



# D500 OC-3/STM-1 Tributary Unit

**Transmission Rate: 155 Mbps**

**Key Applications: Provides a high bit rate optical connection from the D500 over single mode or multimode optical fiber towards a subtended D500 system, a Nokia D50 or D50e system, an ATM edge switch, or a 3<sup>rd</sup> party UNI compliant DSLAM.**

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.



## OC-3/STM-1 Tributary Unit

The OC-3/STM-1 tributary card provides several functions such as integrating D500 nodes on the same site, subtending another D500 system on the same site, and subtending a D500 unit on a remote site or aggregating traffic from a subtended ATM edge switch. The tributary card aggregates traffic from an ATM edge

switch or third-party DSLAM thereby saving on trunking costs in the ATM network. The tributary unit can also be used to subtend D50 and D50e systems to the D500 thus leveraging the ability of the D50 and D50e to provide Frame Relay services in addition to ATM services. Support for subtending, as provided by the tributary unit, results in cost savings in the purchase of ATM switch ports.

The tributary unit is offered in short haul, long haul, and multimode versions thus offering a variety of reach options for the operator. Typical reach of this unit, over single mode fiber, is approximately 15 km (50 Kft) for the short haul version or approximately 40 km (130 Kft) for the long haul version. The multimode version can support connections over a 2 km (6.5 Kft) range and would

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typically be used for connections within a Central Office, as multimode fiber is not generally available in the street fiber cable networks. The tributary card is user configurable to operate in either the OC-3 (SONET) mode or the STM-1 (SDH) mode, and supports a total of four OC-3/STM-1 interfaces per unit.

### Optical Interface

The three variants of the OC-3/STM-1 interface are:

- OC-3/STM-1 S1.1 single mode (short haul)
- OC-3/STM-1 L1.1 single mode (long haul)
- OC-3/STM-1 multimode

### Industry Specifications

The tributary unit adheres to the following industry specifications:

- ITU-T G.703
- ITU-T G.707
- ITU-T G.813
- ITU-T G.841
- ITU-T G.957
- GR-253-CORE

### Environmental Conformance

The tributary unit 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 tributary unit 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 OC-3/STM-1 tributary unit.

- Facility type – default is SONET for the ANSI subrack and SDH for the ETSI subrack

### Performance Monitoring

The OC-3/STM-1 tributary unit supports the following performance monitoring test parameters for both near-end and far-end thresholds:

- Section Severely Errored Framing seconds
- Line Errored seconds
- Line Severely Errored seconds
- Line Code Violation-Path
- Line Unavailable seconds
- Path Errored seconds
- Path Severely Errored seconds
- Path Code Violations
- Path Unavailable seconds

### Physical Specifications

#### Interfaces per card

4 interfaces per card with up to 16 possible connections per D500

#### Variants

TRB155SH – OC-3/STM-1 tributary unit, single mode, short haul  
TRB155LH – OC-3/STM-1 tributary unit, single mode, long haul  
TRB155MM – OC-3/STM-1 tributary unit, multimode

#### Connector types

LC: Single mode interfaces  
MTRJ: Multimode interface

#### 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

Short haul: 30 watts per card  
Long haul: 30 watts per card  
Multimode: 30 watts per card