Smart solutions for smart networks

Version 1.1

IX-STM1-63E1-ADM-MUX

STM1, 63E1 Add-Drop SDH Multiplexer

Description

CXR's STM-1 63 E1 (Optical/Electrical) Add-Drop SDH Multiplexer unit is a modular platform unit with two 155.52Mbps optical/electrical interfaces, which may be used in a point-to-point, chain or ring application to provide an ultra-compact, cost-effective and flexible service platform.

63*E1 interfaces (120 Ohms (RJ-45) and 75 Ohms (BNC) options along with Engineering Order Wire is available. The user removable/replaceable STM-1 Optical/Electrical interface option makes it easy to meet various and changing user requirements.

The equipment can be used as Terminal Multiplexer (TM) or an Add-Drop-Multiplexer (ADM) to build a point-to-point, ring and chain (add-drop) transmission network.

Features

- Supports up to 63E1s
- 1U height, 19-Inch standard rack-mountable chassis
- Performance Monitoring and Alarms—Error counts for B1, B2, B3
- Performance Analysis—Error Seconds (ES); Several Error Seconds (SES), Unavailable seconds (UA)S, Higher Order Virtual Container—Remote Error Indication (HOVC-REI), Higher Order Virtual Container—Pointer Justification Event (HOVC-PJE)
- Supports 1+1 Line Protection and Automatic Protection Switching (APS) with less than 50ms recovery

  - All 63 VC12s can be mapped (east or west) in 1+1 protection mode

  - Out of 63 VC12s, 21 VC12s (43-63) can be mapped to either direction (east or west) without protection (1+0)
- Supports point-to-point , ring and chain topology
- Local management and network-based management via a unified platform
- Supports Remote Power Down Detection and Auto Laser Shutdown
- Supports STM-1 and E1 loop-back for troubleshooting
- 850nm multi-Mode, 1310nm Single Mode and 1550nm Single Mode optical interface options offered
- Easy to operate.

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Power Supply Option

- Redundant power supply card options
- AC+DC, DC+DC and AC+AC
- 110V AC—240V AC (50/60 Hz)
- -48VDC
- Power consumption: <20W

Service Interfaces

- 2 * STM-1 optical interfaces, MSA compliant SFP (pluggable) optical module (LC connector) based design, which supports onsite optical port replacement.
- 2 * STM-1 electrical interfaces, SFP electrical module (Mini BNC connector) Optional
- Maximum 63 E1 interfaces compliant with ITU-T G.703
- 120 Ohms E1 and 75 Ohms E1 interfaces options available
- Provides complete diagnostics facilities to the user for monitoring optical ports and provide reading of optical transmit power, optical receive power, laser temperature, bias current in voltage alarms, etc.

Timing Mode

- Synchronization with STM-1 line timing
- Synchronization with timing from any of the E1 interfaces
- External timing source option—120 Ohms 2 Mbps (External Bits Clock)
- External timing source—120 Ohms 2 MHz (External TTL Clock) - Factory Configurable
- Internal Clock—ITU-T G.813 internal oscillator (Stratum 3)
- The timing source can be auto-switched according to default or operator programmed settings

Management and Maintenance Interfaces

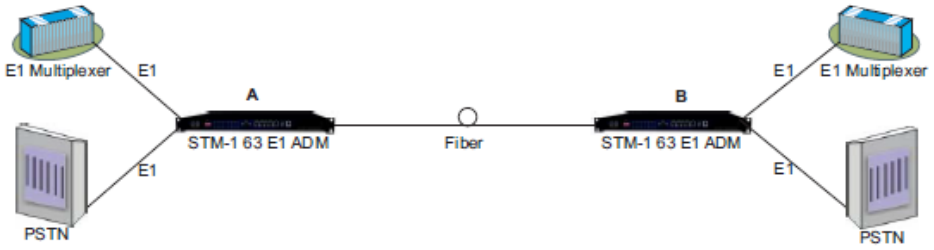
- 10/100BaseT Ethernet management interface
- RS232 serial management interface
- Remote (Telnet) management interface
- Windows based Graphical User Interface (GUI)
- SNMP V2 Monitoring
- Engineering Order Wire (EOW) interface RJ-11
- NMS (Network Management System) for monitoring multiple units from a single/central location

Alarm and Indicator Monitoring

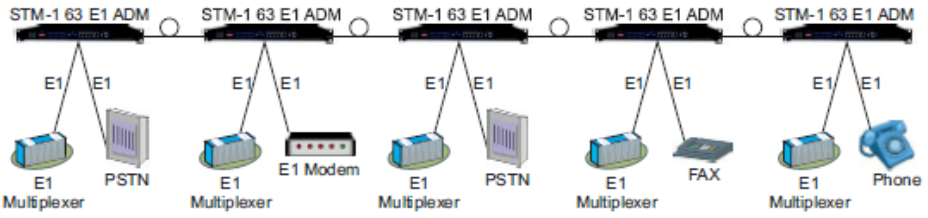
- Power Indicator
- Current Status (integrity and activity) Indicator
- Urgent Alarm Indicator
- Minor Alarm Indicator
- Optical Signal Loss Alarm Indicator
- Remote Device Power-down Indicator
- Auto Laser Shutdown (ALS) Indicator
- Engineering Order-Wire (EOW) Indicator
- Dry contact via 9-pin, D-type male connector
- Buzzer Alarm
- SNMP Diagnostic and Monitoring

Network Application

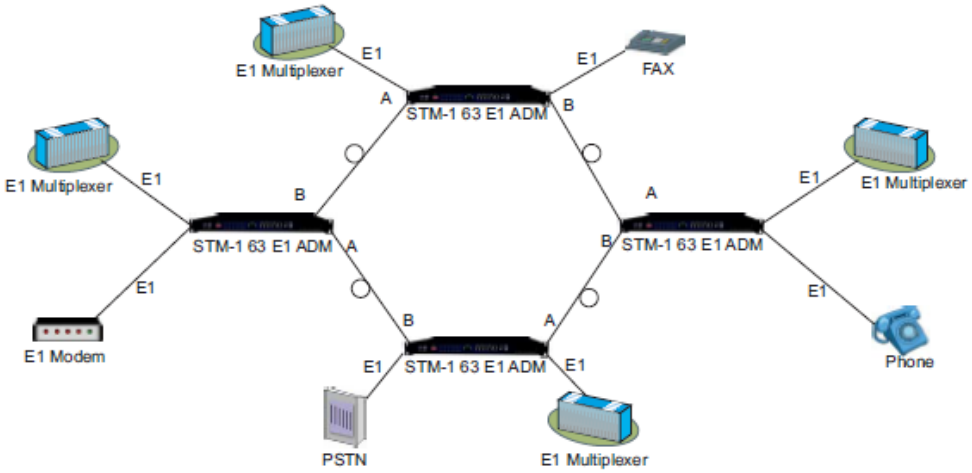
Point to point network application diagram



Chain network application network



Ring network application diagram



Technical Specifications

Network Topology and Interface	
Network Topology	Point to point network, Ring and Chain
Service interfaces	STM-1 SDH single optical or double optical ports (1+1 protection) supported or • STM-1 SDH single electrical or double electrical ports (1+1 protection) supported • 63 E1—120 Ohms or 75 Ohms
STM-1 Electrical Interface	
Data Rate	155.52Mbps
Standard	ITU-T G.703 compliant
Line Code	CMI
Physical Connector	Mini BNC
Automatic 1+1 line Protection	Less than 50 ms switching / recovery
STM-1 Optical Interface	
Data Rate	155.52Mbps
Standard	ITU-T G.957 compliant
Bit rate	155.520Mbps
Coding	NRZ
Connector	LC
Light source	Class 1 Laser
Wave length	850nm/1310nm/1550nm, (optional) - 1310nm Std.
Transmit Power	S 1.1,L 1.1, L 1.2 (- 11dBm to –2.5dBm—as many be ordered)
Receive sensitivity	S 1.1, L 1.1, L 1.2 (-28dBm to –34dBm—as many be ordered)
Automatic 1+1 Line Protection	Less than 50 ms switching / recovery
Automatic Laser Shutdown Option	User selectable options

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Technical Specifications

STM-1 Monitoring and Performance Analysis	
Performance Monitoring and Alarms	Error counts for B1, B2, B3
Performance Analysis	Error Seconds (ES), Several Error Seconds (SES), Unavailable Seconds (UAS), Higher Order Virtual Container—Remote Error Indication (HOVC-REI), Higher Order Virtual Container—Pointer Justification Event (HOVC-PJE)

E1 Interface Specification - 120 Ohms	
Number of E1s (Max) per system	63 E1 interfaces
Line Rate per E1	(2.048 Mbps ± 50 bps)
Line Code	HDB3
Framing Structure	As per ITU (CCITT) G.704
Framing Options	Un-Framed/PCM 30/PCM 31
Electrical	As per ITU (CCITT) G.703
Jitter	As per ITU (CCITT) G.823
Impedance	120 Ohms balanced
Nominal Pulse Width	244ns
Connector	RJ-45 (F)

E1 Interface Specification - 75 Ohms	
Number of E1s (Max) per system	63 E1 interfaces
Line Rate per E1	(2.048 Mbps ± 50 bps)
Line Code	HDB3
Framing Structure	As per ITU (CCITT) G.704
Framing Options	Un-Framed/PCM 30/PCM 31
Electrical	As per ITU (CCITT) G.703
Jitter	As per ITU (CCITT) G.823
Impedance	75 Ohms unbalanced
Nominal Pulse Width	244ns
Connector	BNC

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Technical Specifications

Engineering Order Wire (EOW)	
Engineering Order Wire (EOW)	RJ-11 connector
Performance Analysis	Error Seconds (ES), Several Error Seconds (SES), Unavailable Seconds (UAS), Higher Order Virtual Container—Remote Error Indication (HOVC-REI), Higher Order Virtual Container—Pointer Justification Event (HOVC-PJE)

E1 Port (TU 12) Performance Analysis

- Error Bits (EB)
- Error Seconds (ES)
- Several Error Seconds (SES)
- Unavailable Seconds (UAS)
- Remote Error Indication (REI)
- Code Violation (CV)

NMS

- Graphical User Interface (GUI) for Windows
- SNMP V2 based NMS

Optical Interfaces

Type	Wavelength (nm)	Mean sensitivity (dBm)	Receiver sensitivity (dBm)	Receiver overload (dBm)	Connector	Configuration
Double Fibers	1310	-8 ~ -12	-36	-3	LC	Standard (S1.1)
Two Direction	1310	0 ~ -5	-36	-3	LC	Optional (L1.1)
Single Fiber	1310 / 1550	-8 ~ -14	-30	-3	LC	Optional
One Direction	1310 / 1550	0 ~ -5	-30	-3	LC	Optional

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Technical Specifications

Clock Synchronization Options	
Clock Synchronization options	Synchronization with STM-1 line Timing Synchronization with timing from any of the E1 interfaces (63 E1 tributary interfaces) External timing source option - 120 Ohms 2Mbps (External Bits Clock) External timing source - 120 Ohms 2MHz (External TTL Clock) - Factory Configurable Internal Clock - ITU-T G.813 internal oscillator (Stratum 3) The timing source can be auto switched according to default or operator programmed settings
Power Supply Options	
DC Mains Input	-48VDC (range -36VDC to -75VDC)
AC Main Input	100VAC to 240VAC, 50/60Hz
Power Protection	1+0 (AC, DC), 1+1 (AC+AC, AC+DC, DC+DC)
Power consumption	< 20 Watts
Operating Conditions	
Ambient Temperature	-10°C ~ +60°C
Relative Humidity	<90% (Non condensing)
Mechanical Specification	
Rack Mounting	Standard 19 Inch. DIN Rack
Height	44mm
Depth	256mm
Width	440mm
Weight	3.75Kg

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Ordering information

Model	Description
IX-STM1-63E1-75	IX--STM-1-63E1 SDH Multiplexer, STM-1 (1+1) SDH Add-Drop Multiplexer with 63E1 19-inch 1U High Rack Mount version Supports : - 2 x STM-1 Ports (1+1) [SFP based / without SFPs] - 63 x E1 [75 Ohm DB37 (M)] - 1 x Systems Core Cables, Installation Accessories, Documentation, System User Manual / Disk etc (Set) - OAM: EOW, SNMP, EMS, NMS * Add SFP, Warranty 1 year [# Add Power Supply , Ref VCL-PS-xx]
IX-STM1-63E1-120	IX--STM-1-63E1 SDH Multiplexer, STM-1 (1+1) SDH Add-Drop Multiplexer with 63E1 19-inch 1U High Rack Mount version Supports : - 2 x STM-1 Ports (1+1) [SFP based / without SFPs] - 63 x E1 [120 Ohm DB37 (M)] - 1 x Systems Core Cables, Installation Accessories, Documentation, System User Manual / Disk etc (Set) - OAM: EOW, SNMP, EMS, NMS * Add SFP, Warranty 1 year [# Add Power Supply , Ref VCL-PS-xx]
Accessories	
IX-1505-TER-DB37F-RJ45F-48PP	**48xE1/T1**, DB37 to RJ45 Termination Panel - 6 x DB37 (F) - 48 x RJ45 (F) 19" Metal case 1U High Rack Mount Version with Hardware Set [DB37 & RJ45 cables not included]
IX-1505-DB37F-RJ45F-16PP	16xE1/T1, DB37 to RJ45 Termination Panel - 2 x DB37 (F) - 16 x RJ45 (F) 19" Metal case 1U High Rack Mount Version with Hardware Set [#Add DB37 / RJ45 cables not included, ref IX-1213-8E1DB37F-001]
IX-1513-DB37F-BNCF-16PP	16xE1, DB37 to BNC Termination Panel [T00, T01] - 2 x DB37 (F) - 32 x BNC (F) 19" Metal case 1U High Rack Mount Version with Hardware Set [BNC cables not included], Warranty 1 year
IX-HRNS 1213-8E1DB37F-001	DB37 (M) to DB37 (F) Termination Connectorized Cable (1m)

POWER SUPPLY	Power supply for IX-STM1
VCL-PS-AC220	110-230 Vac power supply module for VCL. 1 x 90~240V AC, 50/60 Hz, Power Supply Input Installation in our factory.
VCL-PS-DC048	48 Vdc power supply module for VCL. Installation in our factory
VCL-PS-DC220	1 x 110~250V DC Power Supply Input for VCL. Installation in our factory
VCL-PS-ACDC	1 x 90~240V AC, 50/60 Hz, Power Supply Input, 1 x 48V DC Power Supply Input. Installation in our factory
VCL-PS-DC048DC220	1 x 48V DC Power Supply Input, 1 x 110~250V DC Power Supply Input Installation in our factory
VCL-PS-AC220R	2 x 110-230 Vac power supply module for VCL. 2 x 90~240V AC, 50/60 Hz, Redondunt Power Supply Input Installation in our factory.
VCL-PS-DC048R	2 x 48V DC Power Supply Input [Redundant] power supply module for VCL-TP. Installation in our factory
VCL-PS-DCR220	2 x 110~250V DC Power Supply Input [Redundant]. Installation in our factory

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