Multi-Services Access Network

Version 1.1 – Janvier 08

HX9500
SDH/SONET MSAN

Features

- Combined SDH ADM and PDH DACS multiservice
- 6U height, full front access (ETSI) shelf
- TM, ADM and DCS at DS0, VC12, VC3, VC4
- Dual STM-1/4 (OC-3/12) Optical Ring Uplinks
- Hot-swappable cross-connect modules, tributary modules and power modules.
- Tributary Modules (See Table1 below)
  - High-Speed or High Density access tributary modules (HS)
  - Low-Speed access tributary modules (LS)
- Power Modules
  - DC Module (-48Vdc)
  - AC Module (90 to 240Vac, 50/60Hz)
  - Dual Power (1+1) Protection
- Networking protection
- Tributary protection
  - E1/T1: Card, Port, Line
  - E3/T3: Card, Port, Line
  - B155/622: MSP, SNCP
- Cross-connect Unit (XCU) protection
  - MSP, SNCP
- TM, ADM, and cross-connect
- Full cross-connect at VC11/VC12/VC3/VC4 levels
- External/Internal/Line timing source with SSM
- Ethernet supports GFP, LAPS, VCAT and LCAS
- Full switched Ethernet capability on EoS card
- DTMF Engineering Order-Wire using VoIP phone
- Alarm suppression, masking and report
- Management
  - Console port, VT100 menu-driven
  - SNMP Port
  - Telnet
  - Centralized management EMS-GUI CXRview
  - CXR's EMS/iNMS EMS TMN management with full FCAPS and end-to end circuit man-

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DESCRIPTION

The **HX9500** SDH/SONET MSAN (Multi-Services Access Network) Access Cross-connect Multiplexer is an economical STM-1/4 (OC-3/12) access multiplexer designed to provide integrated access to STM-1/4 (OC-3/12) optical lines through either a non-blocking VC11/VC12/VC3/VC4 cross-connect with HS modules or through an additional non-blocking DS0 cross-connect fabric with LS modules.

The 6U shelf supports:

- 4 HS tributary module slots
- 6 LS tributary module slots

With up to 4 aggregate optical STM-1/4 (OC-3/12) or electrical STM-1/OC-3 line interfaces, the HX9500 SDH/SONET MSAN offers service providers a versatile protection scheme including UPSR/SNCP and MSP(1+1) protection for both ring and linear network topology. It can work with the HX9100 and HX9400 in the same topology.

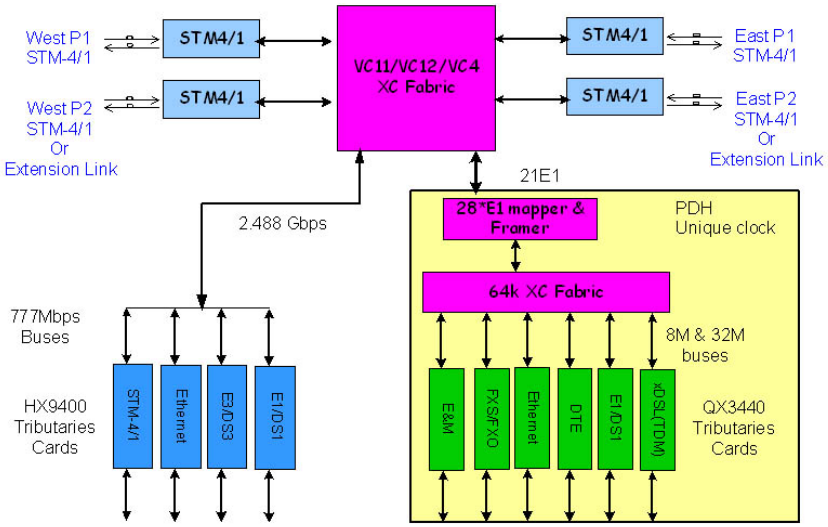
The HS tributary modules include optical STM-1/4 (OC-3/12), E3/T3, E1/T1 interfaces and Fast Ethernet over STM-1/4 (OC-3/12). Fast Ethernet signals are mapped onto STM payload

through standard techniques GFP, LAPS, VCAT and LCAS. These HS modules are identical to those used in the rack version of the HX9400.

The LS tributary modules are connected through a full non-blocking DS0 cross-connect and together can act as a mini DACS.

All interfaces are fully compliant with the relevant ETSI standards and ITU recommendations. The SDH/SONET MSAN provides full Operation, Administration, Maintenance and Provisioning (OAM&P) functionality.

Users can easily operate SDH/SONET MSAN locally or remotely for centralized management with CXRview-Plus (EMS) and CXR-iNMS (integrated NMS).



HX9500 TRIBUTARY MODULES

Tributary Type: High-Speed or High Density Access Tributary Modules **(HS)**

Plug-in Interface Cards
- STM-1/4 (OC-3/12) tributaries *
- 63 port E1/T1 tributaries
- 32 port E1/T1 tributaries
- 16 port E1/T1 tributaries
- 3 port E3/T3 tributaries *
- 3 port E3/T3 with M13 function option *
- EoS (8FE+1GBE) Ethernet card with built in L2 switch *

Tributary Type: Low-Speed Access Tributary Modules **(LS)**

Plug-in Interface Cards
- 4 channel E1/T1
- 8 channel Dry Contact I/O
- 8 channel 2W/4W E&M
- 2 channel G.SHDSL (2 pairs) w/o line power
- 4 channel G.SHDSL (1 pairs) w/o line power
- 12 channel FXS
- 12 channel FXO
- 8 channel OCU-DP
- Omnibus card *
- 1 or 4 channel C37.94 (low speed optical)
- 8 port Bridge/Router
- 6 channel V.35
- 6 channel V.36
- 6 channel X.21
- 8 channel RS232

Note: * Future Option

System Clock

Clock Source	Internal clock
	4 aggregate lines clocks (STM-1/4 (OC-3/12))
	8 tributary clocks
	2 external clocks (2.048MHz or 2.048Mbps for STM-1/4, 1.544M bps for OC-3/12)

Management Interface

LED	Multi colors
Console	Electrical: RS232
	Connector: DB9S (DCE)
	Protocol: Menu driven VT-100
SNMP	SNMPv1, v3 (RFC1213, RFC2863, RFC1493)
OSS interface	10/100BaseT FE (IEEE 802.3u)
NE/NE interface	DCC/HDLC/Ethernet type II

Alarm Input/Output

Inputs		Outputs	
Channel	4	Channel	4
Connector	RJ45	Connector	RJ45
Internal Resistance	1K	Initial Insulation Resistance	Min. 100M ohm (at 500Vdc)
Activation Current	3 ma	Max. Rating	3 Vdc/1A
Deactivation Current	1.5 ma		125Vac/0.5A
Allowable Current	4 ma		

Electrical

AC Power	90 to 240 Vac, 50/60Hz
DC Power	-48Vdc
Power consumption	

Physical and Environmental

Dimensions for 6U	433mm x264mm x 223.5mm (W/H/D)
Temperature	0 to 50°C
Humidity	0-95%RH (non-condensing)
Mounting	Desk-top stackable, 19/23 inch rack mountable, and wall mountable

Certifications

EMI/EMC	
Safety	

Standards Compliance

ITU-T	G.707, G.7041, G.7042, G.775, G.783, G.806, G.823, G.747, X.86, G.664
ANSI	T1.105, T1.107
IEEE	802.1q (VLAN), 802.1w (RSTP), 802.1s(MSTP), 802.1ad (stack VLAN), 802.3x (flow control), 802.1p (QoS)

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