OAP-XE & OAP-SE

The Avara Optical Access Point (OAP-XE and OAP-SE) delivers Fast Ethernet 10/100Base-T, analogue Telephones and 64kbps X.21/V.11 data interfaces over a point-to-point or 1+1 protected optical fiber link for mission critical applications requiring reliable operation with 1+1 transport redundancy in harsh environments.

The Optical Access Point System consists of two elements a centrally located OAP-XE chassis and a remotely located OAP-SE card. Together, these devices provide multiple 10/100Base-T Fast Ethernet ports with full VLAN support, analogue Telephone ports and 64kbps synchronous X.21/V.11 data interfaces over a optical fiber link.

The OAP-XE is available as a 6RU, single slot wide, plug-in card for the OAP-SR 16 slot sub-rack and the Invensys C50 RTU mechanics.

Both units are industrial grade devices with a 65°C temperature rating and designed for use in an electrical sub-station environment.

The OAP-SE has two 100Mbps optical uplink interfaces. These optical ports can be configured to operate in a protected point-to-point mode over a single fiber (single fiber working). In the event of a fiber break (in one of the fibers), communications with switch to the backup fiber within 50ms.

The OAP-XE has four 100Mbps optical uplink interfaces. The four interfaces can be used to connect to 2 x OAP-SE units located at the sub-stations.

Both multi-mode and single mode options are supported.

The analogue POTS interfaces are fully compliant with Australian standards. The POTS interfaces can be operated as FXO/FXS ports or VoIP/FXS ports through configuration.

The OAP-XE & OAP-SE has an integrated, high performance, gigabit, layer 2 Ethernet switch fabric.

Tag based VLANs (802.1q) are supported allowing network segmentation without being restricted by physical connections.

Both access and Trunk modes are supported.

Advanced features such as rate limitation on the Ethernet ports is provided, allowing users to better manage traffic profiles to differentiate between critical and non-critical applications.

The interface cards have also been designed to meet the environmental and susceptibility requirements for operating in harsh environments with respect to ESD, fast transients, susceptibility to radiated emissions, surge and dielectric strength.
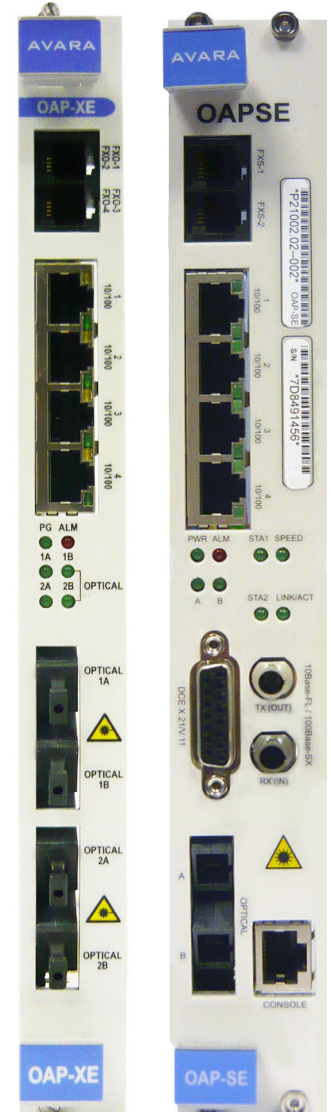
The OAP-XE/SE can be managed remotely using Telnet, SNMP or Avara's Web Server over secure VLAN.

Additionally, the OAP-XE/SE can be managed via 3rd party management systems.

The OAP provides Ethernet based customer interfaces and is the direct replacement for the Subscriber & Exchange End Voice and Data Modem products.

Technical Highlights

- 10/100Base-T Ethernet Ports
- POTS (FXO/VoIP/FXS) Ports
- X.21 Synchronous Serial Data Ports
- Support point to multi-point applications
- 100Mbps fixed optics with 1+1 protection
- Supports Single Fibre and Dual Fibre Working
- Sub 50ms protection switching in ring mode
- High performance Ethernet layer 2 switch fabric with 802.1p/q VLAN capabilities
- Rate Limiting on Ethernet ports
- Supports both VLAN access ports as well as trunk ports
- High MTBF
- Management via SNMP, Telnet & Web Browser
- -5 to +65 °C operation

OAP-XE and the OAP-SE

OAPSR-XE-19 Subrack

OAP-XE

Ordering Information	
P21001.01 : OAP-XE	4xETH, 4xFXO, 1xX.21, 4xSFW 100Base-FX, OAP-SR Mechanics
P21007.02 : OAPPIU-XE	PIU for OAPSR-XE Mechanics
P21008.02 : OAPSR-XE-19	OAP 19" Subrack (housing 1xPIU-XE, 15xOAP-XE Line Cards)

Optical Interfaces	
Optical Network	4 x 100Base-FX (1+1)
POTS	4 x FXO or VoIP
Ethernet (Electrical)	4 x 10/100Base-T (RJ45)
Ethernet (Optical) - Tributary	-
Serial Data	X.21 (multidropped onto Backplane)

Optical Network Interface Parameters	
Speed	00Base-FX
Operating Modes	Single Fibre Working or Dual Fibre Working
Fibre Type	10um SMF, 62.5um MMF
Range	>20km SMF, > 2km MMF

POTS Interface Parameters	
Interface Type	FXO or VoIP
Codec	G.711
Impedance	Complex (Australia)
REN	1
Loop Current	25mA
Companding	A-law

Switch Parameters	
Speed	10/100Base-T
Autonegotiation	Yes
Duplex	Full/Half
MDI/MDIX Support	Yes
IEEE 802.1p/q	Yes
MAC Address Size	8K
VLANs Supported	64
Rate Limiting	128K, 256K, 512K, 1M, 2M, 4M, 8M
Traffic Shaping	Strict & Weighted Round Robin
Priority Queues Per Output	4

Network	
Topology	Point to point
Protection Switch Time	< 50ms for POTS, X.21 and Ethernet connections
Protection Switch Mode	Non-revertive

Management	
Local	10/100BaseT Ethernet
Remote	Telnet, SNMP, Web Server

Serial Data Interface Parameters	
Interface Type	X.21/V.11
Speed	64kbps
Mode	DTE
Timing	Synchronous

Power	
Supply	-20 to -72 VDC
Consumption	7W

Security	
Data Interfaces	Dedicated VLAN
Management	Password Protection, Dedicated VLAN

Alarm Contacts	OAP-SR PIU relay contacts
MTBF	65 Years

Environmental	
Operating Temp.	-5°C to +65°C
Relative Humidity	5 - 90% (Non-condensing)

Standards	
	IEEE 802.3 Ethernet
	IEEE 802.3u Fast Ethernet
	IEEE 802.1p VLAN Tagging
	IEEE 802.1q Priority Queing
	IEEE 802.3x Flow Control
	RFC1157 SNMP
	RFC1213 MIB II
	RFC854 Telnet
	RFC783 TFTP
	S001
	S002 PSTN Interconnection
	S003 Customer Premises Switching
	S004 VF Performance
	EN55022 Class A Emissions
	EN60950 Safety
	41003 Laser Safety
	EN55024 Immunity
	EN50082-2 Generic Immunity
	EN60825-1 Class 1
	ITU-T X.21
	ITU-T V.11
	ITU-T G.823
	ITU-T Q.552
	ITU-T K.20
	ETS 300 019 -1-1 Operational
	ETS 300 019 -1-2 Storage
	ETS 300 019 -1-3 Transport

Technical Specifications

OAP-SE

Ordering Information	
P21002.01 : OAP-SE	4xETH, 2xFXS, 1xX.21, 2xSFW 100Base-FX, C50 Mechanics
P21002.02 : OAP-SE-EFX	4xETH,1x100BaseFX, 2xFXS, 1xX.21, 2xSFW 100Base-FX, C50 Mech

Optical Interfaces	
Optical Network	2 x 100Base-FX (1+1)
POTS	2 x FXS125um)
Ethernet (Electrical)	4 x 10/100Base-T (RJ45)
Ethernet (Optical) - Tributary	(Switched) 1 x 100Base-FX(DFW/1310nm)*
Serial Data	X.21

Optical Network Interface Parameters	
Speed	00Base-FX
Operating Modes	Single Fibre Working or Dual Fibre Working
Fibre Type	10um SMF, 62.5um MMF
Range	>20km SMF, > 2km MMF

POTS Interface Parameters	
Interface Type	FXS
Codec	G.711
Impedance	Complex (Australia)
REN	1
Loop current	40mA
Companding	A-law

Switch Parameters	
Speed	10/100Base-T
Autonegotiation	Yes
Duplex	Full/Half
MDI/MDIX Support	Yes
IEEE 802.1p/q	Yes
MAC Address Size	8K
VLANs Supported	64
Rate Limiting	128K, 256K, 512K, 1M, 2M, 4M, 8M
Traffic Shaping	Strict & Weighted Round Robin
Priority Queues Per Output	4

Network	
Topology	Point to point
Protection Switch Time	< 50ms for POTS, X.21 and Ethernet connections
Protection Switch Mode	Non-revertive

Management	
Local	10/100BaseT Ethernet
Remote	Telnet, SNMP, Web Server

Serial Data Interface Parameters	
Interface Type	X.21/V.11
Speed	64kbps
Mode	DCE
Timing	Synchronous

Power	
Supply	15VDC (C50 Power Supply)
Consumption	10W

Security	
Data Interfaces	Dedicated VLAN
Management	Password Protection, Dedicated VLAN

Alarm Contacts	None

MTBF	65 Years

Environmental	
Operating Temp.	-5°C to +65°C
Relative Humidity	5 - 90% (Non-condensing)

Standards	
	IEEE 802.3 Ethernet
	IEEE 802.3u Fast Ethernet
	IEEE 802.1p VLAN Tagging
	IEEE 802.1q Priority Queing
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