 2 wire and 4 wire
Signaling : Type I to V

All in-band signaling tones are carried transparently by the digitizing process. Customer is responsible for in-band signaling compatibility between a telephone and a switch, or between a PBX and a switch.

VOICE CARD - FXS

Encoding : A-law
Nominal Loop res. : 1200 ohms
Polarity Reversal : Provided
Ringing Voltage : 75V AC
Ringing Frequency : 20Hz
Loop Voltage Feed : -48V DC

VOICE CARD - 8 PORT FXO

Encoding : A-law
Open Loop Res. : > 10 K ohm
Dial Pulse Speed : 8-12 pps

DATA INTERFACES 64KBPS

CO-DIRECTIONAL INTERFACE MODULE

Interface : ITU-G.703 64 Kbps Co-directional Interface
Input Impedence : 120 ohms

LOW SPEED DATA INTERFACE

Interface : V.24 / X.21
Data Rate : 1200/2400/4800/9600/19200 bps
Mode : Asynchronous point to point
Asynchronous point to multipoint
Synchronous point to point
Clocking : Asynchronous, Synchronous using DCE timing
Asynchronous data Format : Data
bits 7 or 8 Stop bit 1 or 2
Parity Odd or Even or None

Connector : DB26HD
Cables : For V.24 card: DB26HD to DB25 conversion cable
cable : For X.21 card: DB26HD to Db15 conversion cable

N X 64KBPS DATA INTERFACE

Data Rate : n x 64 Kbps, n = 1 to 30
Interface : V.35, V.36
Mode : Synchronous point to point
Clocking : Synchronous internal (slaved from E1 network)
Connector : DB26HD
Cables : For V.35 card: DB26HD to M34 conversion cable
cable : For V.36 card: DB26HD to DB37 conversion cable

IDSL

Interface : 2B1Q ISDN U-interface as per ITU-T G.961
Line code : 2B1Q
Data Rate : 64kbps / 128kbps
Modes & timing : LT; system clock

ETHERNET INTERFACE

Bridging : Transparent MAC bridging
Routing Protocols : RIPv1/v2, OSPF
WAN Interface : nx64Kbps
Encapsulation : HDLC, PPP
LAN Interface : 10/100BaseT
Connector : RJ45

MANAGEMENT FUNCTIONS

Support of management functions as defined in ITU-T Rec. G.784: Configuration Management, Fault Management, Performance Management, Security Management

MANAGEMENT INTERFACE

Inbuilt SNMP agent for interfacing with Element Management System (EMS). The management interface is a 10/100BaseT Ethernet port.

LOCAL CRAFT TERMINAL

RS232 serial port, operating at 19200 bauds.
Telnet

POWER

DC operation : -48V DC input
AC operation : AC Mains supply 230V +/-20V

ANALOG VOICE INTERFACES

2/4-wire E&M : 8 ports
2-wire FXS : 8 ports
2-wire FXO : 8 ports
2-wire hotline : 8 ports

DATA INTERFACES

64kbps co-directional : 8 ports
Low Speed Data Card : 2 ports
N x 64kbps Data Card : 2 ports
IDSL card : 8 ports
Ethernet card : 1 port
Ethernet Router card : 4 port

PHYSICAL

Dimensions:
Height : 5.25" (144 mm)

Inspiring convergence through technological innovations and turning the broadband dream to reality.
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