

# SIEMENS

## SIMATIC VPU200–3104

Hardware Manual

Order Number: PPX:560/65–8102  
Manual Assembly Number: 2597773–0006  
Second Edition

 **DANGER**

**DANGER** indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

**DANGER** is limited to the most extreme situations.

 **WARNING**

**WARNING** indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and/or property damage.

 **CAUTION**

**CAUTION** indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury, and/or damage to property.

**CAUTION** is also used for property-damage-only accidents.

**Copyright 1995 by Siemens Energy & Automation, Inc.  
All Rights Reserved — Printed in USA**

Reproduction, transmission, or use of this document or contents is not permitted without express consent of Siemens Energy & Automation, Inc. All rights, including rights created by patent grant or registration of a utility model or design, are reserved.

Since Siemens Energy & Automation, Inc., does not possess full access to data concerning all of the uses and applications of customer's products, we do not assume responsibility either for customer product design or for any infringements of patents or rights of others which may result from our assistance.

## MANUAL PUBLICATION HISTORY

SIMATIC VPU200–3104 Hardware Manual  
Order Manual Number: PPX:560/65–8102

*Refer to this history in all correspondence and/or discussion about this manual.*

---

<b>Event</b>	<b>Date</b>	<b>Description</b>
Original Issue	07/85	Original Issue (2493916–0001)
Errata 1	7/87	Corrects illustration on page 11 (2600782–0001)
Second Edition	10/95	Second Edition (2493916–0002)

## LIST OF EFFECTIVE PAGES

---

Pages	Description	Pages	Description
Cover/Copyright	Second		
History/Effective Pages	Second		
iii — iv	Second		
1-1	Second		
2-1 — 2-2	Second		
3-1	Second		
4-1 — 4-14	Second		
5-1	Second		
Registration	Second		

# Contents

---

<b>Chapter 1 Introduction</b>	
Manual Contents .....	1-1
<b>Chapter 2 Description of the VPU200–3104</b>	
2.1 Introduction .....	2-2
Handling and Environmental Considerations .....	2-2
<b>Chapter 3 VPU200–3104 Specifications</b>	
<b>Chapter 4 Installation</b>	
4.1 VPU200 Voltage Conversion .....	4-2
4.2 Power Receptacle and Power Cord .....	4-4
4.3 Operating Positions .....	4-5
4.4 Controls .....	4-6
4.5 Communiation Ports .....	4-7
P/C Port .....	4-7
Auxiliary Port .....	4-9
5TI Port .....	4-14
CRU Expansion Port .....	4-14
<b>Chapter 5 Preventive Maintenance</b>	

## List of Figures

---

1-1	VPU200-3104 .....	1-1
4-1	Top View of VPU Ports, Fuse, Voltage Selector, and Brightness Control .....	4-3
4-2	Connections in a Receptacle .....	4-4
4-3	VPU200 Operating Positions .....	4-5
4-4	VPU200-3104 Controls .....	4-6
4-5	VPU200 to 560 Cable, PPX:VPU200-3605 .....	4-7
4-6	VPU200-3104 Modem Cable .....	4-8
4-7	VPU Printer Port Connector .....	4-9
4-8	VPU to 733 Cable – 300 or 1200 Baud .....	4-10
4-9	VPU200 to 743/745 Cable .....	4-11
4-10	VPU200 to 763/765 Cable .....	4-12
4-11	VPU200 to Model 800 Cable .....	4-13
4-12	Character Format .....	4-14

# Chapter 1

## Introduction

### Manual Contents

This manual provides you with an overview of the SIMATIC® VPU200™ (VPU200-3014) hardware and gives instructions for connecting the VPU200-3104 to the SIMATIC® 560/565 controller, as well as to several models of printers which may be used with the VPU200-3104. See Figure 1-1.

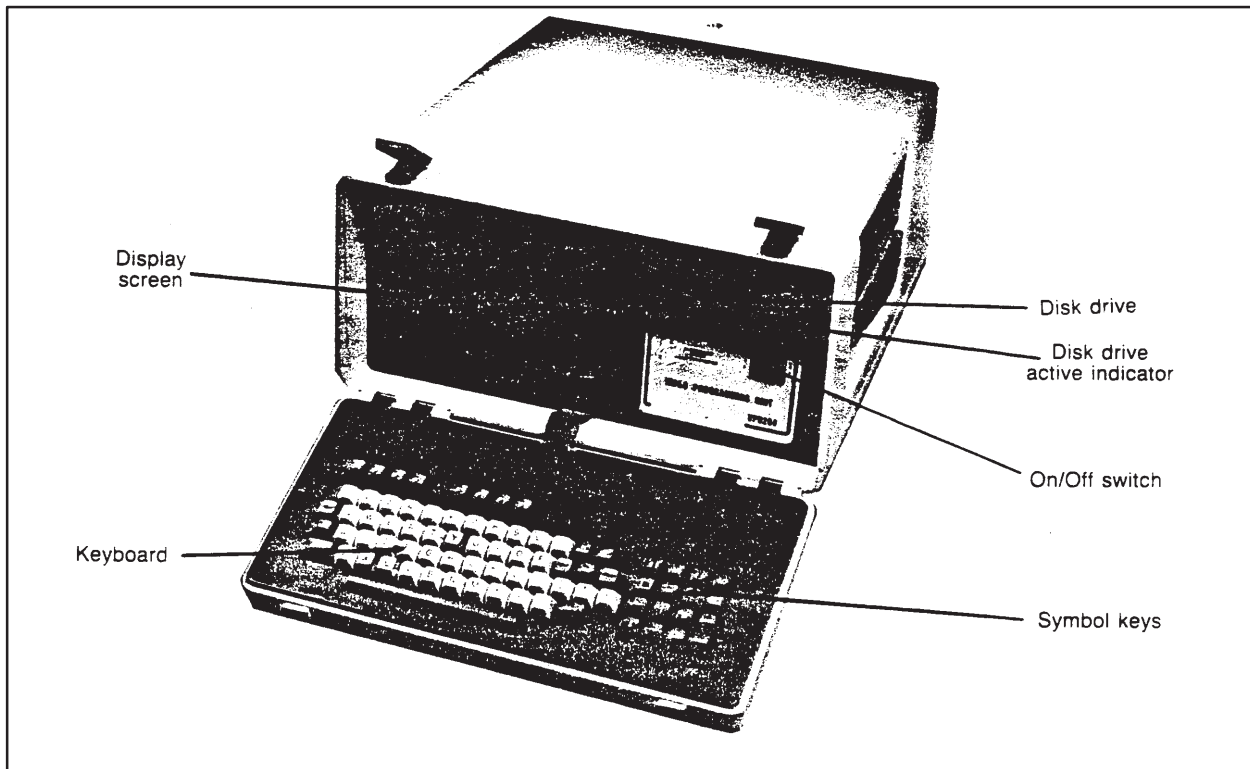


Figure 1-1 VPU200-3104

# Description of the VPU200–3104

---

2.1	<b>Introduction</b> .....	2-2
	Handling and Environmental Considerations .....	2-2



## 2.1 Introduction

---

### Handling and Environmental Considerations

The VPU200–3104 is a self-contained unit which houses a CRT display screen and features an attached hinge keyboard and a 3.3 MByte floppy disk drive. When the unit is not in use, the keyboard can be folded upward toward the display screen and latched in that position. The bottom of the keyboard then becomes the front of a completely closed case. For ease of handling, a carrying strap is affixed to one side of the case.

The VPU200 is an industrial computer terminal and must be treated with the care given to electronic test equipment. Observe the following precautions when handling the unit:

1. Do not drop the VPU200. Damage to the unit, especially the CRT and the disk drive, can result.

### CAUTION

Whenever the VPU200 is not in use, a head protector should be inserted into the floppy disk drive to prevent damage to the drive. This procedure is most important if the unit is in storage or transport.

2. Keep the original packing carton and material to reuse when the unit must be shipped. This carton and materials must also be used when the VPU200 is to be stored in the baggage or cargo area of a vehicle (including the baggage/cargo hold of an airplane).
3. Because of possible temperature extremes, do not transport the VPU200 in the trunk of an automobile. For short automobile trips, keep the VPU200 in a secure position on one of the seats.

The VPU200 must have adequate ventilation. Be particularly careful not to block the cooling vents located on the side of the VPU200.

### CAUTION

To avoid damage to the VPU200, observe the following guidelines:

Do not operate the VPU200 if the cooling vents are blocked. If the unit is mounted in an enclosure, be sure there is sufficient cooling to prevent temperature build-up in the unit. Failure to observe these precautions will void the warranty.

Do not operate the VPU200 outside the normal operating range of 10° C to 40° C (50° F to 104° F). If the terminal has been stored outside this range, allow it to sit at room temperature for a minimum of 45 minutes before turning on the unit.

Never store the VPU200 at temperatures below –40° C or above 60° C (–40° F or 140° F).

Be careful not to spill liquids or drop items such as staples or paper clips into the VPU200 case. Severe damage to electrical components can result.

# VPU200–3104 Specifications

---

Temperature Operating: Storage:	10° C to 40° C (50° F to 104° F) –40° C to 52° C (–40° F to 125.6° F) – with diskette –40° C to 60° C (–40° F to 140° F) – without diskette		
Humidity	10% – 80% (Maximum Wet Bulb of 24° C)		
Shock	2G Any Axis		
Vibration	.5G Any Axis for 30 Minutes 10–60 Hz		
Input Power	85 to 132 VAC or 195 to 260 VAC (Jumper Selected) 47 to 63 Hz 90 to 137 Watts 3 AMP Fuse 1 Cycle Dropout Protected		
Weight	18 KG (40 lbs)		
Dimensions	Height	Width	Depth
Closed:			
(centimeters)	43.69	23.88	55.12
(inches)	17.2	9.4	21.7
Work Surface:			
(centimeters)	29.46	43.69	72.14
(inches)	11.6	17.2	28.4
Floor:			
(centimeters)	50.29	43.69	72.14
(inches)	19.8	17.2	28.4

# Chapter 4

## Installation

---

4.1	VPU200 Voltage Conversion .....	4-2
4.2	Power Receptacle and Power Cord .....	4-4
4.3	Operating Positions .....	4-5
4.4	Controls .....	4-6
4.5	Communication Ports .....	4-7
	P/C Port .....	4-7
	Auxiliary Port .....	4-9
	5TI Port .....	4-14
	CRU Expansion Port .....	4-14

## 4.1 VPU200 Voltage Conversion

---

The voltage requirement for the VPU200 can be changed to 120 or 240 volts AC to meet local requirements. (See Figure 4-1) to change voltage:

1. Turn the VPU200 so the back is facing you and the power cord receptacle is to the left.
2. Disconnect the power cord from the VPU200.
3. To expose the fuse, slide the clear plastic panel so that it covers the power cord receptacle.
4. Remove the fuse by pulling upward on the black plastic lever.
5. When the fuse lever is fully extended (and the fuse has been removed), use needle-nose pliers to remove the small printed circuit board that is mounted vertically next to the fuse holder.
6. Rotate the printed circuit board so that the correct voltage will be visible through the clear plastic panel and replace the board.
7. Replace the fuse by pressing down on the black plastic lever.
8. A grounded cord set must be used.

 <b>CAUTION</b>
<b>Use only a 3 AMP, 250 volt quick-acting fuse (Type AGC).</b> <b>Use of non-recommended fuses could result in damage to equipment.</b>

9. Slide the clear plastic cover over the fuse and connect the power cord.

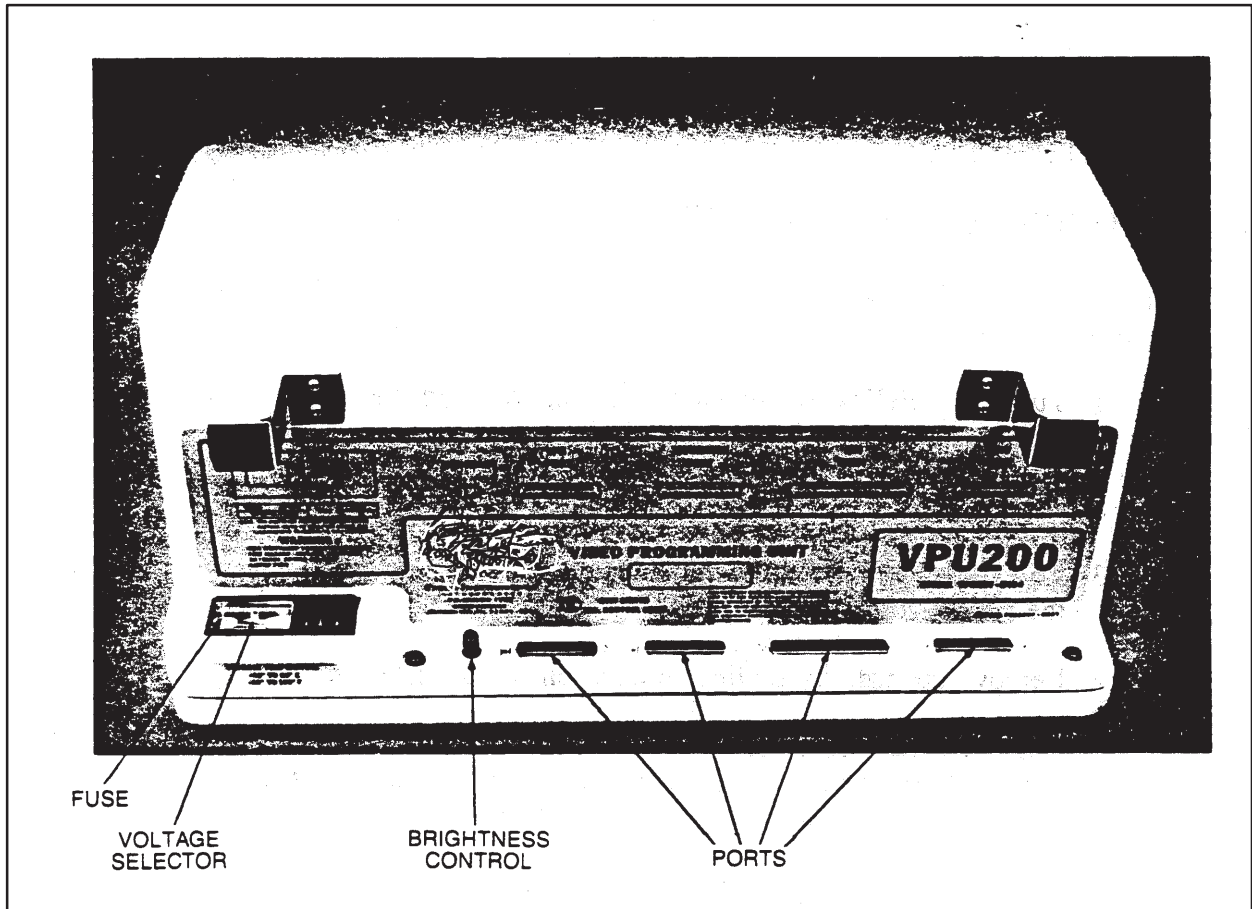


Figure 4-1 Top View of VPU Ports, Fuse, Voltage Selector, and Brightness Control

## 4.2 Power Receptacle and Power Cord

Connect the female end of the VPU200 power cord to the power receptacle located at the rear of the case (see Figure 4-1). To store the power cord when it is not in use, wrap it around the L-shaped brackets located at the rear of the case. Connect the male end of the VPU power cord to 110 VAC, 50 or 60 Hz power source (220 VAC if VPU has been converted as described above). Plug the power cord into the same power source as the controller. In a noisy environment, this is critical for proper performance of the VPU.

<b>⚠ WARNING</b>
<p>The wall receptacle for VPU power must accommodate the three-pronged male connector. The receptacle must have three contacts, as shown in Figure 4-2, including one for safety earth ground. If a three-contact receptacle is not used, damage to the terminal and/or personal injury can occur. If an extension cord is needed, it must be a three-wire type.</p> <p>For 220-volt operation, the power cord used must be capable of carrying three amperes, and its male connector must be compatible with local power outlets.</p>

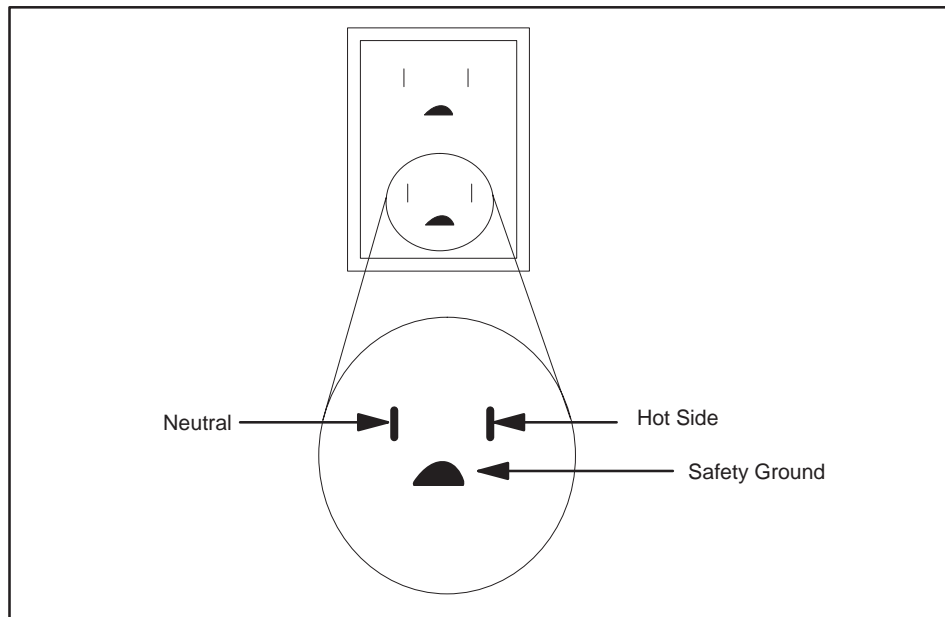


Figure 4-2 Connections in a Receptacle

### 4.3 Operating Positions

---

The VPU200 can be operated from a work surface or floor position. In the work surface position, illustrated in Figure 4-3, the support bail on the base of the unit is lowered to hold the VPU in position for use. In the floor position, the back of the unit and the L-shaped brackets mounted on the back form the standing base.

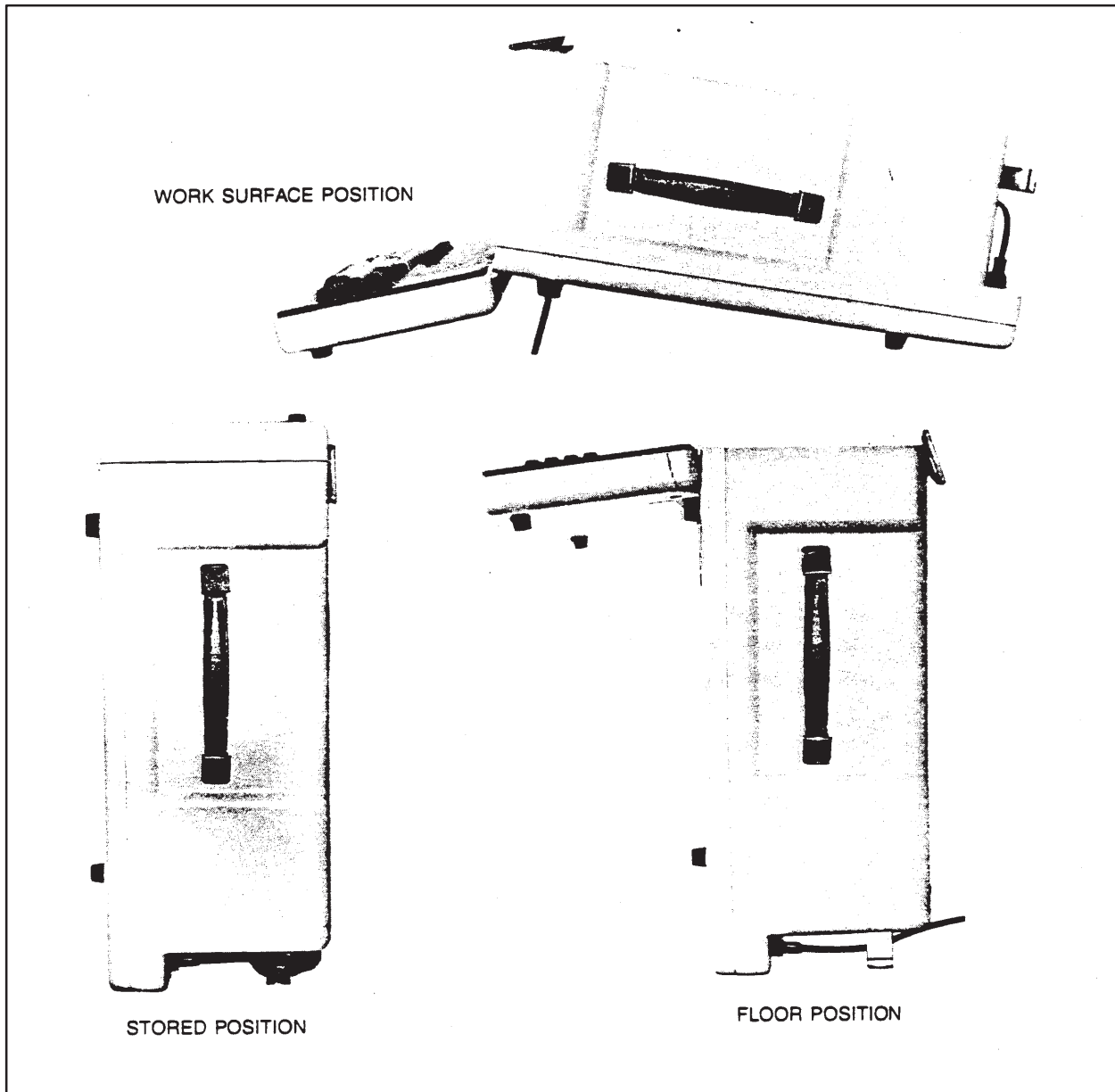


Figure 4-3 VPU200 Operating Positions

## 4.4 Controls

---

Figure 4-4 illustrates the location of the controls.

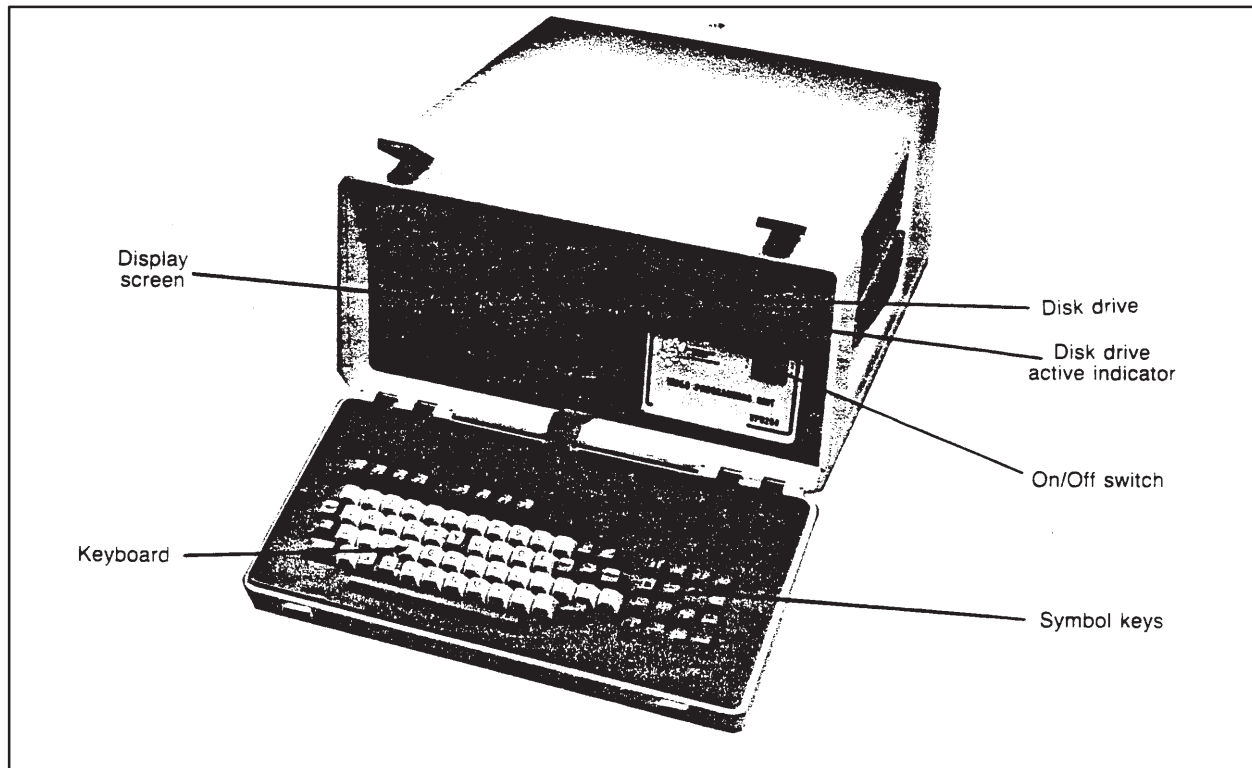


Figure 4-4 VPU200-3104 Controls



## 4.5 Communication Ports

The following paragraphs explain the type and methods of connections to the communication ports.

### P/C Port

The P/C Port is used in the following configurations:

1. Direct connection of the VPU200–3104 to a 560 controller using cable VPU200–3605 (Figure 4-5).
2. Connection of the VPU200 to a remote 560 via modems. Modems must be used when the total cable length is more than 50 feet. Figure 4-6 gives the pinouts for the cable (PPX:VPU200–3605) used with a modem. The modem must be plugged into the same power source as the VPU200 and the controller.

The following settings must be made on a modem used with the VPU200–3104.

1. Desired baud rate
2. Full duplex
3. RS-232-C

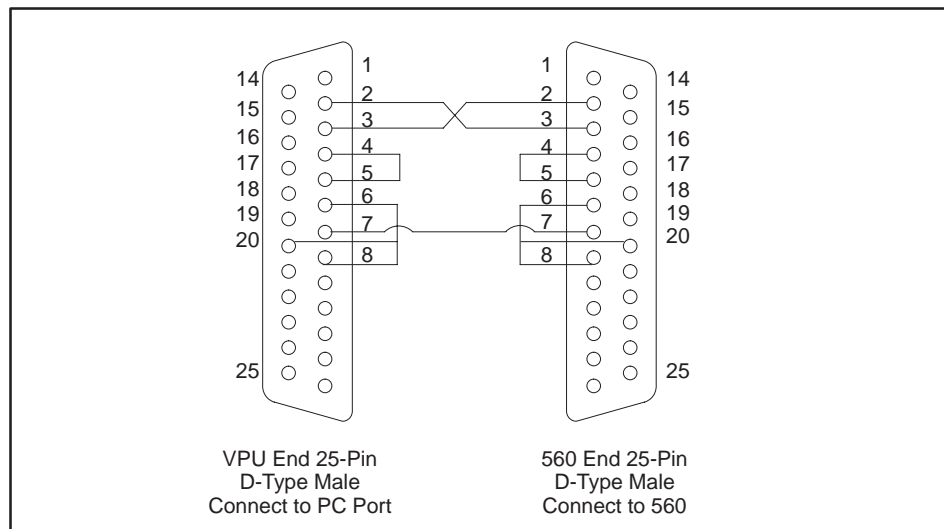


Figure 4-5 VPU200 to 560 Cable, PPX:VPU200–3605

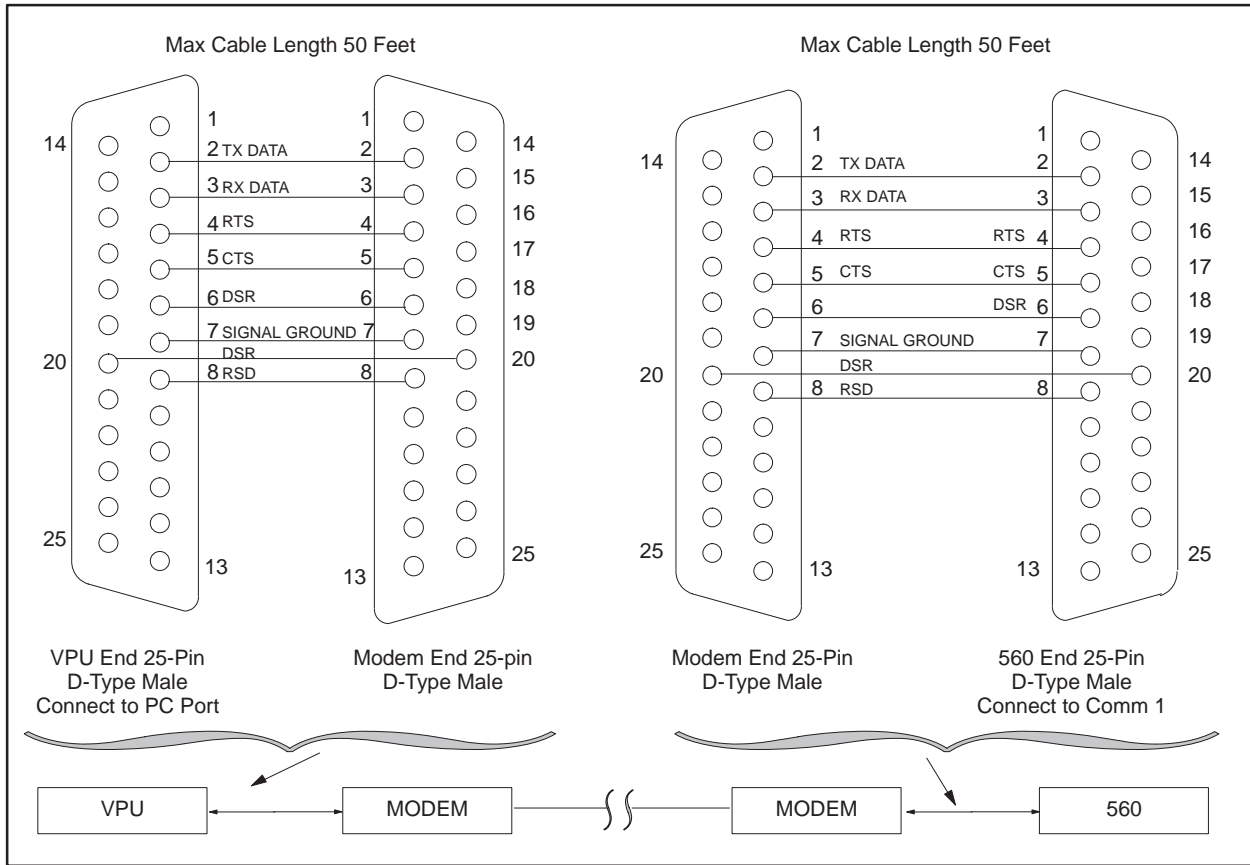


Figure 4-6 VPU200-3104 Modem Cable

---

## Auxiliary Port

The auxiliary port allows the VPU200 to be connected to one of several types of printers and hardcopy devices to obtain printouts of programs and of the contents of the display screen. Figure 4-7 illustrates the printer port connector, with signals and pin numbers. Voltage levels are compatible with E.I.A. Standard RS-232-C.

The VPU200 generates odd parity. The baud rate is specified on the Printer Configuration Menu as 110, 300, 600, 1200, 2400, 4800, or 9600. Data transmission is half-duplex. The parameters of the connected printer or hardcopy device must correspond to these VPU200 parameters. The printing device used with the VPU200 must have a chassis ground (pin 1) isolated from signal ground (pin 7) for noise immunity. A resistance check should be performed on the printer between pin 1 and pin 7 to insure that the resistance is greater than 20K ohms. The printer must also be connected to the same power source as the VPU200 and controller for noise immunity.

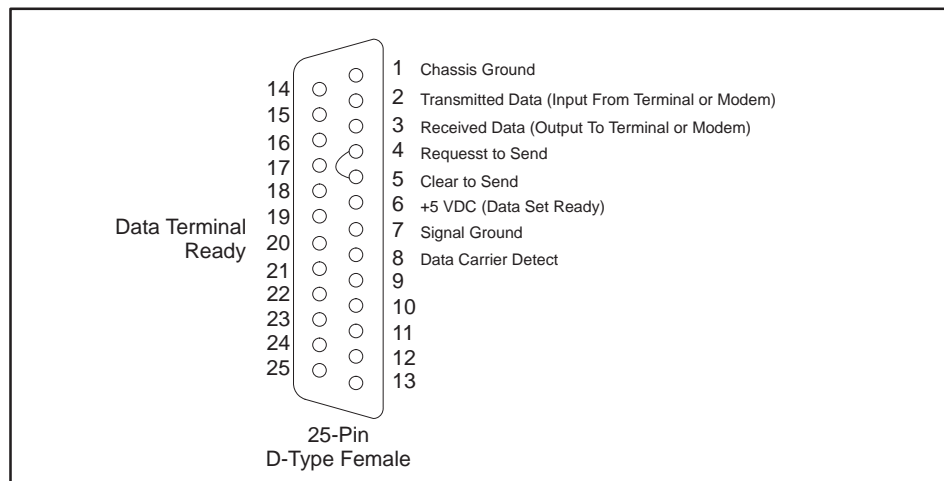


Figure 4-7 VPU Printer Port Connector

The VPU200 can be connected to the hardcopy terminals and printers discussed in the following paragraphs.

---

**NOTE:** Printer cable should be obtained from the vendor who supplies your printer.

---

**733 Terminals.** The VPU200 is connected to a 733 KSR terminal using the cable illustrated in Figure 4-8. The 733 must be set for 300 baud operation with the printer on-line, and the VPU200 must be configured for 300 baud.

The cable shown for 1200 Baud in Figure 4-8 is for use in transporting programs from the VPU to 733 cassette only.

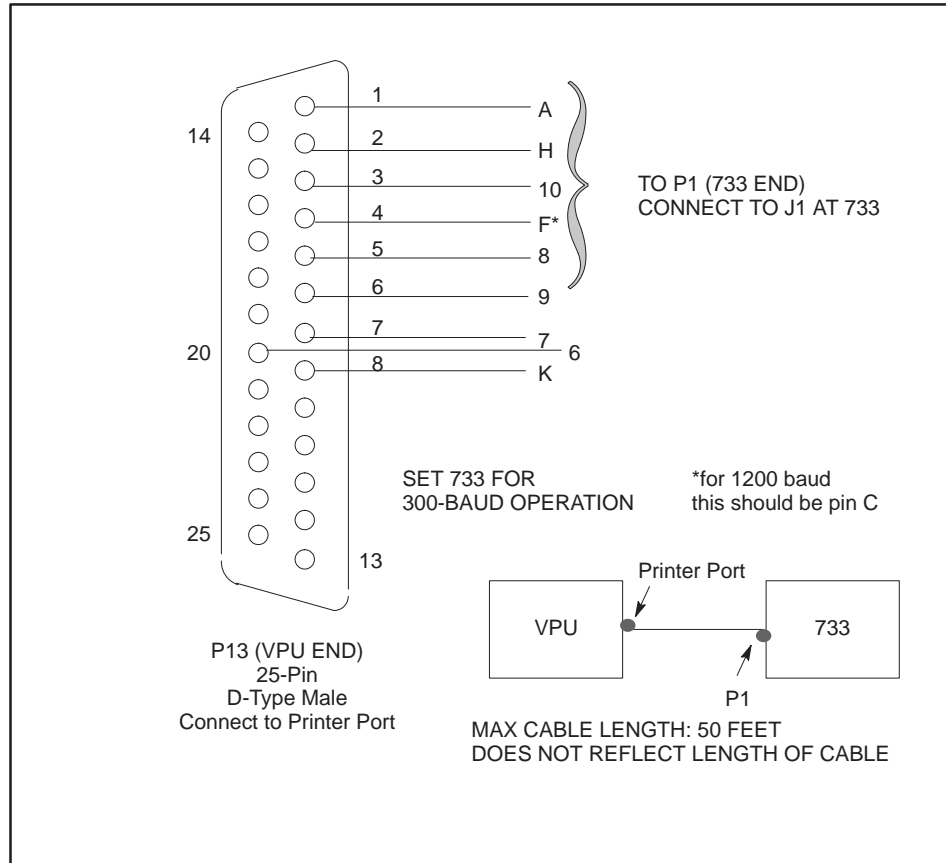


Figure 4-8 VPU to 733 Cable – 300 or 1200 Baud

The VPU200 is connected to a 743 or 745 terminal using the cable illustrated in Figure 4-9. The VPU and the 743/745 must be set for the same rate, either 110 or 300 baud.

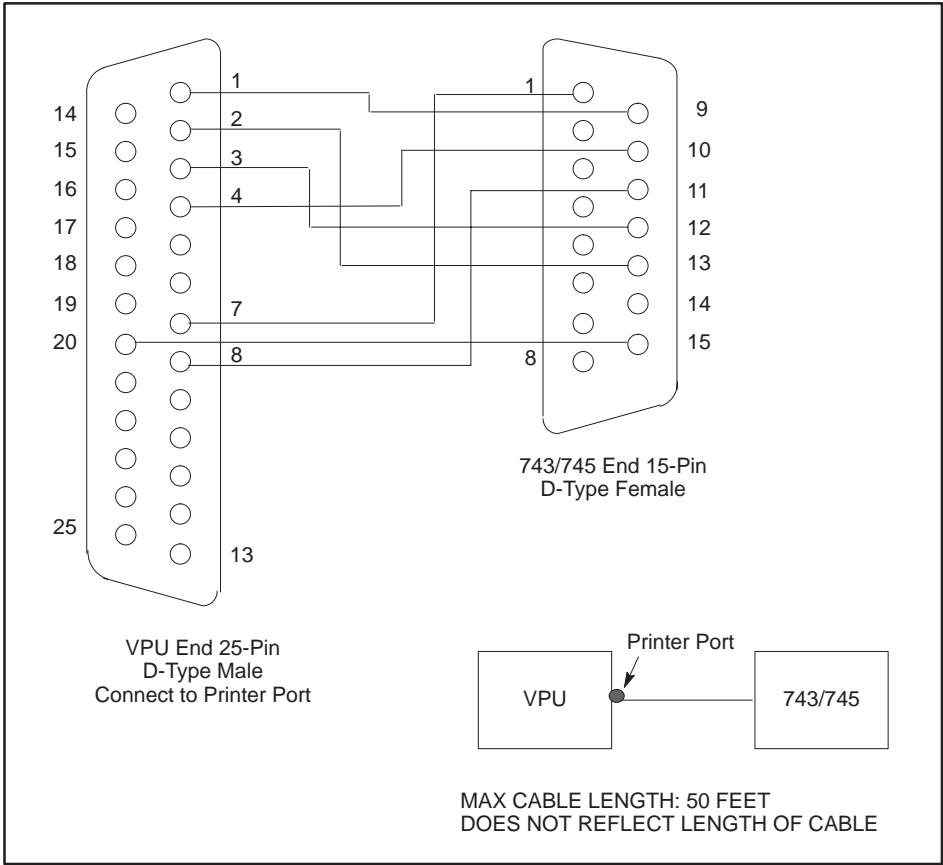


Figure 4-9 VPU200 to 743/745 Cable

**763/765 Terminals.** The VPU200 is connected to a 763 or 764 bubble memory terminal using the cable shown in Figure 4-10. The terminal and the VPU200 must be set at the same baud rate. At baud rates above 300, the Record function on the terminal must be activated.

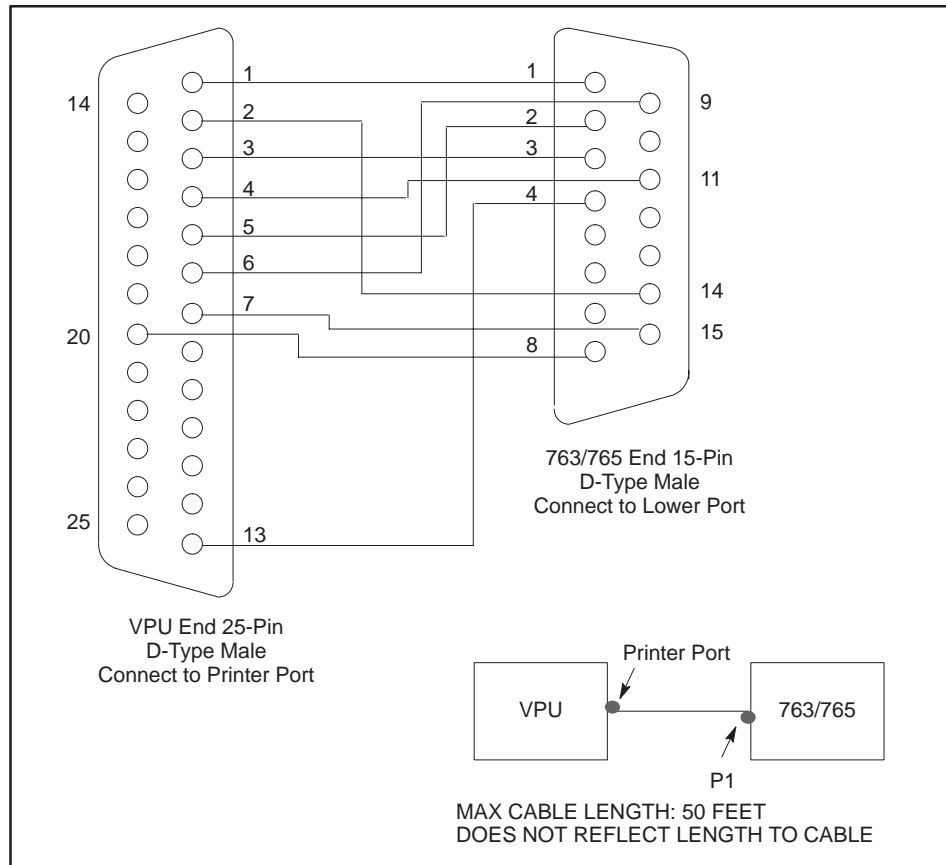


Figure 4-10 VPU200 to 763/765 Cable

**Model 810 Printers.** The VPU200 is connected to an 810 printer with the cable shown in Figure 4-11. Connect the VPU to the printer with a 1-to-1 cable (25 pin, D-type) using pins 1, 2, 3, 4, 5, 6, 7, 8, 20, and 22. Install jumpers between pins 2 and 3, 5 and 6, and 8 and 9 on the printer processor board. Set the printer for 6 lines per inch and 10 characters per inch. Any baud rate from 300 to 9600 may be used as long as both the VPU200 and the printer are set at the same rate.

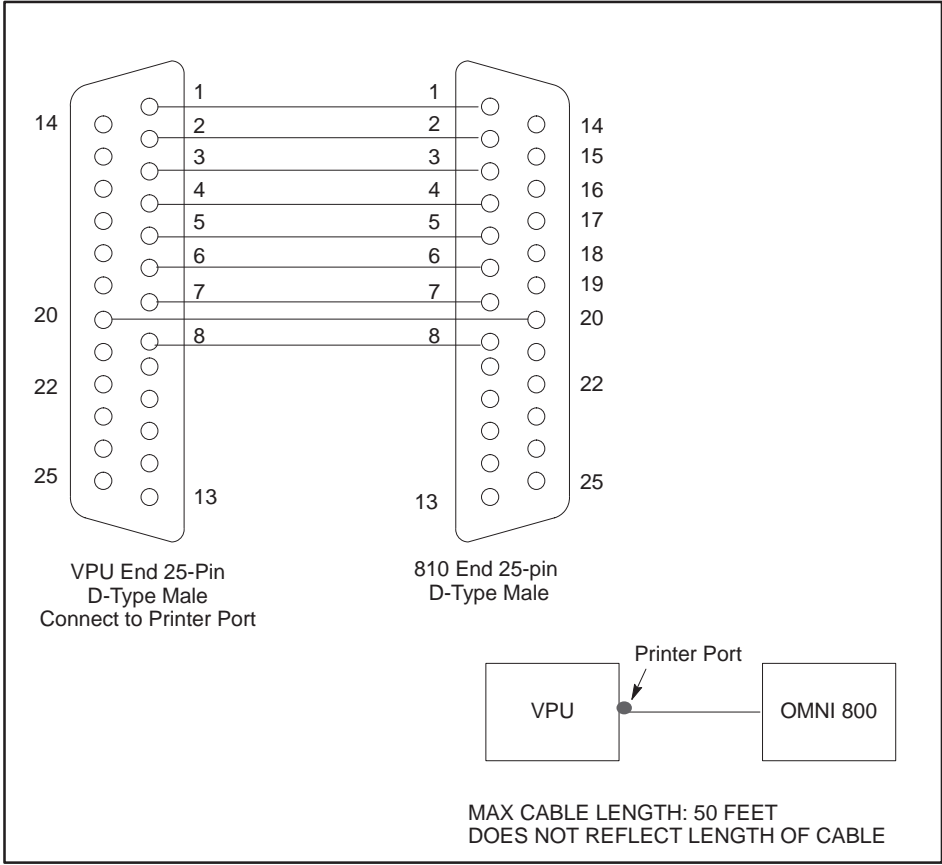


Figure 4-11 VPU200 to Model 800 Cable

**Other Printers.** The VPU200-3104 can be connected to any printer that will accept the character format shown in Figure 4-12 and is compatible with the printer port connector shown in Figure 4-7. Voltage levels at the printer port are compatible with E.I.A. standard RS-232-C. VPU200 requirements for printing are pin 3 (RX Data), pin 7 (Signal GND), and pin 20 (Data terminal ready). Data terminal ready is used for printer busy.

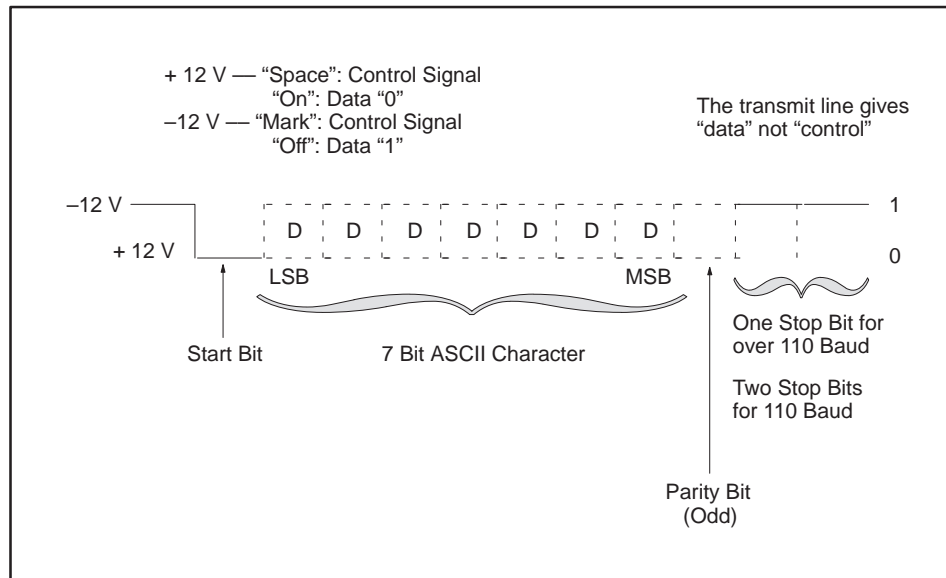


Figure 4-12 Character Format

**5TI Port**

The SIMATIC® 5TI™ port is not used with the SIMATIC® 560/565 controller.

**CRU Expansion Port**

The CRU expansion port is reserved for future use.



## Chapter 5

# Preventive Maintenance

---

The VPU200–3104 incorporates a flexible disk storage system which is capable of storing up to 2.78 megabytes of data. This disk storage system is a precision piece of equipment that requires particular handling to keep it functioning properly and to eliminate downtime. Here are a few suggestions for keeping your VPU in optimum working conditions.

- Your VPU comes with a diskette installed in the drive to protect the drive read/write heads during shipping. Always replace this diskette or another scratch diskette in the drive during periods when the VPU is not being used.

---

**NOTE:** Do not use a ladder logic program or operating system diskette for this purpose.

---

- Never leave diskettes containing important ladder logic programs or operating systems in the disk drive for extended periods of time. Failure to remove important diskettes from the drive may result in loss of the data on the diskettes.
- Do not insert or remove a diskette from the disk drive unless the VPU is plugged into a power outlet and the On/Off switch is On. Failure to follow this procedure may result in damage to the diskette.
- Do not leave the VPU in dusty, dirty environments for extended periods of time with the cover open. Always close the cover and secure both latches when the VPU is not in use. This will prevent suspended dust particles from settling into the disk drive.
- A head-cleaning kit is included with your VPU. Use it only if you experience any problems with the disk drive or if you are operating the VPU in a very dusty environment. Dust particles on the read/write heads can cause a variety of problems, including premature wearout of diskettes.
- Always make extra copies of your ladder logic programs and operating systems. Place the extra copies in a clean jacket and store them in a cool, dry place away from extreme heat, direct sunlight or magnetic fields.

Inform all personnel who will be using the device of these maintenance suggestions so that you can achieve maximum performance from your VPU.

# Customer Response

---

We would like to know what you think about our user manuals so that we can serve you better. How would you rate the quality of our manuals?

	Excellent	Good	Fair	Poor
Accuracy	_____	_____	_____	_____
Organization	_____	_____	_____	_____
Clarity	_____	_____	_____	_____
Completeness	_____	_____	_____	_____
Graphics	_____	_____	_____	_____
Examples	_____	_____	_____	_____
Overall design	_____	_____	_____	_____
Size	_____	_____	_____	_____
Index	_____	_____	_____	_____

Would you be interested in giving us more detailed comments about our manuals?

- Yes!** Please send me a questionnaire.
- No.** Thanks anyway.

Your Name: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone Number: (\_\_\_\_) \_\_\_\_\_

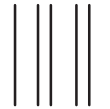
Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Manual Name:** SIMATIC VPU200–3104 Hardware Manual  
**Manual Assembly Number:** 2597773–0006  
**Order Number:** PPX:560/65–8102

**Edition:** Second  
**Date:** 10/95

FOLD



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**

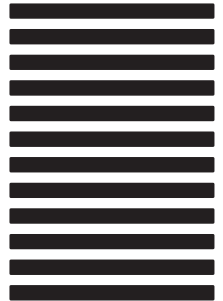
FIRST CLASS

PERMIT NO.3

JOHNSON CITY, TN

POSTAGE WILL BE PAID BY ADDRESSEE

ATTN: Technical Communications M/S 519  
SIEMENS ENERGY & AUTOMATION, INC.  
3000 BILL GARLAND RD  
P O BOX 1255  
JOHNSON CITY TN 37605-1255



FOLD

SIMATIC is a trademark of Siemens AG.

VPU200 and 5TI are trademarks of Siemens Energy & Automation, Inc.