NetVanta 6310/6330 Series Hardware Installation Guide

1702100G1	NetVanta 6310
47006332G1	NetVanta 6330 (8 FXS)
47006334G1	NetVanta 6330 (16 FXS)
47006336G1	NetVanta 6330 (24 FXS)
47006337G1	NetVanta 6330 (16 FXS/8 FXO)
1700101G1	NetVanta SHDSL, Annex A NIM2
1700101G2	NetVanta SHDSL Annex B NIM2
1700102G1	NetVanta Quad FXS VIM2
1700103G1	NetVanta Quad SHDSL EFM, Annex A NIM2
1700103G2	NetVanta Quad SHDSL EFM, Annex B NIM2
1700105G1	NetVanta Quad FXO VIM2
1700106G1	NetVanta Quad T1/E1 EFM NIM2
1700107G1	NetVanta Ethernet NIM2
1700108G1	NetVanta Octal FXS VIM2
1700109G1	NetVanta Octal FXO VIM2
1700111G1	NetVanta Quad FXS/FXO VIM2
1700112G1	NetVanta Quad BRI S/T VIM2
1700114G1	NetVanta ADSL2+ Annex A NIM2
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

Conventions

Notes provide additional useful information.

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 available online at http://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
1702100G1	US: HDCDENAN1700100G1	1.544 Mbps - SF 1.544 Mbps - SF and B8ZS 1.544 Mbps - ESF 1.544 Mbps - ESF and B8ZS	6.0N	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1SN	RJ-48C
47006332G1 47006334G1 47006336G1 47006337G1	US: HDCDMM03B170063301	Analog Loop Start/Ground Start	0.3B	02LS2/02GS2	RJ-11
1700103G1	US: HDCDLNAN1700103G1	SHDSL Service	9.0F	02LS2	RJ-48C
1700101G1	US: HDCDLNAN1700101G1				
1700106G1	US: HDCDENAN1700106G1	1.544 Mbps - SF 1.544 Mbps - SF and B8ZS 1.544 Mbps - ESF 1.544 Mbps - ESF and B8ZS	6.0N	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1SN	RJ-48C
1700105G1 1700109G1 1700111G1	US: HDCTE03B1700109G1	Analog Loop Start/Ground Start	0.3B	02LS2/02GS2	RJ-11
1700114G1	US: HDCDL00B1700114G1	ADSL, ADSL2, ADSL2+	0.0B	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 B 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 6310	NetVanta 6330 Series
1700101G1	SHDSL, Annex A NIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700101G2	SHDSL, Annex B NIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700102G1	Quad FXS VIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700103G1	Quad SHDSL EFM, Annex A NIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700103G2	Quad SHDSL EFM, Annex B NIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700105G1	Quad FXO VIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700106G1	Quad T1/E1 EFM NIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700107G1	Ethernet NIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700108G1	Octal FXS VIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700109G1	Octal FXO VIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700111G1	Quad FXS/FXO VIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700112G1	Quad BRI S/T VIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024
1700114G1	ADSL2+ NIM2	FCC Part 15 Class B EN 55022 Class B EN 55024	FCC Part 15 Class B EN 55022 Class B EN 55024

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 B 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 radioelectriques applicables aux appareils numériques de Class A prescrites dans la norme sur le materiel brouilleur: "Appareils Numériques," NMB-003 edictee par le ministre des Communications.

Toll Fraud Liability

Be advised that certain security risks are inherent in the use of any telecommunications or networking equipment, including but not limited to, toll fraud, Denial of Service (DoS) attacks, loss or theft of data, and the unauthorized or illegal use of said equipment. ADTRAN OFFERS NO WARRANTIES, EITHER EXPRESSED OR IMPLIED, REGARDING THE PREVENTION, DETECTION, OR DETERRENCE OF TOLL FRAUD, NETWORKING ATTACKS, OR UNAUTHORIZED, ILLEGAL, OR IMPROPER USE OF ADTRAN EQUIPMENT OR SOFTWARE. THEREFORE, ADTRAN IS NOT LIABLE FOR ANY LOSSES OR DAMAGES RESULTING FROM SUCH FRAUD, ATTACK, OR IMPROPER USE, INCLUDING, BUT NOT LIMITED TO, HUMAN AND DATA PRIVACY, INTELLECTUAL PROPERTY, MATERIAL ASSETS, FINANCIAL RESOURCES, LABOR AND LEGAL COSTS. Ultimately, the responsibility for securing your telecommunication and networking equipment rests with you, and you are encouraged to review documentation regarding available security measures, their configuration and implementation, and to test such features as is necessary for your network.

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 6310/6330 Series includes the NetVanta 6310 primary rate interface (PRI), and the NetVanta 6330 Series (8 FXS, 16 FXS, 24 FXS, and 16 FXS + 8 FXO models) analog multiservice access gateways.

> NOTE
>
> *In this document, the term NetVanta means all of the units collectively. If a statement only applies to one particular unit, the text refers to that unit individually.*

This hardware installation guide describes the NetVanta 6310/6330 Series units' physical characteristics, lists their features and specifications, introduces basic functionality, and provides installation instructions in the following sections:

- *Physical Description on page 16*
- *Features and Specifications on page 21*
- *Option Modules on page 23*
- *Unit Installation on page 37*

For additional information on shipping contents, mounting options, network and voice interface module installation, and power the unit, refer to the following sections:

- *Shipping Contents on page 16*
- *Mounting Options on page 38*
- *Supplying Power to the Unit on page 40*
- *Installing Network and Voice Interface Modules on page 41*
- *Installing a CompactFlash Card on page 42*

For information on NetVanta 6310/6330 Series 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

The NetVanta 6310/6330 Series are multiservice IP business gateways designed for use in integrated voice and data service offerings to small-to-medium sized businesses worldwide. There is one model in the NetVanta 6310 Series: the NetVanta 6310 PRA/PRI/E1/T1 unit. There are four models in the NetVanta 6330 Analog Series: the 8 FXS model, 16 FXS model, 24 FXS model, and 16 FXS + 8 FXO model. All NetVanta 6310/6330 Series models include a modular wide area network (WAN) interface(s), two 10/100Base-T Ethernet ports, an integrated router, stateful inspection firewall, and transparent Session Initiation Protocol (SIP) proxy.

Shipping Contents

Each NetVanta 6310/6330 Series units are shipped in their 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).

Shipments of the NetVanta 6310/6330 Series include the following items:

- NetVanta 6310 or NetVanta 6330 Series base unit
- A detachable power cable with a grounded, three-prong plug
- Mounting brackets and screws
- Quick start guide

NetVanta 6310 Front Panel Design

The NetVanta 6310 front panel is shown below. *Table 1 on page 19* describes all of the LEDs.

NetVanta 6310 Front Panel Features

Status LEDs

The status LEDs are located on the lower left side of the unit. The **STATUS** LED indicates the unit's status. The **PRI** LED reflects the PRI interface. The **SLOT 1** and **SLOT 2** LEDs reflect the status of a NIM2/VIM2 installed in NIM2/VIM2 option slots (located on the rear panel). The **LAN 1** and **LAN 2** LEDs reflect the status of the local area networks (LANs).

CompactFlash Slot

The **CompactFlash** slot supplies nonvolatile configuration and compressed code storage. CompactFlash densities from 64 to 1024 MB are supported.

Figure 1. NetVanta 6310 Front Panel Layout

NetVanta 6310 Rear Panel Design

The NetVanta 6310 rear panel is shown below.

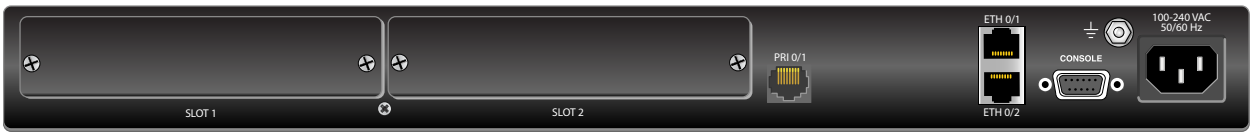

Figure 2. NetVanta 6310 Rear Panel Layout

NetVanta 6310 Rear Panel Interfaces

NIM2/VIM2 Option Slots

The two NIM2/VIM2 option slots (labeled **SLOT 1** and **SLOT 2**) accept a variety of NIM2/VIM2 option modules (refer to *Option Modules on page 23*).

PRI Interface

The PRI interface (labeled **PRI 0/1**) provides a single PRA/PRI/E1/T1 interface. See *Table A-3 on page 43* for the PRI interface pinouts.

10/100Base-T Ethernet Interfaces

The Ethernet ports (**ETH 0/1** and **ETH 0/2**) are RJ-45 connectors. See *Table A-2 on page 43* for the Ethernet interface pinouts. The Ethernet ports provide the following:

- 10Base-T or 100Base-T with a single connector
- Auto negotiation
- CSMA/CD
- IEEE 802.3 compatibility

CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE), which provides for local management and configuration (via a DB-9 female connector). See *Table A-1 on page 43* for the **CONSOLE** interface pinouts.

> **NOTE** *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 40* for connection details.

NetVanta 6330 Series Front Panel Design

The NetVanta 6330 front panel is shown below. *Table 1 on page 19* describes all of the LEDs.

NetVanta 6330 Front Panel Features

Status LEDs

The status LEDs are located on the lower left side of the unit. The **STAT** LED indicates the unit's status. The **FXO** LED reflects the status of the FXO interfaces. The **FXS** LED reflects the status of the FXS interfaces. The **SLOT 1** LED reflects the status of a NIM2/VIM2 installed in NIM2/VIM2 option **SLOT 1** (located on the rear panel). The **LAN 1** and **LAN 2** LEDs reflect the status of the local area networks (LANs).

CompactFlash Slot

The CompactFlash slot supplies nonvolatile configuration and compressed code storage. CompactFlash densities from 64 to 1024 MB are supported.

Figure 3. NetVanta 6330 Series Front Panel Layout

NetVanta 6330 Rear Panel Design

The NetVanta 6330 rear panel is shown below.

Figure 4. NetVanta 6330 Series Rear Panel Layout

NetVanta 6330 Rear Panel Interfaces

VOICE Connector

A single 50-pin female amphenol connector labeled **VOICE** provides the interconnect wiring for up to 24 analog ports. See *Table A-5 on page 44* for the **VOICE** connector pinouts.

NIM2/VIM2 Option Slot

The NIM2/VIM2 option slot (labeled **SLOT 1**) accepts a variety of NIM2/VIM2 option modules (refer to *Option Modules on page 23*).

FXO Ports

The two FXO interfaces (labeled **FXO 0/1** and **0/2**) provide FXO connectivity. See *Table A-4 on page 44* for the FXO connector pinouts.

10/100Base-T Ethernet Interfaces

The Ethernet ports (**ETH 0/1** and **ETH 0/2**) are RJ-45 connectors. See *Table A-2 on page 43* for the Ethernet interface pinouts. The Ethernet ports provide the following:

- 10Base-T or 100Base-T with a single connector
- Auto negotiation
- CSMA/CD
- IEEE 802.3 compatibility

CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE), which provides for local management and configuration (via a DB-9 female connector). See *Table A-1 on page 43* for the **CONSOLE** interface pinouts.

> NOTE *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 40* for connection details.

NetVanta 6310/6330 Series Front Panel LEDs

Table 1 describes the front panel LEDs.

Table 1. NetVanta 6310/6330 Series Front Panel LEDs

LED	Color	Indication
STATUS	Off	Unit is not receiving power.
	Green (flashing)	On power up, the **STATUS** LED flashes rapidly for five seconds, during which time the user may escape to boot mode from the **CONSOLE** port.
	Green (solid)	Power is on and unit is functioning normally.
	Red (solid)	Power is on, but the self-test failed.
PRI (6310)	Off	Interface is administratively disabled.
	Green (solid)	Interface is enabled and has a connection.
	Amber (solid)	Interface is in test mode.
	Red (solid)	An alarm condition is occurring on the interface.
FXO/FXS (6330 Series)	Off	All ports are inactive or administratively disabled.
	Green (solid)	At least one port is off-hook.
	Green (flashing)	At least one port is ringing.
	Amber (solid)	Port is in test mode.
	Red (solid)	Fault condition is occurring on the interface.

Table 1. NetVanta 6310/6330 Series Front Panel LEDs *(Continued)*

LED	Color	Indication
SLOT 1/SLOT 2 (Analog Modules)	Off	All ports are inactive or administratively disabled.
	Green (solid)	VIM2 is off-hook.
	Green (flashing)	VIM2 is ringing.
	Amber (solid)	VIM2 module is in test mode.
	Red (solid)	Alarm or fault condition is occurring on the VIM2.
SLOT 1/SLOT 2 (BRI S/T Module)	Off	All ports are inactive or administratively disabled
	Green (solid)	NIM2 is idle.
	Green (flashing)	NIM2 is ringing or a call is in progress.
	Amber (solid)	NIM2 module is in test mode.
	Red (solid)	Alarm or fault condition is occurring on the NIM2.
SLOT 1/SLOT 2 (ADSL2+ Module)	Off	All ports are inactive or administratively disabled.
	Green (solid)	NIM2 has trained and is connected.
	Green (flashing)	NIM2 is training or initializing.
	Amber (solid)	NIM2 module is in test mode.
	Red (solid)	NIM2 is idle or is between training attempts.
SLOT 1/SLOT 2 (EFM Modules)	Off	All ports are inactive or administratively disabled.
	Green (solid)	NIM2 has at least one port trained (SHDSL EFM module only) and circuit is connected.
	Green (flashing)	NIM2 has at least one training (SHDSL EFM module only).
	Amber (solid)	NIM2 has at least one port in test mode.
	Amber (slow flash)	NIM2 has at least one port trained (SHDSL EFM module only) but the circuit has not been configured or is administratively disabled.
	Red (slow flash)	NIM2 is booting.
	Red (solid)	NIM2 has at least one port in alarm.
LAN 1/LAN 2	Off	LAN is administratively disabled or link is down.
	Green (solid)	The link is up.
	Green/Amber (flashing)	There is activity on the link.

3. FEATURES AND SPECIFICATIONS

Interfaces

- Supports up to 24 analog ports and one NIM2/VIM2 option slot (NetVanta 6330 Analog Series models)
- Supports a single PRA/PRI/E1/T1 interface and two NIM2/VIM2 option slots (NetVanta 6310 PRI model)
- Supports a dual auto MDI/MDIX 10/100Base-T Ethernet interface

Ethernet Features

- 802.1Q virtual local area networks (VLANs)
- Ability to classify and prioritize traffic based on 802.1p markings
- Ability to classify and prioritize traffic based on DiffServ markings
- Ability to convert 802.1p to DiffServ and DiffServ to 802.1p marking
- Ability to mark traffic with 802.1p and DiffServ
- Ability to clear/remark 802.1p bits on the ingress
- Ability to clear/remark DiffServ values on the ingress

Router Features

- AOS based
- Stateful inspection firewall
- Quality of service (QoS)
- Network address translation (NAT)
- Dynamic Host Configuration Protocol (DHCP) client, server, relay
- Supports SIP trunks
- Supports up to 2.048 Mbps of Frame Relay, Multilink Frame Relay (future), Point-to-Point Protocol (PPP), Multilink Point-to-Point Protocol (MLPPP) (future), high-level data link control (HDLC)
- Asynchronous transfer mode (ATM) for ADSL2+, 2-wire/4-wire SHDSL, and Quad BRI S/T modules
- Ethernet in first mile (EFM) for quad SHDSL EFM module
- Static, Routing Information Protocol (RIP) versions 1 and 2, open shortest path first (OSPF), Border Gateway Protocol (BGP), PBR protocols
- SIP back-to-back user agent
- Transparent SIP proxy with remote survivability
- Multi-VRF
- Generic traffic shaping
- QoS maps
- Low latency queuing (LLQ), weighted fair queuing (WFQ), class-based weighted fair queuing (CBWFQ)

VPN Features

- 10 IPsec virtual private network (VPN) tunnels
- DES-CBC 56-bit encryption
- 3DES-CBC 168-bit encryption
- SSL VPNs

Voice Features

- Supports three-way conferencing
- Supports caller ID, message waiting (both frequency shift keying (FSK) and voltage), and stutter dial tone
- Fax and analog modem compatible (V.90)
- Supports local station-to-station calls

Voice Processing

- Provides up to 30 channels of G.711 (u-Law)
- Provides up to 30 channels of G.729
- Provides up to 30 channels of dual tone multi-frequency (DTMF) detection/generation
- Supports 64 ms tail echo cancellation (ITU G.168)
- Supports up to 30 channels of caller ID
- Provides 100 ms jitter buffer per channel

Management

- AOS CLI
- AOS Web-based graphical user interface (GUI)
- Simple Network Management Protocol (SNMP)
- ADTRAN n-Command® Managed Service Providers (MSPs)

Physical

- 1.72-inch H x 17.22-inch W x 11.0-inch D
- Universal power (100 to 240 VAC, 50/60 Hz)
- Operating temperature: 0°C to 50°C

4. OPTION MODULES

The NetVanta 6310 Series supports several option modules designed to meet a variety of networking requirements. The option modules include plug-in network and voice interface modules (NIMs/VIMs).

NIM2s/VIM2s 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:

This section describes each module, providing individual card specifications and features. Refer to *Appendix A on page 43* for pinout information. *Installing Network and Voice Interface Modules on page 41* provides information on card installation.

Network Interface Modules

NetVanta SHDSL, Annex A NIM2 (P/N 1700101G1)

The NetVanta SHDSL, Annex A NIM2 (shown in *Figure 5*) provides a SHDSL 2-wire or 4-wire interface for the NetVanta 6310/NetVanta 6330 Series. See *Table A-8 on page 45* for the SHDSL EFM connector pinouts.

Figure 5. NetVanta SHDSL, Annex A NIM2

Features and Specifications

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

SHDSL Interface
- Supported Standards: ITU-T G.991.2 Annex A and Annex F
- 2-wire Line Rate: 192 to 5696 kbps in 64 kbps increments
- 4-wire Line Rate: 384 to 11,392 kbps in 128 kbps increments
- Payload: ATM (AAL5)
- Linecode: TC-PAM
- Connector: RJ-45

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

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- ACTA/FCC Part 68
- IC CS-03
- 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: 4.25-inch W x 4.25-inch D

NetVanta SHDSL, Annex B NIM2 (P/N 1700101G2)

The NetVanta SHDSL, Annex B NIM2 (shown in *Figure 6*) provides a SHDSL 2-wire or 4-wire interface for the NetVanta 6310/NetVanta 6330 Series. See *Table A-9 on page 45* for the SHDSL connector pinouts.

Figure 6. NetVanta SHDSL, Annex B NIM2

Features and Specifications

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

SHDSL Interface
- Supported Standards: ITU-T G.991.2, Annex Band Annex G, ETSI TS101524
- 2-wire Line Rate: 192 to 5696 kbps in 64 kbps increments
- 4-wire Line Rate: 384 to 11,392 kbps in 128 kbps increments
- Payload: ATM (AAL5)
- Linecode: TC-PAM
- Connector: RJ-45

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

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- AS/ACIF S043
- EN 60950-1
- IEC 60950-1
- AS/NZS 60950-1
- 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: 4.25-inch W x 4.25-inch D

NetVanta Quad SHDSL EFM, Annex A NIM2 (P/N 1700103G1)

The NetVanta Quad SHDSL EFM, Annex A NIM2 (shown in *Figure 7*) provides a WAN-SHDSL EFM interface for the NetVanta 6310/NetVanta 6330 Series. See *Table A-8 on page 45* and *Table A-9 on page 45* for the SHDSL EFM connector pinouts.

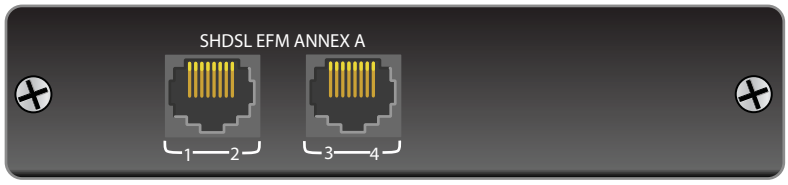

Figure 7. NetVanta Quad SHDSL EFM, Annex A NIM2

Features and Specifications

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

SHDSL Interface
- Four 2-wire eSHDSL loops
- Supported Standards: ITU-T G.991.2 Annex A, ANSI T1/E1.4/2001-174
- IEEE 802.3ah EFM bonding
- MEF compliant

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

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- ACTA/FCC Part 68
- IC CS-03
- 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: 4.25-inch W x 4.25-inch D

NetVanta Quad SHDSL EFM, Annex B NIM2 (P/N 1700103G2)

The NetVanta Quad SHDSL EFM, Annex B NIM2 (shown in *Figure 8*) provides a WAN-SHDSL EFM interface for the NetVanta 6310/NetVanta 6330 Series. See *Table A-8 on page 45* and *Table A-9 on page 45* for the SHDSL EFM connector pinouts.

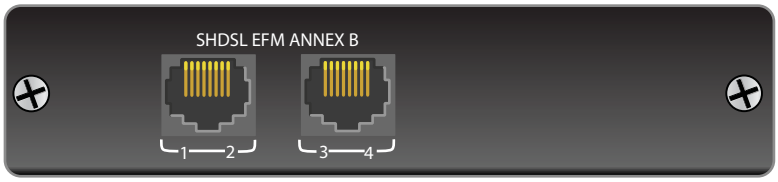

Figure 8. NetVanta Quad SHDSL EFM, Annex B NIM2

Features and Specifications

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

SHDSL Interface
- Four 2-wire eSHDSL loops
- Supported Standards: ITU-T G.991.2 Annex B, ETSI TS101524
- IEEE 802.3ah EFM bonding
- MEF compliant

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

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- AS/ACIF S043
- EN 60950-1
- IEC 60950-1
- AS/NZS 60950-1
- 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: 4.25-inch W x 4.25-inch D

NetVanta Quad T1/E1 EFM NIM2 (P/N 1700106G1)

The NetVanta Quad T1/E1 EFM NIM2 (shown in *Figure 9*) provides a WAN-T1/E1 EFM interface for the NetVanta 6310/NetVanta 6330 Series. See *Table A-10 on page 46* for the T1/E1 connector pinouts.

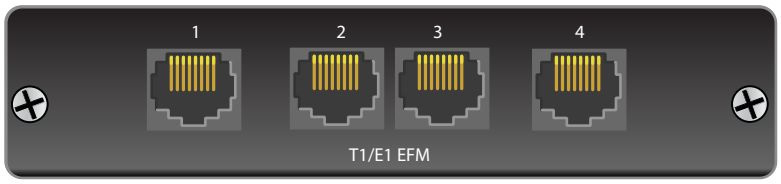

Figure 9. NetVanta Quad T1/E1 EFM NIM2

Features and Specifications

4xT1 Interfaces
- Supported Standards: AT&T TR 62411, AT&T TR 54016, Bellcore TR 194, ANSI T1.403
- Line Rate: 1.544 Mbps ±75 bps
- Line Codes: AMI or B8ZS
- Framing: D4 (SF) or ESF
- Input Signal: 0 to -36 dB (DS1); Support for Nx64 on all T1 interfaces (1 through 4)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- Connector: RJ-48C

4xE1 Interfaces (Future)
- Supported Standards: ITU-T G.703, ITU-T G.704 (CRC-4), ITU-T G.823, ITU-T G.797
- Line Rate: 2.048 Mbps ±50 PPM
- Line Codes: AMI or HDB3
- Framing: FAS/NFAS with optional CRC-4
- Input Signal: 0 to -30 dB (DS1) on all E1 interfaces (1 through 4)
- FE1 Line Rate: Channelized time slot (in multiples of 64 kbps)
- Connector: RJ-48C

Clock Source
- CPE Operating Mode: Line
- CO Operating Mode: Internal

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- T1: ACTA/FCC Part 68, IC CS-03
- E1: AS/ACIF S016, ETSI TBR 12/TBR 13
- EN 60950-1
- UL/CUL 60950-1
- AS/NZS 60950-1
- IEC 60950-1
- 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: 4.25-inch W x 4.25-inch D

NetVanta Ethernet NIM2 (P/N 1700107G1)

The NetVanta Ethernet NIM2 (shown in *Figure 10*) provides an Ethernet interface for the NetVanta 6310/NetVanta 6330 Series. See *Table A-7 on page 45* for the Ethernet module pinouts.

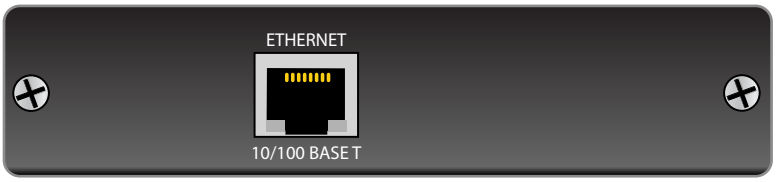

Figure 10. NetVanta Ethernet NIM2

Features and Specifications

Ethernet Interface

- Supported Standards: ITU-T I.430, Auto MDI/MDIX, Auto Speed (10/100Base-T), Auto Duplex
- Connector: RJ-45

Compliance

- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- EN 60950-1
- IEC 60950-1
- UL/CUL 60950-1
- AS/NZS 60950-1
- 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: 4.25-inch W x 4.25-inch D

NetVanta Quad BRI S/T NIM2 (P/N 1700112G1)

The NetVanta Quad BRI S/T NIM2 (shown in *Figure 11*) provides a BRI S/T interface for the NetVanta 6310/NetVanta 6330 Series. See *Table A-11 on page 46* for the Quad BRI S/T connector pinouts.

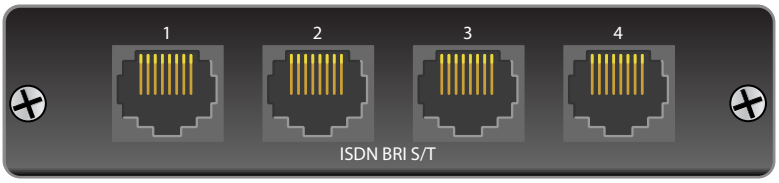

Figure 11. NetVanta Quad BRI S/T NIM2

Features and Specifications

Operating Mode
- Selectable NT or TE
- NT Mode Switch: Euro ISDN
- TE Mode Switch: Euro ISDN

BRI S/T Interface
- Supported Standards: ITU-T I.430, ANSI T1.605, ETSI ETS 300 012
- Line Rate: 196 kbps per interface
- Encoding: Two B channels at 64 kbps, one D channel at 16 kbps, signaling and maintenance channels at 48 kbps
- Connector: RJ-45/RJ-11

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

Diagnostics
- Line loopbacks
- Payload loopbacks

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- EN 60950
- UL/CUL 60950
- AS/NZS 60950
- AS/ACIF S031
- ETSI TBR 3
- ETSI EN 300 019
- ETSI EN 300 386
- IEC 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: 4.25-inch W x 4.25-inch D

NetVanta ADSL2+ Annex A NIM2 (P/N 1700114G1)

The NetVanta ADSL2+ Annex A NIM2 (see *Figure 12*) adds ADSL capability to the NetVanta 6310/6330 Series. The module provides a single ADSL, ADSL2, or ADSL2+ network interface to support rates up to 25 Mbps. See *Figure A-6 on page 45* for the ADSL2+ pinouts.

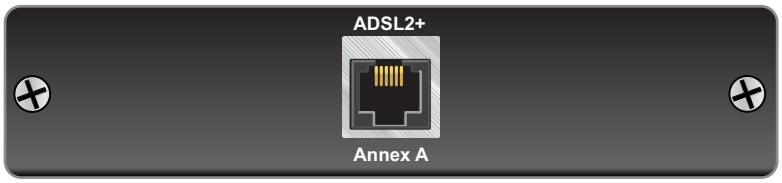

Figure 12. NetVanta ADSL2+ Annex A NIM2

Features and Specifications

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

ADSL2+ Interface
- Supported Standards:
  - ITU-T G.992.1 Annex A
  - ITU-T G.992.3 Annex A ADSL2
  - ITU-T G.992.5 Annex A ADSL2+
  - ITU-T G.992.3 Annex L READSL2
  - ITU-T G.992.3 Annex M
  - ANSI T1.413 Issue 2
- Connector: RJ-11C (6-pin jack, inner pair)
- Dying gasp

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
- IC CS-03
- EN 60950-1
- IEC 60950-1
- UL/CUL 60950-1
- AS/NZS CISPR22
- 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: 4.25-inch W x 4.25-inch D

Voice Interface Modules

NetVanta Quad FXS VIM2 (P/N 1700102G1)

The NetVanta Quad FXS VIM2 (see *Figure 13*) adds voice capability to the NetVanta 6310/NetVanta 6330 Series. See *Table A-12 on page 46* for the foreign exchange service (FXS) connector pinouts.

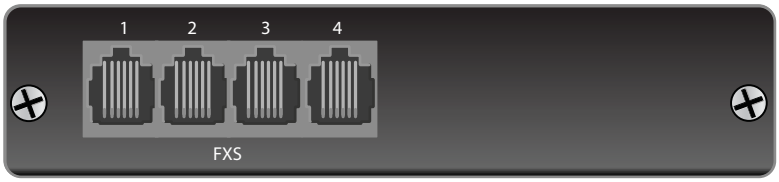

Figure 13. NetVanta Quad FXS VIM2

Features and Specifications

Analog Voice Ports
- Four FXS ports
- Loop Start (LS), Ground Start (GS)
- Normal and reverse battery operation

Transmission Level
- FXS Receive Gain: -12 to +6 dB, 0.1 dB steps
- FXS Transmit Gain: -12 to +6 dB, 0.1 dB steps

Impedance
- 600 Ω, 600 Ω +2.16 µF, 900 Ω, 900 Ω +2.16 µF

Port Tests
- 1 kHz test tone (near-end, far-end selectable)
- Reverse polarity, active, ringing, tip-open
- Loopbacks: Analog and digital

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- 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: 4.25-inch W x 4.25-inch D

NetVanta Quad FXO VIM2 (P/N 1700105G1)

The NetVanta Quad FXO VIM2 (see *Figure 14*) adds voice capability to the NetVanta 6310/NetVanta 6330 Series. See *Table A-12 on page 46* for the foreign exchange office (FXO) connector pinouts.

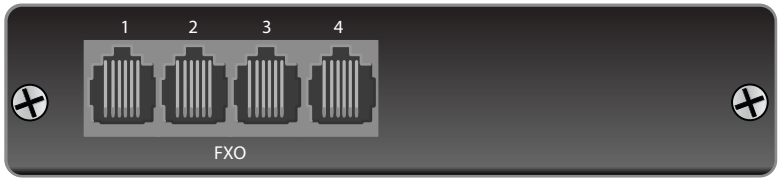

Figure 14. NetVanta Quad FXO VIM2

Features and Specifications

Analog Voice Ports
- Four FXO ports
- Loop Start (LS), Ground Start (GS)
- Normal and reverse battery operation

Transmission Level
- FXS Receive Gain: -6 to +10 dB, 0.1 dB steps
- FXS Transmit Gain: -6 to +10 dB, 0.1 dB steps

Impedance
- 600 Ω, 600 Ω +2.16 µF, 900 Ω, 900 Ω +2.16 µF, Rs 220 Ω, Rp 820 Ω, Cp 115 nF, Rs 270 Ω, Rp 750 Ω, Cp 150 nF, Rs 270 Ω, Rp 750 Ω, Cp 150 nF, Zin 600r, Rs 320 Ω, Rp 1050 Ω, Cp 230 nF, Rs 350 Ω, Rp 1000 Ω, Cp 210 nF, Zin 600r, Rs 370 Ω, Rp 620 Ω, Cp 310 nF, Rs 800 Ω, Rp 100 Ω, Cs 50 nF

Port Tests
- 1 kHz test tone (near-end, far-end selectable)
- Loop open, loop closed, ring ground

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- ACTA/FCC Part 68
- IC CS-03
- 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: 4.25-inch W x 4.25-inch D

NetVanta Octal FXS VIM2 (P/N 1700108G1)

The NetVanta Octal FXS VIM2 (see *Figure 15*) adds voice capability to the NetVanta 6310/NetVanta 6330 Series. See *Table A-12 on page 46* for the FXS connector pinouts.

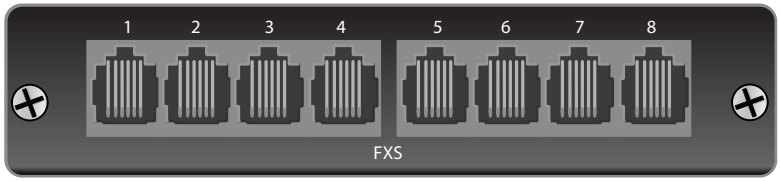

Figure 15. NetVanta Octal FXS VIM2

Features and Specifications

Analog Voice Ports
- Eight FXS ports
- Loop Start (LS), Ground Start (GS)
- Normal and reverse battery operation

Transmission Level
- FXS Receive Gain: -12 to +6 dB, 0.1 dB steps
- FXS Transmit Gain: -12 to +6 dB, 0.1 dB steps

Impedance
- 600 Ω, 600 Ω +2.16 µF, 900 Ω, 900 Ω +2.16 µF

Port Tests
- 1 kHz test tone (near-end, far-end selectable)
- Reverse polarity, active, ringing, tip-open
- Loopbacks: Analog and digital

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- 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: 4.25-inch W x 4.25-inch D

NetVanta Octal FXO VIM2 (P/N 1700109G1)

The NetVanta Octal FXO VIM2 (see *Figure 16*) adds voice capability to the NetVanta 6310/NetVanta 6330 Series. See *Table A-12 on page 46* for the FXO connector pinouts.

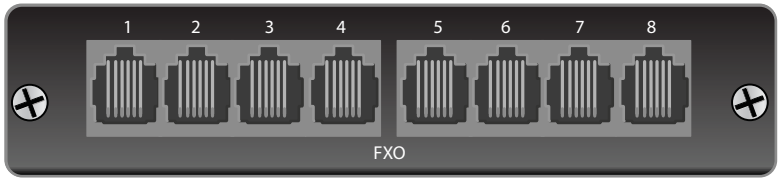

Figure 16. NetVanta Octal FXO VIM2

Features and Specifications

Analog Voice Ports
- Eight FXO ports
- Loop Start (LS), Ground Start (GS)
- Normal and reverse battery operation

Transmission Level
- FXO Receive Gain: -6 to +10 dB, 0.1 dB steps
- FXO Transmit Gain: -6 to +10 dB, 0.1 dB steps

Impedance
- 600 Ω, 600 Ω +2.16 µF, 900 Ω, 900 Ω +2.16 µF, Rs 220 Ω, Rp 820 Ω, Cp 115 nF, Rs 270 Ω, Rp 750 Ω, Cp 150 nF, Rs 270 Ω, Rp 750 Ω, Cp 150 nF, Zin 600r, Rs 320 Ω, Rp 1050 Ω, Cp 230 nF, Rs 350 Ω, Rp 1000 Ω, Cp 210 nF, Zin 600r, Rs 370 Ω, Rp 620 Ω, Cp 310 nF, Rs 800 Ω, Rp 100 Ω, Cs 50 nF

Port Tests
- 1 kHz test tone (near-end, far-end selectable)
- Loop open, loop closed, ring ground

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- ACTA/FCC Part 68
- IC CS-03
- 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: 4.25-inch W x 4.25-inch D

NetVanta Quad FXS/FXO VIM2 (P/N 1700111G1)

The NetVanta Quad FXS/FXO VIM2 (see *Figure 17*) adds voice capability to the NetVanta 6310/NetVanta 6330 Series. See *Table A-12 on page 46* for the FXS/FXO connector pinouts.

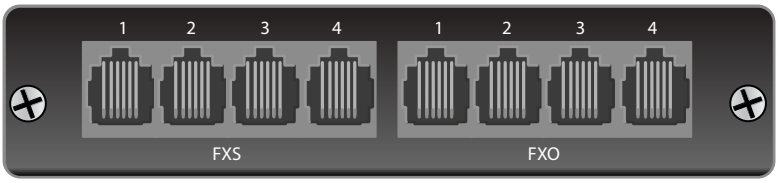

Figure 17. NetVanta Quad FXS/FXO VIM2

Features and Specifications

Analog Voice Ports
- Four FXS ports
- Four FXO ports
- Loop Start (LS), Ground Start (GS)
- Normal and reverse battery operation

Transmission Level
- FXS Receive Gain: -12 to +6 dB, 0.1 dB steps
- FXS Transmit Gain: -12 to +6 dB, 0.1 dB steps
- FXO Receive Gain: -6 to +10 dB, 0.1 dB steps
- FXO Transmit Gain: -6 to +10 dB, 0.1 dB steps

Impedance
- FXS: 600 Ω, 600 Ω +2.16 µF, 900 Ω, 900 Ω +2.16 µF
- FXO: 600 Ω, 600 Ω +2.16 µF, 900 Ω, 900 Ω +2.16 µF, Rs 220 Ω, Rp 820 Ω, Cp 115 nF, Rs 270 Ω, Rp 750 Ω, Cp 150 nF, Rs 270 Ω, Rp 750 Ω, Cp 150 nF, Zin 600r, Rs 320 Ω, Rp 1050 Ω, Cp 230 nF, Rs 350 Ω, Rp 1000 Ω, Cp 210 nF, Zin 600r, Rs 370 Ω, Rp 620 Ω, Cp 310 nF, Rs 800 Ω, Rp 100 Ω, Cs 50 nF

Port Tests
- 1 kHz test tone (near-end, far-end selectable)
- FXS: Reverse polarity, active, ringing, tip-open
- FXO: Loop open, loop closed, ring ground
- FXS: Loopbacks: Analog and digital

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table on page 6*.
- UL/CUL 60950-1
- ACTA/FCC Part 68
- IC CS-03
- 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: 4.25-inch W x 4.25-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:

For information on configuring a specific application, refer to the configuration guides provided on the ADTRAN's Support Forum or the *AOS Command Reference Guide*.

WARNING

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

CAUTION

- *The NetVanta 6310/6330 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.*
- *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.*

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.

Tools Required

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

- Ethernet cables
- Network cables (module dependent)
- Phillips-head screwdriver (rackmount applications only)
- Drill and drill bit set (wallmount applications only)

NOTE

To access the CLI of the NetVanta, you will also need a PC with 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 at ADTRAN's Support Forum.

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.

- *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.*
- *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.*
- *Be careful not to compromise the stability of the equipment mounting rack when installing this product.*
- *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.*
- *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).*

Instructions for Rack Mounting the NetVanta	
Step	**Action**
1	Attach the rackmount bars with the screws and brackets supplied in the rackmount kit.
2	To allow proper grounding, scrape the paint from the rack around the mounting holes where the NetVanta will be positioned.
3	Position the NetVanta in a stationary equipment rack. This unit occupies 1U of space.
4	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.
5	Apply power to the unit (refer to *Supplying Power to the Unit on page 40*).

Wall Mounting the NetVanta

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

CAUTION

- *To avoid damaging the unit, use only the screws included in the shipment when attaching mounting ears to the chassis.*
- *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.*
- *The socket-outlet must be installed near the equipment and must be easily accessible.*

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 *Figure 18*).
2	Decide on a location for the NetVanta, keeping in mind that the unit needs to be mounted at or below eye-level so that the LEDs are viewable. The NetVanta 6310 can only be wall mounted with the front panel facing to the right (see *Figure 18*).
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. ***Important!*** *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 *Figure 18*).
5	Proceed to the steps given in *Supplying Power to the Unit on page 40*.

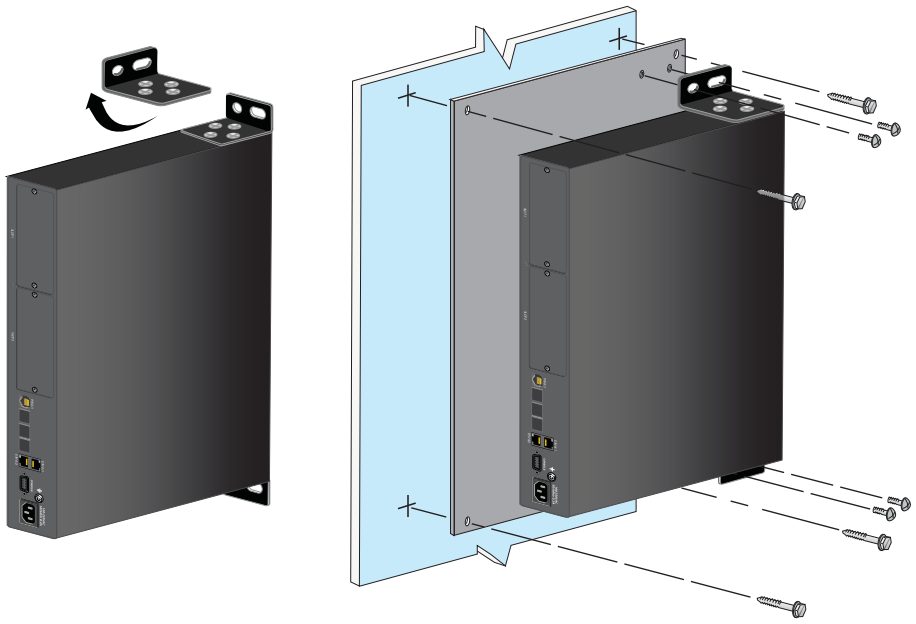

Figure 18. Wallmount Installation

Supplying Power to the Unit

The NetVanta 6310/6330 Series units come equipped with an auto-sensing 100 to 240 VAC, 50/60 Hz power supply for connecting to a properly grounded power receptacle. (A detachable power cable with a grounded, three-prong plug comes with the shipment.) To power this unit, connect the power cable to an appropriate AC power source.

- *In addition to the equipment earthing conductor in the power supply cord, a supplementary equipment earthing conductor is to be installed between the system and earth.*
- *The supplemental earthing conductor shall be connected to the equipment using a number 8 ring terminal and should be fastened to the grounding lug provided on the rear panel of the equipment. The ring terminal should be installed using the appropriate crimping tool (AMP P/N 59250 T-EAD Crimping Tool or equivalent).*
- *The supplementary equipment earthing conductor must not be smaller in size than cross-sectional area of not less than 2.5 mm^2, if mechanically protected. The supplementary equipment earthing conductor is to be connected to the product at the terminal provided, and connected to earth in a manner that will retain the earth connection when the power supply cord is unplugged. The connection to earth of the supplementary earthing conductor must be in compliance with the appropriate rules for terminating bonding jumpers in Part K of Article 250 of the National Electrical Code, ANSI/NFPA 70, and Article 10 of Part 1 of the Canadian Electrical Code, Part 1, C22.1. Termination of the supplementary earthing conductor is permitted to be made to building steel, to a metal electrical raceway system, or to any earthed item that is permanently and reliably connected to the electrical service equipment earthed.*
- *Bare, covered, or insulated earthing conductors are acceptable. A covered or insulated conductor must have a continuous outer finish that is either green, or green with one or more yellow stripes.*
- *A readily accessible disconnect device, that is suitably approved and rated, shall be incorporated in the field wiring.*
- *Maximum recommended ambient operating temperature is 50°C.*

Installing Network and Voice Interface Modules

The NIM2s/VIM2s are installed into the rear panel option module slots. The following table lists the installation steps. Also, see *Figure 19* below.

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.*
- *Always remove power from the unit prior to removing or installing a module.*
- *Improper installation could result in damage to the modules.*

Instructions for Installing the NIM2s/VIM2s	
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 screws at both edges of the module.
5	Connect the cables to the associated device(s).
6	Restore power to the unit.

Figure 19. NIM2/VIM2 Installation

Installing a CompactFlash Card

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

> NOTE *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.

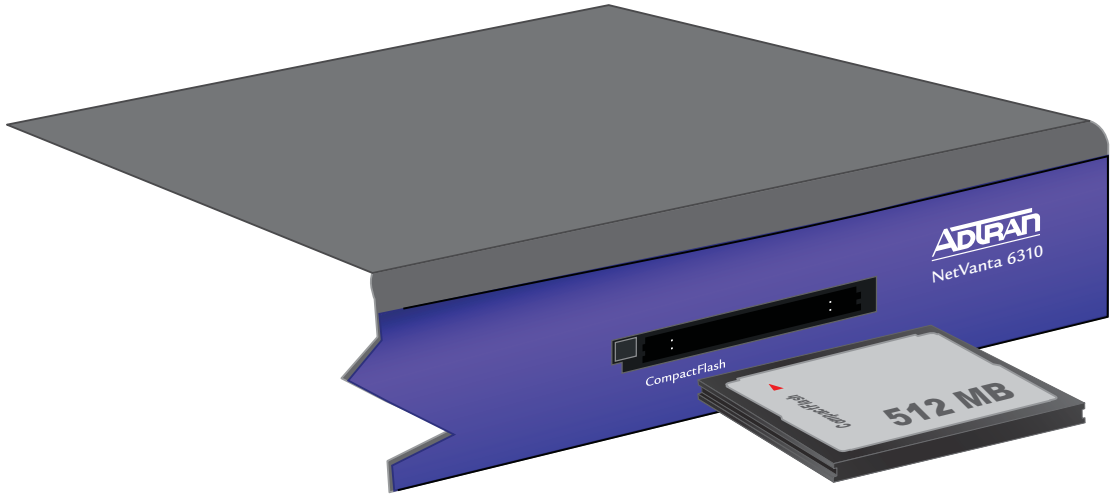

Figure 20. CompactFlash Card Installation

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 online on ADTRAN's Support Forum For details on the CLI, refer to the *AOS Command Reference Guide*. All other related documents are also available online on ADTRAN's Support Forum.

APPENDIX A. CONNECTOR PIN DEFINITIONS

The following tables provide the pin assignments for the base unit and network interface modules (NIMs).

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 (output)
7	RTS	Request to Send (input)
8	CTS	Clear to Send (output)
9	—	Unused

Table A-2. 10/100Base-T Ethernet Port Pinouts

Pin	Name	Description
1	TR+	Transmit Positive
2	TR-	Transmit Negative
3	RX+	Receive Positive
4, 5	—	Unused
6	RX-	Receive Negative
7, 8	—	Unused

Table A-3. PRI Connector Pinouts

Pin	Name	Description
1	TX	Tip
2	TX	Ring
3	—	Unused
4	RX	Tip
5	RX	Ring
6 - 8	—	Unused

Table A-4. FXO Connector Pinouts

Pin	Name	Description
1, 2	—	Unused
3	Ring	Ring lead of the 2-wire interface
4	Tip	Tip lead of the 2-wire interface
5, 6	—	Unused

Table A-5. VOICE Connector Pinouts

Pins	50-pin Amphenol Connector	Description
1, 26	Circuit 1	FXS 0/1 Ring, Tip
2, 27	Circuit 2	FXS 0/2 Ring, Tip
3, 28	Circuit 3	FXS 0/3 Ring, Tip
4, 29	Circuit 4	FXS 0/4 Ring, Tip
5, 30	Circuit 5	FXS 0/5 Ring, Tip
6, 31	Circuit 6	FXS 0/6 Ring, Tip
7, 32	Circuit 7	FXS 0/7 Ring, Tip
8, 33	Circuit 8	FXS 0/8 Ring, Tip
9, 34	Circuit 9	FXS 0/9 Ring, Tip
10, 35	Circuit 10	FXS 0/10 Ring, Tip
11, 36	Circuit 11	FXS 0/11 Ring, Tip
12, 37	Circuit 12	FXS 0/12 Ring, Tip
13, 38	Circuit 13	FXS 0/13 Ring, Tip
14, 39	Circuit 14	FXS 0/14 Ring, Tip
15, 40	Circuit 15	FXS 0/15 Ring, Tip
16, 41	Circuit 16	FXS 0/16 Ring, Tip
17, 42	Circuit 17	FXS 0/17 Ring, Tip or FXO 0/1 Ring, Tip
18, 43	Circuit 18	FXS 0/18 Ring, Tip or FXO 0/2 Ring, Tip
19, 44	Circuit 19	FXS 0/19 Ring, Tip or FXO 0/3 Ring, Tip
20, 45	Circuit 20	FXS 0/20 Ring, Tip or FXO 0/4 Ring, Tip
21, 46	Circuit 21	FXS 0/21 Ring, Tip or FXO 0/5 Ring, Tip
22, 47	Circuit 22	FXS 0/22 Ring, Tip or FXO 0/6 Ring, Tip
23, 48	Circuit 23	FXS 0/23 Ring, Tip or FXO 0/7 Ring, Tip
24, 49	Circuit 24	FXS 0/24 Ring, Tip or FXO 0/8 Ring, Tip
25, 50	—	Unused

Network Interface Module Pinouts

Table A-6. ADSL2+ Pinouts

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

Table A-7. Ethernet Module Pinouts

Pin	Name	Description
1	TR+	Transmit Positive
2	TR-	Transmit Negative
3	RX+	Receive Positive
4, 5	—	Unused
6	RX-	Receive Negative
7, 8	—	Unused

Table A-8. SHDSL (2-Wire/4-Wire)/SHDSL EFM (Ports 1 and 2) Pinouts

Pin	Name	Description
1	T02	Loop 2–Tip
2	R02	Loop 2–Ring
3	—	Unused
4	T01	Loop 1–Tip
5	R01	Loop 1–Ring
6 - 8	—	Unused

Table A-9. SHDSL EFM (Ports 3 and 4) Pinouts

Pin	Name	Description
1	T04	Loop 4–Tip
2	R04	Loop 4–Ring
3	—	Unused
4	T03	Loop 3–Tip
5	R03	Loop 3–Ring
6 - 8	—	Unused

Table A-10. T1/E1 EFM (Ports 1 through 4) Pinouts

Pin	Name	Description
1	RX Ring	Receive
2	RX Tip	Receive
3	—	Unused
4	TX Ring	Transmit
5	TX Tip	Transmit

Table A-11. BRI S/T Module Pinouts

Pin	Name	Description
1, 2	—	Unused
3	Receive	Receive
4, 5	Transmit	Transmit
6	Receive	Receive
7, 8	—	Unused

Voice Interface Module Pinouts

Table A-12. FXS/FXO Module Pinouts

Pin	Name	Description
1, 2	—	Unused
3	Ring	Ring lead of the 2-wire interface
4	Tip	Tip lead of the 2-wire interface
5, 6	—	Unused