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O9330 Fiber Optical Mux

ANSI Unit Front View

ETSI Unit Front View

Features :

- 1U height, full front access(ETSI unit), or front and back access(ANSI unit)
- Rack mount, wall mount, and stand-alone
- WAN Ports
  - Two hot-swappable optical cards. One optical interface each card
  - Optical interface 1+1 protection switching (max. 50 ms)
- Tributary ports
  - TDM Interface
    - 4 slots, each slot can be 4 E1, 4 T1, or 2 V.35 hot plugable card
    - Up to 16 E1
    - Up to 16 T1
    - Up to 8 V.35
    - Up to 4 10/100Mbps Ethernet bridge hot-swappable card
- Power Modules
  - Hot-swappable DC plug-in modules (-48 Vdc: -36 to -75 Vdc), dual for redundancy
  - Hot-swappable AC plug-in module (100 to 240 Vac), dual for redundancy
- Auto laser shutdown function is user configurable.
- Loopbacks for optical link, each E1 and T1
- Office alarm contacts
- Firmware download to local unit and remote unit
- Management port and interface
  - Multicolor LED indicators
  - One LCD and keypad on ANSI panel (optional)
  - Console port, VT100 menu-driven
  - SNMP port
  - Telnet via SNMP port
  - LoopView GUI EMS

Description

Loop Telecom's Loop-O Fiber Optical Mux product family provides ideal solutions for building fiber-based E1/T1 networks. As one of this family, the Loop-O9330 can transparently carry up to 16 channels E1/T1 or 8 channels V.35 DTE, and 100 Mbps Ethernet signals over a single fiber.

All services are transported point-to-point in a real static TDM manner, which includes a) 16 E1, 16 T1, or 8 V.35 b) 100M bps Ethernet, and c) management channel. The bandwidth is guaranteed for full configuration of the mentioned speeds for each channel/service.

To select protection level, users can choose either single pair or dual pair fiber. Either a single power supply or dual power supplies can be chosen.

Loop-O9330 offers management through console port, Ethernet port, Telnet, and SNMP agents. It supports local control and diagnostics using a 2-line by 16-character LCD display and keypads or console port. The unit also supports local and remote monitoring and diagnostics. Contacts for office alarms are available.

Applications for Loop-O include interconnections for LAN, WAN, SONET/SDH, ATM, and DLC.

Ordering Information

To specify options, choose from the list below.

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-O9330-S-CA-opt1-opt2-s1-s2-s3-s4-s7-pp1-pp2-add-**G**	1U height ANSI (rear & front access) unit. Operating range：0~50C	For allowed pp1, pp2 combinations, refer to **NOTE 1**
Loop-O9330-S-CE-opt1-opt2-s1-s2-s3-s4-s7- pp1-pp2-**G**	1U height ETSI unit (fully front access) unit. Operating range: 0~50C	
Accessories		
Power Cord- Order a power cord if you select the SA (100 to 240 Vac) power option.		
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	
Cable (All Cables are RoHS compliant.)		
Loop-ACC-CAB-DB25M-100-8BNCM	DB 25pin Male to BNC Male Extension Cable Length : 100 cm	
Loop-ACC-CAB-DB25M-300-8BNCM	DB 25pin Male to BNC Male Extension Cable Length : 300 cm	
Loop-ACC-CAB-SCSIM-100-2M34M	SCSI 68pin Male to two M34 Male Extension Cable Length : 100 cm	
Hot Pluggable Modules		
Loop-O9330-S-EUR-**G**	Quad E1, unframed RJ48C	
Loop-O9330-S-EUM-**G**	Quad E1, unframed mini-BNC	Conversion cable is not included, order conversion cable separately from accessory
Loop-O9330-S-EUD-**G**	Quad E1, unframed DB25 (75ohm)	
Loop-O9330-S-EUD120-**G**	Quad E1, unframed DB25 (120ohm)	
Loop-O9330-S-TUR-**G**	Quad T1, unframed RJ48	
Loop-O9330-S-VS-**G**	Dual V.35, SCSI68	Conversion cable is not included, order conversion cable separately from accessory
Loop-O9330-S-BR-**G**	Quad 10/100M Ethernet with bridge	
User's Manual		
Loop-O9330-UM	User's Manual (optional paper copy). A CD version of the manual is supplied as part of standard package.	
Ear Mounts		
19"/23' ear mounts	A pair of 19"/23" ear mounts is supplied as part of standard package. **Note**: For other sizes, please contact your nearest Loop sales representative.	

■ Where **opt1** and **opt 2** are used to select optical module types for Slots 5 and 6.
Note: If only one is needed, skip **opt2** in the ordering code and proceed to **s**

opt		Note
	Single optical module with dual uni-directional fiber, 1310 nm, SC optical connector, 30 km reach (19dB)	• Use 2 fibers
	Single optical module with dual uni-directional fiber, 1310 nm, SC optical connector, 50 km reach (30dB)	
	Single optical module with dual uni-directional fiber, 1310 nm, FC optical connector, 30 km reach (20dB)	
	Single optical module with dual uni-directional fiber, 1550 nm, SC optical connector, 20 km reach (12dB)	
	Single optical module with dual uni-directional fiber, 1550 nm,	
	Single optical module with single bi-directional fiber (master), 1310 nm transmit and 1550 receive, SC optical connector,	• 1310 nm from master to slave • Order **SSM** to use with **SSS** • Use 1 fiber
	Single optical module with single bi-directional fiber (slave), 1310 nm receive and 1550 transmit, SC optical connector,	• 1550 nm from slave to master • Order **SSS** to use with **SSM** • Use 1 fiber
SFP	SFP (mini-GBIC) optical housing plug-in card without SFP optical	• Order SFP modules separately from SFP table below.

SFP Optical Module Plug-in Tables

155M bps	MHBTW	Multi mode optical module with dual uni-directional fiber, 155Mbps, 1310nm, 2Km, LC connector w/o DDM, Fast Ethernet and compliant with ITU G.957	Use 2 fibers for all SFP optical modules
	PHB3W	Single mode optical module with dual uni-directional fiber, 155Mbps, 1310nm, 30Km, LC connector w/o DDM, S-1.1/IR1/Fast Ethernet	
	PHB5W	Single mode optical module with dual uni-directional fiber, 155Mbps, 1310nm, 50Km, LC connector w/o DDM, L-1.1/LR1/Fast Ethernet	
	PHB8W	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 80Km, LC connector w/o DDM, L-1.2/LR2	
	PHCUW	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 100Km, LC connector w/o DDM, L-1.2/LR2Fast Ethernet	
	PHCXW	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 120Km, LC connector w/o DDM, L-1.2 extended distance	
	PHB3D	Single mode optical module with dual uni-directional fiber, 155Mbps, 1310nm, 30Km, LC connector with DDM, S-1.1/IR1/Fast Ethernet	
	PHB5D	Single mode optical module with dual uni-directional fiber, 155Mbps, 1310nm, 50Km, LC connector with DDM, L-1.1/LR1/Fast Ethernet	
	PHB8D	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 80Km, LC connector with DDM, L-1.2/LR2	
	PHCUD	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 100Km, LC connector with DDM, L-1.2/LR2/Fast Ethernet	
	PHCXD	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 120Km, LC connector with DDM, L-1.2 extended distance	
	PHCRD	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 160Km, LC connector with DDM, L-4.2 extended distance	
	PHCYD	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 200Km, LC connector with DDM, L-4.2 extended distance	

	PHCZD	Single mode optical module with dual uni-directional fiber, 155Mbps, 1550nm, 240Km, LC connector with DDM, L-4.2 extended distance	

■ Where **s1, s2, s3, s4** are used to select plug-in modules for Slots 1- 4:
Note: If none are needed, skip **s1-4** in the ordering code and proceed to

	Quad E1, unframed DB25 (75ohm)	Conversion cable is not included, order conversion
	Dual V.35, SCSI68	Conversion cable is not included, order conversion cable separately from accessory

■ Where **s7** is used to select a plug-in module for Slot 7:
Note: If none is needed, skip **s7** in the ordering code and proceed to

		Note

■ Where **pp1**

		Note
	Single AC power supply(100 to 240 Vac)	• For redundancy purposes, ordering a second plug-in module will provide dual power. • All plug-in power modules are interchangeable. If a unit is one day moved to a site with a different power source, the plug-in module(s) can be changed. • For AC, choose an appropriate power cord • **NOTE 1**

■ Where **pp2**

		Note
	Single AC power supply (100 to 240 Vac) for ANSI only	• For AC, choose an appropriate power cord. • **NOTE 1**

NOTE 1: The combinations of pp1 and pp2 power modules:
For ANSI unit:
- **pp1=SA** (Single AC power plug-in in front or at rear)
- **pp1=SD48** (Single DC power plug-in at rear)
- **pp1=SD48, pp2=SD48** (Dual hot-swappable DC, both rear plug-in)
- **pp1=SA, pp2=SA** (Dual hot-swappable AC, one front and one rear plug-in)
- **pp1=SA, pp2=SD48** (Hot-swappable AC front and DC rear plug-in)

Note: For ANSI unit, DC power is available in rear panel only

For ETSI unit (all power modules in front):
- **pp1=SA** (Single AC power plug-in)
- **pp1=SD48** (Single DC power plug-in)
- **pp1=SD48, pp2=SD48** (Dual hot-swappable DC power plug-in)

■ Where **add**

add		**Note**
	LCD	LCD is supported for ANSI unit only

Loop-O9330 Fiber Optical Mux Product Specifications

Optical Fiber Interface

Source	MLM Laser	System Gain	30 dB
Wavelength	1310 ± 50 nm, 1550 ± 40 nm	Line Code	Scrambled NRZ
Power	-26 or -8 dBm	Detector Type	PIN-FET
Receiver Sensitivity	-38 dBm at BER < 10^{-10}	Fiber Type	Single mode
Optical Line Rate	155.52M bps	Protection	Optional 1+1 APS
50 Km reach			

NOTE: Longer or shorter, 15 to 120 km, on special order.

Optical Fiber Interface Characteristics

Optical Module	Fiber Direction	Wavelength (nm)	Connector	Distance (km)	Power (dB)
SAA	Dual uni-directional	1310	SC (Subscriber Connector)	30	19
SBB	Dual uni-directional	1310	SC (Subscriber Connector)	50	30
SCC	Dual uni-directional	1310	FC (Fiber Connector)	30	20
SDD	Dual uni-directional	1550	SC (Subscriber Connector)	20	12
SEE	Dual uni-directional	1550	SC (Subscriber Connector)	100	30
SSM	Single bi-directional (master)	1310/1550	SC (Subscriber Connector)	30	20
SSS	Single bi-directional (slave)	1550/1310	SC (Subscriber Connector)	30	20

SFP Optical Module	Direction	Data Rate	Wavelength(nm)	Connector	Distance
MHBTW	Dual uni-directional fiber	155M	1310nm	LC without DDM	2 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
PHCRD	Dual uni-directional fiber	155M	1550nm	LC with DDM	160 Km
PHCYD	Dual uni-directional fiber	155M	1550nm	LC with DDM	200 Km
PHCZD	Dual uni-directional fiber	155M	1550nm	LC with DDM	240 Km

E1 Line Interface

Number of E1 lines	Up to 16
Line Rate	2.048M bps ± 50 ppm
Line Code	HDB3
Line Impedance	120Ω twisted pair, 75Ω for mini-BNC
Output Signal	ITU G.703
Clock	Transparent
Connector	120Ω RJ48C, 75Ω DB25, 120Ω DB25, 75Ω MiniBNC

T1 Line Interface

Line Rate	1.544M bps ± 50 bps
Line Code	AMI or B8ZS
Input Signal	ABAM cable length up to 655 feet
Output Signal	DSX1
Clock	Transparent
Connector	RJ48C

V.35 Interface

Data Port	2 ports per card, DCE

Data Rate	n X 64K bps, n= 1 to 32
Clock Mode	External, Internal, Received (Selectable)
Connector	SCSI 68, optional SCSI 68 Male to M34 Male (DCE) Conversion Cable

Bridge

10/ 100M bps half/ full duplex Ethernet bridging and 100M bps operation on the HDLC port
ANSI/ IEEE Std. 802.1D MAC Bridging capabilities (without spanning tree algorithm)
Automatic MAC table learning and aging
Support VLAN and extended Ethernet frame support

SNMP Port

Protocol	Telnet
Connector	RJ45

Console

Electrical	RS232 interface
Protocol	Menu driven VT-100 terminal
Baud Rate	9600, 19200, 38400, 57600, 115200 bps asynchronous
Connector	DB9, female, DCE

Switches and Contacts

Power, Alarm Cut-Off, and ENTER for command execute.
Major and Minor alarm contact closures, DB9F connector.

Diagnostics Test

Optical Fiber	Local and remote loopbacks
E1/T1 Lines	Local and remote loopbacks

Power

AC Power	100-240 Vac, 50/ 60 Hz
DC Power	-48 Vdc: -36 to -75 Vdc
Power Consumption	< 20 Watts

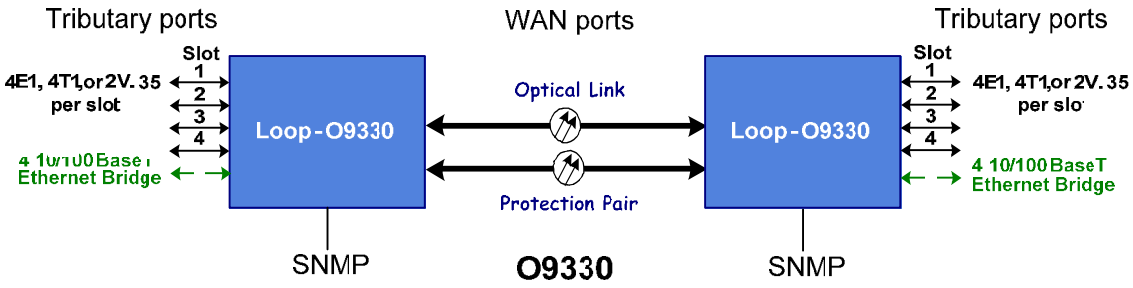
Physical and Environment

Dimensions for 1U	432 x 44 x 226 mm (W x H x D)
Mounting	Stand-alone, 19 or 23 inch rack mount, wall mount
Temperature Range	0°C to 55°C
Humidity	5% - 90% RH (non-condensing)

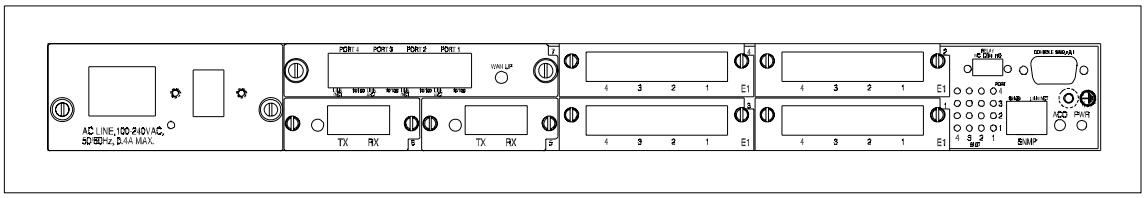
Compliance

EMI/EMC	EN50082-1, EN55022, EN55024
ITU	G.703, G.706, G.732, G.823
Safety	IEC60950

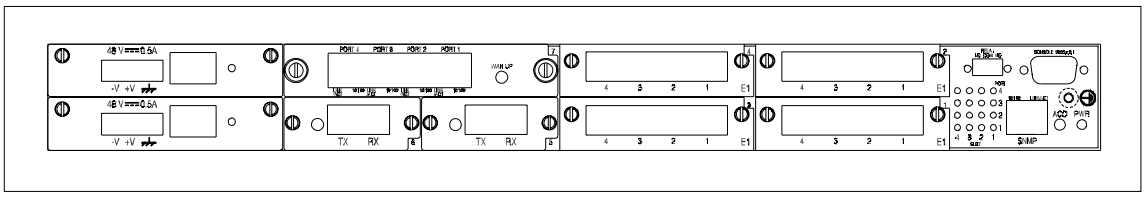
Application Illustration



ANSI Unit Rear Panel Views and ETSI Unit Front Panel Views



O9330 with AC Power



O9330 with DC Power

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