



## NetVanta 1335 Series Hardware Installation Guide

1700515G2#120	NetVanta 1335 with 120 VDC Power Supply
1700515G2#240	NetVanta 1335 with 240 VDC Power Supply
1700525E2	NetVanta 1335 PoE
1200861L1	NetVanta 56K/64K Network Interface Module
1202862L1	NetVanta T1/FT1 Network Interface Module
1202863L1	NetVanta T1/FT1 + DSX-1 Network Interface Module
1200872L1/1202872L1	NetVanta Dual T1 Network Interface Module
1200868E1/L1	NetVanta E1/FE1 Network Interface Module
1200878E1/L1	NetVanta E1/FE1 + G.703 Drop Network Interface Module
1200866E1	NetVanta Serial Network Interface Module
1200936E1	NetVanta SHDSL Network Interface Module, Annex A
1200937E1	NetVanta SHDSL Network Interface Module, Annex B
1202869E1	NetVanta ADSL Network Interface Module, Annex A
1202889E1	NetVanta ADSL Network Interface Module, Annex B
1200864L1	NetVanta Analog Modem Dial Backup Interface Module
1200865L1	NetVanta ISDN BRI Dial Backup Interface Module
1200875L1	NetVanta ISDN S/T Dial Backup Interface Module
1200819E1	CompactFlash®, 1 GB

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*Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*



901 Explorer Boulevard  
P.O. Box 140000  
Huntsville, AL 35814-4000  
Phone: (256) 963-8000

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## Conventions

**NOTE**

*Notes provide additional useful information.*

**CAUTION**

*Cautions signify information that could prevent service interruption or damage to the equipment.*

**WARNING**

*Warnings provide information that could prevent injury or endangerment to human life.*

## Safety Instructions

When using your telephone equipment, please follow these basic safety precautions to reduce the risk of fire, electrical shock, or personal injury:

1. Do not use this product near water, such as a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There is a remote risk of shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord, power supply, and batteries indicated in the manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for special disposal instructions.
5. The socket-outlet shall be installed near the equipment and shall be easily accessible.

If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your qualified service personnel:

1. The power cable, extension cable, or plug is damaged.
2. An object has fallen into the product.
3. The product has been exposed to water.
4. The product has been dropped or damaged.
5. The product does not operate correctly when you follow the operating instructions.



*This equipment incorporates double pole/neutral fusing. If the neutral fuse opens and the line fuse does not open, voltage could still be present in the unit.*



*These units contain no user-serviceable parts. They should only be serviced by qualified service personnel.*



*Additional safety guidelines, such as Waste Electrical and Electronic Equipment (WEEE), are given in the document [NetVanta Safety and Regulatory Information](https://supportforums.adtran.com) available at <https://supportforums.adtran.com>.*

**Save These Important Safety Instructions**

## FCC-Required Information

### FCC regulations require that the following information be provided in this manual:

1. This equipment complies with Part 68 of Federal Communications Commission (FCC) rules and requirements adopted by America's Carriers Telecommunications Association (ACTA). Each registered interface has a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, provide this information to the telephone company.
2. If this equipment causes harm to the telephone network, the telephone company may temporarily discontinue service. If possible, advance notification is given; otherwise, notification is given as soon as possible. The telephone company will advise the customer of the right to file a complaint with the FCC.
3. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of this equipment. Advance notification and the opportunity to maintain uninterrupted service are given.
4. If experiencing difficulty with this equipment, please contact ADTRAN for repair and warranty information. The telephone company may require this equipment to be disconnected from the network until the problem is corrected, or it is certain the equipment is not malfunctioning.
5. This unit contains no user-serviceable parts.
6. This equipment is designed to connect to the telephone network or premises wiring using an FCC-compatible modular jack, which is compliant with Part 68 and requirements adopted by ACTA.
7. The following information may be required when applying to the local telephone company for leased line facilities:

Part Number	Registration Number	Service Type	REN/SOC	FIC	USOC
1200861L1	US: HDCDENAN1200861L1	56 kbps Digital Interface 64 kbps Digital Interface	6.0F	04DU5-56 04DU5-64	RJ-48S
1202862L1	US: HDCDENAN1202863L1	1.544 Mbps - SF	6.0N	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1SN	RJ-48C
1202863L1		1.544 Mbps - SF and B8ZS			
1200872L1 1202872L1	US: HDCDENAN1200872L1	1.544 Mbps - ESF 1.544 Mbps - ESF and B8ZS			
1200864L1	US: HDCMM04A1200864L1	Analog Loop Start	0.4A/9.0Y	02LS2	RJ-11C
1200865L1	US: HDCDENAN1200865L1	Basic Rate ISDN	6.0F	02LS5	RJ-49C
1202869E1	US: HDCDL01A1200869L1	ADSL Modem	0.1A	Metallic	RJ-11C

8. The ringer equivalency number (REN) is useful in determining the quantity of devices you may connect to your telephone line and still have all of those devices ring when your number is called. In most areas, the sum of the RENs of all devices should not exceed five. To be certain of the number of devices you may connect to your line as determined by the REN, call your telephone company to determine the maximum REN for your calling area.
9. This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.

## FCC Radio Frequency Interference 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 frequencies. 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 his own expense.

## Electromagnetic Compatibility (EMC) Table

NetVanta Module P/N and Name		NetVanta 1335
1200861L1	56K/64K NIM	FCC Part 15 Class A EN 55022 Class A
1202862L1	T1/FT1 NIM	FCC Part 15 Class A EN 55022 Class A
1202863L1	T1/FT1 + DSX-1 NIM	
1200872L1	Dual T1 NIM (First Generation)	
1202872L1	Dual T1 NIM (Second Generation)	
1200868E1/L1	E1/FE1 NIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1200878E1/L1	E1/FE1 + G.703 Drop NIM	
1200866E1	Serial NIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1200936E1	SHDSL NIM, Annex A	FCC Part 15 Class A EN 55022 Class A EN 55024
1200937E1	SHDSL NIM, Annex B	
1202869E1	ADSL NIM, Annex A	FCC Part 15 Class A EN 55022 Class A EN 55024
1202889E1	ADSL NIM, Annex B	
1200864L1	Analog Modem DIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1200865L1	ISDN BRI DIM	
1200875L1	ISDN S/T DIM	
1202368L1	VPN Accelerator Card (included in P/N 4200368L1)	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3

## Industry Canada Compliance Information

Notice: The Industry Canada label applied to the product (identified by the Industry Canada logo or the “IC:” in front of the certification/registration number) signifies that the Industry Canada technical specifications were met.

Notice: The REN for this terminal equipment is supplied in the documentation or on the product labeling/markings. The REN assigned to each terminal device indicates the maximum number of terminals that can 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 RENs of all the devices should not exceed five (5).

## Canadian Emissions Requirements

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Class A prescrites dans la norme sur le matériel brouilleur: “Appareils Numériques,” NMB-003 édictée par le ministre des Communications.

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## Service and Warranty

For information on the service and warranty of ADTRAN products, visit the [Support](#) section of the ADTRAN website at <http://www.adtran.com>.





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# 1. INTRODUCTION

The NetVanta 1335 Series includes the NetVanta 1335 and NetVanta 1335 Power over Ethernet (PoE).



*In this document, the term NetVanta means all NetVanta 1335 Series products. If a statement only applies to one particular unit, the text refers to the unit individually. Additionally, unless otherwise specified, descriptions for a NetVanta 1335 Series device also applies to the PoE version of that device.*

This hardware installation guide lists the NetVanta 1335 Series units' physical characteristics, product specifications, introduces basic functionality, and provides installation instructions.

- *Physical Description on page 16*
- *Product Specifications on page 20*
- *Option Modules on page 21*
- *Unit Installation on page 36*

For additional information on mounting options, powering the unit, and installing option modules, refer to the following sections:

- *Mounting Options on page 37*
- *Supplying Power to the Unit on page 38*
- *Installing Dial Backup and Network Interface Modules on page 39*
- *Installing a CompactFlash Card on page 41*

For information on switch configuration for a specific application, refer to the configuration guides provided on the [ADTRAN Support Community](#). For details on the command line interface (CLI), refer to the *AOS Command Reference Guide*. All other related documents are also available online at <http://supportforums.adtran.com>.

## 2. PHYSICAL DESCRIPTION

All NetVanta 1335 Series units are managed switches, plus multiservice routers housed in a 1U-high, rack-mountable metal enclosure. The NetVanta 1335 Series front panels contain 24 10/100Base-T Ethernet interfaces and two Gigabit Ethernet interfaces accessed via a fixed RJ-45 connector or small form-factor pluggable (SFP) slots for fiber connectivity. All NetVanta 1335 Series units include IPsec virtual private network (VPN) support (without further software upgrades) and expandable memory via CompactFlash. The NetVanta 1335 includes either a 120 VDC or 240 VDC power supply and the NetVanta 1335P includes an auto-ranging AC power supply. All NetVanta 1335 Series units run the ADTRAN Operating System (AOS), and are managed through an EIA-232 **CONSOLE** port (DB-9) located on the rear panel.

### SFP Module Slots

The NetVanta 1335 Series supports two small SFP slots that accept a number of industry standard SFP modules. The SFP modules provide Gigabit Ethernet fiber connectivity for high-speed uplinks or switch stacking. For a list of supported SFP modules, visit the ADTRAN website at <http://www.adtran.com>.

### Option Modules

NetVanta 1335 Series units also contain one network interface module (NIM) slot on the rear panel to support the following modules in data applications:

- 1200861L1                    56K/64K NIM
- 1202862L1                    T1/FT1 NIM
- 1202863L1                    T1/FT1 + DSX-1 NIM
- 1200872L1/1202872L1        Dual T1 NIM
- 1200868E1/L1                E1/FE1 NIM
- 1200878E1/L1                E1/FE1 + G.703 Drop NIM
- 1200866E1                    Serial NIM
- 1200936E1                    SHDSL NIM, Annex A
- 1200937E1                    SHDSL NIM, Annex B
- 1202869E1                    ADSL NIM, Annex A
- 1202889E1                    ADSL NIM, Annex B
- 1200864L1                    Analog Modem DIM
- 1200865L1                    ISDN BRI DIM
- 1200875L1                    ISDN S/T DIM

### Power over Ethernet

The NetVanta 1335 Series PoE devices provide the same basic functionality as the other NetVanta 1335 Series products. PoE provides the ability to detect attached powered devices (PDs), and deliver 48 VDC to the PD via existing cabling. The PoE devices are fully compliant with the IEEE 802.3af PoE standard. By default, the PoE switches discover and provide power to IEEE-compliant PDs.

### NetVanta 1335 Shipping Contents

Each NetVanta 1335 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.



After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to the [Support](#) page on the ADTRAN website at <http://www.adtran.com/support>).

Domestic shipments of the NetVanta 1335 include the following items:

- NetVanta 1335 base unit
- Quick start guide
- A detachable power cable with a grounded, three-prong plug

International shipments of the NetVanta 1335 include the following items:

- NetVanta 1335 base unit
- Quick start guide
- All necessary power cords

## NetVanta 1335 Series Front Panel Design

The NetVanta 1335 Series front panels are shown in [Figure 1](#) below and [Figure 2 on page 17](#). [Table 1 on page 18](#) describes all of the LEDs, and [Appendix A on page 43](#) shows the connector pinouts.

### NetVanta 1335 Front Panel Features

#### 10/100Base-T Ethernet Interfaces

The NetVanta 1335 Series units contain 24 10/100Base-T Ethernet interfaces (RJ-45). These interfaces are consecutively numbered 1 through 24, from left to right, with the numbers screened directly above each port. Status LEDs for each of these interfaces are located directly over these numbers.

#### Gigabit Ethernet Interfaces/SFP Slots

The NetVanta 1335 and NetVanta 1335 PoE contain two Gigabit Ethernet interfaces that provide two fixed RJ-45 connectors and two standard SFP slots for fiber connectivity. These interfaces are labeled **G1** and **G2**, and the status LEDs are located above the SFP slots.

#### Status LEDs

The status LEDs are located to the lower left of RJ-45 port 1. The **WAN** LED reflects the status of an installed NIM. The **DBU** LED reflects the status of an installed dial backup interface module (DIM). The **STAT** LED indicates the unit's status.

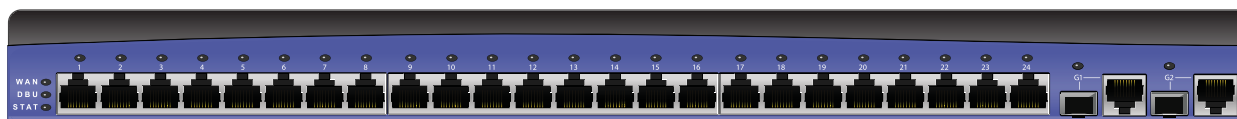


Figure 1. NetVanta 1335 Front Panel Layout

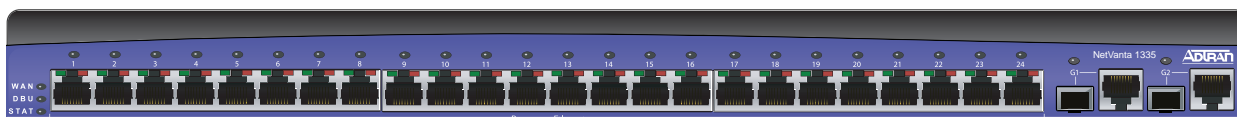


Figure 2. NetVanta 1335 PoE Front Panel Layout

**Table 1. Front Panel LED Descriptions**

<b>LED</b>	<b>Color</b>	<b>Indication</b>
<b>STAT</b>	Off	Unit is not receiving power.
	Green (solid)	Power is on and self-test passed.
	Green (flashing)	On power up, the <b>STAT</b> LED flashes rapidly for five seconds, during which time the user may escape to boot mode from the <b>CONSOLE</b> port.
	Red (solid)	Power is on, but the self-test failed or the boot code could not be booted.
<b>Port LEDs</b> (i.e., 1 through 24, G1, G2, etc.)	Off	Port is administratively disabled or does not have a connection.
	Green (solid)	Port is enabled and has a connection.
	Amber (flashing)	Port has activity (transmit or receive).
<b>DBU</b>	Off	No DIM is installed.
	Green (solid)	DIM is ready. For the ISDN BRI DIM, green solid indicates that the negotiation with the switch is complete.
	Green (flashing)	Unit is in dial backup.
	Amber (solid)	Unit is in test.
	Red (solid)	Alarm condition is occurring on the DBU interface, or there is a self-test failure.
<b>WAN</b>	Off	No NIM is installed, or interface is administratively down.
	Green (solid)	NIM is up and everything is operational.
	Green (flashing)	Port has activity (transmit or receive).
	Amber (solid)	Unit is in test.
	Red (solid)	Alarm condition is occurring on the WAN interface, or there is a self-test failure.
<b>Power over Ethernet Status LEDs</b> (PoE units only)	Green (solid)	Power is being applied (48 V) to the interface.
	Red (solid)	Fault is detected on the interface.

## NetVanta 1335 Series Rear Panel Design

The NetVanta 1335 Series rear panels are shown below. Refer to [Appendix A on page 43](#) for pinouts.



**Figure 3. NetVanta 1335 Rear Panel Layout**

### NetVanta 1335 Rear Panel Features

#### NIM Option Slot

The NIM option slot accepts a variety of NIM option modules (refer to [Option Modules on page 21](#)).

#### CompactFlash

The CompactFlash slot supplies nonvolatile configuration and compressed code storage. The NetVanta 1335 supports only ADTRAN-provided CompactFlash (1 GB) (refer to the part number on the front cover of this manual).

#### CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE) that provides for local management and configuration (via a DB-9 female connector).



*Connection directly to an external modem requires a cross-over cable.*

#### Power Connection

The rear panel has a power input to the AC universal power supply. Please refer to [Supplying Power to the Unit on page 38](#) for connection details.

### 3. PRODUCT SPECIFICATIONS

- Multiservice access router with integrated Layer 2/3 PoE switch
- Support for 24 10/100Base-T Ethernet interfaces on the front panel
- Supports up to two 1000Base-T Gigabit Ethernet interfaces on the front panel (SFP slots for fiber connectivity/RJ-45 connectors for copper connectivity)
- RapidRoute technology for greater performance
- Supports up to two T1s worth of bandwidth
- Expandable flash memory storage via CompactFlash slot on the rear panel
- Link aggregation, GARP VLAN Registration Protocol (GVRP), and Link Layer Discovery Protocol (LLDP)
- MAC-based port security
- Voice quality monitoring (VQM) and mean opinion score (MOS) prediction
- Network address translation (NAT) compatible Session Initiation Protocol (SIP) application layer gateway (ALG) for Voice over IP (VoIP)
- Inherent URL filtering
- IPsec VPN for secure corporate connectivity across the Internet
- Cable diagnostics identifies a short or open twisted pair
- Recognizable CLI and intuitive Web-based graphical user interface (GUI)
- Integrated DB-9, EIA-232 console port (DCE) on the rear panel
- Console port, Telnet, secure shell (SSH), Simple Network Management protocol version 2 (SNMP V2), or port mirroring management options
- Modular network interface on the rear panel
- Spanning tree support (802.1D and 802.1w)
- Link aggregation (802.3ad)
- Virtual local area network (VLAN) support (802.1Q), up to 255 active VLANs
- Quality of service (QoS) with class-based weighted fair queuing (CBWFQ), low latency queuing (LLQ), weighted fair queuing (WFQ), DiffServ marking, Frame Relay fragmentation (FRF.12), and traffic monitoring (NetFlow 9)
- Internal power supply (non-PoE versions): Either 120 or 240 VAC, 50/60 Hz, 36 watts
- Internal power supply (PoE versions): 110 to 250 VAC, 50/60 Hz, 450 watts
- Chassis: 1U-high, rack mountable metal enclosure
- Dimensions (non-PoE versions): 1.73-inch H x 17.24-inch W x 9.49-inches D
- Dimensions (PoE versions): 1.73-inch H x 17.24-inch W x 12.91-inches D
- Operating temperature: 32°F (0°C) to +122°F (+50°C)
- RoHS compliant, telecommunications exemption

## 4. OPTION MODULES

The NetVanta 1335 Series support several option modules designed to meet a variety of networking requirements. The option modules include plug-in NIMs and plug-on DIMs.

NIMs are cards that plug directly into the option module slot located on the rear of the base unit. These cards provide the following types of interfaces:

- *NetVanta 56K/64K NIM (P/N 1200861L1) on page 22*
- *NetVanta T1/FT1 NIM (P/N 1202862L1) on page 23*
- *NetVanta T1/FT1 + DSX-1 NIM (P/N 1202863L1) on page 24*
- *NetVanta Dual T1 NIM (P/N 1200872L1/1202872L1) on page 25*
- *NetVanta E1/FE1 NIM (P/N 1200868E1/L1) on page 26*
- *NetVanta E1/FE1 + G.703 Drop NIM (P/N 1200878E1/L1) on page 27*
- *NetVanta Serial NIM (P/N 1200866E1) on page 28*
- *NetVanta SHDSL NIM, Annex A (P/N 1200936E1) on page 29*
- *NetVanta SHDSL NIM, Annex B (P/N 1200937E1) on page 30*
- *NetVanta ADSL NIM, Annex A (P/N 1202869E1) on page 31*
- *NetVanta ADSL NIM, Annex B (P/N 1202889E1) on page 32*

DIMs are plug-on cards that plug directly on to the NIM prior to installation into the base unit. A DIM must be plugged on to a NIM in order for the interfaces on the NIM to be active. The NetVanta supports the following DIMs:

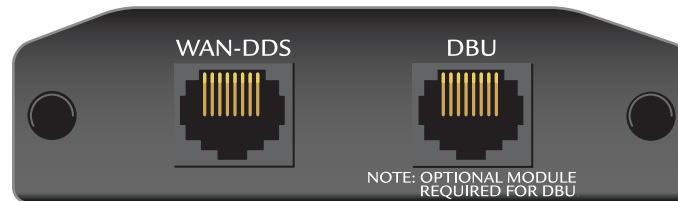
- *NetVanta Analog Modem DIM (P/N 1200864L1) on page 33*
- *NetVanta ISDN BRI DIM (P/N 1200865L1) on page 34*
- *NetVanta ISDN S/T DIM (P/N 1200875L1) on page 35*

This section describes each module, providing individual card specifications and features. Refer to [Appendix A on page 43](#) for pinouts. [Installing Dial Backup and Network Interface Modules on page 39](#) provides information on card installation.

## Network Interface Modules

### NetVanta 56K/64K NIM (P/N 1200861L1)

The NetVanta 56K/64K NIM (see [Figure 4](#)) provides a digital data service (DDS) WAN interface for the NetVanta. This module provides a single 56K or 64K DDS network interface. Refer to [Appendix A on page 43](#) for WAN-DDS and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 4. NetVanta 56K/64K NIM**

#### *Features and Specifications*

##### **Operating Modes**

- Dedicated DDS (leased line)

##### **DDS Interface**

- Supported Standards: AT&T TR 62310
- 4-wire, full-duplex
- Receiver Sensitivity: -45 dB, all rates
- Data Rates: 56K, 64K, and auto
- Connector: RJ-48S

##### **Clock Source**

- Network
- Internal

##### **Diagnostics**

- CSU and DSU Loopbacks

##### **Compliance**

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

##### **Environmental**

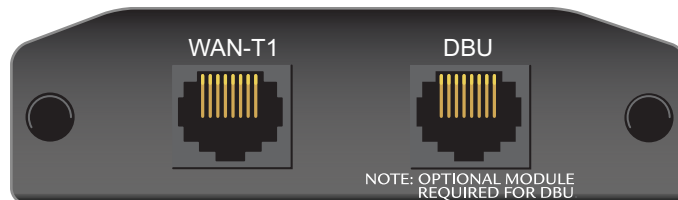
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

##### **Physical**

- Dimensions: 2.75-inch W x 4.25-inch D

## NetVanta T1/FT1 NIM (P/N 1202862L1)

The NetVanta T1/FT1 NIM (see [Figure 5](#)) provides a T1 WAN interface for the NetVanta. This module provides a full T1 or fractional T1 network interface. Refer to [Appendix A on page 43](#) for WAN-T1 and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 5. NetVanta T1/FT1 NIM**

### Features and Specifications

#### Operating Modes

- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

#### T1/FT1 Interface

- Supported Standards: AT&T TR 62411, AT&T TR 65016, ANSI T1.403, Bellcore TR 194
- Line Rate: 1.544 Mbps  $\pm$ 75 bps
- Line Code: AMI or B8ZS
- Framing: D4 (SF) or ESF
- FT1 Line Rate: DS0 channelized (multiples of 64 kbps)
- Input Signal: 0 to -36 dB (DS1)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- DS0 Assignment: Programmable
- Connector: RJ-48C

#### Clock Source

- Network
- Internal

#### Diagnostics

- Test Pattern Generation and Detection: 511, QRSS, all ones, all zeros
- Network loopbacks (local and remote); responds to both inband and FDL loop codes
- Alarm generation and detection
- Network and user sets of performance data (15 minutes and 24 hours)

#### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

#### Environmental

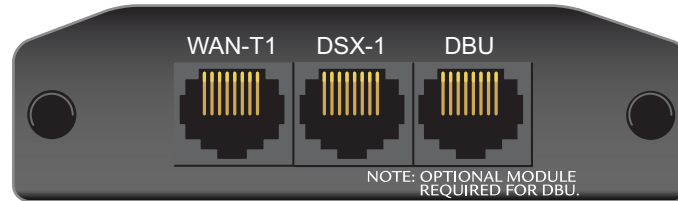
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### Physical

- Dimensions: 2.75-inch W x 4.25-inch D

## NetVanta T1/FT1 + DSX-1 NIM (P/N 1202863L1)

The NetVanta T1/FT1 + DSX-1 NIM (see [Figure 6](#)) provides a T1 WAN interface for the NetVanta, a full or fractional T1 network interface, and a DSX-1 interface. Refer to [Appendix A on page 43](#) for WAN-T1, DSX-1, and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 6. NetVanta T1/FT1 + DSX-1 NIM**

### Features and Specifications

#### Operating Modes

- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

#### T1/FT1 Interface

- Supported Standards: AT&T TR 62411, AT&T TR 65016, ANSI T1.403, Bellcore TR 194
- Line Rate: 1.544 Mbps  $\pm$ 75 bps
- Line Code: AMI or B8ZS
- Framing: D4 (SF) or ESF
- FT1 Line Rate: DS0 channelized (multiples of 56/64 kbps)
- Input Signal: 0 to -36 dB (DS1)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- DS0 Assignment: Programmable
- Connector: RJ-48C

#### DSX-1 Interface

- Line Interface: DSX-1 per ANSI T1.102
- DSX Receiver Input Range: -10 dBdsx to +6 dBdsx
- Line Rate: 1.544 Mbps
- Capacity: 1 to 24 DS0s
- Line Codes: AMI, B8ZS
- DSX-1 Interface to PBX
- Framing: D4 (SF) or ESF
- Line Length: 0 to 655 feet and -7.5 dB
- Connector: RJ-48C

#### Clock Source

- Network
- Internal
- Through

#### Diagnostics

- Test Pattern Generation and Detection: 511, QRSS, all ones, all zeros
- Network loopbacks (local and remote); responds to inband and FDL loop codes (T1 interface only)
- Alarm generation and detection
- Network and user sets of performance data (15 minutes and 24 hours)

#### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

#### Environmental

- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

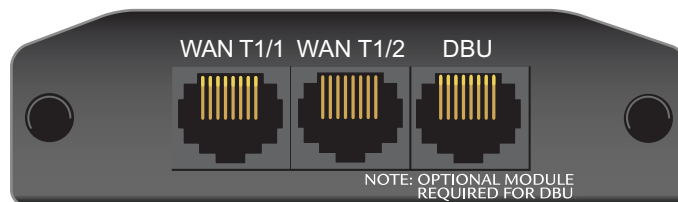
#### Physical

- Dimensions: 2.75-inch W x 4.25-inch D



## NetVanta Dual T1 NIM (P/N 1200872L1/1202872L1)

The NetVanta Dual T1 NIM (see [Figure 7](#)) provides two T1 WAN interfaces for the NetVanta. Refer to [Appendix A on page 43](#) for WAN-T1 and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 7. NetVanta Dual T1 NIM**

### Features and Specifications

#### Operating Modes

- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

#### T1 Interface

- Supported Standards: AT&T TR 62411, AT&T TR 65016, ANSI T1.403, Bellcore TR 194
- Line Rate: 1.544 Mbps  $\pm$ 75 bps
- Line Code: AMI or B8ZS
- Framing: D4 (SF) or ESF
- FT1 Line Rate: DS0 channelized (multiples of 64 kbps)
- Input Signal: 0 to -36 dB (DS1)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- DS0 Assignment: Programmable
- Connector: RJ-48C

#### Clock Source

- Network
- Internal
- Through

#### Diagnostics

- Test Pattern Generation and Detection: QRSS, 511, 2<sup>15</sup> - 1, 2<sup>20</sup> - 1, all ones, all zeros
- Network loopbacks (local and remote); responds to both inband and FDL loop codes
- Alarm generation detection
- Network performance data (15 minutes and 24 hours)

#### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

#### Environmental

- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### Physical

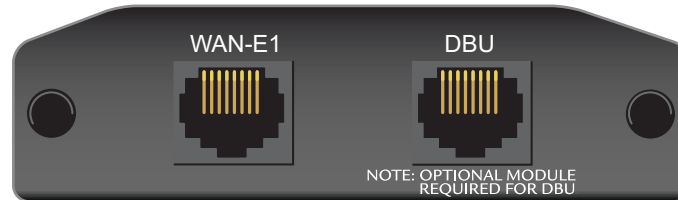
- Dimensions: 2.75-inch W x 4.25-inch D



The 1200872L1 Dual T1 module supports the analog modem (1200864L1), ISDN BRI (1200865L1), and ISDN S/T (1200875L1) DIMs for dial backup applications. The 1202872L1 Dual T1 module supports only the analog modem (1200864L1) DIM for dial backup applications.

## NetVanta E1/FE1 NIM (P/N 1200868E1/L1)

The NetVanta E1/FE1 NIM (see [Figure 8](#)) provides a WAN-E1 interface for the NetVanta meeting the requirements of ITU-T G.703/G.704. The module provides a single 2.048 Mbps network interface. Refer to [Appendix A on page 43](#) for WAN-E1 and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 8. NetVanta E1/FE1 NIM**

### **Features and Specifications**

#### **Operating Modes**

- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

#### **WAN-E1 Interface**

- Supported Standards: ITU G.703, ITU-T G.704 (CRC-4), ITU-T G.823, ITU-T G.797
- Line Rate: 2.048 Mbps  $\pm$ 50 PPM
- Line Code: AMI or HDB3
- Framing: FAS with optional CRC-4
- FE1 Line Rate: Channelized timeslot (in multiples of 64 kbps)
- Receiver Sensitivity: -30 dB
- Connector: RJ-48C

#### **Clock Source**

- Network
- Internal

#### **Diagnostics**

- Test Pattern Generation and Detection: QRSS, 511, all ones, all zeros
- Network loopbacks
- Network performance data (15 minutes and 24 hours)
- Alarm generation and detection

#### **Compliance**

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- AS/ACIF S016
- ETSI TBR 12/TBR 13
- EN 60950
- IEC 60950
- AS/NZS 60950
- RoHS compliant (Telecommunications exemption)

#### **Environmental**

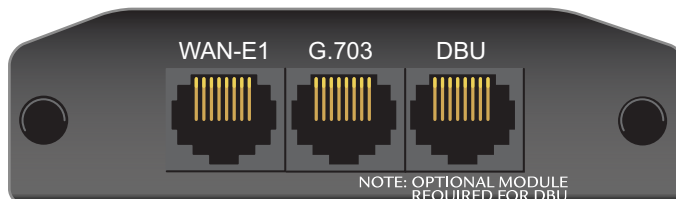
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### **Physical**

- Dimensions: 2.75-inch W x 4.25-inch D

## NetVanta E1/FE1 + G.703 Drop NIM (P/N 1200878E1/L1)

The NetVanta E1/FE1 + G.703 Drop NIM (see [Figure 9](#)) provides a single WAN-E1 interface (2.043 Mbps) with user-selectable TS0 assignment, and a G.703 drop port that may be used to drop and insert traffic to an E1 private branch exchange (PBX). Refer to [Appendix A on page 43](#) for WAN-E1, G.703, and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 9. NetVanta E1/FE1 + G.703 Drop NIM**

### Features and Specifications

#### Operating Modes

- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

#### WAN-E1 Interface

- Supported Standards: ITU G.703, ITU-T G.704 (CRC-4), ITU-T G.823, ITU-T G.797
- Line Rate: 2.048 Mbps  $\pm$ 50 PPM
- Line Code: AMI or HDB3
- Framing: FAS with optional CRC-4
- FE1 Line Rate: Channelized timeslot (in multiples of 64 kbps)
- Receiver Sensitivity: -30 dB
- Connector: RJ-48C

#### G.703 Interface

- Receiver Sensitivity: -30 dB
- Line Rate: 2.048 Mbps  $\pm$ 50 PPM
- Line Code: AMI or HDB3
- Framing: FAS with optional CRC-4
- Capacity: 1 to 31 timeslots
- Connector: RJ-48C

#### Clock Source

- Network
- Internal
- Through

#### Diagnostics

- Test Pattern Generation and Detection: QRSS, 511, all ones, all zeros
- Network loopbacks
- Network performance data (15 minutes and 24 hours)
- Alarm generation and detection

#### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- AS/ACIF S016
- ETSI TBR 12/TBR 13
- EN 60950
- IEC 60950
- AS/NZS 60950
- RoHS compliant (Telecommunications exemption)

#### Environmental

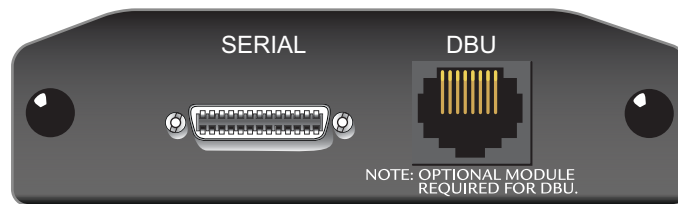
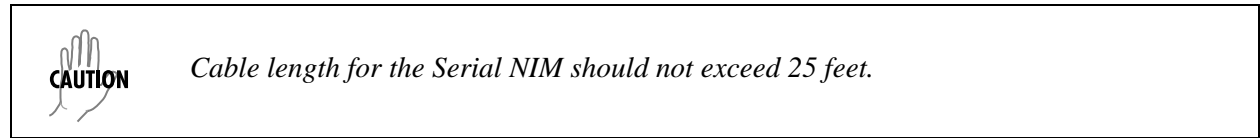
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### Physical

- Dimensions: 2.75-inch W x 4.25-inch D

## NetVanta Serial NIM (P/N 1200866E1)

The NetVanta Serial NIM (see [Figure 10](#)) can be configured by the user as a V.35, X.21 (V.11), or EIA 530 interface. This module supports rates up to a maximum of 10 Mbps. An additional V.35 (ADTRAN P/N 1200873L1), X.21 (ADTRAN P/N 1200874L1), or EIA 530 (ADTRAN P/N 1200883L1) cable is required (refer to *Caution*, below). Refer to [Appendix A on page 43](#) for serial connector and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 10. NetVanta Serial NIM**

### **Features and Specifications**

#### **Operating Mode**

- DTE only

#### **Serial Interface**

- Supported Standards: ISO 4903 (X.21), CCITT V.35 Synchronous (V.35), EIA 530 Synchronous
- Provides V.35, X.21 (V.11), or EIA 530 electrical interface
- Connector: 26-pin smart serial (DTE)

#### **Compliance**

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ETSI TBR1
- ETSI TBR2
- EN 60950
- IEC 60950
- UL/CUL 60950
- AS/NZS 60950
- RoHS compliant (Telecommunications exemption)

#### **Environmental**

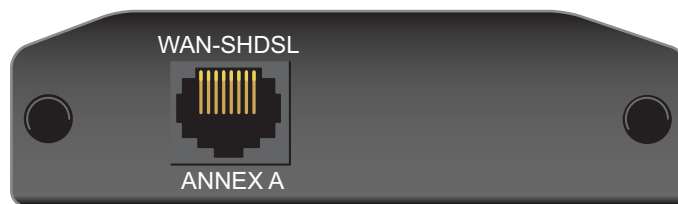
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### **Physical**

- Dimensions: 2.75-inch W x 4.25-inch D

## NetVanta SHDSL NIM, Annex A (P/N 1200936E1)

The NetVanta SHDSL NIM, Annex A (see [Figure 11](#)) provides a WAN SHDSL interface for the NetVanta. Refer to [Appendix A on page 43](#) for WAN-SHDSL connector pinouts.



**Figure 11. NetVanta SHDSL NIM, Annex A**

### Features and Specifications

#### Operating Mode

- Line termination (CO)
- Network termination (CPE)

#### SHDSL Interface

- Supported Standards: ITU-T G.991.2 SHDSL, Annex A  
M-pair bonding of 2 pairs - ITU.T G.991.2
- Line Rate (2-wire mode): 192 to 2304 kbps in 64k increments
- Line Rate (4-wire mode): 384 to 4608 kbps in 128k increments
- Payload: ATM (AAL5)
- Line Code: TC-PAM
- Connector: RJ-45

#### Clock Source

- CPE Operating Mode: Network
- CO Operating Mode: Internal

#### Diagnostics

- Network loopbacks (local and remote)
- Alarm generation and detection
- Programmable alarm threshold setting for loop attenuation and signal-to-noise ratio

#### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- UL/CUL 60950
- RoHS compliant (Telecommunications exemption)

#### Environmental

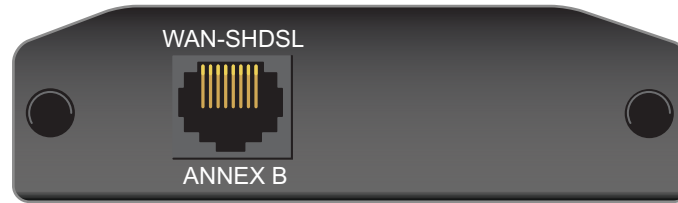
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### Physical

- Dimensions: 2.75-inch W x 4.25-inch D

## NetVanta SHDSL NIM, Annex B (P/N 1200937E1)

The NetVanta SHDSL NIM, Annex B (see [Figure 12](#)) provides a WAN SHDSL interface for the NetVanta. Refer to [Appendix A on page 43](#) for WAN-SHDSL connector pinouts.



**Figure 12. NetVanta SHDSL NIM, Annex B**  
*Features and Specifications*

### Operating Mode

- Line termination (CO)
- Network termination (CPE)

### SHDSL Interface

- Supported Standards: ITU-T G.991.2 SHDSL, Annex B  
M-pair bonding of 2 pairs - ITU.T G.991.2
- Line Rate (2-wire mode): 192 to 2304 kbps in 64k increments
- Line Rate (4-wire mode): 384 to 4608 kbps in 128k increments
- Payload: ATM (AAL5)
- Line Code: TC-PAM
- Connector: RJ-45

### Clock Source

- CPE Operating Mode: Network
- CO Operating Mode: Internal

### Diagnostics

- Network loopbacks (local and remote)
- Alarm generation and detection
- Programmable alarm threshold setting for loop attenuation and signal-to-noise ratio

### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- AS/ACIF S043
- EN 60950
- AS/NZS 60950
- RoHS compliant (Telecommunications exemption)

### Environmental

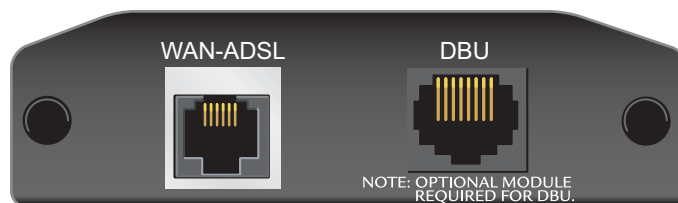
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

### Physical

- Dimensions: 2.75-inch W x 4.25-inch D

### NetVanta ADSL NIM, Annex A (P/N 1202869E1)

The NetVanta ADSL NIM, Annex A (see [Figure 13](#)) adds ADSL capability to the NetVanta. The module provides a single ADSL, ADSL2, or ADSL2+ network interface to support rates up to 25 Mbps. Refer to [Appendix A on page 43](#) for WAN-ADSL and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 13. NetVanta ADSL NIM, Annex A**

#### Features and Specifications

##### ADSL Interface

- ADSL over POTS, Annex A
- Supported Standards:
  - ITU G.992.1 (G.dmt)
  - ITU G.992.2 (G.lite)
  - ITU G.992.3 ADSL2 (G.dmt.bis)
  - ITU G.992.5 ADSL2+
  - ANSI T1.413 Issue 2
  - Reach Extended ADSL (READSL2)
- Connector: RJ-11C (6-pin jack, inner pair)

##### ATM

- Multiple Protocol over AAL5 (RFC 2684)
- PPP over ATM (RFC 2364)
- PPP over Ethernet (RFC 2516)
- ATM Forum UNI 3.1/4.0 PVC
- ATM Class of Service (UBR)
- ATM F5 OAM
- Up to 16 Virtual Circuits

##### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- AS/ACIF S043
- AS/ACIF S002
- IC CS-03
- EN 60950
- IEC 60950
- UL/CUL 60950
- AS/NZS 60950
- RoHS compliant (Telecommunications exemption)

##### Environmental

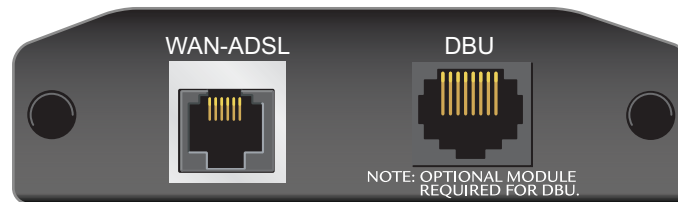
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

##### Physical

- Dimensions: 2.75-inch W x 4.25-inch D

## NetVanta ADSL NIM, Annex B (P/N 1202889E1)

The NetVanta ADSL NIM, Annex B (see [Figure 14](#)) adds ADSL capability to the NetVanta. Refer to [Appendix A on page 43](#) for WAN-ADSL and DBU connector pinouts. An optional DIM is required for dial backup applications.



**Figure 14. NetVanta ADSL NIM, Annex B**

### Features and Specifications

#### ADSL Interface

- ADSL over ISDN, Annex B
- Supported Standards: ITU G.992.1 (G.dmt)
- Connector: RJ-11C (6-pin jack, inner pair)

#### ATM

- Multiple Protocol over AAL5 (RFC 2684)
- PPP over ATM (RFC 2364)
- PPP over Ethernet (RFC 2516)
- ATM Forum UNI 3.1/4.0 PVC
- ATM Class of Service (UBR)
- ATM F5 OAM
- Up to 16 Virtual Circuits

#### Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- AS/ACIF S043
- EN 60950
- IEC 60950
- AS/NZS 60950
- RoHS compliant (Telecommunications exemption)

#### Environmental

- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### Physical

- Dimensions: 2.75-inch W x 4.25-inch D



## Dial Backup Interface Modules

### **NetVanta Analog Modem DIM (P/N 1200864L1)**

The Analog Modem DIM provides a modem with data rates up to 33.6 kbps for the NetVanta. This DIM is a plug-on card that connects to the NIM. For installation instructions, refer to [Installing Dial Backup and Network Interface Modules on page 39](#).

#### **Features and Specifications**

##### **Features**

- Supported Standards: ITU V.90
- Async

##### **Compliance**

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

##### **Environmental**

- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

##### **Physical**

- Dimensions: 2.5-inch W x 3.75-inch D



*The Analog Modem DIM can be used in two different modes:*

- 1. Backup interface for a primary connection.*
- 2. CONSOLE port for remote dial-in access.*

## **NetVanta ISDN BRI DIM (P/N 1200865L1)**

The NetVanta ISDN BRI DIM provides dial backup access to the public switched telephone network (PSTN) via Basic Rate ISDN for the NetVanta. This DIM is a plug-on module that connects to the NIM. For installation instructions, refer to [Installing Dial Backup and Network Interface Modules on page 39](#).

### **Features and Specifications**

#### **Features**

- Clear channel and bonding mode 1 call protocols
- Network support for 64 kbps (1 B-channel) or 128 kbps (2 B-channels)
- D-channel switch compatibility with AT&T 5ESS, Northern Telecom DMS-100, and National ISDN-1
- V.54 network loopback support

#### **Compliance**

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

#### **Environmental**

- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### **Physical**

- Dimensions: 2.5-inch W x 3.75-inch D

## **NetVanta ISDN S/T DIM (P/N 1200875L1)**

The NetVanta ISDN S/T DIM provides dial backup access to the PSTN via Basic Rate ISDN for the NetVanta. This DIM is a plug-on module that connects to the NIM. For installation instructions, refer to [Installing Dial Backup and Network Interface Modules on page 39](#).

### **Features and Specifications**

#### **Features**

- Clear channel and bonding mode 1 call protocols
- Network support for 64 kbps (1 B-channel) or 128 kbps (2 B-channels)
- D-channel switch compatibility with AT&T 5ESS, Northern Telecom DMS-100, National ISDN-1, and Euro-ISDN
- V.54 network loopback support

#### **Compliance**

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- AS/ACIF S031
- ETSI TBR 3
- EN 60950
- IEC 60950
- AS/NZS 60950

#### **Environmental**

- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

#### **Physical**

- Dimensions: 2.5-inch W x 3.75-inch D

## 5. UNIT INSTALLATION

The instructions and guidelines provided in this section cover hardware installation topics, such as mounting options, supplying power to the unit, and installing option cards. These instructions are presented as follows:

- [Tools Required on page 36](#)
- [Mounting Options on page 37](#)
- [Supplying Power to the Unit on page 38](#)
- [Installing Dial Backup and Network Interface Modules on page 39](#)
- [Installing a CompactFlash Card on page 41](#)

For information on switch configuration for a specific application, refer to the configuration guides provided on the [ADTRAN Support Community](#). For details on the command line interface (CLI), refer to the [AOS Command Reference Guide](#). All other related documents are also available online at <http://supportforums.adtran.com>.

### **WARNING**

*To prevent electrical shock, do not install equipment in a wet location or during a lightning storm.*



*The NetVanta 1335 Series is intended to be installed, maintained, and serviced by qualified service personnel only and should be installed in a restricted access location as described in UL/IEC 60950-1.*



- *PoE cables are intended for intrabuilding use only. Connecting an ADTRAN PoE unit directly to PoE cables that run outside the building in which the unit is housed will void the user's warranty and could create a fire or shock hazard.*
- *Ethernet cables are intended for intrabuilding use only. Connecting an ADTRAN unit directly to Ethernet cables that run outside the building in which the unit is housed will void the user's warranty and could create a fire or shock hazard. To connect an ADTRAN unit to Ethernet cables that run outside the building, ADTRAN's Ethernet Port Protection Device (EPPD) (P/N 1700502G1) must be connected between the unit and the outside plant cable. Use of any Ethernet protector other than ADTRAN's for this purpose will void the user's warranty.*

## Tools Required

The customer-provided tools required for the hardware installation of the NetVanta are:

- Ethernet cables
- Network cables (module dependent)
- DSX-1 cable (T1/FT1 + DSX-1 module only)
- DBU cable (dial backup functions require an optional DIM)
- Phillips-head screwdriver




*To access the CLI of the NetVanta, you will also need a PC with VT100 terminal emulation software and a console port cable. Instructions on how to access the CLI are available in the quick start guide shipped with your unit or online on the [ADTRAN Support Community](#).*

## Mounting Options

The unit may be installed in rackmount, wallmount, or tabletop configurations. The following sections provide step-by-step instructions for rack mounting and wall mounting.

### Rack Mounting the NetVanta


The NetVanta is a 1U-high, rack-mountable unit that can be installed into a 19-inch equipment rack. The following steps guide you in mounting the NetVanta into a rack.

 <b>CAUTION</b>	<ul style="list-style-type: none"> <li>• <i>If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.</i></li> <li>• <i>Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.</i></li> <li>• <i>Be careful not to compromise the stability of the equipment mounting rack when installing this product.</i></li> <li>• <i>Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading the circuit might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.</i></li> <li>• <i>Reliable grounding of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).</i></li> </ul>
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Instructions for Rack Mounting the NetVanta	
Step	Action
1	To allow proper grounding, scrape the paint from the rack around the mounting holes where the NetVanta will be positioned.
2	Position the NetVanta in a stationary equipment rack. This unit occupies 1U of space.
3	Have an assistant hold the unit in position as you install two mounting bolts through the unit's brackets and into the equipment rack using a #2 Phillips-head screwdriver.
4	Apply power to the unit (refer to <a href="#">Supplying Power to the Unit on page 38</a> ).

### Wall Mounting the NetVanta

By following these instructions exactly, the NetVanta can be safely mounted on the wall.

 <b>CAUTION</b>	<ul style="list-style-type: none"> <li>• <i>To avoid damaging the unit, use only the screws included in the shipment when attaching mounting ears to the chassis.</i></li> <li>• <i>When wall mounting the NetVanta, care must be taken not to damage the power cord. Do not attach the power cord to the building surface or run it through walls, ceilings, floors, or openings in the building structure.</i></li> <li>• <i>The socket-outlet must be installed near the equipment and must be easily accessible.</i></li> </ul>
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Instructions for Wall Mounting the NetVanta	
Step	Action
1	Remove the mounting ears. Rotate them 90 degrees so that the portion of the bracket with the mounting holes is flush with the bottom of the chassis. Reattach the mounting ears to the chassis (see <a href="#">Figure 15</a> ).
2	Decide on a location for the NetVanta. All NetVanta 1335 Series units are mounted with the front panel facing down (see <a href="#">Figure 15</a> ). Keep in mind that the unit needs to be mounted at or below eye level so that the LEDs are viewable.
3	Prepare the mounting surface by attaching a board (typically plywood, 3/4-inch to 1-inch thick) to a wall stud using #6 to #10 (2.5-inch or greater in length) wood screws.  <b>Important!</b> Mounting to a stud ensures stability. Using sheetrock anchors may not provide sufficient long-term stability.
4	Have an assistant hold the unit in position as you install two #6 to #10 (1-inch or greater in length) wood screws through the unit's brackets and into the mounted board (see <a href="#">Figure 15</a> ).
5	Proceed to the steps given in <a href="#">Supplying Power to the Unit</a> below.

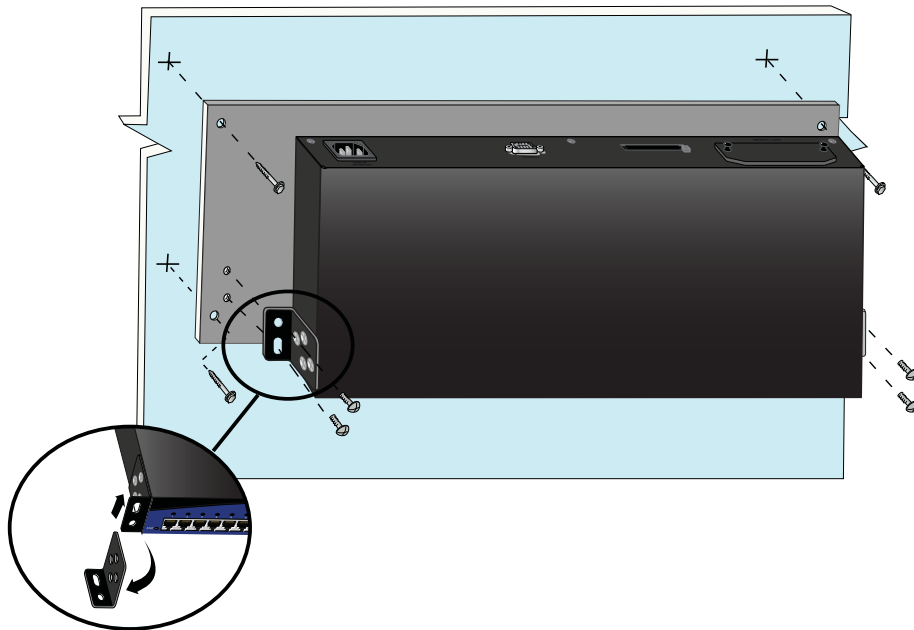


Figure 15. Wallmount Installation


### Supplying Power to the Unit

The NetVanta 1335 Series units come equipped with either a 120 VDC 50/60 Hz or 240 VDC 50/60 Hz power supply for connecting to a properly grounded power receptacle. (All appropriate power cords are included in the shipment of the unit.) To power these units, connect the power cable to an appropriately grounded power source.

## Installing Dial Backup and Network Interface Modules

The DIM plugs on to the NIM. The NIM is then installed into the rear panel option module slot. The following tables list the installation steps. Also, see [Figure 16](#) below and [Figure 17 on page 40](#).

**WARNING** For NetVanta modules with outside plant connections, ensure that all cables are removed from the module before installing or removing it from the NetVanta chassis.

**CAUTION**  Electronic modules can be damaged by static electrical discharge. Before handling modules, put on an antistatic discharge wrist strap to prevent damage to electrical components. Place modules in antistatic packing material when transporting or storing. When working on modules, always place them on an approved antistatic mat that is electrically grounded.

Instructions for Installing the DIMs	
Step	Action
1	Remove power from the unit.
2	If the NIM is already in the NetVanta chassis, remove all cables, release the pins at both edges of the NIM front panel, and slide the module out of the chassis.
3	Carefully align the P1 connector on the NIM with the J1 connector on the DIM. <i>Using only fingertip pressure</i> so that neither circuit board bends or flexes, ensure that the connectors are firmly seated. Secure the DIM to the NIM using the screws and standoff posts supplied. See <a href="#">Figure 16</a> .
4	Slide the NIM with the DIM attached into the NetVanta chassis, continuing with the normal NIM installation (refer to <a href="#">Instructions for Installing the NIMs on page 40</a> ).

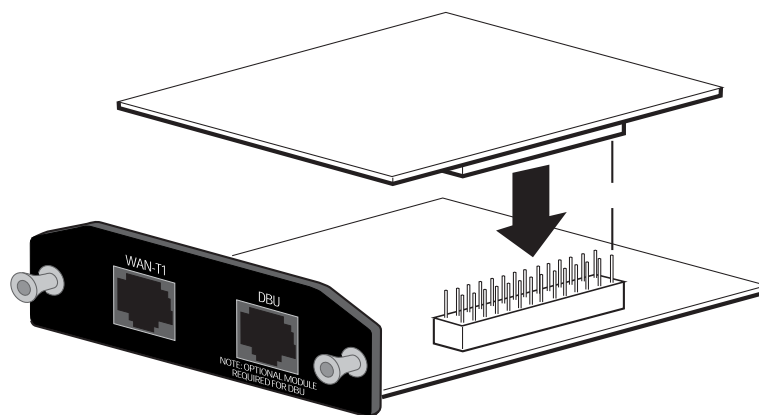


Figure 16. Installing DIMs

Instructions for Installing the NIMs	
Step	Action
1	Remove power from the unit.
2	Use a screwdriver to remove the cover plate from the appropriate option slot in the NetVanta base unit.
3	Slide the option module into the option slot until the module is firmly seated against the chassis.
4	Secure the pins at both edges of the module.
5	Connect the cables to the associated device(s).
6	Restore power to the unit.

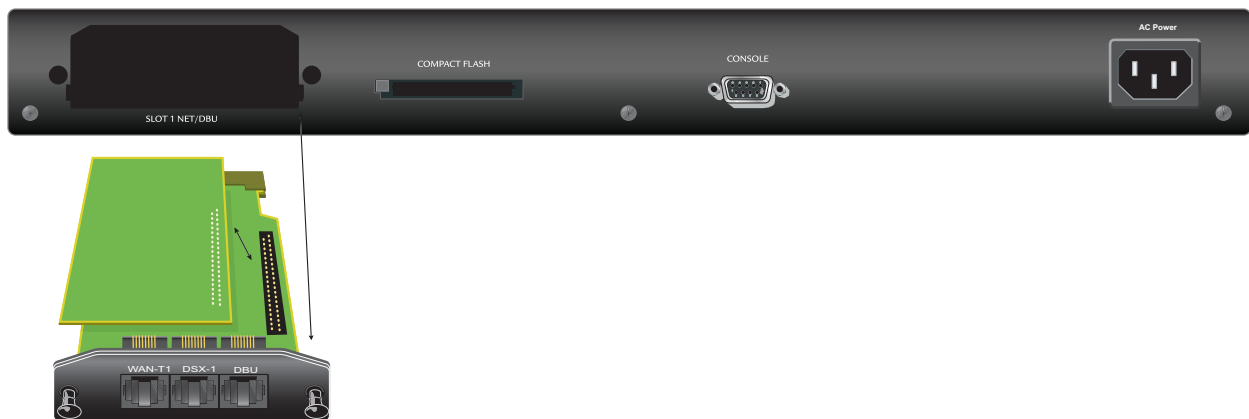


Figure 17. NIM and DIM Installation



## Installing a CompactFlash Card

The **CompactFlash** slot supports only ADTRAN-provided 1 GB CompactFlash cards. Follow these instructions when installing a card



*The CompactFlash card is hot-swappable and can be inserted or removed while power is applied to the unit.*

### Instructions for Installing a CompactFlash Card

Step	Action
1	Slide the module into the CompactFlash slot until the card is firmly seated against the chassis.
2	The CompactFlash options will now be available in the GUI and the AOS CLI.



**Figure 18. CompactFlash Card Installation**

Your NetVanta unit is now ready to be configured and connected to the network. For information on configuration for a specific application, refer to the configuration guides provided on the [ADTRAN Support Community](#). For details on the command line interface (CLI), refer to the [AOS Command Reference Guide](#). All other related documents are also available online at <http://supportforums.adtran.com>.



## APPENDIX A. CONNECTOR PIN DEFINITIONS

The following tables provide the pin assignments for the base unit, NIMs, and DIMs.

### Base Unit Pinouts

Table A-1. CONSOLE Port Pinouts

Pin	Name	Description
1	DCD	Data Carrier Detect (output)
2	RD	Receive Data (output)
3	TD	Transmit Data (input)
4	DTR	Data Terminal Ready (input)
5	SG	Signal Ground
6	DSR	Data Set Ready <b>Tied to pin 1</b> (output)
7	—	Unused
8	CTS	Clear to Send <b>Tied to pin 1</b> (output)
9	—	Unused

Table A-2. SFP Slot Pinouts

Pin	Name	Pin	Name
1	TGND	11	RGND
2	TX FAULT	12	RX-
3	TX DISABLE	13	RX+
4	MOD DEF(2)	14	RGND
5	MOD DEF(1)	15	VccR
6	MOD DEF(0)	16	VccT
7	RATE SELECT	17	TGND
8	LOS	18	TX+
9	RGND	19	TX-
10	RGND	20	TGND

**Table A-3. 10/100Base-T Ethernet Port Pinouts**

Pin	Name	Description
1	TX1	Transmit Positive
2	TX2	Transmit Negative
3	RX1	Receive Positive
4, 5	—	Unused
6	RX2	Receive Negative
7, 8	—	Unused

**Table A-4. 1000Base-T Gigabit Ethernet Port Pinouts**

Pin	Name	Description
1	TRD0+	Transmit/Receive Positive
2	TRD0-	Transmit/Receive Negative
3	TRD1+	Transmit/Receive Positive
4	TRD2+	Transmit/Receive Positive
5	TRD2-	Transmit/Receive Negative
6	TRD1-	Transmit/Receive Negative
7	TRD3+	Transmit/Receive Positive
8	TRD3-	Transmit/Receive Negative

## Network Interface Module Pinouts

**Table A-5. WAN-T1 Connector Pinouts**

Pin	Name	Description
1	R1	Receive data from the network—Ring 1
2	T1	Receive data from the network—Tip 1
3	—	Unused
4	R	Transmit data toward the network—Ring
5	T	Transmit data toward the network—Tip
6-8	—	Unused

**Table A-6. WAN-E1 Connector Pinouts**

Pin	Name	Description
1	R1	Receive data from the network—Ring 1
2	T1	Receive data from the network—Tip 1
3	—	Unused
4	R	Transmit data toward the network—Ring
5	T	Transmit data toward the network—Tip
6-8	—	Unused

**Table A-7. DSX-1 Connector Pinouts**

Pin	Name	Description
1	R	Transmit data toward the DTE—Ring
2	T	Transmit data toward the DTE—Tip
3	—	Unused
4	R1	Receive data from the DTE—Ring 1
5	T1	Receive data from the DTE—Tip 1
6-8	—	Unused

**Table A-8. G.703 Connector Pinouts**

Pin	Name	Description
1	R	Transmit data toward the DTE–Ring
2	T	Transmit data toward the DTE–Tip
3	—	Unused
4	R1	Receive data from the DTE–Ring 1
5	T1	Receive data from the DTE–Tip 1
6-8	—	Unused

**Table A-9. WAN-SHDSL Connector Pinouts**

Pin	Name	Description
1	T2	Loop 2–Tip
2	R2	Loop 2–Ring
3	—	Unused
4	T1	Loop 1–Tip
5	R1	Loop 1–Ring
6-8	—	Unused

**Table A-10. WAN-ADSL Connector Pinouts**

Pin	Name	Description
1, 2	—	Unused
3	R	ADSL Ring
4	T	ADSL Tip
5, 6	—	Unused

**Table A-11. Serial to Cable Connector Pinouts**

Serial Pin	V.35 Pin	X.21 Pin	EIA 530 Pin	Name
1	P	2	2	TD_A
2	U	N/A	24	ETC_A
3	Y	N/A	15	TCLK_A
4	V	6	17	RCLK_A
5	R	4	3	RD_A
6	F	N/A	8	DCD_A
7	H	N/A	20	DTR_A
8	C	3	4	RTS_A
9	N/A	10	19	RTS_B (V.11 only)
10	N/A	12	13	CTS_B (V.11 only)
11	D	5	5	CTS_A
12	E	N/A	6	DSR_A
13	K	N/A	25	TM_A
14	S	9	14	TD_B
15	W	N/A	11	ETC_B
16	AA	N/A	12	TCLK_B
17	X	13	9	RCLK_B
18	T	11	16	RD_B
19-25	N/A	N/A	N/A	Unused
26	B	8	7	Ground

## Dial Backup Interface Module Pinouts (DBU Connector)



*An optional DIM is required for dial backup applications.*

**Table A-12. Analog Modem and ISDN BRI DBU Connector Pinouts**

Pin	Name	Description
1-3	—	Unused
4	R	Network–Ring
5	T	Network–Tip
6-8	—	Unused

**Table A-13. ISDN S/T DBU Connector Pinouts**

Pin	Name	Description
1, 2	—	Unused
3	R1	Network Receive–Ring 1
4	R	Network Transmit–Ring
5	T	Network Transmit–Tip
6	T1	Network Transmit–Tip 1
7, 8	—	Unused