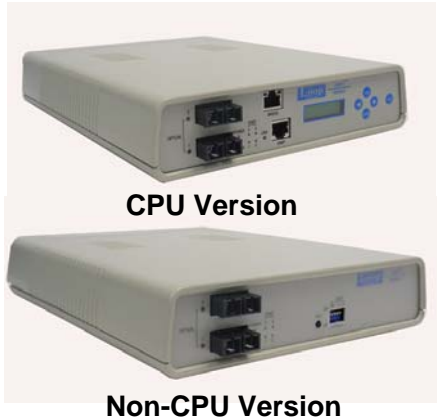




Loop-O9310 4E1 or 4T1 Fiber Optical Mux



Description

Loop Telecom's Loop-O Fiber Optical Mux product family provides ideal solutions for building fiber-based E1 or T1 networks. As one of this family, model Loop-O9310 can multiplex up to 4 E1 or 4 T1 signals for transmission over an optical fiber, resulting in longer reach without repeaters and superior performance compared to copper media.

Features

- Up to 4 E1 or 4 T1 links on one fiber
- Optical 1+1 protection is supported
- 10/100 BaseT Ethernet: Bridge mode, maximum transmission bandwidth 22Mbps (optional) are supported
- One V.35, X.21, RS449/V.36, RS232/V.28, EIA530 or EIA530A interface is supported
- Console, Ethernet for SNMP management are supported
- SNMP management and LoopView management are supported
- Slave remote unit can be managed through EOC
- Non-manageable model configurable via DIP switches
- LED indicators are supported
- Alarm relay and alarm cut off are supported
- BNC or RJ45 connectors for 4 E1s (manufacture option) are supported
- RJ45 connectors for 4 T1s (manufacture option) are supported
- Multiple optical fiber transmission distances are supported
- Single mode and multi-mode fiber modules are supported

The E1 model supports an optional 1+1 protection, an optional 10/100 BaseT Ethernet port, an optional V.35, X.21, RS449/V.36, RS232/V.28 or EIA530 or EIA530(A) with DTE/DCE selection. It is available in two versions: (1) SNMP manageable and (2) non-manageable. The SNMP manageable model has a master unit with CPU, used to manage a slave unit, and a slave unit without CPU, managed by the master unit through EOC. A basic non-manageable model without CPU provides system setup and loopback by DIP switches setting. Applications include interconnections for LAN, WAN, SONET/SDH, ATM and DLC.

The T1 model is a basic non-manageable model without CPU. DIP switches are used for system setup and loopback settings. Applications include interconnections for ATM and DLC.

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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 (non RoHS compliant)	Model (RoHS compliant)	Description
Main Unit without SNMP management		
Loop-O9310-cc-OPT1-OPT2-pp-add1-add2	Loop-O9310-cc-OPT1-OPT2-pp-add1-add2-G	Fiber Optical MUX w/o CPU
Main Unit with SNMP management		
Loop-O9310-CPU-cc-OPT1-OPT2-pp-add1-add2	Loop-O9310-CPU-cc-OPT1-OPT2-pp-add1-add2-G	Fiber Optical MUX w/ CPU
Accessories		
User's Manual (All User's Manuals are RoHS compliant)		
Loop-O9310-UM	Loop-O9310-UM	User's Manual (paper hard copy-optional). A CD version of the manual is already included as standard equipment.
Power Cord (All power cords are RoHS compliant)		
Loop-ACC-PC-USA	Loop-ACC-PC-USA	AC power cord for Taiwan/America
Loop-ACC-PC-EU	Loop-ACC-PC-EU	AC power cord for Europe
Loop-ACC-PC-UK	Loop-ACC-PC-UK	AC power cord for UK
Loop-ACC-PC-AUS	Loop-ACC-PC-AUS	AC power cord for Australia
Loop-ACC-PC-CH	Loop-ACC-PC-CH	AC power cord for China
Cable (non ROHS Compliant)		
Cable (ROHS Compliant)		
Loop-ACC-CAB-DTE-004	Loop-ACC-CAB-DTE-004-G	DSUB-25pin/Male to DSUB-15/Female X.21 Conversion cable L:30 cm

■ where cc =

Note: 4T is for O9310-non CPU version only

4E120 for RJ48C connector (120 ohm)
4E75 for BNC connector (75 ohm)
4T for RJ48C connector (100 ohm)

■ where OPT1= one of the following module types: (must select one)

Note: All optical modules are RoHS compliant

OPT1	Description	Note
SAA	single optical module with dual uni-directional fiber, 1310 nm, SC optical connector, 30 km reach (20dB)	• Use 2 fibers
SBB	single optical module with dual uni-directional fiber, 1310 nm, SC optical connector, 50 km reach (30dB)	
SCC	single optical module with dual uni-directional fiber, 1310 nm, FC optical connector, 30 km reach (20dB)	
SDD	single optical module with dual uni-directional fiber, 1550 nm, SC optical connector, 20 km reach (12dB)	
SEE	single optical module with dual uni-directional fiber, 1550 nm, SC optical connector, 100 km reach (40dB)	
SSM	single optical module with single bi-directional fiber (master), 1310 nm transmit and 1550 receive, SC optical connector, 30 km reach (20dB)	• 1310 nm from master to slave • Order SSM to use with SSS • Use 1 fiber
SSS	single optical module with single bi-directional fiber (slave), 1310 nm receive and 1550 transmit, SC optical connector, 30 km reach (20dB)	• 1550 nm from slave to master • Order SSS to use with SSM • Use 1 fiber

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

■ where **OPT2** = one of the following module types (**optional**).

OPT2	Description	Note
SAA	Same as in OPT 1 table above.	1. Not available if you selected cc=4T (T1) version. 2. If this option is not required, omit the OPT2 field in the ordering code. Eg. Loop-O9310- CPU- cc- OPT1-pp-Add1-Add2
SBB	"	
SCC	"	
SDD	"	
SEE	"	
SSM	"	
SSS	"	

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

■ where **pp** is used to select power supply:

pp =	Description	Note
SA	Single AC power supply (100-240 Vac)	• For AC choose an appropriate power cord
SD48	Single DC power supply (48Vdc: 36-72 Vdc)	
P9	Combination AC and DC (100-240 Vac ; 48Vdc: 36-72 Vdc dual-feed)	

■ where **add1** is used to select one additional option. If this option is not required, omit the **add1** field in the ordering code.

Note: LCD is RoHS compliant

Add1 =	Description	Note
LCD	LCD front panel	For O9310-CPU version only

■ where **add2** is used to select one of the following additional options. If this option is not required, omit the **add2** field in the ordering code.

Add2 =	non ROHS Compliant	ROHS Compliant	Description	Note
DTE	Available	Available	Software-selectable DTE or DCE interface port with DB25 connector that supports the V.35, X.21, RS449/V.36, RS232/V.28, EIA530 and EIA530A protocols.	1. For O9310-CPU version only 2. Not available if you selected an OPT2 option. 3. Conversion Cable <ul style="list-style-type: none"> ● V.35 via DB25P to M34S (1-foot) conversion cable ● X21 via DB25P to DB15S (1-foot)conversion cable ● RS449/V.36 via DB25P to DB37S (1-foot) conversion cable
BR	Available	Available	10/100M Bridge	1. For O9310-CPU version only
BRDTE	Available	Available	Bridge and DTE Card	1. For O9310-CPU version only 2. Not available if you selected an OPT2 option. 3. Conversion Cable <ul style="list-style-type: none"> ● V.35 via DB25P to M34S (1-foot) conversion cable ● X21 via DB25P to DB15S (1-foot)conversion cable ● RS449/V.36 via DB25P to DB37S (1-foot) conversion cable

Example :

■ **Loop-O9310-CPU-4E120-SAA-SD48-LCD-BRDTE =**

Loop-O9310 4E1 RJ48C connector (120 ohm) Fiber Optical MUX with CPU, single optical module with dual uni-directional fiber, 1310 nm, SC optical connector, 30 km reach (20dB), no OPT 2 required, single DC (48Vdc) power supply, LCD display, Bridge and DTE card.

Loop-O9310 4E1 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

50 Km reach

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

Optical Fiber Interface Characteristics

Optical Module	Fiber Direction	Wavelength (nm)	Connector	Distance (km)	Power (dB)
Single	Dual uni-direction	1310	SC (Subscriber Connector)	30	20
		1310	SC (Subscriber Connector)	50	30
		1310	FC (Fiber Connector)	30	20
		1550	SC (Subscriber Connector)	20	12
		1550	SC (Subscriber Connector)	100	40
Single	Single bi-direction (master)	1310/1550	SC (Subscriber Connector)	30	20
	Single bi-direction (slave)	1310/1550	SC (Subscriber Connector)	30	20



[For discussion on whether to choose uni-directional or bi-directional fiber option, see white paper with that title.](#)

E1 Line Interface

Number of E1 lines	4	Line Impedance	120Ω twisted pair, 75Ω for BNC
Line Rate	2.048 Mbps ±50 ppm	Connector	RJ48C, BNC
Line Code	HDB3	Output Signal	ITU G.703

T1 Line Interface

Number of T1 lines	4	Line Impedance	100Ω twisted pair
Line Rate	1.544 Mbps ±50 ppm	Connector	RJ48C
Line Code	B8ZS	Output Signal	ITU G.824

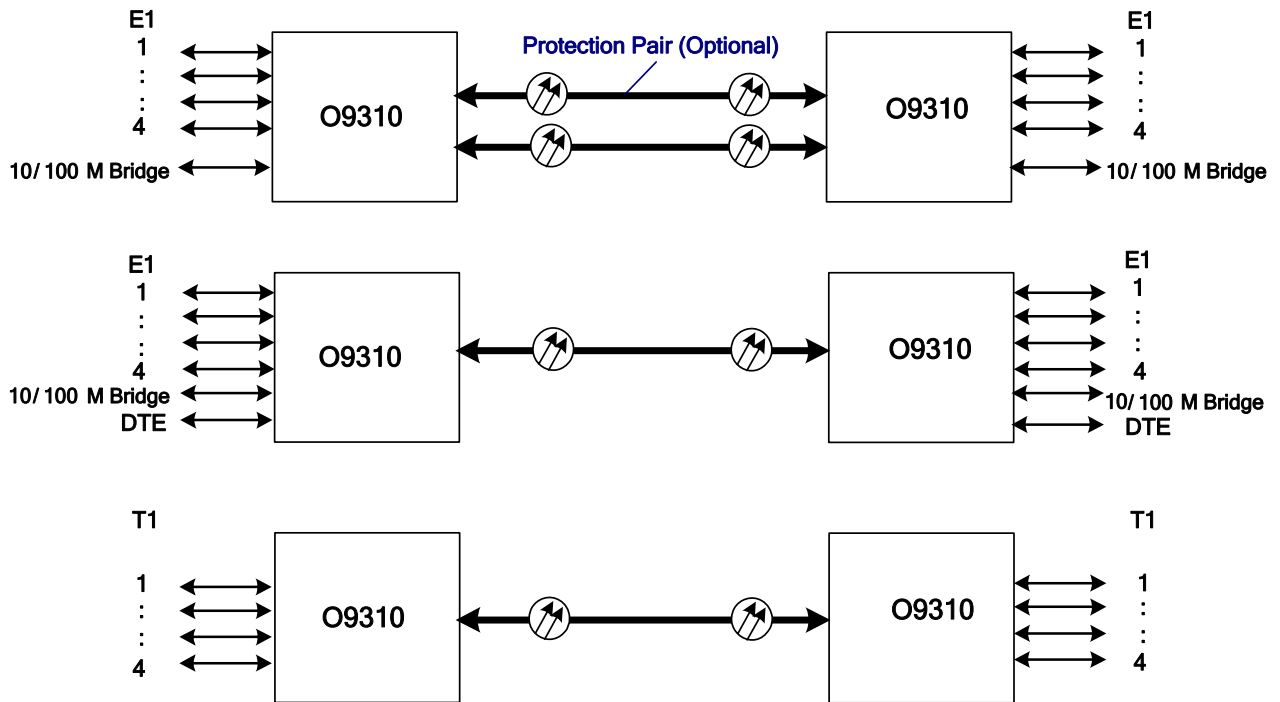
Physical/Electrical

Dimensions	216 x 55 x 285 mm. (W x H x D)
Mounting	Stand-alone
Power Source (AC)	100 to 240 Vac, 50/ 60 Hz
Power Source (DC)	48Vdc : 36-72 Vdc
Power Consumption	≤ 10W
Temperature Range	0°C to 50°C
Humidity	0% - 95% RH (non-condensing)

Diagnostics Test

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

Application Illustration



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