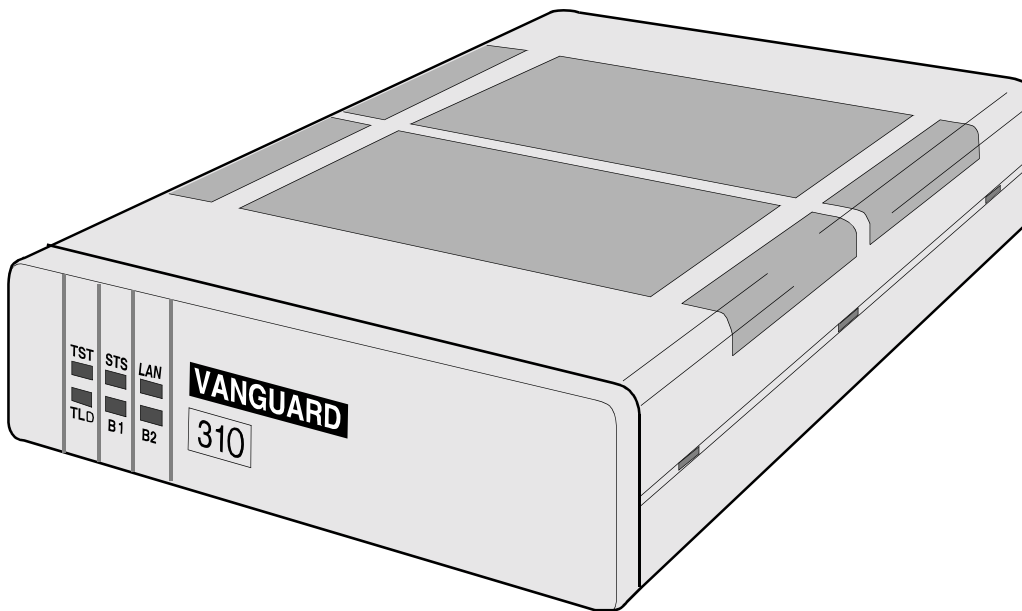


# Vanguard Managed Solutions

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## Vanguard 310 Series Installation Manual

# Notices

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## Proprietary Material

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This document is for information purposes only and is subject to change without notice.

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## Product Declarations and Regulatory Information

For Regulatory Declarations regarding the following:

- CE Marking
- BZT Marking
- DRG Marking
- FCC, CISPR, and EN Classifications
- Industry Canada and CDC Notifications,

See Appendix E, Software License and Regulatory Information.

Part Number: T0019, Rev F Publication Code: RC	
To comment, use the Customer Response Card located in this manual, or send an E-Mail to: LGEN031@vanguardms.com	

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## Customer Information

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## Customer Response Card

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### Overview

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#### Introduction

This manual covers features, hardware, installation, applications, and specifications for the Vanguard 310.

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#### Audience

This manual is intended for users of the Vanguard 310 Series.

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#### Trademarks

The following are trademarks or registered trademarks of their respective companies or organizations.

<b><i>Product</i></b>	<b><i>Company/Organization</i></b>
Adobe Acrobat	Adobe Inc.
Crosstalk	Digital Communications Associates, Inc.
HyperTerminal	Hilgreave, Inc.
OS/2	IBM
ProComm	Datastorm Technologies, Inc.
Vanguard	Vanguard Managed Solutions, LLC
Vanguide	Vanguard Managed Solutions, LLC
Windows	Microsoft Corporation

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## About This Manual (continued)

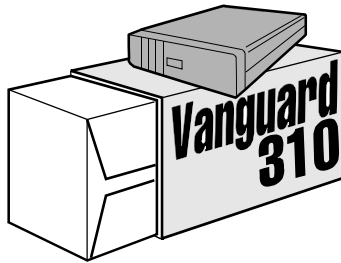
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### How to Use This Manual

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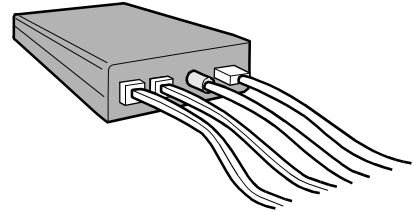
**Follow These Steps** Follow these steps to use this manual to install your Vanguard 310 Series product.

- ① Familiarize Yourself with the Vanguard 310



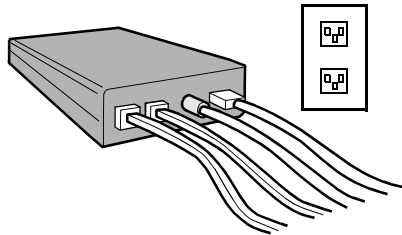
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- ② Install the Vanguard 310 Hardware



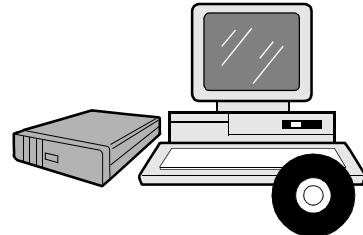
See Chapter 2, Installing Vanguard 310 Hardware

- ③ Powering on the Vanguard 310



See Chapter 3, Powering on the Vanguard 310

- ④ Vanguard 310 Software



See Chapter 4, Vanguard 310 Software

## About This Manual (continued)

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### Chapter Descriptions

The following table briefly describes each chapter of this manual.

<i><b>This Chapter...</b></i>	<i><b>Describes...</b></i>
Chapter 1, About the Vanguard 310 Series	The Vanguard 310 Series of products.
Chapter 2, Installing Vanguard 310 Hardware	How to install Vanguard 310 hardware, cabling, and shows the power-up sequence for the unit.
Chapter 3, Powering on the Vanguard 310	How to power on the Vanguard 310 and access the CTP.
Chapter 4, Vanguard 310 Software	Installing operating software and Configuration Memory (CMEM) files for a Vanguard 310.
Appendix A, Specifications	Physical and environmental specifications and power requirements for the Vanguard 310 Series.
Appendix B, Vanguard 310 Series Cabling	Cables and connector pinout for the Vanguard 310.
Appendix C, CTP/PAD Port Configuration	The procedure for changing the CTP port to a PAD port.
Appendix D, Troubleshooting the Vanguard 310	Tips for troubleshooting the Vanguard 310.
Appendix E, Software License and Regulatory Information	Software license statement and regulatory declarations for the Vanguard 310 Series.

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## About This Manual (continued)

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### Related Documentation

#### Introduction

This section describes related documentation and where to obtain documentation.

#### Other Documentation

All documentation is provided on the Vanguard CD-ROM and the internet.  
<http://www.vanguardms.com/documentation>

<i>Documentation Kit</i>	<i>Includes:</i>
Vanguard Documentation Set	<ul style="list-style-type: none"><li>• Vanguard Applications Ware Basic Protocols (Part Number T0106)</li><li>• IP and LAN Feature Protocols (Part Number T0100)</li><li>• SNA Feature Protocols (Part Number T0101)</li><li>• Serial Feature Protocols (Part Number T0102)</li><li>• Multi-Service Feature Protocols (Part Number T0103)</li><li>• Multimedia Feature Protocols (Part Number T0104)</li><li>• Alarms and Reports Manual (Part Number T0005)</li><li>• Software Installation and Coldloading Manual (Part Number T0028)</li></ul>
IP and LAN Feature Documentation Set	<ul style="list-style-type: none"><li>• IP and LAN Feature Protocols (Part Number T0100)</li></ul>
SNA Feature Documentation Set	<ul style="list-style-type: none"><li>• SNA Feature Protocols (Part Number T0101)</li></ul>
Serial Feature Documentation Set	<ul style="list-style-type: none"><li>• Serial Feature Protocols (Part Number T0102)</li></ul>
Multi-Service Feature Documentation Set	<ul style="list-style-type: none"><li>• Multi-Service Feature Protocols (Part Number T0103)</li></ul>
Multimedia Feature Documentation Set	<ul style="list-style-type: none"><li>• Multimedia Feature Protocols (Part Number T0104)</li></ul>
Vanguard Basic Protocols Documentation Set	<ul style="list-style-type: none"><li>• Vanguard Basic Protocols (Part Number T0106)</li></ul>



## About This Manual (continued)

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<b>Vanguide CD-ROM</b>	The Vanguide CD-ROM contains all Vanguard documentation available at the time of release. The Vanguide CD-ROM is shipped with each Vanguard product. To order an additional copy of the Vanguide CD-ROM, please contact a service representative.
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<b>WWW</b>	Check the internet site for the latest documentation: <a href="http://www.vanguardms.com/documentation">http://www.vanguardms.com/documentation</a>
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## Special Notices and Translations

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### Special Notices

The following notices emphasize certain information in the guide. Each serves a special purpose and is displayed in the format shown:

#### ■Note

Note is used to emphasize any significant information.



#### Caution

Caution provides you with information that, if not followed, can result in damage to software, hardware, or data.



#### Warning

Warning is the most serious notice, indicating that you can be physically hurt.

---

### Simplified Chinese

#### 特别通告

以下通告强调指南中的某些信息。  
每条信息均有一个特殊的目的并以如下格式显示:

#### ■注解

注解用于强调任何重要的信息。



#### 切记

切记提供您这类信息，如果不遵照信息的要求，可能导致软件、硬件或数据的损坏。



#### 警告

警告是最严重的通告，表明您的身体可能被伤害。

---

### Danish

#### Særlige overskrifter

Følgende overskrifter fremhæver nogle af oplysningerne i vejledningen. De tjener hvert et specifikt formål og vises i følgende format:

#### ■Bemærk

Bemærk anvendes til at fremhæve vigtig information.



#### Forsigtig

Forsigtig understreger oplysninger, som, hvis de ikke bliver fulgt, kan føre til beskadigelse af software, hardware eller data.



#### Advarsel

Advarsel er den mest alvorlige overskrift, og tilkendegiver mulig personskaade.

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## Dutch

### Bijzondere vermeldingen

De volgende vermeldingen besteden extra aandacht aan bepaalde informatie in de handleiding. Elke vermelding heeft een eigen nut en wordt in de volgende opmaak weergegeven:

#### ■Opmerking

Een opmerking wordt gebruikt om belangrijke informatie te benadrukken.



#### Let op

Dit kopje geeft aan dat u de beschreven instructies moet volgen om schade aan de software, hardware of gegevens te vermijden.



#### Waarschuwing

Een waarschuwing is de belangrijkste vermelding. Indien u deze niet volgt, kan dit tot lichamelijke verwondingen leiden.

---

## Finnish

### Eritysilmoitukset

Seuraavat ilmoitukset korostavat tiettyjä oppaan tietoja. Kullakin on oma erikoistarkoituksensa ja ne esitetään seuraavassa muodossa:

#### ■Huomaa

Huomautusta käytetään korostamaan tärkeätä tietoa.



#### Vaara

Vaarailmoitus antaa tietoa, jonka huomiotta jättäminen voi johtaa ohjelmiston, laitteiston tai tietojen vahingoittumiseen.



#### Varoitus

Varoitus on kaikkein vakavin ilmoitus ja se kertoo mahdollisesta loukkaantumisriskistä.

---

## French

### Messages spéciaux

Les messages suivants mettent en valeur certaines informations dans le guide. Chacun d'eux remplit une fonction spéciale et est affiché dans le format indiqué :

#### ■Important

Important est utilisé pour souligner des informations critiques au sujet d'une procédure.



#### Mise en Garde

Une mise en garde vous fournit des informations qui, si elles ne sont pas observées, peuvent se traduire par des dommages pour le logiciel, le matériel ou les données.



## Avertissement

Un avertissement constitue le message le plus sérieux, indiquant que vous pouvez subir des blessures corporelles.

---

### German

#### Besondere Hinweise

Durch die folgenden Hinweise werden bestimmte Informationen in diesem Handbuch hervorgehoben. Jeder Hinweis dient einem bestimmten Zweck und wird im dargestellten Format angezeigt:

##### ■Wichtig

WICHTIG wird zur Betonung signifikanter Angaben zu Vorgehensweisen verwendet.



## Vorsicht

Ein Vorsichtshinweis macht Sie darauf aufmerksam, daß Nichtbefolgung zu Software-, Hardware- oder Datenschäden führen kann.



## Warnung

Eine Warnung weist Sie darauf hin, daß ernsthafte Körperverletzungsgefahr besteht.

---

### Italian

#### Simboli speciali

I seguenti simboli, ciascuno con una speciale funzione, evidenziano determinate informazioni all'interno del manuale. Il formato è quello riportato qui di seguito.

##### ■Nota

Questo tipo di avvertimento viene utilizzato per evidenziare tutte le informazioni significative relative ad una procedura.



## Attenzione

Questo tipo di avvertimento fornisce informazioni che, se non vengono seguite, possono provocare danni al software, all'hardware o ai dati.



## Avvertenza

Questo tipo di avvertimento indica la presenza di condizioni di rischio che possono causare lesioni fisiche. Si tratta del simbolo più importante al quale prestare attenzione.

## Japanese

### 特別表記

ガイド内では、以下の表記を使って特に注意する必要がある情報が提供されます。各表記にはそれぞれ目的があり、次の形式で表示されます。

#### ■ 重要

重要な情報が記述されています。



#### 注意

記述されている内容に従わない場合、ソフトウェア、ハードウェア、またはデータが壊れる可能性があります。

#### 警告

最も重要な情報が記述されています。身体的な障害を被る可能性があります。

## Korean

### 일러두기

이 설명서에는 사용자에게 특정한 내용을 강조하기 위해서 다음 내용이 포함되어 있습니다.

#### ■참고

중요한 정보를 강조하는데 사용합니다.



#### 주의

소프트웨어나 하드웨어, 또는 데이터를 손상시킬 수 있으므로 주의가 필요한 상황을 알립니다.



#### 경고

사용자의 안전에 위험을 알리는 가장 심각한 수준의 경고입니다.

## Norwegian

### Spesielle merknader

Merknadstypene nedenfor representerer en bestemt type informasjon i håndboken. Hver merknadstype har en spesiell hensikt og vises på følgende format:

#### ■Merk

Merk brukes for å fremheve viktig informasjon.



#### Forsiktig

Forsiktig gir deg informasjon om situasjoner som kan føre til skade på programvare, datamaskin eller data dersom den blir fulgt.



#### Advarsel

Advarsel er den mest alvorlige merknaden og indikerer at du kan bli fysisk skadet.

---

## Portuguese/ Portugal

### Avisos Especiais

Os avisos que se seguem realçam certas informações neste guia. Cada um deles serve um objectivo especial e é visualizado no formato apresentado:

#### ■Nota

Nota é utilizado para realçar qualquer informação importante.



### Atenção

Atenção faculta-lhe informações que, se não forem cumpridas, poderão provocar danos no software, hardware ou nos dados.



### Cuidado

Cuidado constitui o aviso mais grave, o qual indica que poderá ficar fisicamente ferido.

---

## Spanish/Spain

### Notificaciones especiales

Las siguientes notificaciones ponen énfasis sobre determinada información de la guía. Todas tienen un propósito especial y se muestran con el formato siguiente:

#### ■Nota

Las notas se utilizan para destacar determinada información de importancia.



### Advertencia

Las advertencias le proporcionan información que debe seguirse, si no desea que el software, el hardware o los datos puedan verse dañados.



### Aviso

Los avisos son las notificaciones de carácter más importante e indican la posibilidad de daños físicos para el usuario.

---

## Swedish

### Speciella beteckningar

Följande beteckningar betonar viss information i handboken. Var och en har ett speciellt syfte och visas i formatet nedan:

#### ■OBS!

OBS! används för att betona viktig information.



### Viktigt

Viktigt ger dig information som, om den inte följs, kan resultera i skada i programvara, maskinvara eller data.



## **Varning**

Varning är den mest allvarliga beteckningen och den indikerar att du kan skadas fysiskt.

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# Customer Information

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## Customer Questions

Customers who have questions about Vanguard Managed Solutions products or services should contact your VanguardMS representative or visit this website for product, sales, support, documentation, or training information:

**<http://www.vanguardms.com>**

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## Comments About This Manual

To help us improve our product documentation, please complete the comment card included with this manual and return it by fax to (508) 339-9592. If you prefer, provide your name, company, and telephone number, and someone in the documentation group will contact you to discuss your comments.

---



## Customer Response Card

Vanguard Managed Solutions would like your help in improving its product documentation. Please complete and return this card by fax to (508) 339-9592; Attention: Product Documentaton, to provide your feedback.

To discuss comments with a member of our documentation group, provide telephone information at the bottom of this page. **Thank you** for your help.

Name \_\_\_\_\_

Company Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Document Title: Vanguard 310 Series Installation Manual

Part Number: T0019, Rev F

Please rate this document for usability:

☐ Excellent    ☐ Good    ☐ Average    ☐ Below Average    ☐ Poor

What did you like about the document? \_\_\_\_\_

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What information, if any, is missing from the document? \_\_\_\_\_

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Please identify any sections/concepts that are unclear or explained inadequately.

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Additional comments/suggestions. \_\_\_\_\_

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Telephone \_\_\_\_\_ Ext. \_\_\_\_\_ Best time to call \_\_\_\_\_





# Chapter 1

## About the Vanguard 310 Series

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### Overview

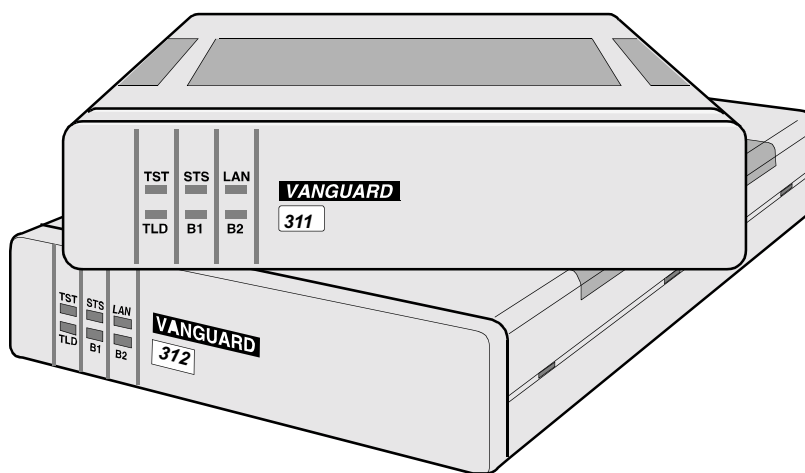
#### Introduction

The Vanguard 310 product line is a series of economical Ethernet ISDN bridges/routers for use in the small office or home office (SOHO).

The Vanguard 310 Series comes in two hardware configurations:

- Vanguard 311<sup>PLUS</sup>
- Vanguard 312<sup>PLUS</sup>

Both products have the same enclosure and use the same external power supply, as shown in Figure 1-1.



**Figure 1-1. Vanguard 311<sup>PLUS</sup> and Vanguard 312<sup>PLUS</sup>**

## Features

<b>Standard Features</b>	<p>The Vanguard 311<sup>PLUS</sup> and Vanguard 312<sup>PLUS</sup> provide the following:</p> <ul style="list-style-type: none"><li>• External power supply and cable</li><li>• Control Terminal Port (CTP) for local and remote configuration and management</li><li>• 10BaseT Ethernet interfaces</li><li>• ISDN Basic Rate Interface (BRI) connection with U or S/T interface</li></ul>
<b>POTS Ports on the Vanguard 312<sup>PLUS</sup></b>	<p>In addition to the standard features listed above, the Vanguard 312<sup>PLUS</sup> also provides two POTS (Plain Old Telephone System) ports to support telephones or fax machines.</p>
<b>CTP</b>	<p>Attach a terminal to the CTP port (DB-9 connector), and you can configure, troubleshoot and report on the Vanguard 310. To access the CTP, you must configure your terminal or terminal emulation software to VT100, 9600 bps, 8 bit, no parity, and 1 stop bit.</p> <p>The CTP port may be configured as a CTP or PAD port. For more information on configuring the port, refer to .</p>
<b>ISDN</b>	<p>ISDN on the Vanguard 311<sup>PLUS</sup> and Vanguard 312<sup>PLUS</sup> supports one D channel and two B channels. Port 1 is dedicated for ISDN call control, but you can also program it for D packet.</p> <p>The Vanguard 311<sup>PLUS</sup> and Vanguard 312<sup>PLUS</sup> support U or S/T ISDN interfaces.</p>
<b>Operating Software</b>	<p>Operating software is compressed in FLASH memory and loaded into DRAM for operation. The Vanguard 310 supports these software Applications Ware packages:</p> <ul style="list-style-type: none"><li>• IP Applications Ware Package</li><li>• IP &amp; IPX Applications Ware Package</li><li>• Multiservice Applications Ware Package</li></ul> <p>See the <i>Software Release Notice</i> accompanying your Vanguard unit for more information on software available for the Vanguard 311<sup>PLUS</sup> and Vanguard 312<sup>PLUS</sup>.</p>

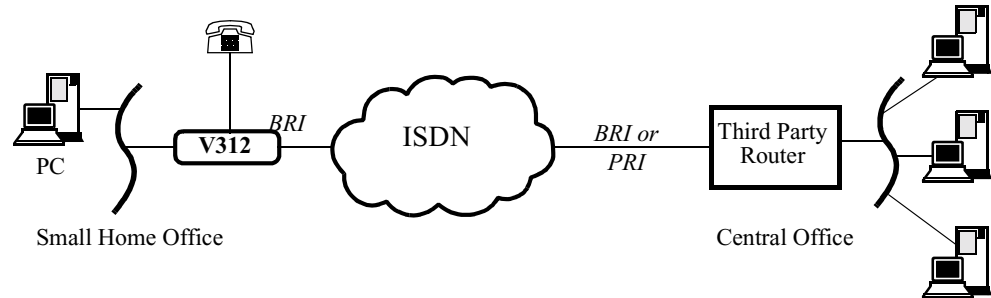
## Target Application Environments

### Introduction

This section describes the typical applications using the Vanguard 310 Series.

### SOHO to Central Office

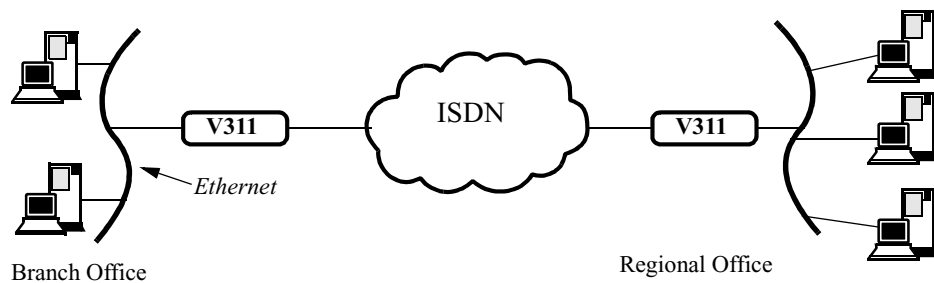
Figure 1-2 illustrates a Vanguard 312<sup>PLUS</sup> used in a small home office (SOHO) to connect to the central office. A telecommuter working from home can connect a PC to the Ethernet port and a telephone or fax to the POTS port, to access file servers, email server, and voice mail located at the central office.



**Figure 1-2. Small Home Office to Central Office**

### Branch Office to Regional Office

Figure 1-3 illustrates two Vanguard 311<sup>PLUS</sup> used to connect two small offices. This setup provides affordable, high speed connectivity for remote branch office devices accessing file servers, printers, or other devices on another LAN. The Vanguard 311<sup>PLUS</sup> and 312<sup>PLUS</sup> supports Dial On Demand to reduce cost for connection time. The Vanguard 311<sup>PLUS</sup> initiates a connection only for data transfer and disconnects when data transfer has stopped.

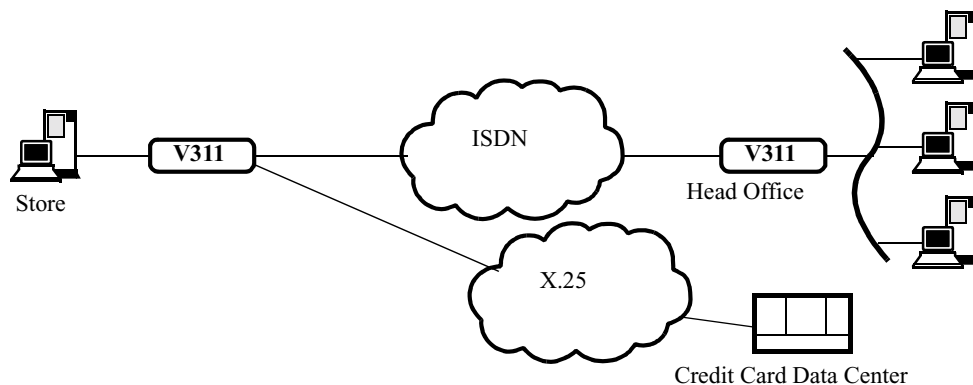


**Figure 1-3. Branch Office to Regional Office**

---

### Point of Sale in Retail Store

The Vanguard 311<sup>PLUS</sup> and 312<sup>PLUS</sup> can also be used in retail stores for point of sale devices. The cash registers at the retail store sends daily transactions to the head office and credit or debit card transactions to the credit card data center over a low speed asynchronous connection to an X.25 network.

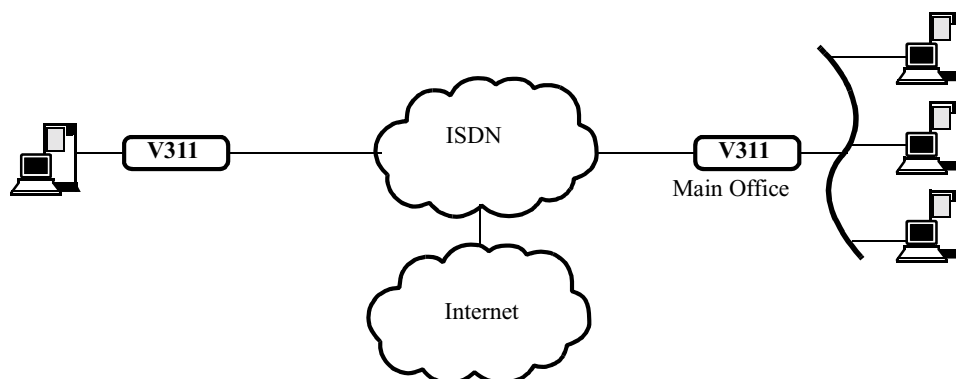


**Figure 1-4. Point of Sale in Retail Store**

---

### SOHO Internet Access via an ISP

You can also use the Vanguard 310 Series to connect a home office to the Internet via an Internet Service Provider (ISP).



**Figure 1-5. Internet Access via an ISP**

---



# Chapter 2

## Installing Vanguard 310 Hardware

---

### Overview

#### Introduction

This chapter covers installing Vanguard 310 hardware and cables.

#### Follow These Steps

The following table lists the steps to perform and shows you where to find information on installing Vanguard 310 Series hardware:

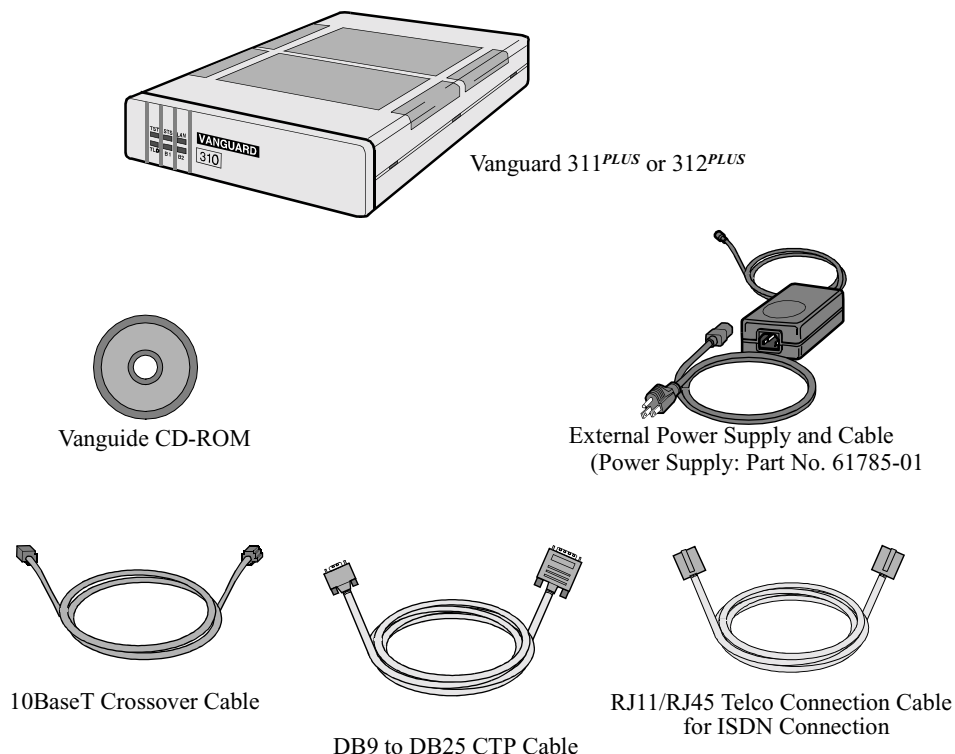
<b>Step</b>	<b>To Perform This Action</b>	<b>See This Procedure</b>
<b>1</b>	Check the contents of the shipping package to make sure everything is included.	“Checking Your Shipment Contents” section on page 2-2
<b>2</b>	Choose a site for the Vanguard 310.	“Choosing a Site” section on page 2-3.
<b>3</b>	Connect cables for the Vanguard 310.	“Cabling the Vanguard 310” section on page 2-5.
<b>4</b>	If necessary, set up termination resistance on the Vanguard 310.	“Setting Vanguard 310 S/T ISDN Termination Resistance” section on page 2-11.

## Checking Your Shipment Contents

### List of Contents

Before you install the Vanguard 310 Series hardware, make sure your shipment contents are complete.

The Vanguard 310 Series is packaged in shock-absorbent packing material. Inside the shipping carton, you should find the contents shown in Figure 2-6.



**Figure 2-6. Vanguard 310 Shipment Contents**

### In Case of Damage or Missing Parts

If the equipment is damaged, contact the shipper. If you have additional concerns about damaged or missing parts, contact your nearest Vanguard Managed Solutions representative.

In the United States, contact: Vanguard Managed Solutions, Customer Administration, 575 West Street., Mansfield, MA 02048-1193, (508) 261-4000, Extension 4745.

Outside the United States, contact the nearest Vanguard Managed Solutions distributor.

## Choosing a Site

### Introduction

This section describes how to choose a site for the Vanguard 310.

### How to Choose a Site for the Vanguard 310

Choose a site that is within an appropriate distance of a power source. The selected site should be free of accumulated dust and environmental extremes.



#### Warning

All Vanguard devices should be used in environments designed for computers and electronic equipment. In areas susceptible to lightning, take precautions to prevent damage to electronic equipment. Contact your telephone company or an electronic accessories vendor for information on lightning protection equipment. If you experience problems caused by surges from lightning, install appropriately rated surge suppressors on power and data lines connected to your Vanguard 310.



#### Avertissement

Tous les produits Vanguard doivent être utilisés dans des environnements conçus pour les ordinateurs et équipements électroniques. Dans les zones sujettes à la foudre, prenez soin de protéger l'équipement électronique contre tout dommage. Contactez votre compagnie de téléphone ou un vendeur d'accessoires électroniques pour de plus amples informations sur les équipements de protection contre la foudre. Si vous avez des problèmes engendrés par des surtensions dues à la foudre, installez des protections contre les surintensités appropriées sur les lignes d'alimentation et de données connectées à votre produit Vanguard.



#### Warnung

Geräte sind grundsätzlich in für Rechner und elektronische Anlagen vorgesehenen Umgebungen zu verwenden. In unwettergefährdeten Bereichen ist jegliche Elektronik gegen Blitzeinwirkung zu schützen. Näheres über entsprechende Schutzeinrichtungen erfahren Sie von Ihrer Telefongesellschaft oder einem Elektrohändler. Probleme mit Spannungsschößen durch Blitzeinwirkung lassen sich durch Einbau von Überspannungsableitern in die zu Geräten führenden Netz- und Datenleitungen beheben.

### Power Source

Depending on your application and the country in which the Vanguard 310 will operate, the power source must be a grounded 100 to 240 VAC outlet.

### Cable Clearance and Air Circulation

Allow at least 2 inches (5 cm) in back of the unit for interfacing cable clearance and air circulation, as shown in Figure 2-7.



#### Warning

To avoid overheating the unit's circuitry, do not place anything on top of the unit, within 1 inch (2.5 cm) of the ventilation slots on the front panel, or within 2 inches (5 cm) of the back of the unit.



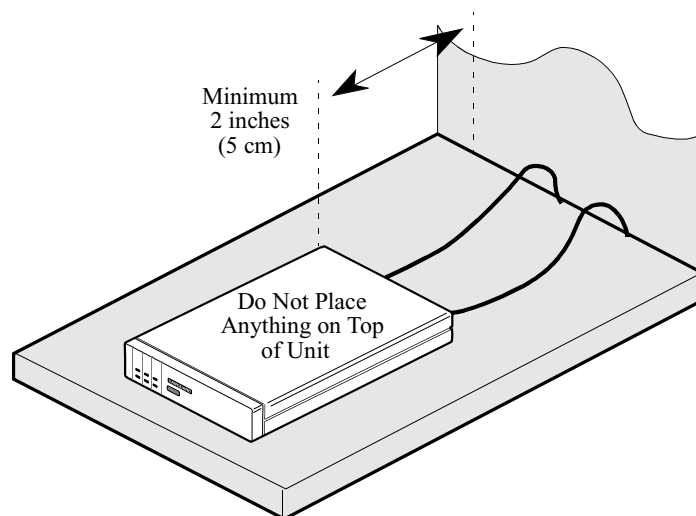
#### Avertissement

Afin d'éviter toute surchauffe des circuits de l'unité, ne placez aucun objet sur l'unité à moins de 2,5 cm (1 pouce) des conduits de ventilation du panneau avant et à moins de 5 cm (2 pouces) de l'arrière de l'unité.



#### Warnung

Zur Vermeidung einer Überhitzung der Geräteschaltkreise sollten Sie keine Gegenstände auf dem Gerät plazieren. Zu den Entlüftungsöffnungen der Vorderabdeckung sollte ein Abstand von 2,5 cm und zur Rückseite des Gerätes von 5 cm eingehalten werden.



**Figure 2-7. Proper Cable and Air Clearance**

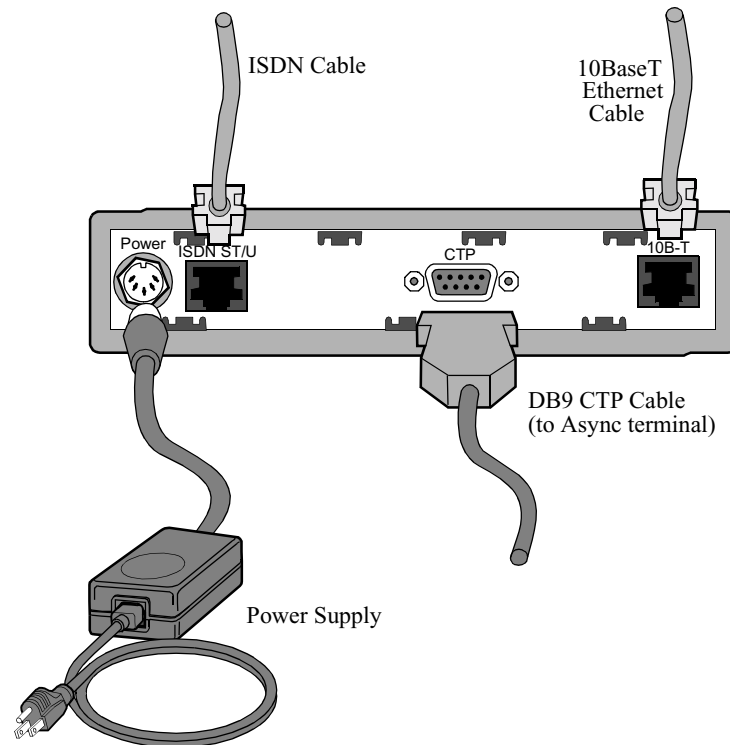
## Cabling the Vanguard 310

### Introduction

After unpacking the Vanguard 310, you can connect the cables to complete the hardware installation.

### Vanguard 311<sup>PLUS</sup>

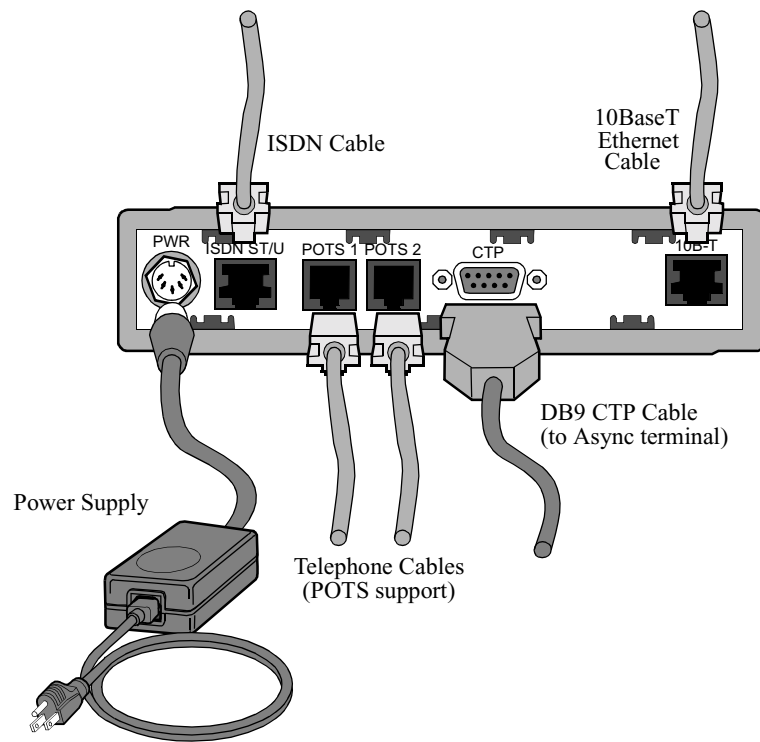
Figure 2-8 shows the rear panel of the Vanguard 311<sup>PLUS</sup> and the locations where you connect the cables.



**Figure 2-8. Vanguard 311<sup>PLUS</sup> Rear Panel and Cable Connections**

**Vanguard 312<sup>PLUS</sup>**

Figure 2-9 shows the rear panel of the Vanguard 312<sup>PLUS</sup> and the locations where you connect the cables.



**Figure 2-9. Vanguard 312<sup>PLUS</sup> Rear Panel and Cable Connections**

## Cables

### Introduction

This section describes cables required to connect to the Vanguard 310.

### Port Characteristics and Cable Requirements

The table below lists the port characteristics, connector and cable requirements.

<b>Connector</b>	<b>Interface</b>	<b>Cable Required</b>	<b>Speed</b>	<b>DCE/DTE</b>
RJ45	ISDN S/T or U	RJ45-to-RJ45 Cable	Either 56 or 64 kbps for each B Channel and 9.6 kbps for the D Channel	N/A
RJ11	POTS	RJ11-to-RJ11 Cable	N/A	N/A
DB9	CTP	DB9-to-DB25 CTP Cable shipped with Vanguard unit	Max. async speed 115.2 kbps	DCE
RJ45	10BaseT	10BaseT Cross-over cable or standard UTP cable (RJ45-to-RJ45)	10Mbps	N/A

### Cable and Connector Pinouts

For more information on cable and connector pinouts, refer to Appendix B.

### Connecting the CTP Cable

Use the DB9 (male) to DB25 (female) cable (Part Number 61813-01) that comes with the Vanguard 310 to connect to the Control Terminal Port (CTP) to your terminal or personal computer.

The Vanguard 310 defaults the CTP to 9.6 kbps, 8 bits, no parity, 1 stop bit and you must also configure your terminal or terminal emulation software to these settings.

#### ■Note

If you plan to use a personal computer to configure 310 software, you may need to purchase a DB25 (male) to DB9 (female) adapter for the serial port of your personal computer. The Vanguard 310 ships with a DB25 to DB9 cable for access to the Control Terminal Port. The serial ports on most personal computers require DB9 connectors.

---

**10BaseT Cable**

Follow these guidelines for 10BaseT cable connections:

- If you are connecting to a 10BaseT Hub, use a standard UTP cable (RJ45 to RJ45).
- If you are connecting directly to a personal computer or Workstation LAN card, use the 10BaseT crossover cable (Part Number 61798-01) shipped with your Vanguard 310.

---

**Connecting the ISDN Cable**

Each Vanguard 310 ships with an ISDN connection cable. One end of the cable attaches directly to the Vanguard, and the other end connects to the service provider's outlet.

---

<i><b>Interface</b></i>	<i><b>Connector</b></i>	<i><b>Part Number</b></i>
U interface (North America)	RJ11	61766-02
S/T interface (Europe)	RJ45	61545-01

---



## POTS Cables

### Introduction

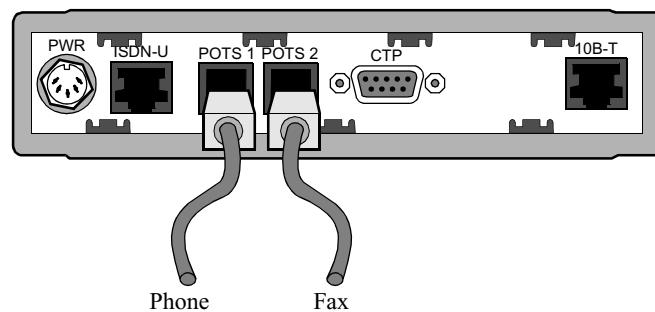
Cables for connecting to the POTS ports are not shipped with the Vanguard 312<sup>PLUS</sup>. You can use a standard RJ11-to-RJ11 telephone cable to connect your POTS devices to either of the POTS ports on the Vanguard 312<sup>PLUS</sup>.

You can connect the following equipment to Vanguard 312<sup>PLUS</sup> POTS ports:

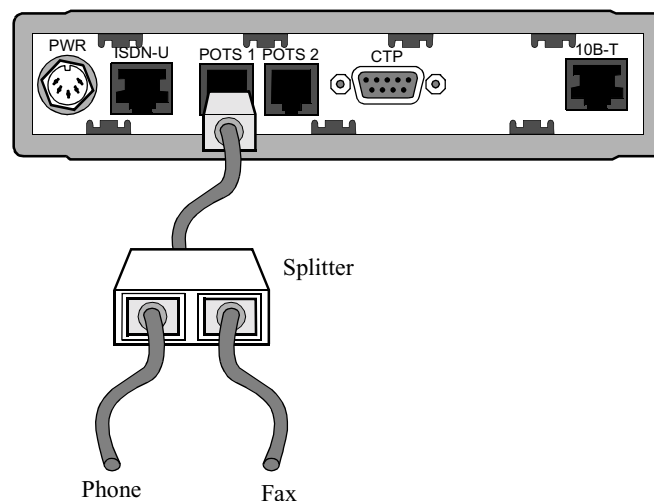
- Standard DTMF telephones for voice operation (no support for pulse dialing)
- Analog answering machines
- Analog modems
- Group 3 facsimile machines

### POTS Support

The Vanguard 312<sup>PLUS</sup> supports two POTS devices simultaneously, either configured as one device per port, as shown in Figure 2-10, or using a “splitter” cable from one port to two devices, as shown in Figure 2-11. The splitter cable is not supplied with the Vanguard 312<sup>PLUS</sup>.



**Figure 2-10. Vanguard 312<sup>PLUS</sup> POTS Connections**



**Figure 2-11. Splitter Cable Used for POTS Connections**

## POTS Ports Characteristics and Guidelines

Follow these guidelines for POTS operation:

- Vanguard 312<sup>PLUS</sup> support requires quality telephone equipment. Some older telephone equipment may not operate properly with Vanguard 312<sup>PLUS</sup>. Contact your representative for details.
- POTS port jacks are intended to operate with on premise telephone equipment only.
- The total length of wire connected to a POTS port should not exceed 100 feet (32.81 meters).
- Each POTS port has a Ringer Equivalence Number (REN) of two. The total REN telephone equipment connected to each POTS port should not exceed two. For example, you can have up to two REN devices per port, for a total of four. Modems, fax machines, and telephones may have a REN as low as 0.2.
- Each POTS port has a two-line connection. The main line, marked on the back panel, is connected between pins 3 and 4 while the second line is connected between pins 2 and 5. This arrangement enables the connection of a two-line phone or the extension of both POTS ports with a single four-wire cable.

## POTS Port Pinouts

Each POTS port also has pinouts that control the other port, as shown in the following table. This allows you to utilize both ports from a single connection., enabling the connection of a two-line telephone or the extension of both ports with a single four-wire cable.

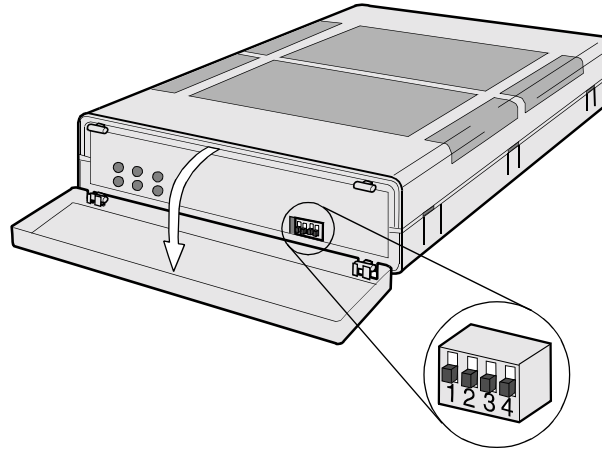
<b>POTS 1</b>	<b>Pin Number</b>	<b>POTS 2</b>
No connection	1	No connection
Ring POTS 2	2	Ring POTS 1
Ring POTS 1	3	Ring POTS 2
Tip POTS 1	4	Tip POTS 2
Tip POTS 2	5	Tip POTS 1
No connection	6	No connection

Some high-speed modems may use pins 2 and 5 for specific applications. Refer to your modem user documentation for information. Also, some analog equipment that utilizes pins 2 and 5 for uses other than a second line can interfere with the operation of the two POTS ports on your Vanguard 312<sup>PLUS</sup>. One example of this would be a phone with an exclusion key. In this case, make sure that the telephone equipment is connected to the POTS port with a two-lead cable.

## Setting Vanguard 310 S/T ISDN Termination Resistance

### Introduction

This section describes how to set ISDN termination resistance for the Vanguard 310 S/T. Termination resistance is controlled by a set of DIP switches located on the front panel of the Vanguard 310 S/T. See Figure 2-12.



**Figure 2-12. Setting Termination Resistance**

### Setting the DIP Switches

Set the Dip switches according to the information provided in the table below.

<i><b>If the Vanguard 310 S/T...</b></i>	<i><b>set the Dip Switches to...</b></i>
is the terminating device and the termination resistance is 100Ω	DOWN
is not the terminating device and the termination resistance is Hi-Z	UP

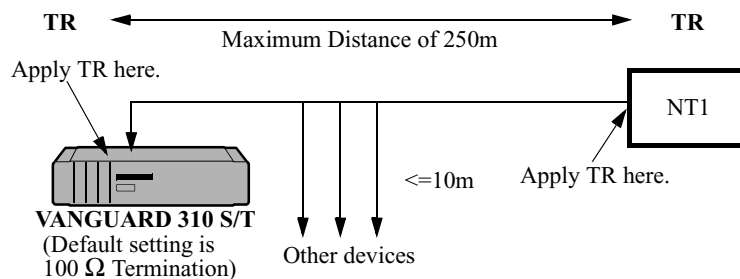
#### ■Note

The Vanguard 310 does not have to be powered off to change the DIP switch settings. The change takes effect when you change the DIP switch setting.

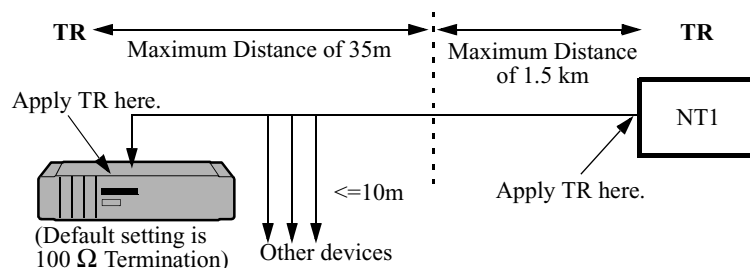
## Wiring Configurations Requiring Termination Resistance

### Examples

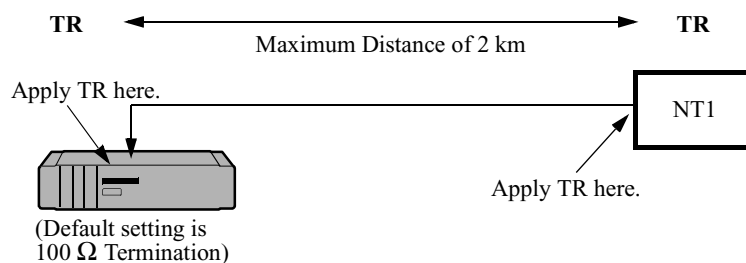
The following diagrams (Figures 2-13 to 2-15) show three typical wiring configurations requiring the use of a terminating resistor. In the following diagrams, TR indicates the location of the 100 $\Omega$  Terminating Resistor. NT1 indicates the ISDN switch.



**Figure 2-13. Short Passive Bus Configuration**



**Figure 2-14. Extended Passive Bus Configuration**



**Figure 2-15. Point-to-Point Configuration**

# Chapter 3

## Powering on the Vanguard 310

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### Overview

#### Introduction

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This chapter describes

- powering up the Vanguard 310
  - interpreting LED display for power up diagnostics
  - accessing the CTP
-

## Powering On the Vanguard 310

### Introduction

This section describes the sequence of events when you power up the Vanguard 310.

### Powering On the Vanguard 310

The Vanguard 310 does not have a power switch on the unit. Follow these steps to power on the Vanguard 310:

Step	Action
1	Plug the DC output cable of the power supply into the power socket on the Vanguard 310 back panel.
2	Connect the power cord to the power supply outlet.



#### Caution

When powering down the unit, you should always unplug the power cord at the power supply outlet. Do not remove the power cord from the back of the unit.



#### Mise en Garde

Lors de l'arrêt de l'unité, débranchez toujours le cordon d'alimentation du bloc d'alimentation. Ne le débranchez pas de l'arrière de l'unité.



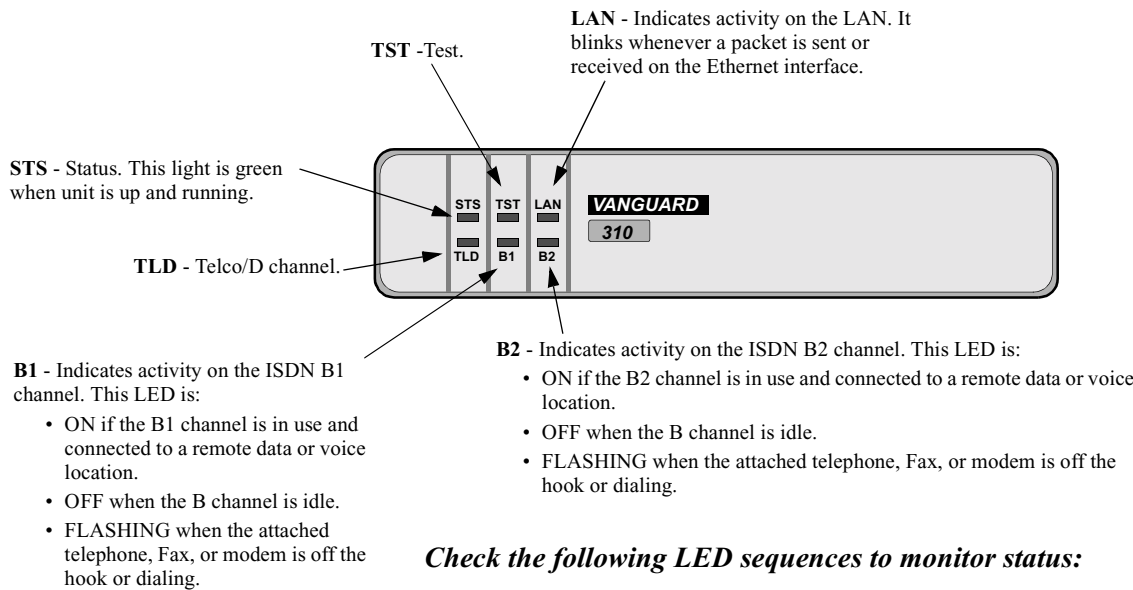
#### Vorsicht

Nach dem Abschalten des Gerätes sollten Sie immer den Netzstecker des Gerätes aus der Steckdose ziehen. Entfernen Sie nicht das Netzkabel von der Geräterückseite.

# Powerup Diagnostics

## Front Panel LEDs and Diagnostics

The six front panel LEDs on the Vanguard 310 help you follow the progress of the unit’s powerup diagnostics. Figure 3-16 shows the front panel LEDs. The same LEDs appear on every Vanguard 310 Series product.



Check the following LED sequences to monitor status:

STS	TST	TLD	Means...
OFF	OFF	OFF	Power supply failure or unit is not connected.
Flashing randomly	Blinking rapidly	Flashing randomly	Running startup diagnostics.
ON	OFF	OFF	Powered up and running. ISDN cable is not connected or ISDN carrier is not present.
Blinks once per second	OFF	OFF	Coldloading or awaiting file transfer.
Blinks twice per second	OFF	OFF	Coldloading or awaiting operating software download.
Blinking rapidly	OFF	ON	Remote software download in progress.
OFF	ON	OFF	Diagnostic failure.

Figure 3-16. Vanguard 310 Series Front Panel Description

**Note**  
Data and voice traffic appear as activity on the B1 and B2 LEDs on the Vanguard 312<sup>PLUS</sup>. Activity for a single POTS connection may appear on either B1 or B2, depending on your configuration.

## Accessing the Control Terminal Port

### Introduction

Once you have powered on the Vanguard 310, you can access the Control Terminal Port from the PC or terminal attached to the CTP port.

#### ■ Note

This section does not provide all information about accessing the CTP. For more information on accessing and using the CTP refer to the *Vanguard Configuration Basics Manual* (Part Number T0113).

### Procedure

Follow these steps to access the Vanguard 310 CTP Main menu:

#### ■ Note

This procedure assumes that a PC or terminal is connected to the Vanguard 310 using the CTP access cable.

Step	Action
1	Set your terminal, or terminal emulation software, to VT100, 9600 bps, 8 bit, no parity, 1 stop bit.
2	Type <CR> until either an asterisk (*) or the OK prompt appears.
3	When you see OK, type <b>atds0 &lt;CR&gt;</b> . When you see the asterisk (*) type <b>.ctp</b> . The CTP banner will appear. If this banner does not appear, verify that these steps have been followed correctly.
4	Type <CR> at the password prompt, if no password has been set.

### CTP Access Via Remote Telnet

Another way to connect to the CTP, after the node is configured and operational, is to access remotely via your established IP network by telneting into the node from an IP network-based personal computer or workstation. You can connect to the CTP by entering **atds0 <CR>** after the Vanguard 310 outputs the OK prompt.

### CTP Access Via Remote X.25 or Frame Relay Network

If the Vanguard 310 is operating in an X.25 network, or if Frame Relay Annex-G is used to connect with other Vanguard nodes, you can access the Vanguard CTP remotely by making a Switched Virtual Circuit (SVC) call to the node and specifying subaddress 98.



# Chapter 4

## Vanguard 310 Software

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### Overview

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#### Introduction

This chapter provides information on software for the Vanguard 310.

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#### Operating Software

Operating software is compressed in FLASH memory and loaded into DRAM for operation. The Vanguard 310 supports these software Applications Ware packages:

- IP Applications Ware Package
- IP & IPX Applications Ware Package
- Multiservice Applications Ware Package

See the *Software Release Notice* accompanying your Vanguard unit for more information on the software available for the Vanguard 310.

---

## Obtaining Operating Software

### Where to Get Operating Software

You can obtain operating software images for your Vanguard 310 from:.

- 1) the Vanguide CD-ROM
- 2) the WWW

### Operating Software File Formats

Operating software files on the Vanguide CD-ROM and the World Wide Web adhere to the following filenames formats:

<b>Filename</b>	<b>Description</b>
XXg01.xrc	<p>where:</p> <ul style="list-style-type: none"> <li>• <b>XX</b> identifies the software release number</li> <li>• <b>g</b> identifies the file as a basic V311 software image</li> <li>• <b>01</b> identifies the file as option #01</li> <li>• .xrc identifies the file as a software image</li> </ul> <p>XXg01.zip is a compressed version of the file.</p>
XXh01.xrc	<p>where:</p> <ul style="list-style-type: none"> <li>• <b>XX</b> identifies the software release number</li> <li>• <b>h</b> identifies the file as a V311<sup>PLUS</sup> or 312<sup>PLUS</sup> software image</li> <li>• <b>01</b> identifies the file as option #01</li> <li>• .xrc identifies the file as a software image</li> </ul> <p>XXh01.zip is a compressed version of the file.</p>

## Obtaining Preprogrammed CMEM Files

### Introduction

This section tells you what are CMEM files and where to get the CMEM files.

### What are CMEM files?

VMS provides preprogrammed CMEM files to make configuring your Vanguard 310 Series product easier. These files are developed and represent the most common Vanguard 310 applications. These CMEMs set up most of the Vanguard 310 configuration parameters automatically, so you do not have to go through the entire configuration using the Control Terminal Port (CTP). These preprogrammed CMEM files may require some modification to work in your network.

### Where To Get CMEM Files and Application Notes

Preprogrammed CMEM files for your Vanguard 310 Series are available from the Vanguard CD-ROM shipped with your unit. Application notes (in PDF file format) accompany each CMEM file and provide brief description of the applications.

### CMEM File Formats

CMEM files for the Vanguard 310 adhere to the following formats:

<b>Filename</b>	<b>Description</b>
XXhh005.mem	<p>where</p> <ul style="list-style-type: none"> <li>• <b>XX</b> identifies the software release base for the CMEM</li> <li>• <b>h</b> identifies that the CMEM file is for a V311, V311<sup>PLUS</sup>, or V312<sup>PLUS</sup> product</li> <li>• <b>h0</b> identifies that the CMEM file is for a HOST node#0 (consult the associated V310 Application Notes)</li> <li>• <b>05</b> identifies the file with Application Note #05</li> <li>• .mem identifies the file as a CMEM file</li> </ul> <p>52hh005.des provides a brief text description of the application supported by the CMEM file.</p>
XXhr105.mem	<p>Where:</p> <ul style="list-style-type: none"> <li>• <b>XX</b> identifies the software release base that the CMEM was created from</li> <li>• <b>h</b> identifies that the CMEM file is for a V311, V311<sup>PLUS</sup>, or V312<sup>PLUS</sup> product</li> <li>• <b>R1</b> identifies that the CMEM file is for REMOTE node #1 (consult the associated V310 Application Notes)</li> <li>• <b>05</b> identifies the file with Application Note #05</li> <li>• .mem identifies the file as a CMEM file</li> </ul> <p>XXhr105.des provides a brief text description of the application supported by the CMEM file.</p>

## Installing Software

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### Introduction

Before you can operate a Vanguard 310 device in a network, you must install operating software to the Vanguard 310 device.

---

### Installation Method

Install software to the Vanguard 310 using one of the two methods listed below:

- Coldloader - Refer to the *Software Installation and Coldloading Manual* (Part Number T0028) for complete installation and coldloading procedure.
- Vanguide Application Set - Refer to the Vanguide Application Set documentation for complete installation and downloading procedures.

#### ■Note

The *Software Installation and Coldloading Manual* and all Vanguide Application Set documentation can be found on the Vanguide CD-ROM or on the WWW at this URL:

**<http://www.vanguardms.com/documentation>**

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## Specifications

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### Introduction

This section describes the physical and environmental specifications and power requirements for the Vanguard 310 Series of products.

---

### Hardware

Vanguard 310 products feature the following:

- 68360 processor
  - 4 MB DRAM
  - 10BaseT Ethernet (RJ-45)
  - ISDN-BRI, U or S/T, switched (2B+D) 64k, 56k (RJ45)
  - Async Control Port (DB-9) 115,200 bps
  - Two Analog POTS (Vanguard 312<sup>PLUS</sup> only) supporting voice, FAX or Modem
  - 1.5 MB of Flash memory
  - 32k Configuration memory
- 

### Software

The Vanguard 310 supports these software feature set licenses:

- IP Applications Ware Package
  - IP & IPX Applications Ware Package
  - Multiservice Applications Ware Package
- 

### Environmental

The following environmental conditions are required:

- Operating temperature: 32° to 104°F maximum (0° to 40°C maximum)
  - Storage temperature: -40° to +158°F (-40° to +70°C)
  - Relative humidity: 5% to 95% (noncondensing)
- 

### Electromagnetic Compatibility

Vanguard 310 products adhere to the following:

- FCC Part 15, Class B
- CISPR 22 and EN 55022, Class B
- AS 3548, Class B
- EN 50082-1

---

**Power Requirements**

Vanguard 310 typically has the following power requirements:

- 100 to 240 VAC nominal at 47 to 63 Hz
  - 10 - 15 watts
- 

**Power Supply Description**

Vanguard 310 Series products are powered by a fixed-frequency, switch mode 35W power supply.

---

**Safety**

Vanguard 310 meets the following safety standards:

- EN60950
  - CSA 950
  - UL Listed per UL 1950
- 

**Physical**

Vanguard 310 has the following measurements:

- Height: 1.6 in. (4 cm)
  - Length: 6.7 in. (17 cm)
  - Width: 9.5 in. (24.5 cm)
  - Weight: 1.8 lb (3.96 kg)
-

# Appendix B

## Vanguard 310 Series Cabling

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### Overview

#### Introduction

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This Appendix identifies the cables and pinout requirements for the Vanguard 310 Series.

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# CTP Access Cable

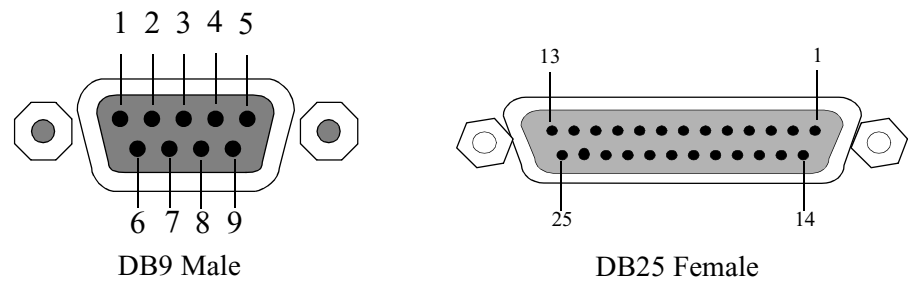
**Specification**      The CTP cable shipped with the Vanguard 310 has the following specifications:

- Cable Type: Category 4 or better, unshielded
- Connectors: DB9-Male to DB25-Female
- Color: Gray

**Connector Pinout**      DB9 pins connect to DB25 pins as shown in the following table:

<i><b>DB9 (Male)</b></i>	<i><b>Signal Name</b></i>	<i><b>DB25 (Female)</b></i>
1	DCD (Output)	8
2	RxD (Output)	3
3	TxD (Input)	2
4	DTR (Input)	20
5	GND	7
6	DSR (Output)	6
7	RTS	4
8	CTS	5
9	Not Used	—

The connector pins are numbered as indicated in the following diagram:



**Figure B-1. DB9 Male and DB25 Female Connector Pinout**



## 10BaseT Crossover Cable

---

### Specifications

The 10BaseT cable shipped with the Vanguard 310 has the following specifications:

- Cable Type: Category 3 or better
- Connectors: RJ45 to RJ45
- Color: Gray

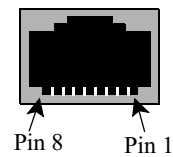
---

### Connector Pinout

Four of the pins are used, as shown below:

<i>Pin</i>	<i>Pin</i>
1	3
2	6
3	1
6	2

The connector pins are numbered indicated in the following diagram:



**Figure B-2. RJ45 Pinout**

---

## ISDN Cable

### Specification

The ISDN cable shipped with the Vanguard 310 has the following specifications:

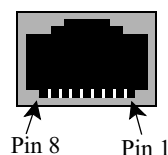
<b>Interface</b>	<b>Connectors</b>
U interface (North America)	RJ11-to-RJ11
S/T interface (Europe)	RJ45-to-RJ45

### Connector Pinout

The following table shows the pinouts for the RJ45 ISDN U and S/T connector.

<b>Pin</b>	<b>U Interface</b>		<b>S/T Interface</b>	
	<b>Name</b>	<b>Function</b>	<b>Name</b>	<b>Function</b>
1	Battery Status	No connection	PS 3+	No connection
2	Battery Status	No connection	PS 3-	No connection
3	---	No connection	TE NT +	TE to NT pair, no power connection
4	Signal	U interface tip or ring	NT TE +	NT to TE pair, no power connection
5	Signal	U interface tip or ring	NT TE -	NT to TE pair, no power connection
6	---	No connection	TE NT -	TE to NT pair, no power connection
7	Powering	No connection	PS 2 -	No connection
8	Powering	No connection	PS 2 +	No connection

The connector pins are numbered from right to left as indicated in the following diagram:



**Figure B-3. ISDN Connector Pinout**

#### ■Note

The ISDN connector on the Vanguard 310 can accept either an RJ11 or RJ45 connector. If you are using an RJ11, pin 1 and pin 8 are not used.

# Appendix C

## CTP/PAD Port Configuration

---

### Introduction

The CTP port may be configured as a CTP or PAD port. The default setting is CTP.

#### ■Note

Once the port is configured as a PAD Port, CTP may only be accessed remotely.

### Configuring the Port

To configure the port as a PAD port follow the steps below:

<b>Step</b>	<b>Procedure</b>
<b>1</b>	Access the CTP terminal.
<b>2</b>	Select <b>Configure</b> from the CTP Main menu.
<b>3</b>	Select <b>Port</b> from the Configure menu.
<b>4</b>	Enter the Port Number, N.
<b>5</b>	Type in <b>PAD</b> as the Port Type.
<b>6</b>	Enter a semicolon ( ; ) to save the port setting.
<b>7</b>	Reboot the node for the change to take effect.

### Accessing the CTP Remotely

Once the port is configured as a PAD port you may only access CTP via these methods:

<b>Access Type</b>	<b>Description</b>
Remote Telnet	Telnet into the node from an IP network-based personal computer or workstation.
Remote Access via a X.25 or Frame Relay Network	For a Vanguard 310 operating in a X.25 or Frame Relay (Annex G) network, establish CTP access by making a Switched Virtual Circuit (SVC) call to the node. Specify a subaddress of 98.
SNMP	You can use SNMP (Simple Network Management Protocol) to access the Vanguard 310 remotely.



# Appendix D

## Troubleshooting the Vanguard 310

---

### Overview

#### Introduction

---

The following sections show you how to correct problems you may encounter with your Vanguard 310.

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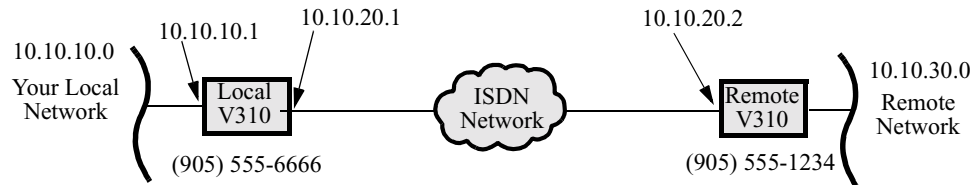
## While Powering Up the Vanguard 310

<b>Hardware Failure</b>	If the TST (test) light turns on and remains on, one or more of the diagnostic tests have failed, indicating a hardware problem. Contact our Customer Support for possible repairs to your Vanguard 310.
<b>Diagnostic Failure</b>	If the TST (test) light does not blink at all, but the STS (status) light is on, the diagnostic software image is corrupt. Re-install the operating software.
<b>Powerup Failure</b>	If the STS (status) light blinks continuously, at a constant rate, the software bundle in FLASH memory is corrupted. Reinstall operating software.

## While Setting Up Your Configuration

### Introduction

This section shows how to isolate problems that you may encounter while you set up a Vanguard 310 to pass IP traffic over PPP links. For discussion purposes, the following network configuration (shown in Figure D-1) is assumed.



**Figure D-1. Network Configuration**

### ■ Note

The IP addresses used in this configuration example are for illustration purposes only. You must obtain registered IP addresses from your network administrator or your Internet Service provider, and configure them in your Vanguard 310 before connecting to the Internet or Intranet.

### Check the Physical Connection

Use these procedures to check your Vanguard connection and interface:

- 1) Ensure that the STS LED is ON to confirm that power is connected and that the unit is working. (Other LEDs may be ON or blink occasionally.)
- 2) If the STS LED flashes continuously for more than 30 seconds after the power is applied, the software image in the Flash is corrupted and the node is waiting for software to be coldloaded. Refer to Chapter 4, Vanguard 310 Software for information on upgrading your software image.
- 3) If you are connected to the control port using an async terminal, (9600 bps, 8 bits, no parity), type **AT** and press Return, and confirm that the Vanguard outputs **OK**. Then log into the CTP.

### Ping the Local LAN Interface

From the workstation or PC connected to the same local LAN segment that the Vanguard 310 is connected to, ping the LAN interface of the Vanguard ("ping 10.10.10.1"). The LAN LED should Flash whenever a Ping packet is received.

If the LED does not flash, check the configuration of the PC and the LAN connection:

- 1) Check the IP address and IP address mask of your PC or workstation, making sure that they are set to a valid address and mask appropriate for your local subnetwork. (In the above example, the IP address of the PC must be set between 10.10.10.2 and 10.10.10.254) and the address mask must be set to 255.255.255.0).

- 2) Check the statistics of the LAN port (Port 5) of the local node, making sure that the “Carrier” says “Present”. If the “Carrier” field displays “Lost”, there is a problem with your LAN connection and you should do the following:
  - If you are using a BNC connection between your workstation/PC and the Vanguard 310, make sure that you put in the 50  $\Omega$  termination resistors at both ends of the line.
  - If you are connecting your LAN using the 10BaseT and a 10BaseT Hub, check the display at the Hub to ensure that the connection between Vanguard 310 and the Hub is correct. (Most Hubs have LEDs that stay ON when the carrier is detected). Change the RJ45 twisted pair cable between Vanguard and your Hub as it may be defective. A straight-through 10BaseT cable is generally required between Vanguard 310 and a 10BaseT Hub.
  - If there is only a single PC or workstation connecting to the Vanguard, and you are not using a 10BaseT Hub, ensure that you have used the RJ45 cross-over cable, shipped with your Vanguard 310, to connect between the PC and the Vanguard.

If the LAN LED does flash, but there is no ping response, do the following:

- 1) From the CTP, check the statistics of the LAN port (Port 5). Select menu option **Statistics**, and select port **5** while sending ping packets.
- 2) Confirm that the Rx Frame Count, in the Data Summary increases as the ping packet arrives.
- 3) Check the Tx Frame Count field in the Data Summary part of the LAN port statistics. If the field increases for every ping packet it receives, the LAN and the configuration are working.
- 4) If the RX Frame count increases, but the Tx Frame Count does not, the problem is most likely due to misconfiguration in the IP router Interface #1. Make sure that the IP addresses and IP address mask. are set properly. Select menu option **Router -> IP Interfaces -> Interface 1**.

### Ping the Local WAN Interface

Once you are successful in getting ping responses from the local LAN interface, you can proceed to ping the local WAN interface (“ping 10.10.20.1” in the example). If there is no response, then check the following:

- 1) Confirm that the IP interfaces (either 5 or 6) of the WAN link that you are trying to ping are configured for Enable. Select menu item **Router->Configure Interface States**.
- 2) Confirm that the IP address and IP address mask of the WAN interface you are pinging are configured properly.



## Check the ISDN Line and Configuration

Use these procedures to verify your ISDN line:

- 1) The TLD LED should be ON if you are connected to a good ISDN line. TLD ON indicates that the Vanguard 310 can communicate with the ISDN switch at the central office. It does not, however, imply that the ISDN parameters are configured properly.
- 2) From the CTP, check the ISDN statistics (select menu item **Statistics->Detailed ISDN Channel Statistics**) and confirm that the statistic for “Terminal” is “Online.” Online means that the particular B channel is configured properly (the local number, the SPID, and the TEI are recognized by the telephone switch), and that the B channel is ready to be used. The ISDN Call Statistics screen is shown in Figures D-2 and D-3.
- 3) If the Terminal field of the B channel shows “Wait Init” or “FIT” for more than a minute after the node or the ISDN channel has been booted, there is most likely a problem with your ISDN configuration. Check the telephone number, the SPID, and the TEI of the ISDN B channel, and ensure that they are the same as those assigned by your service provider. Boot the ISDN channel after you have made the necessary adjustments.

```

Node:      Address:      Date:      Time:
Detailed ISDN Call StatisticsPage: 1 of 2

Switch Type:      NI-1
Layer 1 State:    Active
Status            TEI
D Channel:        Disabled
Terminal:         OnLine      25

Current Calls:
Port Connected    0          0
Channel Connected B1         B2
TEI Connected     0          0
Calling Address
Called Address
Subaddress
Direction         No Call    No Call
Call Status        N/A       N/A
Access Type        N/A       N/A
Line Speed         0 K       0 K
Cause Code         0         0
Call Started       -         -

```

**Figure D-2. ISDN Call Statistics - Page 1 of 2**

## Call the Remote Node via ISDN

You can now call the remote Vanguard device using the following procedures:

- 1) Ping the interface of the remote WAN link (for example, ping 10.10.20.2) and monitor the LEDs on the front panel. Also, watch the reports and alarms output to the CTP.
- 2) If your ISDN connection to the remote node is functioning correctly, the following will occur when you ping the remote interface:
  - The report **ISDN B1 CONNECTED TO PORT 2** is generated.
  - Either the B1 or the B2 LED will be on. This may be only momentary, while ping packets are being generated.
  - The report, **PPP-2 LOGIN O.K** will be generated.
  - Your PC receives the Ping response.
- 3) If you do not receive the ping response:
  - Check the ISDN Statistics for layer 1 state. If it is not active, ensure the unit is connected to an active ISDN service.
  - Check the ISDN Statistics for the channel state. It should be online with a TEI assigned a value less than 127. If it is not, it is most likely a configuration problem with ISDN on the Vanguard ISDN switch.
  - Check ISDN Statistics for calling history on the B channel. If calls were cleared with a cause code other than 16, investigate why ISDN cleared the call. If no calls were initiated, ensure that the Dial Numbers in the PPP Profile are correctly configured. Also, ensure IP routing is properly configured.

Node:	Address:	Date:	Time:
Detailed ISDN Call Statistics			Page: 2 of 2
Last 7 calls on B1 channel:			
Phone Number	Direction	Cause	Speed Port Call Started End
	No Call		
	No Call		
	No Call		
	No Call		
	No Call		
	No Call		
Last 7 calls on B2 channel:			
Phone Number	Direction	Cause	Speed Port Call Started End
	No Call		
	No Call		
	No Call		
	No Call		
	No Call		
	No Call		

Figure D-3. ISDN Call Statistics - Page 2 of 2

- 4) If you receive a **PPP-2 LOGIN FAILURE** report instead of **PPP-2 LOGIN O.K.**, the ISDN module can call the remote node but the PPP fails the authentication. Check the configured authentication protocol and the password of your nodes:
- Ensure that both the local node and the remote node have the same type of authentication protocol configured in the PPP Profile. (Authentication Protocol = CHAP\_C for local PPP-2 and Authentication Protocol = CHAP\_S for the remote node [Host node].)
  - Ensure that the Vanguard 310 at the host site (authentication server) has the correct NUI/Password combination to match the calling node.
    - If the calling node is configured for PPP operation, then the account name in the NUI table must have an entry that matches the Node Name of the calling node's Node record, and the corresponding password must be the same as that in the Client password/secret for the PPP port of the remote node.
    - If the calling node is configured for Multi-link PPP operation, then the account name in the NUI table must have an entry that matches the PPP NodeName of the calling node's PPP Parameters record, and the corresponding Password in the NUI table must be same as the Client password/secret in the PPP Profile of the remote node if CHAP is used, or must be the same as the "password" in the PPP Parameters if PAP is used.
- 5) If you get the **PPP-2 LOGIN O.K.** report, but no ping response, check the PPP port statistics while the call is still connected (B1 or B2 LED is ON). (You may need to increase the Idle disconnect timer on both the local and remote PPP ports so that the call stays connected longer for you to examine the statistics.)
- LCP State = OPEN
  - IPCP state = OPEN
- If not, check the IPCP option settings on both nodes to ensure that they are the same. Boot the port after you have made the necessary changes.
- 6) If you still do not get the ping response, the problem probably lies in the configuration of the remote node. Have similar tests conducted on the remote side.
-



# Appendix E

## Software License and Regulatory Information

---

### In This Appendix

<b>Introduction</b>	This section contains the software license statement and regulatory declarations for the Vanguard 310 Series.
<b>Vanguard 310 Family Homologation</b>	The following CE markings, German federal approvals, and French DRG apply to both the Vanguard 311 and 312 devices.

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## Software License Terms And Conditions

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### Software License Terms and Conditions

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---



## Product Declarations and Regulatory Information

---

### Introduction

The following sections provide information about standards compliance, safety statements, and ISDN Type Approvals.

---

### CE Marking

One of the marks in the following diagram appears on each of the Vanguard products that are ISDN compatible, and the statement that follows explains its significance.



This product is CE marked to indicate compliance with the following European Directives.

- 73/23/EEC Low Voltage Directive (Safety)
- 91/263/EEC Terminal Directive
- 89/336/EEC EMC Directive

The number 168 in the CE mark indicates the Notified Body granting the approval under 91/263/EEC (BABT).

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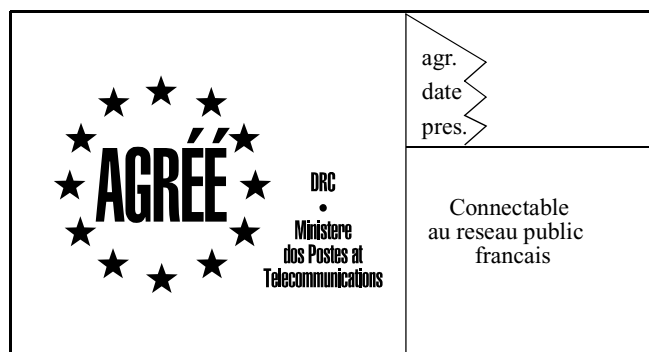
### German Federal Approvals Office

Vanguard ISDN carries the approval mark of the German Federal Approvals Office for Telecommunications. The approval mark shows the national emblem, the letters BZT (the Federal Approvals Office letters), and the type approval number (A122541H) that indicates the type of approval given.



## French DRG Approval

Vanguard ISDN also carries the DRG approval mark of the French Ministère des Postes et Télécommunications. This indicates that Vanguard ISDN is approved for connection to the French Euro-Numeris (VN4+) ISDN network service. The label appears on the bottom of your Vanguard, and shows the approval number.



The French DRG approval number for the Vanguard 311 is E96264B.

## Radio Frequency Interference Regulations

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, CISPR 22 and EN 55022. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician to help.

Changes or modifications not expressly approved by Vanguard Managed Solutions could void the user's authority to operate the equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

This product was FCC certified under test conditions that included use of shielded data terminal equipment cables. Use of different cables will invalidate FCC certification and increase the risk of causing interference to radio and TV reception.

You can obtain the proper cables from Vanguard Managed Solutions.

**Industry Canada**

---

The following information includes the Industry Canada statement regarding ISDN equipment use.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

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

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

**Notification of  
Canadian  
Requirements**

---

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

---



## Limited Warranty

---

Vanguard Managed Solutions, LLC warrants that the Product will conform to its then-current published specifications and will be free from defects in materials and workmanship under normal use and service for a period of **(ONE) 1 YEAR** from the date of purchase by the original end user.

During the warranty period, Vanguard Managed Solutions will at its option and at no charge either repair a defective Product (using either new or reconditioned parts) or replace it (with a new or reconditioned Product) if you return it freight prepaid to the factory or service center Vanguard Managed Solutions designates. If Vanguard Managed Solutions is unable within a reasonable time to repair or replace your item, Vanguard Managed Solutions may instead elect to accept return of the unit and refund to you the purchase price you paid for it. Vanguard Managed Solutions will pay freight costs to ship any repaired or replacement unit to you.

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Some states do not allow the exclusion or limitation of incidental or consequential damages or exclusions of implied warranties or limitations on the duration of implied warranties, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This warranty does not apply to any Product which has been subjected by you or a third party to (a) operating or environmental conditions in excess of Vanguard Managed Solutions written specifications or recommendations; (b) damage, misuse or neglect; or (c) improper installation, repair or alteration. This warranty also excludes expendable items, such as lamps, fuses, or other parts which fail from normal use. Vanguard Managed Solutions does not guarantee the integrity of data or warrant that the equipment will operate uninterrupted or error free.

To take advantage of this warranty, you must provide proof of purchase which indicates the date of your purchase in order to obtain warranty service.

This warranty applies only to hardware manufactured by or for Vanguard Managed Solutions and identified by the Vanguard Managed Solutions trademark, trade name or product identification logo affixed to them. For the warranty applicable to software, please refer to the Software License which accompanies the software.



### Introduction

The following sections apply to U.S.A. customers only. Non-U.S.A. customers with questions or concerns regarding return procedures should contact their Vanguard Managed Solutions subsidiary or distributor.

---

#### Equipment Return Procedures

If you have questions about equipment return procedures, on-site service or unit exchange service call the Vanguard Managed Solutions Technical Support Center at (800) 544-0062 for advice and assistance.

---

#### In Case of Damage

If the equipment is damaged in transit, contact the shipper.

If you have additional concerns in case of failure, about missing parts, or to return equipment, contact your nearest Vanguard Managed Solutions representative.

<b><i>For Locations</i></b>	<b><i>Contact...</i></b>
Inside the United States	Vanguard Managed Solutions, LLC 575 West Street, Mansfield, MA 02048-1193 Phone (800) 544-0062.
Outside the United States	the nearest Vanguard Managed Solutions distributor. For a listing of our Sales and Service Offices, visit our Web site at: <a href="http://www.vanguardms.com/">http://www.vanguardms.com/</a>

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#### Expiration of Lease

To return equipment upon expiration of a lease agreement, contact the Vanguard Managed Solutions Customer Operations Center at (800) 446-0144 for return authorization and instructions. You will be asked to provide the following information:

- Product name and description
- Serial number
- Customer order number
- Reason for return

---

**Factory Repair**

To return equipment for factory repair, call the Vanguard Managed Solutions Technical Support Center at (800) 544-0062, for return authorization and instructions. When you call, you will be given a Return Material Authorization (RMA) control number. Mark this number clearly on the shipping container for ease of identification and faster service. The RMA control number provides a convenient tracking reference for both parties. Please have the following information available for each piece of equipment you return:

- Product name and description
- Serial number
- Failure symptoms

---

**Packaging  
Guidelines for  
Equipment Return**

Data communications equipment or parts that are to be returned to Vanguard Managed Solutions for any reason must be properly packaged to prevent damage in shipment and handling.

If the original packing material and shipping container are available, reuse these items to return equipment. If these items are not available, it is your responsibility to package the contents in a manner that protects the equipment from damage during normal shipping and handling. Responsibility for damage to equipment during transit must be resolved between you and the carrier. Vanguard Managed Solutions can provide you with specific packaging instructions upon request.

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