10/100 Ethernet Aux I/O

Network Interface Card
Getting Started Guide

Part No. 1.024.1309-01

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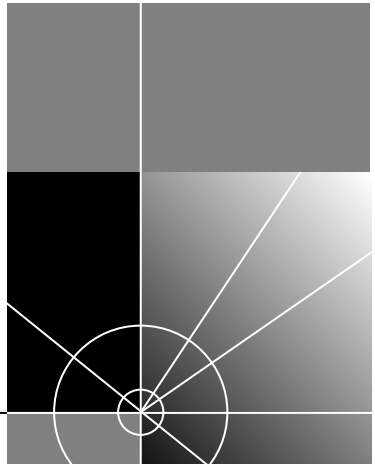

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Part No. 1.024.1309-01

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CONTENTS

1 OVERVIEW

This chapter provides an overview of:

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

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
Austria	06 607468	**Netherlands**	0800 0227788
Belgium	0800 71429	**Norway**	800 11376
Canada	1800 2318770	**Poland**	00800 3111206
Denmark	800 17309	**Portugal**	0800 831416
Finland	0800 113153	**South Africa**	0800 995014
France	0800 917959	**Spain**	900 983125
Germany	0800 1821502	**Sweden**	020 795482
Hungary	00800 12813	**Switzerland**	0800 553072
Ireland	1800 553117	**UK**	0800 966197
Israel	0800 9453794	**United States**	1800 2318770
Italy	1678 79489	***All Other Locations*** ***(Outside Europe)***	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 typeface` represents displays that appear on your terminal screen, for example: `Netlogin:`
Text represented as **`commands`**	**`This typeface`** represents commands that you enter for example: **`setenv TCMHOME directory`** *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.*
Text represented as **menu** or **sub-menu names**.	**This typeface** represents all menu and sub-menu names within procedures, for example: On the **File** menu, click **New**.

Product Description

The 10/100 AUX I/O Ethernet Network Interface Card (NIC) provides the physical link between the Network Management Card (NMC) and other chassis devices. The NIC is also the link between the NMC and the Management Station (MS).

The NIC has these characteristics:

- Provides the interface to the local area network (LAN)
- Provides an EIA RS–232 port (console port) that can be used to configure and manage the NMC
- Provides two auxiliary inputs and two auxiliary outputs on an 8-pin terminal block for alarm event monitoring and triggering
- Provides an EIA RS–232 port that can be used to manage the NMC through a remote SLIP connection

Product Compatibility

The 10/100 AUX I/O Ethernet NIC is compatible with the HiPer NMC Network Application Card (NAC).

2 INSTALLATION

This chapter contains 10/100 Ethernet Aux I/O Network Interface Card (NIC) installation information.

Installation Tools

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

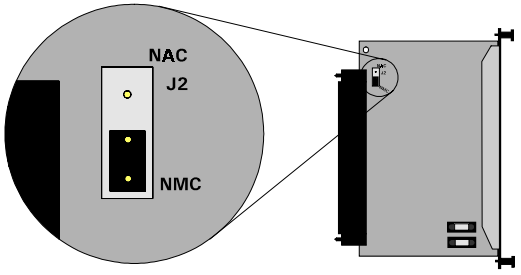
Installation Procedure

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 jumpers. The NIC should be factory preset to "NMC". Verify that the two-pin shunt is placed in the "NMC" position.

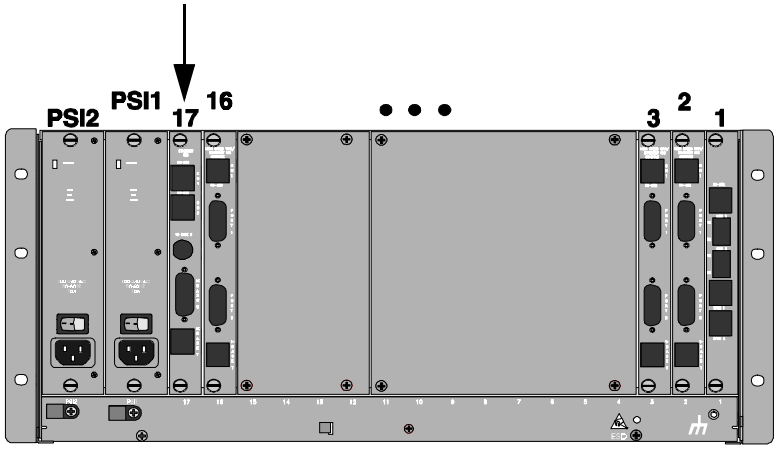


The 10/100 Ethernet I/O NIC only works behind the HiPer NMC NAC. The jumper should not be changed from the factory setting.

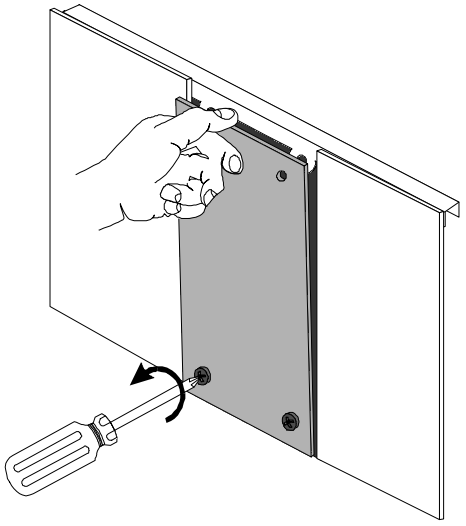
2 Select a slot at the rear of the Total Control chassis for installing the NIC.

Install this NIC in slot: 17

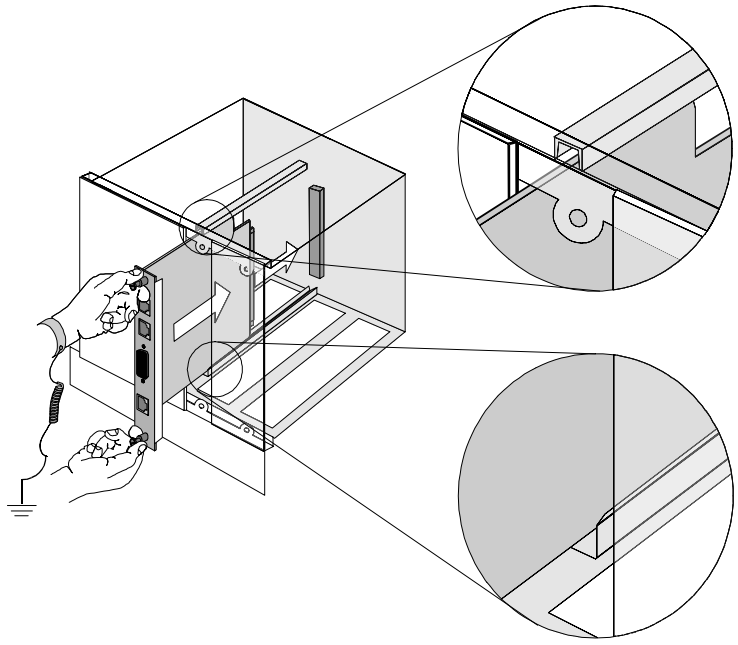
For managed chassis, slot 17 is reserved for the Network Management Card (NMC) NIC.



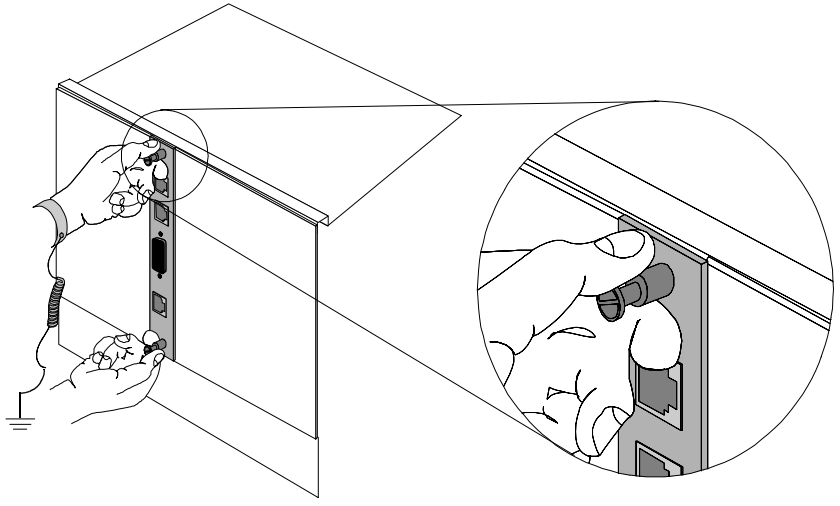
3 Use a #2 Phillips screwdriver to remove the safety panel covering this slot.



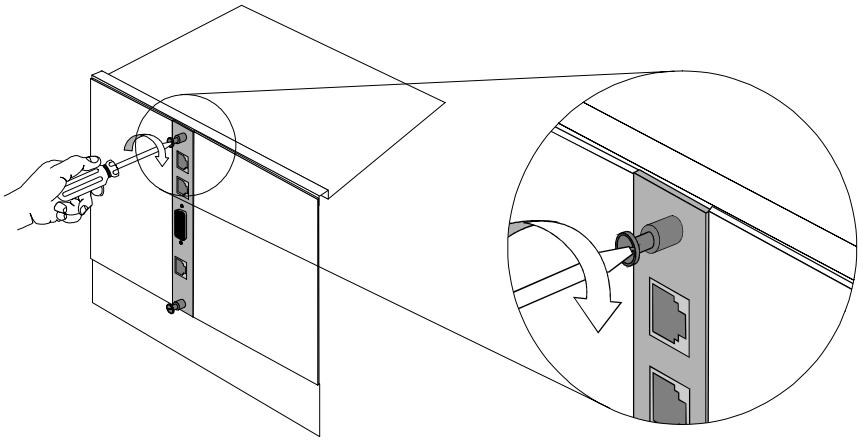
4 Insert the NIC between the slot's upper and lower card guides.



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.

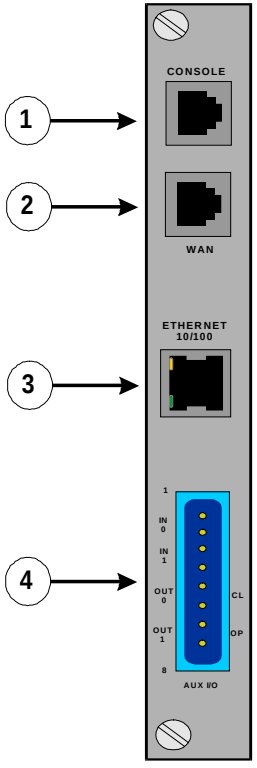
8 Install the Network Application Card (NAC) corresponding to this NIC. Refer to the NAC's Getting Started Guide for more information.

3 Network Interface Card Cabling

This chapter provides information about the physical interfaces of the 10/100 Ethernet Aux I/O Network Interface Card (NIC) and instructions for accessing the corresponding Network Application Card (NAC) through the user interface (UI).

Physical Interfaces

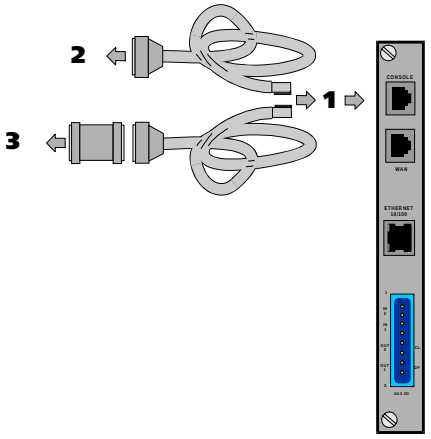
The 10/100 Ethernet Aux I/O NIC has the following physical interfaces:



Callout Number	Interface Description
1	**Console Port**: EIA RS–232-D DTE Port Connect to this port to access the HiPer NMC's User Interface (UI), or to connect directly to a PC for a software download. See the *NMC Configuration Guide* for other configuration of this port.
2	**WAN port**: EIA RS–232-D DTE Port Use the WAN port for a SLIP connection to a management station (MS) running Total Control Manager (TCM) or another SNMP program. You can also use this port for a remote modem connection. Refer to the *NMC Configuration Guide* for more information.
3	**Ethernet 10/100 port**: RJ–45 port Use this port to connect to an Ethernet LAN. This port is a 10base-T/100base-Tx auto-negotiating Ethernet port. It supports full-duplex operation in addition to standard Ethernet.
4	**AUX I/O ports**: Currently not used.

Accessing the User Interface

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



Callout	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

Connecting for Remote Access

Attach the RJ-45 end of the EIA RS–232 cable to the console port and the DB-25 end to a modem. Use an adapter if the modem does not support a 25-pin connector. Dial in to the modem from the remote site.

Connecting for Local Access

Attach the RJ-45 end of the cable to the console port and the DB-25 end to the provided null modem adapter. Attach the null modem adapter to the PC/terminal's EIA RS–232 interface. Use an adapter if the PC/terminal does not support a 25-pin connector.

Connecting for a Software Download

Attach the RJ-45 end of the cable to the console port and the DB-25 end to the provided null modem adapter. Attach the null modem adapter to the PC/terminal's EIA RS–232 interface. Use an adapter if the PC/terminal does not support a 25-pin connector. Then follow the directions in the *Software Download Installation Instructions,* located on the Total Control Hub CD-ROM.

A

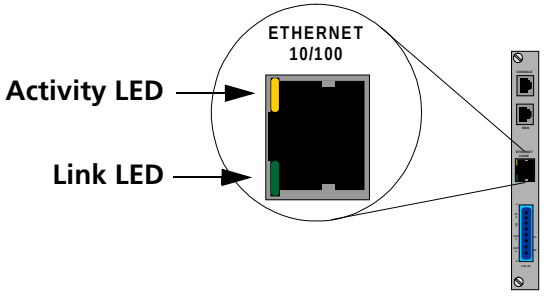
Trouble Clearing and Technical Specifications

Trouble Clearing

This section contains information to help you trouble clear problems that may occur after you first install and power-up a 10/100 Ethernet Aux I/O Network Interface Card (NIC) and a Hiper Network Management Card (NMC) Network Application Card (NAC). Trouble clearing information concerning NMC configuration is located in the *NMC Configuration Guide*.

LAN link integrity LEDs on the NIC

Two status LEDs, representing link integrity and network activity on the physical layer, are located on the Ethernet 10/100 port:



LED	Status	Meaning
Activity LED (located on the top of the connector)	Off	Port is inactive
	Flashing yellow-green	Port is transmitting and receiving correctly
Link LED (located on the bottom of the connector)	Solid green	Link OK; Connection is established and NIC is receiving valid link pulses
	Off	No connection; NIC not receiving valid link pulses

RN/FL LED on the HiPer NMC NAC at power-up

This table provides information on trouble clearing problems that may occur at power-up.

If the RN/FL LED is...	Then...	Do this...
Solid green	The condition is normal	No action required.
Solid red	There is a critical failure	Reinstall the NMC according to the instructions in this manual.
Flashing red and green	There is no NIC installed behind the HiPer NMC NAC	Install the NIC. Refer to the appropriate *Getting Started Guide*. Note: If the NIC is installed after the NMC, reboot the NMC by removing and reseating the NMC card.
Off	There is no power to the NAC	Make sure the NMC is installed properly. Make sure the chassis is powered on.

Technical Specifications

Certification

EMI/RFI	■ FCC 15A ■ EN55022A ■ EN 50082-1 ■ VCCI, AUSTEL
Safety	■ UL 1950 ■ C-UL ■ EN 60950

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

Console and WAN Port

Electrical specification	EIA RS–232–D standard
Connector	RJ–45, 8-position modular jack
Configuration	Data Terminal Equipment (DTE)
Transmission method	Unbalanced RS–232, 1-stop bit, no parity
Transmission rate	57.6 Kbps maximum

Console and WAN cable specifications

Wire type	Belden 9538 or equivalent, 8-conductor, shielded
Max cable distance	50 ft. (15 m)
Cabling	8-position modular jack to DB-25 (IBM AT pinout)
Nominal direct current resistance	
Center conductor	24-gage (7 strands, 32-gage) 0.61 mm diameter 23.7 ohms/1000 ft. (77.8 ohms/km)
Shield	15.5 ohms/1000 ft. (50.9 ohms/km)
Outside diameter	0.265 in (6.73 mm)
Capacitance between conductors	30 picofarads/ft. (98 picofarads/m)

Ethernet 10Base-T/100Base-Tx Port

Data transfer rate	10/100 Mbps (auto-negotiated)
Connector	8-position modular jack (Stewart 88-360808 or equivalent)
Accessing scheme	CSMA/CD (Carrier Sense Multiple Access with Collision Detection)
Topology	Star-wired hub (using multiport repeater)
Maximum nodes	Limited only by repeater used
Transmission medium	Unshielded twisted pair (UTP) **10Base-T:** Type CAT3 or CAT5 (CAT5 recommended) **100Base-Tx:** Cable type CAT5 only
Network lobe distance	100 m (328 ft.) suggested maximum. Longer cabling can be used at the expense of reduced receiver squelch levels.

Ethernet 10Base-T/100 Base-Tx cable specifications

Wire type	0.5 mm or 24 AWG twisted pairs
Max cable distance	100 m (328 ft.) with standard receiver squelch levels
Cable loss	67 dB/1000 ft@100 MHz
Characteristic impedance	85-115 ohms
Propagation delay	± 5.7 nanosecond/m
Cabling	RJ-45 plug to RJ-45 plug straight through for multiport repeater applications.

Current Draw +5.2 VDC @ .6mA typical maximum

Typical maximum refers to the maximum current draw under most typical configurations.

Environment

Shipping and Storage

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

Operating

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

Physical Dimensions

	Inches	Centimeters
Length:	5.30	13.46
Width:	0.79	2.00
Height:	6.90	17.53

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