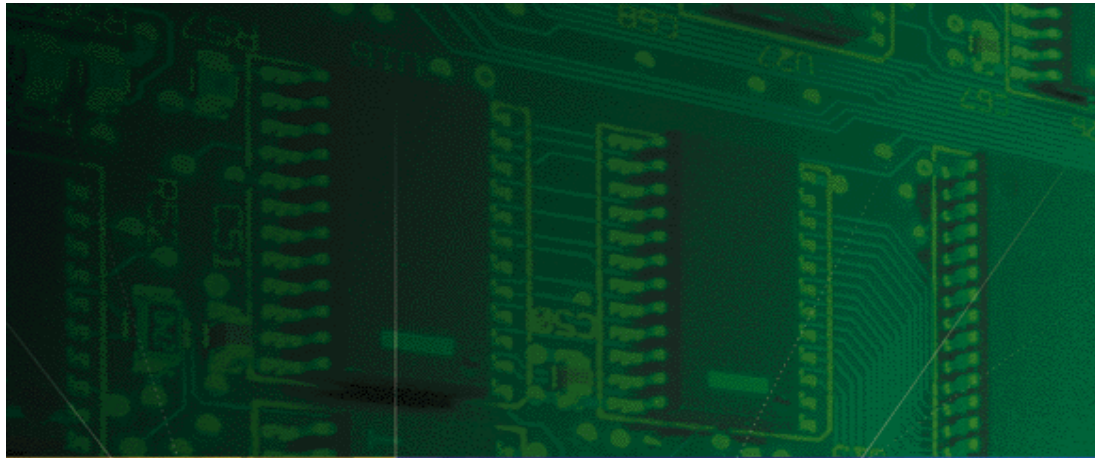


# Token Ring



## Network Interface Card Getting Started Guide



Part No. 1.024.1317-00



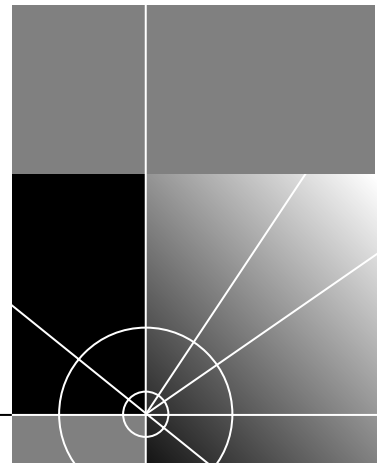
# Token Ring

## Network Interface Card Getting Started Guide

<http://www.3com.com/>

Part No. 1.024.1317-00

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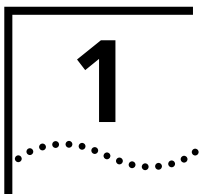
For information on Year 2000 compliance and 3Com products, visit the 3Com Year 2000 web page:

<http://www.3Com.com/products/yr2000.html>

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# OVERVIEW

This chapter provides an overview of:

- Contacting 3Com
- Document conventions
- Product description
- Product compatibility

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## Contacting 3Com

Call the appropriate toll free number listed below for technical support.



*For European countries that do not have a toll free number listed, call +31 30 602 9900.*

Country	Toll Free Number	Country	Toll Free Number
<b>Austria</b>	06 607468	<b>Netherlands</b>	0800 0227788
<b>Belgium</b>	0800 71429	<b>Norway</b>	800 11376
<b>Canada</b>	1800 2318770	<b>Poland</b>	00800 3111206
<b>Denmark</b>	800 17309	<b>Portugal</b>	0800 831416
<b>Finland</b>	0800 113153	<b>South Africa</b>	0800 995014
<b>France</b>	0800 917959	<b>Spain</b>	900 983125
<b>Germany</b>	0800 1821502	<b>Sweden</b>	020 795482
<b>Hungary</b>	00800 12813	<b>Switzerland</b>	0800 553072
<b>Ireland</b>	1800 553117	<b>UK</b>	0800 966197
<b>Israel</b>	0800 9453794	<b>United States</b>	1800 2318770
<b>Italy</b>	1678 79489	<b>All Other Locations (Outside Europe)</b>	1847 7976600

Refer to the Total Control Hub Documentation CD-ROM for more information regarding product warranty.



For information about Customer Service, including support, training, contracts, and documentation, visit our website at <http://totalservice.3com.com>

## Document Conventions

These tables list conventions used throughout this guide.

Icon	Notice Type	Description
	Information note	Information that contains important features or instructions.
	Caution	Information to alert you to potential damage to a program, system, or device.
	Warning	Information to alert you to potential personal injury or fatality. May also alert you to potential electrical hazard.
	ESD	Information to alert you to take proper grounding precautions before handling a product.

Convention	Description
Text represented as a screen display	This <code>typeface</code> represents displays that appear on your terminal screen, for example: <code>Netlogin:</code>
Text represented as <b>commands</b>	<b>This typeface</b> represents commands that you enter for example: <code>setenv TCMHOME directory</code> <i>This guide always gives the full form of a command in uppercase and lowercase letters. However, you can abbreviate commands by entering only the uppercase letters and the appropriate value. Commands are not case-sensitive.</i>
Text represented as <b>menu</b> or <b>sub-menu names</b> .	<b>This typeface</b> represents all menu and sub-menu names within procedures, for example: On the <b>File</b> menu, click <b>New</b> .

---

**Product  
Description**

The Token Ring NIC provides a Token Ring interface between a particular NAC in the 3Com Total Control chassis and your network.

This NIC features one IEEE 802.5 compliant Token Ring interface capable of data transfer rates of 4 or 16 Mbps. Type 1 (STP) and Type 3 (UTP) physical ports are available for this interface. In addition, this NIC also features a RS-232 user interface console port capable of data transfer rates up to 57.6 Kbps.

---

**Product  
Compatibility**

The Token Ring NIC is compatible with the NETServer, NetServer PRI and the 486 Network Management Card (NMC) NAC.

# 2

## INSTALLATION

This chapter contains the Token Ring Network Interface Card (NIC) installation information.

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### Installation Tools

To install this NIC in the Total Control chassis, you need a #2 Phillips and flat-head screwdriver.

---

### Installation Procedure

To install this NIC:

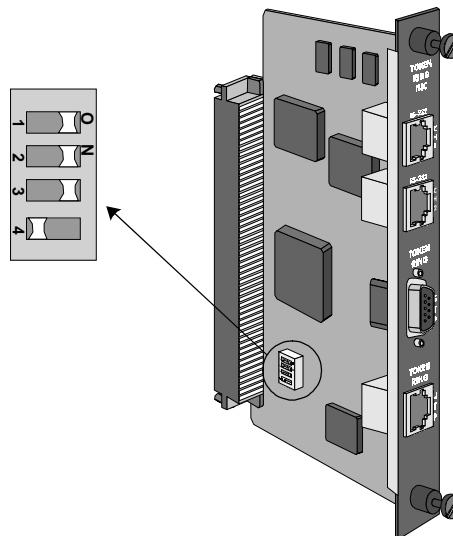


**ESD:** To reduce the risk of electrostatic discharge (ESD), take proper grounding precautions before handling the NIC.



Install the NIC with or without power applied to the chassis.

- 1 Configure the NIC via the DIP switches.



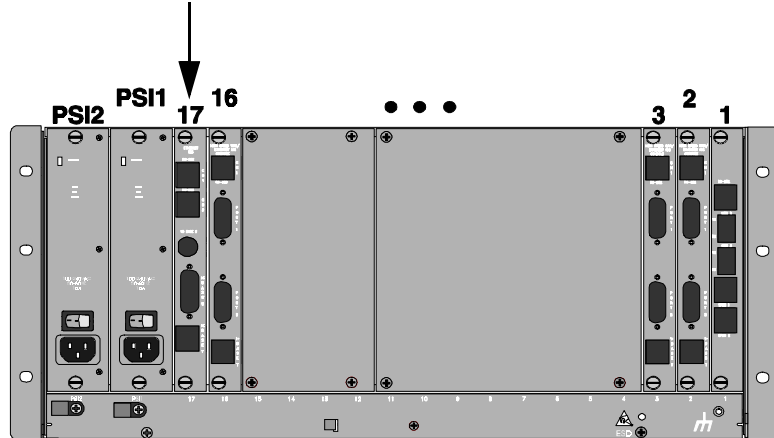


DIP Switch Number	Function
1	<ul style="list-style-type: none"> <li>■ OFF: Unshielded Twisted Pair (UTP) Token Ring cable used</li> <li>■ ON: Shielded Twisted Pair (STP) Token Ring cable used</li> </ul>
2	<ul style="list-style-type: none"> <li>■ Off: 4 Mbps Token Ring speed connection</li> <li>■ ON: 16 Mbps Token Ring speed connection</li> </ul>
3	<ul style="list-style-type: none"> <li>■ Off: Token Ring NIC installed behind an NMC NAC (slot 17 only)</li> <li>■ ON: Token Ring NIC installed behind any other NAC (Slot 1–16)</li> </ul>
4	<ul style="list-style-type: none"> <li>■ OFF: Reserved</li> </ul>

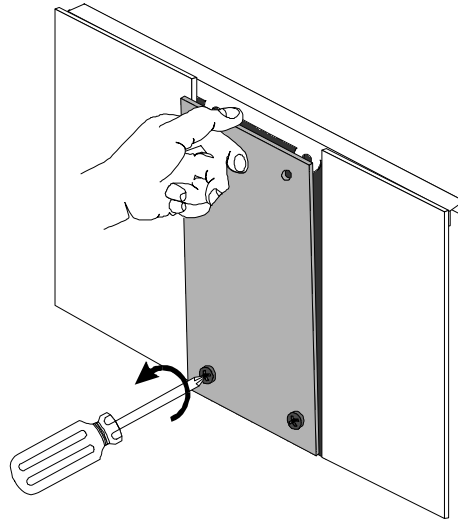
- 2 Select a slot at the rear of the Total Control chassis for installing the NIC.  
Install this NIC in slot(s): 1–17



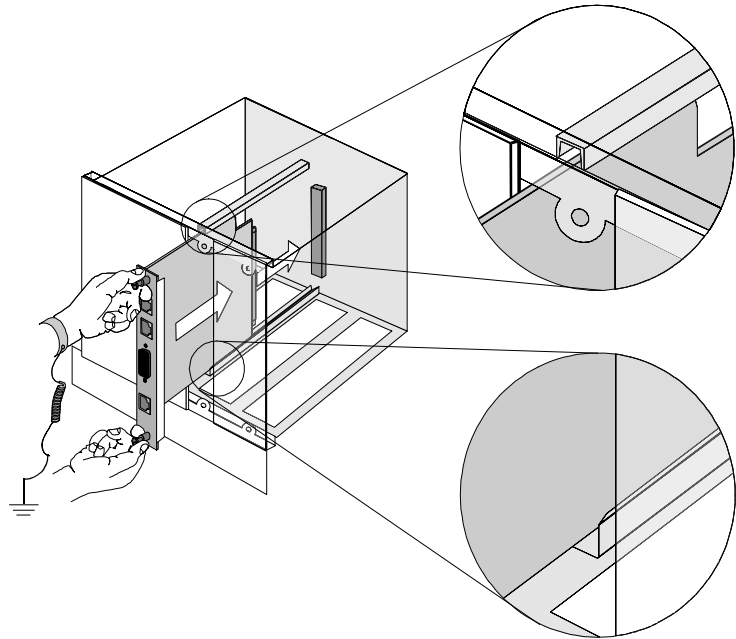
*For managed chassis, slot 17 is reserved for the Network Management Card (NMC) NIC.*



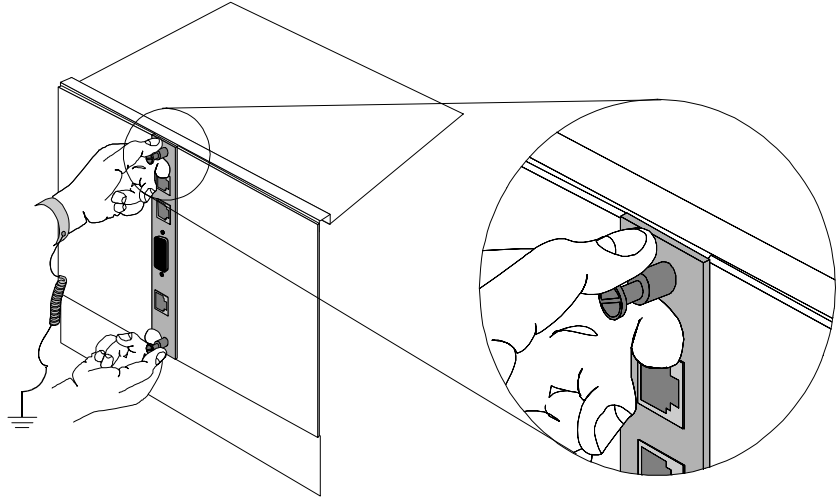
- 3 Use a #2 Phillips screwdriver to remove the safety panel covering this slot.



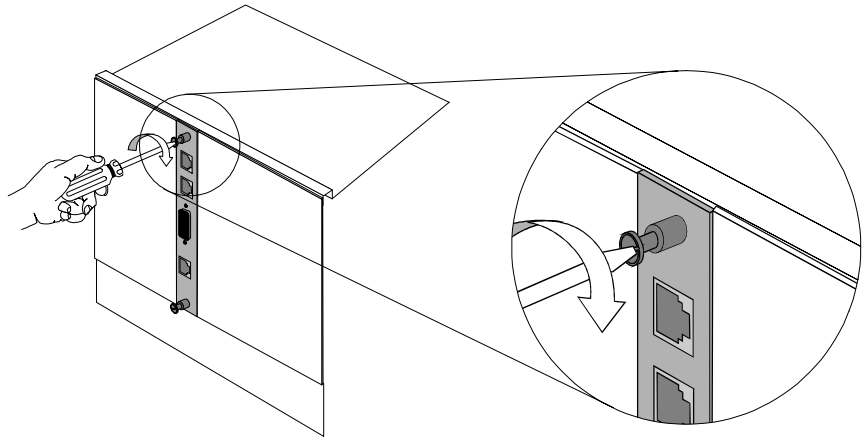
- 4 Insert the NIC between the slot's upper and lower card guides.



- 5 Slide the NIC into the chassis, until the front of the NIC is flush with the chassis.



- 6 Use a flat-head screwdriver to tighten the screws on the front panel.



- 7 Cover any unused chassis slots with safety panels.
- 8 Install the Network Application Card (NAC) corresponding to this NIC. Refer to the NAC's *Getting Started Guide* for more information.

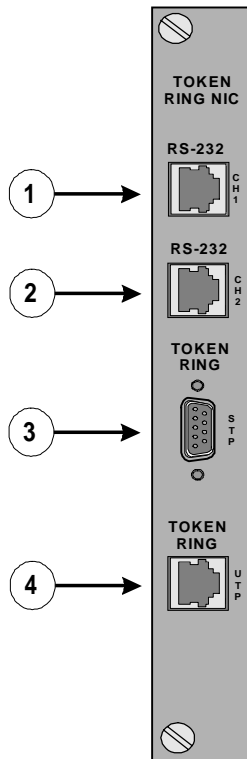
# 3

## NETWORK INTERFACE CARD CABLING

This chapter provides information about the physical interfaces of the Token Ring Network Interface Card (NIC) and instructions for accessing the corresponding Network Application Card (NAC) through the user interface (UI).

### Physical Interfaces

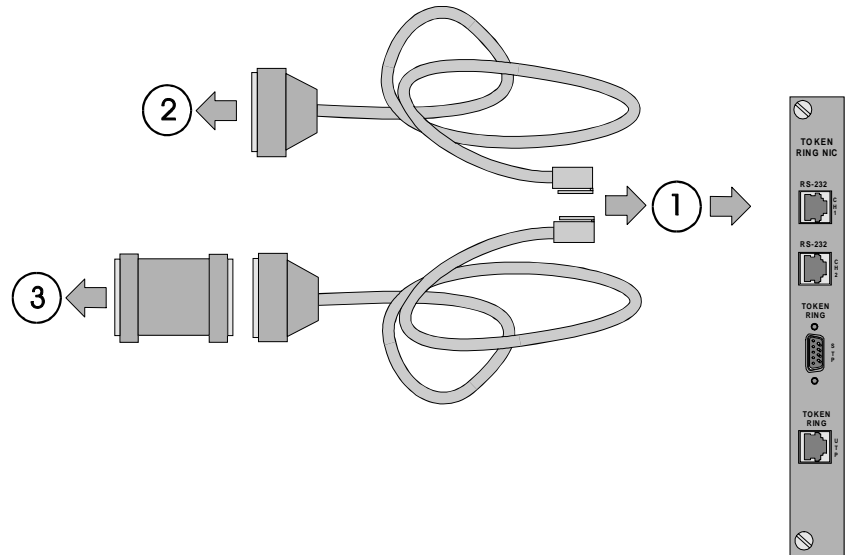
The Token Ring NIC has the following physical interfaces:



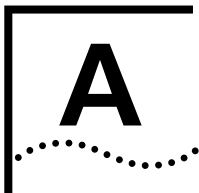
Callout Number	Interface Description
1	<b>CH1:</b> RJ-45 RS-232 DTE Port Used to access the corresponding NAC's UI console. This port's speed is determined by DIP switch setting on the NAC.
2	<b>CH2:</b> RJ-45 RS-232 DTE Port Used as a dedicated SLIP port when behind the Network Management Card (NMC). It is reserved when behind any other NAC.
3	<b>STP:</b> DB-9 IBM Type 1 Token Ring port.
4	<b>UTP:</b> RJ-45 IBM Type 3 Token Ring port.

## Accessing the User Interface

To access the UI of the corresponding NAC, connect the following cables to the NIC's console port.



Callout Number	Description
1	RJ-45 connector to NIC's console port
2	DB-25 male connector to modem for remote operations
3	DB-25 female-to-female null modem adapter to PC or terminal COM port



# TECHNICAL SPECIFICATIONS

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## Technical Specifications

### Certification

- 
- |                |   |
|----------------|---|
| <b>EMI/RFI</b> | <ul style="list-style-type: none"><li>■ FCC 15A</li><li>■ EN55022A</li><li>■ VCCI</li><li>■ AUSTEL</li><li>■ IEC 1000-3-2 Fluctuating Harmonic Flicker</li><li>■ IEC 1000-4-2 ESD</li><li>■ IEC 1000-4-3 RF Immunity</li><li>■ IEC 1000-4-4 Electrical Fast Transients</li><li>■ IEC 1000 4-5 Lightning Surge</li></ul> |
| <b>Safety</b>  | <ul style="list-style-type: none"><li>■ UL 1950</li><li>■ C-UL</li><li>■ EN 60950</li></ul>   |
- 

### Regulatory Compliance Statements

#### United States

#### *FCC Part 15 Compliance Statement*

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely

to cause harmful interference in which case the user will be required to correct the interference at their own expense.

## Interface Specifications

### Serial Port (RS-232 CH1 and CH2)

<b>Electrical Specification:</b>	RS-232, 8-position modular jack (EIA/TIA-232-E Standard)
<b>Connector:</b>	Modular Jack: Stewart 88-360808 or equivalent
<b>Configuration:</b>	Data Terminal Equipment (DTE)
<b>Transmission Method:</b>	Unbalanced RS-232
<b>Transmission Rate:</b>	57.6 Kbps maximum

### RS-232 CH1 and CH2 Cable Specifications

<b>Wire Type:</b>	Belden 9538 or equivalent, 8 conductor, shielded
<b>Maximum Cable Distance:</b>	50 Feet, 15 Meters
<b>Nominal Direct Current Resistance:</b>	Center Conductor: <ul style="list-style-type: none"> <li>■ 24 gage (7strand 32 gage)</li> <li>■ .61 millimeter diameter</li> <li>■ 23.7 ohms/1000 feet</li> <li>■ 77.8 ohms/kilometer</li> </ul> Shield: <ul style="list-style-type: none"> <li>■ 15.5 ohms/1000 feet</li> <li>■ 50.9 ohms/kilometer</li> </ul>
<b>Nominal Outside Diameter:</b>	.265 inch; 6.73 millimeter
<b>Capacitance Between Conductors:</b>	30 picofarads/feet; 98 picofarads/meter
<b>Cabling:</b>	8-position modular jack to DB-25 (IBM AT pin-out).

### Token Ring (STP Connector)

<b>Electrical Specification:</b>	IEEE 802.5
<b>Connector:</b>	DB-9, AMP 747844-3
<b>Accessing Scheme:</b>	Token Passing
<b>Topology:</b>	Star Wired Ring
<b>Maximum Nodes for Physical Network:</b>	250

<b>Transmission Medium:</b>	Type 1-Individual Shielded Pair
<b>Network Lobe Distance:</b>	100 meters (328 feet) suggested maximum
<b>Data Transfer Rate:</b>	4 or 16 Mbps

### STP Connector Cable Specifications

<b>Wire Type:</b>	Belden 96888 or equivalent, 4 conductors in two individually shielded pairs, copper braid shield overall
<b>Maximum Cable Distance:</b>	328 feet, 100 meters
<b>Nominal Direct Current Resistance:</b>	<ul style="list-style-type: none"> <li>■ 22 gage solid copper</li> <li>■ .0255 inches diameter</li> <li>■ 16 ohms/1000 feet</li> <li>■ 52.5 ohms/kilometer</li> </ul>
<b>Nominal Outside Diameter:</b>	.310 inch x .455 inch
<b>Nominal Impedance:</b>	150 ohms
<b>Nominal Velocity of Propagation:</b>	<ul style="list-style-type: none"> <li>■ 8.5 picofarads/foot</li> <li>■ 27.9 picofarads/meter</li> </ul>

### Token Ring (UTP Connector)

<b>Electrical Specification:</b>	IEEE 802.5
<b>Connector:</b>	8-position modular jack, Stewart 88-360808 or equivalent
<b>Accessing Scheme:</b>	Token Passing
<b>Topology:</b>	Star Wired Ring
<b>Maximum Nodes for Physical Network:</b>	72
<b>Transmission Medium:</b>	Type 3-unshielded Twisted Pair
<b>Network Lobe Distance:</b>	100 meters (328 feet) suggested maximum, Level 4
<b>Data Transfer Rate:</b>	4 or 16 Mbps



### UTP Connector Cable Specifications

<b>Wire Type:</b>	Belden 1154A or equivalent, 8 conductors in 4 twisted pairs
<b>Maximum Cable Distance:</b>	328 feet, 100 meters
<b>Nominal Direct Current Resistance:</b>	<ul style="list-style-type: none"> <li>■ 24 gage solid copper</li> <li>■ .020 inches diameter</li> <li>■ 25.7 ohms/1000 feet</li> <li>■ 84.3 ohms/kilometer</li> </ul>
<b>Nominal Outside Diameter:</b>	.185
<b>Nominal Impedance:</b>	105 ohms
<b>Nominal Velocity of Propagation:</b>	60%
<b>Nominal Capacitance Between Conductors:</b>	<ul style="list-style-type: none"> <li>■ 15.0 picofarads/foot</li> <li>■ 49.2 picofarads/meter</li> </ul>
<b>Cabling:</b>	8-position modular plug

### Current Draw

Voltage	Current Draw (Typical)	Current Draw (Maximum)
+5 VDC	1.2 A	1.5 A
+12 VDC	3 mA	50 mA

### Environment Shipping and Storage

<b>Temperature:</b>	-25 to 75° C, -13 to 167° F
<b>Relative Humidity:</b>	0 to 100%, Non-condensing

### Operating

<b>Temperature</b>	0 to 40° C, 32 to 104° F
<b>Relative Humidity:</b>	0 to 95%, Non-condensing

### Physical Dimensions

	Inches	Centimeters
<b>Length:</b>	5.30	13.46
<b>Width:</b>	.79	2.00
<b>Height:</b>	6.90	17.53



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