



NetVanta 6355 PoE Hardware Installation Guide

1200740E1	NetVanta 6355 PoE
1200690E1	NetVanta Quad FXS Voice Interface Module
1202691G1	NetVanta Quad FXO Voice Interface Module
1202692E1	NetVanta Dual FXS/FXO Voice Interface Module
1200695L1	NetVanta T1/PRI Voice Interface Module
1200696G1	NetVanta E1/PRI Voice Interface Module
1202862L1	NetVanta T1/FT1 Network Interface Module
1202863L1	NetVanta T1/FT1 + DSX-1 Network Interface Module
1202872L1	NetVanta Dual T1 Network Interface Module
1202869E1	NetVanta ADSL Network Interface Module, Annex A
1200868E1	NetVanta E1/FE1 Network Interface Module
1200878E1	NetVanta E1/FE1 + G.703 Network Interface Module
1200480E1	1000Base-SX Multi-Mode SFP Module
1200481E1	1000Base-LX Single-Mode SFP Module
1200852G1	CompactFlash®, 1 GB
4200368L1	Enhanced Feature Pack (Hardware and Software) for IPsec VPN Upgrade

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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.



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Conventions



Notes provide additional useful information.



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



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 and regulatory guidelines, such as Waste Electrical and Electronic Equipment (WEEE), are given in the document [NetVanta Safety and Regulatory Information](#) (ADTRAN's Knowledge Base article 3444) available at <http://kb.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
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			
1202872L1		1.544 Mbps - ESF			
1200695L1	US: HDCDENAN1200695L1	1.544 Mbps - ESF and B8ZS			
1202869E1	US: HDCDL01A1200869L1	ADSL, ADSL2, ADSL2+	0.1A	Metallic	RJ-11C
1200691E1	US: HDCMM01B1200691L1	Analog Loop Start/Ground Start	0.1B	02LS2/02GS2	RJ-11C
1202692E1					
1200740E1	US: HDCIS01B1200740L1				

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 6355 PoE
1200690E1 Quad FXS VIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1202691G1 Quad FXO VIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1202692G1 Dual FXS/FXO VIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1200695L1 T1/PRI VIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1200696G1 E1/PRI VIM	FCC Part 15 Class A EN 55022 Class A EN 55024
1202862L1 T1/FT1 NIM	FCC Part 15 Class A EN 55022 Class A
1202863L1 T1/FT1 + DSX-1 NIM	FCC Part 15 Class A EN 55022 Class A
1202872L1 Dual T1 NIM	FCC Part 15 Class A EN 55022 Class A
1202869E1 ADSL NIM, Annex A	FCC Part 15 Class A EN 55022 Class A
1200868E1 E1/FE1 NIM	FCC Part 15 Class B EN 55022 Class B EN 55024
1200878E1 E1/FE1 + G.703 NIM	FCC Part 15 Class B EN 55022 Class B EN 55024
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.

Toll Fraud Liability

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Service and Warranty

For information on the service and warranty of ADTRAN products, visit the ADTRAN website at <http://www.adtran.com/support>.

Table of Contents

Introduction	15
Physical Description	15
Features and Specifications	15
Power Over Ethernet	16
SFP Module Slots	17
Network Interface Modules Supported	17
Voice Interface Modules Supported	17
Shipping Contents	17
NetVanta 6355 PoE Front Panel Design	18
NetVanta 6355 PoE Rear Panel Design	19
Option Modules	21
Network Interface Modules	22
Voice Interface Modules	28
Unit Installation	33
Tools Required	33
Mounting Options	34
Supplying Power to the Unit	36
Installing Network and Voice Interface Modules	36
Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1)	38
Installing a CompactFlash Card	39
Appendix A. Connector Pin Definitions.	41
Index	45

List of Figures

Figure 1.	NetVanta 6355 PoE Front Panel Layout	18
Figure 2.	NetVanta 6355 PoE Rear Panel Layout	19
Figure 3.	NetVanta T1/FT1 NIM	22
Figure 4.	NetVanta T1/FT1 + DSX-1 NIM	23
Figure 5.	NetVanta Dual T1 NIM	24
Figure 6.	NetVanta E1/FE1 NIM	25
Figure 7.	NetVanta E1/FE1 + G.703 NIM	26
Figure 8.	NetVanta ADSL NIM, Annex A	27
Figure 9.	NetVanta T1/PRI VIM	28
Figure 10.	NetVanta E1/PRI VIM	29
Figure 11.	NetVanta Quad FXS VIM	30
Figure 12.	NetVanta Quad FXO VIM	31
Figure 13.	NetVanta Dual FXS/FXO VIM	32
Figure 14.	Wallmount Installation	36
Figure 15.	NIM/VIM Installation	37
Figure 16.	NetVanta VPN Card Installation	38
Figure 17.	CompactFlash Card Installation	39

List of Tables

Table 1.	Front Panel LED Descriptions	19
Table 6-1.	CONSOLE Port Pinouts	41
Table 6-2.	SFP Slot Pinouts	41
Table 6-3.	10/100Base-T Ethernet Port Pinouts	42
Table 6-4.	1000Base-T Gigabit Ethernet Port Pinouts	42
Table 6-5.	T1/E1 Connector Pinouts	43
Table 6-6.	DSX-1 Connector Pinouts	43
Table 6-7.	G.703 Connector Pinouts	43
Table 6-8.	ADSL NIM Connector Pinouts	43
Table 6-9.	Analog Station (FXS) and Analog Trunk (FXO) Port Pinouts.	44

1. INTRODUCTION

This hardware installation guide describes the NetVanta 6355 Power over Ethernet (PoE) unit's physical characteristics, lists its features and specifications, introduces basic functionality, and provides installation instructions.

For information on configuration for a specific application, refer to the configuration guides provided online on the ADTRAN's Knowledge Base at <http://kb.adtran.com>. For details on the command line interface (CLI), refer to the *AOS Command Reference Guide* (ADTRAN's Knowledge Base article 2219). All other related documents are also available online on the ADTRAN's Knowledge Base at <http://kb.adtran.com>.

2. PHYSICAL DESCRIPTION

The NetVanta 6355 PoE is an Integrated Communications Platform (ICP) equipped with 24 PoE (802.3af) 10/100Base-T interfaces capable of supplying the full 15.4 watts and two Gigabit Ethernet interfaces accessed via a fixed RJ-45 connector or small form-factor pluggable (SFP) slots for fiber connectivity. The NetVanta 6355 PoE is a 1U-high, rack-mountable metal enclosure that includes a universal AC power supply and provides Voice over Internet Protocol (VoIP) capability for up to 50 user registrations.

This section includes a list of features, a list of supported modules, a list of shipping contents, and a description of the unit's front and rear panel designs. For additional information, refer to the following sections:

- *Mounting Options on page 34*
- *Supplying Power to the Unit on page 36*
- *Installing Network and Voice Interface Modules on page 36*
- *Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1) on page 38*
- *Installing a CompactFlash Card on page 39*

Features and Specifications

- 24-port PoE (802.3af) injector (15.4 watts per port)
- Provides 370 watts of power over spare pair for PoE
- Optional CompactFlash®
- Optional virtual private network (VPN)
- Feature-rich ADTRAN Operating System (AOS)
- Recognizable CLI and user-friendly, Web-based graphical user interface (GUI)
- Telnet, HTTP, SSL, SSH, craft/console port, or SNMP management options
- XAUTH including RADIUS and RSA SecurID
- Flash memory supports dual images of AOS
- TFTP, FTP, and XMODEM for firmware upgrades and maintenance updates
- LLDP (802.1AB) for discovering neighboring peers
- Optional combination SFP/1000Base-T Gigabit Ethernet port for stacking and uplink requirements
- Stacking (up to 16 switches) with single IP address management
- Compatible with ADTRAN's other VPN-equipped NetVanta products
- Auto-rate, auto-duplexing, and auto-MDI/MDI-X sensing
- Support for VLAN trunking and GVRP with up to 255 active VLANs (802.1Q)

- Class of service (CoS) (802.1p) and DiffServ for traffic prioritization with weighted round robin (WRR) and strict priority queuing
- Four queues per egress port
- DiffServ-to-802.1p mapping
- Spanning Tree/Rapid Spanning Tree support (802.1D/802.1w)
- Storm control, link aggregation (802.3ad), and port mirroring
- MAC-based port security
- Full-featured onboard IP access router supports all NetVanta 3000 Series routing features
- Interchangeable network interface modules (NIMs): T1/FT1, T1/FT1 + DSX-1, Dual T1, and ADSL Annex A available
- Interchangeable voice interface modules (VIMs): Quad FXS, Quad FXO, Dual FXS/FXO, E1/PRI, and T1/PRI available
- Standards-based BGP, OSPF, RIP, and static routing support
- Bridging across the WAN
- Ideal for Frame Relay, Multilink Frame Relay, PPP, Multilink PPP (MLPPP), PPPoE, or ATM (ADSL NIM) networks
- Integral stateful inspection firewall protects against denial of service (DoS) attacks
- Quality of service (QoS) with low latency queuing (LLQ) and weighted fair queuing (WFQ), and DiffServ marking
- Frame Relay and PPP fragmentation to avoid latency
- VLAN (802.1Q) trunking/interVLAN routing and bridging
- Network address translation (NAT/NAPT) and NAT Traversal version 2
- NAT-compatible SIP ALG
- DHCP client, server, and relay
- IPsec VPN upgrade supporting 500 tunnels and DES/3DES/AES encryption
- Single combination 10/100/1000Base-T Ethernet port/SFP module slot for high-speed uplink or stacking requirements
- 6.8 Gbps nonblocking switching capacity
- 1U, 19-inch rackmount metal enclosure
- 1.7-inch H x 17.2-inch W x 7.8-inch D
- Auto-ranging power (100 to 250 VAC, 50/60 Hz)
- Operating temperature: 0°C to 50°C

Power Over Ethernet

The NetVanta 6355 PoE interfaces provide the ability to detect attached powered devices (PDs) and deliver 48 VDC to the PD via existing CAT 5 cabling. The PoE interfaces are fully compliant with the IEEE 802.3af PoE standard. By default, the PoE ports automatically discover and provide power to IEEE-compliant PDs.

SFP Module Slots

The NetVanta 6355 PoE supports two SFP slots that accept a number of industry standard SFP modules. The SFP modules provide Gigabit Ethernet connectivity over fiber for high-speed uplinks or switch stacking. The following modules are available for purchase (both of these modules require fiber optic cable with LC connectors):

- 1200480E1 1000Base-SX Multi-Mode SFP Module
- 1200481E1 1000Base-LX Single-Mode SFP Module

Network Interface Modules Supported

The NetVanta 6355 PoE contains two NIM/VIM slots on the rear panel that support the following modules in data applications:

- 1202862L1 T1/FT1 NIM
- 1202863L1 T1/FT1 + DSX-1 NIM
- 1200872L1 Dual T1 NIM
- 1200868E1 E1/FE1 NIM
- 1200878E1 E1/FE1 + G.703 NIM
- 1202869E1 ADSL NIM, Annex A

Voice Interface Modules Supported

The NetVanta 6355 PoE NIM/VIM slots on the rear panel support the following VIMs in voice applications:

- 1200690E1 Quad FXS VIM
- 1202691G1 Quad FXO VIM
- 1202692G1 Dual FXS/FXO VIM
- 1200695L1 T1/PRI VIM
- 1200696G1 E1/PRI VIM

Shipping Contents

Each NetVanta 6355 PoE 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 [Repair and Replacement](#) section of the [Support](#) page on the ADTRAN website at <http://www.adtran.com/support>).

Shipments of the NetVanta 6355 PoE include the following items:

- NetVanta 6355 PoE base unit
- Quick start guide
- A detachable power cable with a grounded, three-prong plug
- Mounting brackets and screws

NetVanta 6355 PoE Front Panel Design

The NetVanta 6355 PoE front panel is shown in [Figure 1 on page 18](#). [Table 1 on page 19](#) describes all of the LEDs, and [Appendix A on page 41](#) shows the pinouts for the connectors.

NetVanta 6355 PoE Front Panel Features

10/100Base-T Ethernet Interfaces

The NetVanta 6355 PoE front panel contains 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.

The NetVanta 6355 PoE also has green and red PoE status LEDs located in the upper-left and upper-right corners (respectively) of each Ethernet connector.

Gigabit Ethernet Interfaces/SFP Slots

The NetVanta 6355 PoE front panel contains two Gigabit Ethernet interfaces that provide two fixed RJ-45 connectors and two standard SFP slots for connectivity over fiber. (Use either the RJ-45 connectors *or* the SFP slots. The fiber slots have precedence.) 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 **SLOT 1** LED reflects the status of a NIM/VIM installed in NIM/VIM option **SLOT 1** (located on the rear panel). The **SLOT 2** LED reflects the status of a NIM/VIM installed in NIM/VIM option **SLOT 2** (located on the rear panel). The **STAT** LED indicates the unit's status.

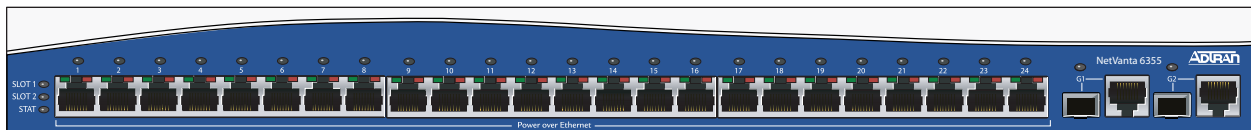


Figure 1. NetVanta 6355 PoE Front Panel Layout

Table 1. Front Panel LED Descriptions

LED	Color	Indication
STAT	Off	Unit is not receiving power.
	Green (solid)	Power is on and self-test passed.
	Green (flashing)	On power up, the STAT LED flashes rapidly for five seconds, during which time the user may escape to boot mode from the CONSOLE port.
	Red (solid)	Power is on, but the self-test failed or the boot code could not be booted.
Port LEDs (1 through 24, G1, G2)	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).
SLOT 1/SLOT 2	Off	No NIM/VIM installed or interface is administratively down.
	Green (solid)	NIM/VIM module is up and everything is okay.
	Green (flashing)	Port has activity (transmit or receive).
	Amber (solid)	NIM/VIM module is in test.
	Red (solid)	An alarm is occurring on the interface.
Power over Ethernet Status LEDs	Green (solid)	Power is being applied (48 V) to the interface.
	Red (solid)	Fault is detected on the interface.

NetVanta 6355 PoE Rear Panel Design

The NetVanta 6355 PoE rear panel is shown below. Refer to [Appendix A on page 41](#) for pinouts.

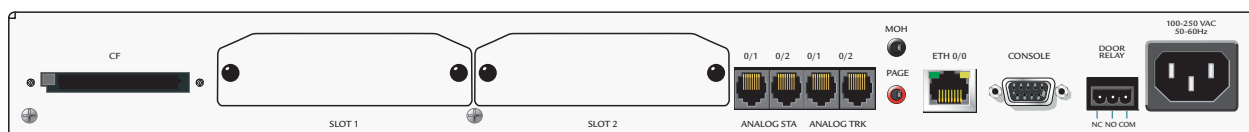


Figure 2. NetVanta 6355 PoE Rear Panel Layout

NetVanta 6355 PoE Rear Panel Interfaces

CompactFlash

The CompactFlash slot (labeled **CF**) supplies nonvolatile configuration and compressed code storage. The NetVanta 6355 PoE supports only ADTRAN-provided CompactFlash (16 MB to 1 GB) (refer to the part number on the front cover of this manual).

NIM/VIM Option Slots

The two NIM/VIM option slots (labeled **SLOT 1** and **SLOT 2**) accept a variety of NIM/VIM option modules (refer to [Option Modules on page 21](#)).

FXS and FXO Ports

The two FXS interfaces (labeled **ANALOG STA 0/1** and **0/2**) and two FXO interfaces (labeled **ANALOG TRK 0/1** and **0/2**) provide FXS and FXO connectivity, respectively.

During power outages, the FXS interfaces are connected directly to the FXO interfaces. This feature is called life line mode, and allows customers to make analog calls even when the power is out.



*For the NetVanta 6355 PoE, devices connected to the FXS (**ANALOG STA**) ports must be ACTA/FCC Part 68 compliant due to the direct connection to the public switched telephone network (PSTN) in life line mode.*

MOH

Reserved for future use.

Page

Reserved for future use.

10/100Base-T Ethernet Interface

The Ethernet port (**ETH 0/0**) is an RJ-45 connector. The Ethernet port provides the following:

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

Door Relay

Reserved for future use.

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).



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 36](#) for connection details.

3. OPTION MODULES

The NetVanta 6355 PoE supports several option modules designed to meet a variety of networking requirements. The option modules include plug-in NIMs and VIMs.

NIMs/VIMs 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 T1/FT1 NIM (P/N 1202862L1) on page 22*
- *NetVanta T1/FT1 + DSX-1 NIM (P/N 1202863L1) on page 23*
- *NetVanta Dual T1 NIM (P/N 1202872L1) on page 24*
- *NetVanta E1/FE1 NIM (P/N 1200868E1) on page 25*
- *NetVanta E1/FE1 + G.703 NIM (P/N 1200878E1) on page 26*
- *NetVanta ADSL NIM, Annex A (P/N 1202869E1) on page 27*
- *NetVanta T1/PRI VIM (P/N 1200695L1) on page 28*
- *NetVanta E1/PRI VIM (P/N 1200696G1) on page 29*
- *NetVanta Quad FXS VIM (P/N 1200690E1) on page 30*
- *NetVanta Quad FXO VIM (P/N 1202691G1) on page 31*
- *NetVanta Dual FXS/FXO VIM (P/N 1202692G1) on page 32*

This section describes each module, providing individual card specifications and features. Refer to [Appendix A on page 41](#) for pinout information. [Installing Network and Voice Interface Modules on page 36](#) provides information on card installation.

Network Interface Modules

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

The NetVanta T1/FT1 NIM (see [Figure 3](#)) provides a T1 WAN interface for the NetVanta. This module provides a full T1 or fractional T1 network interface. See [Table 6-5 on page 43](#) for the WAN-T1 connector pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time.

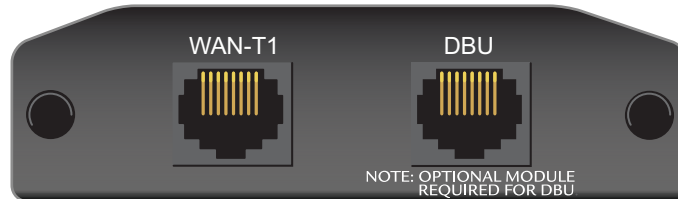


Figure 3. NetVanta T1/FT1 NIM

Features and Specifications

Operating Modes

- Frame Relay, Multilink Frame Relay
- PPP, MLPPP
- 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

- Line
- 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 4](#)) provides a T1 WAN interface for the NetVanta, a full or fractional T1 network interface, and a DSX-1 interface. See [Table 6-5 on page 43](#) for the WAN-T1 connector pinouts and [Table 6-6 on page 43](#) for the DSX-1 connector pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time.

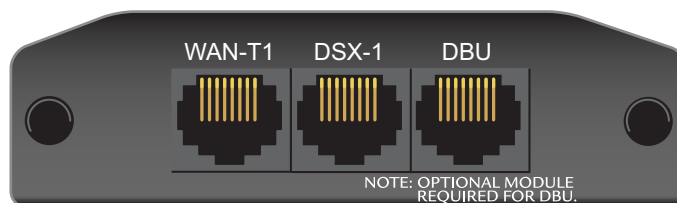


Figure 4. NetVanta T1/FT1 + DSX-1 NIM

Features and Specifications

Operating Modes

- Frame Relay, Multilink Frame Relay
- PPP, MLPPP
- 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

- Line
- 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 1202872L1)

The NetVanta Dual T1 NIM (see [Figure 5](#)) provides two WAN T1 interfaces for the NetVanta. See [Table 6-5 on page 43](#) for the pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time.

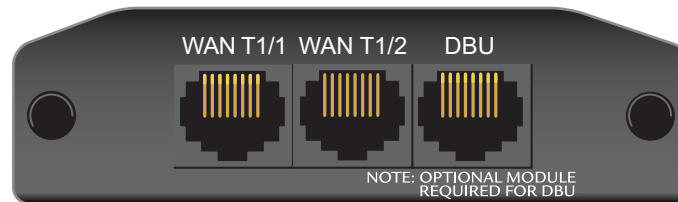


Figure 5. NetVanta Dual T1 NIM

Features and Specifications

Operating Modes

- Frame Relay, Multilink Frame Relay
- PPP, MLPPP
- 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

- Line
- Internal
- Through

Diagnostics

- Test Pattern Generation and Detection: QRSS, 511, 2¹⁵ - 1, 2²⁰ - 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

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

The NetVanta E1/FE1 NIM (shown in [Figure 6](#)) provides a WAN-E1 interface for the NetVanta 7000 Series, meeting the requirements of ITU-T G.703/G.704. The module provides a single 2.048 Mbps network interface. See [Table A-6 on page 43](#) for the pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time

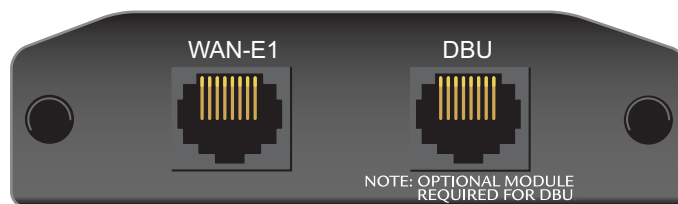


Figure 6. NetVanta E1/FE1 NIM

Features and Specifications

Operating Modes

- Frame Relay, multilink Frame Relay
- PPP, MLPPP
- 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 (1200868E1 only) (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 NIM (P/N 1200878E1)

The NetVanta E1/FE1 + G.703 NIM (shown in [Figure 7](#)) provides a single WAN-E1 interface (2.043 Mbps) with user-selectable TS0 assignment and a G.703 drop port that can be used to drop and insert traffic to an E1 PBX. See [Table A-6 on page 43](#) for the WAN-E1 pinouts. See [Table A-8 on page 43](#) for the G.703 pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time

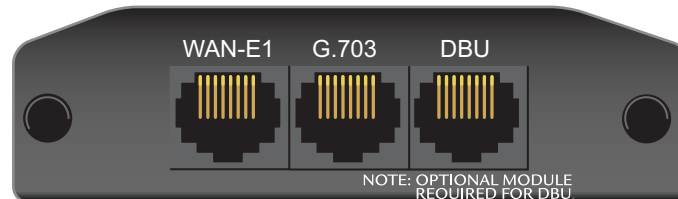


Figure 7. NetVanta E1/FE1 + G.703 NIM

Features and Specifications

Operating Modes

- Frame Relay, multilink Frame Relay
- PPP, MLPPP
- 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 (1200878E1 only) (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, Annex A NIM (see [Figure 8](#)) adds ADSL capability to the NetVanta. The module provides a single ADSL, ADSL2, or ADSL2+ network interface to support rates up to 25 Mbps. See [Table 6-8 on page 43](#) for the pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time.

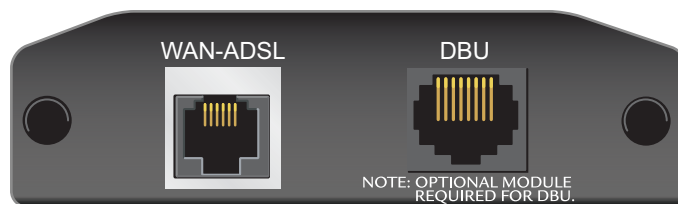


Figure 8. NetVanta ADSL NIM, Annex A

Features and Specifications

DSL Interface

- ADSL over POTS, Annex A
- Supported Standards:
 - ITU-T G.992.1 Annex A (G.dmt)
 - ITU-T G.992.2 Annex A (G.lite)
 - ITU-T G.992.3 Annex A ADSL2 (G.dmt.bis)
 - ITU-T G.992.5 Annex A ADSL2+
 - ITU-T G.992.3 Annex L READSL2
 - ANSI T1.413 Issue 2
- Connector: RJ-1C (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

Voice Interface Modules

NetVanta T1/PRI VIM (P/N 1200695L1)

The NetVanta T1/PRI VIM (see [Figure 9](#)) adds T1 voice capability to the NetVanta. See [Table 6-5 on page 43](#) for the T1 connector pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time.

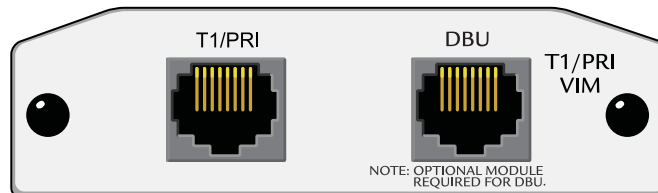


Figure 9. NetVanta T1/PRI VIM

Features and Specifications

Operating Modes

- Primary Rate ISDN (PRI), CAS

T1 Interface

- Supported Standards: AT&T TR 62411, AT&T TR 54016, Bellcore TR 194, ANSI T1.403
- 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

- Line
- Internal
- System

Diagnostics

- Test Pattern Generation and Detection: QRSS, 2¹⁵ - 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

NetVanta E1/PRI VIM (P/N 1200696G1)

The NetVanta E1/PRI VIM (see [Figure 10](#)) adds E1 voice capability to the NetVanta. See [Table 6-5 on page 43](#) for the E1 connector pinouts. An optional DIM is required for dial backup applications. Dial backup is not supported at this time.

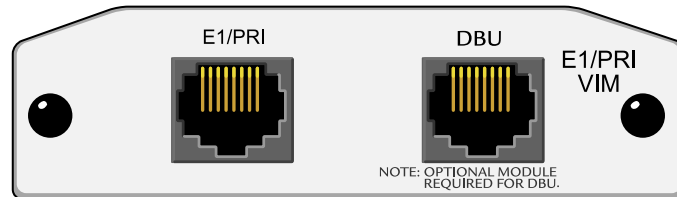


Figure 10. NetVanta E1/PRI VIM

Features and Specifications

Operating Modes

- Primary Rate ISDN (PRI), CAS

E1 Interface

- Supported Standards: ITU-T G.703, ITU-T G.704 (CRC-4), ITU-T G.732, ITU-T G.823
- Line Rate: 2.048 Mbps \pm 50 bps
- Line Code: AMI or HDB3
- Framing: TS-16, CRC-4, double frame
- FE1 Line Rate: Channelized timeslot (multiples of 64 kbps)
- Receiver Sensitivity: -36 dB
- Connector: RJ-48C

Clock Source

- Line
- Internal
- System

Diagnostics

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

Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- AS/ACIF S016
- ETSI TBR 12/TBR 13
- 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: 2.75-inch W x 4.25-inch D

NetVanta Quad FXS VIM (P/N 1200690E1)

The NetVanta Quad FXS VIM (see [Figure 11](#)) adds voice capability to the NetVanta. See [Table 6-9 on page 44](#) for the FXS connector pinouts.

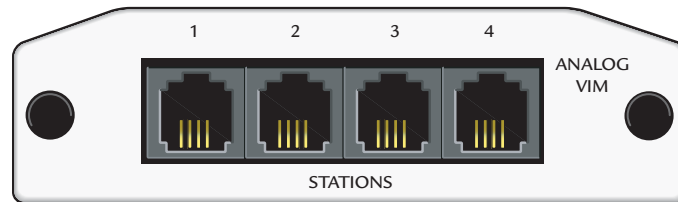


Figure 11. NetVanta Quad FXS VIM

Features and Specifications

Analog Voice 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

Compliance

- EMC - see [Electromagnetic Compatibility \(EMC\) Table on page 6](#).
- 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



Devices connected to the FXS (ANALOG STA) ports must be ACTA/FCC Part 68 compliant due to the direct connection to the PSTN in life line mode.

NetVanta Quad FXO VIM (P/N 1202691G1)

The NetVanta Quad FXO VIM (see [Figure 12](#)) adds voice capability to the NetVanta. See [Table 6-9 on page 44](#) for the FXO connector pinouts.

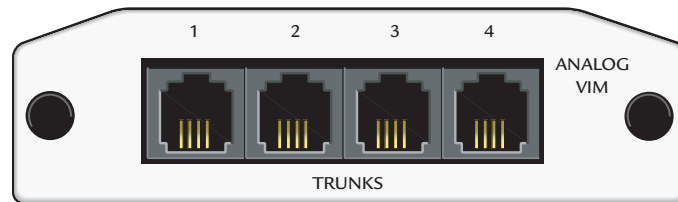


Figure 12. NetVanta Quad FXO VIM

Features and Specifications**Analog Voice Ports**

- Loop Start (LS), Ground Start (GS)
- Normal and reverse battery operation

Transmission Level

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

Compliance

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

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 FXS/FXO VIM (P/N 1202692G1)

The NetVanta Dual FXS/FXO VIM (see [Figure 13](#)) adds voice capability to the NetVanta. See [Table 6-9 on page 44](#) for the FXS/FXO connector pinouts.

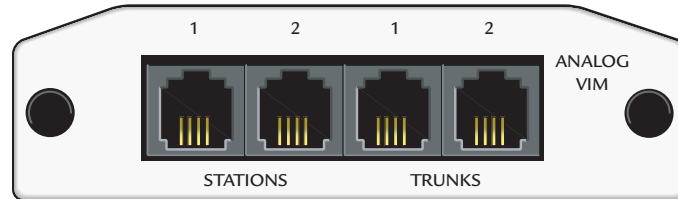


Figure 13. NetVanta Dual FXS/FXO VIM

Features and Specifications

Analog Voice Ports

- Dual FXS and Dual 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 Transmit Gain: -6 to +10 dB, 0.1 dB steps
- FXO Receive Gain: -6 to +10 dB, 0.1 dB steps

Compliance

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

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



Devices connected to the FXS (ANALOG STA) ports must be ACTA/FCC Part 68 compliant due to the direct connection to the PSTN in life line mode.

4. 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:

- [Mounting Options on page 34](#)
- [Supplying Power to the Unit on page 36](#)
- [Installing Network and Voice Interface Modules on page 36](#)
- [Installing the NetVanta VPN Accelerator Card \(included in P/N 4200368L1\) on page 38](#)
- [Installing a CompactFlash Card on page 39](#)

For information on configuration for a specific application, refer to the configuration guides provided online on the ADTRAN's Knowledge Base at <http://kb.adtran.com>.

WARNING

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



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.



The NetVanta 6355 PoE 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 and PoE cables are intended for intra building use only. They should not be run outside the building.

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)
- Phillips-head screwdriver (rack-mounted applications only)



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 Knowledge Base](#).

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.



If you have purchased the VPN Accelerator Card for your NetVanta 6355 PoE, install it first (refer to [Installing the NetVanta VPN Accelerator Card \(included in P/N 4200368L1\)](#) on page 38).

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 36).

Wall Mounting the NetVanta

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



- *NetVanta units are to be installed only by qualified service personnel.*
- *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 14 on page 36).
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 should be wall mounted with the front panel facing up (see Figure 14 on page 36).
3	Prepare the mounting surface by attaching a board (typically plywood, 3/4-inch to 1-inch thick) to a wall stud. Important! <i>Mounting to a stud ensures stability. Using sheetrock anchors may not provide sufficient long-term stability.</i>
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 14 on page 36).
5	Proceed to the steps given in Supplying Power to the Unit on page 36 .

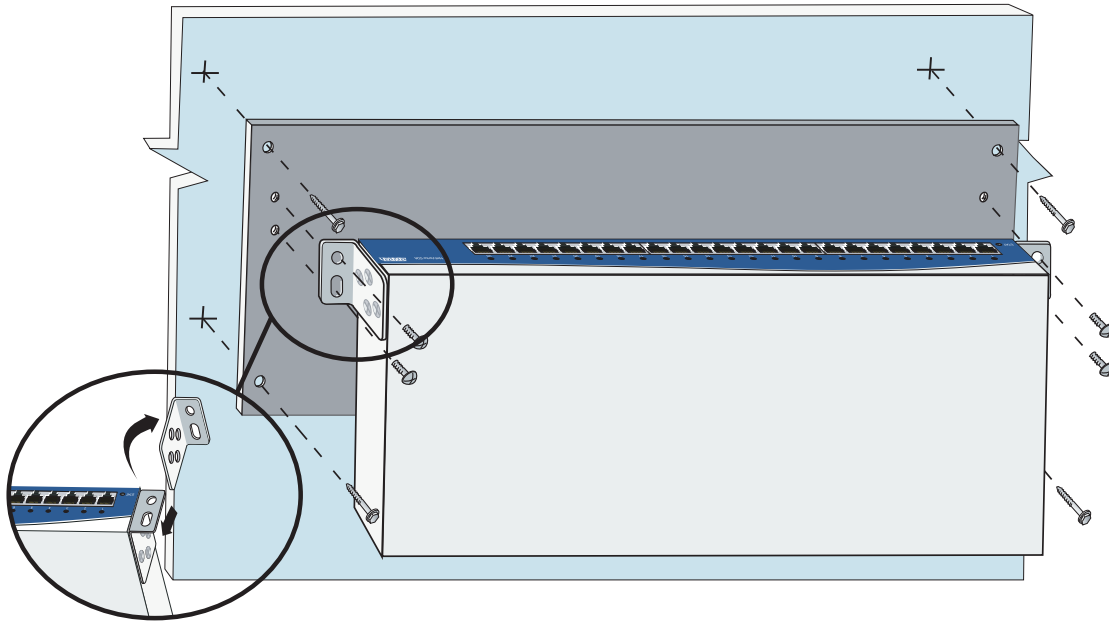


Figure 14. Wallmount Installation

Supplying Power to the Unit

The NetVanta 6355 PoE unit comes equipped with an auto-sensing 100 to 250 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.

Installing Network and Voice Interface Modules

NIMs/VIMs are installed into the rear panel option module slot. The following tables list the installation steps. Also see [Figure 15 on page 37](#).

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.

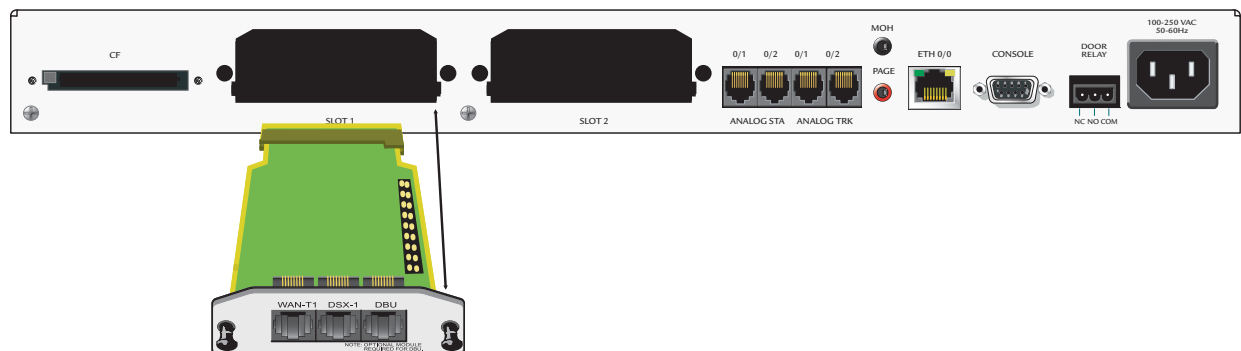


CAUTION

Always remove power from the unit and all telecommunication connections prior to removing or installing a module.

Improper installation may result in damage to the modules.

Instructions for Installing the NIMs/VIMs	
Step	Action
1	Remove power from the unit.
2	Remove the cover from the option slot by pulling the pins until they disengage from the chassis.
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 15. NIM/VIM Installation**

Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1)

The optional VPN Accelerator card plugs into a 32-bit PCI slot and is designed to be used in the NetVanta 6355 PoE to provide encryption/decryption and security acceleration services. The card provides the following security services to the host processor: DES, triple-DES (3DES), AES, SHA-1, MD5, and random number generation. The power consumption of the card does not exceed 2 watts.



The AOS Enhanced Feature Pack software is required to take advantage of the VPN acceleration features of this card.



The NetVanta VPN accelerator card is intended to be serviced/installed by qualified service personnel only.

Instructions for Installing the NetVanta VPN Accelerator Card

Step	Action
1	Remove telecom cables and power from the unit.
2	Remove the screws holding the base unit and the cover together and, if necessary, two mounting brackets (see Figure 16).
3	Using a 3/16-inch hex driver, remove the two jack screws located on either side of the DB-9 port.
4	Carefully lift and remove the unit's cover to expose the circuit board.
5	Gently slide the accelerator card into the PCI slot as shown. The card is keyed to fit into the slot only one way. To avoid damaging the card pins, do not use excessive force.
6	Replace the unit cover, screws, and mounting brackets.
7	Replace telecom cables and restore power to the unit.

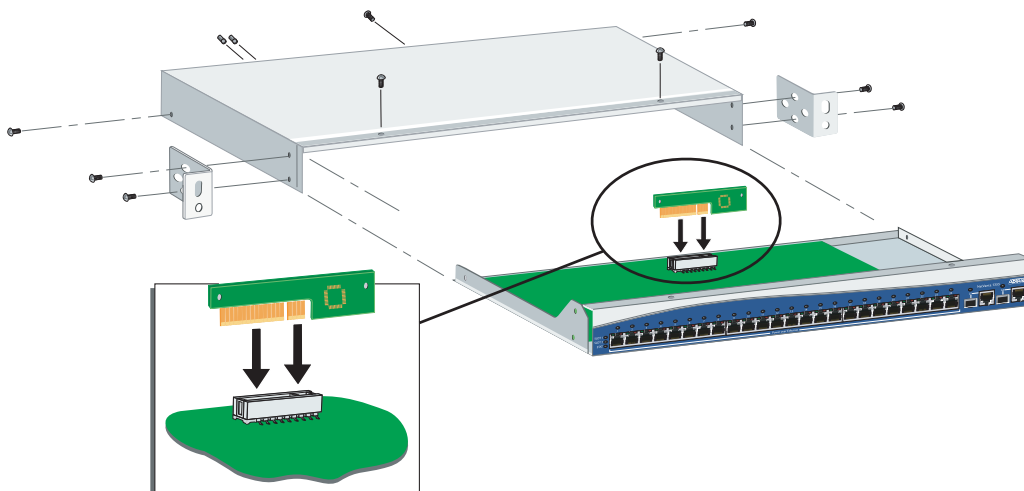


Figure 16. NetVanta VPN Card Installation

Installing a CompactFlash Card

The CompactFlash (**CF**) slot supports only the ADTRAN-provided 1 GB CompactFlash card. 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	Remove the two screws and the cover from the CF slot on the rear of the unit.
2	Slide the module into the CF slot until the card is firmly seated against the chassis.
3	Replace the CF slot cover.
4	The CompactFlash options will now be available in the GUI and the AOS CLI.

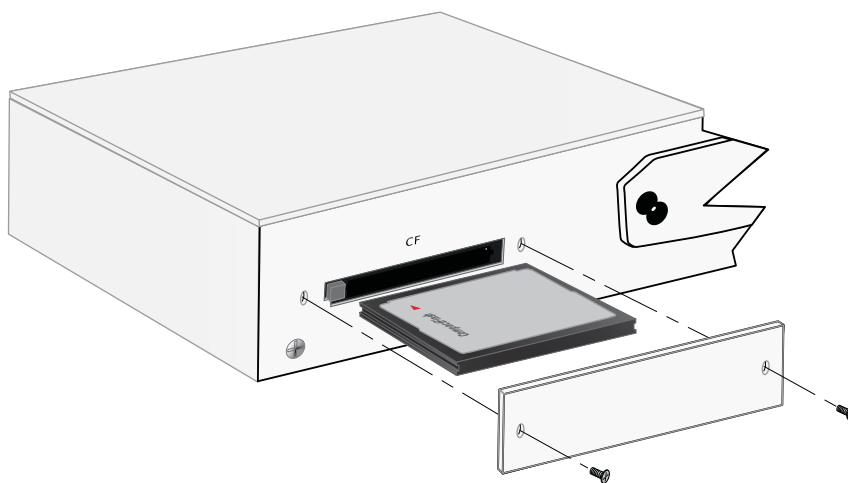


Figure 17. CompactFlash Card Installation

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 the ADTRAN's Knowledge Base at <http://kb.adtran.com>. For details on the CLI, refer to the [AOS Command Reference Guide](#) (ADTRAN's Knowledge Base article 2219). All other related documents are also available online on the ADTRAN's Knowledge Base at <http://kb.adtran.com>.

APPENDIX A. CONNECTOR PIN DEFINITIONS

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

Base Unit Pinouts

Table 6-1. 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 Tied to pin 1 (output)
7	—	Unused
8	CTS	Clear to Send Tied to pin 1 (output)
9	—	Unused

Table 6-2. SFP Slot Pinouts

Pin	Name	Pin	Name
1	RX_LOS	11	RGND
2	RGND	12	RX_DAT-
3	RGND	13	RX_DAT+
4	MOD_DEF(0)	14	RGND
5	MOD_DEF(1)	15	VddR
6	MOD_DEF(2)	16	VddT
7	TX_DISABLE	17	TGND
8	TGND	18	TX_DAT+
9	TGND	19	TX_DAT-
10	TX_FAULT	20	TGND

Table 6-3. 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 6-4. 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 and Voice Interface Module Pinouts

Table 6-5. T1/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 6-6. 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 6-7. 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 6-8. ADSL NIM Connector Pinouts

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

Table 6-9. Analog Station (FXS) and Analog Trunk (FXO) Port 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

Index

Numerics

10/100Base-T interface 20
1000Base-LX single-mode SFP module 17
1000Base-SX multi-mode SFP module 17

C

CLI 33
command line interface 33
CompactFlash 19, 39
console 20

D

door relay 20
Dual FXS/FXO VIM 32
Dual T1 NIM 24

E

E1/FE1 + G.703 drop NIM 26
E1/FE1 NIM 25
E1/PRI VIM 29
EMC table 6

F

features 15
front panel 18
FXO ports 19
FXS ports 19

G

G.703 NIM 26

I

installation
 CompactFlash card 39
 NIMs 37
 rack mounting instructions 34
 the unit 33
 tools required 33
 VIMs 37
 VPN accelerator card 38
 wall mounting instructions 35

L

LEDs
 description of 19
 PoE 19
 port 19
 SLOT 1/SLOT 2 19
 STAT 19

M

music on hold 20

N

network interface modules (NIMs)
 ADSL, Annex A 27
 Dual T1 24
 E1/FE1 25
 E1/FE1 + G.703 26
 installation 36
 modules supported 17
 option slots 19
 T1/FT1 22
 T1/FT1 + DSX-1 23

O

option modules discussion 21

P

paging 20
physical description 15
pinouts
 10/100Base-T ports 42
 1000Base-T ports 42
 ADSL connector 43
 console port 41
 DSX-1 connector 43
 E1 connector 43
 FXO port 44
 FXS port 44
 G.703 connector 43
 SFP slots 41
 T1 connector 43
PoE LEDs 19
port LEDs 19
power
 connection 20
 supplying to unit 36
Power over Ethernet 16
product registration 7

Q

Quad FXO VIM 31
Quad FXS VIM 30

R

rack mounting instructions 34
rear panel 19

S

safety instructions 4
SFP modules
 1000Base-LX single-mode 17
 1000Base-SX multi-mode 17
shipping contents 17
SLOT 1/SLOT 2 LEDs 19
specifications 15
STAT LED 19

T

T1, dual NIM 24
T1/FT1 + DSX-1 NIM 23
T1/FT1 NIM 22

V

voice interface modules (VIMs)
 Dual FXS/FXO 32
 E1/PRI 29
 installation 36

modules supported 17

option slots 19

Quad FXO 31

Quad FXS 30

T1/PRI 28

VPN accelerator card 38

W

wall mounting instructions 35

warranty 7