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4401 Great America Parkway
Santa Clara, CA 95054

Setting Up the BayStack Instant Internet 400-S Unit

NORTEL
NETWORKS™

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USA requirements only

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

Note: 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. If it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.

European requirements only

EN 55 022 statement

This is to certify that the Nortel Networks BayStack Instant Internet 400-S is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22).

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung: Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention: Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

EC Declaration of conformity

This product conforms to the provisions of the R&TTE Directive 1999/5/EC.

Japan/Nippon requirements only

Voluntary Control Council for Interference (VCCI) Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Taiwan requirements

Bureau of Standards, Metrology and Inspection (BSMI) Statement

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Canada requirements only

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (BayStack Instant Internet 400-S) does not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (BayStack Instant Internet 400-S) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

Canada CS-03 rules and regulations

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent the degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Notice: For equipment using loopstart lines, please note that the Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5. The REN is located on the "FCC Rules Part 68" label located on the bracket of the module or on the back of the unit.

Canada CS-03 -- Règles et règlements

Avis: L'étiquette d'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L'entreprise de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

Avis: Veuillez prendre note que pour tout appareillage supportant des lignes de type "loopstart," l'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface. La terminaison d'une interface téléphonique peut consister en une combinaison de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5. Le REN figure sur l'étiquette "FCC Rules Part 68" située sur le support du module ou à l'arrière de l'unité.

Modular components used in this assembly

This product contains a base unit and possibly one or more of the following Communication and Network Connection Options Devices. Please refer to your specific product for a description of what option cards (if any) are included. Compliance Statements for all the following devices are on file and available on request.

FCC Part 68 compliance statement

This equipment complies with Part 68 of FCC Rules. All direct connections to telephone network lines must be made using standard plugs and jacks compliant with FCC Part 68. Please note the following:

-
1. You are required to request service from the telephone company before you connect the unit to a network. When you request service, you must provide the telephone company with the following data:
 - When you request T1 Service, you must provide the telephone company with
 - The Facility Interface Code
 - Provide the telephone company with all the codes below:
 - 04DU9-BN (1.544 MB, D4 framing format)
 - 04DU9-DN (1.544 MB, D4 framing format with B8ZF coding)
 - 04DU9-1KN (1.544 MB, ESF framing format)
 - 04DU9-1SN (1.544 MB, ESF framing format with B8ZF coding)
 - 04DU9-1ZN (1.544 MB, ANSI ESF and ZBTISI without line power)
 - The telephone company will select the code it has available.
 - The Service Order Code(s) (SOC): 6.0F
 - The required Universal Service Order Code (USOC) jack: RJ48C
 - When you request 56K/64K Service, you must provide the telephone company with
 - The Facility Interface Code: 04DU5-56/64
 - The Service Order Code(s) (SOC): 6.0F
 - The required Universal Service Order Code (USOC) jack: RJ48S
 - When you request V.34 Service, you must provide the telephone company with
 - The required Universal Service Order Code (USOC) jack: RJ11C
 - The make, model number, Ringer Equivalence Number (REN), and FCC Registration number of the unit
 - The REN helps you determine the number of devices you can connect to your telephone line and still have all of those devices ring when your number is called. In most, but not all, areas, the sum of the RENs of all devices should not exceed 5.0. To be certain of the number of devices you can connect to your line, you should call your local telephone company to determine the maximum REN for your calling area. This equipment must not be used on party lines or coin lines.
 - When you request ISDN “U” Interface Service, you must provide the telephone company with
 - The Facility Interface Code: 02IS5
 - The Service Order Code(s) (SOC): 6.0F
 - The required Universal Service Order Code (USOC) jack: RJ49C
 - When you request ISDN “S/T” Interface Service, you must provide the telephone company with
 - The Service Order Code(s) (SOC): 6.0N
 - The make, model number, and FCC Registration number of the NT1
 - Note:** ISDN S/T cannot be directly connected to the network.
 - When you request Primary Rate ISDN Service, you must provide the telephone company with
 - The Facility Interface Code: 04DU9-1SN (1.544 MB, ESF framing format with B8ZF coding)
 - The Service Order Code(s) (SOC): 6.0F
 - The required Universal Service Order Code (USOC) jack: RJ48C
 2. Your telephone company may make changes to its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. The telephone company will notify you in advance of such changes to give you an opportunity to maintain uninterrupted telephone service.
 3. If the unit causes harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance, but if advance notice is not practical, you will be notified as soon as possible and will be informed of your right to file a complaint with the FCC.
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4. If you experience trouble with the unit, please contact the Nortel Networks Technical Solutions Center in your area for service or repairs. Repairs should be performed only by service personnel authorized by Nortel Networks.

United States	1-800-2LANWAN
Valbonne, France	33-4-92-96-69-68
Sydney, Australia	61-2-9927-8800
Tokyo, Japan	81-3-5740-1700

5. You are required to notify the telephone company when you disconnect the unit from the network.

UL listing/C-UL listing

This information technology equipment is UL-Listed and C-UL-Listed for the uses described in this and accompanying documents.

Connecting an Instant Internet unit to the network

Important safety information

To avoid contact with electrical current:

- Never install electrical wiring during an electrical storm
- Never install telephone jacks in wet locations unless that jack is specifically designed for wet locations
- Use caution when installing or modifying telephone lines
- Use a screwdriver and other tools with insulated handles
- You and those around you should wear safety glasses or goggles
- Do not place telephone wiring or connections in any conduit, outlet or junction box containing electrical wiring

Warning: Do not work on your telephone wiring if you wear a pacemaker. Telephone lines carry electrical current.

Installation of inside wire may bring you close to electrical wire, conduit, terminals and other electrical facilities. Extreme caution must be used to avoid electrical shock from such facilities. You must avoid contact with all such facilities.

- Telephone wiring must be at least 6 feet from bare power wiring or lightning rods and associated wires, and at least 6 inches from other wire (antenna wires, doorbell wires, wires from transformers to neon signs), steam or hot water pipes, and heating ducts.
- Before working with existing inside wiring, check all electrical outlets for a square telephone dial light transformer and unplug it from the electrical outlet. Failure to unplug all telephone transformers can cause electrical shock.
- Do not place a jack where it would allow a person to use the telephone while in a bathtub, shower, swimming pool, or similar hazardous location.
- Protectors and grounding wire placed by the service provider must not be connected to, removed, or modified by the customer.

Specific information related to different types of communication connections

Connecting an Instant Internet unit containing an analog modem

It is not necessary to notify the telephone company before installing the modem. However, the telephone company may request the telephone number(s) to which the unit is connected and the related FCC information including the FCC Part 68 registration number and the ringer equivalence number.

Be sure that the telephone line you are connecting the modem to is a standard analog line and not a digital (PBX), party, or coin telephone line. If the modem is malfunctioning, it may affect the telephone lines. In this case, disconnect the modem until the source of the difficulty is traced.

Connecting an Instant Internet unit containing an ISDN modem with NT

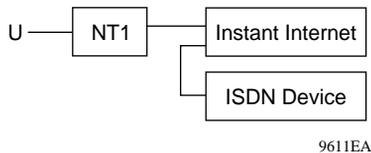
When connecting this version of the product to the network, avoid contact with the Telecommunications lead wire. Telephone wiring can carry dangerous voltage from electrical faults or lightning.

The product is equipped with a standard 8-pin RJ-49C jack for connection to the ISDN network.

If you need to add wiring to your facility, refer to the National ISDN Users Forum document NIUF 433-94 ISDN Wiring and Powering Guidelines (Residence and Small Business).

Connecting an Instant Internet unit containing an ISDN modem without NT1

This version of the product is equipped with two standard 8-pin RJ-45 jacks for connection to the NT1 (the BRI line can be attached to either jack, and the unused jack can be used to connect a second ISDN device).



At the product interface point, the interface cable must be wired “straight-through” (pin 1 at one end connected to pin 1 at the other end, pin 2 to pin 2, etc.), and must have at least the middle 4 pins (pins 2, 3, 4, and 5) connected. The cables included in your package are wired in this fashion.

Your NT1 must be properly connected to your ISDN service; check with your service provider.

If you need to add wiring to your facility, refer to the National ISDN Users Forum document NIUF 433-94 ISDN Wiring and Powering Guidelines (Residence and Small Business).

Avis: L'étiquette d'Industri Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Toutefois, le Ministère n'assure pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit assurer qu'il soit permis de le raccorder aux installations de l'entreprise locale de télécommunications. Le matériel doit également être installé en suivant une méthode de raccordement acceptée. Dans certains cas, les fils intérieurs de l'entreprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d'un dispositif de raccordement homologué (cordon rallonge téléphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel à des jacks d'abonné, sauf dans les cas précis prévus par les tarifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur, ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours aux services d'un électricien.

L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La termination du circuit

bouclé peut être constituée de n'importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100.

L'indice de charge se trouve sur le modem.

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Preface

This manual describes the BayStack™ Instant Internet 400-S unit. This manual also describes what you do to install the Instant Internet™ hardware and to access the Internet.

Before you begin

Before using this manual, you need to do two things. First, write down the model number and serial number of your Instant Internet unit. You will need this information if you call Nortel Networks Technical Support. Model and serial numbers are located on the rear panel of your Instant Internet unit.

Model #: _____

Example: CQ2001E80

Serial #: _____

Example: I4000181CC404F

Second, you must complete the steps outlined in [Chapter 2, “Installation preparation,” on page 29](#). The steps include:

- 1 Preparing for Internet access
- 2 Selecting an Internet service provider
- 3 Selecting the type of connection to use

Acronyms

The following acronyms are used in this manual:

AC	Alternating Current
AUI	Attachment Unit Interface
CB	Certification Body
CEE	Certification of Electrical Equipment
CENELEC	European Committee for Electrotechnical Standardization
CHAP	Challenge Handshake Authentication Protocol
CSA	Canadian Standards Associates
cUL	Underwriter Laboratories testing to Canadian standards
dBA	Decibels Audible
DIP	Dual Inline Pins
DMZ	Demilitarized Zone
DNS	Domain Name Service
DSL	Digital Subscriber Lines
FDX	Full Duplex
HAR	Harmonized
HD	Harmonized Document
HDX	Half Duplex
IEC	International Electrotechnical Commission
IP	Internet Protocol
IPX	Internetwork Packet Exchange
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
Kb/s	Kilobits Per Second
LAN	Local Area Network
LED	Light-Emitting Diode
MB	Megabyte
Mb/s	Megabits Per Second
MDI	Medium Dependent Interface
MDI-X	Medium Dependent Interface - Crossover

MP	Multilink Protocol
NAT	Network Address Translation
NEMA	National Electrical Manufacturers Association
NOM	Norma Oficial Mexicana
NIC	Network Interface Card
NT1	Network Termination Type 1
PAP	Password Authentication Protocol
POP	Point of Presence
POTS	Plain Old Telephone Service
PPP	Point-to-Point Protocol
PPPoE	Point-to-Point Protocol over Ethernet
ROM	Read-Only Memory
SMTP	Simple Mail Transfer Protocol
SPID	Service Profile Identifier
STP	Shielded Twisted-Pair
UL	Underwriter Laboratories
UTP	Unshielded Twisted Pair
VAC	Voltage Alternating Current
WAN	Wide Area Network

Related publications

For more information about using Instant Internet, refer to the following publications:

- *Important Notice for the BayStack Instant Internet Version 7.11* (Part number 307603-E)
Provides instructions for viewing documentation and installing the Instant Internet software and third-party applications (Adobe Acrobat Reader, Netscape Communicator, and AniTa Terminal Emulator).
- *Installing the BayStack Instant Internet Management Software Version 7.11* (Part number 209226-B)
Provides instructions for installing the Instant Internet software.

- *Using the BayStack Instant Internet Management Software Version 7.11* (Part number 300868-G)

Provides an introduction to Instant Internet, instructions for administering the product, and procedures for using Instant Internet features.

- *Reference for the BayStack Instant Internet Remote Access Commands Version 7.11* (Part number 302005-F)

Provides instructions and commands for remotely accessing Instant Internet.

- *BayStack Instant Internet Software and Documentation Version 7.11 CD* (Part number 206664-D)

Provides manuals for using and installing the Instant Internet software and third-party applications. The CD contains the following documents:

- *Installing the BayStack Instant Internet Management Software Version 7.11*
- *Setting Up the BayStack Instant Internet 100 Unit*
- *Setting Up the BayStack Instant Internet 100-S Unit*
- *Setting Up the BayStack Instant Internet 400 Unit*
- *Setting Up the BayStack Instant Internet 400-S Unit*
- *Using the BayStack Instant Internet Management Software Version 7.11*
- *Reference for the BayStack Instant Internet Remote Access Commands Version 7.11*

You can print selected technical manuals and release notes free, directly from the Internet. Go to the www25.nortelnetworks.com/library/tpubs/ URL. Find the product for which you need documentation. Then locate the specific category and model or version for your hardware or software product. Use Adobe Acrobat Reader to open the manuals and release notes, search for the sections you need, and print them on most standard printers. Go to Adobe Systems at the www.adobe.com URL to download a free copy of the Adobe Acrobat Reader.

You can purchase selected documentation sets, CDs, and technical publications through the Internet at the www1.fatbrain.com/documentation/nortel/ URL.

How to get help

If you purchased a service contract for your Nortel Networks product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller for assistance.

If you purchased a Nortel Networks service program, contact one of the following Nortel Networks Technical Solutions Centers:

Technical Solutions Center	Telephone
EMEA	(33) (4) 92-966-968
North America	(800) 2LANWAN or (800) 252-6926
Asia Pacific	(61) (2) 9927-8800
China	(800) 810-5000

An Express Routing Code (ERC) is available for many Nortel Networks products and services. When you use an ERC, your call is routed to a technical support person who specializes in supporting that product or service. To locate an ERC for your product or service, go to the www12.nortelnetworks.com/ URL and click ERC at the bottom of the page.

Chapter 1

Introduction

This chapter introduces your Instant Internet 400-S unit and describes package contents, available options for your Instant Internet unit, and any requirements and compatibility issues.



Caution: Before you install your unit, make sure that the power voltage selector switch setting matches your power voltage. For details, refer to [“Setting the voltage selector switch” on page 42.](#)

Instant Internet package

The Instant Internet package contains:

- Instant Internet 400-S unit
- Depending on the type of connection you ordered, your Instant Internet package contains one or more of the following connector cables:
 - RJ-11 cable (phone cord) for a dial-up connection or 1-Meg modem connection
 - ISDN cable for an Integrated Service Digital Network (ISDN) connection
 - Two RJ-45 cables for a 10BASE-T or 100BASE-T Ethernet connection
 - Two RJ-45 crossover cables for a 10BASE-T or 100BASE-T Ethernet connection
 - RJ-48 cable for a T1 connection or an E1 connection



Note: If you ordered your Instant Internet unit for use with a V.35 or X.21 modem, you must provide the connection cable. For pinout diagrams for V.35 and X.21 adapter cables, refer to [Appendix B, “Adapter cable pinout diagrams,” on page 77.](#)

- *Important Information for the BayStack Instant Internet* (Part number 307603-E)
- *Installing the BayStack Instant Internet Management Software Version 7.11* (Part number 209226-B)
- *BayStack Instant Internet Software and Documentation Version 7.11 CD* (Part number 206664-D)

For contents, see [“Related publications” on page 21](#).

Available options

The Instant Internet 400-S unit is shipped with several options. The standard unit includes a seven-port autosensing, autonegotiating 10/100 Ethernet switch on the front of the unit and two full-duplex/half-duplex, autonegotiating 10/100 megabits per second (Mb/s) Ethernet connections.

You can also order your Instant Internet unit configured with one of the following:

- Internal dual-analog V.90 modem
- Internal ISDN 128K card (with or without NT1) with a Plain Old Telephone Service (POTS) connection
- Internal 1-Meg modem
- Internal T1 connection with an ISDN backup connection
- Internal E1 connection with an ISDN backup connection
- Internal V.35 or X.21 serial connection with an ISDN backup connection



Note: If your unit does not have an internal analog modem or ISDN card, disregard all references to dial-up account and dial-up configuration throughout this manual.

Requirements and compatibility

Instant Internet supports the following Internet connection types:

- Dial-up Point-to-Point Protocol (PPP) connection with optional Multilink Protocol (MP) at up to two times V.90
- ISDN connection using synchronous PPP and optional Multilink Protocol (MP) at up to 128 kilobits per second (Kb/s)
- Synchronous leased-line connection at speeds up to 2 Mb/s (T1, E1, V.35, or X.21) using PPP or frame relay (using RFC 1490)
- Point-to-Point Protocol over Ethernet (PPPoE) connection using the 1-Meg modem or an external Ethernet device to connect to an access concentrator



Note: The speed of dial-up connections can vary internationally. Consult your local distributor for specifications.

Chapter 2

Installation preparation

This chapter describes the steps you should follow in preparing for Internet access, explains some decisions you need to make before you install your Instant Internet 400-S unit, and provides an installation checklist and worksheet.

Preparing for Internet access

To prepare for access to the Internet:

- 1 Obtain installation and service from your local telephone company (telco).
- 2 Obtain an Internet connection from an Internet service provider (ISP).
- 3 Connect the Instant Internet unit to your local area network (LAN).
- 4 Obtain the power cord from the Instant Internet packaging.



Note: Do not apply power to the Instant Internet unit until you have completed the installation steps in the procedure [“Instant Internet quick installation”](#) on page 43.

Refer to [“Instant Internet quick installation”](#) on page 43 for more information.

Making decisions

Before you can access the Internet with your Instant Internet unit, you must make the following decisions:

- Who will be your ISP?
- What type of connection will you use—dial-up connection (analog or ISDN), leased-line connection (T1, E1, V.35, or X.21) built in to Instant Internet, cable modem, xDSL modem, PPPoE, or an external router?

Selecting an Internet service provider

There are thousands of ISPs from which to choose. Nortel Networks maintains an updated list of the major, national ISPs and as many local ISPs as possible. You can choose an ISP from this list, or you can locate a different one. Either way, try to choose an ISP that has a local access number so that you do not have to pay long distance charges. You can look in the yellow page directory for local or regional ISPs, or you can call a national ISP and ask if it offers local dial-up access in your area.



Note: Only a dial-up connection (analog or ISDN) requires this type of service from an ISP. If you are using a cable modem, xDSL modem, or external Ethernet device, you do not have to obtain dial-up service.

If your ISP is not on the selection list you see during Instant Internet installation, select the ! `Default` provider from the list. If you cannot connect to the Internet with the ! `Default` provider selected, do *one* of the following:

- Call Nortel Networks Technical Solutions Center. See [page 23](#) for instructions on how to contact the center.
- Send an e-mail message to support@nortelnetworks.com.

Be sure to have your provider's name, location, and contact person's phone number so that Nortel Networks can create a dial-up script specific to your ISP's access requirements and add your ISP to the list.

Installation checklist

Use the checklist in [Table 1](#) to ensure a smooth installation. As you check off each item, record the information in the “[Installation worksheet](#)” on [page 33](#).

Table 1 Installation checklist

✓	Item	Description
	Type of Account	<p>Instant Internet can provide access to your entire network through a single Internet Protocol (IP) address for unlimited access to the Internet:</p> <ul style="list-style-type: none"> • If you want to use public IP addresses, request a network account. • If you want to use Network Address Translation (NAT) or you are using the Instant Internet unit as an IPX-to-IP gateway, request a single-user account. <p>Your ISP will provide you with a user name, password, primary access phone number, optional alternate access phone number, and name server IP address. Record this information on page 33.</p>
	Dial-up Protocols	<p>If you are using a dial-up connection in North America, ensure that your ISP supplies true IP service using PPP protocols for analog and ISDN connections. ISDN requires the synchronous PPP protocol with authentication via Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP).</p> <p>For a 128K connection, Multilink PPP must be supported. Some ISPs use their own proprietary protocols or, for ISDN, V.120 rate adaption. Instant Internet does not support these proprietary protocols.</p>
	ISDN Service	<p>When you obtain ISDN service, your telephone company may assign one or two Service Profile Identifier (SPID) numbers to your line. Record the SPID number(s) on page 33.</p>
	Leased-Line Connection	<p>Leased-line (T1, E1, V.35, or X.21) connections require synchronous PPP or frame relay. The Instant Internet 400-S unit supports one PVC for frame relay.</p>
	T1 Connection	<p>If you are using a T1 connection, ask your T1 service provider for the framing format, line encoding, data type, line build-out, rate multiplier, and line speed. Record this information on page 33.</p>

Table 1 Installation checklist (continued)

✓	Item	Description
	E1 Connection	If you are using an E1 connection, ask your E1 service provider for the framing format, line encoding, data type, line build-out, rate multiplier, and line speed. Record this information on page 33 .
	Connect-Time Charges	Some ISPs and local telephone companies charge a flat fee for unlimited connect time, and some charge fees according to the actual amount of time your Instant Internet unit is dialed in and connected. Be sure that you understand your ISP's and local telephone company's policies.
	PPPoE	If you are connecting using PPPoE, you must obtain a User Name and Password from your ISP. Record this information on page 33 .
	Installation Information	<p>If you choose an ISP from the Nortel Networks list, you need to give only the ISP's telephone number and your user name and password for access.</p> <p>If you are using an analog or ISDN connection, you can choose ! Default as your provider when you configure the unit and then enter your name servers.</p> <p>If your ISP is not on the Nortel Networks list, call the Nortel Networks Technical Solutions Center at 800-2LANWAN, Express Routing Code 169#, and provide some additional information so that Nortel Networks can create a dial-up script specific to your ISP's access requirements.</p>
	Application Information	<p>Your ISP usually offers some additional services, which you might consider:</p> <ul style="list-style-type: none"> • Access to a NEWS server • Access to a Post Office Protocol (POP) mail server (and a Simple Mail Transfer protocol (SMTP) relay) • Individual POP mail user accounts for each user <p>NOTE: Be aware that a single-user account from an ISP generally comes with only one POP e-mail account. You can arrange for additional e-mail accounts with your ISP.</p>

After completing this checklist, you are ready to begin installing the Instant Internet hardware.

Installation worksheet

ISP Information

ISP User Name: _____

This is the user name you enter to log on to your ISP account.

ISP Password: _____

This is the password you enter to log on to your ISP account.

ISP Connection Phone Number: _____

This number is the primary phone number you dial to access your ISP account.

ISP Connection Alternate Phone Number: _____

This number is an alternate or backup phone number you dial to access your ISP account if the primary phone number is not working. This phone number is optional. Not every ISP supplies an alternate phone number.

ISP Name Server: _____

ISP Name Server (optional): _____

The name server (or domain name server (DNS)) is the numeric IP address of your ISP's name server(s). It follows the format nnn.nnn.nnn.nnn where n is a number between 0 and 255.

Telephone Company Information

ISDN SPID Number: _____

ISDN SPID Number: _____

SPID numbers are provided by your telephone company when you install an ISDN line. Usually, two SPID numbers are provided, but sometimes one and sometimes even none is provided. Only those using an ISDN connection, need to provide this information.

ISDN Phone Number required for answer (optional): _____

ISDN Phone Number required for answer (optional): _____

T1 Connection Information

This information is available from your T1 service provider. If you are not using a T1 connection, you do not need to provide this information.

Framing Format (ESF or D4): _____

Line Encoding (B8ZS or AMI): _____

Data Type (Normal or Inverted): _____

Line Build-Out (in dB): _____

Rate Multiplier (64K or 56K): _____

Line Speed (in Kb/s): _____

Is ISDN Dial backup available if requested: _____

E1 Connection Information

This information is available from your E1 service provider. If you are not using an E1 connection, you do not need to provide this information.

Framing Format (CCAS, CAS or UNF): _____

Line Encoding (HDB3 or AMI): _____

Data Type (Normal or Inverted): _____

Line Build-Out (in dB): _____

Rate Multiplier (64K or 56K): _____

Line Speed (in Kb/s): _____

Is ISDN Dial backup available if requested: _____

Chapter 3

Instant Internet 400-S hardware installation

This chapter helps you get to know your Instant Internet unit, and provides instructions for connecting your unit to your LAN and WAN according to the type of connection you are using and for mounting the unit in a rack.

Before you install the Instant Internet hardware, make sure that you are familiar with the physical and environmental specifications of the Instant Internet 400-S unit. For more information, refer to [Appendix A, “Technical specifications,” on page 75](#).



Caution: Before you install your unit, make sure that the power voltage selector switch setting matches your power voltage. For more information, see [“Setting the voltage selector switch” on page 42](#).

Getting to know your Instant Internet 400-S unit

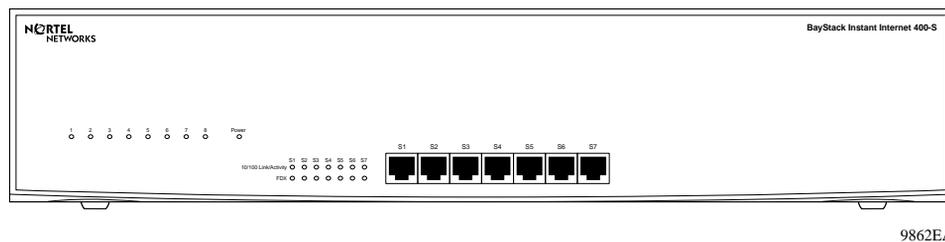
The front panel of your Instant Internet 400-S unit has the following indicators and connections:

- Nine LEDs (labeled 1–8 and Power) indicate various active or error conditions for your Instant Internet unit. For details, refer to [Chapter 6, “LEDs: support and diagnostic functions,” on page 61](#).
- A seven-port autosensing, autonegotiating Ethernet switch provides a means for connecting to your network and enables you to eliminate an extra switch or hub on your LAN. Each port adapts to the correct network speed (10 Mb/s or 100 Mb/s), the duplex mode of the connected device, and the correct MDI status of the cable. For details, refer to [Chapter 4, “Seven-port autosensing switch specifications,” on page 51](#).

- Seven 10/100 Link/Activity LEDs (labeled S1–S7) display port status for the switch. For details, refer to [Chapter 6, “LEDs: support and diagnostic functions,”](#) on page 61.
- Seven FDX LEDs (labeled S1–S7) display port mode status for the switch. For details, refer to [Chapter 6, “LEDs: support and diagnostic functions,”](#) on page 61.

Figure 1 illustrates the front panel of the unit.

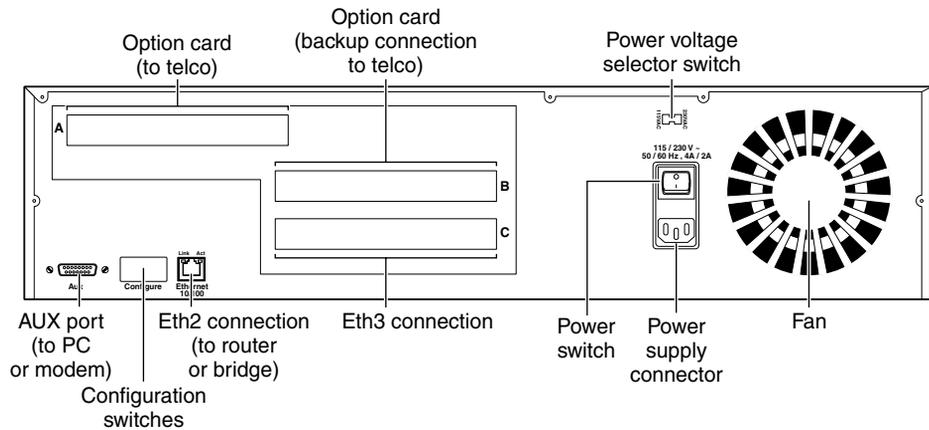
Figure 1 Front panel of the Instant Internet 400-S unit



The rear panel of the unit contains the following switches and connectors:

- Primary connection to your telephone service company (telco) or Internet service provider (slot A)
- Secondary or backup connection to your telephone company or Internet service provider (for dial backup, out-of-band management, second WAN bounded/in-band channel card) (slot B)
- Third LAN interface card to support a WAN connection (slot C)
- Second full-duplex/half-duplex autonegotiating Ethernet connection (Eth2) to connect to a router or bridge to support a Demilitarized Zone (DMZ) or to add another network segment
- AUX port to directly connect a PC or modem for out-of-band management (see [Chapter 7, “Out-of-band management support,”](#) on page 65)
- DIP switches (see [Chapter 5, “DIP switch settings,”](#) on page 55)
- Power voltage selector switch (115 or 230)
- Power supply connector and power switch

Figure 2 illustrates the rear panel of the unit.

Figure 2 Rear panel of the Instant Internet 400-S unit

9860EB



Warning: The Instant Internet unit contains a lithium battery. There is a danger of explosion if the battery is replaced incorrectly. The battery should be replaced only by factory authorized personnel.

Interfaces

Each unit has a autosensing, autonegotiating seven-port 10/100 Ethernet switch and two full-duplex/half-duplex autonegotiating Ethernet LAN interface cards. Depending on your unit, you can have multiple communications interface cards.



Note: The interface card(s) in your Instant Internet unit may not look exactly like those depicted in the illustrations.

Table 2 describes the Ethernet interfaces available for your Instant Internet 400-S unit.

Table 2 Ethernet interfaces

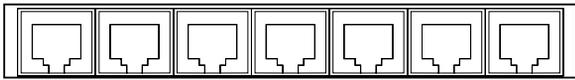
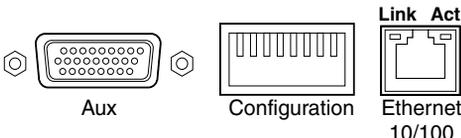
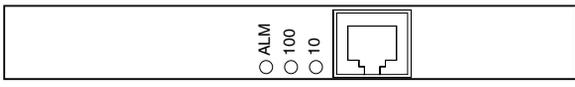
Interface name	Interface card	Type
Eth1	 <p style="text-align: right;">9865EB</p>	Seven-port Ethernet switch on the front of the unit. More information is available in Chapter 4, “Seven-port autosensing switch specifications,” on page 51.
Eth2	 <p style="text-align: right;">9866EB</p>	Standard Ethernet interface on the back of the unit. Use Eth2 as your DMZ connection.
Eth3	 <p style="text-align: right;">9855EB</p>	Standard Ethernet interface card. Use Eth3 as your WAN connection.

Table 3 describes the communications interface cards available for your Instant Internet 400-S unit.

Table 3 Communications interface cards

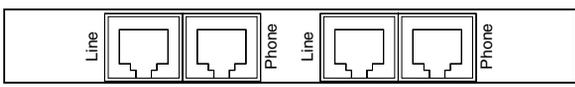
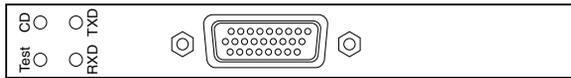
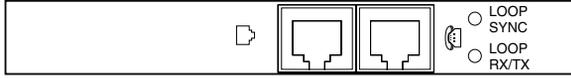
Interface name	Interface card	Type
Dual Analog	 <p style="text-align: right;">9857EB</p>	Analog modem interface card with two RJ-11 connectors for phones (outgoing to modem) and two RJ-11 connectors for telcos (incoming from wall jack).
ISDN U	 <p style="text-align: right;">9856EC</p>	ISDN U interface card (integrated NT1) with one POTS connector and one RJ-45 connector.

Table 3 Communications interface cards (continued)

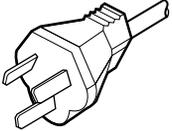
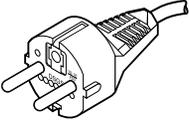
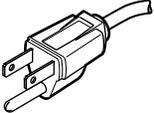
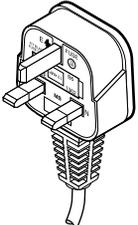
Interface name	Interface card	Type
ISDN S/T	 <p style="text-align: right;">10047EB</p>	ISDN interface card (no integrated NT1) with one POTS connector and one RJ-45 connector.
T1	 <p style="text-align: right;">9854EB</p>	T1 interface card (leased-line) with one RJ-48 connector for T1.
E1	 <p style="text-align: right;">9854EB</p>	E1 interface card (leased-line) with one RJ-48 connector for E1.
V.35/X.21	 <p style="text-align: right;">9853EB</p>	A 26-pin autosensing serial connector.
1-Meg Modem	 <p style="text-align: right;">9874EC</p>	1-Meg modem interface card with one RJ-11 connector for the phone (outgoing to modem) and one RJ-11 connector for the telco (incoming from wall jack).

Power cords

The AC power receptacle accepts the AC power cord (supplied). For installation outside of North America, make sure that you have the proper power cord for your region. Any cord used must have a CEE-22 standard V female connector on one end and must meet the IEC 320-030 specifications.

Table 4 lists specifications for international power cords.

Table 4 International power cord specifications

Country/Plug description	Specifications	Typical plug
Australia: <ul style="list-style-type: none"> • AS3112-1981 Male plug 	240 VAC 50 Hz Single phase	 230FA
Continental Europe: <ul style="list-style-type: none"> • CEE7 standard VII male plug • Harmonized cord (HAR marking on the outside of the cord jacket to comply with the CENELEC Harmonized Document HD-21) 	220 or 230 VAC 50 Hz Single phase	 228FA
US/Canada/Japan: <ul style="list-style-type: none"> • NEMA5-15P male plug • UL recognized (UL stamped on cord jacket) • CSA certified (CSA label secured to the cord) 	100 or 120 VAC 50–60 Hz Single phase	 227FA
United Kingdom: <ul style="list-style-type: none"> • BS1363 male plug with fuse • Harmonized cord (HAR marking on the outside of the cord jacket to comply with the CENELEC Harmonized Document HD-21) 	240 VAC 50 Hz Single phase	 229FA

**Caution: Please read immediately.**

Inspect this power cord and determine if it provides the proper plug and is appropriately certified for use with your electrical system. Immediately discard this cord if it is inappropriate for your country's electrical system and obtain the proper cord as required by your national electrical codes or ordinances.

Refer to this product's technical documentation for detailed installation procedures to be followed by qualified service personnel.

**Achtung: Bitte sofort lesen.**

Sehen Sie nach, ob dieses Netzkabel über den richtigen Stecker verfügt und für die Verwendung in Ihrem Stromversorgungsnetz zertifiziert ist. Falls dieses Kabel nicht für das Stromversorgungsnetz in Ihrem Land geeignet ist, darf es nicht verwendet werden. Besorgen Sie sich ein Kabel, das die Vorschriften der Zulassungsbehörden in Ihrem Land erfüllt.

Die technische Dokumentation dieses Produkts enthält ausführliche Installationsanweisungen, die nur von qualifiziertem Kundendienstpersonal ausgeführt werden dürfen.

**Attention: Lisez ceci immédiatement.**

Examinez ce cordon d'alimentation pour déterminer s'il dispose de la fiche appropriée et s'il est bien agréé pour utilisation sur votre installation électrique. Débarrassez-vous en immédiatement s'il ne convient pas à l'utilisation sur le secteur électrique en usage dans votre pays et procurez-vous un cordon conforme à la réglementation nationale en vigueur.

Reportez-vous à la documentation technique de ce produit pour obtenir des instructions détaillées d'installation, destinées à un technicien qualifié.



Attenzione: Leggere attentamente.

Controllare questo cavo di alimentazione, verificarne il collegamento con la presa appropriata nonché la certificazione per l'uso nell'impianto elettrico posseduto. Non utilizzare assolutamente in caso tale cavo non sia adatto al sistema elettrico del paese in cui viene utilizzato e richiederne un altro certificato dall'ente nazionale di fornitura elettrica.

Per le procedure di installazione che devono essere seguite dal personale di servizio, consultare questa documentazione tecnica del prodotto.



Precaución: Sírvase leer inmediatamente.

Inspeccione este cable de alimentación eléctrica y determine si viene con el enchufe apropiado y está debidamente certificado para el uso con su sistema eléctrico. Si no cumple con los reglamentos del sistema eléctrico de su país, despójese de este cable de alimentación inmediatamente y obtenga el cable requerido, según las ordenanzas y códigos eléctricos nacionales.

Refiérase a la documentación técnica de este producto para recibir información detallada sobre los procedimientos que el personal calificado de reparaciones deberá seguir.



注意：最初にお読み下さい。

本電源コードが、ご使用になる電力規格に適したプラグ部で、且つ適正な規格証明がついているかどうかをお確かめ下さい。

もし本電源コードがご使用の電力規格に不適格な場合はただちに使用を中止し、ご使用の国家規格・法令に定められた適切な電源コードをご使用下さい。

本製品の取付方法につきましては、取扱技術説明書をご覧のうえ資格認定を受けたサービス・スタッフの指示に従って下さい。

Setting the voltage selector switch

The voltage of the Instant Internet unit must match the voltage of the power source. If the switch is set to 110 and the voltage that the unit is connecting to is 200 or above, you must return the unit for repair. If the switch is set to 230 and the voltage that the unit is connecting to is 127 or below, the unit may not function properly.

Table 5 shows the voltage selector switch settings for the different voltage ranges.

Table 5 Voltage selector switch settings

Setting	Voltage range
115	For voltages between 100 and 127
230	For voltages between 200 and 240

Instant Internet quick installation

These steps guide you through the general process of installing your Instant Internet hardware.

Install your Instant Internet 400-S unit in a ventilated area that is dust free and away from heat vents, warm air exhaust from other equipment, and direct sunlight. Avoid proximity to large electric motors or other electromagnetic equipment. Be sure to choose a location near your router and LAN or WAN hubs and close to an electrical outlet.



Caution: Before you begin installation, make sure that the power voltage selector switch matches your power voltage (see [“Setting the voltage selector switch” on page 42](#)) and the DIP switch settings are set to normal operation (see [“Switch settings for normal operation” on page 56](#)).

The communications connection is necessary to provide the link between your Instant Internet unit and your Internet service provider (ISP). To ensure a proper communications connection, make sure that you have ordered the appropriate following services:

- Installation from your telco
- Service from your telco
- Internet access service from your ISP

Be sure to review the information in [“Installation checklist” on page 31](#).

If you experience problems during installation, unplug all connections, except the LAN connection, and then restart the Instant Internet unit.



Note: *Do not* apply power to the Instant Internet unit until you have completed the installation steps.

You can mount your Instant Internet unit in an equipment rack or place it on a flat surface. If you choose not to mount the Instant Internet unit in a rack, be sure to install the unit's rubber feet. If the feet are not installed, stick the adhesive side of the feet on the spaces provided on the bottom of the unit. You need to use either the mounting brackets or the feet.

To install your Instant Internet hardware:

- 1 Do one of the following:
 - If you want to mount your Instant Internet unit in a rack, you must do so before you connect it to your LAN. Follow the procedure [“Mounting your Instant Internet unit in a rack” on page 46](#) and then return to this procedure and continue with step 2.
 - If you do not want to mount your Instant Internet unit in a rack, place the unit on any appropriately level surface that can safely support the weight of the unit and attached cables. Make sure that there is adequate space around the unit for ventilation and access to cable connectors. Allow at least 2 inches (5.1cm) on each side for proper ventilation and 5 inches (12.7cm) at the back for power cord clearance and ventilation. Continue with step 2.
- 2 With the tip of a pen, slide the power voltage selector switch to the power voltage setting that matches your power voltage. For more information, see [“Setting the voltage selector switch” on page 42](#).
- 3 Attach one end of the communications cable to the appropriate connector on the rear panel of the Instant Internet unit.
 - If you are using an analog modem, ISDN, 1-Meg modem, V.35, X.21, T1, or E1 connection, use slot A for this connection.
 - If you are using an external Ethernet device, use the Ethernet connector in the option slot (Eth3) to connect to the external modem. Be sure to use the proper cable (straight-through or crossover) for this connection.

- If you are using an Ethernet connection to attach to a router or bridge, use the Ethernet connector (Eth2) on the bottom left of your unit. Be sure to use the proper cable (straight-through or crossover) for this connection.



Note: You use the second Ethernet connection (Eth2) to connect a DMZ or to connect two LANs together. You use the third Ethernet connection (Eth3), available in slot C, to configure a backup connection to your telco or for a second WAN bounded/in-band channel card.

- 4 Attach the other end of the communications cable to the appropriate source (phone jack, ISDN jack, T1 jack, E1 jack, cable modem, or external router).
- 5 Do one of the following:
 - To use the Instant Internet unit as your LAN switch, attach up to seven workstations to the seven-port switch on the front panel of the unit.
 - To connect the Instant Internet unit to your LAN, attach one end of the LAN cable (straight-through or crossover) to one of the ports on the seven-port switch and attach the other end of the cable to your LAN.
- 6 Plug the power cord into the rear panel of the Instant Internet unit.
- 7 Plug the power cord into an AC wall outlet.
- 8 Turn on the Instant Internet unit.

When you turn on your Instant Internet 400-S unit, the LEDs on the top left of the front panel illuminate. LED 2 glows amber when the unit is ready for configuration. For information about setting up your unit, see *Installing the BayStack Instant Internet Management Software Version 7.11*.

Mounting your Instant Internet unit in a rack

To install your Instant Internet unit in an equipment rack, you will need a Phillips screwdriver (not included) and the brackets, screws, and washers provided in the rack mounting kit.



Caution: When mounting this device in a rack, do not stack units directly on top of one another in the rack. Each unit must be secured to the rack with appropriate mounting brackets. Mounting brackets are not designed to support multiple units.



Achtung: Wenn Sie dieses Gerät in einem Gerätegestell installieren, stellen Sie die Geräte nicht direkt aufeinander. Jedes Gerät muß mit entsprechenden Halterungen im Gestell befestigt werden. Die Halterungen sind nicht dafür konzipiert, mehrere Geräte zu tragen.



Attention: Si cet appareil doit être encastré dans un rack, ne jamais empiler directement plusieurs unités les unes sur les autres. Chaque unité doit être correctement fixée avec les membrures appropriées. Les membrures ne sont pas conçues pour supporter le poids d'unités multiples.



Attenzione: Se il dispositivo viene installato su una cremagliera, non impilarlo su un altro dispositivo montato sulla cremagliera. Ciascuna unità deve essere fissata alla cremagliera con le apposite staffe di montaggio. Tali staffe non possono essere utilizzate per fissare più unità.



Precaución: Al montar este dispositivo apilado con otros dispositivos, no apile las unidades directamente unas sobre otras. Cada unidad se debe fijar a la estructura mediante los soportes de montaje adecuados. Los soportes de montaje no están diseñados para soportar varias unidades.

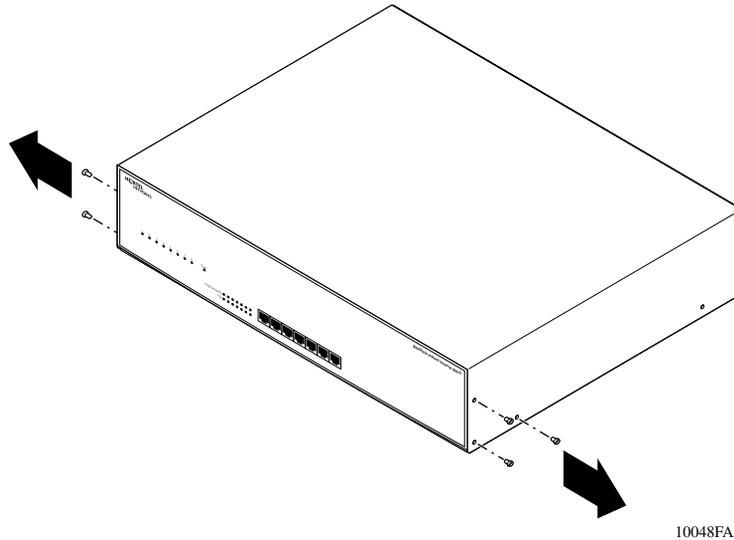


注意: このデバイスをラックに据え付ける場合、スタック・ユニットを別のユニットの上に直接積み重ねないでください。各ユニットは、適切な据え付けブラケットでラックに固定してください。据え付けブラケットは、複数のユニットを支えるように設計されていません。

To mount your Instant Internet 400-S in a rack:

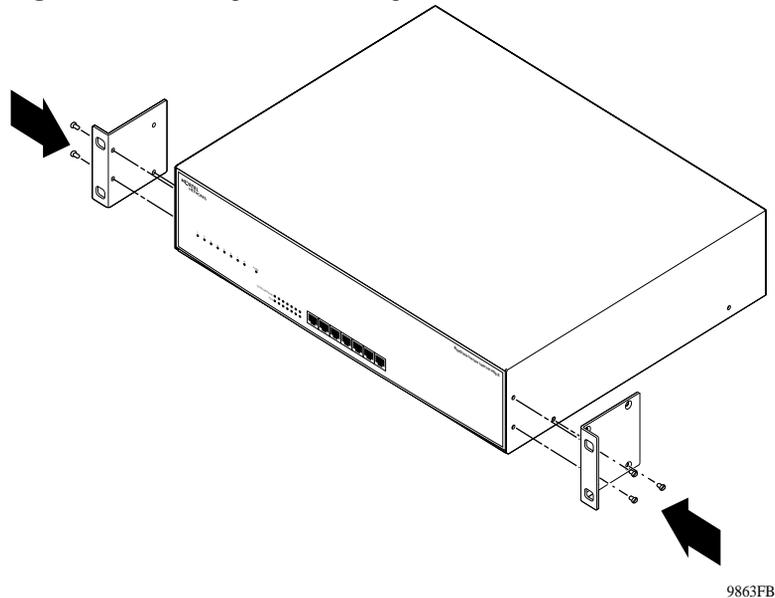
- 1 Remove the three screws from the cover on each side of your Instant Internet unit as shown in [Figure 3](#).

Figure 3 Removing screws from cover of Instant Internet 400-S unit



- 2 Attach the front mounting brackets to your unit using the screws that you just removed from the unit ([Figure 4](#)).

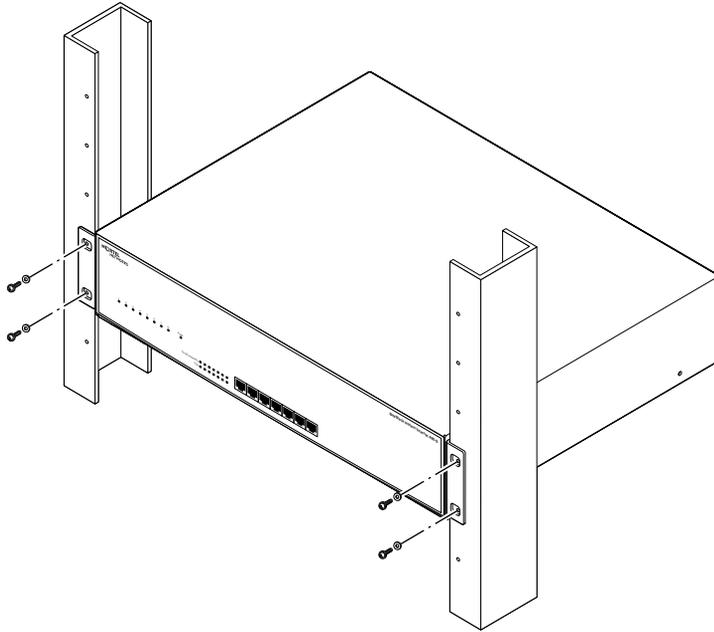
Figure 4 Attaching the mounting bracket to the Instant Internet 400-S unit



Note: The mounting bracket is designed so that it will work on either side of the Instant Internet unit. Only three of the six holes in the mounting bracket are used on each side of the unit.

- 3** Position your unit in the rack horizontally.
Your unit should be facing out from the rack.
- 4** Align the holes in the mounting bracket with the holes in the rack.
- 5** Attach your unit to the front of the rack using the mounting screws and washers provided ([Figure 5](#)).

Figure 5 Attaching the Instant Internet 400-S unit to the front of the rack



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Chapter 4

Seven-port autosensing switch specifications

The chapter lists the key features of the seven-port autosensing switch and explains the components of the switch in detail.

Instant Internet 10/100 Ethernet switch overview

The seven-port switch on the front of the Instant Internet unit has seven 10/100 autosensing ports. Each port automatically senses and adapts to the operating environment, regardless of the type of cable (straight-through or crossover) plugged into the port, or whether the device at the other end of the cable is an Ethernet card, such as in a PC, or another hub or switch.

The seven-port switch is designed to provide flexibility in configuring your network connections. You can use the switch to:

- Add hardware to your LAN.
- Network several computers together.
- Connect your Instant Internet unit without purchasing additional hardware.
- Replace your existing 10BASE-T or 100BASE-T hub to save space.

Switch features

The Instant Internet 400-S unit seven-port switch offers:

- Seven RJ-45 10BASE-T/100BASE-T autosensing Ethernet ports with autonegotiation capability. The eighth port is used internally to connect to the internal Ethernet controller.
- Comprehensive 10/100 Link/Activity LEDs indicating link and activity status.
- Full-duplex (FDX) and half-duplex (HDX) mode support with one indicator LED per port.
- MDI (uplink, or crossover)/MDI-X (normal, or straight-through) autosensing capability.
- Store-and-forward switching architecture.
- One MB buffer memory.

When you plug an Ethernet cable into a port, the switch:

- Autosenses the transmission speed (10 Mb/s or 100 Mb/s) of the connected device.
- Autonegotiates with the connected device to operate in full- or half-duplex mode. If the connected device is operating in half-duplex mode only, or does not have the capability to participate in the autonegotiation process, the port defaults to half-duplex mode.
- Autosenses whether the cable is MDI or MDI-X.

RJ-45 10BASE-T/100BASE-TX Ethernet ports

The RJ-45 10BASE-T/100BASE-TX Ethernet ports connect the switch to network devices using standard unshielded twisted pair (UTP) cable. The Instant Internet 400-S switch does not support shielded twisted-pair (STP) cable. Each port adapts to the correct network speed of 10 Mb/s or 100 Mb/s through autonegotiation with the network interface card (NIC), hub, or other switch connected to the Instant Internet unit.

MDI/MDI-X autosensing capability

When you plug an Ethernet cable into a port, the switch autosenses whether the cable is MDI-X (normal, or straight-through) or MDI (uplink, or crossover). This feature enables you to connect the Instant Internet unit to another Ethernet connection regardless of whether you are using a straight-through cable or a crossover cable.



Note: Observe standard networking guidelines when you use the seven-port switch to install or connect an Instant Internet 400-S unit to additional devices.

LEDs

The LEDs on the Instant Internet 400-S unit switch provide information about the performance and status of the switch including link activity, data transmission speed, and duplex mode.

For more information on LEDs, refer to [Chapter 6, “LEDs: support and diagnostic functions,”](#) on page 61.

Chapter 5

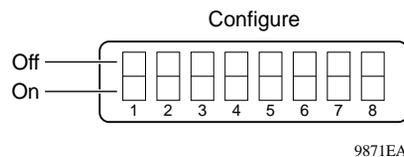
DIP switch settings

This chapter describes the Dual Inline Pins (DIP) switch settings for your Instant Internet 400-S unit, including those for normal operation and for resetting your unit's password and configuration settings.

DIP switches

DIP switches enable you to configure your Instant Internet unit for a particular type of operation. There are eight DIP switches on the rear panel of your unit (Figure 6). The switches are labeled left to right from 1 to 8.

Figure 6 DIP switches on the rear panel of the unit



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The switches have two possible positions: on and off. For the Instant Internet 400-S unit, the off position is up and the on position is down. Use a small instrument with a fine point, such as the tip of a pen or a straightened paper clip, to move the switches to the proper position. Labels on the unit indicate whether a switch is on or off, and the specific switch pattern indicates a specific configuration item.

Switch settings for normal operation

Leave all switches *off* for normal operation, as shown in [Table 6](#).

Table 6 Switch settings for normal operation

	1	2	3	4	5	6	7	8
OFF	•	•	•	•	•	•	•	•
ON								

Switch settings for special configurations

During the power-up sequence, your Instant Internet 400-S unit checks the settings of the switches. You can use the switches on your unit to:

- Reset the password ([Table 7](#)), which is useful if you forget the password.
- Reset the password and other user-defined system configuration ([Table 8](#)).
- Disable the switch settings for resetting the password and user-defined configurations ([Table 9](#)).
- Reset the original default factory settings ([Table 10](#)).

[Table 7](#) shows the switch settings for resetting your unit's password.

Table 7 Switch settings for resetting the password

	1	2	3	4	5	6	7	8
OFF				•		•		•
ON	•	•	•		•		•	

[Table 8](#) shows the switch settings for resetting your unit's password as well as some user-defined configurations.

Table 8 Switch settings for resetting the password and user-defined configurations

	1	2	3	4	5	6	7	8
OFF				•			•	•
ON	•	•	•		•	•		



Caution: If you use these switch settings to reset your unit, the following user-defined settings are removed or reset: password, hosts, port mappings, and unit configuration.

[Table 9](#) shows the switch settings to disable the switch settings for resetting the password and user-defined configurations.

Table 9 Switch settings to disable switch settings for resetting the password and user-defined configurations

	1	2	3	4	5	6	7	8
OFF			•					•
ON	•	•		•	•	•	•	

[Table 10](#) shows the switch settings for resetting your unit to factory default conditions.

Table 10 Switch settings for resetting factory default conditions

	1	2	3	4	5	6	7	8
OFF				•				•
ON	•	•	•		•	•	•	



Caution: If you use these switch settings to reset your unit to factory default conditions, the following user-defined settings are removed or reset: password, hosts, port mappings, unit configuration, access restrictions, unit registration, and encryption authorization.

If you purchased and installed the *3DES Encryption Module* (part number CQ1010005), you need to reinstall it.

If you used the switch settings in [Table 9](#) to disable the reset password and configuration switch settings, these settings are re-enabled.

Resetting your Instant Internet unit

Before you reset your Instant Internet unit, be sure to back up the configuration. If you back up the configuration, you can easily restore it. For details, refer to *Using the BayStack Instant Internet Management Software Version 7.11*.

To reset your Instant Internet unit:

- 1 Turn off your unit.
- 2 Set the switches to the configuration you want.

Refer to [“Switch settings for special configurations”](#) on page 56.

- 3 Turn on your unit.

The LEDs on the front of your unit flash and then glow steadily amber, including the Power LED, when they completely match the sequence for the selected switch settings.



Note: If you used the switch settings in [Table 9](#) to disable the reset password and configuration switch settings, the Power LED glows amber and LEDs 1–8 flash red in the sequence of the selected switch settings.

- 4 Turn off your unit.
- 5 Reset the switches for normal operation.

Normal operation is when all the switches are in the off position. Refer to [“Switch settings for normal operation”](#) on page 56.

- 6 Turn on your unit.

Chapter 6

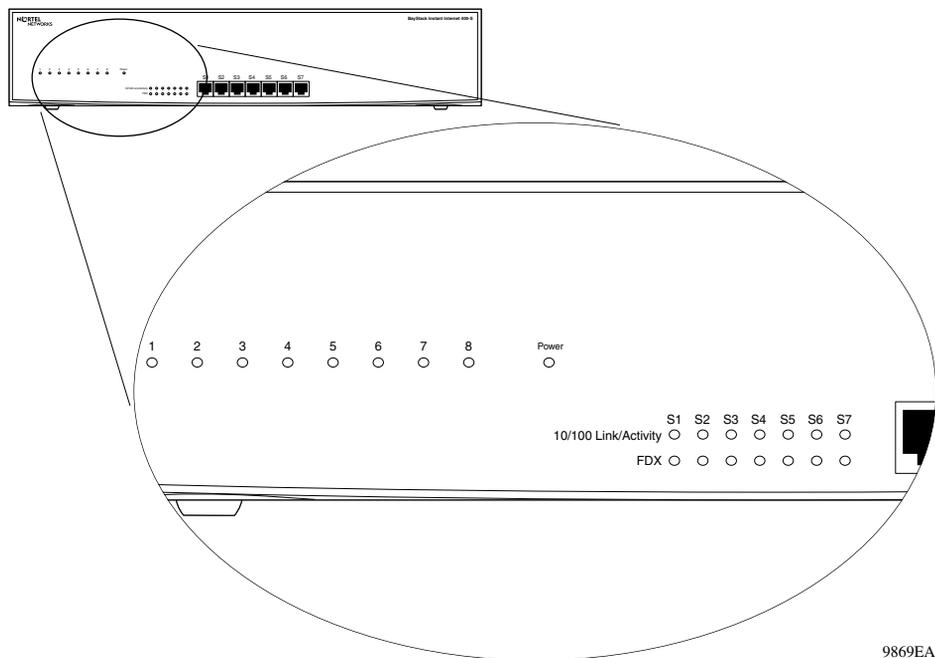
LEDs: support and diagnostic functions

This chapter describes how the LEDs work on your Instant Internet 400-S unit and how you can use them to interpret activity on your unit.

Interpreting Instant Internet LEDs

The front panel of the Instant Internet 400-S unit has two sets of LEDs, the eight LEDs on the left indicate failures and operational status of the unit. The Power LED is always lit when your unit is turned on. The 14 LEDs at the bottom, center of the unit, display status and settings for the seven-port switch.

[Figure 7](#) illustrates the LEDs on the front of the Instant Internet 400-S unit.

Figure 7 Instant Internet 400-S unit LEDs

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LEDs 1 through 8 and Power LED at power-up sequence

If a failure occurs during the power-up sequence, the Power LED glows amber, and one or more of LEDs 1 through 8 glow red. This sequence indicates a hardware problem. Call the Nortel Networks Technical Solutions Center ([page 23](#)) for assistance.

If all LEDs glow amber, or none of the LEDs illuminates, check that the power voltage selector switch setting matches your power voltage. For more information, see [“Setting the voltage selector switch” on page 42](#).



Caution: During normal operation, the Power LED glows green, except when updating the internal flash ROM. While updating the flash memory, the Power LED glows amber. This amber LED indicates that it is not safe to turn off the unit without potentially damaging the contents of flash memory.

LEDs 1 through 8 and the Power LED during operation

After the power-up sequence is complete, the LEDs indicate status and activity during operation as shown in [Table 11](#).

Table 11 LED status and appearance during operation

LED #	Color	Appearance	Meaning
Power	Green	Solid	Unit has electrical power and is turned on.
Power	Green and Amber	Solid Green and Flashing Amber	Unit is updating flash ROM. DO NOT TURN THE UNIT OFF until light returns to green.
1	Green	Blinking	Unit is operating normally.
2	Green	Solid	Unit is ready to service clients.
2	Green and Amber	Solid Green and Flashing Amber	Unit is communicating with clients.
2	Amber	Solid	Unit is ready to run setup but cannot service clients (normally occurs before unit has been configured).
3-8	Green	Solid	Indicated interface (see Note below) is online.
3-8	Green	Flashing	Indicated interface (see Note below) is dialing or attempting connection.
3-8	Green and Amber	Solid Green and Flashing Amber	Traffic is on the indicated interface.
3-8	Red	Solid	Indicated interface (see Note below) has failed.



Note: The “indicated interface” is the interface associated with the LED’s number. This information is available in the main dialog box of the Setup program. For more information, refer to *Using the BayStack Instant Internet Management Software Version 7.11*.

Using the seven-port autosensing switch LEDs for troubleshooting

The seven-port autosensing switch has two LEDs for each port on the switch. The top row of these LEDs displays speed, link, and activity. The bottom row of LEDs displays whether the unit is operating in full- or half-duplex mode.

Use the LED display to help you identify the type of problem with the seven-port autosensing switch and then verify that:

- The switch is powered on.
- Each cable and port connection has the correct pin assignment and that no connectors are loose.
- The Link/Activity LED glows for each port used.

If the Link LED is not on, do the following:

- Verify that the device connected to your switch has a properly functioning power supply.
- Try using a different port on your switch to connect the device.
- Try using a different port on the device connected to your switch.

[Table 12](#) describes the LEDs that monitor the seven-port switch.

Table 12 Seven-port switch port status LEDs

Type	Label	Color	Activity	Meaning
Port Status	10/100 Link/Activity	Green	Solid	Port is connected at 100 Mb/s
Port Status	10/100 Link/Activity	Amber	Solid	Port is connected at 10 Mb/s.
Port Status	10/100 Link/Activity	Green	Blinking	100 Mb/s activity is occurring on the port
Port Status	10/100 Link/Activity	Amber	Blinking	10 Mb/s activity is occurring on the port
Port Mode	FDX	Green	Solid	Port is operating in full-duplex mode
Port Mode	FDX	Off	Off	Port is operating in half-duplex mode

Chapter 7

Out-of-band management support

This chapter describes how to set up your Instant Internet unit for out-of-band management. This feature enables you to configure the Instant Internet unit without installing the unit on a network or loading the Instant Internet management software.

After you connect a dumb terminal or a smart terminal (for example, a PC, a Macintosh, or a UNIX workstation) and terminal emulation software (for example, HyperTerminal or ProComm Plus) to the unit's AUX port, you can use remote access commands to configure the unit. For details, refer to *Reference for the BayStack Instant Internet Remote Access Commands Version 7.11*.

You can use out-of-band management any time, including for initial configuration, troubleshooting, or daily management of the unit. This chapter describes how to use a 32-bit Windows® operating system and the HyperTerminal terminal emulation software to:

- Connect to the unit with a PC for out-of-band management. For details, refer to [“Configuring the Instant Internet unit through a PC direct connection,”](#) next. You must supply a null modem cable (also referred to as a pc-to-pc file transfer cable) to connect your PC to the Instant Internet unit.
- Configure an external modem to be used for out-of-band management. For details, refer to [“Configuring the Instant Internet unit through a dial-up connection”](#) on page 69. You must supply a DB9 serial cable to connect your dial-up modem to the Instant Internet unit.

These procedures assume that you have turned on the unit and no LEDs are glowing red. For more information on installing the Instant Internet hardware refer to [Chapter 3, “Instant Internet 400-S hardware installation,”](#) on page 35. For more information on the required connection cables, refer to [Appendix B, “Adapter cable pinout diagrams,”](#) on page 77.

Configuring the Instant Internet unit through a PC direct connection

To configure the unit with a PC using the out-of-band management feature, you must:

- Connect the unit to the PC.
- Use terminal emulation software to configure and establish a connection.

Connecting a PC to the Instant Internet unit

This procedure assumes that the Instant Internet unit is installed, turned on, and ready for operation. LED 2 glows amber when the unit is ready for initial configuration.



Note: You can connect any type of smart terminal in a similar manner.

To connect a PC to the Instant Internet unit:

- 1 Plug one end of the null modem cable into the AUX port on the rear of the unit.
- 2 Plug the other end of the cable into the serial port on the PC.

You can now use terminal emulation software to configure the Instant Internet unit using remote access commands.

Configuring a direct connection

Regardless of the terminal emulation environment you use, you must set the connection speed to 115200, set the flow control to hardware (RTS/CTS), and connect the Instant Internet unit's AUX port to the PC's COM1 port.

This procedure provides instructions for configuring the HyperTerminal terminal emulation software.



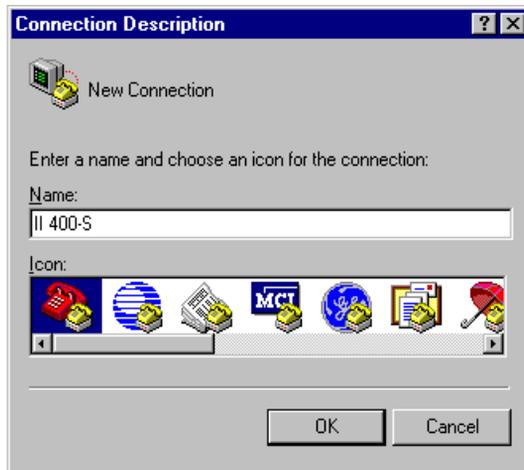
Caution: If you are configuring the unit, wait for LED 2 to glow amber before you proceed.

To create a HyperTerminal PC connection profile:

- 1 Start the HyperTerminal software.

The Connection Description dialog box opens (Figure 8).

Figure 8 HyperTerminal Connection Description dialog box

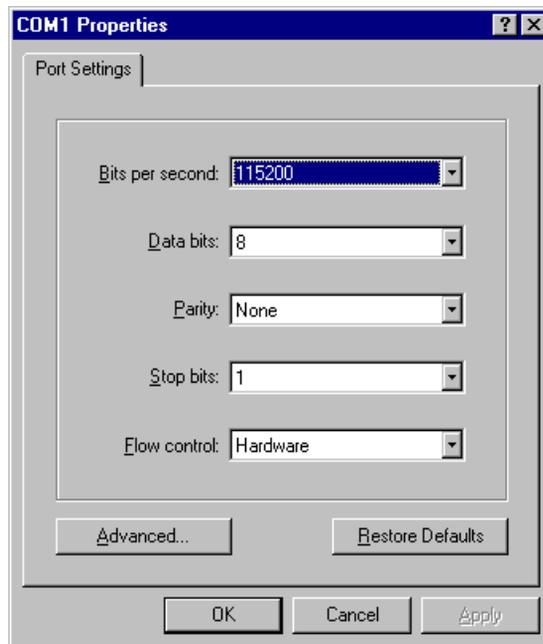


- 2 In the Name box, enter a name for the connection.
- 3 In the Icon area, select an icon for the connection.
- 4 Click OK.

The Connect To dialog box opens (Figure 9).

Figure 9 HyperTerminal Connect To dialog box

- 5 From the Connect using list, select COM1, and then click OK.
The COM1 Properties dialog box opens (Figure 10).

Figure 10 HyperTerminal Com1 Properties dialog box

- 6 From the Bits per second list, select 115200 to set the modem speed, and then click OK.

HyperTerminal establishes a connection to the Instant Internet unit. If the Instant Internet unit is password protected, the session begins by requesting a password. Enter the password for the Instant Internet unit and then press Enter.



Note: If you enter an incorrect password, the message “Incorrect Login” is displayed and you are prompted to enter a correct password. You are given two more chances before Instant Internet ends the session and disconnects you.

When you successfully log on, the command prompt is displayed (Figure 11) and you can begin using remote access commands to configure the unit.

Figure 11 Command prompt

```
BayStack Instant Internet(tm) version 7.11
Copyright (c) 1995-2000 Nortel Networks Corporation
ii>
```

Configuring the Instant Internet unit through a dial-up connection

To configure the unit through a dial-up connection using the out-of-band management feature, you must:

- Connect the modem to a PC.
- Use a terminal emulation software application to configure the modem connection settings.
- Connect the modem to your Instant Internet unit.

Connecting a modem to a PC

For this procedure, you do not need to load the modem drivers on the PC.



Note: You can also connect a dumb terminal in a similar manner.

To connect a modem to a PC:

- 1 Connect the modem's power cord to the modem and the power outlet, as described in the modem's installation instructions.
- 2 Plug one end of the DB9 serial cable into the modem.
- 3 Plug the other end of the cable into the serial (COM1) port on the PC.
- 4 Turn on the modem.

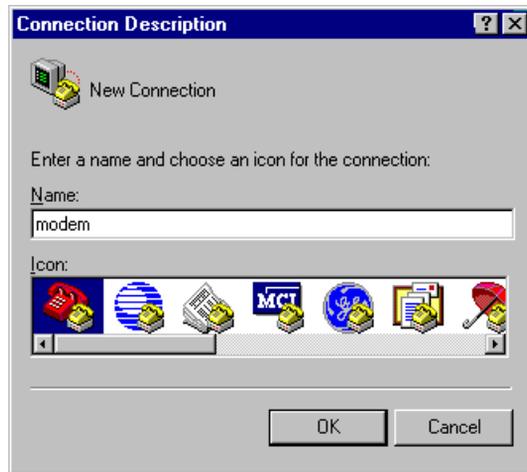
Configuring modem connection settings

Regardless of the terminal emulation environment you use, you must set the connection speed to 115200, set the flow control to hardware (RTS/CTS), and set the modem to answer on the first ring (auto-answer) with the command string: `ats0=1&w\r`. Some modems enable you to configure the modem to auto-answer using DIP switch settings. Refer to your modem's documentation for instructions.

This procedure provides instructions for configuring modem connection settings using the HyperTerminal terminal emulation software.

To configure modem connection settings using HyperTerminal:

- 1 Start the HyperTerminal software.
The Connection Description dialog box opens (Figure 12).

Figure 12 HyperTerminal Connection Description dialog box

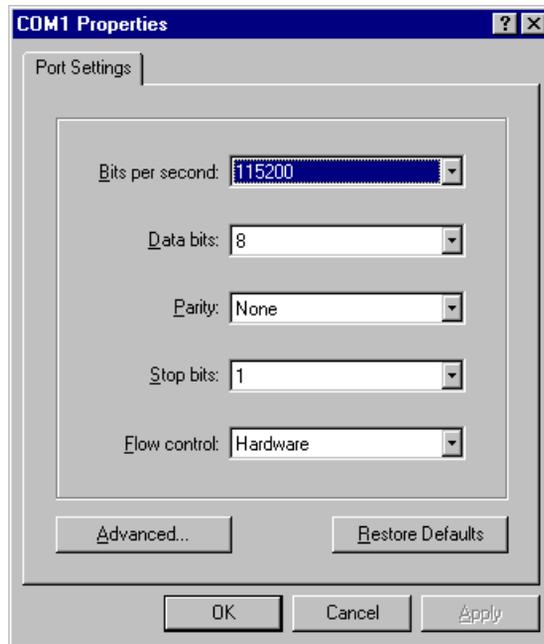
- 2 In the Name box, enter a name for the connection.
- 3 In the Icon area, select an icon for the connection.
- 4 Click OK.

The Connect To dialog box opens (Figure 13).

Figure 13 HyperTerminal Connect To dialog box

- 5 From the Connect using list, select COM1, and then click OK.

The COM1 Properties dialog box opens (Figure 14).

Figure 14 HyperTerminal COM1 Properties dialog box

- 6 From the Bits per second list, select 115200 to set the modem speed, and then click OK.

HyperTerminal establishes a connection to the modem and the cursor is positioned in the main HyperTerminal dialog box.

- 7 Enter:

```
ats0=1&w\r
```

This command instructs the modem to answer on the first ring and saves the settings to the modem. Some modems respond with “OK” or a similar message when the settings are saved to the modem.

- 8 Disconnect the modem from the PC.

Connecting a modem to the Instant Internet unit

Before you connect the modem to the Instant Internet unit, you must turn off the unit.



Note: Before you continue with this procedure, be sure that you have properly configured the modem connection settings. For details, refer [“Configuring modem connection settings” on page 70](#).

To connect a dial-up modem to the Instant Internet unit:

- 1 Turn off the Instant Internet unit.
- 2 Plug one end of the DB9 serial cable into the AUX port on the rear of the Instant Internet unit.
- 3 Plug the other end of the cable into the modem.
- 4 Plug one end of the telephone cord into the modem and the other end into the wall phone jack.
- 5 Turn on the modem.
- 6 Turn on the Instant Internet unit.

If you are configuring the unit, wait for LED 2 to glow amber.

Connecting to an Instant Internet unit

You can use any terminal emulation software application to dial in to the Instant Internet unit.

To connect to the Instant Internet unit:

- ➔ Dial the telephone number of the modem attached to the unit.

After you establish a connection, you can begin using remote access commands to configure the unit. For details, refer to *Reference for the BayStack Instant Internet Remote Access Commands Version 7.11*.

Appendix A

Technical specifications

This appendix describes the physical and environmental specifications for your Instant Internet 400-S unit.

Physical specifications

The Instant Internet 400-S unit is 17.13 inches wide by 15.25 inches deep by 3.53 inches high (19-inch rack-mountable, 2-rack units) and weighs 13.2 pounds.

Electrical specifications

- Input voltage: 100-127Vac or 200-240Vac
- Input current: 4A or 2A
- Frequency: 50/60 Hz
- Power consumption: 100 watts maximum
- Safety agency approvals: UL listed, cUL, CB certificate and report, NOM

Environmental specifications

The operating and nonoperating environment for the Instant Internet 400-S unit is as follows:

- Operating temperature: 0° to 40° C maximum
- Nonoperating temperature: -25° to 70° C maximum
- Operating humidity
 - 8% minimum to 80% maximum
 - Relative humidity: noncondensing
- Nonoperating humidity
 - 5% minimum to 80% maximum
 - Relative Humidity: noncondensing
- Operating altitude: 8,000 feet (2,438 meters) maximum
- Nonoperating altitude: 30,000 feet (9,144 meters) maximum
- Acoustic Noise: 50dBA at 3 feet

Appendix B

Adapter cable pinout diagrams

This appendix describes the pinout settings for the V.35, X.21, modem, and null modem adapter cables.

Direct access adapter cables

Cable part numbers

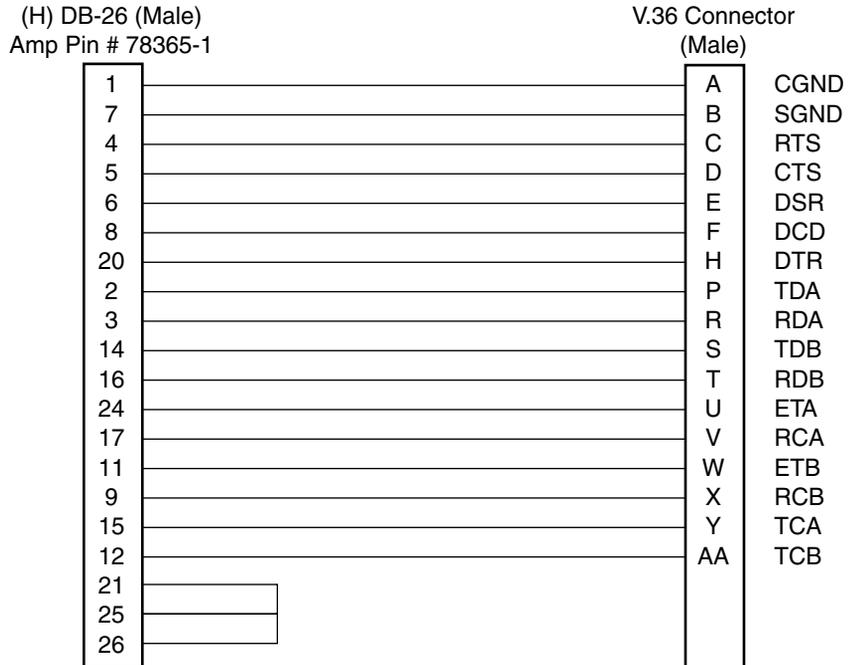
If you ordered your Instant Internet 400-S unit for use with a V.35 modem or X.21 modem, you must provide the connection cable. You can have a cable made according to the pinout diagrams in this appendix or you can order the cable from Nortel Networks using the following part numbers:

- V.35 Adapter Cable—Part Number CQ2118005
- X.21 Adapter Cable—Part Number CQ2118006

V.35 adapter cable

Figure 15 shows the pinout settings for a V.35 modem adapter cable (part number CQ2118005).

Figure 15 V.35 adapter cable pinout diagram

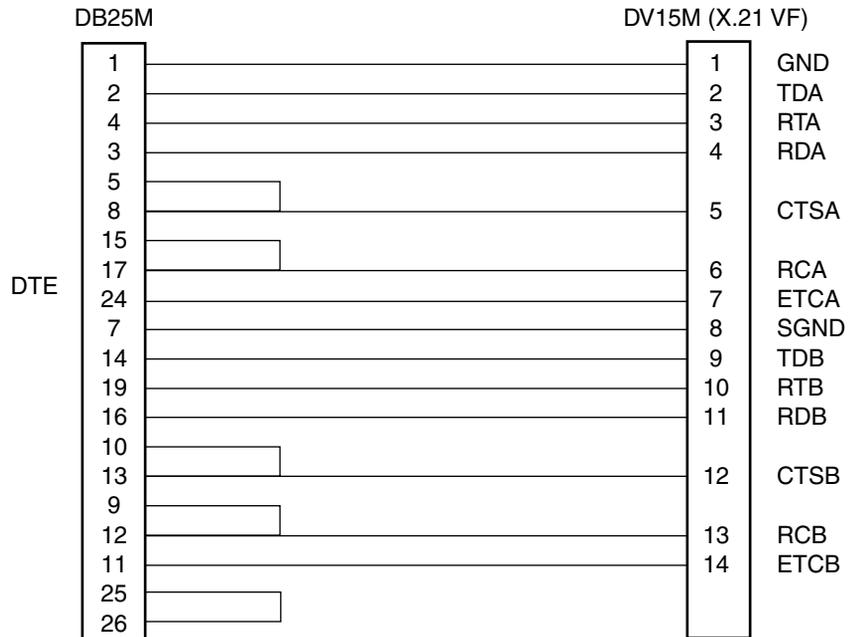


9940EB

X.21 (DCE) adapter cable

Figure 16 shows the pinout settings for an X.21 (DCE) modem adapter cable (part number CQ2118006).

Figure 16 X.21 (DCE) adapter cable diagram



9941EB

Remote access adapter cables

If you want to connect a PC or dial-up modem directly to your Instant Internet 400-S unit to configure the unit using remote access commands (out-of-band management), you must provide the connection cable. These are standard cables. You can have a cable made according to the pinout diagrams in this appendix or you can purchase the cable from any computer supply store.

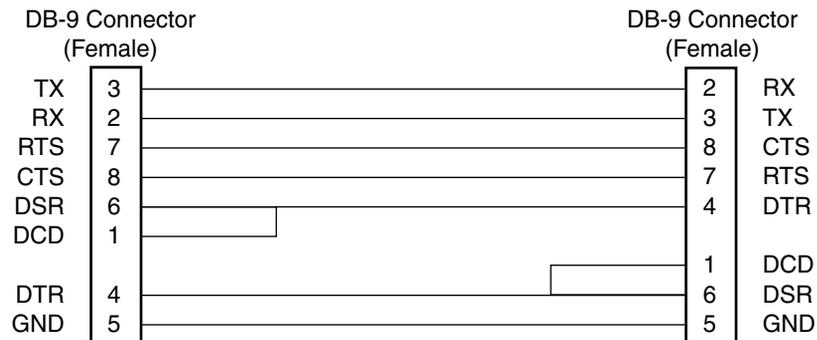
For more information on configuring your unit remotely, refer to *Reference for the BayStack Instant Internet Remote Access Commands Version 7.11*.

Null modem adapter (PC-to-PC) cable

Figure 17 shows the pinout settings for a null modem adapter cable (also referred to as a pc-to-pc file transfer cable). This serial cable must have two DB-9 female connectors.

Use a null modem cable to connect a PC to the Instant Internet unit's AUX port for out-of-band management.

Figure 17 Null modem adapter cable pinout diagram



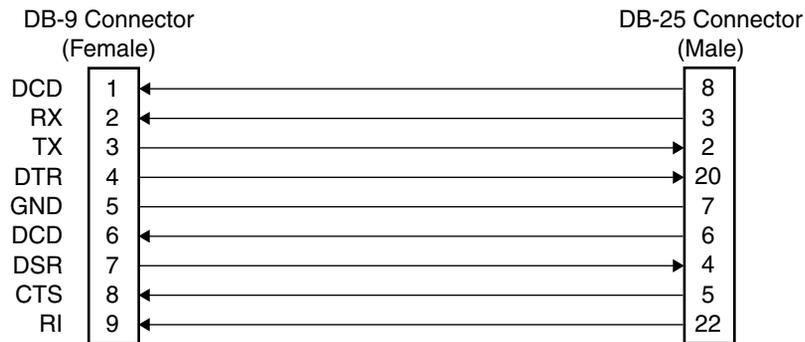
9959EA

Modem adapter cable

Figure 18 shows the pinout settings for a modem adapter cable. This serial cable must have a DB-9 female connector and a DB-25 male connector.

Use a modem cable to connect a dial-up modem to the Instant Internet unit's AUX port for out-of-band management.

Figure 18 Modem adapter cable pinout diagram



9958EA

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