Loop-O9500
SDH/SONET IMAP

Features:

- 6U height, full front access (ETSI) shelf
- TM, ADM and DCS (full cross-connect) at DS0, VC11, 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: Line
    - B155/622: MSP, SNCP/UPSR
    - *Ethernet: Card
  - Cross-connect Unit (XCU) protection
    - MSP, SNCP/UPSR
- External/Internal/Line timing source with SSM
- Ethernet supports GFP, LAPS, VCAT, LCAS and non-LCAS
- Full switched Ethernet capability on EoS with build-in L2 switch card
- Ethernet Order Wire (EOW) using VoIP technology
- Alarm suppression, masking and report
- Management
  - Console port, VT100 menu-driven
  - SNMP Port
  - Telnet
  - Centralized management with Loop's EMS/iNMS over DCC channel
  - LoopView GUI EMS
  - TMN management (Loop-iNMS) with full FCAPS and end-to-end circuit management
  - SSH
- RoHS compliant

* Future Option

Description:

The Loop-O9500 SDH/SONET IMAP (Integrated Multi-service Access Platform) 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 4 aggregate electrical STM-1/OC-3 line interfaces, the Loop-O9500 SDH/SONET IMAP offers service providers a versatile protection scheme including SNCP(UPSR) and MSP(1+1) protection for both ring and linear network topology. Loop-O9500 can work with the Loop-O9100 and Loop-O9400 in the same topology.

The non-blocking VC11/VC12/VC3/VC4 cross-connect capability on High Speed (HS) is up to 20 STM-1.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, LCAS, and non-LCAS. These HS modules are identical to those used in the rack version of the Loop-O9400.

The uplink non-blocking DS0 cross-connect to HS is up to 21 E1 or 28 T1*. The non-blocking DS0 cross-connect capability on Low Speed (LS) is up to 768 DS0. Through a full non-blocking DS0 cross-connect and together can act as a mini DACS. The modules include variety of TDM, IP, and voice interfaces detailed on next page. All LS modules are identical to those used in rack version of the Loop-AM3440.

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

Users can easily operate SDH/SONET IMAP locally or remotely for centralized management with LoopView (EMS) and Loop-iNMS (integrated NMS).

Table 1 Loop-O9500 Tributary Modules:

Tributary Type	Plug-in Interface Cards	Max. capacity
High-Speed or High Density Access Tributary Modules **(HS)**	STM-4* (OC-12*) tributaries	2 MSP 1 + 1 or 2 Subring SNCP or 4 STM-4 without protection*
	STM-1 (OC-3) tributaries	4 MSP 1 + 1 or 4 Subring SNCP or 8 STM-1 without protection
	63 port E1/T1 tributaries	252 E1/T1 without protection, or 126 E1/T1 with 1+1 card protection
	32 port E1/T1 tributaries	
	16 port E1/T1 tributaries	
	3 port E3/T3 tributaries *	12 E3/T3 without protection, or 6 E3/T3 with 1+1 card protection*
	EoS (8FE+1GbE) Ethernet card with built in L2 switch *	4 GbE + 32 FE*
	EoS (8FE or 1GbE) Ethernet card without L2 switch *	4 GbE or 32 FE*
Low-Speed Access Tributary Modules **(LS)**	**Low Speed Single-Slot Cards**	
	8-port Bridge/Router	48-port Bridge/Router
	4-channel E1/T1	24/24-channel E1/T1
	3-channel E1*	18-channel E1*
	2-channel G.SHDSL (2 pairs) w/o line power	12 channel G.SHDSL (2 pairs) w/o line power
	4-channel G.SHDSL (1 pairs) w/o line power	24 channel G.SHDSL (1 pairs) w/o line power
	8-channel G.703 card at 64 Kbps data rate	48-channel G.703 card at 64 Kbps data rate
	1 or 4 channel C37.94 (low speed optical)	6 or 24 channel C37.94 (low speed optical)
	8-channel RS232/V.24	48-channel RS232/V.24
	8-channel Dry Contact I/O	48-channel Dry Contact I/O
	8-channel Dry Contact I/O type B*	48-channel Dry Contact I/O type B*
	8-channel 2W/4W E&M	48 channel 2W/4W E&M
	12-channel FXS	72 channel FXS
	12-channel FXO	72 channel FXO
	Conference card *	Conference card *
	12-channel Magneto*	72-channel Magneto*
	Low Speed Dual-Slot Cards	
	6-channel V.35	18-channel V.35
	6-channel V.36	18-channel V.36
	6-channel X.21/V.11	18-channel X.21/V.11
	6-channel EIA530/RS449	18-channel EIA530/RS449
	24-channel FXS*	72-channel FXS*
	24-channel FXO*	72-channel FXO*

Note: * Future Option

Single-Slot Cards plug into singles slots; Dual-Slot Cards plug into two adjacent single slots

Table 2: Maximum number of channel/port on each plug-in card

Plug-in Card \ Slot		TRIB 1	TRIB 2	TRIB 3	TRIB 4	XCU 1	XCU 2	11~16 slot/ per card	Total
E1/T1	For HS slots	63	63	63	63	x	x	x	252 E1/T1
	For LS slots	x	x	x	x	x	x	4E1 4T1	21E1 24T1
Ethernet	FE	8	8	8	8	x	x	x	32
	GbE	1	1	1	1	x	x	x	4
Optical (SFP)	STM-1	1	1	1	1	2	2	x	8
	STM-4	x	x	x	x	2	2	x	4
Bridge/Router		x	x	x	x	x	x	8	48
G.SHDSL		x	x	x	x	x	x	2/4	12/24
3 E1*		x	x	x	x	x	x	3	18
G.703		x	x	x	x	x	x	8	48
C37.94		x	x	x	x	x	x	1/4	4/24
Dry Contact		x	x	x	x	x	x	8	48
Dry Contact type B*		x	x	x	x	x	x	8	48
RS232/.24		x	x	x	x	x	x	8	48
Conference note1		x	x	x	x	x	x	6	36
12 FXS/FXO		x	x	x	x	x	x	12	72
12 Magneto*		x	x	x	x	x	x	12	72
E&M		x	x	x	x	x	x	8	48
V.35/V.36/X.21		x	x	x	x	x	x	6	18
EIA530/RS449		x	x	x	x	x	x	6	18
24 FXS/FXO*		x	x	x	x	x	x	24	72

* Future Option

X: not applicable

Note 1: A conference plug-in card contains two RS232 data ports, two FXS ports and two E&M ports.

Ordering Information

To order specify:

Note: RoHS compliant units are identified by the letter **G** appearing immediately at the end of the ordering code.

Model	Description	Note
Main Unit		
Loop-O9500-R-CHA-**G**	6U height Rack chassis for O9500 w/o CPU and power	
Plug-in modules		
Loop-O9500-R-CC4-**G**	CPU card with cross-connect unit and two STM-1/4 (OC-3/12) interfaces without SFP (mini-GBIC) optical modules	One required for each chassis. Order two for redundancy.
Loop-O9500-R-CBA-**G**	Connector Board	One required for each chassis.
Loop-O9500-R-FANA-**G**	Fan Board	One required for each chassis.
High Speed or High Density Tributary Modules		
Loop-O9500-R-16TE-**G**	16 E1 (120 ohm) or 16 T1 software programmable plug-in card	This card can also be used in the Loop-O9400R.
Loop-O9500-R-32TE-**G**	32 E1 (120 ohm) or 32 T1 software programmable plug-in card	This card can also be used in the Loop-O9400R.
Loop-O9500-R-63TE-**G**	63 E1 (120 ohm) or 63 T1 software programmable plug-in card	This card can also be used in the Loop-O9400R.
Loop-O9500-R-16E75-**G**	16 E1(75 ohm) plug-in card	Order two for redundancy. This card can also be used in the Loop-O9400R.
Loop-O9500-R-32E75-**G**	32 E1(75 ohm) plug-in card	Order two for redundancy. This card can also be used in the Loop-O9400R.
Loop-O9500-R-63E75-**G**	63 E1(75 ohm) plug-in card	Order two for redundancy. This card can also be used in the Loop-O9400R.
Loop-O9500-R-B16-**G**	STM-1/4 (OC-3/12) software configurable plug-in card without SFP (mini-GBIC) optical modules	This card can also be used in the Loop-O9400R.
Loop-09500-R-9EoS4NSW-**G**	1 GbE or 8FE software programmable plug-in card without L2 switch	(Future Option) This card can also be used in the Loop-O9400R.
Loop-O9500-R- 9EoS4SW-**G**	1GbE and 8FE plug-in card with L2 switch	(Future Option) This card can also be used in the Loop-O9400R.
Loop-O9500-R-3TE3-**G**	3 T3 or 3 E3 software programmable interface plug-in card	(Future Option) This card can also be used in the Loop-O9400R.

Low Speed Tributary Modules (Single Slot)

Loop-O9500-R-4E1-cc-**G**	4-channel E1 plug-in card; For **cc** option, please refer to the table below for detail information	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-4T1-**G**	4-channel T1 plug-in card	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop- O9500-R-3E1-**cc**-**G**	3-channel E1 plug-in card with DS0 (64K bps) SNCP protection	(Future option) For **cc** option, please refer to the table below for detail information
Loop-O9500-R-2GH-**G**	2-channel G.SHDSL plug-in card (2 pair)	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-4GH-**G**	4-channel G.SHDSL plug-in card (1 pair)	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-8DC-**G**	8-channel dry contact I/O plug-in card	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop- O9500-R-8DCB-**G**	8-channel dry contact type B plug-in card with maximum voltage 220 Vdc or 250 Vac	(Future Option) This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-8CD-**G**	8-channel G.703 plug-in card at 64 Kbps data rate	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-1C37-**G**	1- channel C37.94 plug-in card	This card can also be used in the Loop-AM3440-CHA and -CHB
Loop-O9500-R-4C37-**G**	4- channel C37.94 plug-in card	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-8RS232-RJ-**G**	8-port RS232 plug-in card with X.50 subrate multiplexing scheme and X.54 encoding, with 8 RJ48 connectors for 8 RS232 Async ports	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-8RS232-DB-**G**	8-port RS232 plug-in card with X.50 subrate multiplexing scheme and X.54 encoding, with 2 RJ48 connectors and 2 DB44 connectors for Async and Sync ports	Two conversion cables are included. (Each cable has one DB44 connector to one DB9 and two DB25 connectors). This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-RTB-**G**	8-LAN port/64 WAN ports router/bridge plug-in card	This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-Conf-**G**	Conference plug-in card with two RS232 data ports, two FXS ports and two E&M ports	(Future option) This card can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-8EM-x-**G**	8-channel 2W/4W E&M plug-in card	"8EM" card with H/W ver. E (and later versions), F/W V4.01.01 (and later versions) can also be used in the Loop-AM3440-CHA and -CHB. For x option, please refer to the table below.
Loop-AM3440-12MAG-1G-G	12-channel Magneto plug-in card with L1. GND	(Future option) 12MAG-1G2 includes all MAG Card functions.
Loop-AM3440-12MAG-12-G	12-channel Magneto plug-in card with L1, L2	
Loop-AM3440-12MAG-1G2-G	12-channel Magneto plug-in card with L1, L2, and L1. GND	

Loop-O9500-R-12FXS-**G**	12-channel FXS plug-in card with 600/ 900 Impedance, Battery Reverse, PLAR, without Ground Start and Metering Pulse	"12FXS-x" cards with H/W ver .**I** and F/W V.3.01.01 or newer versions. It can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R-12FXS-P-**G**	12-channel FXS plug-in card with 600/ 900 Impedance, Battery Reverse, PLAR, without Ground Start and Metering Pulse PLAR bit programmable function	
Loop-O9500-R-12FXS-M-**G**	12-channel FXS plug-in card with 600/ 900 Impedance, Battery Reverse, PLAR, [Metering Pulse]	
Loop-O9500-R-12FXS-MPP-**G**	12-channel FXS plug-in card with 600/ 900 Impedance, Battery Reverse, PLAR and PLAR bit programmable function, [Metering Pulse]	
Loop-O9500-R-12FXS-GS-**G**	12-channel FXS plug-in card with 600/ 900 Impedance, Battery Reverse, PLAR, [Ground Start]	
Loop-O9500-R-12FXS-GM-**G**	12-channel FXS plug-in card with 600/ 900 Impedance, Battery Reverse, PLAR, [Ground Start, and Metering Pulse]	
Loop-O9500-R-12FXS-GMP-**G**	12-channel FXS plug-in card with 600/ 900 Impedance, Battery Reverse, PLAR and PLAR bit programmable function, [Ground Start, and Metering Pulse]	
Loop-O9500-R-12FXO-**G**	12-channel FXO plug-in card with 600/ 900 Impedance, Battery Reverse, without Ground Start and Metering Pulse	12FXO-GM includes all FXO Card functions. O9500-R-12FXO-x cards **CANNOT BE USED** in the Loop-AM3440-CHA or the Loop-AM3440-CHB.
Loop-O9500-R-12FXO-M-**G**	12-channel FXO plug-in card with 600/ 900 Impedance, Battery Reverse, [Metering Pulse]	
Loop-O9500-R-12FXO-GS-**G**	12-channel FXO plug-in card with 600/ 900 Impedance, Battery Reverse, [Ground Start]	
Loop-O9500-R-12FXO-GM-**G**	12-channel FXO plug-in card with 600/ 900 Impedance, Battery Reverse, [Ground Start, and Metering Pulse]	

Low Speed Tributary Modules (Dual Slots)

Loop-O9500-R-6X21A-**G**	6-channel X.21/V.11 card with DB15 connector	These cards will occupy two slots. These cards can also be used in the Loop-AM3440-CHA and -CHB.
Loop-O9500-R -6V35A-**G**	6-channel V.35 plug-in card with DB25S connector, for M34. (2Mbits per channel) Please order conversion cable connector below.	
Loop-O9500-R -6V36A-**G**	6-channel V.36 card with DB25 connector via conversion cable to DB37	
Loop-O9500-R-6E530A-**G**	6-channel EIA530 plug-in card with DB25 connector	
Loop-O9500-R-6RS449A-**G**	6-channel EIA530/RS449 plug-in card with DB25 connector via conversion cable to DB37	
Loop-O9500-R-24FXS-**G**	24-channel FXS plug-in card with 600/900 Impedance, Battery Reverse, Loop Start and PLARWithout Ground Start and Metering Pulse	(Future Option) 24FXS-GMP includes all FXS card functions. These cards will occupy two slots. These cards can also be used in the Loop-AM3440-CHA and –CHB
Loop-O9500-R-24FXS-P-**G**	24-channel FXS plug-in card with 600/900 Impedance, Battery Reverse, Loop Start, PLAR and [PLAR bit programmable]. Without Ground Start and Metering Pulse	
Loop-O9500-R-24FXS-M-**G**	24-channel FXS plug-in card with 600/900 Impedance, Battery Reverse, Loop Start, PLAR and [Metering Pulse].	
Loop-O9500-R-24FXS-MPP-**G**	24-channel FXS plug-in card with 600/900 Impedance, Battery Reverse, Loop Start, PLAR, [PLAR bit programmable] and [Metering Pulse].	
Loop-O9500-R-24FXS-GS-**G**	24-channel FXS plug-in card with 600/900 Impedance, Battery Reverse, Loop Start, PLAR and [Ground Start].	
Loop-O9500-R-24FXS-GM-**G**	24-channel FXS plug-in card e with 600/900 Impedance, Battery Reverse, Loop Start, PLAR, [Ground Start] and [Metering Pulse].	
Loop-O9500-R-24FXS-GMP-**G**	24-channel FXS plug-in card with 600/900 Impedance, Battery Reverse, Loop Start, PLAR, [PLAR bit programmable], [Ground Start] and [Metering Pulse].	
Loop-O9500-R-24FXO-**G**	24-channel FXO plug-in card with 600/900 Impedance, Battery Reverse and Loop Start. Without Ground Start and Metering Pulse	(Future Option) 24FXO-GM includes all FXO card functions. These cards will occupy two slots. These cards can also be used in the Loop-AM3440-CHA and –CHB
Loop-O9500-R-24FXO-M-**G**	24-channel FXO plug-in card with 600/900 Impedance, Battery Reverse, Loop Start and [Metering Pulse].	
Loop- O9500-R-24FXO-GS-**G**	24-channel FXO plug-in card with 600/900 Impedance, Battery Reverse, Loop Start and [Ground Start].	
Loop- O9500-R-24FXO-GM-**G**	24-channel FXO plug-in card with 600/900 Impedance, Battery Reverse, Loop Start, [Ground Start] and [Metering Pulse].	

Accessories

User's Manual		
Loop-O9500-R-UMA	Optional, paper copy of User Manual. A CD version of the manual is already included as standard equipment.	
Power Modules		
Loop-O9500-R-SD48-**G**	-48Vdc	For redundancy purposes, ordering a second plug-in module will provide dual power. For AC choose an appropriate power cord.
Loop-O9500-R-SA-**G**	90 to 240Vac, 50/60Hz	

Power Cord		
Loop-ACC-PC-USA	AC power cord for Taiwan/America	
Loop-ACC-PC-EU	AC power cord for Europe	
Loop-ACC-PC-UK	AC power cord for UK	
Loop-ACC-PC-AUS	AC power cord for Australia	
Loop-ACC-PC-CH	AC power cord for China	
Order wire phone		
Loop-O9500-R-OW-**G**	Order Wire (VoIP) Phone	
SIP Proxy Server		
Loop-O9500-R-SIP	SIP Proxy Server Basic Software	Customer must provide a MAC address so that a license key can be generated to operate the software at that address.
Conversion Panels		
Loop-ACC-P-1SCSI-16RJ-**G**	1u panel for one SCSI to 16 RJ connectors without cables	Used for: -16TE, -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-P-1SCSI-16WW-**G**	1u panel for one SCSI to 16 Wire Wrap without cables	Used for: -16TE, -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-P-1SCSI-16BNC-**G**	1.5u panel for one SCSI to 16 BNC connectors without cables	Used for: -16E75, -32E75, -63E75 This panel can also be used in the Loop-O9400R.
Y-box Panels		
Loop-ACC-Y-2SCSI-16RJ-**G**	1u Y-box panel for two SCSI to 16 RJ connectors without cables	Used for: -16TE, -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-2SCSI-16WW-**G**	1u Y-box panel for two SCSI to 16 Wire Wrap without cables	Used for: -16TE, -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-2SCSI-2T50P8-16TE-**G**	1u 16 port Y-box panel in E1 120 ohm or T1 for two SCSI to two TELCO 50 connectors (8 ports per TELCO connector) without cables	Used for: -16TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-2SCSI-2T50P12-16TE-**G**	1u 16 port Y-box panel in E1 120 ohm or T1 for two SCSI to two TELCO 50 connectors (12 ports to the first TELCO connector, 4 ports to the second TELCO connector) without cables	Used for: -16TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-2SCSI-1T64P16-16TE-**G**	1u 16 port Y-box panel in E1 120 ohm or T1 for two SCSI to one TELCO 64 connectors (16 ports per TELCO connector) without cables	Used for: -16TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-2SCSI-2T50P8-16E75-**G**	1u 16 port Y-box panel in E1 75 ohm for two SCSI to two TELCO 50 connectors (8 ports per TELCO connector) without cables	Used for: -16TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-2SCSI-2T50P12-16E75-**G**	1u 16port Y-box panel in E1 75 ohm for two SCSI to two TELCO 50 connectors (12 ports to the first TELCO connector, 4 ports to the second TELCO) straight without cables	Used for: -16TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-2SCSI-1T64P16-16E75-**G**	1u 16 port Y-box panel in E1 75 ohm for two SCSI to one TELCO 64 connectors (16 ports per TELCO connector) straight without cables	Used for: -16TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-4SCSI-4T50P8-32TE-**G**	1u 32 port Y-box panel in E1 120 ohm or T1 for four SCSI to four TELCO 50 connectors (8 ports per TELCO connector) without cables	Used for: -32TE, -63TE This panel can also be used in the Loop-O9400R.

Loop-ACC-Y-4SCSI-3T50P12-32TE-**G**	1u 32 port Y-box panel in E1 120 ohm or T1 for four SCSI to three TELCO 50 connectors (12 ports to the first TELCO connector, 12 ports to the second TELCO connector and 8 ports to the third TELCO connector) without cables	Used for: -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-4SCSI-2T64P16-32TE-**G**	1u 32 port Y-box panel in E1 120 ohm or T1 for four SCSI to two TELCO 64 connectors (16 ports per TELCO connector) without cables	Used for: -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-4SCSI-4T50P8-32E75-**G**	1u 32 port Y-box panel in E1 75 ohm for four SCSI to four TELCO 50 connectors (8 ports per TELCO connector) without cables	Used for: -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-4SCSI-3T50P12-32E75-**G**	1u 32 port Y-box panel in E1 75 ohm for four SCSI to three TELCO 50 connectors (12 ports to the first TELCO connector, 12 ports to the second TELCO connector and 8 ports to the third TELCO connector) without cables	Used for: -32TE, -63TE This panel can also be used in the Loop-O9400R.
Loop-ACC-Y-4SCSI-2T64P16-32E75-**G**	1u 32 port Y-box panel in E1 75 ohm for four SCSI to two TELCO 64 connectors (16 ports per TELCO connector) without cables	Used for: -32TE, -63TE. This panel can also be used in the Loop-O9400R.
Conversion Cables(All conversion cables are RoHS compliant)		
Loop-ACC-CAB-SCSIM-200-SCSIM-**G**	SCSI68/ Male to one SCSI68/Male; Length 200 cm	
Loop-ACC-CAB-DB44M-100-2DB25F-1DB09F	DSUB-44 pin/Male to two DSUB-25 pin/Female-one DSBU-9 pin/Female (8P8C) plug, L:300cm	Used in Loop-O9500-R-8RS232-DB-**G** plug-in card
Loop-ACC-CAB-DB25M-30-1 M34F	DSUB-25pin/Male to M34/Female V.35 Conversion cable Length: 30 cm	Used in Loop-O9500-R-6V35A-**G** plug-in card
Loop-ACC-CAB-DB25M-30-1D B37F	DSUB-25pin/Male to DSUB-37/Female RS449 Conversion cable Length: 30 cm	Used in Loop-O9500-R-6V36A-**G** and Loop-O9500-R-6R449A-**G** plug-in cards
Blank Panels		
30.001397.A00LF	Blank panel for CPU slot	
30.001076.A00LF	Blank panel for power supply slots	Same as that used on O9400R.
30.001077.A00LF	Blank panel for High-speed slots (Slots 1~4)	Same as that used on O9400R.
30.001027.A00LF	Blank Panel for Low-speed slots (Slots 11~16)	Same as that used on AM-3440-CHA.

For Example:

Loop-O9500-R-CHA-G, Loop-O9500-R-CBA-G, Loop-O9500-R-FANA-G, Loop-O9500-R-CC4-G, Loop-O9500-R-63TE-G, Loop-O9500-4E1-RJ, Loop-O9500-R-4GH, Loop-O9500-R-SD48:

For model O9500 6U height Rack chassis with one CPU card, one connect board, and one Fan board, one 63E1 software programmable interface plug-in card, one 4-channel E1 interface with RJ48C connectors, one 4-channel G.SHDSL plug-in card (1-pair), and a single –48 Vdc power module.

SFP Optical/Electrical Module Plug-in Tables

SFP 155 Mbps (mini GBIC) Dual Fiber	MHBTW	Multi mode optical module with dual uni-directional fiber, 155M, 1310nm, 2Km, LC connector w/o DDM, Fast Ethernet	▪ Use 2 fibers for all SFP optical modules
	PHB2W	Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 15~20Km, LC connector w/o DDM, S-1.1	
	PHB3W	Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 30Km, LC connector w/o DDM, S-1.1/Fast Ethernet	
	PHB5W	Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 50Km, LC connector w/o DDM, L-1.1/Fast Ethernet	
	PHC8W	Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 80Km, LC connector w/o DDM, L-1.2	
	PHCUW	Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 100Km, LC connector w/o DDM, L-1.2/Fast Ethernet	
	PHCXW	Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 120Km, LC connector w/o DDM, Extended L-1.2	

	PHB3D	Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 30Km, LC connector with DDM, S-1.1/IR1/Fast Ethernet	
	PHB5D	Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 50Km, LC connector with DDM, L-1.1-LR1/Fast Ethernet	
	PHC8D	Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 80Km, LC connector with DDM, L-1.2	
	PHCUD	Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 100Km, LC connector with DDM, L-1.2/LR2/Fast Ethernet	
	PHCXD	Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 120Km, LC connector with DDM, Extended L-1.2/LR2	

155 Mbps Electrical transceiver	EHNAC	Electrical transceiver module, 155M, 100m, mini-BNC coaxial connector	

622M~1.25G mini GBIC Dual Fiber	PKB1W	Single mode optical module with dual uni-directional fiber, 622M~1.25G, 1310nm, 10Km, LC connector w/o DDM, S-4.1/1000Base-LX	▪ Use 2 fibers for all SFP optical modules
155~622Mbps mini GBIC Dual Fiber	PJB2W	Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 15~20Km, LC connector w/o DDM, S-4.1	
	PJB4W	Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 40Km, LC connector w/o DDM, L-4.1	
	PJB5W	Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 50Km, LC connector w/o DDM, L-4.1/LR1	
	PJC8W	Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 80Km, LC connector w/o DDM, S-4.2	
	PJCXW	Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 120Km, LC connector w/o DDM, Extended L-4.2	
	PJB2D	Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 15~20Km, LC connector with DDM, S-4.1	
	PJB4D	Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 40Km, LC connector with DDM, L-4.1	
	PJB5D	Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 50Km, LC connector with DDM, L-4.1/LR1	
	PJC8D	Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 80Km, LC connector with DDM, L-4.2	
	PJCXD	Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 120Km, LC connector with DDM, Extended L-4.2	

NOTE: For other special optical modules, please contact your nearest Loop sales representative.

■ Where **cc** is used to select connector:

cc =	Description	Note
RJ	RJ48C connector	
BNC	BNC connector	

■ where **x** is used to select all of voice card signaling bits:

8EM	**x =**	Description	Note
	E	Follows ETSI signaling bits	
	A	Follows ANSI signaling bits	Jumper selectable for all channels
	R	Reverse for ON-HOOK and OFF-HOOK signaling bits exchange	
	S	Follows customer's special bit or function assignment	
	AR	Follows ANSI signaling bits and reverse bit	

Note: For S (customer's special bit), please contact your nearest Loop sales representative.

LOOP-O 9500 SDH/SONET IMAP PRODUCT SPECIFICATION

High Speed or High Density Tributary Modules

Max. Number of Aggregate Lines

4 STM-1/4 (OC-3/12) aggregate optical lines or
4 STM-1 (OC-3) aggregate electrical lines

Max. Number of Tributary Lines

4 STM-4 (OC-12) tributaries without protection
8 STM-1 (OC3) tributaries without protection
12 E3/T3 tributaries without protection*
252 E1/T1 tributaries without protection
4 GbE +32 FE EoS with build in L2 switch tributaries without protection*
4 GbE or 32 FE EoS without build in L2 switch tributaries without protection*

SFP Module Characteristics

SFP Optical Module	Direction	Data Rate	Wavelength(nm)	Connector	Distance
MHBTW	Dual uni-directional fiber	155M	1310nm	LC without DDM	2 Km
PHB2W	Dual uni-directional fiber	155M	1310nm	LC without DDM	15~20 Km
PHB3W	Dual uni-directional fiber	155M	1310nm	LC without DDM	30 Km
PHB5W	Dual uni-directional fiber	155M	1310nm	LC without DDM	50 Km
PHC8W	Dual uni-directional fiber	155M	1550nm	LC without DDM	80 Km
PHCUW	Dual uni-directional fiber	155M	1550nm	LC without DDM	100 Km
PHCXW	Dual uni-directional fiber	155M	1550nm	LC without DDM	120 Km
PHB3D	Dual uni-directional fiber	155M	1310nm	LC with DDM	30 Km
PHB5D	Dual uni-directional fiber	155M	1310nm	LC with DDM	50 Km
PHC8D	Dual uni-directional fiber	155M	1550nm	LC with DDM	80 Km
PHCUD	Dual uni-directional fiber	155M	1550nm	LC with DDM	100 Km
PHCXD	Dual uni-directional fiber	155M	1550nm	LC with DDM	120 Km

SFP Electrical Module	Direction	Data Rate	Wavelength(nm)	Connector	Distance
EHNAC	Dual uni-directional	155M	n.a.	Mini-BNC	100 m

SFP Optical Module	Direction	Data Rate	Wavelength(nm)	Connector	Distance
PKB1W	Dual uni-directional fiber	622M~ 1.25G	1310nm	LC without DDM	10 Km
PJB2W	Dual uni-directional fiber	155~622M	1310nm	LC without DDM	15~20 Km
PJB4W	Dual uni-directional fiber	155~622M	1310nm	LC without DDM	40 Km
PJB5W	Dual uni-directional fiber	155~622M	1310nm	LC without DDM	50 Km
PJC8W	Dual uni-directional fiber	155~622M	1550nm	LC without DDM	80 Km
PJCXW	Dual uni-directional fiber	155~622M	1550nm	LC without DDM	120 Km
PJB2D	Dual uni-directional fiber	155~622M	1310nm	LC with DDM	15~20 Km
PJB4D	Dual uni-directional fiber	155~622M	1310nm	LC with DDM	40 Km
PJB5D	Dual uni-directional fiber	155~622M	1310nm	LC with DDM	50 Km
PJC8D	Dual uni-directional fiber	155~622M	1550nm	LC with DDM	80 Km
PJCXD	Dual uni-directional fiber	155~622M	1550nm	LC with DDM	120 Km

E3 Interface*

Line Rate	34.368 Mbps ± 20ppm	Jitter	ITU G.823
Line Code	HDB3	Framing	Unframed, G.751
Input Signal	ITU G.703	Impedance	75 ohm coax
Output Signal	ITU G.703	Connector	BNC connector
Output Mask	ETS 300 689 Sec.4.2.1.2 ITU G.703		

*T3 interface**

Line Rate	44.736 Mbps ± 20ppm	Jitter	ITU G.824
Line Code	B3ZS	Framing	Unframed, M13/Mx3, G.747
Input Signal	ITU G.703	Impedance	75Ω coax
Output Signal	ITU G.703	Connector	BNC connector
Output Mask	Bellcore GR-499-core		

E1 Interface

Line Rate	2.048 Mbps ± 50 ppm	Jitter	ITU G.823
Line Code	AMI/HDB3	Framing	Unframed with a framing monitor on receiving side
Input Signal	ITU G.703	Impedance	75 ohm coax/120Ω twisted pair
Output Signal	ITU G.703	Connector	SCSI-II 68-pin One connector for 16 ports Two connectors for 32 ports Four connectors for 63 ports
Output Mask	ETS 300 689 Sec.4.2.1.2 ITU G.703		

T1 Interface

Line Rate	1.544 Mbps ± 32 ppm	Jitter	ITU G.824
Line Code	AMI/B8ZS	Framing	Unframed with a framing monitor on receiving side
Input Signal	ITU G.703 DSX-1 0dB to –6dB	Impedance	100 ohm twisted pair
Output Signal	ITU G.703 DSX-1 w/short (0-110, 110-220, 220-330, 330-440, 440-550 feet)	Connector	SCSI-II 68-pin One connector for 16 ports Two connectors for 32 ports Four connectors for 63 ports
Output Mask	Bellcore GR-499-core		

*Fast Ethernet interface**

Line Rate	10/100M bps	Mapping	n x VC12, n x VC3, or n x VC4
Layer2 Protocol	RSTP (802.1W), VLAN (802.1Q, 802.1P) Flow Control (802.3X) MSTP (802.1S) (future option) IGMP Snooping (future option) QoS (future option)	Connector	RJ45
Prrocess Protocol	VCAT, GFP, LAPS, LCAS, and non-LCAS		

*Gigabit Ethernet interface**

Line Rate	10/100/1000Mbps	Mapping	n x VC12, n x VC3, or n x VC4
Layer2 Protocol	RSTP (802.1W), VLAN (802.1Q, 802.1P) Flow Control (802.3X) MSTP (802.1S) (future option) IGMP Snooping (future option) QoS (future option)	Connector	RJ45
Process Protocol	VCAT, GFP, LAPS, LCAS, and non-LCAS		

Low Speed Tributary Modules

Network Line Interface - 4T1

Line Rate	2.048 Mbps ± 50 ppm	Framing	ITU G.704
Line Code	AMI or HDB3	Connector	BNC/RJ48C
Input Signal	ITU G.703	Electrical	75 ohm Coax/120 ohm twisted pair
Output Signal	ITU G.703	Jitter	ITU G.823

Network Line Interface - 4E1

Line Rate	1.544 Mbps ± 32 ppm	Output Signal	DSX1w/0, -7.5, -15 dB LBO
Line Code	AMI or B8ZS	Framing	D4/ESF (selectable)
Input Signal	DSX-1 0 dB to -30 dB w/ALBO	Connector	RJ48C

*Network Line Interface - 3E1**

Line Rate	2.048 Mbps ± 50 ppm	Framing	ITU G.704
Line Code	AMI or HDB3	Connector	BNC/RJ48C
Input Signal	ITU G.703	Electrical	75 ohm Coax/120 ohm twisted pair
Output Signal	ITU G.703	Jitter	ITU G.823
Function	Support DS0-SNCP		

G.shdsl Line Interface (2GH/4GH)

Number of ports	2 or 4
Line Rate for 4-channel G.shdsl	n x 64Kbps (n= 3 to 31)
Line Rate for 2-channel G.shdsl	n x 64Kbps (n= 3 to 15)
Line Code	16-TCPAM, full duplex with adaptive echo cancellation
Connector	RJ45
Electrical	Unconditioned 19-26 AWG twisted pair
Sealing current	Max. 20 MA source current
Clock Source	From System, Line
Diagnostic Test	G.SHDSL Loopback: To-LINE, To-bus BERT: QRSS

DTE(X.21/V.11) Interface (-6X21A)

Data Port	Up to six 6-port DTE X.21 card; 1-port DTE X.21 card (future option)
Data Rate	56 or 64 Kbps, n = 1 to 32
Connector	DB15

DTE (V.35/ V.36) Interface (6V35A/6V36A)

Data Port	Up to six 6-port DTE V.35/ V.36 cards
Data Rate	56 or 64 Kbps, n = 1 to 32
Connector	For V.35 card: DB25S (optional conversion cable DB25S to M34 connector) For V.36 card::DB25S (optional conversion cable DB25S to DB37 connector)

DTE (EIA530/RS449) Interface (6 EIA530A/6RS449A)

Data Port	Up to six 6-port EIA530 DTE card
Data Rate	56 or 64 Kbps, n = 1 to 32
Connector	DB25S (optional conversion cable DB25S male to DB37 female connector for RS449)

C37.94 Interface (1/4C37)

Source	LED
Wavelength	820nm 2Km reach
Connector	ST
Optical Budget	50 Mircon core/9.6 db 62.5 Mircon core/ 15db

Dry Contact I/O card (8DC)

Inputs -		**Outputs -**	
8-channel	2-port per card, 4-pair per port	8-channel	8-pair per card
Connector	RJ45	Connector	Screw type
Internal Resistance	1 K	Initial Insulation Resistance	Min. 100M ohm (at 500 Vdc)
Activation Current	3 ma	Max. Current	5A
Deactivation Current	1.5 ma	Max. Voltage	100 Vdc, 250 Vac
Allowable Current	4 ma		

*Dry Contact Type B Interface**

Inputs -		**Outputs -**	
8-channel	2-port per card, 4-pair per port	8-channel	8-pair per card
Connector	RJ45	Connector	Screw type
Internal Resistance	100 K	Initial Insulation Resistance	Min. 1000M ohm (at 500 Vdc)
Activation Current	3 ma	Max. Current	2A
Deactivation Current	1.5 ma	Max. Voltage	220 Vdc, 250 Vac
Allowable Current	4 ma		

Co-directional (G.703) card

Interface	ITU G.703 64 Kbps co-directional interface
Connector	120ohm, RJ48
Line Distance	Up to 500 meters
Loopack	DTE Payload Loopback, Local Loopback

Router-B Interface (RTB)

Number of ports	8 LAN ports, Max. 64 WAN ports. Each WAN port has data rate n x 64K bps, 1≤ n ≤32 (≤ 8Mbps for total of all 64 WAN ports
Physical Interface	10/100 BaseT x 8
Connector	RJ45
Routing protocol	RIP-I, RIP-II, OSPF, Static
Supporting Protocols	PPP (IPCP/BCP), MLPPP, HDLC, Frame Relay, and Cisco compatible HDLC, NAT/NAPT, DHCP
Diagnostic	Ping, Trace route
QoS	Rate limit

DTE(RS232-X.50 mux. 8-port) Interface (RS232/V.24)

Data Port	Up to twelve 8-port RS232 cards		
MUX	Maximum 5 subrate port per 64K bps		
Data Rate	Asynchronous	Mux mode	0.6K, 1.2K, 2.4K, 4.8K, 9.6K
		Independent mode	0.6K, 1.2K, 2.4K, 4.8K, 9.6K, 19.2K
	Synchronous	Mux mode	0.6K, 1.2K, 2.4K, 4.8K, 9.6K
		Independent mode	0.6K, 1.2K, 2.4K, 4.8K, 9.6K, 19.2K, 38.4K, 48K, 64K

	Port Number							
Card Type	1	2	3	4	5	6	7	8
Eight RJ48	Async	Async	Async	Async	Async	Async	Async	Async
Two DB44 + Two RJ48	Async/Sync	Async/Sync	Async	Async/Sync	Async/Sync	Async	Async	Async

Connector	Eight RJ48 (port 1 to port 8) DB44 (port1,port2,port3), DB44 (port4,port5,port6), RJ48 (port7) and RJ48(port8)
Conversion Cable	A three-into-one conversion cable adapts the DB44 connector to 3 connecters (one DB9S and two DB25S)
Electrical	RS232 Interface, DCE

Voice Card- E&M

Connector	Eight RJ45
Alarm Conditioning	CGA busy after 2.5 seconds of LOS, LOF
Encoding	A-law or μ-law, user selectable together for all
Impedance	Balanced 600 or 900 ohms
Longitudinal Conversion Loss	> 46dB
Longitudinal Balance	> 63dB
Gain Adjustment (Per-port setting)	-10 to +7 dB / 0.1dB step for transmit (D/A) gain -10 to +14 dB / 0.1dB step for receive (A/D) gain
I/O voice power range	A/D digital input level: -66 dBm (0.00039 Vrms) ~ + 3 dBm (1.09 Vrms) D/A analog output level: -66 dBm (0.00039 Vrms) ~ + 7 dBm (1.74 Vrms)
Signal/Distortion	> 25dB with 1004 Hz, 0dBm input
Frequency Response	- 0.25 to -1 dB from 300 to 3400 Hz
Carrier connection	Side A (exchange side) and Side B (carrier side) setup by side switch
Idle Channel Noise	Max. –65 dBm0p
wire mode	2 wire and 4 wire (programmable)
Signaling	Type 1, Type 2, Type 3, Type 4, and Type 5, Transmit only (programmable)
Modems	Full compatibility with V.90 modems

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 (12FXS, 12FXO, 24FXS, 24FXO**

Connector	12 FXS:Twelve RJ11 or 24 FXS: Twenty Four RJ 11	
Alarm Conditioning	CGA busy after 2.5 seconds of LOS, LOF	
Encoding	A-law or μ-law, user selectable together for all	
AC Impedance	Balanced 600 or 900 ohms (selectable together for all)	
Longitudinal Conversion Loss	> 46dB	
Cross talk measure	Max -70dBm0	
Gain Adjustment	-21 to +10 dB / 0.1dB step transmit & receive	
Signal/ Distortion	> 25dB with 1004 Hz, 0dBm input	
Frequency Response	- 0.25 to -1 dB from 300 to 3400 Hz, coincide with ITU-T G.712	
Idle Channel Noise	Max. –65 dBm0p	
Variation of Gain	±0.5dB	
FXO	Ringing REN	0.5B (AC)
	Detectable Ringing	25 Vrms
	Loop Resistance	≦1800 Ω
	DC Impedance (ON-HOOK)	> 1M Ω
	DC Impedance (OFF-HOOK)	235 Ω@ 25 mA feed 90 Ω@ 100 mA feed
FXS Loop Feed	Normal -48 Vdc with 25mA current limit	
FXS signalling	Normal / Automatic Ring down	
FXS Ringing	1 REN at 5K meters per port 16.7Hz, 20Hz, 25Hz, 50Hz, user selectable for all ports 38 to 85 Vrms (sine wave), 76 Vrms for default Ring Voltage 2 sec on 4 sec off, or 1 sec on 2 sec off optional for PLAR	
Signaling	Loop Start, DTMF, pulse, PLAR, Battery Reverse	
Optional Signaling (for special order)	Ground Start, Metering pulse (12 KHz, 16 KHz), and P(in PLAR mode, PLAR signalling bits are programmable.	
Signaling Bit A,B,C,D	Programable bit	

- 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 12 MAG (Magneto)**

Connector	Twelve RJ11
Alarm Conditioning	CGA busy after 2.5 seconds of LOS, LOF
Encoding	A-law or μ-law, user selectable together for all
Impedance	Balanced 600 or magneto telephone impedance match
Longitudinal Conversion Loss	> 46dB
Gain Adjustment	-21 to +10 dB / 0.1dB step transmit & receive
Signal/ Distortion	> 25dB with 1004 Hz, 0dBm input
Frequency Response	- 0.25 to -1 dB from 300 to 3400 Hz, coincide with ITU-T G.712
Idle Channel Noise	Max. –65 dBm0p
Min Detectable Ringing Voltage	16 Vrms
Ringing Detectable Across	L1 and L2 (Tip and Ring), L1 and GND (Tip and GND)
Ringing Generation	Voltage: 76 Vrms (sine wave) Frequency: 20Hz Cadence: 1 sec on 2 sec off, or 2 sec on 4 sec off
Ringing Send Across	L1 and L2 (Tip and Ring), L1 and GND (Tip and GND)
Signaling	Magneto MRD(Ringing across Tip and Ring or Tip and Ground)
Signaling Bit A,B,C,D	Programable

Signaling is carried transparently by the digitizing process.
Use Magneto card default setting for communications between magneto telephones
Use Magneto card PLAR mode setting for communications between a magneto telephone and a regular telephone

*Conference Card**

RS232 Interface	
Data Port	2-ports per card
ASYNC Data Rate	300, 600, 1.2K, 2.4K, 4.8K, 9.6K, 19.2K
SYNC	not supported
Connector	Two DB9, DCE, female
FXS Voice Interface	
Connector	Two RJ11
Encoding	G.723
Longitudinal Conversion Loss	> 46dB
Cross Talk Measure	Max -70dBm0
Gain Adjustment	transmit (D/A) gain 0, +6dB receive (A/D) gain +6, 0, -6dB
Signal/ Distortion	> 25dB with 1004 Hz, 0dBm input
Idle Channel Noise	Max. –65 dBm0p
Loop Resistance	Max 1800 ohm
FXS Loop Feed	Normal -48 Vdc with 25mA current limit
FXS Ringing	2 REN 20Hz 76 Vrms 2 sec on / 4 sec off for 1 min, or 1 sec on / 2 sec off for 30 sec (programmable)
Signaling	Loop Start, DTMF
E&M Voice Interface	
Connector	Two RJ45
Encoding	G.723
Impedance	Balanced 600 ohms
Longitudinal Conversion Loss	> 46dB
Gain Adjustment	transmit (D/A) gain 0, +6dB receive (A/D) gain +6, 0, -6dB
Signal/Distortion	> 25dB with 1004 Hz, 0dBm input
Idle Channel Noise	Max. –65 dBm0p
Carrier Connection	Side A = exchange side, Side B = carrier side (Jumper selectable)
Phone line power+12V	Type P (Jumper enable)
Operation mode	Master, standard (Jumper selectable)
Wire Mode	4 wire
Signaling Type	Type 1, Type 4, and Type 5 (Jumper selectable)
EM Ringing	Single rainging for 5 sec only 2 sec on / 4 sec off for 1 min, or 1 sec on / 2 sec off for 30 sec (programmable)

System Clock

Clock Source	Internal clock 4 aggregate lines clocks (STM-1/4 (OC-3/12)) 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	
Channel	4
Connector	RJ45
Internal Resistance	1K
Activation Current	3 ma
Deactivation Current	1.5 ma
Allowable Current	4 ma

Outputs	
Channel	4
Connector	RJ45
Initial Insulation Resistance	Min. 100M ohm (at 500Vdc)
Max. Rating	3 Vdc/1A 125Vac/0.5A

Diagnostics

XCU card

Loopback Test	Local loopback, payload loopback, line loopback	
BERT Test	Optical interface	Direction: to optical lines

B155/622 card

Loopback Test	Local loopback, payload loopback, line loopback:	
BERT Test	Optical interface	Direction: to optical lines

E1/T1 card

Loopback Test	Local loopback, line loopback:	
BERT Test	E1/T1 interface	Direction: to optical lines, to tributary lines

Performance Monitor

Performance Reports	Performance Parameters: Error Block (EB), Background Block Error (BBE), Error Second(ES), Burst Error Second (BES), Severe Error Second (SES), Unavailable Second(UAS)			
Alarm History	System Alarm	Alarm Cut Off, Power Loss/Uneqp, Fan Fail, Fan Module Uneqp, RBC Uneqp, Overheat, TS Sync Loss, Logon and Logout, Optical Port Uneqp, Card In, Card Out, Card Type Mismatch, Card Port Number Mismatch, Card Fail, Card Registration, SNCP Switch, MSP Switch, Trib Protection Sync, Standby XCU Takeover, Standby Trib Takeover, XCU Sync, SFP Tx Fail, SFP Rx Fail, SFP Temperature		
	SDH/SONET Line Alarm	SDH	Line	PI-LOS, RS-LOF, RS-TIM, RS-BIP UAS, MS-SD, MS-SF, MS-AIS, MS-RDI, MS-BIP UAS, MS-REI UAS,
			Ho-Path	AU-LOP, AU-AIS, HP-SD, HP-SF, HP-TIM, HP-UNEQ, HP-PLM, HP-RDI-S, HP-RDI-C, HP-RDI-P, HP-BIP UAS, HP-REI UAS, LOM
			Lo-Path	TU-LOP, TU-AIS, LP-SD, LP-SF,
		SONET	Line	LOS-PI, LOF-S, TIM-S, BIP-S UAS, SD-L , SF-L , AIS-L , RDI-L , BIP-L UAS, REI-L UAS
			STS-Path	LOP-P, AIS-P, SD-P, SF-P, TIM-P, UNEQ-P, PLM-P, RDI-S-P, RDI-C-P, RDI-P-P, BIP-P UAS, REI-P UAS, LOM
			VT-Path	LOP-V, AIS-V, SD-V, SF-V
Alarm Queue	Contains up to 300 alarm records of latest alarm types, alarm severity, date, and time.			

Electrical

AC Power	90 to 240 Vac, 50/60Hz
DC Power	-48Vdc (-36 to -72 Vdc)
Power consumption	240 Watts

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

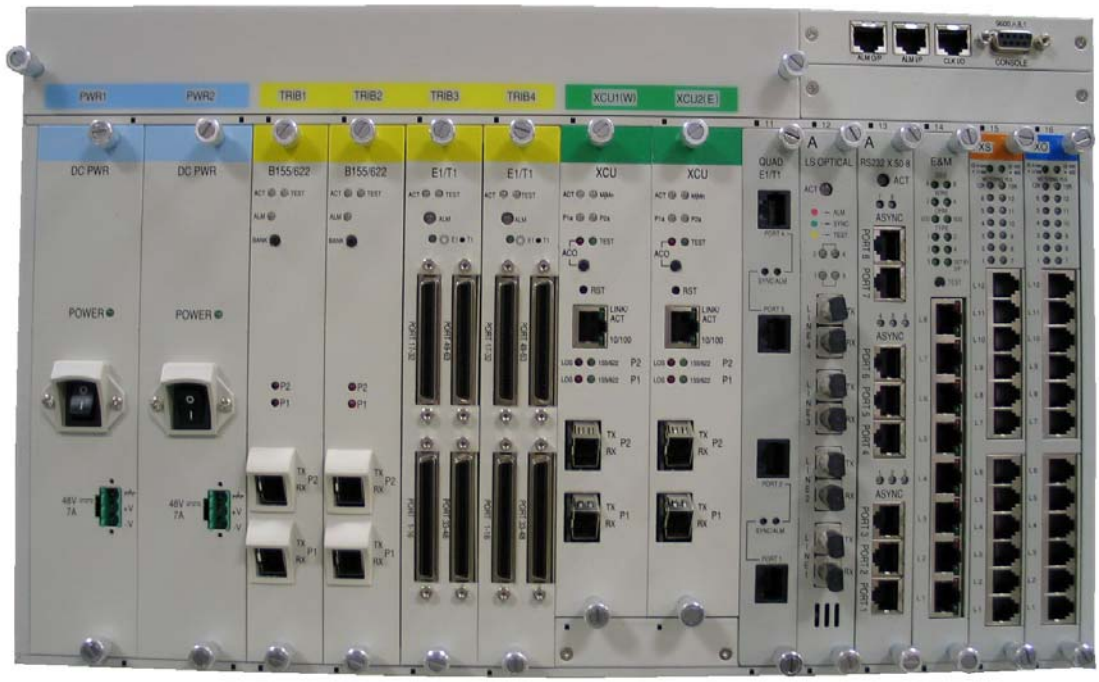
Certifications

EMI/EMC	EN55022 Class A, EN50024 FCC Part 15 Class A,
Safety	IEC60950-1

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)

* Future Option



O9500R Hardware configuration chart on High Speed Slot and CPU

Figure 1 High speed tributary cards without protection

Slot \ Plug-in Card		E1/T1	Ethernet		Optical (SFP)	
			FE	GbE	STM-1/OC-3	STM-4/OC12
	TRIB 1	63/32/16	8	1	1	X
	TRIB 2	63/32/16	8	1	1	X
	TRIB 3	63/32/16	8	1	1	X
	TRIB 4	63/32/16	8	1	1	X
XCU 1		X	X	X	2	2
XCU 2		X	X	X	2	2
Max. Total		252	32	4	8	4

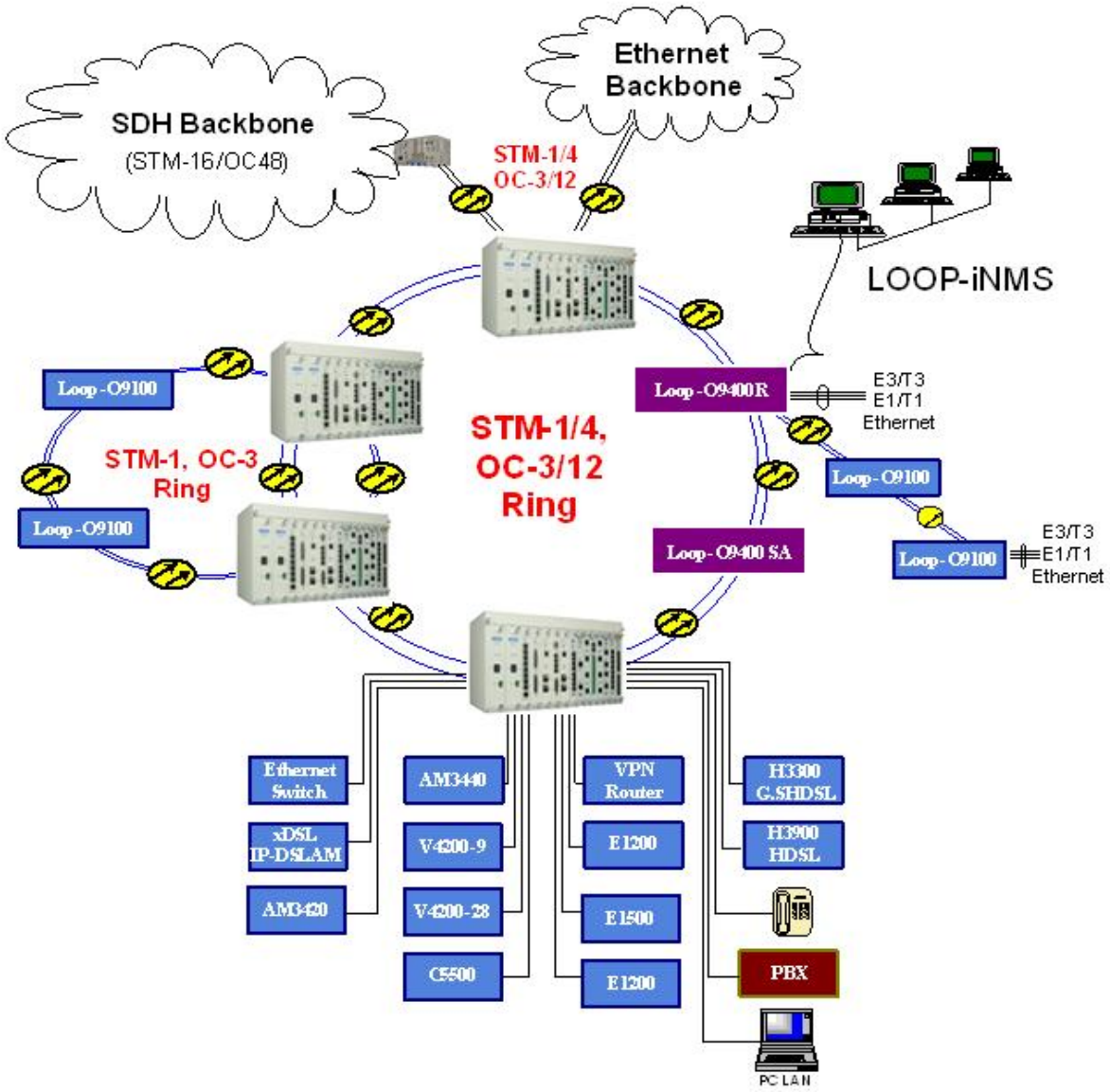
Figure 2 High speed tributary cards with protection

Slot \ Plug-in Card		E1/T1	Ethernet		Optical (SFP)	
			FE	GbE	STM-1/OC-3	STM-4/OC12
HS	TRIB 1	63/32/16	8	1	1	X
	TRIB 2	63/32/16 (B)	8 (B)	1 (B)	1 (B)	X
	TRIB 3	63/32/16	8	1	1	X
	TRIB 4	63/32/16 (B)	8 (B)	1 (B)	1 (B)	X
XCU 1		X	X	X	2	2
XCU 2		X	X	X	2 (B)	2 (B)
Max. Total		126	16	2	4	2

Note: (B) backup/protection

Application Illustration:

O9500 can be configured as either a Terminal Multiplexer (TM), a Linear Add/Drop Multiplexer (ADM), or as a cross-connect (DACS) with the same enclosure. With UPSR/SNCP, and MSP(1+1) protection, the Loop-O9500 can easily provide a well-protected transmission path and integrated access in various applications as shown below.



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