



Features

- 1U and 3U case option
- TM, ADM
- Fully front access option (ETSI)
- Multiple Tributary modules (option):
 - 4/12/20/28-channel E1/DS1 on base unit
 - 28-channel E1/DS1 module
 - 1/3-channel E3/DS3 module
 - 4-port Ethernet module
- Hot-swappable Tributary module on 3U case only
- Redundant hot-swappable AC/DC power card (1U ANSI and 3U shelf only)
- SNCP-I protection
- Optional MSP (1+1) protection
- Expandable No of STM-1 aggregate interface (ANSI shelf only)
- Rack mount, Wall mount, and Stand-Alone
- Centralized management with Loop's EMS/NMS over DCC channel
- External/Internal/Line timing
- Support VCAT, GFP, and LCAS
- Performance monitoring
- Alarm suppression, masking, and report
- Switched option for Ethernet card to support Ethernet lease line service and virtual LAN.
- RoHS compliant

LOOP-O9100 ADM/TM

Description

Loop-O9100 ADM/TM is an economic compact STM1 ADM & TM Multiplexer designed to add & drop up to:

- For 1U shelf:
 - 56 x E1/T1 Tributaries
 - 3 x DS3/E3 Tributaries
 - 4 x 10/100M Ethernet Tributaries
- For 3U shelf:
 - 112 x E1/T1 Tributaries
 - 6 x DS3/E3 Tributaries
 - 12 x 10/100M Ethernet Tributaries

With up to 4 aggregate optical/electrical STM-1 interfaces, the Loop-ADM can offer the service provider a versatile protection scheme including SNCP-I and MSP(1+1) protection for both ring and linear Network topology.

All interfaces are fully compliant with the relevant ETSI standards and ITU recommendations. The Loop-ADM provides powerful Operation, Administration, Maintenance and Provisioning (OAM&P) functionality, including fault management, performance monitoring, configuration management, and network security management. Through console port, LAN port, and DCC channel, the OAM&P can be achieved both locally and remotely via SNMP or menu-driven interfaces.

Powerful SDH Loop's EMS/NMS

The Loop-ADM provides a complete set of operation interfaces that are consistent with the Telecommunication Management Network (TMN) concept (ITU Recommendation M.30, G.784) for SDH Network Element/ Operations System (NE/OS), NE/NE, and NE/Craft communications. User can easily operate Loop-ADM both locally or remotely for centralized management.

Ordering Information

To specify options, choose from list below:

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

Model (non RoHS compliant)	Model (RoHS compliant)	Description	Note
Main Unit			
Loop-O9100-1UA-h-n-ver-Add	Loop-O9100-1UA-h-n-ver-Add-G	1U height ANSI (rear & front access) shelf capable of supporting ①ADM with SNCP-I (Sub-Network Connection Protection) or ② TM with MSP (1+1) protection	<ul style="list-style-type: none"> • For ANSI shelf without "A" option, customer shall separately order "Plug-in Trunk Module" below. • where h, n, A, ver, and Add are defined in below tables • The 1st A is for east-side trunk, the 2nd A is for west-side trunk • 0A for no trunk module, 1A for one trunk module, 2A for two trunk modules (1+1 protection).
Loop-O9100-1UE-h-n-A-A-ver-Add	Loop-O9100-1UE-h-n-A-A-ver-Add-G	1U height ETSI (fully front access) shelf capable of supporting ①ADM with SNCP-I (Sub-Network Connection Protection) or ② TM with MSP (1+1) protection	
Loop-O9100-3UA-n-ver-Add	Loop-O9100-3UA-n-ver-Add-G	3U height ANSI (rear & front access) shelf capable of supporting ①ADM with SNCP-I (Sub-Network Connection Protection) or ② TM with MSP (1+1) protection or ③ Both simultaneously	
Loop-O9100-3UE-n-1A-1A-ver-Add	Loop-O9100-3UE-n-1A-1A-ver-Add-G	3U height ETSI (fully front access) shelf capable of supporting ADM with SNCP-I (Sub-Network Connection Protection)	
Loop-O9100-3UE-n-2A-0A-ver-Add	Loop-O9100-3UE-n-2A-0A-ver-Add-G	3U height ETSI (fully front access) shelf capable of supporting TM with MSP(1+1) protection	
Loop-O9100-3UE-n-2A-1A-ver-Add	Loop-O9100-3UE-n-2A-1A-ver-Add-G	3U height ETSI (fully front access) shelf Capable of supporting ①ADM with SNCP-I (Sub-Network Connection Protection) and ② TM with MSP (1+1) protection	
Loop-O9100-3UE-n-2A-2A-ver-Add	Loop-O9100-3UE-n-2A-2A-ver-Add-G	3U height ETSI (fully front access) shelf capable of supporting ①ADM with SNCP-I (Sub-Network Connection Protection) or ② TM with MSP (1+1) protection or ③ Both simultaneously	
Plug-in Tributary Module – for 3U shelf only:			
Loop-O9100-28E75	Loop-O9100-28E75-G	28E1 plug-in module w/ 75 ohm	<ul style="list-style-type: none"> • For 3U shelf only • Select 1 to 3 cards from the list
Loop-O9100-28E120	Loop-O9100-28E120-G	28E1 plug-in module w/ 120 ohm	
Loop-O9100-28T1	Loop-O9100-28T1-G	28T1 plug-in module	
Loop-O9100-1DS3	Loop-O9100-1DS3-G	1-port DS3 module	
Loop-O9100-3DS3	Loop-O9100-3DS3-G	3-port DS3 module	
Loop-O9100-1E3	Loop-O9100-1E3-G	1-port E3 module	

Loop-O9100-3E3	Loop-O9100-3E3-G	3-port E3 module	
Loop-O9100-4ETHSW	Loop-O9100-4ETHSW-G	4-port Ethernet with Switch module	* Future option
Loop-O9100-4ETHNS	Loop-O9100-4ETHNS-G	4-port Ethernet without Switch module	

Plug-in Trunk Module – for ANSI (1U & 3U) shelf only:

Loop-O9100-TK-A	Loop-O9100-TK-A-G	All types of trunk module	<ul style="list-style-type: none"> • For ANSI shelf only • Where A is defined as below
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Plug-in Power Module – for 1U shelf:

Loop-O9100-1U-SA	Loop-O9100-1U-SA-G	Single AC power supply (90 to 264 Vac)	• For AC choose an appropriate power cord
Loop-O9100-1U-SD24	Loop-O9100-1U-SD24-G	Single DC power supply (-24 Vdc: -18 to -36 Vdc)	
Loop-O9100-1U-SD48	Loop-O9100-1U-SD48-G	Single DC power supply (-48Vdc: -36 to -75 Vdc)	

Plug-in Power Module – for 3U shelf:

Loop-O9100-3U-SA	Loop-O9100-3U-SA-G	Single AC power supply (90 to 264 Vac)	• For AC choose an appropriate power cord
Loop-O9100-3U-SD24	Loop-O9100-3U-SD24-G	Single DC power supply (-24 Vdc: -18 to -36 Vdc)	
Loop-O9100-3U-SD48	Loop-O9100-3U-SD48-G	Single DC power supply (-48Vdc: -36 to -75 Vdc)	

Accessories

User's Manual (All User's Manuals are RoHS compliant)			
Loop-O9100-UM	Loop-O9100-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	

Order wire phone			
Loop-O9100-OW	Loop-O9100-OW-G	Order Wire (VoIP) Phone	

SIP Proxy Server

Loop-O9100-SIP	Loop-O9100-SIP-G	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.
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Connector Panel

Loop-O9100-RJ	Loop-O9100-RJ-G	28-port RJ48 connector panel (For 19" or 23" rack), 2U height	Connector panel includes two 100cm cables (SCSI 68 pin Male to SCSI 68 pin Male)
Loop-O9100-BNC	Loop-O9100-BNC-G	28-port BNC connector panel (For 19" or 23" rack), 2U height	
Loop-O9100-WW	Loop-O9100-WW-G	28-port Wire-Wrap pins connector panel (For 19" or 23" rack), 2U height	

■ where **h** is used to select chassis type for 1U shelf:

h =	Chassis height	On board	Additional fixed module									
		E1/ T1	28E1 (75 ohm)	28E1 (120 ohm)	28T1	1-port DS3	1-port E3	3-port DS3	3-port E3	4ETHSW	4ETHNS	
100	1U	✓										
101			✓									
102				✓								
103						✓						
104							✓					
105								✓				
106									✓			
107										✓		
108											✓	
109												✓

NOTE: 4ETHSW and 4ETHNS are future options.

■ where **n** is used to select on-board E1/ T1 type:

n =	Description	Note
4E75	4 E1 lines with 75 ohm	
12E75	12 E1 lines with 75 ohm	
20E75	20 E1 lines with 75 ohm	
28E75	28 E1 lines with 75 ohm	
4E120	4 E1 lines with 120 ohm	
12E120	12 E1 lines with 120 ohm	
20E120	20 E1 lines with 120 ohm	
28E120	28 E1 lines with 120 ohm	
4T	4 T1 lines	
12T	12 T1 lines	
20T	20 T1 lines	
28T	28 T1 lines	

■ where **A** is used to select trunk module type:

NOTE: 1. The 1st **A** is for east-side trunk, the 2nd **A** is for west-side trunk.
2. All optical modules are RoHS compliant.

A =	Description	Note
0	None	Valid for 2nd A only
SAA	single optical module with dual uni-directional fiber, 1310 nm, SC optical connector, 30 km reach (20dB) - S1.1 physical layer*	<ul style="list-style-type: none"> Use 2 fibers * ITU-T Rec G.957 application code
SBB	single optical module with dual uni-directional fiber, 1310 nm, SC optical connector, 50 km reach (30dB) - L1.1 physical layer*	
SCC	single optical module with dual uni-directional fiber, 1310 nm, FC optical connector, 30 km reach (20dB) - S1.1 physical layer*	
SDD	single optical module with dual uni-directional fiber, 1550 nm, SC optical connector, 20 km reach (12dB) - S1.2 physical layer*	
SEE	single optical module with dual uni-directional fiber, 1550 nm, SC optical connector, 100 km reach (40dB) - L1.2 physical layer*	
SSM	single optical module with single bi-directional fiber (master), 1310 nm transmit and 1550 receive, SC optical connector, 30 km reach (20dB) - S1.1/ S1.2 physical layer*	<ul style="list-style-type: none"> 1310 nm from master to slave Order SSM to use with SSS Use 1 fiber * ITU-T Rec G.957 application code
SSS	single optical module with single bi-directional fiber (slave), 1310 nm receive and 1550 transmit, SC optical connector, 30 km reach (20dB) - S1.1/ S1.2 physical layer*	<ul style="list-style-type: none"> 1550 nm from slave to master Order SSS to use with SSM Use 1 fiber

		• * ITU-T Rec G.957 application code
EEE	Electrical STM1 module	

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

■ where **ver** is used to select shelf trunk multiplexing:

ver =	Description	Note
STM	ITU STM1 as the trunk multiplexing	

■ where **Add** is used to select other additional options:

Add =	Description	Note
CO	Ring closure	<ul style="list-style-type: none"> • Must be selected if used in ADM Ring or Linear applications • This option is not required for TM mode • Multiple option choices can be selected. • For dual homing application (See also Application Illustrations)

Loop-O9100 STM1 ADM/TM PRODUCT SPECIFICATION

Physical/Electrical

Dimensions for 3U	432 x 132 x 275 mm. (WxHxD)
Dimensions for 1U	432 x 44 x 275 mm. (WxHxD)
Power (AC)	90 to 240 VAC, 50/60Hz
Power (DC)	-24 Vdc (-18 to -36 Vdc) -48 Vdc (-36 to -75 c)
Temperature	0 to 50°C
Humidity	0-95%RH (non-condensing)
Mounting	Desk-top stackable, 19/23 inch rack mountable, and wall mountable
EOW	RJ-11
LAN port	RJ-45
Console port	DB-9
E1/T1 interface connector	SCSI-II 68 pins
Optical Interface connector	FC or SC
Number of Optical STM1	2 or 4 (only available on the 3U model)
Number of E1/T1 channels	4/ 12/ 20/ 28 (on base unit)

Clock Source

Internal, STM1-Line, External

Management Interface

Standard	SNMP V1 (RFC1213, RFC2863, RFC1493)
OSS interface	10/100BaseT FE (IEEE 802.3u)
NE/NE interface	DCC/HDLC/Ethernet type II

Max. Number of Tributary Modules

■ For 1U shelf:

- 56 x E1/T1 Tributaries
- 3 x DS3/E3 Tributaries
- 4 x 10/100M Ethernet Tributaries

■ For 3U shelf:

- 112 x E1/T1 Tributaries
- 6 x DS3/E3 Tributaries
- 12 x 10/100M Ethernet Tributaries

Optical STM1 aggregate line

STM1 Optical Transmitter

RMS	Max. 6 nm
Wavelength λ 1	Max. 1350 nm, Min. 1280 nm
Wavelength λ 2	Max. 1590, Min. 1520 nm
Output Power	Min. -12 dBm

Extinction Ratio Min. 10 dB
Connector SC or FC

STM1 Optical Receiver

Sensitivity Max. input power 0 dBm, Min. input power -34 dBm
Connector SC or FC

Tributary Modules

E1 module

Line Rate	2.048 Mbps \pm 50 ppm	Framing	Unframed
Line Code	AMI/HDB3	Connector	Two SCSI-II 68-pin connectors
Input Signal	ITU G.703	Total Channels	28
Jitter	ITU G.823	Electrical	75 Ω coax/120 Ω twisted pair
Output Signal	ITU G.703		

T1 module

Line Rate	1.544 Mbps \pm 32 ppm	Framing	Unframed
Line Code	AMI/B8ZS	Connector	Two SCSI-II 68-pin connectors
Input Signal	DSX-1 0dB to -30dB w/ALBO	Total Channels	28
Jitter	ITU G.824	Output Signal	DSX-1 w/short haul (0-133, 133-266, 266-399, 399-533, 533-655 feet)

DS3 module

Data Rate	44.736 Mbps \pm 20ppm	Framing	Unframed
Line Code	B3ZS	Output Mask	Bellcore GR-499-core
Connector	BNC connector	Total Ports	1 or 3
Impedance	75 Ohm Coax	Jitter	ITU G.824

E3 module

Data Rate	34.368 Mbps \pm 20ppm	Impedance	75 Ohm Coax
Line Code	HDB3	Framing	Unframed
Connector	BNC connector	Output Mask	ETS 300 689 Sec.4.2.1.2 ITU G.703
Total Ports	1 or 3	Jitter	TU G.824

Ethernet module

Data Rate	10/100Mbps	Connector	RJ-45 connector
Layer2 Protocol	Ethernet	Mapping	n x VC12, n x VC11, or n x VC3
Process Protocol	VCAT, GFP, LAPS, and LCAS	Total Ports	4

Standards Compliance

ITU	G.664, G.707, G.7041, G.7042, G.775, G.783, G.806, G.823, G.747, X.86
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)

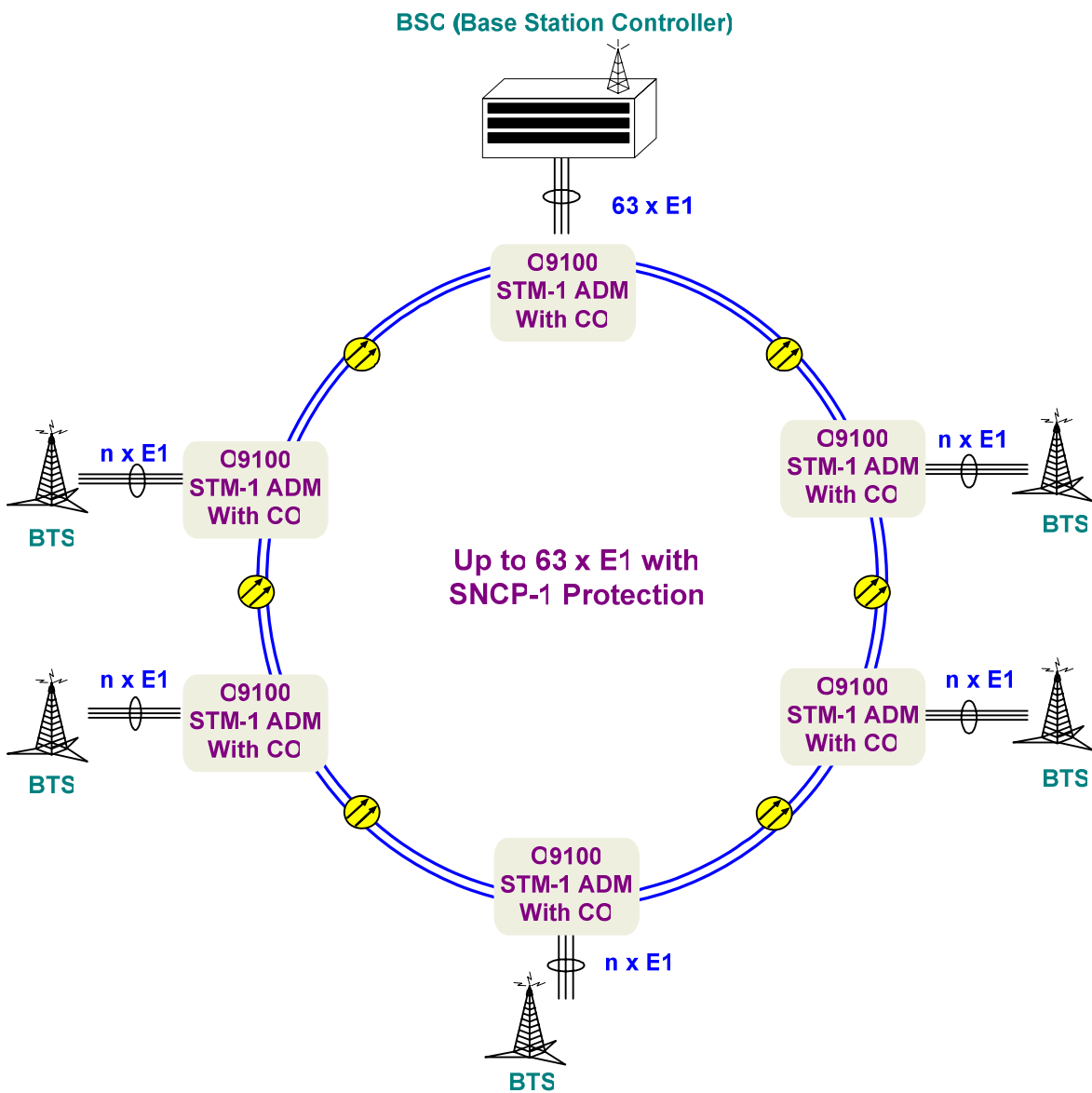
Certification

EMC	EN55024
EMI	EN55022 Class A, 47 CFR Part 15 Subpart B Class A
Safety	UL60950 CSA60950 IEC60950
Environment	EN300 019-2-1 T1.3 EN300 019-2-2 T2.3 EN300 019-2-3 T3.2

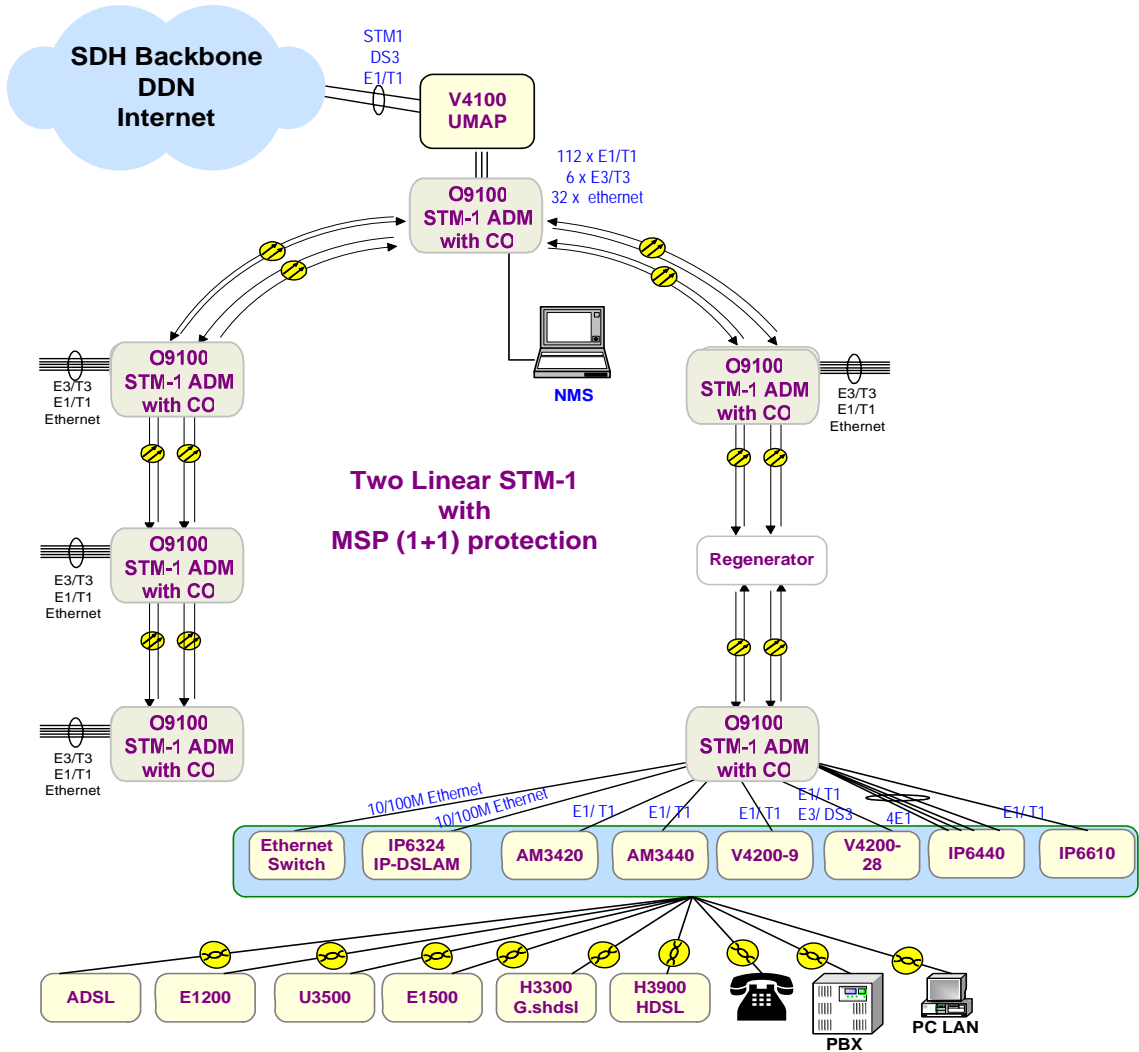
Application Illustrations

The Loop-ADM can be configured as either a Terminal Multiplexer (TM), or Add/Drop Multiplexer (ADM) with the same enclosure. With SNCP-I and MSP(1+1) protection, the Loop-ADM can easily provide a well-protected transmission path in various applications shown as follows:

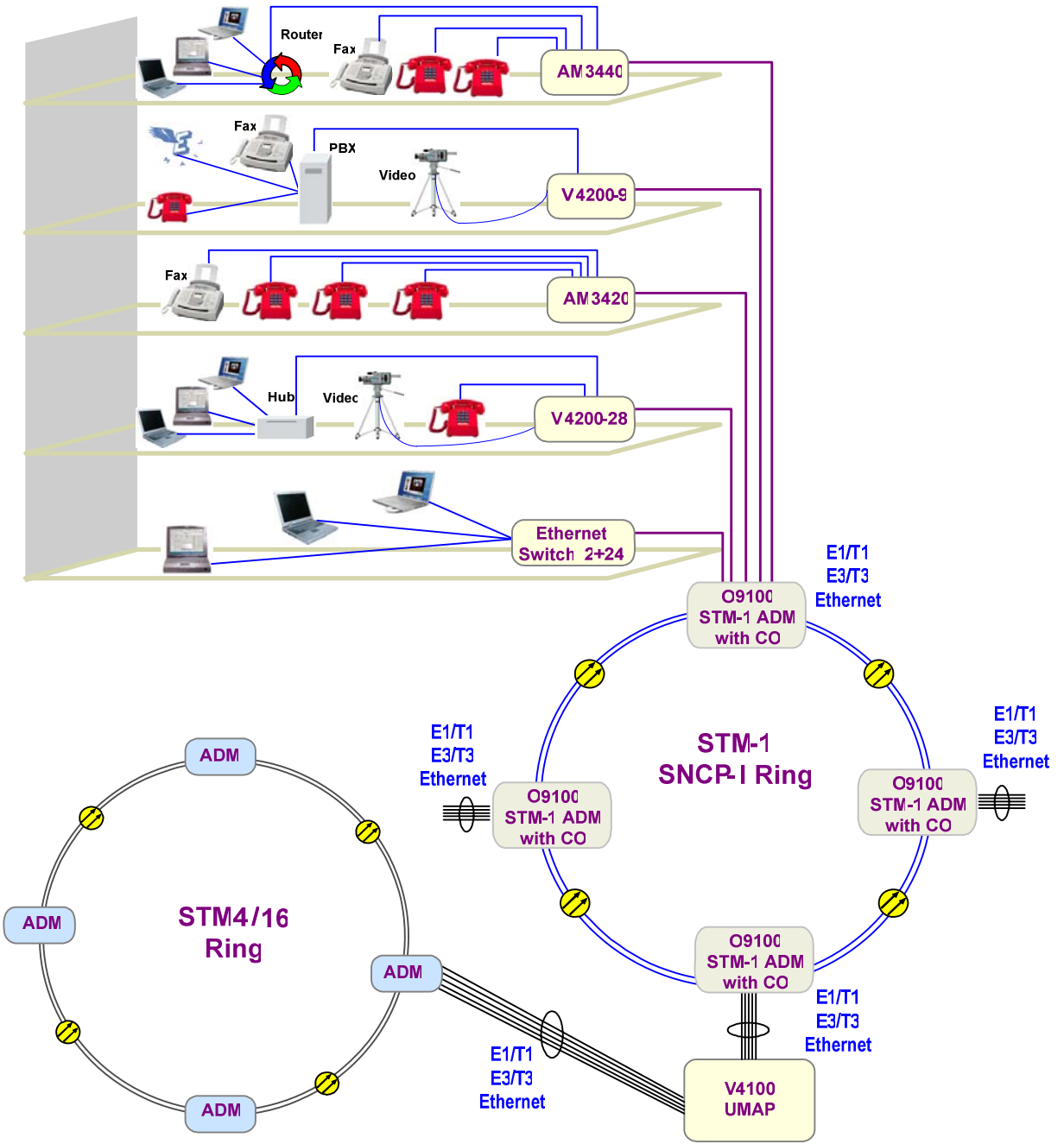
GSM Application



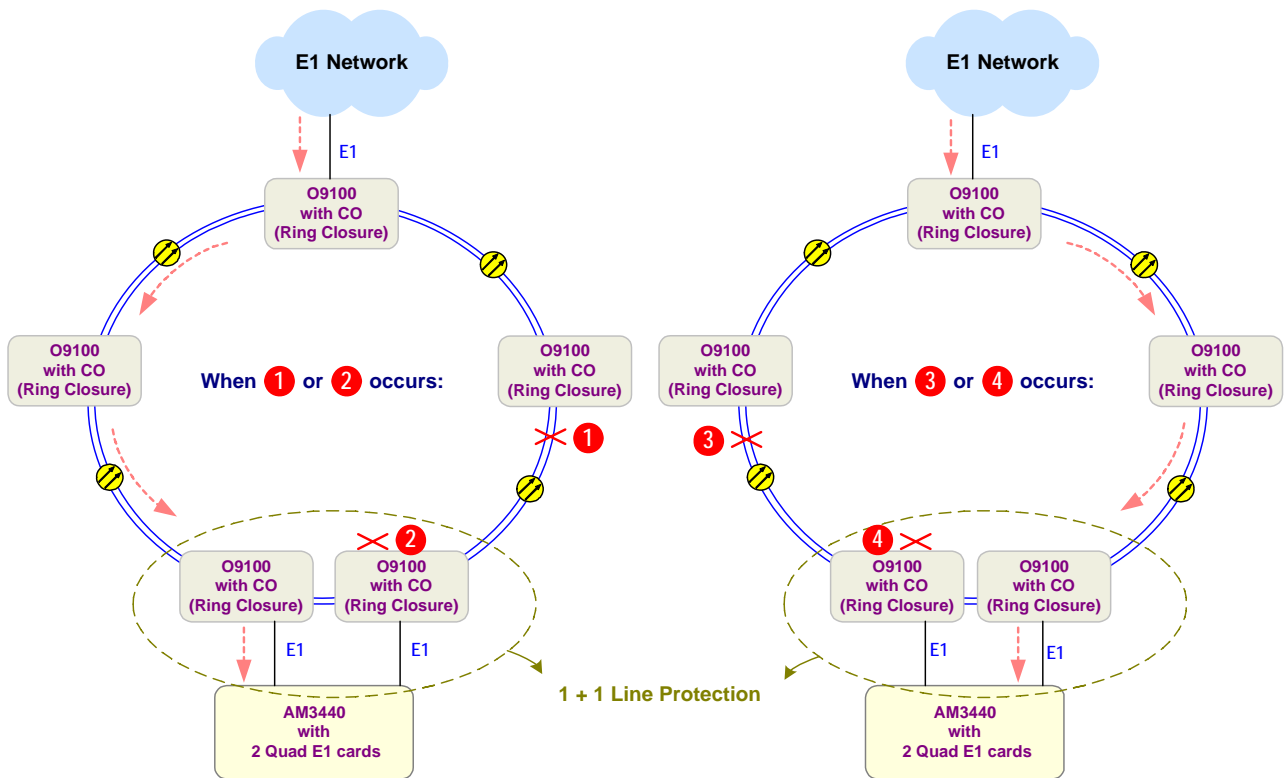
Access Total Solution



Smart Building Application



Dual Homing Application



Note: 1 and 3 are fiber broken
 2 and 4 are equipment broken

LOOP TELECOMMUNICATION INTERNATIONAL, INC.

ISO 9001/ISO 14001

Worldwide
 8F, No. 8, Hsin Ann Road,
 Science-Based Industrial Park
 Hsinchu, Taiwan 30078
 Tel:+886-3-578-7696
 Fax:+886-3-564-6272
 www.LoopTelecom.com
 sales@loop.com.tw

Taipei, Taiwan
 6F, No. 36, Alley 38, Lane 358,
 Rueiguang Road,
 Neihu, Taiwan 11492
 Tel:+886-2-2659-0399
 Fax:+886-2-2659-2325
 michael_lzeng@loop.com.tw

North America
 8 Carrick Road
 Palm Beach Gardens
 Florida 33418, U.S.A.
 Tel:+1-561-627-7947
 Fax:+1-561-627-6615
 jimber561@aol.com

Tianjin China
 No. 240 Baidi Road
 Nankai District
 Tianjin 300192 China
 Tel:+86-22-8789-4027
 Fax:+86-22-8789-0344
 wym@loop-tj.com