



D500 Ethernet Trunk Unit

Transmission Rate: 100 Mbps Fast Ethernet

Key Applications: Allows operators with evolving backbone networks to connect traffic from an ATM-based DSLAM to an IP-based backbone network.

The Nokia D500 Multiservice Access Platform provides the industry's most powerful balance of performance, scalability, and solutions for evolving networks. The high-density, high-capacity D500 supports a wide range of services from Fast Internet access to emerging higher bandwidth multimedia/entertainment services such as video on demand, digital broadcast TV, and interactive TV. The D500 is designed to provide operators with the ability to evolve their networks from ATM to IP in a seamless manner, as IP becomes the prevalent protocol in the access network.

Ethernet

As part of the family of D500 trunk units, the Ethernet trunk unit, based on 100BaseTX technology, is designed to connect traffic from an ATM-based DSLAM to an IP-based backbone network through either Ethernet switches or routers with Ethernet based interfaces. The trunk unit bridges the customers' traffic from the CPE to the broadband remote access server. This allows the operator to begin the network evolution from ATM

to IP through a Layer 2 network interface such as Ethernet, in preparation for the time when the core/backbone IP network connects with the access network. The trunk unit also supports the connection of media services such as Video on Demand to customers connected to the DSLAM thus providing an Ethernet interface that can be connected directly to the operator's IP Network and the content servers providing the video content.

The Ethernet trunk unit integrates the control unit (combined unit), which contains the network management processor and system processor along with the ATM Port Controller (ATM QoS traffic management matrix) and ATM switching fabric (4 Gbps non-blocking). The control unit supports Layer 2 Ethernet based trunk interfaces and the potential for IP routing, IP multicast, and IP QoS via mechanisms such as IGMP, RSVP,

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MPLS, and DiffServ. Additionally, the trunk unit allows encapsulation of both bridged and routed connections from the CPE to the edge/core network.

The Ethernet trunk unit supports a single 100BaseTX interface to the network by mapping the ATM connection to an Ethernet MAC address (of the CPE client). The trunk card also supports VLAN functions for up to 4,000 connections so that customer data integrity and security can be preserved in the 100BaseTX uplink connection, providing a business service such as VLAN extension. The trunk unit offers a reach of up to 300 m (1,000 ft), over category 5 twisted pair cable.

The Ethernet trunk unit will broaden the scope of D500 and D500 RAM customers and enable technology that will support customers deploying alternative access networks. This trunk card satisfies the requirements of Ethernet switched access networks and routed access networks, as well as ATM networks.

Standards Compliant

The TRK100TX trunk card is compliant with the following standards:

- IEEE 802.3
- IEEE 802.1q
- RFC-1483

Environmental Conformance

The TRK100TX conforms to the following environmental requirements:

- NEBS GR-63-CORE
- 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 Conformance

The TRK100TX conforms to the following electromagnetic requirements:

- TOSS Tk-10/95E/c EN
- GR-1089-CORE
- EN 300 386
- EN 55022

PROVISIONING PARAMETERS

The following provisioning parameters are supported for the Ethernet trunk unit.

Network Protocols

- Non-VLAN bridged network
- VLAN bridged network
- VLAN routed IP network

MAC Address Management

- MAC Maximum Ageing Time (secs x 10)
- Alarm Ageing Threshold (secs x 10)

VLAN Definition

- VLAN ID
- Protocol Filter
- Local IP Address
- Gateway IP Address

ATM AAL5 Encapsulation

- LLC encapsulation
- VC based multiplexing

Performance Monitoring

The Ethernet trunk unit supports the following performance monitoring test parameters:

- Octets received
- Packets received
- Uni-cast pkts received
- Non-uni pkts received
- Discards received
- Error packets received
- Undersize pkts received
- Oversize pkts received
- Undersize pkts received with FCS error

- Oversize pkts received with FCS error
- Collisions received
- Octets sent
- Packets sent
- Uni-cast pkts sent
- Non-uni pkts sent
- Discards sent
- Ether thresh out errors
- Maximum (output) bandwidth util
- Maximum (input) bandwidth util
- Error packets sent
- MTU octets
- Speed (bps)
- MAC utilization
- Aging time
- MAC address
- CAM capacity

Physical Specifications

Interfaces per card

One interface per trunk unit, with one unit supporting up to 19 lines for the ANSI subrack and 15 lines for the ETSI subrack.

Card name

TRK100TX

Connector type

RJ-45

Card dimensions

1.0 in. wide x 15.75 in. high x 8.27 in. deep (25 mm x 400 mm x 210 mm)

Card weight

~ 4 lbs

Operating humidity

0 to 95% (non-condensing)

Operating temperature

-40° F to 149° F Hardened for central office installation, outdoor cabinet, and other harsh environments (-40° C to 65° C)

Power consumption

40 watts per card