### 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  $2 \times OAP$ -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
  - 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

# **Technical Specifications**



### OAP-XE

Ordering Information P21001.01 : OAP-XE	4xETH, 4xFXO, 1xX.21, 4xSFW 100Base-FX, OAP-SR Mechanics PIU for OAPSR-XE Mechanics OAP 19" Subrack (housing 1xPIU-XE, 15xOAP-XE Line Cards)	<b>Management</b> Local Remote	10/100BaseT Ethernet Telnet, SNMP, Web Server
P21007.02 : OAPPIU-XE P21008.02 : OAPSR-XE-19		Serial Data Interface Parameters Interface Type Speed Mode	X.21/V.11 64kbps DTE
<b>Optical Interfaces</b> Optical Network POTS Ethernet (Electrical)	4 x 100Base-FX (1+1) 4 x FXO or VoIP 4 x 10/100Base-T (RJ45)	Timing <b>Power</b> Supply Consumption	Synchronous -20 to -72 VDC 7W
Tributary Serial Data	- X.21 (multidropped onto Backplane)	<b>Security</b> Data Interfaces Management	Dedicated VLAN Password Protection, Dedicated VLAN
Interface Parameters		Alarm Contacts	OAP-SR PIU relay contacts
Speed	00Base-FX	MTBF	65 Years
Operating Modes Fibre Type Range	Single Fibre Working or Dual Fibre Working 10um SMF, 62.5um MMF >20km SMF. > 2km MMF	<b>Environmental</b> Operating Temp. Relative Humidity	-5°C to +65°C 5 - 90% (Non-condensing)
POTS Interface Parameters Interface Type Codec Impedance REN Loop Current Companding	FXO or VoIP G.711 Complex (Australia) 1 25mA A-law	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 EN50082-1 Class 1 ITU-T X.21 ITU-T V.11 ITU-T G.823 ITU-T Q.552
Switch Parameters Speed Autonegotiation Duplex MDI/MDIX Support IEEE 802.1p/q MAC Address Size VLANs Supported Rate Limiting Traffic Shaping Priority Queues Per Output Network Topology	10/100Base-T Yes Full/Half Yes 8K 64 128K, 256K, 512K, 1M, 2M, 4M, 8M Strict & Weighted Round Robin 4 Point to point		
Protection Switch Time Protection Switch Mode	< 50ms for POTS, X.21 and Ethernet connections Non-revertive		ITU-T K.20 ETS 300 019 -1-1 Operational ETS 300 019 -1-2 Storage ETS 300 019 -1-3 Transport

## **Technical Specifications**





	1		
Ordering Information		Management	
P21002.01 : OAP-SE	4xETH, 2xFXS, 1xX.21,	Local	10/100Basel Ethernet
	2xSFW 100Base-FX, C50	Remote	Teinet, SNMP, web Server
P21002 02 · OAP-SE-EEX		Serial Data	
F21002.02 . OAF-SE-ELX	$2 \times FXS = 1 \times X = 21 = 2 \times SFW$	Interface	
	100Base-FX, C50 Mech	Interface Type	V 21/V/11
Ontical Interfaces		Sneed	64kbps
Optical Network	2 x 100Base-FX (1+1)	Mode	DCE
POTS	2 x FXS125um)	Timing	Synchronous
Ethernet (Electrical)	4 x 10/100Base-T (RJ45)	Power	
Ethernet (Optical) -		Supply	15VDC (C50 Power Supply)
Tributary	(Switched) 1 x 100Base-	Consumption	10W
Carial Data	FX(DFW/1310nm)*	Security	
Serial Data	A.21	Data Interfaces	Dedicated VLAN
Optical Network		Management	Password Protection, Dedicated
Interface Parameters	OORaca EV		VLAN
Operating Modes	Single Fibre Working or Dual Fibre Working	Alarm Contacts	None
		MTBF	65 Years
Fibre Type	10um SMF, 62.5um MMF	Environmental	
Range	>20km SMF, > 2km MMF	Operating Temp.	-5°C to +65°C
POTS Interface		Relative Humidity	5 - 90% (Non-condensing)
Parameters	EV.C	Standards	IEEE 802.3 Ethernet
Interface Type	C 711		IEEE 802.3u Fast Ethernet
Impedance	Complex (Australia)		IEEE 802.1p VLAN Tagging
REN	1		IEEE 802.1q Priority Queing
Loop current	40mA		IEEE 802.3X FIOW CONTROL
Companding	A-law		RFC1213 MIB II
Switch Parameters		-	RFC854 Telnet
Speed	10/100Base-T		RFC783 TFTP
Autonegotiation	Yes		S001
Duplex	Full/Half		S002 PSTN Interconnection
MDI/MDIX Support	Yes		S003 Customer Premises Switching
IEEE 802.1p/q	Yes		S004 VF Performance
MAC Address Size	8K		EN55022 Class A Emissions
VLANS Supported	04 1200 2560 5120 1M 2M		LINDUYSU Salely
Rate Limiting	4M 8M		FN55024 Immunity
Traffic Shaping	Strict & Weighted Round		FN50082-2 Generic Immunity
	Robin		EN60825-1 Class 1
Priority Queues Per Output	4		ITU-T X.21
Network			ITU-T V.11
Тороlоду	Point to point		11U-1 G.823
Protection Switch Time	< 50ms for POTS, X.21 and		11U-1 Q.552
	Ethernet connections		FTS 300 019 -1-1 Operational
Protection Switch Mode	Non-revertive		FTS 300 019 -1-2 Storage
			ETS 300 019 -1-3 Transport

AVARA

#### **Head Office**

**Regional Distributor - Australia and New Zealand** 



9 Business Park Drive Notting Hill, Victoria 3168 Australia Tel: +61 3 95400330 Fax:+61 3 99236545

www.avaratechnologies.com



This publication is issued to provide information only which (unless agreed by Avara Technologies Pty. Ltd. in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to the products or services concerned. Avara Technologies reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service. © Avara Technologies Pty. Ltd. 2010