



Nokia D500 RAM Remote Deployment Made Easy

The Nokia D500 RAM provides remote deployment for DSL services such as Video on Demand, Broadband TV, and Fast Internet Access. The D500 RAM will help lower the costs and time to market an operator needs to deploy DSL in remote locations.

The Nokia D500 RAM (Remote Access Module) enables the operator to push the DSL interface closer to the end-user thereby shortening the loop length. The D500 RAM provides the operator with the opportunity to increase penetration of DSL within the access network and provide new services to the end-user. The D500 RAM is a D500-based solution that allows operators to provide DSL-based services from smaller sites such as street-side cabinets, building basements, and controlled environmental vaults. The D500 RAM supports a wide range of services from data centric services such as Fast Internet access to rapidly evolving multimedia/entertainment centric services such as video on demand, digital broadcast TV, and interactive TV. The D500 RAM is future-proof and allows evolution of the operator network from the ATM access networks of today to the IP access networks of tomorrow.

Enables Flexibility in the Remote Deployment of DSL

The D500 RAM is designed to be a stand-alone small DSLAM or to be subtended to a "master" DSLAM. This allows the operator to build flexible network architectures in order to optimize the cost of the network. The

D500 RAM is a 6-slot subrack. Two slots are dedicated for use by the Trunk/Control units and four slots are dedicated for use with existing ADSL, SHDSL, and VDSL line cards. The D500 RAM is highly scalable supporting 24 to 192 customers from a single subrack. The D500 RAM also contains a power and alarm module, which provides the telco power interface to the RAM, as well as maintenance interfaces for local craft management and external alarm inputs for the collection of power, environmental, and security alarms.

Reduces Operator Operational Expenses (OPEX)

The D500 RAM uses the same plug-in units as the D500 system. As a result, operational costs associated with holding two sets of spares for the network elements are reduced. Further operational cost advantages also accrue with only one set of equipment on which to train operational staff, as the D500 RAM has the same look and feel as the D500 system. The D500 RAM has front access for easy installation, cabling, and card insertion and removal for sites such as streetside cabinets where rear access to equipment is often impossible.

Versatility in Deployment

The D500 RAM is designed to support the deployment of DSL services in smaller sites with space limitations, or where less DSL lines are required to be delivered to the end-user customer and the installation of a "full" D500 system is not warranted. The D500 RAM can be mounted in either vertical or horizontal positions in racks and cabinets or even on walls and would typically be deployed in streetside cabinets, building basements or rooftops, Controlled Environmental Vaults (CEV), Multi-tenant units (MTU), and Multi-dwelling unit sites (MDU).

When combined with Nokia's Rapid Deployment Access Cabinet (RDAC), the D500 RAM provides a very low cost solution for the deployment of remote DSL nodes. The D500 RAM and RDAC solution will help save the operator time and cost through minimal site location requirements (right-of-way) and installation requirements as the solution can be located on a pole or attached to an existing cable cross-connection box or a small concrete pad next to an existing cross-connection box or DLC.

Future-Proof Technology

The D500 RAM uses the same plug-in unit types and system software load as the "full" D500 system. In essence, this means that any D500 functionality automatically translates into D500 RAM functionality. As a result, the D500 RAM can support the operator service and network evolution that will take place now and in the future. The D500 RAM will support the service evolution from today's data centric services to tomorrow's media centric services. The D500 RAM will also support the network evolution that will take place in operator networks to enable service evolution providing ATM centric interfaces typical of today's networks and IP centric interfaces typical of tomorrow's networks. The D500 RAM is the answer for operators targeting new customers and revenue through the deployment of new services in locations remote to the Central Office in a timely and cost efficient manner.

Redundancy Enables Increased Reliability

With the D500 RAM, you can count on maximum system uptime and the security of 1+1 protection switching providing both link and equipment redundancy on the trunk interfaces. Processing functions are also redundant, therefore ensuring maximum node uptime in the operator's network.

Local Management

The web-based Craft Terminal provides the means to perform local configuration of the D500 node by maintenance personnel. The web-based Craft Terminal requires that maintenance personnel only have a browser on their portable maintenance terminal. The web-based Craft Terminal provides a node-based GUI tool for the maintenance technician to perform provisioning and maintenance activities such as checking current alarms, performance data, and configuration of node parameters. Craft access to the node can also be provided by a Command Line

Interface (CLI) allowing a text-based interface to the node for maintenance personnel providing current alarm lists and configuration of node parameters for provisioning and troubleshooting.

Remote Management

Nokia NetAct for Broadband provides broadband access network operators with a carrier-class management system that meets their scalability, reliability, performance and ease of use requirements. A complete, integrated element management system, NetAct for Broadband features topology, fault, inventory, configuration, performance, and security management as well as cut-through command line interfaces. In addition to its network-to-port drill-down and rapid profile-based provisioning capabilities that provide a user-friendly management interface for the D500 RAM, NetAct for Broadband standards-based XML and CORBA northbound interfaces allow for fast integration with existing operations support systems.

System Specifications

D500 RAM

Dimensions	Height – 20.0 cm (7.88 in) Width – 49.0 cm (19.29 in) Depth – 26.04 cm (10.25 in)			
Operating Requirements	Temperature: -40°C (-40°F) to +65°C (149°F) Remote installation Relative Humidity: 0 to 95% (non-condensing)			
Environmental Compliance	ETS 300 019-1-1: Class 1.2 ETS 300 019-1-2: Class 2.3 ETS 300 019-1-3: Class 3.1E			
Electromagnetic Compliance	GR-1089-Core	CSPR 22 (1085) Class B		
	EN 55022 (04.87) Class B	EN 50082-1		
	FCC Part 15, Class A & B	UL 1950		
	IEC 60950	ETS 300 386		
Power Requirements	-40.5 to -72.0 VDC (protected feeds)			
Physical Connectors	RJ45 (100bTX trunk, DCN & Sync) LC (fiber)			
Physical Interfaces	OC-3/STM-1 155.52 Mbps Single Mode Short Haul (G.957 S1.1) OC-3/STM-1 155.52 Mbps Single Mode Long Haul (G.957 L1.1) OC-3/STM-1 155.52 Mbps Multimode (G.957 I1.1) OC-12/STM-4 622 Mbps Single Mode Short Haul (G.957 S4.1) OC-12/STM-4 622 Mbps Single Mode Long Haul (G.957 L4.1) 100base-TX, Fast Ethernet (IEEE 802.3) 1000base-LX and 1000base-SX, Gigabit Ethernet (IEEE 802.3)			
Interface Standards	ITU-T G.992.1 Annex A & B	ITU-T G.992.2	ITU-T G.991.2	ITU-T G.993.1 (VDSL)
	ITU-T G.994.1	ITU-T G.997.1	T1.413 Issue 2, 1998	ETSI TS 101 388 v1.1.1
	ITU-T G.957 (optical)	ITU-T G.813/GR-1244 (Sync IN/OUT)		ATM Forum UNI3.1
	ITU-T I.610/I.432 (ATM OAM)	IEEE 802.1q (VLAN)	IEEE 802.3	RS-232C (CLI)