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**NEC**

# ***UNIVERGE<sup>®</sup> SV8100***

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## **System Hardware Manual**





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Communications Technology Group



# Preface

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## GENERAL INFORMATION

### **Congratulations! You have purchased the NEC UNIVERGE SV8100 System.**

The feature-rich UNIVERGE SV8100 key system provides over 200 features including Computer Telephony Integration, Least Cost Routing, Automatic Call Distribution, T1, ISDN-BRI Voice Trunks, ISDN-PRI Voice Trunks, Voice over Internet Protocol, and many others.

The UNIVERGE SV8100 system provides what the customer needs today, and as business expands the system can be expanded to grow as well.

The UNIVERGE SV8100 system has a set of manuals that provides all the information necessary to install and support the system. This preface describes these manuals.

## THIS MANUAL

This manual contains detailed instructions to install the UNIVERGE SV8100 chassis, Blades, Multiline Terminals, and optional equipment in the following chapters.

### **Regulatory**

This chapter provides important regulatory information.

### **Chapter 1 – Introduction to SV8100**

This chapter provides an overview of the UNIVERGE SV8100 system.

### **Chapter 2 – SV8100 System Specifications**

This chapter contains detailed specifications for the SV8100 system and should be carefully reviewed by the technician **before** installing the system.

### **Chapter 3 – Installing the SV8100 Chassis**

This chapter contains the information necessary for installing the SV8100 chassis. The technician should become familiar with this section **before** starting installation.

### **Chapter 4 – Installing the SV8100 Blades**

This chapter contains instructions for installing the blades in the UNIVERGE SV8100 chassis.

## **Chapter 5 – Installing DT300/DT700 Series (DTL/ITL) Digital and IP Multiline Terminals**

This chapter provides information about the UNIVERGE SV8100 system digital and IP terminals in addition to the single line telephones, cordless telephones and wireless telephones.

## **Chapter 6 – Installing SV8100 Cordless Telephones**

This chapter provides information regarding cordless telephones that can be used in conjunction with the UNIVERGE SV8100 system.

## **Chapter 7 – Installing SV8100 Wireless Telephones**

The wireless telephones provide wireless freedom that also allows access to features provided by the UNIVERGE SV8100 system.

## **Chapter 8 – Installing SV8100 Conference Solutions**

Conferencing solutions provide premium, full-duplex audio to small conference rooms as a single unit or to larger rooms when expanded by up to three units that also expand microphone access and loudspeaker coverage.

## **Chapter 9 – Installing SV8100 Optional Equipment**

This chapter provides information for installing optional equipment, such as PGD(2)-U10 ADPs, background music, door boxes, DSS consoles, *D<sup>term</sup>* VSR, external paging as well as other handsets, recording devices and adapters on the UNIVERGE SV8100 digital and IP telephones.

## **Chapter 10 – Installing *D<sup>term</sup>* Series i Telephones**

The UNIVERGE SV8100 system supports several different Electra Elite IPK II *D<sup>term</sup>* Series i Multiline Terminals and an Attendant Console. This chapter describes each terminal and the console and provides instructions for attaching the terminals to the system and for wall mounting.

## **Chapter 11 – Installing *D<sup>term</sup>* Series i Optional Equipment**

The UNIVERGE SV8100 system provides several adapters that allow peripheral equipment to be attached to the IPK II *D<sup>term</sup>* Series i Multiline Terminals. This chapter describes each adapter and provides applicable installation instructions.

## **SUPPORTING DOCUMENTS**

Other manuals in the set are described below.

### **Documents supporting the SV8100 system include:**

#### **UNIVERGE SV8100 Features and Specifications Manual**

This manual describes each available feature for the SV8100 system.

#### **UNIVERGE SV8100 General Description Manual**

This manual contains general information about the system features, configuration and standards. This overview of the SV8100 system is useful when presenting information to potential customers.

#### **UNIVERGE SV8100 Programming Manual**

This manual contains all programming instructions for the SV8100 system.

#### **UNIVERGE SV8100 PC Programming Manual**

This manual describes the operation of the PCPro program for the SV8100 system. This program is a user-friendly Windows application that allows the user to program and configure features of the SV8100 system from the PC environment.

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# Regulatory

## GENERAL INFORMATION

This equipment complies with Part 68 of the FCC Rules and the requirements adopted by the ACTA. On the equipment is a label that contains, among other information, a product identifier in the format: **US:AAAEQ##TXXXX**. If requested, this number must be provided to the telephone company.

The telephone company may make changes in its technical operations and procedures. When such changes affect the compatibility or use of the UNIVERGE SV8100 system, the telephone company is required to give adequate notice of the changes in order for you to maintain uninterrupted service.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is the product identifier in format: **US:AAAEQ##TXXXX**. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3).

Connection to party line service is subject to state tariffs. Contact the state public utilities commission, public service commission or corporation commission for information.

For single and two-line equipment that connects to the telephone network via a plug and jack, the plug and jack used with this equipment must comply with FCC Part 68 rules.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It must be connected to a compatible modular jack that is also compliant.

## TELEPHONE/SERVICE PROVIDER COMPANY NOTIFICATION

Before connecting this telephone system to the telephone network, the following information must be provided to the telephone company:

1. Your telephone number.
2. FCC registration number:

For SV8100 CHS2U-US use SN1750 CYGMA:

- When the system is to be installed as a Key Function system (no dial access to Trunk Groups/Route Advance Blocks), use the following number:

**US:NIFKF07BSN1750**

- When the system is to be installed as a Multifunction system, use the following number:

**US:NIFMF07BSN1750**

- When the system is to be installed as a PBX system, use the following number:

**US:NIFPF07BSN1750**

Ringer Equivalence Number (REN): **0.7B**

USOC jacks required: **RJ11C, RJEX, RJ2FX, RJ2HX, RJ48C, RJ21X**

## INCIDENCE OF HARM

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain interrupted service.

## REPAIR SERVICE REQUIREMENTS

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

If equipment malfunctions, all repairs must be performed by an authorized agent of NEC Unified Solutions, Inc. or by NEC Unified Solutions, Inc. The user requiring service is responsible for reporting the need for service to an NEC Unified Solutions, Inc. authorized agent or to NEC Unified Solutions, Inc.



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## PRIVATE (LEASED) LINES

For Private (Leased) Line (Analog Data Format) equipment, type JM8 jack is required. Refer to ATIS Technical Report No. 5 for details on this connector.

The Facility Interface Code (FIC) associated with each private line application represents the type of service that will be provided by the telephone company. The user instructions must contain a detailed list of private line ports and the associated FICs for which the equipment has been approved. In addition, the Service Order Code (SOC) must also be included for analog systems. The SOC indicates the degree of network protection provided by the equipment,.

For Private (Leased) Line (Digital Format) equipment, in addition to the general requirements for all equipment, certain digital connections require that an encoded analog content and billing protection affidavit be provided the telephone company. Customer instructions must contain information on the preparation and submission of the affidavit.

To comply with state tariffs, the telephone company must be given notification prior to connection. In some states, the state public utility commission, public service commission or corporation commission must give prior approval of connection.

## TOLL RESTRICTION AND LEAST COST ROUTING EQUIPMENT

The consumer/purchaser/supplier instructions accompanying this equipment and/or software features must contain the following notice:

- The software contained in the UNIVERGE SV8100 to allow user access to the network must be upgraded to recognize newly established network area codes and exchange codes as they are placed into service.
- Failure to upgrade the premises systems or peripheral equipment to recognize the new codes as they are established will restrict the customer and the customer's employees from gaining access to the network and these codes.

## DIRECT INWARD DIALING

**ALLOWING THIS EQUIPMENT TO BE OPERATED IN SUCH A MANNER AS TO NOT PROVIDE FOR PROPER ANSWER SUPERVISION IS A VIOLATION OF PART 68 OF THE FCC RULES.**

Direct Inward Dialing (DID) must contain the following:

Proper Answer Supervision is when:

- This equipment returns answer supervision to the Public Switched Telephone Network (PSTN) when Direct Inward Dialing (DID) calls are:
  - Answered by the called station.
  - Answered by the Attendant.

- Routed to a recorded announcement that can be administered by the Customer Premise Equipment (CPE) user.
- Routed to a dial prompt.
- This equipment returns answer supervision on all DID calls forwarded to the Public Switched Telephone Network (PSTN). Permissible exceptions are:
  - A call is unanswered.
  - A busy tone is received.
  - A reorder tone is received.

## VOICE ANNOUNCEMENT/MONITORING OVER DID LINES

When using voice announcement or monitoring over DID Lines, observe the following.

### **CAUTION**

Using the Voice Announcement feature to eavesdrop or record sound activities at the other end of the telephone line may be illegal under certain circumstances and laws. Consult a legal advisor before implementing any practice to monitor or record a telephone conversation. Some federal and state laws require a party monitoring or recording a telephone to use a beep-tone(s), notify all parties to the telephone conversation and/or obtain consent of all parties to the telephone conversation. In monitoring or recording sound activities at the other end of the telephone line using the Voice Announcement feature, the sound of the alert tone at the beginning of the Voice Announcement may or may not be considered sufficient under applicable laws. Some of the applicable laws provide for strict penalties for illegal monitoring or recording of telephone conversations.

## **EQUAL ACCESS REQUIREMENTS**

If equipment such as Private Branch Exchanges (PBX), key systems or customer-owned coin/credit card telephones is sold to a call aggregator, it must be capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

## **ELECTRICAL SAFETY ADVISORY**

Parties responsible for equipment requiring AC power should consider including an advisory notice in their customer information suggesting the customer use a surge arrester. Telephone companies report that electrical surges, typically lightening transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem.

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## HEARING AID COMPATIBILITY

NEC Multiline Terminals and NEC Single Line Telephones that are provided for this system are hearing aid compatible. The manufacturer of other Single Line Telephones for use with the system must provide notice of hearing aid compatibility to comply with FCC rules that now prohibit the use of non-hearing aid compatible telephones.

## MUSIC ON HOLD

### IMPORTANT NOTE

"In accordance with U.S. Copyright Law, a license may be required from the American Society of Composers, Authors and Publishers, or other similar organization, if radio or TV broadcasts are transmitted through the Music On Hold feature of this telecommunication system. NEC Unified Solutions, Inc., hereby disclaims any liability arising out of the failure to obtain such a license."

## RADIO FREQUENCY INTERFERENCE

In compliance with FCC Part 15 rules, the following statement is provided:

### IMPORTANT NOTE

*"This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the System Hardware Manual, may cause interference to radio communications. This equipment has been tested and approved for compliance with the limits for a Class B (except as noted below) computing device pursuant to subpart J of Part 15 of FCC Rules, that are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this telephone system in a residential area is likely to cause interference, in which case, the user, at his or her own expense, is required to take whatever measures may be required to correct the interference."*

When equipped with the CHS2U-US Chassis and MPS7101 PSU, the UNIVERGE SV8100 can be operated as a Class B device except when using one of the devices in the following table. The system then becomes a Class A device that may not be used in a residential area.

CD-PVAA	CD-CCTA	CD-VM00	PZ-VM21	CD-ETIA
PZ-32IPLA	PZ-64IPLA	PZ-128IPLA		

## SAFETY INFORMATION

This equipment has been certified by Canadian Standards Association and found to comply with all applicable requirements:

- CAN/CSA C22.2 No. 0-M – General Requirements – Canadian Electrical Code, Part II
- CAN/CSA C22.2 No. 60950-1-03 – Safety of Information Technology Equipment – Part I: General Requirements
- UL 60950-1-SAFETY, 1st Edition – Safety of Information Technology Equipment – Part I: General Requirements

## INDUSTRY CANADA REQUIREMENTS

Industry Canada has established rules that permit this telephone system to be directly connected to the telephone network. Prior to the connection or disconnection of this telephone system to or from the telephone network, the telephone company must be provided with the following information.

This product meets the applicable Industry Canada Technical Specifications/Le présent matériel est conforme aux spécifications techniques applicables d'industrie Canada.

1. Your telephone number.
2. IC registration number: IC: 140L-SN1750
3. Ringer Equivalence Number (REN) of the equipment: **0.7**

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. 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 coordinated by a representative 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, when 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 applicable electrical inspection authority or electrician.

The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected to the telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of RENs of all the devices does not exceed five/L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'exécède pas 5.

This equipment has been certified by the Canadian Standards Association and found to comply with all applicable requirements of the standard for telephone equipment **C 22.2 No. 225**.

This equipment meets IC requirements **CS03, PART II, PART III, PART VI**.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada/Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

## BATTERY DISPOSAL

The UNIVERGE SV8100 system includes the batteries listed below. When disposing of these batteries, Chassis, and/or Blades, you must comply with applicable federal and state regulations regarding proper disposal procedures.

**Table R-1 Battery Types and Quantities for Chassis and Blades**

Unit Name	Type of Battery	Quantity
CD-CP00-US	Lithium	1
CT-12 Headset Cordless	Ni MH	1
DTH-4R-(1)/(2)	Ni MH	1
DTL-8R-1	Ni MH	1
DTR-1HM-1 TEL	Lithium	1
DTR-1R-2	Nickel-Cadmium	1
DTR-4R-(1)/(2) TEL	Nickel-Cadmium	1
DTU-4R-1 TEL	Lead Acid	1
C124 (SIP DECT Wireless)	Ni MH	1

**Table R-1 Battery Types and Quantities for Chassis and Blades (Continued)**

Unit Name	Type of Battery	Quantity
CHS LARGE BATT SET	Sealed Lead	6
Headset Cordless II	Ni MH	1
Internal Batteries	Sealed Lead	2
Bluetooth® Cordless Handset	Lithium-ion	1
G955 Wireless	Lithium-ion	1
CHSGW SMALL BATT SET	Sealed Lead	2
MH240 Wireless	Lithium-ion	1

The UNIVERGE SV8100 CD-CP00-US provides memory backup for approximately three years. The Lithium battery should be replaced every two years.

#### **IMPORTANT SAFEGUARDS FOR BATTERY DISPOSAL**

DO NOT PLACE USED BATTERIES IN YOUR REGULAR TRASH! THE PRODUCT YOU PURCHASED CONTAINS LITHIUM, NICKEL-CADMIUM OR SEALED LEAD BATTERIES. LITHIUM, NICKEL-CADMIUM OR SEALED LEAD BATTERIES MUST BE COLLECTED, RECYCLED, OR DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER.

The incineration, landfilling or mixing of nickel-cadmium or sealed lead batteries with the municipal solid waste stream is PROHIBITED BY LAW in most areas. Contact your local solid waste management officials for other information regarding the environmentally sound collection, recycling, and disposal of the battery.

Nickel-Cadmium (or sealed lead) batteries must be returned to a federal or state approved nickel-cadmium (or sealed lead) battery recycler. This may be where the batteries were originally sold or a local seller of automotive batteries. Contact your local waste management officials for other information regarding the environmentally sound collection, recycling and disposal of the battery contained in this product. For Ni-Cd batteries, you can also call 1-800-8-BATTERY<sup>SM</sup> when further information is required.

The packaging for the UNIVERGE SV8100 system contains the following labels regarding proper disposal.

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**PRODUCT PACKAGE LABELING****Ni-Cd**

CONTAINS NICKEL-CADMIUM BATTERY.  
BATTERY MUST BE RECYCLED OR  
DISPOSED OF PROPERLY. MUST NOT BE  
DISPOSED OF IN MUNICIPAL WASTE.

**Pb**

CONTAINS SEALED LEAD BATTERY.  
BATTERY MUST BE RECYCLED. MUST NOT  
BE DISPOSED OF IN MUNICIPAL WASTE.

**Ni-MH**

CONTAINS NICKEL-METAL HYDRIDE  
BATTERY. BATTERY MUST BE RECYCLED  
OR DISPOSED OF PROPERLY. MUST NOT  
BE DISPOSED OF IN MUNICIPAL WASTE.

## EUROPEAN UNION INFORMATION

### Notice to the user

The system described in this manual is intended to be connected to analog and digital networks and supports a wide range of peripheral equipment. The following interfaces are available for connection to public analog and digital telecommunication networks:

- TBR3 ISDN basic rate interface
- TBR4 ISDN primary rate interface
- ES203-021 Analogue interface

To take advantage of all features of this system and the connected equipment, the country or network specific features should match the supported features of the system. For an overview of the supported features, refer to the detailed documentation that comes with this system, contact your local NEC Unified Solutions representative or the support desk of NEC Unified Solutions.

### Declaration of conformity

Hereby, NEC Unified Solutions, declares that the SV8100 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

For the Declaration of Conformity, visit:

<http://www.nec-unified.com/company/256-109/Declaration-of-Conformity.html>



### Electromagnetic Compatibility

For the SV8100 system the following warning is applicable:

#### Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



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## PRODUCT DISPOSAL INFORMATION

### For Countries in the European Union



The symbol depicted here has been affixed to your product to inform you that electrical and electronic products should not be disposed of as municipal waste.

Electrical and electronic products including the cables, plugs and accessories should be disposed of separately to allow proper treatment, recovery and recycling. These products should be taken to a designated facility where the best available treatment, recovery and recycling techniques are available. Separate disposal has significant advantages: valuable materials can be re-used and it prevents the dispersion of unwanted substances into the municipal waste stream. This contributes to the protection of human health and the environment.

Please be informed that a fine may be imposed for illegal disposal of electrical and electronic products via the general municipal waste stream.

To facilitate separate disposal and environmentally sound recycling arrangements have been made for local collection and recycling. If your electrical and electronic products must be disposed of please refer to your supplier or the contractual agreements that your company has made upon acquisition of these products.

At [www.nec-philips.com/weee](http://www.nec-philips.com/weee) you can find information about separate disposal and environmentally sound recycling.

### Battery information

Defective or exhausted batteries should never be disposed of as municipal waste. Return old batteries to the battery supplier, a licensed battery dealer or a designated collection facility. Do not incinerate batteries. This product uses Lithium batteries. Do not use any other type.

For an overview of the location of batteries used in these systems, the battery replacement or removal instructions, please refer to the UNIVERGE SV8100 System Hardware Manual.

**-- NOTES --**

# Introduction to SV8100

## SECTION 1 GENERAL INFORMATION

The SV8100 is a full-featured IP based communications system providing a rich set of existing system features, with pure Voice over IP (VoIP) communications, across corporate Local and Wide Area Networks (LAN and WAN).

The DT700 series telephones provide a converged infrastructure at the desktop, with a 10Base-T/100Base-TX connection to the LAN and built-in hub for a PC connection to the telephone itself. The system can provide peer-to-peer connections between the DT700 series telephones with voice compression, offering existing IP telephone features with an enhanced user interface. On the WAN side, the system can provide peer-to-peer connections over IP networks with the voice compression – on CCIS over IP.

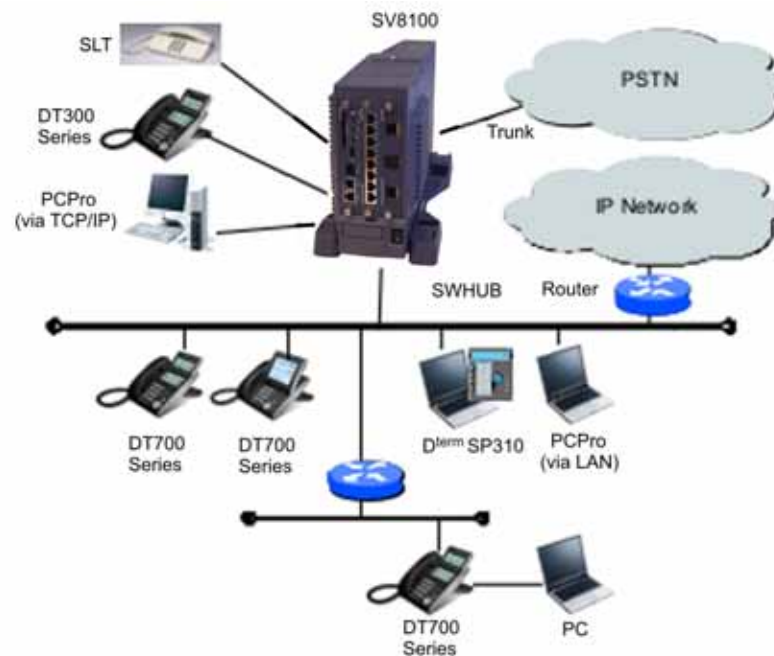
The SV8100 can provide legacy line/trunk interfaces to support the existing Time Division Multiplexing (TDM) based infrastructure, such as analog telephones, digital telephones (DT300 series), analog networks and digital networks (T1/E1, ISDN, etc.).

The 9.5" Gateway or Base chassis provides 48 total ports (32 digital terminals) and can include any combination of stations and trunks below this number.

The 9.5" Base and Expansion (Combined) chassis provides 104 total ports (80 digital terminals) and can be expanded, using three additional combined chassis, for a maximum of 416 ports (368 digital terminals). Through IP connection and four additional combined chassis, the system can be expanded to a maximum of 512 ports for SV8100 (refer to [Table 2-3 SV8100 9.5" \(Base and Expansion\) Maximum System Capacities – Trunks/Ports/Channels on page 2-9](#)).

The 19" chassis provides 104 total ports (80 digital terminals) and can be expanded, using three additional 19" chassis, for a maximum of 416 ports (368 digital terminals). Through IP connection and four additional 19" chassis, the system can be expanded to a maximum of 512 ports for the SV8100 (refer to [Table 2-2 SV8100 9.5" Gateway and 19" Maximum System Capacities – Trunks/Ports/Channels on page 2-5](#)).

Communications between legacy stations/trunks and DT700 series telephones/IP networks are made using a VoIP daughter board, which converts packet-based voice data to TDM-based voice data, and vice versa. Both peer-to-peer connections and TDM-based connections are controlled by the CPU blade. The CPU incorporates a built-in Device Registration Server (DRS) and a single interface point of IP connection to IP telephone, PCPro and OAI / ACD servers. [Figure 1-1 Simplified SV8100 System \(9.5" Gateway and Base\) Connectivity](#), [Figure 1-2 Simplified SV8100 System \(9.5" Base and Expansion\) Connectivity](#) on page 1-3 and [Figure 1-3 Simplified SV8100 System \(19"\) Connectivity](#) on page 1-3 are simplified views of the SV8100 system connectivity.



**Figure 1-1 Simplified SV8100 System (9.5" Gateway and Base) Connectivity**

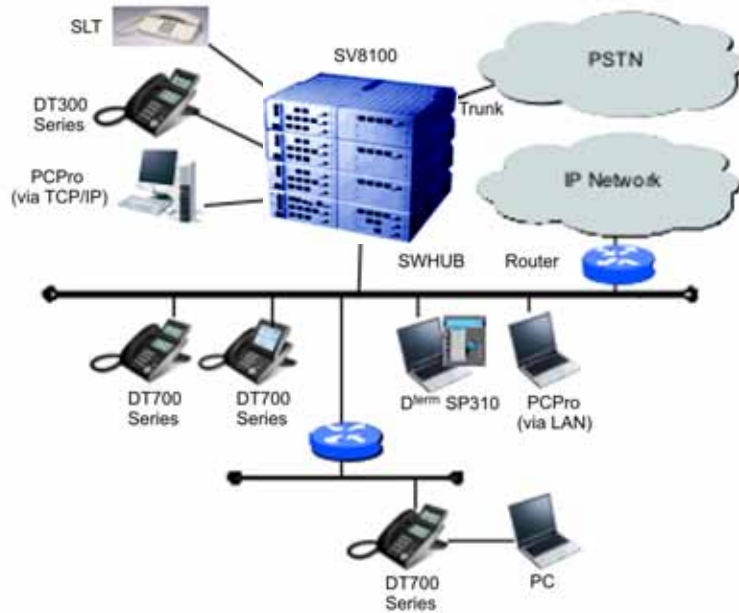


Figure 1-2 Simplified SV8100 System (9.5" Base and Expansion) Connectivity

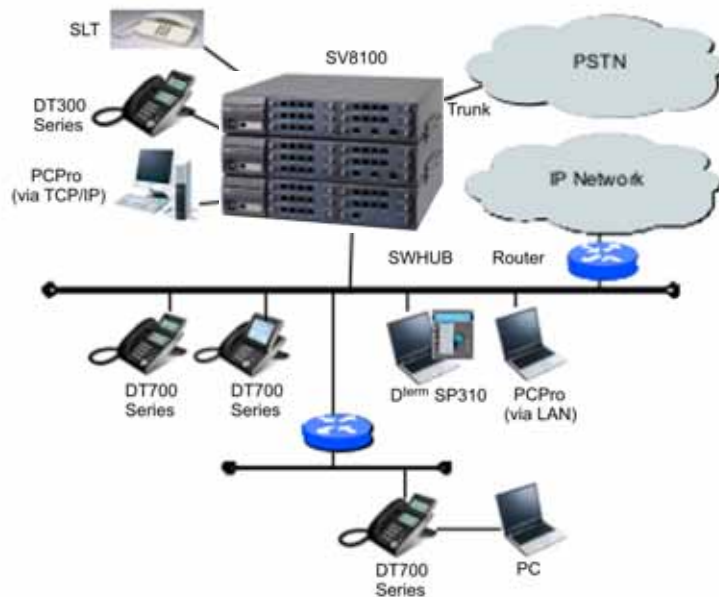


Figure 1-3 Simplified SV8100 System (19") Connectivity

Highlights of the UNIVERGE SV8100 are as follows:


❑ Pure IP System Capable TDM Configuration

The SV8100 supports both pure IP switching (peer-to-peer connections) and Time Division Switching. The pure IP switching is provided for communications between DT700 series telephones and for CCIS/Remote Unit connections with other SV8100/SV8300/SV7000. On the other hand, the TDM switching is provided for communications between legacy stations/trunks. Connection between IP network and legacy network is made via VoIP daughter board on the CPU blade, which converts packet-based voice data to TDM-based voice data, and vice versa.

❑ Powerful CPU Blade with Built-in Functionalities

The CPU blade of SV8100 is the heart of the pure IP connections and TDM-based connections. The CPU blade employs a 32-bit microprocessor. With this processing power and DSP technology, it integrates the following functions on one board. These functions are managed with software licenses.

- DTMF receivers
- Caller ID receivers
- Caller ID senders
- MF senders / receivers
- 10/100 Ethernet Port
- 2 Control Relays
- MOH Input Port
- Paging Output Port
- InMail (VMDB)
- VoIP

 *InMail is available only for the SV8100.*

In addition, by means of advanced LSI technology, size of the CPU blade is minimized, O&M NIC port (10/100M) is built-in and VoIPDB which has VoIP NIC port (Gigabit Ethernet) is mountable without additional slots in the chassis. The O&M NIC port is linked with LAN/WAN for inter-work with PCPro, SMDR, OAI server, and the VoIP NIC port is linked with LAN/WAN for control signaling and voice signaling (RTP) for DT700 series.

High Density Legacy Line/Trunk Blades

Major legacy line/trunk blades used in SV8100 are provided with blade + daughter board architecture. When the blade is mounted only in an initial supply, line/trunk interfaces can be easily expanded by adding the daughter board. The maximum number of ports for the line/trunk blades is 8/16 ports with daughter board, respectively. This allows the physical system size to be compact.

Universal Blade Slot (9.5" Gateway and Base Chassis)

A 9.5" Gateway (CHS2U GW-US) or Base (CHS2U B-US) chassis is used for legacy line/trunk blades. The 9.5" chassis provides three universal slots. Also, the universal slots can be used for special application blades without complicated limitation. This makes for easy quotation and installation.

Universal Blade Slot (9.5" Base and Expansion Chassis)

A 9.5" Base (CHS2U B-US) and Expansion (CHS2U E) chassis is used for legacy line/trunk blades. One combined chassis provides six universal slots and one expansion slot. Also, the universal slots can be used for special application blades without complicated limitation.

Universal Blade Slot (19" Chassis)

A 19" (CHS2U-US) chassis is used for legacy line/trunk blades. One 19" Chassis provides six universal slots and one expansion slot. Also, the universal slots can be used for special application blades without complicated limitation.

Easy Installation (Front Cabling and Enhanced O&M Tool)

Cable connectors (RJ-45 or RJ-61) are located on the front panel of each chassis and blade. This increases efficiency of the cabling work. Also, PCPro provides an enhanced user interface. A Quick Setup tool provides easy setup (system data programming) for a basic system configuration in shorter time.

## SECTION 2 EQUIPMENT LIST

The following tables list all equipment for the SV8100 system.

**Table 1-1 Chassis Equipment List**

Stock Number	Equipment Name	Equipment Description
670015	CHS2U-US	19" Chassis (6-slot)
670016	CHS2U GW-US	9.5" Gateway Chassis (3-slot)
670067	CHS2U B-US	9.5" Base Chassis (3-slot)
670068	CHS2U E	9.5" Expansion Chassis (3-slot)

**Table 1-2 Chassis Installation Equipment List**

<b>Stock Number</b>	<b>Equipment Name</b>	<b>Equipment Description</b>
670019	CHS BASE UNIT	Floor Mount Set for all chassis (CHS1U-US and CHS2U-US)
670500	CHS2U BLANK SLOT COVER KIT	Blank Slot Cover Set
670501	CHS2U JOINT BRACKET KIT	Upper Joint Bracket for 6-slot Chassis
670508	CHS2U RACK MOUNT KIT	Rack Mount for CHS2U-US Chassis
670510	CHS1U/2U WALL MOUNT KIT	Wall Mount Set for CHS2U-US Chassis
670513	CHS Stand Kit (K)	Stand Mount Kit for 2U Chassis
670522	CHS2U STAND KIT (EXT)	Expansion Plate for Stand Mount Kit for 6-blade Chassis, 2 sets
670523	CHS1U BLANK SLOT COVER KIT(BUS)	Blank Bus Cover
0910008	IP3-RACK MOUNT BAR SET	Rack Mount Set for CHS2U B-US and CHS2U E

**Table 1-3 Battery Mount Equipment List**

<b>Stock Number</b>	<b>Equipment Name</b>	<b>Equipment Description</b>
670511	CHSGW SMALL BATT BOX	Short-term battery box for 3-slot chassis Backup Time – 10 minutes
670505	CHS LARGE BATT BOX	Long Term Battery Box for CHS1U-US and CHS2U-US Chassis Cable between batteries – 9.06in/230mm Fuse Unit to Batteries – 18.11in/460mm Cable from chassis to battery box – 81.1in/2060mm
670509	CHS2U BATT MTG KIT	Battery Mount for CHS2U-US Chassis Backup time – 10 minutes
670511	CHSGW SMALL BATT SET	Short-term battery set for 3-slot chassis
670512	CHS LARGE BATT SET	Long term battery set (3) 12V 7Ah SLA Batteries with Faston 187 terminals
670533	CHS2U INT BATT SET	Internal battery set for CHS2U-US chassis 12V 2.3Ah SLA Battery with Faston 187



Table 1-4 Blade Equipment List

Stock Number	Equipment Name	Abbreviations	Equipment Description
670005	CD-CP00-US	CPU	Main Processor Blade for KTS
670100	PZ-BS10	BUS0	Expansion Chassis Interface Unit, 3-jack
670101	PZ-BS11	BUS1	Expansion Chassis Interface Unit, 1-jack
670103	PZ-VM21	VMDB	16 Channels for Voice Mail with a Single Channel V34 Modem
670104	PZ-32IPLA	VoIPDB	32-channel VOIP on CCPU
670105	PZ-64IPLA	VoIPDB	64-channel VOIP on CCPU
670106	PZ-128IPLA	VoIPDB	128-channel VOIP on CCPU
670107	CD-8DLCA	DLC	8-port Digital Station Interface
670108	PZ-8DLCB	DLCDB	8-port Digital Station Interface on CD-8DLCA
670109	CD-16DLCA	DLC	16-port Digital Station Interface
670110	CD-4COTB	COT	4-port Loop/ground Start Trunks
670111	PZ-4COTF	COTDB	4-port Loop/ground Start Trunks on CD-4COTB, CD-LTA
670112	CD-4LCA	LC	4-port Single Line Telephone Interface
670113	PZ-4LCA	LCDB	4-port Single Line Telephone Interface on CD-4LCA and CD-8LCA
670114	CD-8LCA	LC	8-port Single Line Telephone Interface
670115	PZ-8LCE	LCDB	8-port Single Line Telephone Interface on CD-4LCA and CD-8LCA
670116	CD-2BR1A	BRT	2 Basic Rate Interface
670117	PZ-2BR1A	BRTDB	2 Basic Rate Interface on CD-2BR1A, for SV8100 can also be mounted on the CD-LTA blade
670118	CD-PR1A	PRT	1 Primary Rate Interface
670119	CD-CCTA	CCT	Common Channel Interoffice Signalling Trunk Interface/Common Channel Handler
670120	CD-4DIOPA	DIOP	4 DID/OPX
670121	CD-4ODTA	ODT	4-port Tie Line Interface (E&M)
670122	CD-RTB	RTB	Router
670123	CD-VM00	VM00	Voice Mail and Server
670124	CD-ETIA	GSWU	PoE Gigabit Switch Unit
670127	PZ-ME50-US	MEM	Memory Expansion on CD-CP00-US
670128	CD-LTA	LTA	8 Digital Station/2SLT for CD-CP00-US only

**Table 1-4 Blade Equipment List (Continued)**

Stock Number	Equipment Name	Abbreviations	Equipment Description
670130	MGN-U10 ETU	MGN-U10 ETU	IPK/IPK II Migration
670131	CD-PVAA	CNF	Packet Voice Application

**Table 1-5 Cable Equipment List**

Stock Number	Equipment Name	Equipment Description
670516	RS CONSOLE CA-A	MAT (PCPro) Cable 6.6 ft. (2.0m)
670517	RS NORM-4S CA-F	RS-232C Cable (normal) 13.1 ft (4m)
670518	RS RVS-15S CA-F	RS-232C Cable (reverse) 49.2 ft (15.0m)
670519	RS RVS-4S CA-F	RS 232C Cable (reverse) 13.1 ft (4.0m)
670520	RS RVS-4S CA-G	RS 232C Cable (reverse) 13.1 ft (4.0m)
670521	RS PRT-15S CA-F	RS-232C Cable (printer) 49.2 ft (15.0m)
670528	BUS CABLE	Bus Cable
670529	AC CORD	AC Power Cable for US
670530	CHS2U BATT CABLE INT	CHS2U-US Battery Cable for Internal Battery 2U Chassis Cable A – 18.9in/480mm Cable B – 3.15in/80mm
670531	CHS2U BATT CABLE EXT-A	Battery Cable for External Battery 6-slot Chassis

**Table 1-6 Digital Multiline Terminal (DT300 Series) Equipment List**

Stock Number	Equipment Name	Equipment Description
680000	DTL-2E-1 (BK) TEL	Economy Digital 2-button Telephone (No-Display)
680001	DTL-6DE-1 (BK) TEL	Economy Digital 6-button Display Telephone
680002 680003	DTL-12D-1 (BK) TEL DTL-12D-1 (WH) TEL	Value Digital 12-button Display Telephone
680004 680005	DTL-24D-1 (BK) TEL DTL-24D-1 (WH) TEL	Value Digital 24-button Display Telephone
680006 680007	DTL-32D-1 (BK) TEL DTL-32D-1 (WH) TEL	Value Digital 32-button Display Telephone
680008	DTL-12BT-1 (BK) TEL	Value Digital 12-button Telephone with Bluetooth Cordless Headset

**Table 1-6 Digital Multiline Terminal (DT300 Series) Equipment List (Continued)**

<b>Stock Number</b>	<b>Equipment Name</b>	<b>Equipment Description</b>
680009	DTL-12PA-1 (BK) TEL	Value Digital 12-button Telephone with Power Failure Adapter
680010 680011	DTL-8LD-1 (BK) TEL DTL-8LD-1 (WH) TEL	Value Digital 8-button Telephone (DESI-less)
680012 680013	DCL-60-1 (BK) CONSOLE DCL-60-1 (WH) CONSOLE	60-button Direct Station Selection (DSS) Console
680014 680015	8LK-L (BK) UNIT 8LK-L (WH) UNIT	8-button Line Key Unit
680016 680017	8LKD (LD)-L (BK) UNIT 8LKD (LD)-L (WH) UNIT	DESI-less 8-button Line Key Unit/LCD Unit for Digital Telephone
680608 680609	LCD (BL)-L (BK) UNIT LCD (BL)-L (WH) UNIT	LCD Unit (Backlight LCD) for Digital Telephone

**Table 1-7 IP Multiline Terminal (DT700 Series) Equipment List**

<b>Stock Number</b>	<b>Equipment Name</b>	<b>Equipment Description</b>
690000	ITL-2E-1 (BK) TEL	Economy IP 2-button Telephone (No Display)
690001	ITL-6DE-1 (BK) TEL	Economy IP 6-button Display Telephone
690002 690003	ITL-12D-1 (BK) TEL ITL-12D-1 (WH) TEL	Value IP 12-button Display Telephone
690004 690005	ITL-24D-1 (BK) TEL ITL-24D-1 (WH) TEL	Value IP 24-button Display Telephone
690006 690007	ITL-32D-1 (BK) TEL ITL-32D-1 (WH) TEL	Value IP 32-button Display Telephone
690009	ITL-12PA-1 (BK) TEL	Value IP 12-button Telephone with Power Failure Adapter
690010 690011	ITL-8LD-1 (BK) TEL ITL-8LD-1 (WH) TEL	Value IP 8 Line Key Display Telephone Value IP Telephone: DESI-less
690012	ITL-320C-1 (BK) TEL	Sophisticated Telephone
690013 690014	8LKI (LD)-L (BK) UNIT 8LKI (LD)-L (WH) UNIT	DESI-less LK/LCD Unit for IP

Table 1-8 DT300/DT700 Series Optional Equipment List

Stock Number	Equipment Name	Equipment Description
680600	APR-L UNIT	Analog Port Ringer (DT 300 only)
680601	ADA-L UNIT	Ancillary Device Adapter
680602	BHA-L UNIT	Bluetooth® Hub Adapter
680603 680604	PSA-L (BK) UNIT PSA-L (WH) UNIT	Power Save Adapter
680605	BCH-L (BK) UNIT	Bluetooth Cordless Handset
680606 680607	12LK-L (BK) KIT 12LK-L (WH) KIT	12-button Line Key Kit
680610	WM-L UNIT	Wall Mount Unit
680754	DSS WM-L UNIT	Wall Mount Unit for DCL-60-1
680650	DESI ITL/DTL-2E (25 PKG)	DESI Sheet for Economy 2-button Telephone (2 Part Sheet, 25 Package)
680651	DESI ITL/DTL-6DE (25 PKG)	DESI Sheet for Economy 6-button Display Telephone (2 Part Sheet, 25 Package)
680652	DESI ITL/DTL-12D (25 PKG)	DESI Sheet for Value 12-button Display Telephone (2 Part Sheet, 25 Package)
680653	DESI ITL/DTL-8LK (25 PKG)	DESI Sheet for 8-button Line Key (1 Part Sheet, 25 Package)
680654	DESI DCL-60 (25 PKG)	DESI Sheet for 60DSS (1 Part Sheet, 25 Package)
680655	DESI ITL/DTL-SIDE (25 PKG)	DESI Sheet for Clear Side Panel (Left and Right Part Sheet, 25 Package)
680656	DESI ITL/DTL-SIDE-LCDV (25 PKG)	DESI Sheet for Value Telephone LCD (Left and Right Part Sheet, 25 Package)
680657	DESI ITL/DTL-SIDE-LCDS (25 PKG)	DESI Sheet for Sophisticated Telephone LCD (Left and Right Part Sheet, 25 Package)
680658	DESI ITL/DTL Directory Card	Directory Card
680659	DESI ITL/DTL-24D (25 PKG)	DESI Sheet for Value 24-button Display Telephone (2 Part Sheet, 25 Package)
680700	Panel (Red-Base)-L UNIT	Color Side Panel for Base (Red)
680701	Panel (Red-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Red)
680702	Panel (Red-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Red)
680703	Panel (Blue-Base)-L UNIT	Color Side Panel for Base (Blue)

**Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)**

<b>Stock Number</b>	<b>Equipment Name</b>	<b>Equipment Description</b>
680704	Panel (Blue-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Blue)
680705	Panel (Blue-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Blue)
680706	Panel (Silver-Base)-L UNIT	Color Side Panel for Base (Silver)
680707	Panel (Silver-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Silver)
680708	Panel (Silver-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Silver)
680709	Panel (Wood-Base)-L UNIT	Color Side Panel for Base (Wood)
680710	Panel (Wood-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Wood)
680711	Panel (Wood-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Wood)
680712	Panel (Logo-Base)-L UNIT	Color Side Panel for Base (Wood with Logo)
680713	Panel (Clear-Base)-L UNIT	Color Side Panel for Base (Clear)
680714	LKPANEL(2BTN)-L (BK) UNIT	Spare Plastic Cover Kit (2-button) (Black)
680715	LKPANEL(6BTN)-L (BK) UNIT	Spare Plastic Cover Kit (6-button) (Black)
680716	LKPANEL(12BTN)-L (BK) UNIT	Spare Plastic Cover Kit (12-button)
680717	LKPANEL(12BTN)-L (WH) UNIT	
680718	LKPANEL(24BTN)-L (BK) UNIT	Spare Plastic Cover Kit (24-button)
680719	LKPANEL(24BTN)-L (WH) UNIT	
680720	LKPANEL(8BTN)-L (BK) UNIT	Spare Plastic Cover Kit (8-button)
680721	LKPANEL(8BTN)-L (WH) UNIT	
680722	LKPANEL(60BTN)-L (BK) UNIT	Spare Plastic Cover Kit (60-button)
680723	LKPANEL(60BTN)-L (WH) UNIT	
680724	DTL (Value)-Base-1 unit	Digital Base
680725	LCDD(S)-L (BK) UNIT	Digital Standard Telephone LCD
680726	LCDD(S)-L (WH) UNIT	
680727	Ten Key (STD)-L Kit	10-Key Kit (Standard)
680728	FNCKEY(STD)-L (BK) SET	Standard Function Key
680729	FNCKEY(STD)-L (WH) SET	
680730	12LKSoft-L (BK) SET	12-button Kit without Softkey
680731	12LKSoft-L (WH) SET	
680732	12LK(STD)-L (BK) SET	12-button on 12D Terminal (Line #13~24)
680733	12LK(STD)-L (WH) SET	
680734	TKPANEL(STD)-L (BK) UNIT	10-Key Panel
680735	TKPANEL(STD)-L (WH) UNIT	

Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description
680736 680737	Cradle (STD)-L(BK) Cradle (STD)-L(WH)	Cradle
680738	VAL DIRECTORY CARD UNIT(L)	Directory Card Holder for Value Telephone
680739	ECO DIRECTORY CARD UNIT(L)	Directory Card Holder for Economy Telephone
680741	Panel (Clear-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Clear)
680742	Panel (Clear-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Clear)
680743 680744	LKPANEL(16BTN)-L (BK) UNIT LKPANEL(16BTN)-L (WH) UNIT	Spare Plastic Cover Kit (16-button)
680745 680746	KeyKitPanel (Value) (BK) Unit KeyKitPanel (Value) (WH) Unit	Spare Plastic Cover Key Kit for Value Telephone
680747 680748	KeyKitPanel (Retro) (BK) Unit KeyKitPanel (Retro) (WH) Unit	Spare Plastic Cover Key Kit for Retro Telephone
680749 680750	KeyKitPanel (Sophi) (BK) Unit KeyKitPanel (Sophi) (WH) Unit	Spare Plastic Cover Key Kit for Sophisticated Telephone
680756	KeyKitPanel(V)-L (M-Blue) Unit	Color face panel for Value (Metallic Blue) 1 set consists 10 of panels
680757	KeyKitPanel(V)-L (GUNMETA) Unit	Color face panel for Value (GunMetallic) 1 set consists 10 of panels
680758	KeyKitPanel(V)-L (L-Green-M) Unit	Color face panel for Value (Lime Green Metallic) 1 set consists 10 of panels
680759	KeyKitPanel(V)-L (Orange-M) Unit	Color face panel for Value (Orange Metallic) 1 set consists 10 of panels
680760	KeyKitPanel(V)-L (D-Brown-M) Unit	Color face panel for Value (Dark Brown Metallic) 1 set consists 10 of panels
680761	LKPANEL(12BTN)-L (M-Blue) UNIT	Color LK panel (12button) for Value (Metallic Blue) 1 set consists 10 of panels
680762	LKPANEL(12BTN)-L (GUNMETA) UNIT	Color LK panel (12button) for Value (GunMetallic) 1 set consists 10 of panels
680763	LKPANEL(12BTN)-L (L-Green-M) UNIT	Color LK panel (12button) for Value (Lime Green Metallic) 1 set consists 10 of panels
680764	LKPANEL(12BTN)-L (Orange-M) UNIT	Color LK panel (12button) for Value (Orange Metallic) 1 set consists 10 of panels
680765	LKPANEL(12BTN)-L (D-Brown-M) UNIT	Color LK panel (12button) for Value (Dark Brown Metallic) 1 set consists 10 of panels
680766	LKPANEL(24BTN)-L (M-Blue) UNIT	Color LK panel (24button) for Value (Metallic Blue) 1 set consists 10 of panels

Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description
680767	LKPANEL(24BTN)-L (GUNMETA) UNIT	Color LK panel (24button) for Value (GunMetallic) 1 set consists 10 of panels
680768	LKPANEL(24BTN)-L (L-Green-M) UNIT	Color LK panel (24button) for Value (Lime Green Metallic) 1 set consists 10 of panels
680769	LKPANEL(24BTN)-L (Orange-M) UNIT	Color LK panel (24button) for Value (Orange Metallic) 1 set consists 10 of panels
680770	LKPANEL(24BTN)-L (D-Brown-M) UNIT	Color LK panel(24button) for Value (Dark Brown Metallic) 1 set consists 10 of panels
680771	PANEL(Pink-Base)-L UNIT	Color side panel for Base (Pink) 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680772	PANEL(Pink-VLCD)-L UNIT	Color side panel for Value LCD (Pink) 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680773	PANEL(Pink-SLCD)-L UNIT	Color side panel for Sophi LCD (Pink) 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680774	PANEL(C Gold-Base)-L UNIT	Color side panel for Base (Champagne Gold) 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680775	PANEL(C Gold-VLCD)-L UNIT	Color side panel for Value LCD (Champagne Gold) 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680776	PANEL(C Gold-SLCD)-L UNIT	Color side panel for Sophi LCD (Champagne Gold) 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680777	PANEL(BIO-Base)-L UNIT	BIO side panel for Base 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680778	PANEL(BIO-VLCD)-L UNIT	BIO side panel for Value LCD 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
680779	PANEL(BIO-SLCD)-L UNIT	BIO side panel for Sophi LCD 1 set consist of 10 pair of panels. A pair includes (1) left and (1) right panel
690100	MH240	Wireless SIP telephone
690600 690601	BS (F)-L (BK) KIT BS (F)-L (WH) KIT	French Keypad
690602 690603	BS (S)-L (BK) KIT BS (S)-L (WH) KIT	Spanish Keypad
690606 690607	BS (ICON)-L (BK) KIT BS (ICON)-L (WH) KIT	ICON Support Keypad

Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description
690608 690609	BS (Retro)-L (BK) KIT BS (Retro)-L (WH) KIT	Retrofit Support Keypad
690610 690611	BS (RetroCON)-L (BK) KIT BS (RetroCON)-L (WH) KIT	Retrofit ICON Support Keypad
690612	Sticker-Braille-L KIT	Braille Support Keypad Stickers
690614 690615	HANDSET(NARROW)-L (BK) UNIT HANDSET(NARROW)-L (WH) UNIT	Spare Narrowband Handset
690616 690617	HANDSET(WIDE)-L (BK) UNIT HANDSET(WIDE)-L (WH) UNIT	Spare Wideband Handset
690618 690619	HandsetCord(12FT)-L (BK) SET HandsetCord(12FT)-L (WH) SET	Spare Handset Cord 12 Feet
690620 690621	HandsetCord(25FT)-L (BK) SET HandsetCord(25FT)-L (WH) SET	Spare Handset Cord 25 Feet
690622 690623	HandsetHanger-L (BK) SET HandsetHanger-L (WH) SET	Spare Handset Hanger
690624	ITL (Value)-Base-1 unit	IP Base
690625 690626	LCDI(S)-L (BK) UNIT LCDI(S)-L (WH)) UNIT	IP LCD Unit (without Backlight)
690627	LineCord-L (BK) SET	Spare Line Cord (BK)
690628	ITL/DTL PTM Handset (BK)	Push to Mute Handset
690629	ITL/DTL PTT Handset (BK)	Push to Talk Handset
690630	GBA-L UNIT	Gigabit Adapter
690631	AC-L UNIT	AC Adapter for GBA-L UNIT
690632	BS(V-HOTEL)-L (BK) UNIT	Standard Hotel function keypad for Value (BK) with Blank D/F panel
690633	BS(S-HOTEL)-L (BK) UNIT	Standard Hotel function keypad for Sophi (BK) with Blank D/F panel
750611	C124 SIP DECT Handset	SIP DECT wireless handset
750106	G955 SIP DECT Handset	SIP DECT wireless handset
780273	4-Port Digital Call Logging Unit	Digital Call Logging Unit
780279	16-Port Digital Call Logging Unit	Digital Call Logging Unit



# SV8100 System Specifications

## SECTION 1 GENERAL INFORMATION

This chapter provides detailed specifications for the SV8100 system technician. The technician should review this information carefully **before** installing the system.

## SECTION 2 SYSTEM BLOCK DIAGRAM

[Figure 2-1 SV8100 System Block Diagram](#) shows the Blades that can be installed in the chassis and the number of channels supported when the Blade is installed. [Table 2-1 List of Abbreviations](#) lists abbreviations used in the diagram.

**Table 2-1 List of Abbreviations**

Abbreviation	Description
ACD	Automatic Call Distribution
ADA	Ancillary Device Adapter
APR	Analog Port Adapter (with ringer)
AUX IN/OUT	BGM/MOH Port (on CPU)
BCH	Bluetooth Cordless Handset
BHA	Bluetooth Hub Adapter
BRI	Basic Rate Interface
BRIDB	Expansion Basic Rate Interface Daughter Board on BRI
BRT	Basic Rate Interface Blade/ISDN Terminal Interface Blade
BUS0	BUS Interface Blade (for 1U chassis)
BUS1	BUS Interface Blade (for 2U chassis)
CCT	CCIS Interface Blade
CF	Compact Flash
CFT	Conference Trunk (on CPU)

**Table 2-1 List of Abbreviations (Continued)**

<b>Abbreviation</b>	<b>Description</b>
CNF	Conference Bridge Blade (PVA)
COT	Central Office Trunk (Loop and Ground Start Interface)
COTDB	Loop and Ground Start Interface Daughter Board on COT
CPU	Central Processing Unit
DID	Direct Inward Dialing
DIOP	DID/OPX Blade
DLC	Digital Multiline Terminal Interface Blade
DLCB	Expansion Digital Multiline Terminal Interface Blade on DLC
DRS	Device Registration Server (on CPU)
DSS	Direct Station Selection Console
DTI	Digital Trunk Interface
DTG	Digital Tone Generator (on CPU)
ETHERNET	Ethernet Port (on CPU)
FT1	Fractional T1
GBA	GigaBit Adapter
GSWU	Power over Ethernet Gigabit Switch
IDF	Intermediate Distribution Frame
IPT	IP Trunk (P2P CCIS) (on CPU)
ISDN	Integrated Service Digital Network
LAN	Local Area Network
LC	Single Line Telephone Interface Blade
LCDB	Single Line Telephone Interface Daughter Board on LC
MDF	Main Distribution Frame
MEM	Main Memory (on CPU)
MIS	Management Information System
MOH	Music On Hold
OAI	Open Application Interface (on CPU)
ODT	Tie Line Interface Blade (2W/4W E&M)
OPX	Off-Premise Extension

**Table 2-1 List of Abbreviations (Continued)**

<b>Abbreviation</b>	<b>Description</b>
PBR	PB Receiver (on CPU)
PBSND	PB Sender (on CPU)
PCPro	PC Programming
PFT	Power Failure Transfer
PLO	Phase Locked Oscillator (on CPU)
PMS	Property Management System
PRI	Primary Rate Interface
PRT	Primary Rate Interface Blade
PS	Personal Station
PSA	PSTN Adapter (analog)
PVA	Packet Voice Application
RTB	Router Blade
SERIAL	Serial Port (on CPU)
SLT	Single Line Telephone
SMDR	Station Message Detail Recording
TDSW	Time Division Switch (on CPU)
USB	Universal Serial Bus (on CPU)
CD-VM00	UMS Blade Server Blade (SV8100 only)
PZ-VM21	VMS Daughter Board with V34 Modem (SV8100 only)
VMS	Voice Mail System
VoIP	Voice over Internet Protocol
VoIPDB	VoIP Daughter Board (on CPU)
VRS	Voice Response System
WAN	Wide Area Network
WebPro	Web-Based PC Programming

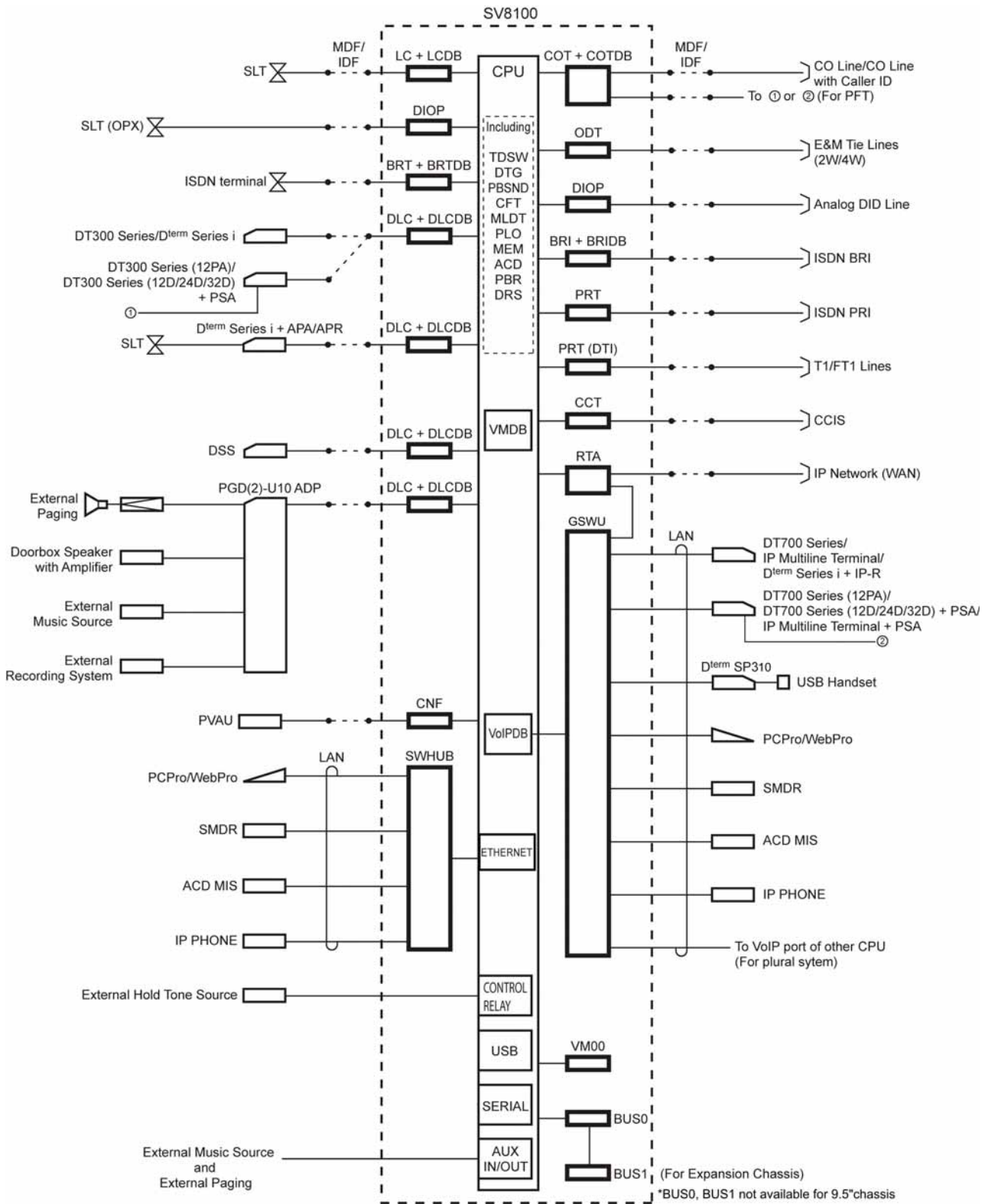


Figure 2-1 SV8100 System Block Diagram

## SECTION 3 MAXIMUM SYSTEM CAPACITIES

### 3.1 Trunk/Port/Channel Capacities

The CHS2U-US is a compact 19" chassis that has six universal slots, one expansion slot and one MPS7101 (power supply unit). When the CD-CP00-US is installed in the first CHS2U-US, it is called the *Controlling Chassis*. Additional chassis, called *Expansion Chassis*, can be installed to increase the capacity of the system to meet the customer's business needs.

As [Figure 2-2 19" Controlling and Expansion Chassis](#) and [Table 2-2 SV8100 9.5" Gateway and 19" Maximum System Capacities – Trunks/Ports/Channels](#) illustrate, the system can be expanded from 104 ports to 512 ports by vertically stacking a maximum of three additional chassis onto the controlling chassis. This provides a maximum of 24 slots and 368 digital terminals. To obtain the maximum port capacity of 512 ports, two systems can be linked together via an IP connection.

The maximum slot and channel capacities are listed in [Table 2-2 SV8100 9.5" Gateway and 19" Maximum System Capacities – Trunks/Ports/Channels](#).

**Table 2-2 SV8100 9.5" Gateway and 19" Maximum System Capacities – Trunks/Ports/Channels**


Number of:		9.5" Chassis	19" Chassis				System Maximum
		x 1 (CPU + 2 Slots)	x 1 (6 Slots)	x 2 (12 Slots)	x 3 (18 Slots)	X4 (24 Slots)	
Number of Timeslots *1	PCM	48	104	208	312	416	444
	Data	7	7	14	21	28	28
$D^{term} (-48V)$		32	80	176	272	368	Total 512
SLT (-28V)		32	80	176	272	368	
SLT (-48V)		8	20	44	68	92	
$D^{term}_{IP}$		512					
Desktop Applications (Desktop Client, Desktop Client with Shared Services and SoftPhones)		128					Total 128
SIP/WLAN		512					Total 512

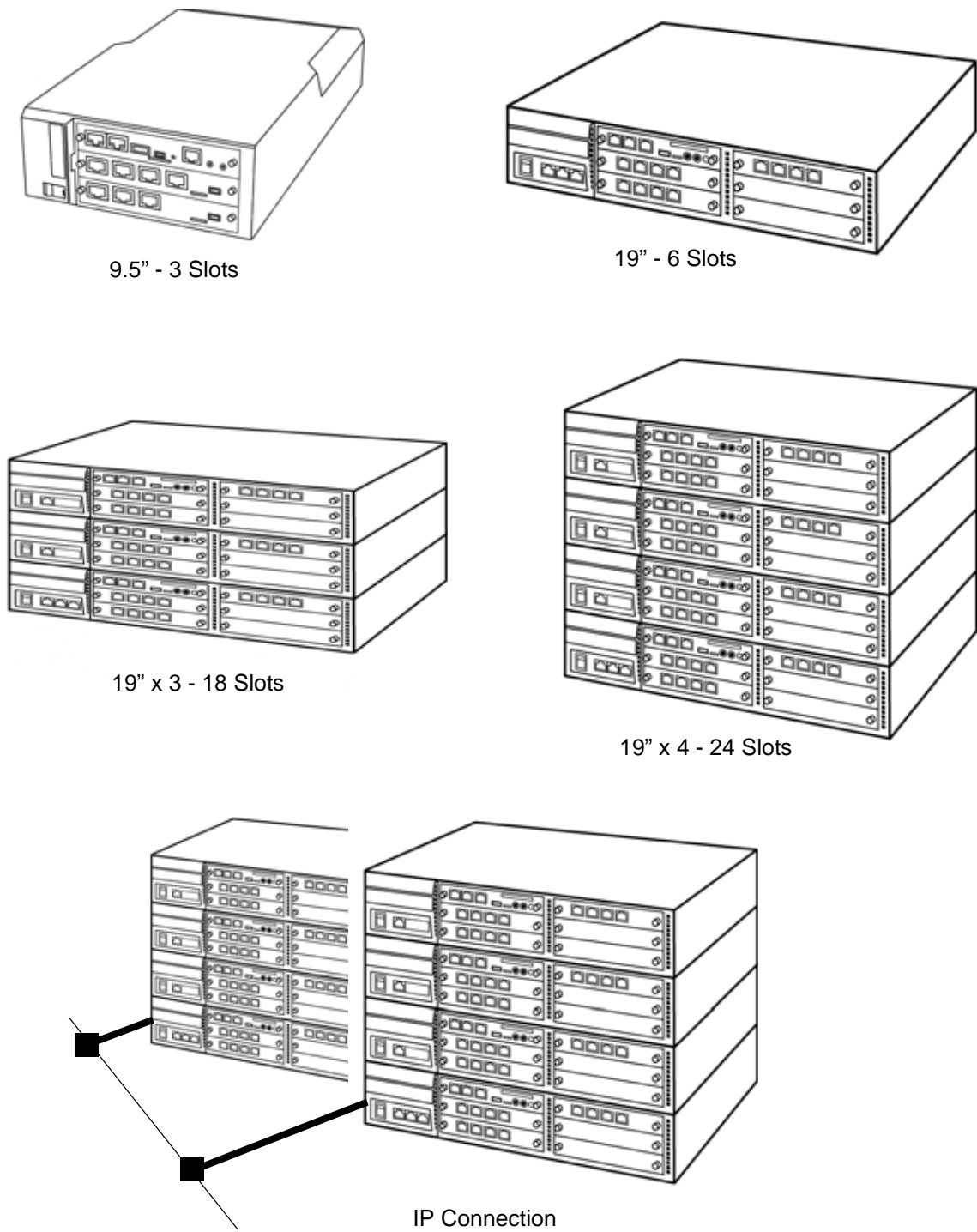
Table 2-2 SV8100 9.5" Gateway and 19" Maximum System Capacities – Trunks/Ports/Channels (Continued)

Number of:	9.5" Chassis	19" Chassis				System Maximum
	x 1 (CPU + 2 Slots)	x 1 (6 Slots)	x 2 (12 Slots)	x 3 (18 Slots)	X4 (24 Slots)	
Analog Trunks (COT)	16	40	88	136	184	Total 200
BRI	16	40	88	136	184	
PRI (1.5M)	48	96	192	192	192	
IP Trunk (SIP/K-CCIS – IP)	200					
DTMF Receivers	32	32	32	32	32	96 *2
VoIP Channels	128					128
Voice Mail Channels on CPU	16 channels					16
V34 Modem	1 channel					1

\*1 = For  $\mu$ -law countries 104 timeslots per chassis are assigned the G.711 PCM communications (e.g., voice communications) and 7 timeslots per chassis are assigned for the Data communications (e.g., HDLC over ISDN). Thus the simultaneous data communications are limited up to seven per chassis.

\*2 = An additional 64 DTMF Receivers are available when the PZ-BS10 is installed.

 An additional 64 DTMF Receivers are available when the PZ-BS10 is installed. If using Caller ID to analog trunks and DSP resources are set to common, DSP resources will only be used for analog trunks and not analog stations.



**Figure 2-2 19" Controlling and Expansion Chassis**

There are two 9.5" chassis, the Base and Expansion. The base unit has three universal slots, one expansion slot and one MPS7101 (power supply unit). The expansion unit has three universal slots, no expansion slot, and no power supply unit. When the CD-CP00-US is installed in the first slot of the base chassis, it is called the *Controlling Chassis*. Additional chassis, called *Expansion Chassis*, can be installed to increase the capacity of the system to meet the customer's business needs.

As [Figure 2-3 9.5" Controlling and Expansion Chassis](#) and [Table 2-3 SV8100 9.5" \(Base and Expansion\) Maximum System Capacities – Trunks/Ports/Channels](#) illustrate, the system can be expanded from 104 ports to 512 ports by vertically stacking a maximum of three additional chassis onto the controlling chassis. This provides a maximum of 24 slots and 368 digital terminals. To obtain the maximum port capacity of 512 ports, two systems can be linked together via an IP connection.

Up to four combined CHS2U B-US/CHS2U E (3-Slot Base/3-Slot Expansion) or CHS2U-US (6-Slot) chassis can be connected locally to reach the system's maximum port capacity.

**EXAMPLE:**

0 CHS2U-US (19" Chassis) & 4 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

1 CHS2U-US (19" Chassis) & 3 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

2 CHS2U-US (19" Chassis) & 2 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

3 CHS2U-US (19" Chassis) & 1 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

4 CHS2U-US (19" Chassis) & 0 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)




The maximum slot and channel capacities are listed in [Table 2-3 SV8100 9.5" \(Base and Expansion\) Maximum System Capacities – Trunks/Ports/Channels](#).

**Table 2-3 SV8100 9.5" (Base and Expansion) Maximum System Capacities – Trunks/Ports/Channels**

Number of:		9.5" Base	9.5" Base + Expansion				System Maximum
		x 1 (CPU + 2 Slots)	x 1 (6 Slots)	x 2 (12 Slots)	x 3 (18 Slots)	X4 (24 Slots)	
Number of Timeslots *1	PCM	48	104	208	312	416	444
	Data	7	7	14	21	28	28
$D^{term}$ (-48V)		32	80	176	272	368	Total 512
SLT (-28V)		32	80	176	272	368	
SLT (-48V)		8	20	44	68	92	
$D^{term}_{IP}$		512	512				
SIP/WLAN		512					
Analog Trunks (COT)		16	40	88	136	184	Total 200
BRI		16	40	88	136	184	
PRI (1.5M)		48	96	192	192	192	
IP Trunk (SIP/K-CCIS – IP)		200					
DTMF Receivers			32	32	32	32	96 *2
VoIP Channels		128					128
Voice Mail Channels on CPU		16 channels					16
V34 Modem		1 channel					1

\*1 = For  $\mu$ -law countries 104 timeslots per chassis are assigned the G.711 PCM communications (e.g., voice communications) and 7 timeslots per chassis are assigned for the Data communications (e.g., HDLC over ISDN). Thus the simultaneous data communications are limited up to seven per chassis.

\*2 = An additional 64 DTMF Receivers are available when the PZ-BS10 is installed.

 An additional 64 DTMF Receivers are available when the PZ-BS10 is installed.

If using Caller ID to analog trunks and DSP resources are set to common, DSP resources will only be used for analog trunks and not analog stations.



*The 9.5" chassis graphics shown in the horizontal position are for illustrative purposes only. Actual positioning/mounting must be vertical.*

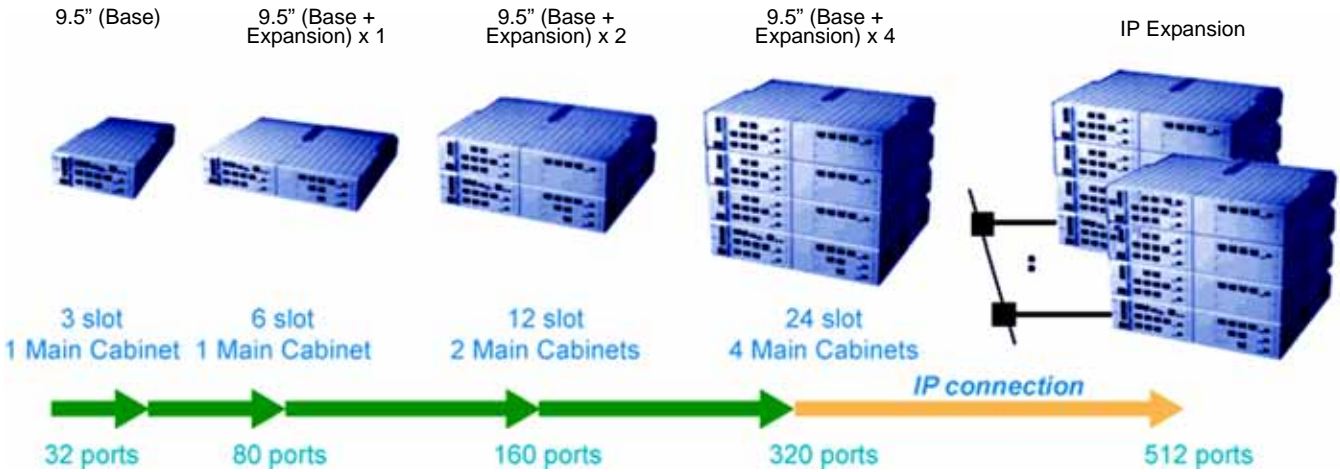


Figure 2-3 9.5" Controlling and Expansion Chassis

### 3.2 System Chassis Capacities

Table 2-4 9.5" Gateway and 19" Maximum System Capacities – Chassis shows the maximum number of chassis and related equipment that can be installed in a system.

Table 2-4 9.5" Gateway and 19" Maximum System Capacities – Chassis

Hardware	9.5" Chassis	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
<b>Chassis:</b>						
CHS2U GW-US (9.5" Chassis)	1	–	–	–	–	Gateway chassis
CHS2U-US (19" Chassis)	–	1	1	4	16 x (1+3)	Virtual slot in NetLink is limited to maximum of 240
<b>Expansion:</b>						
PZ-BS10 3-jack Expansion Board for Controlling Chassis	0	1	0	1	*	–
PZ-BS11 1-jack Expansion Board for Expansion Chassis	0	0	1	3	*	–
<b>Battery:</b>						
CHS LARGE BATT BOX (External Battery Box)	1	1	1	4	16 x (1+3)	–
CHSGW SMALL BATT BOX (Small Battery Box)	1	–	–	–	–	–
<b>Fan Box:</b>						
CHS2U FAN BOX SET	0	1	1	4	–	1 is factory installed with each chassis
<b>Power Supply:</b>						
MPS7101	1	1	1	4	–	1 is factory installed with each chassis

\* Dependent on size of system.

Table 2-5 9.5" Base and Expansion Maximum System Capacities – Chassis shows the maximum number of chassis and related equipment that can be installed in a 9.5" Base and Expansion system.

**Table 2-5 9.5" Base and Expansion Maximum System Capacities – Chassis**

Hardware	9.5" Base	9.5" Base + Expansion with CPU	9.5" Base + Expansion without CPU	9.5" Base + Expansion x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
<b>Expansion:</b>						
PZ-BS10 3-port Expansion Board for Controlling Chassis	1	1	1	1	–	–
PZ-BS11 1-port Expansion Board for Expansion Chassis	1	1	1	3	–	–
<b>Battery:</b>						
CHS LARGE BATT BOX (External Battery Box)	1	1	1	4	16 x (1+3)	–
CHSGW SMALL BATT BOX (Small Battery Box)	1	1	1	4	16 x (1+3)	–
<b>Power Supply:</b>						
MPS7101	1	1	1	4	–	1 is factory installed with each chassis

### 3.3 Blade Capacities

This is determined by the maximum blade configuration allowed. When installing single line sets, DISA, or tie lines, CPU circuits must be allocated for DTMF receivers. To install single line sets with CO/PBX line access, or when installing immediate-start tie lines, CPU circuits must be allocated for dial tone detection.

**Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades**

Hardware	9.5" Chassis	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
<b>Common Control Blades:</b>						
CD-CP00-US	1	1	0	1	16	–
PZ-32IPLA (32-port VoIP Daughter Board)	1	1	0	1	16	This unit provides 32 VOIP Gateway channels
PZ-64IPLA (64-port VoIP Daughter Board)	1	1	0	1	16	This unit provides 64 VOIP Gateway channels
PZ-128IPLA (128-port VoIP Daughter Board)	1	1	0	1	16	This unit provides 128 VOIP Gateway channels
PZ-ME50-US (Memory Expansion Daughter Board)	1	1	0	1	16	–
PZ-VM21 (Voice Mail Daughter Board)	1	1	0	1	1	Does include modem
<b>Station Blades:</b>						
CD-4DIOPA (4 DID/OPX)	2	5	6	23	128	When installed as an OPX blade
CD-4LCA (4 Single Line Telephone Interface)	2	5	6	23	32	–
CD-8LCA (8 Single Line Telephone Interface)	2	5	6	23	32	–
CD-8DLCA (8 Digital Station Interface)	2	5	6	23	32	–

Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades (Continued)

Hardware	9.5" Chassis	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
CD-16DLCA (16 Digital Station Interface)	2	5	6	23	32	–
PZ-8DLCB (8 Digital Station Interface Daughter Board)	2	5	6	23	32	–
PZ-4LCA (4 Single Line Telephone Interface Daughter Board)	2	5	6	23	32	–
PZ-8LCE (8 Single Line Telephone Interface Daughter Board)	2	5	6	23	32	–
CD-LTA * (8 Digital/2 Single Line)	2	2	2	8	23	An optional PZ-4COTF or PZ-2BRIA can be installed
<b>Trunk Blades:</b>						
CD-2BRIA (2 Basic Rate Interface)	2	5	6	23	25	–
PZ-2BRIA (2 Basic Rate Interface Daughter Board)	2	5	6	23	25	–
CD-4COTB (4 Loop/Ground Start Trunk)	2	5	6	23	25	–
PZ-4COTF (4 Loop/Ground Start Trunk Daughter Board)	2	5	6	23	25	–
CD-4DIOPA (4 DID/OPX)	2	5	6	23	50	When installed as a DID blade
CD-4ODTA (4 E&M)	2	5	6	23	50	–
CD-PRTA (1 Primary Rate Interface)	2	4	4	16	8	Blade is used for Primary Rate Interface or T-1 Interface

**Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades (Continued)**

Hardware	9.5" Chassis	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
<b>Optional Blades:</b>						
CD-PVAA (Conference Bridge)	2	5	6	23	32	–
CD-PVAA (Interactive Voice Response)	1	1	1	1	1	
CD-PVAA (CCIS Point-to-Multipoint)	2	5	6	23	32	
CD-ETIA (Switching Hub with Power over Ethernet)	2	3	3	12	64	–
CD-CCTA (CCIS Trunk Interface/Common Channel Handler)	2	4	8	8	8	–
CD-RTB (Router)	1	1	2	7	50	–
CD-VM00 (Voice Mail and Server)	1	1	1	1	1	Maximum of One per system

\* A PZ-ME50-US is required when more than one CD-LTA is installed. This feature added with **Version 3000**.

**Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades**

Hardware	9.5" Base	9.5" Base + Expansion with CPU	9.5" Base + Expansion without CPU	9.5" Base + Expansion with CPU x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
<b>Common Control Blades:</b>						
CD-CP00-US	1	1	0	1	16	–
PZ-32IPLA (32-port VoIP Daughter Board)	1	1	0	1	16	This unit provides 32 VOIP Gateway channels

Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades (Continued)

Hardware	9.5" Base	9.5" Base + Expansion with CPU	9.5" Base + Expansion without CPU	9.5" Base + Expansion with CPU x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
PZ-64IPLA (64-port VoIP Daughter Board)	1	1	0	1	16	This unit provides 64 VOIP Gateway channels
PZ-128IPLA (128-port VoIP Daughter Board)	1	1	0	1	16	This unit provides 128 VOIP Gateway channels
PZ-ME50-US (Memory Expansion Daughter Board)	1	1	0	1	16	–
PZ-VM21 (Voice Mail Daughter Board)	1	1	0	1	1	Does include modem
<b>Station Blades:</b>						
CD-4DIOPA (4 DID/OPX)	2	5	6	23	128	When installed as an OPX blade
CD-4LCA (4 Single Line Telephone Interface)	2	5	6	23	32	–
CD-8LCA (8 Single Line Telephone Interface)	2	5	6	23	32	–
CD-8DLCA (8 Digital Station Interface)	2	5	6	23	32	–
CD-16DLCA (16 Digital Station Interface)	2	5	6	23	32	–
PZ-8DLCB (8 Digital Station Interface Daughter Board)	2	5	6	23	32	–
PZ-4LCA (4 Single Line Telephone Interface Daughter Board)	2	5	6	23	32	–
PZ-8LCE (8 Single Line Telephone Interface Daughter Board)	2	5	6	23	32	–



Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades (Continued)

Hardware	9.5" Base	9.5" Base + Expansion with CPU	9.5" Base + Expansion without CPU	9.5" Base + Expansion with CPU x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
CD-LTA * (8 Digital/2 Single Line)	2	2	2	8	23	An optional PZ-4COTF or PZ-2BR1A can be installed
<b>Trunk Blades:</b>						
CD-2BR1A (2 Basic Rate Interface)	2	5	6	23	25	–
PZ-2BR1A (2 Basic Rate Interface Daughter Board)	2	5	6	23	25	–
CD-4COTB (4 Loop/Ground Start Trunk)	2	5	6	23	25	–
PZ-4COTF (4 Loop/Ground Start Trunk Daughter Board)	2	5	6	23	25	–
CD-4DIOPA (4 DID/OPX)	2	5	6	23	50	When installed as a DID blade
CD-4ODTA (4 E&M)	2	5	6	23	50	–
CD-PRTA (1 Primary Rate Interface)	2	4	4	16	8	Blade is used for Primary Rate Interface or T-1 Interface
<b>Optional Blades:</b>						
CD-PVAA (Conference Bridge)	2	5	6	23	32	–
CD-PVAA (Interactive Voice Response)	1	1	1	1	1	
CD-PVAA (CCIS Point-to-Multipoint)	2	5	6	23	32	
CD-ETIA (Switching Hub with Power over Ethernet)	2	3	3	12	64	–

**Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades (Continued)**

Hardware	9.5" Base	9.5" Base + Expansion with CPU	9.5" Base + Expansion without CPU	9.5" Base + Expansion with CPU x4	Networked Chassis (NetLink)	Comments
Number of Slot(s) for Interface Package	3 Slots	5 Slots	6 Slots	23 Slots		
CD-CCTA (CCIS Trunk Interface/ Common Channel Handler)	2	4	4	4	4	–
CD-RTB (Router)	1	1	2	7	50	–
CD-VM00 (Voice Mail and Server)	1	1	1	1	1	Maximum of One per system

\* A PZ-ME50-US is required when more than one CD-LTA is installed. This feature added with **Version 3000**.

[Table 2-8 Daughter Board Combinations](#) shows each blade and associated daughter board combinations. The daughter boards that can be mounted on specific blades are indicated by a checkmark. For example, the CD-LTA can have a PZ-2BR1A or the PZ-4COTF daughter board mounted.

**Table 2-8 Daughter Board Combinations**

Blades	Daughter Board				
	PZ-2BR1A	PZ-4COTF	PZ-4LCA	PZ-8LCE	PZ-8DLCA
<b>CD-LTA</b> (8 Digital/2 Single Line)	✓	✓	–	–	–
<b>CD-4COTB</b> (4 Loop Ground Start)	–	✓	–	–	–
<b>CD-4LCA</b> (4 Single Line Interface)	–	–	✓	✓	–
<b>CD-8LCA</b> (8 Single Line Interface)	–	–	✓	✓	–
<b>CD-8DLCA</b> (8 Digital Station Interface)	–	–	–	–	✓

**Table 2-8 Daughter Board Combinations (Continued)**

	Daughter Board				
	PZ-2BRIA	PZ-4COTF	PZ-4LCA	PZ-8LCE	PZ-8DLCB
<b>CD-16DLCA</b> (16 Digital Station Interface)	–	–	–	–	–
<b>CD-2BRIA</b> (2 Basic Rate Interface)	✓	–	–	–	–

– = Does not apply

✓ = Does apply

## SECTION 4 LICENSING

Table 2-9 System Licenses provides a list of the licensing available with the system.

**Table 2-9 System Licenses**

License Code	License Name	Reset Required	Min	Max	Note
0001	Max. Port	Yes	On/Off		–
0002	NetLink	Yes	1	49	–
0007	Hotel/Motel (PMS)	Yes	On/Off		–
0008	SMDR	–	On/Off		–
0009	Remote Upgrade	Yes	On		USB Drive required to load software
0014	256 Port	Yes	On/Off		–
0017	Remove License	–	Not Used		–
0030	Encryption	–	On/Off		–
0031	V3000 Enhanced	–	On/Off		–
0033	V4000 Enhanced	–	On/Off		–
0111	1stPartyCTI Ether	–	1	128	–
0112	3rdPartyCTI Clie	Yes	On/Off		–
0123	SOAI Interface	–	On/Off		–
0141	DTPlusWare User	–	1	64	–

Table 2-9 System Licenses (Continued)

License Code	License Name	Reset Required	Min	Max	Note
1001	VRS	–	1	16	–
1002	InMail	–	1	8	–
1011	InMail Multi Lan	–	1	20	–
1013	Email Notify	No	On/Off		–
1014	InMail Email Clnt	No	0	512	InMail Email Clients
1401	UMS Port	No	1	16	–
1402	UMS Fax Port	–	1	4	–
1403	UMS TTS Port	–	1	6	–
1404	UMS Client	–	1	512	–
1406	UMS Multi Languag	–	1	25	–
1407	UMS Hosp. and PMS	–	On/Off		–
1408	UMS Hosp. Languag	–	1	10	–
1409	UMS Amis/Plus Net	–	On/Off		–
1410	UMS TTS Language	–	1	10	–
1424	UMS LITE 2Basic	–	On/Off		–
1425	UMS LITE Ch	–	1	8	UMS Port License. The Lite license does not support Text-to-speech, Networking and will support up to two ports for fax.
1426	UMS LITE 2UP	–	On/Off		2-Port LITE Upgrade Kit.
1427	UMS LITE FULL	–	On/Off		Upgrade from UMS LITE to FULL License.
2001	ACD	–	On/Off		–
2102	ACD-MIS Basic	–	On/Off		–
2103	ACD-MIS Add.Monit	–	1	4	–
2104	ACD-MIS Agent	–	1	197	–

Table 2-9 System Licenses (Continued)

License Code	License Name	Reset Required	Min	Max	Note
3000	CA-Basic	–	On/Off		–
3001	CA-256 Station	–	On/Off		–
3002	CA-Up 20 to 256	–	On/Off		–
3003	CA-Network Client	–	1	999	–
3004	CA-AddRemote Site	–	1	999	–
3005	CA-RemoteSiteSoft	–	1	999	–
3006	CA-Traffic Analys	–	On/Off		–
3007	CA-PMS Integration	–	On/Off		–
3008	CA-Web Reporting	–	On/Off		–
3009	CA-IPKII CA Migra	–	On/Off		–
3010	CA-IPKII CESMigra	–	On/Off		–
3013	CA-Add Stations	–	1	256	–
3200	IP Recorder Basic	–			–
3201	REC BASIC SUPV	–	1	256	–
3202	REC BASIC PORT	–	1	256	–
3300	ESN Registry	–	1	–	–
3301	ESN Site Monitor	–	1	–	–
3302	ESN Alarm Client	–	1	–	–
3303	ESN Call Notify	–	1	–	–
5001	IP Trunk	–	1	128	Limited by IPL Channels
5101	IP Terminal Basic	–	1	512	Limited by IPL Channels

Table 2-9 System Licenses (Continued)

License Code	License Name	Reset Required	Min	Max	Note
5102	IP Terminal SoftPhone	–	1	128	Limited by IPL Channels
5111	IP Terminal Advan	–	1	512	Limited by IPL Channels
5301	SoftPhone	–	1	128	–
5303	SoftPhone Enhance	–	1	128	–
5304	Shared Services	–	1	128	–
5305	Desktop Client	–	1	128	–
5309	DT Enhance	–	1	–	–
5310	DT CRM Integrate	–	1	–	–
6000	PVA-CONF Port	–	1	16	–
6101	PVA-IVR Port	–	1	16	–
6200	PVA-CCIS Port	–	1	200	–
6201	PVA-PMS Port	–	1	200	–

## SECTION 5 POWER-BASED CALCULATOR CHART

The Univerge SV8100 system uses two types of power factors. For a single chassis chart refer to [Table 2-10 Board Power Factor](#). For the maximum number of specific blades per package, see [Table 2-11 Maximum Number of Packages Installed](#). Refer to [Table 2-12 Terminal Power Factor](#) below, for the Terminal/ Adapter power chart.

**Table 2-10 Board Power Factor**

Board Power Factor	
Total	=<7
Item	Power Factor
CD-CP00-US	1
CD-RTB	2
CD-VM00	2
CD-ETIA	2
CD-PVAA	1
PZ-32IPLA	1
PZ-64IPLA	2
PZ-128IPLA	2

**Table 2-11 Maximum Number of Packages Installed**

Board (Power Factor)	Maximum Number of Package Installed			
	9.5 inch with CCPU	19 inch with CCPU	19 inch without CCPU	4 x 19 inch
CD-ETIA (2)	2	3	3	12
CD-PVAA (1)	2	5	6	23
CD-RTB (2)	1	2	2	8

Table 2-12 Terminal Power Factor

Terminal Power Factor	
<b>19 inch Metal Chassis with Fan</b>	<b>=&lt;80</b>
<b>9.5 inch Plastic Chassis without Fan</b>	<b>=&lt;64</b>
Item	Power Factor
DTL-24D-1 TEL	0.8
DTL-8LD-1 TEL	0.8
BHA-L UNIT	2
ADA-L UNIT	2
APR-L UNIT	DT300 series : 2 $D^{term}$ series i : 3
BCH-L (BK) UNIT	2
PSA-L UNIT	1.2
8LK-L UNIT	0
DCL-60-1 CONSOLE	2
ITL-320C-1 TEL	6
ITL-24D-1 TEL	4
ITL-2E-1 TEL	4
ITL-6DE-1 TEL	4
SLT (-24V)	0.8
SLT (-48V)	2
PGD(2)-U10 ADP	2
SLT Adapter	5

 *ITL factors are calculated using the CD-ETIA blade.*


 *Power requirements for the 9.5 " chassis are the same as the 19" chassis.*



Table 2-13 IP Terminal Power Chart

IP Terminal	IEEE802.3af Class	Label Indication (Maximum Current with All Options)				Maximum Current Without Options			
		48VDC		24VDC		48VDC		24VDC	
ITL-320C-1 TEL	Class 3	160mA	7.7W	290mA	7.0W	111mA	5.3W	192mA	4.6W
ITL-32D-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	90mA	4.3W	153mA	3.7W
ITL-8LD-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	81mA	3.9W	137mA	3.3W
ITL-24D-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	81mA	3.9W	137mA	3.3W
ITL-12D-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	81mA	3.9W	137mA	3.3W
ITL-24PA-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	–	0.0W	–	0.0W
ITL-24PD-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	–	0.0W	–	0.0W
ITL-24BT-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	–	0.0W	–	0.0W
ITL-6DE-1 TEL	Class 1	68mA	3.3W	122mA	2.9W	68mA	3.3W	122mA	2.9W
ITL-2E-1 TEL	Class 1	68mA	3.3W	122mA	2.9W	68mA	3.3W	122mA	2.9W

Label Indication:

IP Value/Sophisticated – Maximum watts when adding options or modular upgrades.

IP Value – Maximum watts when ITL-12D-1 TEL is changed to ITL-8LD-1 TEL or ITL-24D-1 TEL.

Table 2-14 IEEE802.af Class Specifications

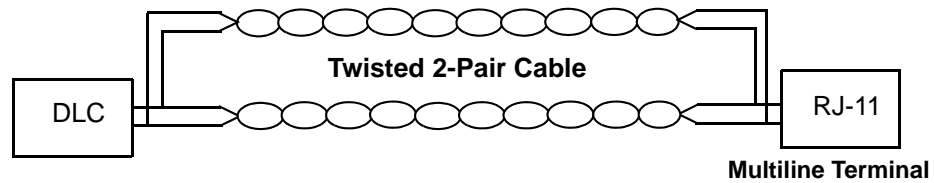
IEEE802.3af	Minimum	Maximum
Class 4	–	–
Class 3	6.49W	12.95W
Class 2	3.84W	6.49W
Class 1	0.44W	3.84W
Class 0	0.44W	12.95W

## SECTION 6 SYSTEM REQUIREMENTS AND SPECIFICATIONS

### 6.1 Cabling

This section provides cabling requirements and specifications for various equipment used in the SV8100 system.

[Figure 2-4 Connecting the DLC Using Twisted 2-Pair Cable](#) is a diagram of the chassis connected with each of the multiline terminals and single line telephones by a separate twisted 1-pair cable or 2-pair cable (only for multiline terminals).



**Figure 2-4 Connecting the DLC Using Twisted 2-Pair Cable**

Refer to the following tables for cabling requirements and specifications.

- [Table 2-15 DT300 Series Loop Resistance and Cable Length](#)
- [Table 2-16 DT700 Series Loop Resistance and Cable Length](#)
- [Table 2-17 D<sup>term</sup> Series i or D<sup>term</sup> IP Terminal Loop Resistance and Cable Length](#)
- [Table 2-18 Cable Connection Between the Analog Port and the Single Line Equipment](#)
- [Table 2-19 Cabling Requirements](#)

**Table 2-15 DT300 Series Loop Resistance and Cable Length**

Terminal or Adapter	By Twisted 1-Pair Cable (without AC Adapter) 24 AWG
DTL-2E-1 (BK) TEL	1,969 ft (600m)
DTL-6DE-1 (BK) TEL	1,969 ft (600m)
DTL-8LD-1 (BK) TEL DTL-8LD-1 (WH) TEL	1,969 ft (600m)
DTL-12BT-1 (BK) TEL	1,969 ft (600m)
DTL-12PA-1 (BK) TEL	1,969 ft (600m)

**Table 2-15 DT300 Series Loop Resistance and Cable Length (Continued)**

<b>Terminal or Adapter</b>	<b>By Twisted 1-Pair Cable (without AC Adapter) 24 AWG</b>
DTL-12D-1 (BK) TEL DTL-12D-1 (WH) TEL	1,969 ft (600m)
DTL-24D-1(BK) TEL DTL-24D-1(WH) TEL	1,969 ft (600m)
DTL-32D-1 (BK) TEL DTL-32D-1 (WH) TEL	1,969 ft (600m)
DCL-60-1 Console*	1,969 ft (600m)

\* An AC Adapter is required.

**Table 2-16 DT700 Series Loop Resistance and Cable Length**

<b>Terminal or Adapter</b>	<b>Ethernet Cable</b>
ITL-2E-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-6DE-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-8LD-1 (BK) TEL ITL-8LD-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-12D-1 (BK) TEL ITL-12D-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-12PA-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-24D-1 (BK) TEL ITL-24D-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100 m)
ITL-32D-1 (BK) TEL ITL-32D-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-32OC-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)

**Table 2-17  $D^{term}$  Series i or  $D^{term}$  IP Terminal Loop Resistance and Cable Length**

Terminal or Adapter	Maximum Loop Resistance (without AC Adapter) (Ohms)	By Twisted 1-Pair Cable (without AC Adapter) 24 AWG	By Twisted 2-Pair Cable (without AC Adapter) 24 AWG	Maximum Loop Resistance (with AC Adapter) (Ohms)	By Twisted 1-Pair Cable (with AC Adapter) 24 AWG	By Twisted 2-Pair Cable (with AC Adapter) 24 AWG
DTH-8-1 TEL DTR-8-1 TEL	37	700	1400	107	2000	2000
DTH-8D-1 TEL DTR-8D-1 TEL	37	700	1400	107	2000	2000
DTH-16-1 TEL DTR-16-1 TEL	35	660	1320	107	2000	2000
DTH-16D-1 TEL DTR-16D-1 TEL	35	660	1320	107	2000	2000
DTH-32D-1 TEL DTR-32D-1 TEL	26	500	1000	107	2000	2000
DTH-16LD-1 TEL	37	700	1400	107	2000	2000
DCR-60-1 Console*	—	—	—	107	2000	2000

\* An AC Adapter is required.

**Table 2-18 Cable Connection Between the Analog Port and the Single Line Equipment**

Connected Equipment	Cable	Maximum Feet from Connected Equipment to Telephone
ADA-L UNIT	Twisted Pair	9.5 ft (2.89m)
APR-L UNIT	Twisted Pair	50 ft (15.24m)
PSA-L UNIT	Twisted Pair	1,700 ohms
GBA-L UNIT	Twisted Pair	N/A
LCA	Twisted Pair	600 ohms (Including the SLT)


 *Mixing digital and analog ports through the same 25-pair cable runs is not recommended.*

Table 2-19 Cabling Requirements

Connected Equipment	Cable
Music on Hold and Background Music Sources	Hi-Fi Shielded Audio Cable
External Amplifier	Hi-Fi Shielded Audio Cable
ITL Cabling	Cat 5 Straight Data Network Cable – 328.1 ft (100m) maximum distance

## 6.2 Power Requirements

A dedicated 100VAC/120VAC/220VAC/230 – 240VAC 50Hz/60Hz circuit located within seven feet of the chassis is required. A separate dedicated outlet for each chassis should be installed.



***Double Pole/Neutral Fusing***  
(power supply fuses are located at both the L and N side).

### 6.2.1 Power Supply Specifications

AC Power Supply:

- Dedicated 15 Amp circuit
- Power Requirements: 120VAC @ 15A Controlling/Base Chassis
- Power Consumption: Base Chassis = 263VA, Expansion Chassis = 263VA, total 1052VA
- Input Voltage: 90VAC to 264VAC  
(Rated Voltage: 100VAC/120VAC/220VAC – 240VAC)
- Frequency: 47Hz – 63Hz (Rated frequency: 50/60Hz)
- Phase and Wire: Single Phase, 2 Line + PE Type
- Grounding Requirements: No. 14 AWG copper wire
- Feeding Voltage:  $D^{term}$ /OPX/DID: -48V  
SLT: 25mA / -28V

With input voltage of 120VAC and with full load conditions:

- Output Power: Base chassis=130W, Expansion chassis=130W, total 520W
- AC Input I: Base chassis = 2.19A, Expansion chassis=2.19A, total 8.76A
- VA @ 120V: Base chassis = 263VA, Expansion chassis=263VA, total 1052VA

- KWh @ AC Input I x 120V/1000: Base chassis = 0.263 KWh, Expansion chassis = 0.263 KWh, total 1.052 KWh
- BTU (KWh) x 3413): Base Chassis = 898BTU, Expansion Chassis= 898BTU, total 3592 BTU
- A dedicated outlet, separately fused and grounded for each chassis should be installed



***Double Pole/Neutral Fusing***  
*(power supply fuses are located at both the L and N side).*

6.2.2 Power Supply Consumption

**Table 2-20 Power Consumption**

<b>Chassis</b>	<b>Maximum RMS Current</b>	<b>Watts Used (Idle)</b>	<b>Watts Used (Maximum)</b>
Basic Chassis – CD-CP00-US Chassis	2.19A	96	130
Basic Chassis + Expansion Chassis	4.38A	192	260
Basic Chassis + 2 Expansion Chassis	6.57A	288	390
Basic Chassis + 3 Expansion Chassis	8.76A	384	520

**6.3 Environmental Conditions**

6.3.1 Temperature and Humidity

**Chassis, Telephones, BCH, BHA, 16LK, Console, ADA, APR**

- Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)
- Recommended Long Term Temperature: -4°F ~ +140°F (-20°C ~ 60°C)
- Operating Humidity: 10 ~ 90% RH (non-condensing)
- Recommended Long Term Humidity: 10 ~ 90% RH

**Blades – PZ-BS10, PZ-BS11, PZ-VM21 Daughter Board, PZ-ME50-US Daughter Board, CD-8DLCA with PZ-8DLCA Daughter Board, CD-16DLCA**

- Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)
- Recommended Long Term Temperature: -4°F ~ +140°F (-20°C ~ 60°C)
- Humidity: 10 ~ 90% RH (non-condensing)

- Recommended Long Term Humidity: 10 ~ 90% RH

**Blades – CD-4LCA with PZ-4LCA Daughter Board, CD-8LCA with PZ-8LCE Daughter Board, CD-4COTB with PZ-4COTF Daughter Board, CD-PRTA**

- Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)
- Recommended Long Term Temperature: -4°F ~ +140°F (-20°C ~ 60°C)
- Operating Humidity: 10 ~ 90% RH (non-condensing)
- Recommended Long Term Humidity: 20 ~ 90% RH

**Door Box**


- Operating Temperature: -4°F ~ +104°F (-20°C ~ 60°C)
- Operating Humidity: 20 ~ 80% (non-condensing)

**SV8100 Power Supply – MPS7101**

- Operating Temperature: +32°F ~ +104°F (0°C ~ +40°C)
- Recommended Long Term Temperature: -4°F ~ 167°F (-40°C ~ 75°C)
- Operating Humidity: 20 ~ 95% RH (non-condensing)
- Recommended Long Term Humidity: 10 ~ 95% RH

## 6.4 Outside Line Types

The following outside lines can be used with the UNIVERGE SV8100 system.

- 2-wire, Loop Start or Ground Start Trunks
- 2-wire, 2-way DID Lines (Dial Pulse or DTMF)
  -  *DID feature is not available for Europe and Australia market.*
- 4-wire, E&M Tie Lines (Type I or V, Dial Pulse, or DTMF)
- Digital Trunk T1/FT1 (Loop Start, Ground Start, Tie Line (E&M), or DID Signaling)
- ISDN-BRI Trunks
- ISDN-PRI Trunks
- VoIP Trunks (Internet Protocols)

## 6.5 Transmission, Network, and Control Specifications

### 6.5.1 Transmission

- Data Length:
  - From multiline terminal to CD-8DLCA: 23 bits
  - From CD-8DLCA to multiline terminal: 23 bits
- Data Transmission Rates:
  - Between CD-8DLCA and multiline terminal: 184K bps (voice and signaling)
- Scanning Time for each multiline terminal: 32ms.

### 6.5.2 Network

Time Division Multiplexing (TDM) allows transmission of data and voice simultaneously over one communications medium. The specifications that the UNIVERGE SV8100 system uses for switching, clock, data bus, and timeframe are shown below.

- TDM Switching: PCM ( $\mu$  Law)
- TDM Clock: 2.048 MHz
- TDM Data Bus: 8-bit
- TDM Timeframe: 125  $\mu$ s.

### 6.5.3 Control

This section indicates the speed or capacity:

- Control: Stored program with distributed processing
- Central Processor: 32-bit microprocessor
- Clock: 266 MHz
- Interface Blade: 8- or 16-bit microprocessor
- Optional Blades: 16- or 32-bit microprocessor
- Multiline Terminal (TDM): 8-bit microprocessor
- Multiline Terminal (IP): 32-bit microprocessor
- IP Adapter: 32-bit microprocessor
- Attendant Console: 4-bit microprocessor
- SLT Adapter: 4-bit microprocessor



#### 6.5.4 Electra Elite IPK Terminals and Equipment

The voltage, current, and ring signal for the Electra Elite IPK multiline terminals, Single Line Telephone equipment, and AP(A)-R/AP(R)-R Units are listed below:

Multiline Terminal

Voltage: -11 ~ -26 Vdc

Maximum Current: 250 mA

Acoustical characteristics meet Electronic Industry Association (EIA) standard proposal SP-1286 and standard EIA RS-470.
--

Single Line Telephone

Standard 2500 Set: 500 type network

Nominal Current: 25 mA

Ring Signal: 56 Vac RMS @ 20 Hz

SLTII(1)-U( ) ADP

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

Ring Signal: 56 Vac RMS @ 20 Hz

AP(A)-R Unit

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

AP(R)-R Unit

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

Ring Signal: 56 Vac RMS @ 20 Hz

#### 6.5.5 Series i Terminals

- The voltage and current for the  $D^{term}$  Series i multiline terminals are listed below:

Voltage: -11 ~ -48 Vdc

Maximum Current: 250 mA

Acoustical characteristics meet Electronic Industry Association (EIA) standard proposal SP-1286 and standard EIA RS-470.

- Voltage, current, and ring signal information for Single Line Telephone equipment, AP(A)-R Unit, and AP(R)-R Unit are the same as those listed in the previous paragraph.

## 6.6 Dialing Specifications

### 6.6.1 Dial Pulse Address Signaling

Dial Pulse Address Signaling uses dial pulses (regular momentary interruptions) to signal the equipment. The following Dial Pulse specifications are used in the UNIVERGE SV8100 system.

- Pulse Rate:  $10 \pm 0.5$  pps/ $20 \pm 1.0$  pps
- Percent Break:  $60 \pm 1.5\%$
- Interdigit Interval: 0 pps/ $20$  pps 770ms. ~ 830ms.

### 6.6.2 Dual-Tone Multifrequency (DTMF) Address Signaling

DTMF signaling includes push button or Touchtone dialing. When a key on a telephone is pushed, two tones (one high frequency and one low frequency) are provided. In the UNIVERGE SV8100 system, the following DTMF specifications are used.

- Frequencies  
Two sinusoidal frequencies are provided, one from the high frequency group and one from the low frequency group.
- Frequency Deviation: Less than  $\pm 1.5\%$
- Signal Level:  
Nominal level per frequency: -6 ~ -4 dBm  
Minimum level per frequency  
Low Group: -10 dBm  
High Group: -8 dBm  
Maximum level per frequency: 0 dBm
- Rise Time: Within 5ms.
- Duration of Dual Frequency Signal:  
110 ms. default/60ms. minimum  
Interdigital Time: 140ms. default/45ms. minimum

		Nominal <b>High</b> Group Frequencies (Hz)		
		1209	1336	1477
Nominal <b>Low</b> Group Frequencies (Hz)	697	1	2	3
	770	4	5	6
	852	7	8	9
	941	Q	0	#

### 6.6.3 External Equipment Connection

- Door Phone or TV Door Phone
- External Speaker via amplifier
- External music source for MOH and BGM
- Tape recorder for voice recording via PGD(2)-U10 ADP
- Door Lock/Release or General Purpose Relay via PGD(2)-U10 ADP
- Printer for SMDR by LAN
- PC by LAN

### 6.6.4 Music Source for Music on Hold via Chassis

- Auxiliary Input: 0.6V PPS Signal Level
- Input Impedance: 600  $\Omega$

### 6.6.5 Music Source for Station Background Music via ACI

- Auxiliary Input: 0.6V PPS Signal Level
- Input Impedance: 600  $\Omega$

### 6.6.6 External Paging (Audio)

- Output Power: -10 dBm Signal Level
- Output Impedance: 600  $\Omega$
- Relay Contact Rating: 500 mA, 24 Vdc

#### 6.6.7 External Tone Ringer/Night Chime Output

- Output Level: -10 dBm
- Output Impedance: 600  $\Omega$
- Relay Contact Rating: 500 mA, 24 Vdc

#### 6.6.8 SMDR Output

- Female Connector (LAN)

#### 6.6.9 PC Connection

- Female Connector (LAN)

#### 6.6.10 Relay Contact

- All Relay Contact Ratings: 500 mA, 24Vdc

### 6.7 Battery Backup

The UNIVERGE SV8100 system has battery backup functions for system backup and for memory backup.

#### 6.7.1 System Backup (Optional)

During a power failure, the CHS2U-US can be backed up using the CHS2U BATT MTG KIT for a backup time of 10 minutes or one of the CHS LARGE BATT SETs for a backup time ranging from 45~180 minutes. The CHS2U GW-US can be backed up using the CHSGW SMALL BATT BOX for a backup time of 10 minutes.

#### 6.7.2 Memory Backup

The CD-CP00-US Blade battery retains the Clock/Calendar and Last Number Redial (LNR) buffers for each station when the CD-CP00-US Blade encounters a power loss. With a fully charged battery, the settings are retained for about three years. The System Programmed memory (Customer Database) is stored in non-volatile Memory and can be erased only by a First Initialization. After power is restored, the system Blade returns to normal operation.

## 6.8 Weights and Dimensions

Table 2-21 SV8100 Weights and Dimensions on page 2-37 shows the shipping weight, height, width and depth of each SV8100 digital multiline terminal, IP multiline terminal,  $D^{term}$ , Series i multiline terminal, chassis, assorted blades and adapters.

**Table 2-21 SV8100 Weights and Dimensions**

Unit	Shipping Weight <sup>†</sup>	Height	Width	Depth
<b>SV8100</b>				
CHS2U-US	278.7 oz (7.9 kg)	3.47 in (88 mm)	16.9 in (430 mm)	14.17 in (360 mm)
CHS2U GW-US	158.7 oz (4.5 kg)	4.53 in (115 mm)	8.66 in (220 mm)	14.53 in (369 mm)
CHS2U B-US	158.7 oz (4.5 kg)	4.53 in (115 mm)	8.66 in (220 mm)	14.53 in (369 mm)
CHS2U E	158.7 oz (4.5 kg)	4.53 in (115 mm)	8.66 in (220 mm)	14.53 in (369 mm)
CD-CP00-US	7.06 oz (0.2 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
PZ-ME50-US	.353 oz (0.01 kg)	0.12 in (3 mm)	2.56 in (65 mm)	1.22 in (31 mm)
CD-LTA	6.70 oz (0.19 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
MGN-U10 ETU	14.6 oz (0.41 kg)	1.89 in (48 mm)	11.47 in (290 mm)	8.46 in (214 mm)
CHS LARGE BATT BOX	352.7 oz (10 kg)	23.23 in (590 mm)	17.72 in (450 mm)	10.43 in (265 mm)
CHS LARGE BATT SET	194 oz (5.5 kg)	6.69 in (170 mm)	5.91 in (150 mm)	4.33 in (110 mm)
CHSGW SMALL BATT BOX	59.97 oz (1.7 kg)	4.53 in (115 mm)	8.66 in (220 mm)	3.15 in (80 mm)
CHSGW SMALL BATT SET	31.2 oz (0.88 kg)	5 in (127 mm)	5.75 in (146 mm)	4.75 in (120.6 mm)
<b>Common</b>				
MPS7101	42.33 oz (1.2 kg)	2.36 in (60 mm)	7.08 in (180 mm)	6.10 in (155 mm)
PZ-BS10	2.29 oz (.065 kg)	0.91 in (23 mm)	2.17 in (55 mm)	7.28 in (185 mm)
PZ-BS11	1.975 oz (0.056 kg)	0.91 in (23 mm)	2.17 in (55 mm)	7.28 in (185 mm)

Table 2-21 SV8100 Weights and Dimensions (Continued)

Unit	Shipping Weight <sup>1</sup>	Height	Width	Depth
PZ-VM21	1.76 oz (0.05 kg)	0.60" (15 mm)	2.09 in (53 mm)	3.35 in (85 mm)
PZ-32IPLA	1.76 oz (0.05 kg)	0.60 in (15 mm)	3.15 in (80 mm)	6.3 in (160 mm)
PZ-64IPLA	1.76 oz (0.05 kg)	0.60 in (15 mm)	3.15 in (80 mm)	6.3 in (160 mm)
PZ-128IPLA	1.76 oz (0.05 kg)	0.60 in (15 mm)	3.15 in (80 mm)	6.3 in (160 mm)
CD-8DLCA	5.89 oz (0.167 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
PZ-8DLCB	4.41 oz (0.125 kg)	0.60 in (15 mm)	4.72 in (120 mm)	5.12 in (130 mm)
CD-16DLCA	7.831 oz (0.222 kg)	1.89 in (48 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-4COTB	6.35 oz (0.18 kg)	1.89 in (48 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-4COTF	3.53 oz (0.10 kg)	1.89 in (48 mm)	9.45 in (240 mm)	5.12 in (130 mm)
CD-4LCA	5.99 oz (0.17 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-4LCA	3.10 oz (0.09 kg)	0.60 in (15 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-8LCA	6.46 oz (0.183 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-8LCE	3.70 oz (0.105 kg)	0.60 in (15 mm)	9.45 in (240 mm)	5.12 in (130 mm)
CD-2BRIA	5.99 oz (0.17 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-2BRIA	4.02 oz (0.114 kg)	0.60 in (15 mm)	4.72 in (120 mm)	7.68 in (195 mm)
CD-PRTA	5.5 oz (0.156 kg)	0.98 in (25 mm)	9.45 in (240 mm)	3.94 in (100 mm)
CD-CCTA	5.5 oz (0.156 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-4ODTA	8.25 oz (0.234 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-RTB	12.17 oz (0.345 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.68 in (195 mm)

Table 2-21 SV8100 Weights and Dimensions (Continued)

Unit	Shipping Weight <sup>1</sup>	Height	Width	Depth
CD-VM00	7.76 oz (0.22 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-PVAA	10.05 oz (0.285 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.68 in (195 mm)
CD-ETIA	12.17 oz (0.345 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.68 in (195 mm)
CD-4DIOPA	7.73 oz (0.219 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CHS BASE UNIT	352.7 oz (10 kg)	4.72 in (120 mm)	19.69 in (500 mm)	14.37 in (365 mm)
CHS2U BLANK SLOT COVER KIT	1.76 oz (0.05 kg)	2.32 in (60 mm)	1.57 in (40 mm)	1.57 in (40 mm)
CHS L BATT BOX RACK MOUNT BRACKET	352.7 oz (10 kg)	18.5 in (470 mm)	14.6 in (370 mm)	2.76 in (70 mm)
CHS2U INT BATT SET	95.24 oz (2.7 kg)	4.33 in (110 mm)	2.76 in (70 mm)	3.15 in (80 mm)
CHS2U RACK MOUNT KIT	17.6 oz (0.5 kg)	0.91 in (23 mm)	9.65 in (245 mm)	3.35 in (85 mm)
CHS1U/2U WALL MOUNT KIT	35.27 oz (1 kg)	1.18 in (30 mm)	13.8 in (350 mm)	1.77 in (45 mm)
CHS LARGE BATT BOX	458.6 oz (13 kg)	5.24 in (133 mm)	16.93 in (430 mm)	14.3 in (363 mm)
CHS2U JOINT BRACKET KIT	7.06 oz (0.2 kg)	0.19 in (3 mm)	5.91 in (150 mm)	1.7 in (43 mm)
CHS2U BATT MTG KIT 6 Slot	106 oz (3.0 kg)	2.95 in (75 mm)	4.45 in (113 mm)	4.13 in (105 mm)
IP3-RACK MOUNT BAR SET	45.86 oz (1.3 kg)	2.40 in (61 mm)	18.9 in (480 mm)	0.47 in (12 mm)
<b>Digital Multiline Terminal</b>				
DTL-2E-1 (BK) TEL	35.27 oz (1.0 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
DTL-6DE-1 (BK) TEL	38.8 oz (1.1 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
DTL-8LD-1 (BK) TEL DTL-8LD-1 (WH) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.39 in (264 mm)
DTL-12BT-1 (BK) TEL	45.6 oz (1.3 kg)	4.29 in (109 mm)	7.6 in (183 mm)	10.16 in (258 mm)

Table 2-21 SV8100 Weights and Dimensions (Continued)

Unit	Shipping Weight <sup>1</sup>	Height	Width	Depth
DTL-12PA-1 (BK) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.6 in (183 mm)	10.16 in (258 mm)
DTL-12D-1 (BK) TEL DTL-12D-1 (WH) TEL	42.33 oz (1.2 kg)	4.39 in (111.7 mm)	7.05 in (179 mm)	10.16 in (258 mm)
DTL-24D-1 (BK) TEL DTL-24D-1 (WH) TEL	42.33 oz (1.2 kg)	4.39 in (111.7 mm)	7.05 in (179 mm)	10.16 in (258 mm)
DTL-32D-1 (BK) TEL DTL-32D-1 (WH) TEL	45.6 oz (1.3 kg)	4.39 in (111.7 mm)	8.1 in (205.8 mm)	10.16 in (258 mm)
<b>IP Multiline Terminal</b>				
ITL-2E-1 (BK) TEL	35.27 oz (1.0 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
ITL-6DE-1 (BK) TEL	38.8 oz (1.1 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
ITL-8LD-1 (BK) TEL ITL-8LD-1 (WH) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.39 in (264 mm)
ITL-12D-1 (BK) TEL ITL-12D-1 (WH) TEL	42.33 oz (1.2 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.16 in (258 mm)
ITL-12PA-1 (BK) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.59 in (193 mm)	10.16 in (258 mm)
ITL-24D-1 (BK) TEL ITL-24D-1 (WH) TEL	42.33 oz (1.2 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.16 in (258 mm)
ITL-32D-1 (BK) TEL ITL-32D-1 (WH) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	8.1 in (205.8 mm)	10.16 in (258 mm)
ITL-320C-1 (BK) TEL	56.44 oz (1.6 kg)	4.41 in (112 mm)	8.94 in (227 mm)	9.84 in (250 mm)
<b>Optional</b>				
8LK-L (BK) UNIT 8LK-L (WH) UNIT	7.05 oz (0.2 kg)	1.77 in (45 mm)	1.15 in (29.3 mm)	8.82 in (224 mm)
ADA-L UNIT	2.82 oz (0.08 kg)	0.98 in (25 mm)	2.56 in (65 mm)	2.84 in (72 mm)
APR-L UNIT	5.29 oz (0.15 kg)	0.98 in (25 mm)	2.56 in (65 mm)	2.84 in (72 mm)
BCH-L (BK) UNIT	31.75 oz (0.9 kg)	4.41 in (112 mm)	3.19 in (81 mm)	8.8 in (223 mm)
BHA-L UNIT	3.53 oz (0.1 kg)	0.98 in (25 mm)	2.56 in (65 mm)	2.84 in (72 mm)
IPLA-R UNIT	2.82 oz (0.08 kg)	0.98 in (25 mm)	2.24 in (57 mm)	3.94 in (100 mm)



**Table 2-21 SV8100 Weights and Dimensions (Continued)**

Unit	Shipping Weight <sup>1</sup>	Height	Width	Depth
PGD(2)-U10 ADP	12.4 oz (0.35 kg)	1.58 in (40 mm)	6.81 in (173 mm)	4.13 in (105 mm)
DCL-60-1 (BK) CONSOLE DCL-60-1 (WH) CONSOLE	21.16 oz (0.6 kg)	3.23 in (82 mm)	5.39 in (137 mm)	8.82 in (224 mm)
PSA-L (BK) UNIT PSA-L (WH) UNIT	10.58 oz (0.3 kg)	3.15 in (80 mm)	2.91 in (74 mm)	8.8 in (223 mm)
GBA-L UNIT	23.99 oz (0.68 kg)	5.9 in (150 mm)	7.05 in (179 mm)	6.34 in (161 mm)
AC-L UNIT	12 oz (0.34 kg)	1.10 in (28 mm)	1.77 in (45 mm)	3.98 in (101 mm)
WM-L UNIT	1.58 oz (0.045 kg)	0.996 in (25.3 mm)	3.996 in (101.5 mm)	4.92 in (125 mm)
DSS WM-L UNIT	1.41 oz (0.04 kg)	0.99 in (25.3 mm)	3.4 in (86.5 mm)	4.92 in (125 mm)
G955 Wireless Handset	3.13 oz (0.08 kg)	4.96 in (126 mm)	1.77 in (45 mm)	0.78 in (20 mm)
MH240	3.53 oz (0.1001 kg)	5.31 in (135 mm)	1.89 in (48 mm)	0.63 in (16 mm)
4-Port Digital Call Logging Unit	24 oz (0.680 kg)	0.984 in (25 mm)	2.835 in (72 mm)	3.30 in (84 mm)
16-Port Digital Call Logging Unit	120 oz (3.402 kg)	1.73 in (44 mm)	9.84 in (250 mm)	17.24 in (438 mm)

<sup>1</sup> Shipping weight includes the shipping carton.

### 6.8.1 Tone Patterns

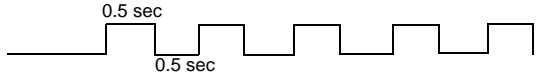
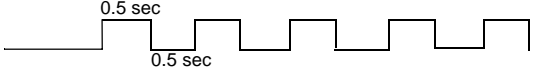

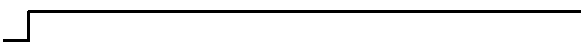
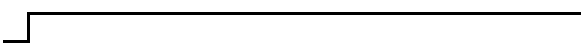
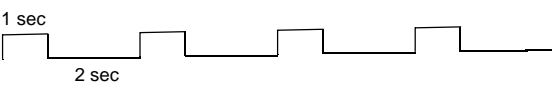
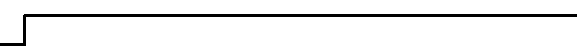
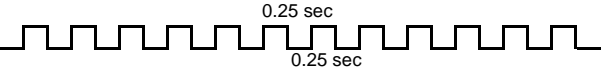
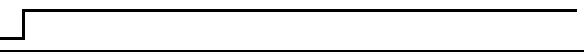
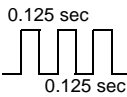


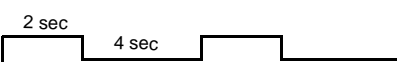


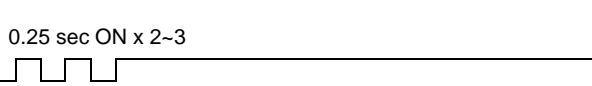
[Table 2-22 Tone Patterns](#) lists the frequency and the pattern for the tones. Tones are used to inform UNIVERGE SV8100 station users of system functions such as dial tone, busy tone, or ringback tone.

### 6.8.2 Multiline Terminal LED Flash Patterns

The UNIVERGE SV8100 system has several colored LEDs installed. Green is used primarily for I-Use conditions and for outside calls. Red is used primarily for Other Use conditions and internal calls.

The Large LED provides the user a variety of programmable colors and preferences. Refer to [Table 2-23 Multiline Terminal LED Flash Pattern](#).

Table 2-22 Tone Patterns

System Tone (Fixed)	Frequency (Hz) (Fixed)	Intermit (Default)	Cycle
Busy Tone	480/620	60 IPM	
Call Waiting Tone	440	60 IPM	
Second Dial Tone	350/440	120 IPM	
Howler Tone	2400 Modulation (16 Hz)	Continuous	
Internal Dial Tone	350/440	Continuous	
Internal Ringback Tone	440/480	1 sec On 2 sec Off	
LCR Dial Tone	440	Continuous	
Reorder Tone	480/620	120 IPM	
Service Set Tone	440	Continuous	
Special Dial Tone	440	240 IPM	
Tone Burst 1 Tone	440	Continuous	
Tone Burst 2 Tone	620	Continuous	
Tie/DID Ringback Tone	440/480	2 sec On 4 sec Off	
Camp-On Tone Call Alert Notification Attendant Tone Override	440	Continuous	
DIT Alert Tone	480/620	Continuous	
Call Forward Alert Tone Call Forward Configuration Tone	350/440	120 IPM	

**Table 2-23 Multiline Terminal LED Flash Pattern**

LED	Condition	Color	Flash Patterns
Line Key	I-Use	Green	
	Busy	Red	
	Incoming Call	Red	
	I-Hold	Green	
	Call Hold	Red	
	Hold Recall	Green	
	Transfer Recall	Green	
	Live Monitoring Mode	Green	
	Message Waiting on Line Key	Red	
	Microphone	ON	Red
Mic	ON (Series i)	Red	
Large LED <sup>1</sup>	Incoming Internal Call	Red	
	Incoming Outside Call	Green	
	Message from Attendant	Green	
	Voice Mail Message	Red	
Speaker	ON	Red	
	System Data Entry	Red	
Answer	Incoming Trunk	Red	
	Exclusive Hold	Green	
	User Ringing Line Preference	Red	
	Voice Over with Broker's Call	Green	
Feature	Callback Set	Red	
	Auto Repeat Set	Red	
	ON (to set function)	Red	
	Call FWD - All Calls Set	Red	
BLF or DSS Key	Use, Hold	Red	
	DND, Call FWD-All Calls Set	Red	
	Special Mode (while pressing Feature or going off-line)	Red	

0 0.5 1.0 1.5 2.0 sec.

1) The Large LED provides the user a variety of programmable colors and preferences.

## SECTION 7 TRAFFIC CAPACITY

Table 2-24 Traffic Capacity provides information about the traffic capacity for the basic system package and expanded system package.

**Table 2-24 Traffic Capacity**

Traffic Capacity	Basic System Package	Expanded System Package
Traffic Capacity (CD-CP00-US)	4800 BHCA	4800 BHCA

 4800 Busy-Hour Call Attempts (BHCA) is based on a 176Trunk/240 station configuration.

The CD-CP00-US provides:

- 200 trunk ports maximum
- 512 extension ports maximum
  - 512 ports digital/IP extensions maximum
  - 256 analog ports maximum
- 256 virtual extensions
- Connection for 32/64/128 VoIP Daughter Board (PZ-32IPLA/PZ-64IPLA/PZ-128IPLA)
- Connection for Voice Mail Daughter Board (PZ-VM21)
- Connection for Expanded Memory Daughter Board (PZ-ME50-US)
- Supports TAPI 1.x
- One Green Status LED
- Four Red Status LEDs
- Five diagnostic LEDs which indicate the status of various system functions
- During normal operation, the RUN LED is flashing and the remaining LEDs are off.
- 700x700 Time Division Multiplex Switch (TDM Switch)
- Digital Phase Locked Loop (DPLL)

# Installing the SV8100 Chassis

## SECTION 1 GENERAL INFORMATION

This chapter contains information to help the technician install the chassis for the SV8100 system. The technician should be familiar with this section **before installing** any equipment.

## SECTION 2 SITE PREPARATION AND MDF/IDF CONSTRUCTION

Pre-installation planning is essential. Advanced planning minimizes installation time, cost, and disruption of the customer business activities.

### 2.1 Precautionary Information



*Observe the following warnings during installation.*

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- To avoid shock or equipment damage, do not plug in or turn the system power on before completing the installation process.
- Avoid working with the equipment during electrical storms.
- Use only commercial AC power to prevent shock or fire.
- Use the power cord supplied for the chassis.
- To prevent overheating, do not bundle AC power cords together.
- Make sure the chassis has a proper earth ground.
- Install batteries with the correct polarity to prevent damaging equipment.

- To avoid damage, the chassis should not be placed on unstable surfaces.
- Although it is recommended to install the blades with the system power **off**, all blades can be installed hot, *except for the following*:
  - ❑ CD-CP00-US
  - ❑ PZ-BS10 and PZ-BS11

## 2.2 Surveying the Customer Site

In most cases, a survey of the customer site is necessary to determine the proper placement of the Main Distribution Frame (MDF), the exact dimensions of the area selected for the MDF, cabling requirements, and possible Intermediate Distribution Frame (IDF) locations.

The information obtained at the customer site can permit the installer to partially assemble the MDF before installation at the customer premise. This can reduce the time spent installing at the customer site and reduce downtime.

## 2.3 Selecting the Best Location for Proper Installation

### 2.3.1 Selecting the Chassis Installation Site

When selecting an installation site for the chassis, consider the following conditions to ensure proper installation:

- ❑ Chassis are normally rack mounted to protect against accident or flooding.
- ❑ The chassis should not be located directly beneath pipes. Leaks or condensation could damage the UNIVERGE SV8100 system equipment.
- ❑ The area where the chassis is located must be free of corrosive and inflammable gases, excessive chemical or industrial dusts, and other materials that could cause a hazard to personnel or to the proper functioning of the equipment.
- ❑ The operating ambient temperature and humidity must be within the limits specified in [6.3 Environmental Conditions on page 2-30](#) in Chapter 2 System Specifications.
- ❑ The operation of the system is virtually noiseless and allows wide selection of installation sites. Take care to ensure the chassis or cabling does not present a hazard to office traffic. To minimize cabling costs, a centralized location must be chosen.
- ❑ Locate the chassis at a site where a dedicated AC power source can be easily accessed.

- Connect the chassis to a dedicated AC receptacle that is **not being used** for any other device.

### 2.3.2 Selecting a Permanent MDF Location

When selecting a permanent site for the MDF, the technician may encounter some of the following conditions:

- Limited space is available but must be used.
- The available space may pose one or more environmental hazards.
- The proposed location has limitations such as insufficient lighting or the lack of a suitable ground for the chassis.
- The technician that encounters these conditions must provide the best possible solution for installing the equipment. This document cannot cover all possible situations, precautions, and actions.

### 2.3.3 Selecting a Site for Installing the Telephones

When a site is being selected for telephone installation, consider the following conditions to ensure proper installation:

- Ensure cable length and line resistance (loop), between the chassis and telephones, comply with the specifications listed in [Table 2-17 D<sup>term</sup> Series i or D<sup>term</sup> IP Terminal Loop Resistance and Cable Length on page 2-28](#).
- Select a place where devices that require an external power supply can be connected easily to an AC outlet.

## 2.4 Constructing the Main Distribution Frame (MDF)

The Main Distribution Frame (MDF) has two different standard quick-connect terminal blocks that are mounted on a 3/4-inch plywood backboard. Mounting these blocks on standoffs for ease of access is recommended. The recommended blocks are 66B50 for termination of the MDF Cable Assembly and 66M50 for termination of the station cables.

The Intermediate Distribution Frame (IDF) requires the 66M50 blocks only.

Both the MDF and the IDF use standard bridging clips for each terminal block. The bridging clips mate the left half of the terminal block (terminated cable run) to the right half of the terminal block (cross connection wire) to the terminal block (cross connection wire). The bridging clips are also useful during troubleshooting to help isolate the cable runs and terminals/telephones from the central equipment and the Central Office Network from the system.

The CHS2U-US chassis can be mounted on the wall, the floor, a stand or in a rack. The CHS2U GW-US chassis can be mounted on the wall, a stand or in a rack. Plywood should first be installed on the wall where the chassis will be positioned, to allow for secure anchoring. It has a bracket, which can be used to secure each chassis in any installation. Ensure that enough space is available to allow the installation of the additional chassis above and below the Controlling Chassis.

The system requires a 3-prong dedicated 110 VAC 60 Hz circuit (NEMA 5-15 receptacle) located within seven feet of the AC receptacle. Telco should install the RJ21X to the right of the Controlling Chassis. Extension blocks should be installed to the left of the Controlling Chassis.

Chassis are shipped fully assembled. The following are included with the chassis:

#### 19" Chassis (CHS2U-US)

- One black 3-prong power cord (packed outside the chassis)
- CHS2U RACK MOUNT KIT

#### 9.5" Gateway Chassis (CHS2U GW-US)

- One black 3-prong power cord (packed outside the chassis)
- Wall Mount Kit
- Stand Mount Kit

#### 9.5" Base and Expansion Chassis (CHS2U B-US and CHS2U E)

- One black 3-prong power cord (packed outside the chassis)
- Wall Mount Kit
- Stand Mount Kit

## 2.5 Power Failure Transfer

The Power Failure Transfer relays are located on the COIU blades (CN3). When selecting a Single Line Telephone for power failure transfer, make sure it matches the CO line dialing type (10 pps, 20 pps, or DTMF) where it is connected. Each COIU blade supports two power failure transfer connections. During a power failure condition, CO Ports 1 and 2 on the COIU Blade are used for Power Failure Transfer relays 1 and 2 consecutively. [Table 3-1 Power Failure Transfer Connections](#) is a relay diagram. The relay is shown with the power ON.

 *Power Failure and FAX Branch Connection do not function simultaneously on the same port. Use Program 14-02-21 (Fax Branch Connection) to enable this feature per trunk.*




**Table 3-1 Power Failure Transfer Connections**

Pin Number	Description	Pin Number	Description
1	Not in Use	2	Not in Use
3	Tip for Circuit 2	4	Ring for Circuit 1
5	Tip for Circuit 1	6	Ring for Circuit 2
7	Not in Use	8	Not in Use

## 2.6 Fax CO Branch Connection

The Fax Branch Connection feature uses the Power Failure Transfer relays located on the COIU Blades (CN3). Each COIU Blade supports two Fax CO Branch Connections.

 *Power Failure and FAX Branch Connection do not function simultaneously at the same time on the same port. Use Program 14-02-21 (Fax Branch Connection) to enable this feature on a per trunk basis.*

**Table 3-2 Power Failure Transfer Connections (Fax CO)**

Pin Number	Description	Pin Number	Description
1	Not in Use	2	Not in Use
3	Tip for Circuit 2	4	Ring for Circuit 1
5	Tip for Circuit 1	6	Ring for Circuit 2
7	Not in Use	8	Not in Use

## SECTION 3 INSTALLING THE CHASSIS

### 3.1 Unpacking the Equipment

Inspect the equipment for any physical damage. If you are not sure about the function of a component, review the associated information within this manual. Contact your authorized NEC Sales Representative if you have additional questions. Note that the chassis does not initially contain any blades.

Make sure you have appropriate tools for the job, including: a test set, a punch down tool, and a digital voltmeter.

Ensure that you have a building plan showing common equipment, extensions, the Telco demarcation and earth ground location before you start installation. Be sure to properly plan your installation site and that you are familiar with the installation safety precautions. If you have not done that, please do so now. Refer to [Section 2 Site Preparation and MDF/IDF Construction on page 3-1](#).

### 3.2 Before Installation

Before installing the chassis check the following:

- Ensure that the MPS7101(Power Supply Unit) is **OFF** and that the power cord is disconnected from the AC outlet.
- When installing the blades, *do not touch* the soldered surfaces as this may cause damage.
- Follow safety precautions indicated in section [2.1 Precautionary Information on page 3-1](#).
- Determine the type of mounting (wall, floor, stand or rack) to be used.

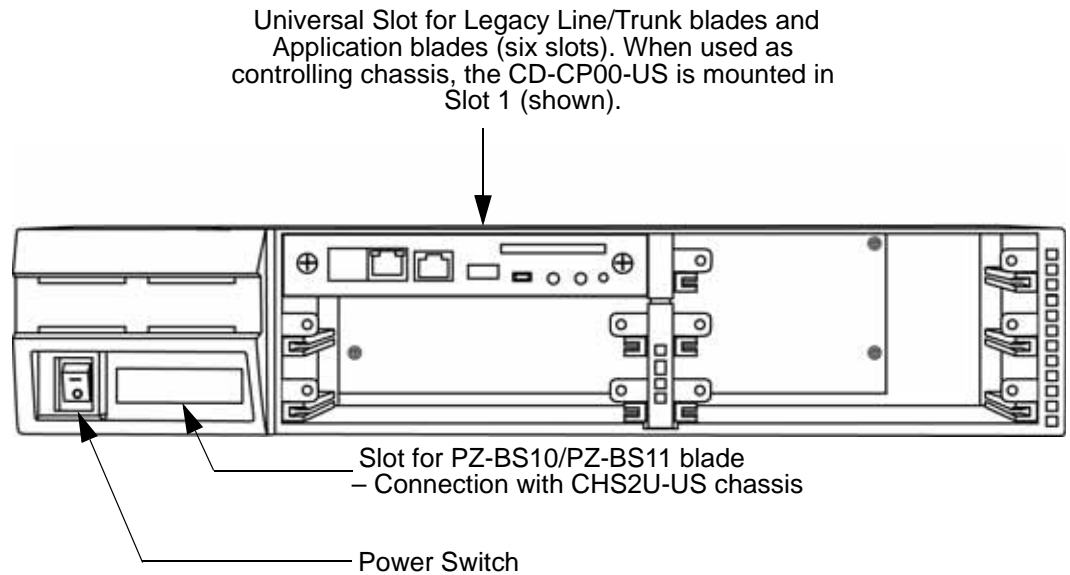
### 3.3 Installing the 19” (CHS2U-US) Chassis

The CHS2U-US chassis has six universal blade slots for legacy line/trunk blade (Single Line Telephone Interface, Digital multiline terminal Interface, Central Office Trunk, ISDN PRI Interface, etc.). In-skin Application Blades (In-skin UMS, In-Skin Router, etc.). It also houses the BUS Interface Blade, Power Supply Unit (PSU) and Cooling Fan.

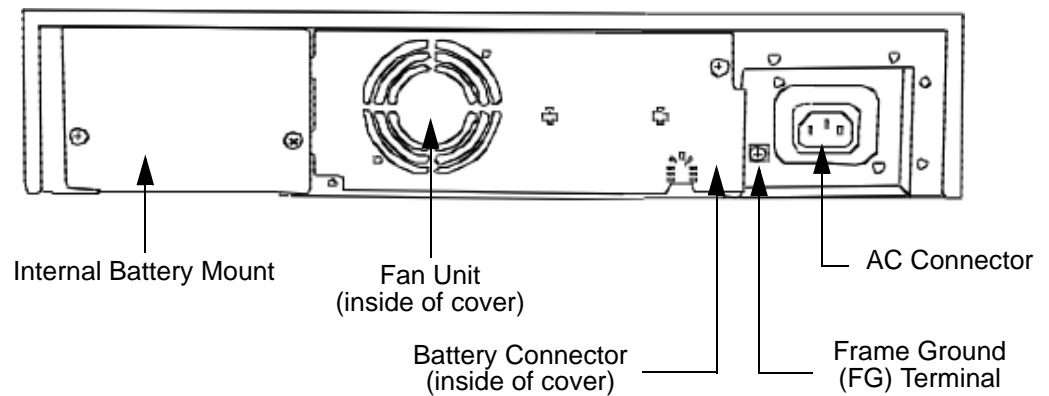
When the CD-CP00-US blade is installed in the first 19” chassis, it is called the controlling chassis. Additional chassis, called expansion chassis, can be installed to increase the capacity of the system to meet the customer’s business needs. Each chassis (Expansion or Controlling), is powered by an MPS7101 power supply.

Before proceeding with installation of chassis, ensure site preparation is completed. The CHS2U-US chassis can be:

- Wall-mounted – refer to [4.1 Wall Mounting the 19” \(CHS2U-US\) Chassis on page 3-39](#).
- Floor-mounted – refer to [5.1 Floor Mounting the 19” \(CHS2U-US\) Chassis on page 3-67](#).
- Stand-mounted – refer to [6.1 Stand Mounting the 19” \(CHS2U-US\) Chassis on page 3-71](#).
- Rack-mounted – refer to [7.1 Rack Mounting the 19” \(CHS2U-US\) Chassis on page 3-81](#).



**Figure 3-1 CHS2U-US Chassis (Front View)**



**Figure 3-2 CHS2U-US Chassis (Rear View)**

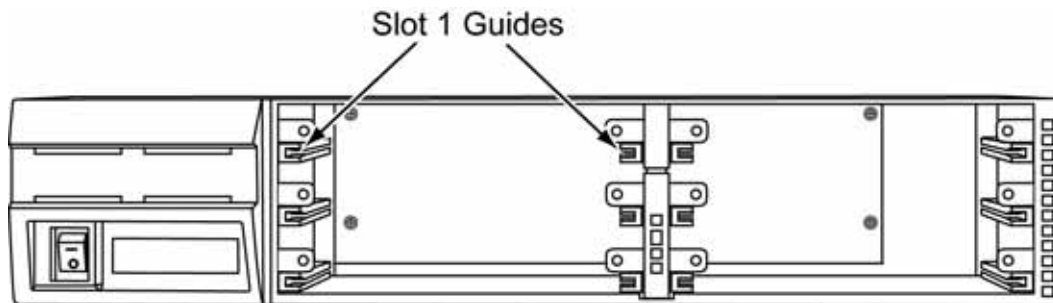
### 3.3.1 Installing the 19" Controlling Chassis

1. Ensure the chassis is powered down.



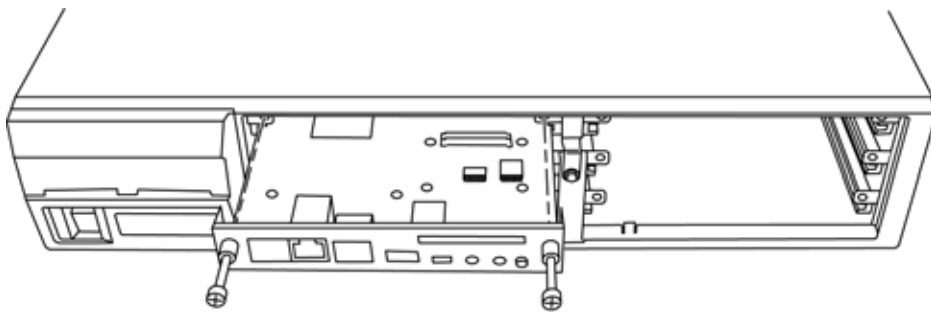
***Do not remove or install this blade with the power on.***

2. Align the CD-CP00-US blade with the Slot 1 guides of the Controlling Chassis.



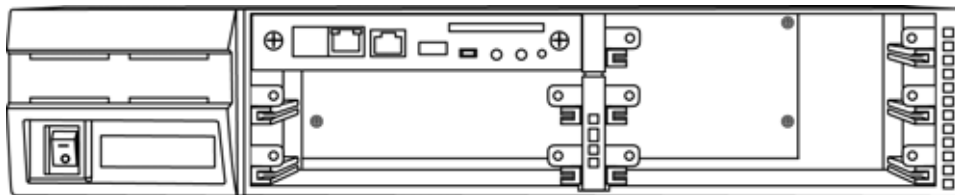
**Figure 3-3 19" Controlling Chassis – Guides Slot 1**

3. Slide the CD-CP00-US blade into the chassis until resistance (back plane) is felt.



**Figure 3-4 Installing the CD-CP00-US Blade**

4. Gently push until the blade seats. Tighten the two retaining screws on front of the blade.



**Figure 3-5 CD-CP00-US Blade Installed**

### 3.3.2 Installing Expansion Blades in the 19" Chassis (Optional)

When adding additional chassis to the system to expand the capacity, a PZ-BS10 must be installed in the Controlling Chassis and a PZ-BS11 must be installed in all Expansion Chassis. This connection is required with any multiple-chassis setup.

The PZ-BS10 connects the Controlling Chassis to the Expansion Chassis by connecting to a PZ-BS11, which is installed on each Expansion Chassis. These Expansion Interface Units allow the CPU to transmit/receive data as required to the additional chassis.

The PZ-BS10 is installed in the Expansion bay Controlling Chassis which is equipped with a CPU blade. The PZ-BS11 is installed in the Expansion bay of the Expansion Chassis, which does not have a CPU.

The Expansion cable connects the Controlling Chassis and its PZ-BS10 interface to the second, third, and fourth PZ-BS11 interface.

Use only the CAT 5 cables provided by NEC to make the connections between the Controlling and Expansion Chassis.

The PZ-BS10 provides:

- Communication Processor Interface for data handling through Communication Channel (24 slots maximum)
- 64 Channels for Telephony Resource (e.g., DTMF Tone Receiver, Call Progress Tone Detector, MFC Tone Receiver, Caller ID Receiver, Caller ID Signal Sender)
- DSP Resource Management

3.3.2.1 Connector Pin-Out on the PZ-BS10/PZ-BS11

**Table 3-3 PZ-BS10/PZ-BS11 Connector Pin-Out**

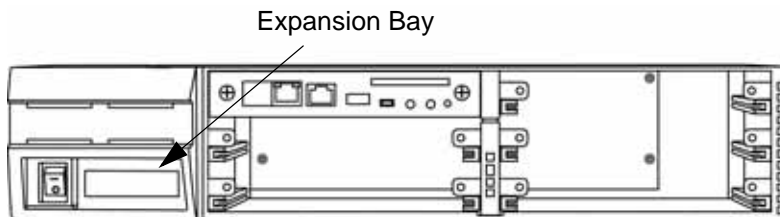
RJ-61 Cable Connector PZ-BS10 – CN2, CN3, CN 4 PZ-BS11 – CN3		
Pin No.	Connection	
1	HW_UP (+)	
2	HW_UP (-)	
3	HW_DWN (+)	
4	FS (+)	
5	FS (-)	
6	HW_DWN (-)	
7	CK8M (+)	
8	CK8M (-)	

3.3.2.2 Install the PZ-BS10 Expansion Base Blade in the CHS2U-US Controlling Chassis



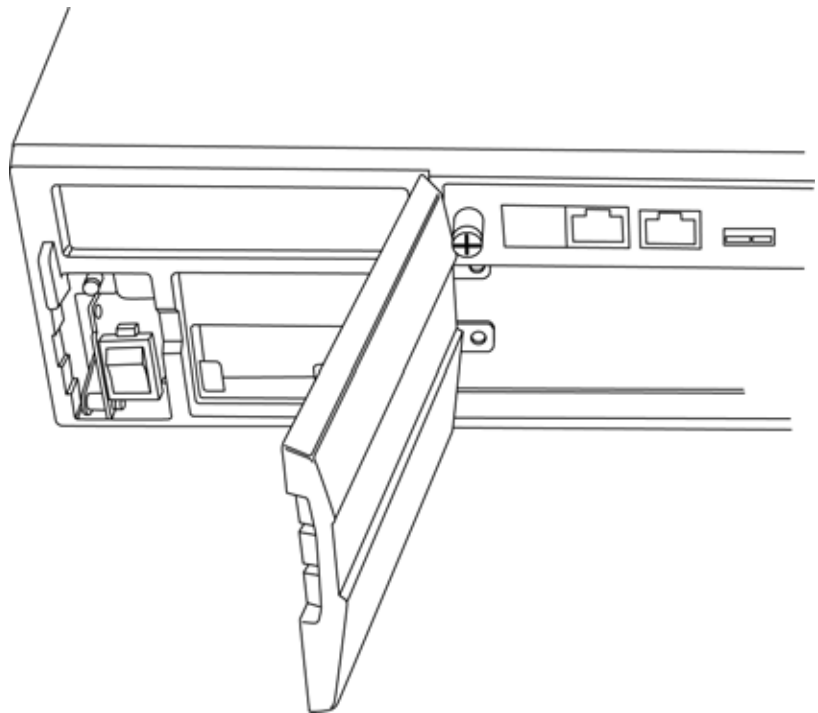
*Do not remove or install this blade with the power on.*

1. Ensure the chassis is powered down.
2. Locate the door positioned on the left end (expansion bay) of the Controlling Chassis.



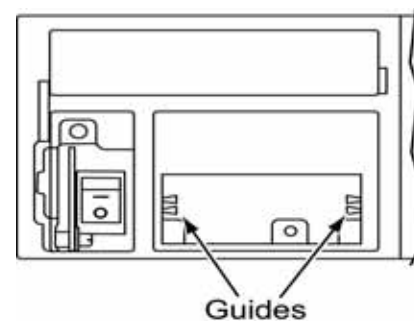
**Figure 3-6 PZ-BS10 Expansion Bay in Controlling Chassis**

3. From the left side of the chassis, pull cover outward to expose the expansion bay.

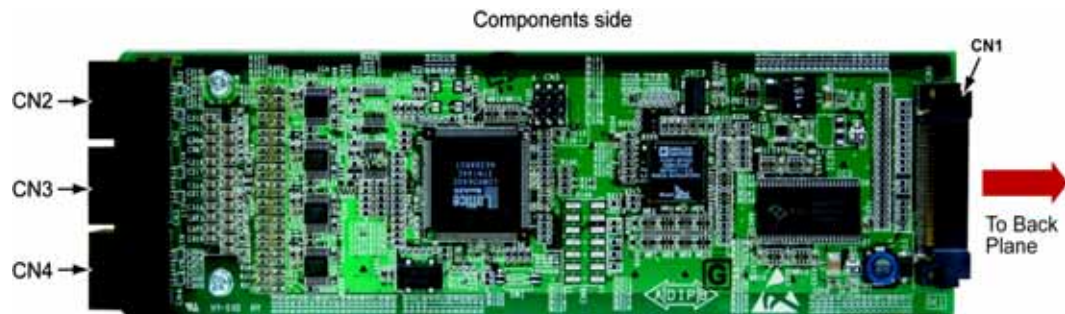


**Figure 3-7 Open Base Chassis Cover**

4. Pull the cover toward you to remove.
  - ✎ *Cover must be removed prior to installation of PZ-BS10 blade.*
5. Align the PZ-BS10 blade with the guides located in the expansion bay.

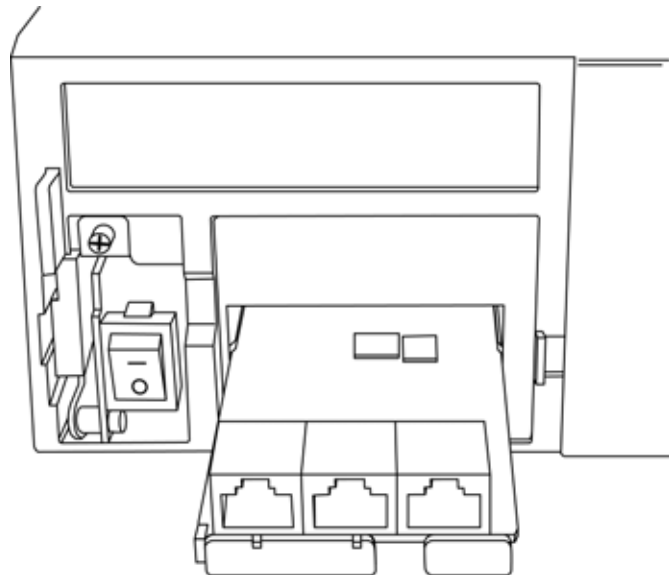


**Figure 3-8 PZ-BS10 Blade Guides**



**Figure 3-9 PZ-BS10 Components**

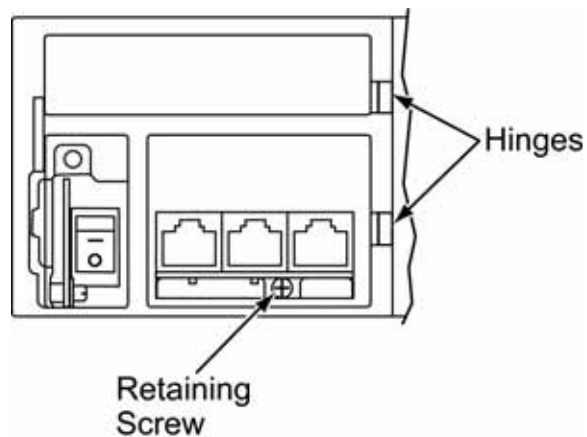
6. Slide the PZ-BS10 blade into the chassis until resistance (back plane) is felt.



**Figure 3-10 Installing PZ-BS10 Blade in Expansion Bay**

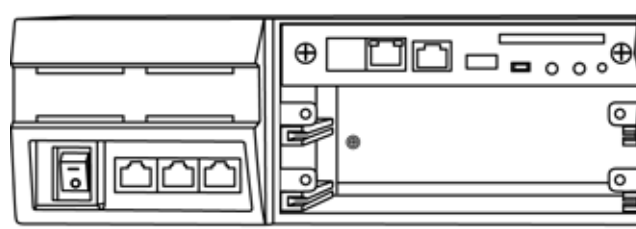
7. Gently push until the blade seats and install the supplied retaining screw.
8. Align the door tabs with hinges and reattach the cover (refer to [Figure 3-11 PZ-BS10 Blade Installed on page 3-13](#)).






**Figure 3-11 PZ-BS10 Blade Installed**

9. Close the PZ-BS10 cover.



**Figure 3-12 PZ-BS10 Installed (Cover Closed)**

### 3.3.2.3 Install the PZ-BS11 Expansion Blade in the CHS2U-US Expansion Chassis

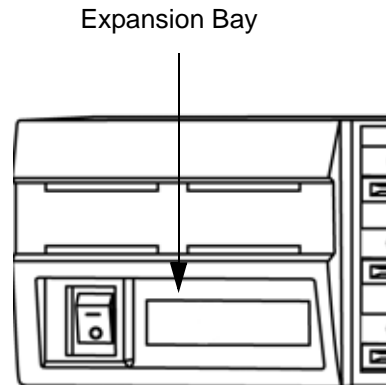
 *For the Expansion Chassis to function, the PZ-BS10 blade must be installed in Controlling Chassis.*



***Do not remove or install this blade with the power on.***

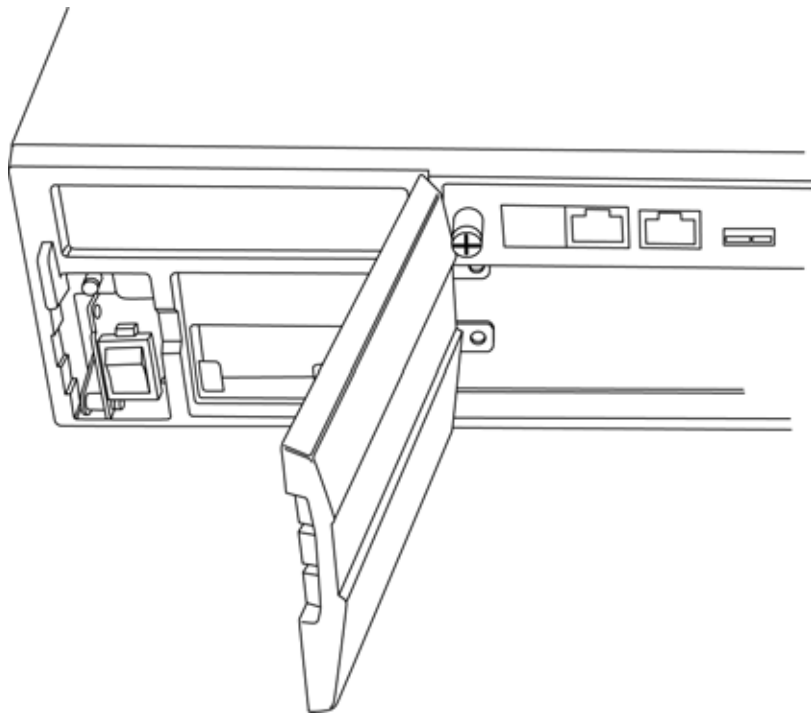
1. Ensure the chassis is powered down.

2. Locate the door positioned on the left end (expansion bay) of the Expansion Chassis.




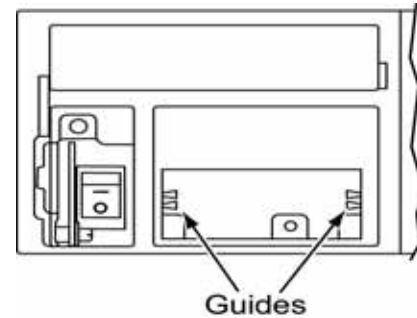
**Figure 3-13 PZ-BS11 Expansion Bay in Expansion Chassis**

3. From the left side of the chassis, pull cover outward to expose the expansion bay.



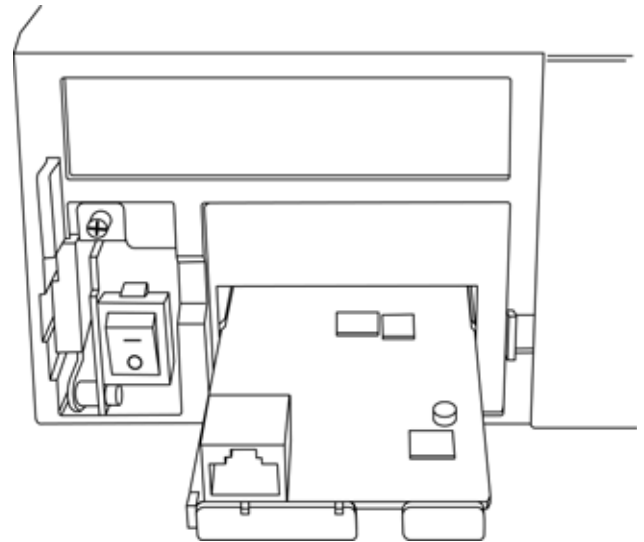
**Figure 3-14 Open Expansion Chassis Cover**

4. Pull the cover toward you to remove.  
 *Cover must be removed to install PZ-BS11 blade.*
5. Align the PZ-BS11 blade with the guides located within the expansion bay.



**Figure 3-15 PZ-BS11 Blade Guides**

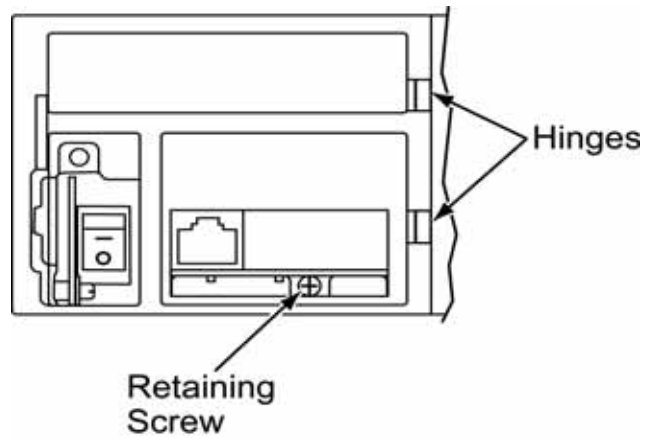
6. Slide the PZ-BS11 blade into the chassis until resistance (back plane) is felt.



**Figure 3-16 Installing PZ-BS11 Blade in Expansion Chassis**

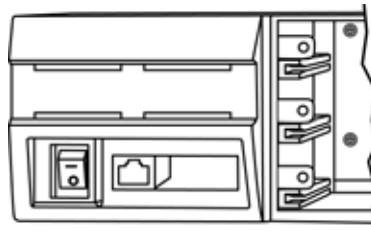
7. Gently push until the blade seats and install the supplied retaining screw.

- Align the door tabs with hinges and reattach the cover.




**Figure 3-17 PZ-BS11 Blade Installed**

- Close the PZ-BS11 blade cover.

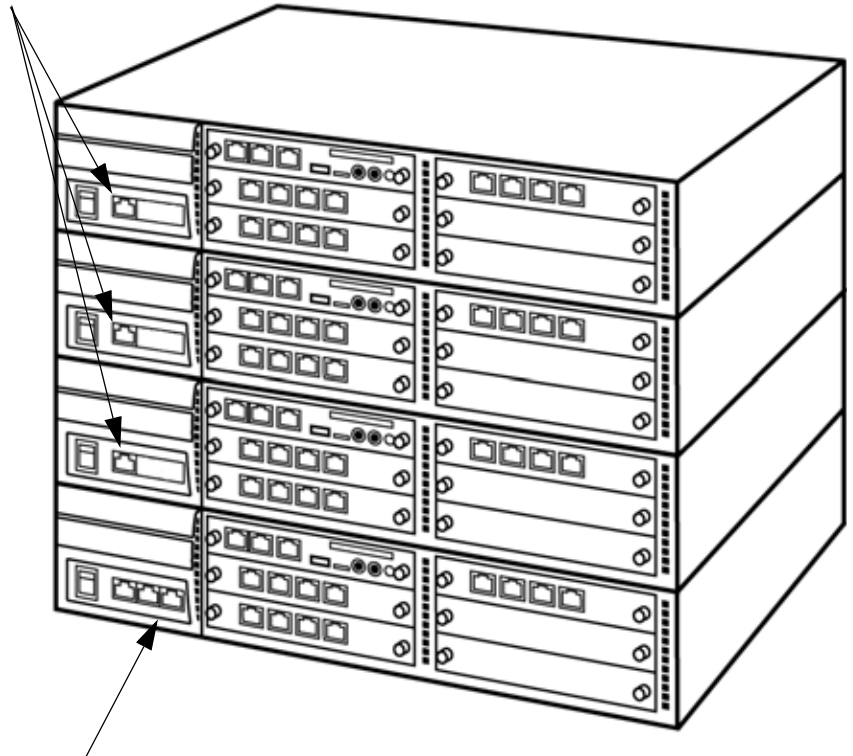


**Figure 3-18 PZ-BS11 Installed (Cover Closed)**

### 3.3.2.4 Connect the Controlling and Expansion Chassis

-  *Installment of the PZ-BS10 blade and PZ-BS11 blade(s) must be completed prior to installation of the provided (CAT 5) expansion cabling.*

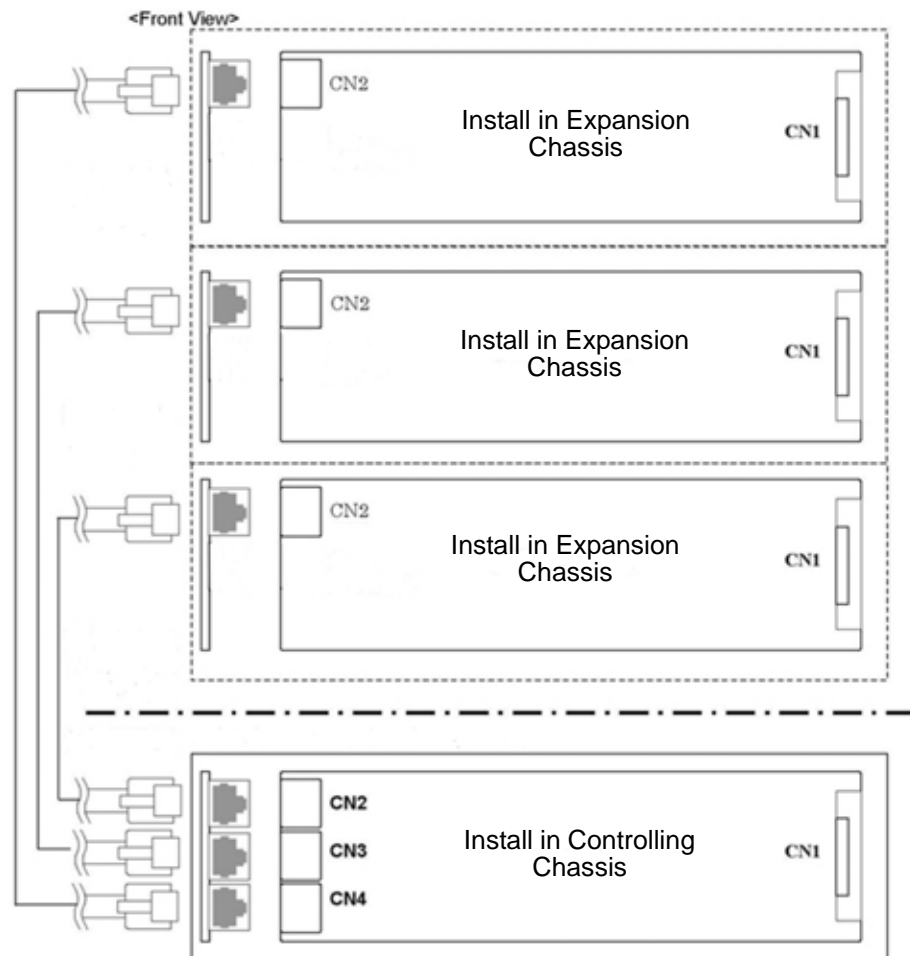
Expansion Chassis Interface Unit  
for the Expansion Chassis  
PZ-BS11



Expansion Chassis Interface Unit  
for the Controlling Chassis  
PZ-BS10

**Figure 3-19 19" Expansion Chassis Interface Units**

1. Ensure Controlling and Expansion chassis are powered down.
2. Using the NEC provided CAT5 straight-through cable(s), attach one end to each Expansion Chassis CN2 connector on the PZ-BS11 blade (see [Figure 3-20 System Expansion Cabling on page 3-18](#)). Attach the opposite end to the CN2, CN3 or CN4 connector on the PZ-BS10 of the Controlling Chassis.



**Figure 3-20 System Expansion Cabling**

3. Repeat for additional Expansion Chassis.

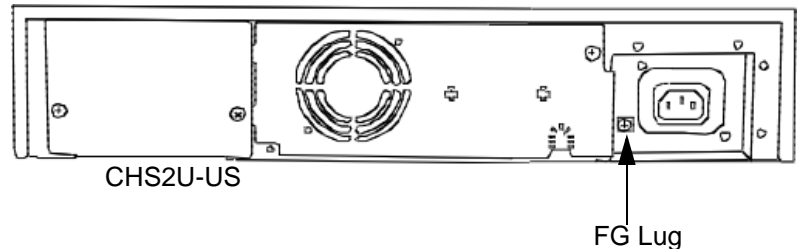
### 3.3.3 Install Grounding on 19" Chassis

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS2U-US) in the system must be grounded separately using the procedure listed below.

1. Ensure each Chassis is powered down and unplugged.

2. Ground **each** chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).



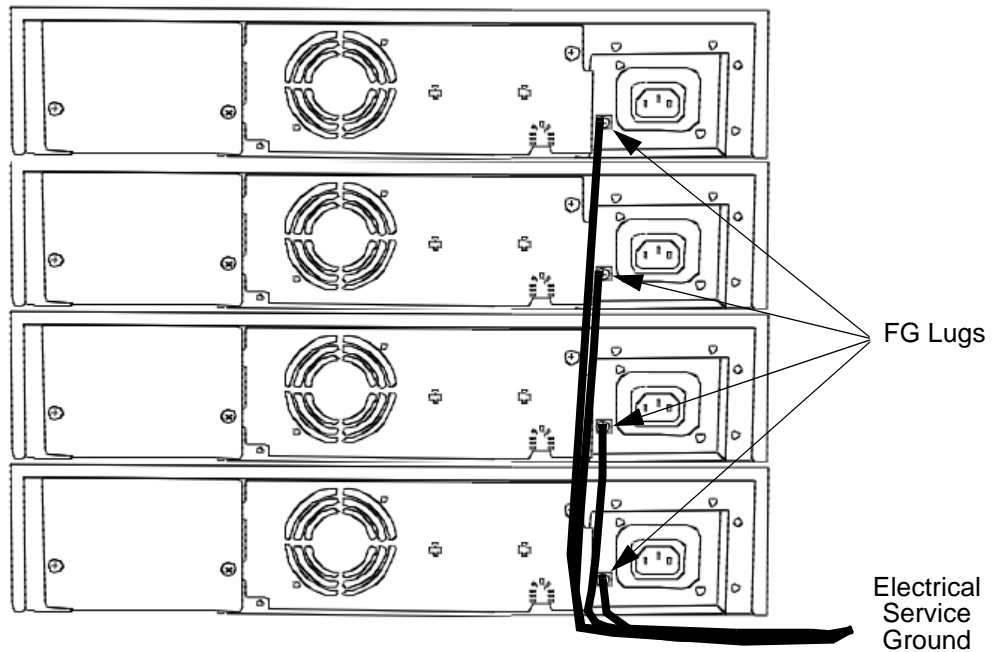
**Figure 3-21 Chassis Grounding Lug**

#### 3.3.4 Install Grounding on Multiple 19" Chassis (Optional)

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS2U-US) in the system must be grounded separately using the procedure listed below.

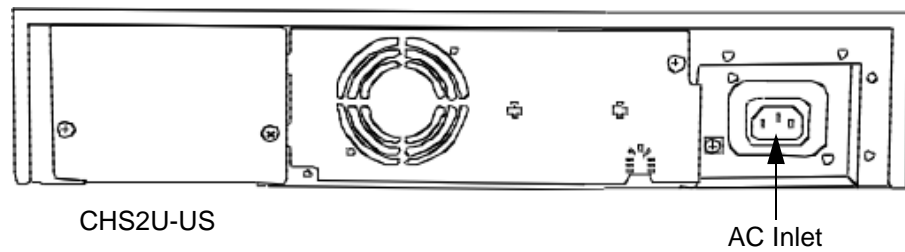
1. Ensure all Controlling and Expansion Chassis are powered down and unplugged.
2. Ground **each** chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe). Refer to [Figure 3-22 19" Chassis Grounding Lug \(Multiple-Chassis\)](#) on page 3-20 for grounding illustration.



**Figure 3-22 19" Chassis Grounding Lug (Multiple-Chassis)**

3.3.5 Install AC Power Cords on 19" Chassis

1. Locate the supplied AC power cord and attach to the AC Inlet located on the back of the Controlling Chassis.

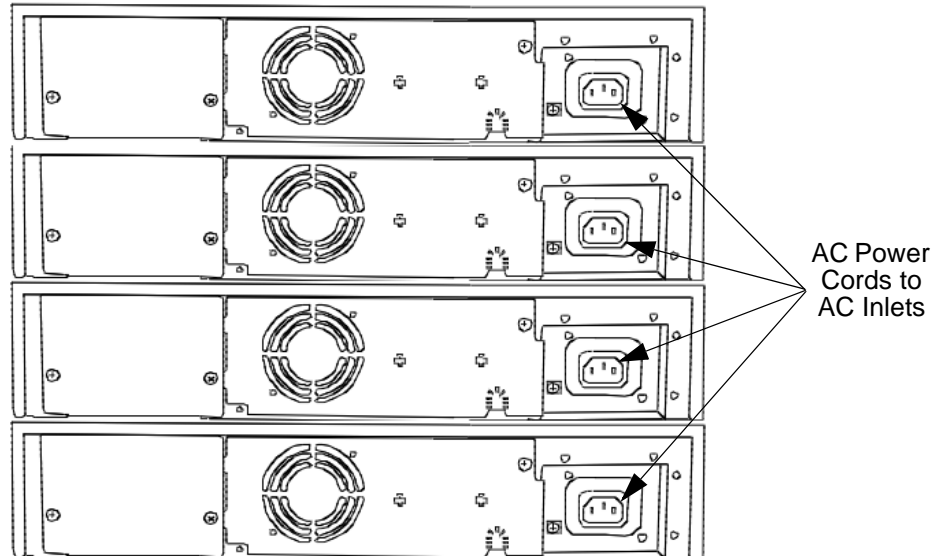


**Figure 3-23 Install the AC Power Cord**



### 3.3.6 Install AC Power Cords on Multiple 19" Chassis (Optional)

1. Locate the supplied AC power cords and attach to the AC Inlets located on the back of the Controlling and Expansion Chassis.



**Figure 3-24 Install 19" AC Power Cords (Multiple-Chassis)**

### 3.3.7 Install Additional Blades 19" Chassis

Refer to [Chapter 4, 2.1 Installation and Safety Precautions](#) on page 4-4.

### 3.3.8 Apply Power to the 19" Chassis

Refer to [Chapter 4, 2.6 Powering Up the SV8100 System](#) on page 4-9.

### 3.4 Installing the 9.5" Gateway (CHS2U GW-US) and Base (CHS2U B-US) Chassis

The CHS2U GW-US and the CHS2U B-US chassis have three universal blade slots for station, trunk and optional blades.

Before proceeding with installation of chassis, ensure site preparation is completed. The Gateway (CHS2U GW-US) chassis can be:

- Wall-mounted – refer to [4.2 Wall Mounting the 9.5" Gateway \(CHS2U GW-US\) and Base \(CHS2U B-US\) Chassis](#) on page 3-47.
- Stand-mounted – refer to [6.2 Stand Mounting the 9.5" Gateway \(CHS2U GW-US\) and Base \(CHS2U B-US\) Chassis](#) on page 3-77.

The Base (CHS2U B-US) chassis can be:

- Wall-mounted – refer to [4.2 Wall Mounting the 9.5" Gateway \(CHS2U GW-US\) and Base \(CHS2U B-US\) Chassis](#) on page 3-47.
- Stand-mounted refer to [6.2 Stand Mounting the 9.5" Gateway \(CHS2U GW-US\) and Base \(CHS2U B-US\) Chassis](#) on page 3-77.

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG (frame ground) on the back of the chassis.

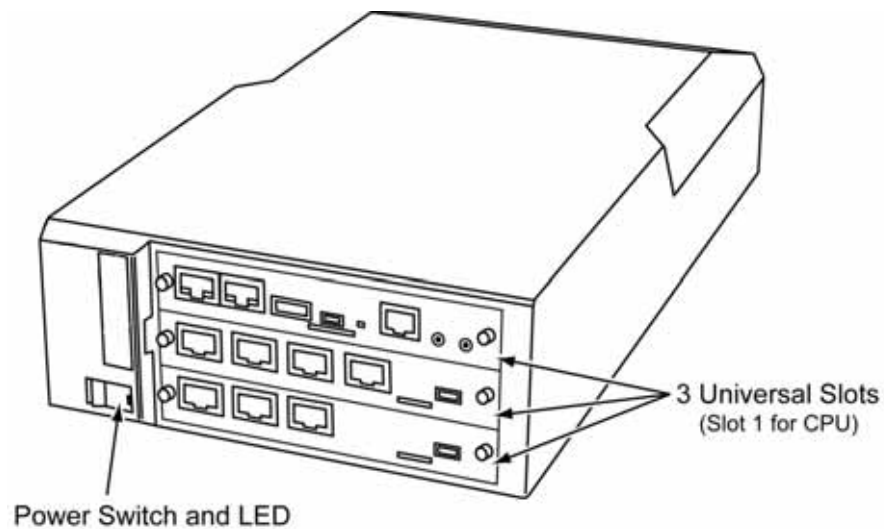
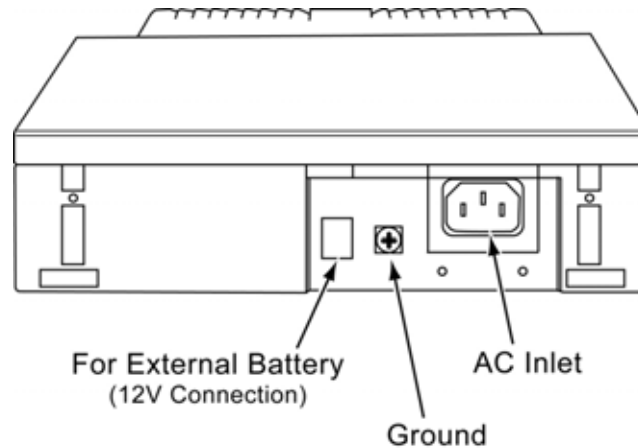


Figure 3-25 9.5" Chassis (Front View)



**Figure 3-26 9.5" Chassis (Rear View)**

#### 3.4.1 Install Grounding on 9.5" Gateway or Base Chassis

1. Ensure the 9.5" chassis (CHS2U GW-US or CHS2U B-US) is powered off and the AC power cord is unplugged.
2. Ground the chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe). Refer to [Figure 3-26 9.5" Chassis \(Rear View\)](#).

#### 3.4.2 Install AC Power Cord 9.5" Gateway or Base Chassis

Locate the supplied AC power cord and attach to the AC Inlet located on the back of the chassis [refer to [Figure 3-26 9.5" Chassis \(Rear View\)](#)].

#### 3.4.3 Install Additional Blades 9.5" Gateway or Base Chassis

Refer to [Chapter 4, 2.1 Installation and Safety Precautions on page 4-4](#).

#### 3.4.4 Apply Power to the 9.5" Gateway or Base Chassis

Refer to [Chapter 4, 2.6 Powering Up the SV8100 System on page 4-9](#).

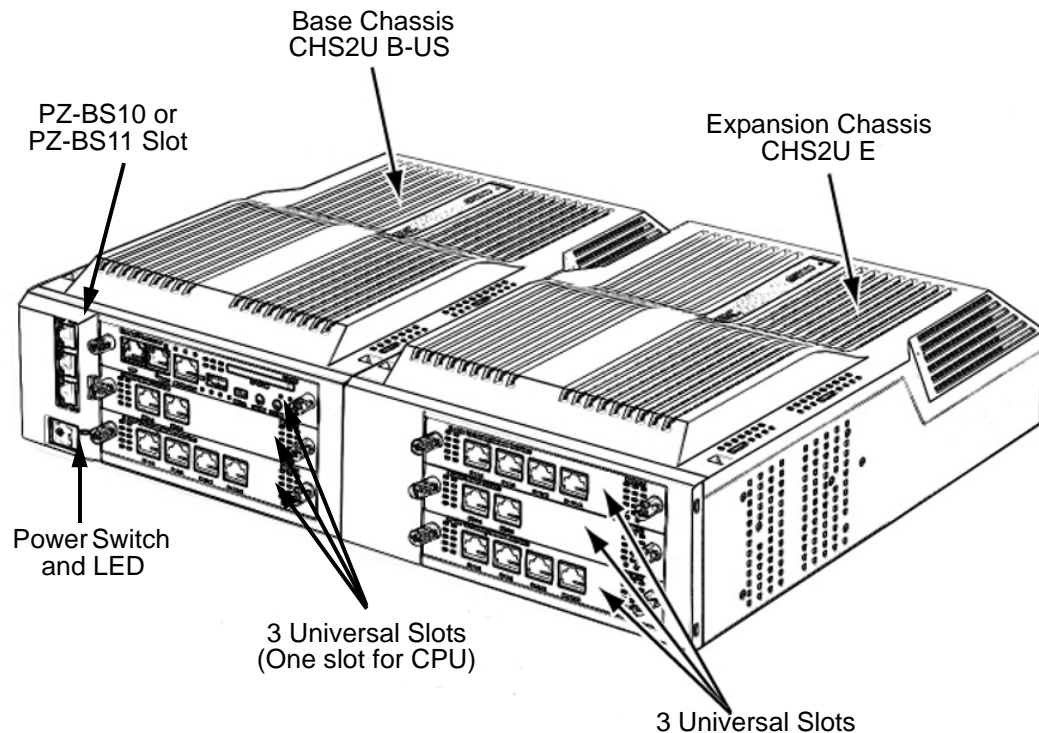
### 3.5 Installing the 9.5" Base (CHS2U B-US) and Expansion (CHS2U E) Chassis

The CHS2U B-US and CHS2U E chassis combined have six universal blade slots for legacy line/trunk blade (Single Line Telephone Interface, Digital multiline terminal Interface, Central Office Trunk, ISDN PRI Interface, etc.), In-skin Application Blades (In-skin UMS, In-Skin Router, etc.). It also houses the BUS Interface Blade and Power Supply Unit (PSU).

When the CD-CP00-US blade is installed in slot 1 of the 9.5" Base Chassis, it is called the controlling chassis. Additional chassis, (9.5" Expansion Chassis) can be installed to increase the capacity of the system to meet the customer's business needs.


Before proceeding with installation of chassis, ensure site preparation is completed. The combined chassis can be:

- Wall-mounted – refer to [4.3 Wall Mounting the 9.5" Base \(CHS2U B-US\) and Expansion \(CHS2U E\) Chassis](#) on page 3-59.
- Rack-mounted – refer to [7.2 Rack Mounting the 9.5" Base \(CHS2U B-US\) and Expansion \(CHS2U E\) Chassis](#) on page 3-83.



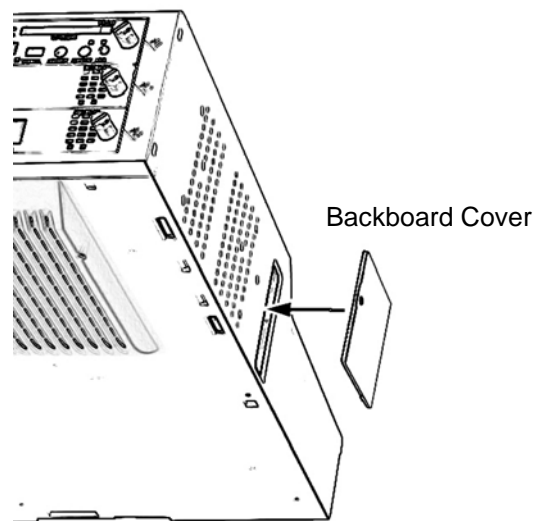
**Figure 3-27 9.5" Base and Expansion (Combined) Chassis**

The 9.5" Base chassis provides up to 16 trunk ports or 32 extension ports. An Expansion Chassis can be installed to the right of the Controlling or Base Chassis providing an additional 48 ports (40 trunk/ 80 stations maximum) and can include any combination of stations and trunks below this number. With a maximum of four Base and four Expansion chassis the system will provide up to 184 trunks and 320 extensions. With IP connections, a maximum of 200 trunk ports (maximum of 32/64/128 talk paths supported depending on IPLA blade installed) and 512 station ports is possible.

 *The PZ-ME50-US blade is required as well as a license to support the expanded ports.*

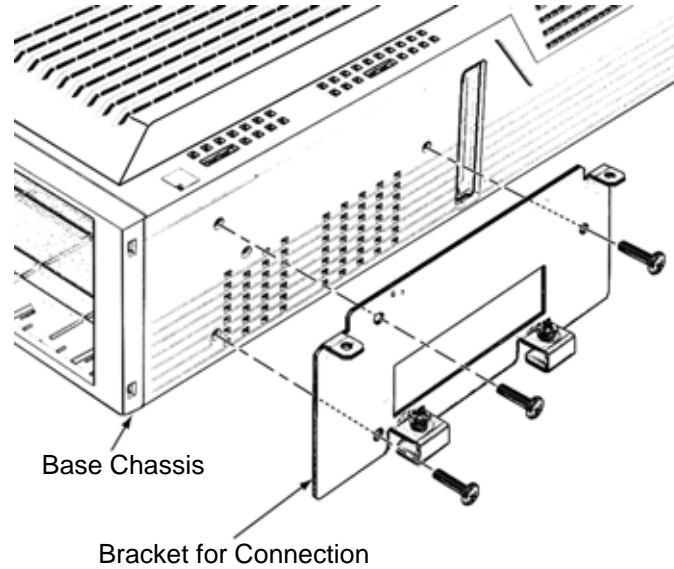
### 3.5.1 Connecting the 9.5" Base and Expansion Chassis

1. Ensure the 9.5" chassis (Base and Expansion) is powered off and the AC power cord is unplugged.
2. Remove the Backboard Cover located on the right side of the Base chassis (refer to [Figure 3-28 Removing Backboard Cover](#)).



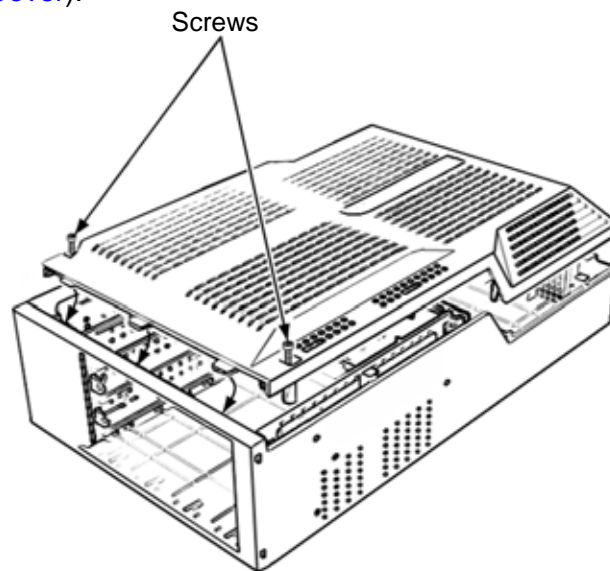
**Figure 3-28 Removing Backboard Cover**

3. Using the three screws provided, attach the Expansion bracket to the Base Chassis (refer to [Figure 3-29 Installing the Expansion Bracket on page 3-26](#)).



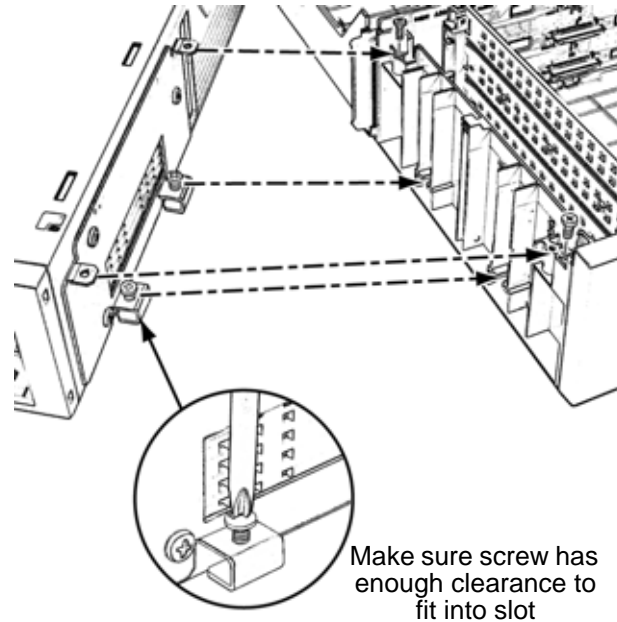
**Figure 3-29 Installing the Expansion Bracket**

4. Loosen and remove two screws from the top cover of the Expansion chassis. Slide cover toward rear of chassis to remove (refer to [Figure 3-30 Remove Expansion Chassis Cover](#)).



**Figure 3-30 Remove Expansion Chassis Cover**

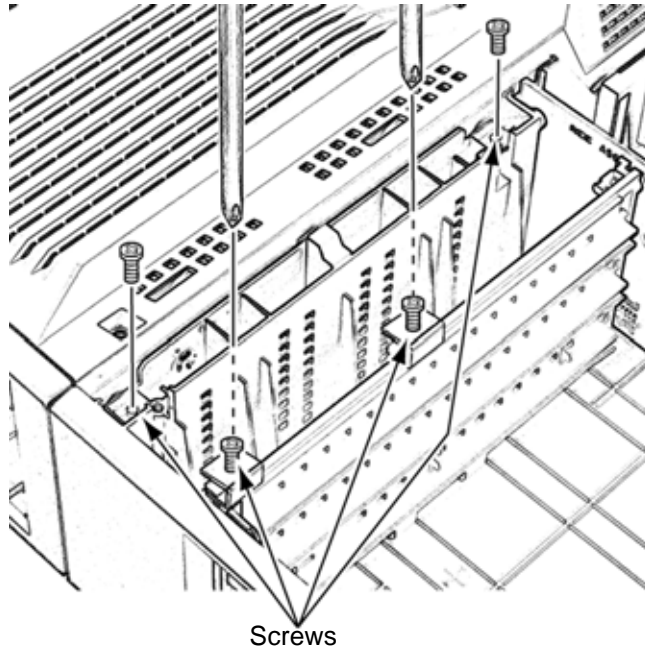
5. Align the Backboard connector on the Expansion chassis with the receptor on the Base chassis and push the two chassis together. Make sure the two screws on the bracket are positioned high enough to allow the chassis enough space to connect.



**Figure 3-31 Connecting the Base and Expansion Chassis**

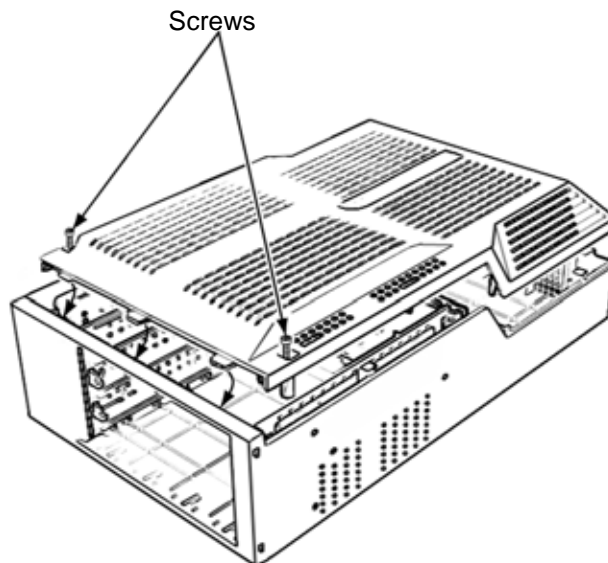
6. Using four screws, secure the Expansion chassis to the Expansion bracket (refer to [Figure 3-32 Securing the Expansion Chassis to the Expansion Bracket](#) on page 3-28).





**Figure 3-32 Securing the Expansion Chassis to the Expansion Bracket**

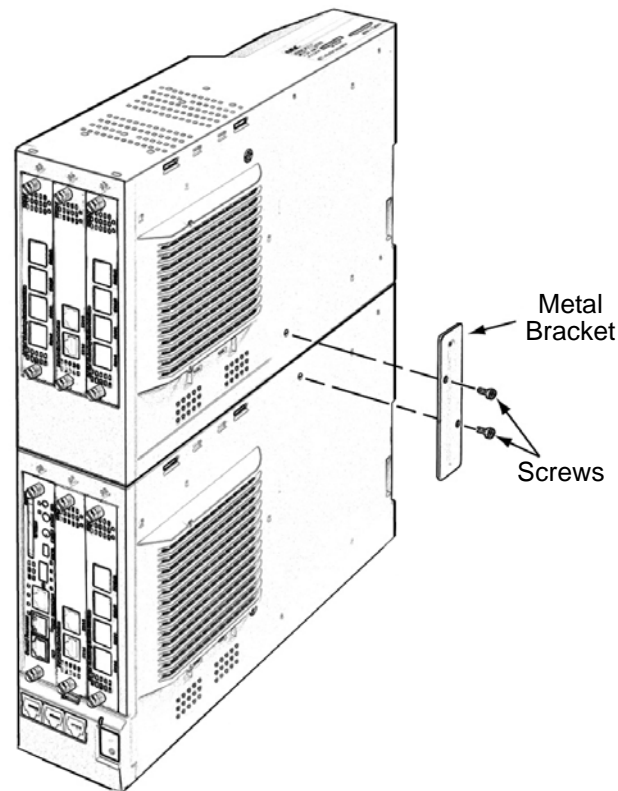
7. Slide the Expansion cover into place (from rear to front) and secure using two screws.



**Figure 3-33 Remove Expansion Chassis Cover**



8. Using two screws, secure the Base and Expansion chassis together with the metal reinforcement bracket provided.



**Figure 3-34 Installing Reinforcement Bracket**

### 3.5.2 Installing Expansion Blades in the 9.5" Base and Expansion Chassis (Optional)

When adding additional chassis to the system to expand the capacity, a PZ-BS10 must be installed in the Controlling Chassis and a PZ-BS11 must be installed in all Expansion Chassis. This connection is required with any multiple-chassis setup.

The PZ-BS10 connects the Controlling Chassis to the Expansion Chassis by connecting to a PZ-BS11, which is installed on each Expansion Chassis. These Expansion Interface Units allow the CPU to transmit/receive data as required to the additional chassis.

The PZ-BS10 is installed in the Expansion bay of the Controlling Chassis which is equipped with a CPU blade. The PZ-BS11 is installed in the Expansion bay of the Expansion Chassis, which does not have a CPU.

The Expansion cable connects the Controlling Chassis and its PZ-BS10 interface to the second, third, and fourth PZ-BS11 interface.


Use only the CAT 5 cables provided by NEC to make the connections between the Controlling and Expansion Chassis.

The PZ-BS10 provides:

- Communication Processor Interface for data handling through Communication Channel (24 slots maximum)
- 64 Channels for Telephony Resource (e.g., DTMF Tone Receiver, Call Progress Tone Detector, MFC Tone Receiver, Caller ID Receiver, Caller ID Signal Sender)
- DSP Resource Management

3.5.2.1 Connector Pin-Out on the PZ-BS10/PZ-BS11

**Table 3-4 PZ-BS10/PZ-BS11 Connector Pin-Out**

RJ-61 Cable Connector PZ-BS10 – CN2, CN3, CN 4 PZ-BS11 – CN3		
	Pin No.	Connection
	1	HW_UP (+)
	2	HW_UP (-)
	3	HW_DWN (+)
	4	FS (+)
	5	FS (-)
	6	HW_DWN (-)
	7	CK8M (+)
	8	CK8M (-)

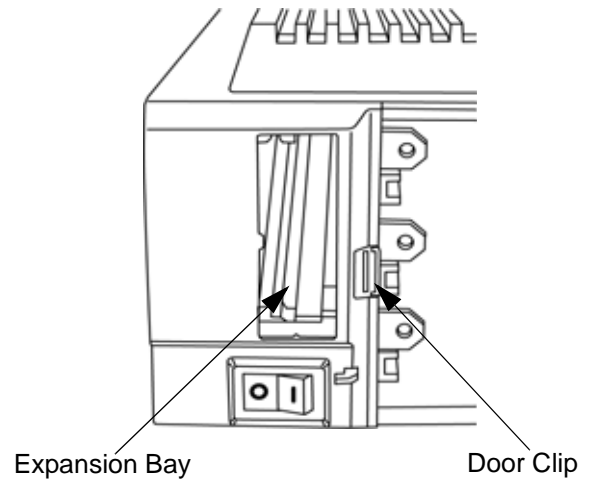
3.5.2.2 Install the PZ-BS10 Expansion Base Blade in the CHS2U B-US Controlling Chassis



***Do not remove or install this blade with the power on.***

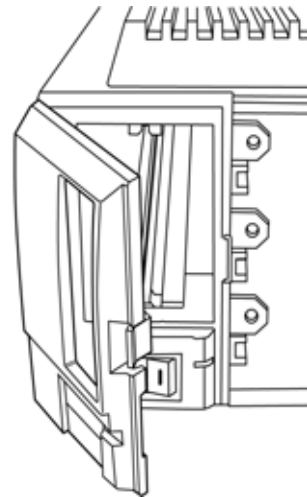
1. Ensure the chassis is powered down.

2. Locate the door positioned on the left end (expansion bay) of the Controlling Chassis.



**Figure 3-35 PZ-BS10 Expansion Bay in Controlling Chassis**

3. From the right side of the door, pinch the door clip and pull the cover outward to expose the expansion bay.



**Figure 3-36 Open Base Chassis Cover**

4. Pull the cover toward you to remove.
  - ✎ *Cover must be removed prior to installation of PZ-BS10 blade.*

5. Align the PZ-BS10 blade with the guides located in the expansion bay.

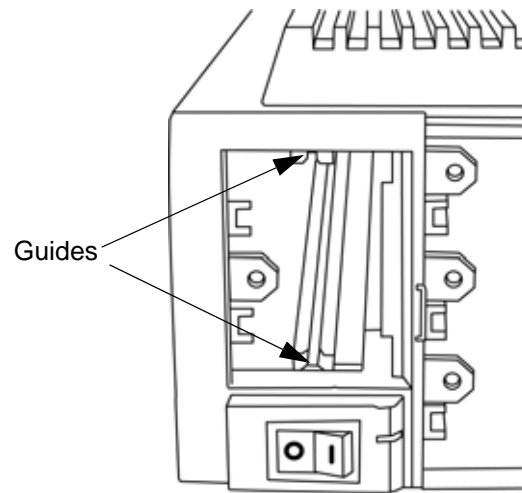
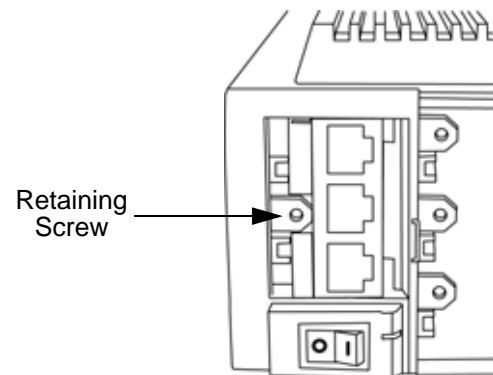


Figure 3-37 PZ-BS10 Blade Guides



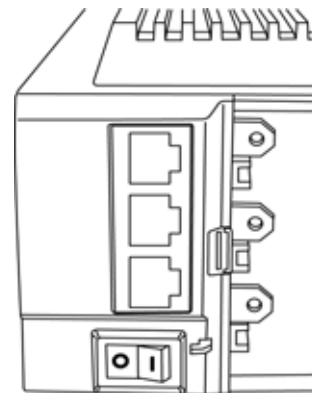
Figure 3-38 PZ-BS10 Components

6. Slide the PZ-BS10 blade into the chassis until resistance (back plane) is felt (refer to [Figure 3-39 Installing the PZ-BS10 Blade on page 3-33](#)).




**Figure 3-39 Installing the PZ-BS10 Blade**

7. Install the supplied retaining screw (refer to [Figure 3-39 Installing the PZ-BS10 Blade](#)).
8. Remove knockout in center of cover.
9. Align the door tabs with hinges and close the cover.



**Figure 3-40 PZ-BS10 Blade Installed**

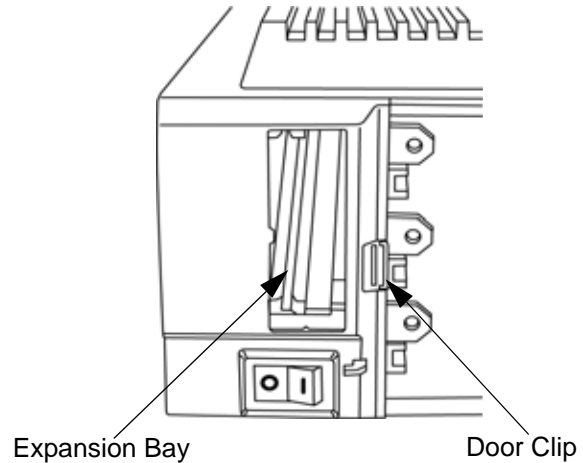
### 3.5.2.3 Install the PZ-BS11 Expansion Blade in the CHS2U B-US Expansion Chassis

 *For the Expansion Chassis to function, the PZ-BS10 blade must be installed in Controlling Chassis.*



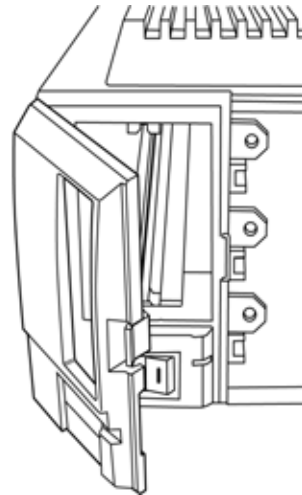
***Do not remove or install this blade with the power on.***

1. Ensure the chassis is powered down.
2. Locate the door positioned on the left end (expansion bay) of the Expansion Chassis.




**Figure 3-41 PZ-BS11 Expansion Bay in Expansion Chassis**

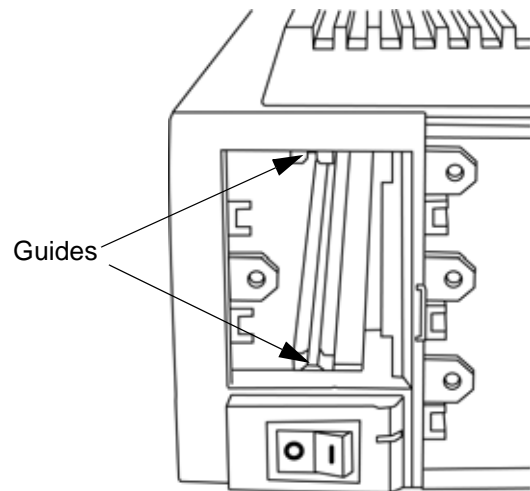
3. From the right side of the door, pinch the door clip and pull the cover outward to expose the expansion bay.



**Figure 3-42 Open Base Chassis Cover**

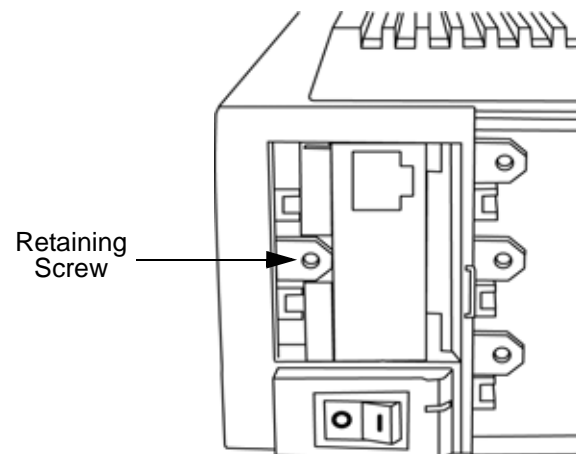
4. Pull the cover toward you to remove.  
 *Cover must be removed to install PZ-BS11 blade.*

5. Align the PZ-BS11 blade with the guides located within the expansion bay.



**Figure 3-43 PZ-BS11 Blade Guides**

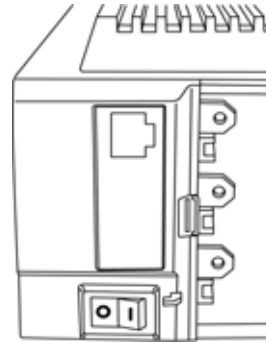
6. Slide the PZ-BS11 blade into the chassis until resistance (back plane) is felt.



**Figure 3-44 Installing PZ-BS11 Blade in Expansion Chassis**


7. Install the supplied retaining screw (refer to [Figure 3-44 Installing PZ-BS11 Blade in Expansion Chassis](#)).
8. Remove knockout in center of cover.

9. Align the door tabs with hinges and close the cover.



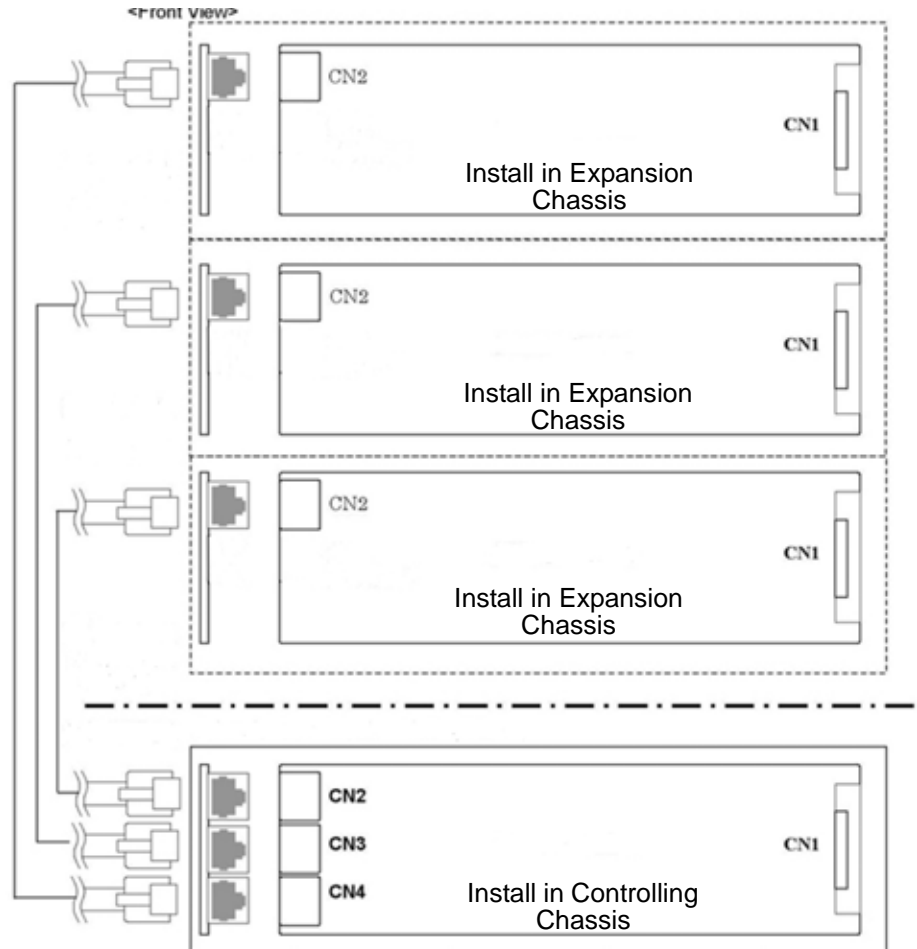
**Figure 3-45 PZ-BS11 Blade Installed**

#### 3.5.2.4 Connect the Controlling and Expansion Chassis

 *Installation of the PZ-BS10 blade and PZ-BS11 blade(s) must be completed prior to installation of the provided (CAT 5) expansion cabling.*

1. Ensure Controlling and Expansion chassis are powered down.
2. Using the NEC provided CAT5 straight-through cable(s), attach one end to each Expansion Chassis CN2 connector on the PZ-BS11 blade (see [Figure 3-46 System Expansion Cabling on page 3-37](#)). Attach the opposite end to the CN2, CN3 or CN4 connector on the PZ-BS10 of the Controlling Chassis.





**Figure 3-46 System Expansion Cabling**

**EXAMPLE:**

0 CHS2U-US (19" Chassis) & 4 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

1 CHS2U-US (19" Chassis) & 3 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

2 CHS2U-US (19" Chassis) & 2 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

3 CHS2U-US (19" Chassis) & 1 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

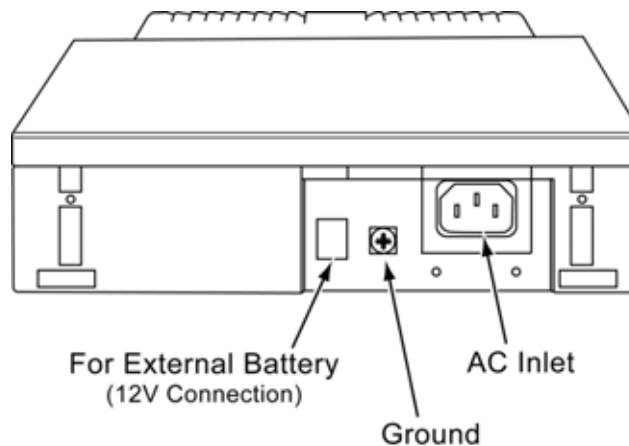
4 CHS2U-US (19" Chassis) & 0 CHS2U B-US/CHS2U E (9.5" Base Chassis/9.5" Expansion Chassis)

3. Repeat for additional Expansion Chassis.

### 3.5.3 Installing Grounding on 9.5" Base and Expansion Chassis

1. Ensure the 9.5" chassis is powered off and the AC power cord is unplugged.
2. Ground the chassis [refer to [Figure 3-47 9.5" Base Chassis \(Rear View\)](#) on page 3-38] by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

*The CHS2U E (9.5" expansion chassis) does not have an FG lug.*



**Figure 3-47 9.5" Base Chassis (Rear View)**

### 3.5.4 Install Grounding on Multiple 9.5" Base and Expansion Chassis

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS2U B-US) in the system must be grounded separately using the procedure listed below.

*The CHS2U E (9.5" expansion chassis) does not have an FG lug.*

1. Ensure all Controlling and Expansion Chassis are powered down and unplugged.

2. Ground **each** chassis [refer to [Figure 3-47 9.5" Base Chassis \(Rear View\) on page 3-38](#)] by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).
- 3.5.5 Install AC Power Cord on 9.5" Base and Expansion Chassis
- Locate the supplied AC power cord and attach to the AC Inlet located on the back of the chassis [refer to [Figure 3-47 9.5" Base Chassis \(Rear View\) on page 3-38](#)].
- The CHS2U E (9.5" expansion chassis) does not have an AC Inlet.*
- 3.5.6 Install AC Power Cord on Multiple 9.5" Base and Expansion Chassis
- Locate the supplied AC power cords and attach to the AC Inlets located on the back of the Controlling and Expansion Chassis.
- The CHS2U E (9.5" expansion chassis) does not have an AC Inlet.*
- 3.5.7 Install Additional Blades in the 9.5" Base and Expansion Chassis
- Refer to [Chapter 4, 2.1 Installation and Safety Precautions on page 4-4](#).
- 3.5.8 Applying Power to the 9.5" Base and Expansion Chassis
- Refer to [Chapter 4, 2.6 Powering Up the SV8100 System on page 4-9](#).

## SECTION 4 WALL MOUNTING THE CHASSIS

### 4.1 Wall Mounting the 19" (CHS2U-US) Chassis

When wall mounting the chassis, ensure the wall can support the weight of the chassis (55 lbs per system chassis – including blades, cords, power supply, etc.). The chassis is secured to the wall with a wall mount bracket. Ensure that enough space is available to allow the installation of additional expansion chassis.

#### 4.1.1 CHS2U-US Chassis Wall Mount Installation

1. Use the template shown in [Figure 3-48 Wall Mount Spacing Guide \(19" Chassis\) on page 3-40](#) for required spacing before drilling.



- *Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.*
- *Due to chassis weight, NEC recommends only a single CHS2U-US chassis per wall mount.*

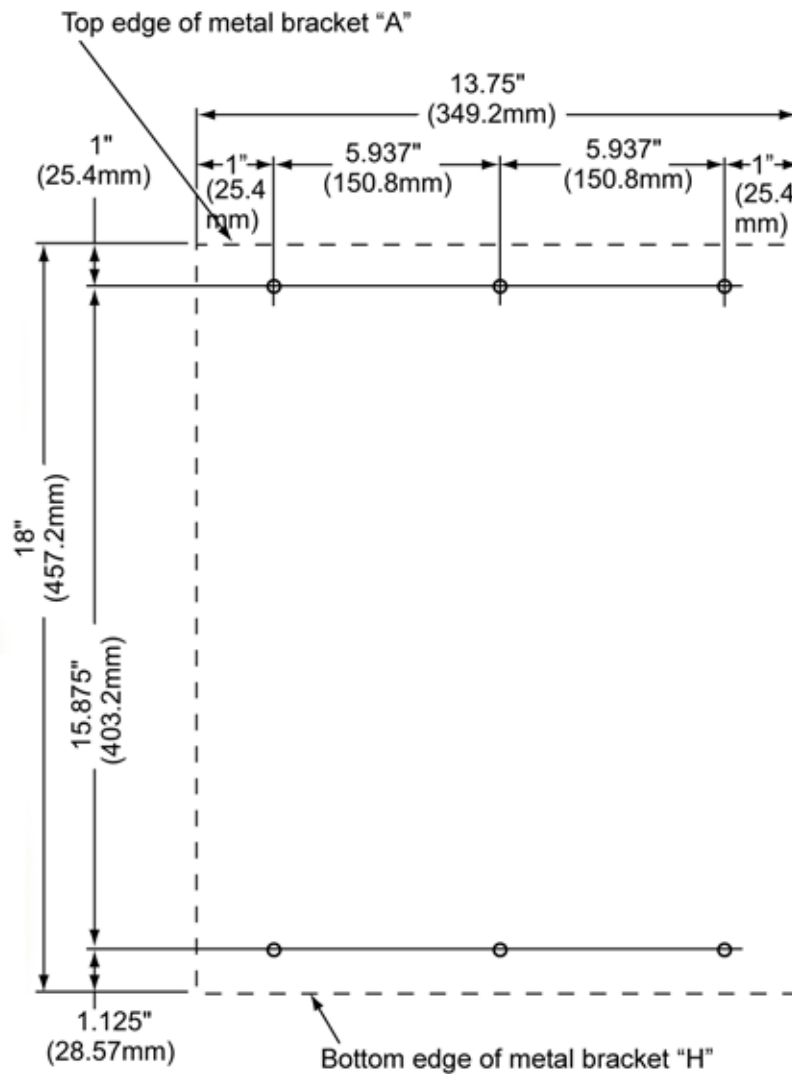
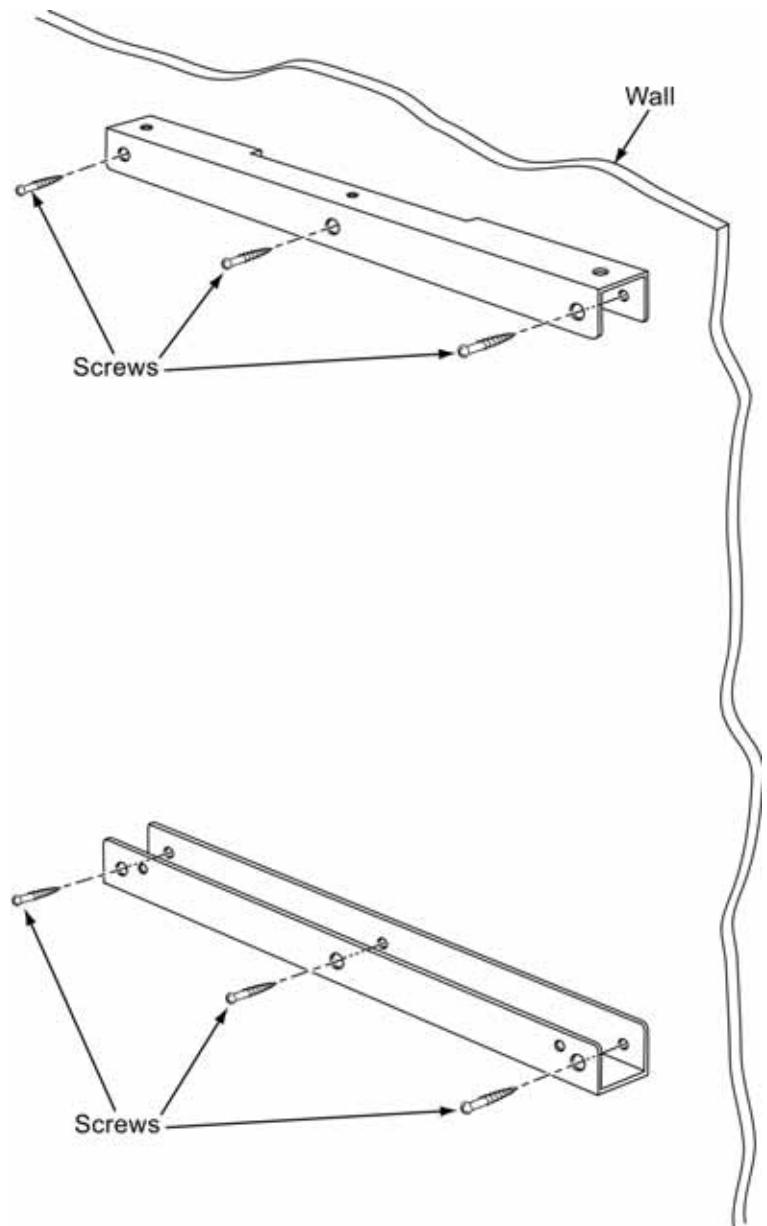


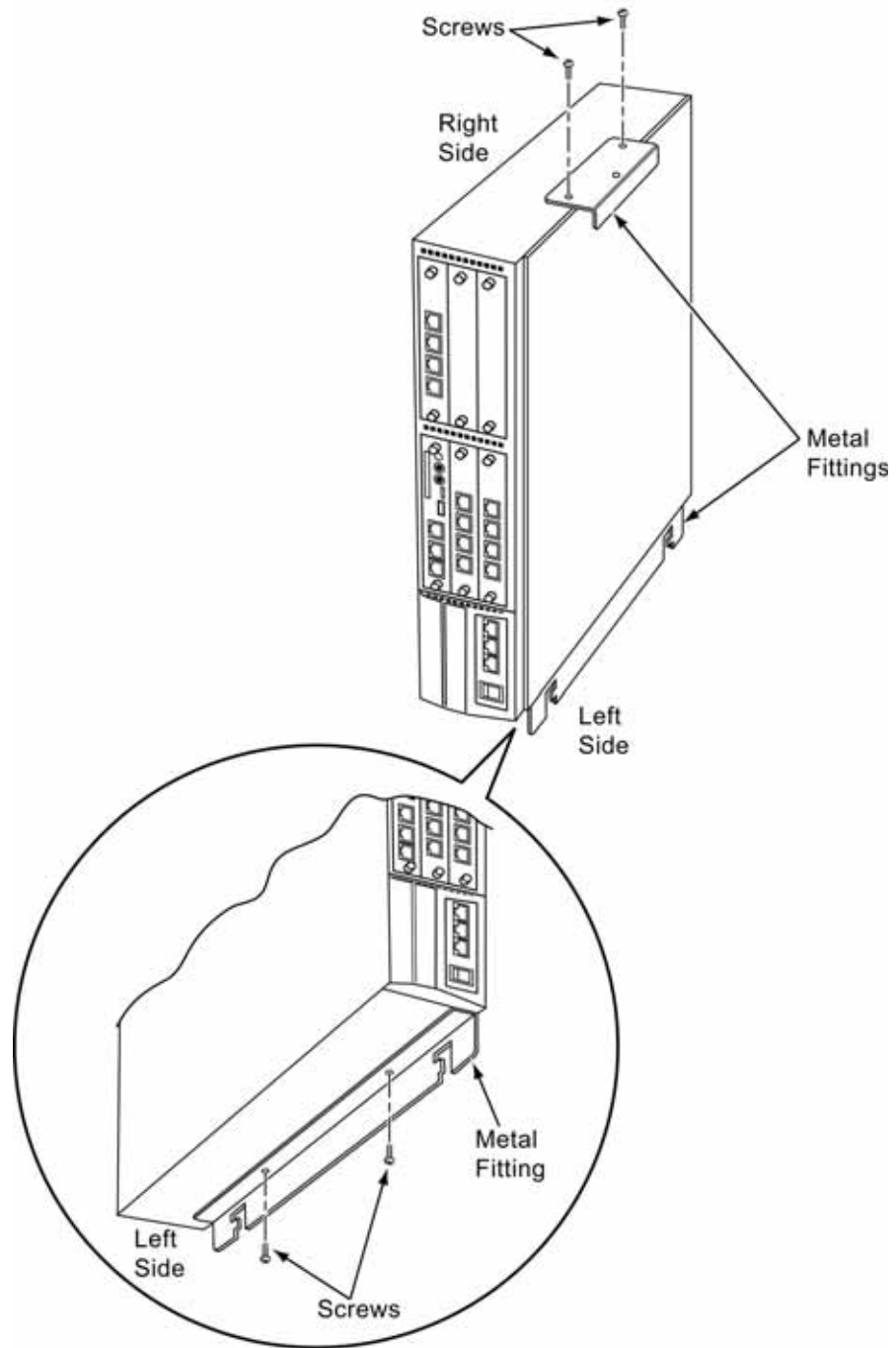
Figure 3-48 Wall Mount Spacing Guide (19" Chassis)

2. Mark and drill the six holes required for a wall installation.
3. Align screw holes in wall mount brackets with drilled holes.
4. Using six screws, secure the two wall mount brackets to the wall.



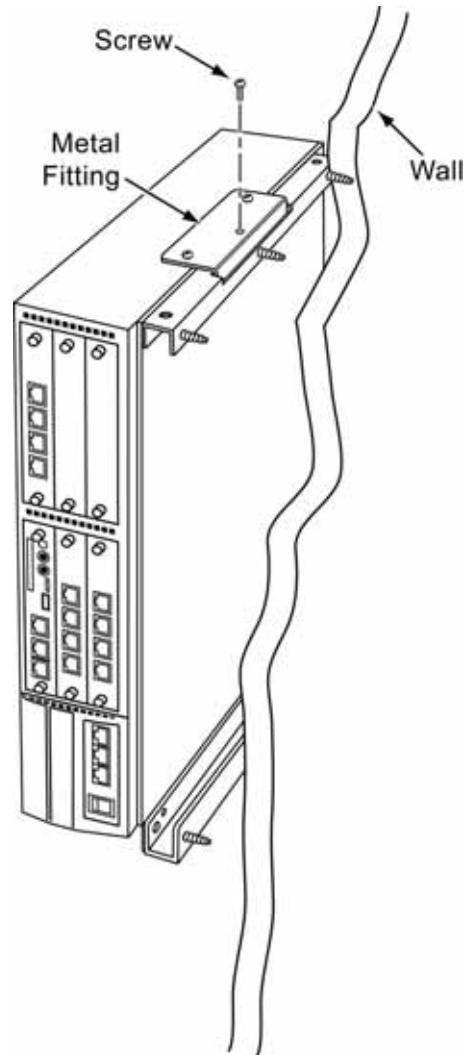
**Figure 3-49 Install Wall Mount Brackets with Screws**

- Using four screws, secure the metal fittings on the Left and Right sides of the 19" chassis.



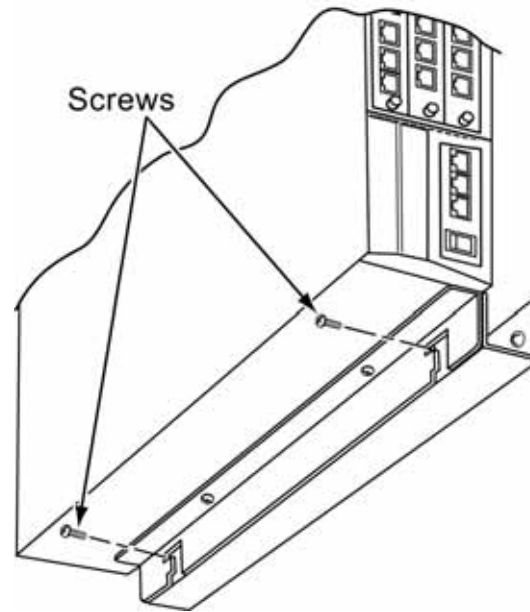
**Figure 3-50 Securing Metal Fittings to Chassis with Screws**

6. Align the metal fitting with the upper wall mount bracket. The lower metal fitting rests against the lower wall mount bracket. Secure the metal fitting and upper wall mount bracket with a single screw.



**Figure 3-51** Secure Metal Fitting to Upper Wall Mount Bracket with a Screw

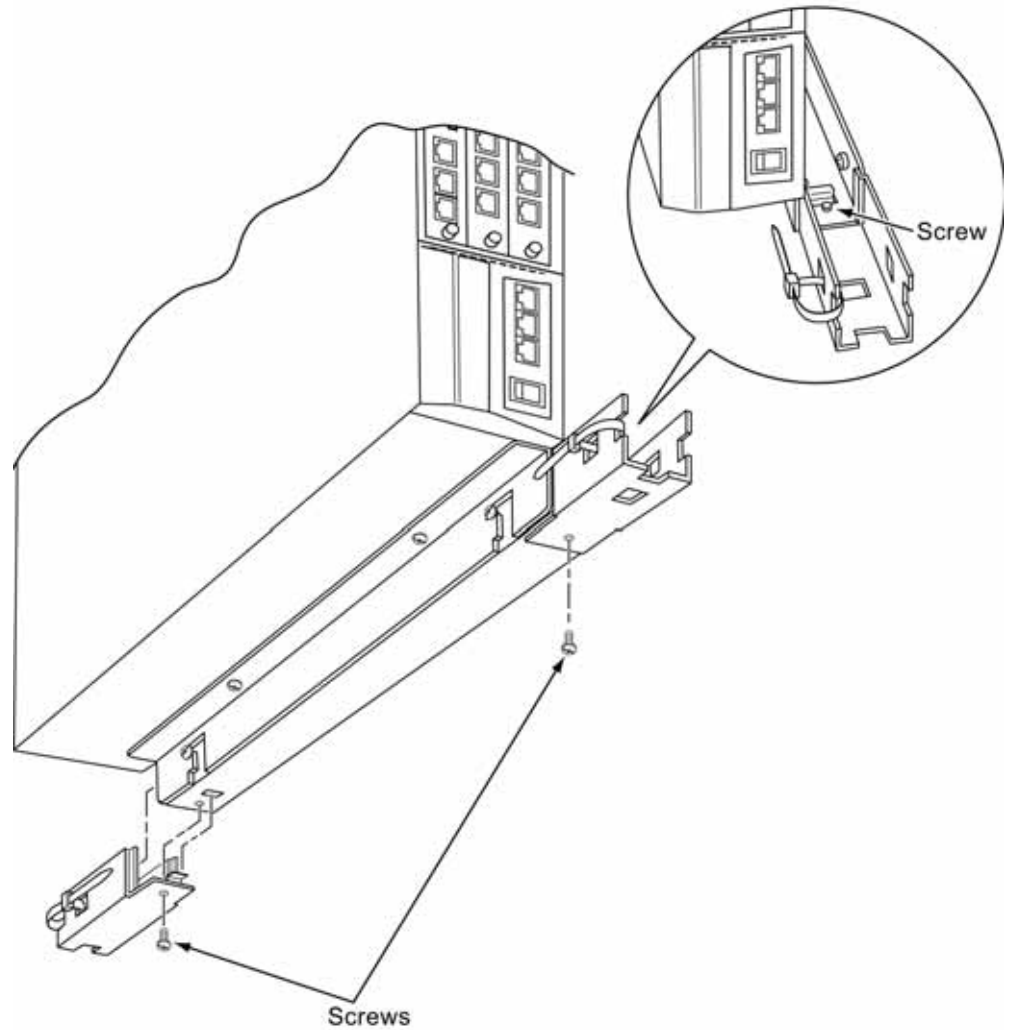
7. Using two screws, secure the metal fitting to the lower wall mount bracket. Refer to [Figure 3-52 Secure Metal Fitting to Lower Wall Mount Bracket with Screws](#) on page 3-44 for screw location.



**Figure 3-52 Secure Metal Fitting to Lower Wall Mount Bracket with Screws**

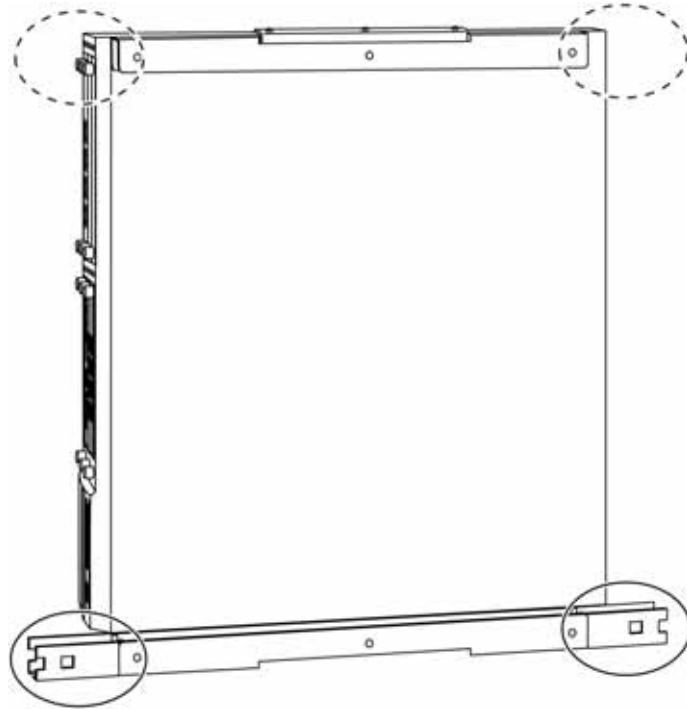
8. Attach the supplied cable support bracket to either end of the lower wall mount bracket with a single screw (refer to [Figure 3-53 Attach Cable Support Bracket to Lower Wall Mount Bracket](#) on page 3-45).





**Figure 3-53 Attach Cable Support Bracket to Lower Wall Mount Bracket**

9. The cable support bracket can be installed any of the four corners of the 19" chassis (refer to [Figure 3-54 Attachment Locations of Cable Support Bracket](#) on page 3-46).



**Figure 3-54 Attachment Locations of Cable Support Bracket**

10. Connect the ground wire to all chassis. Refer to [3.3.3 Install Grounding on 19" Chassis on page 3-18](#) for complete details on grounding the system.
11. Refer to [3.3.5 Install AC Power Cords on 19" Chassis on page 3-20](#) to continue installation of the chassis or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

## 4.2 Wall Mounting the 9.5" Gateway (CHS2U GW-US) and Base (CHS2U B-US) Chassis

When wall mounting the chassis, ensure the wall can support the weight of the chassis and (25 lbs per system chassis ---- including blades, cords, power supply, etc.). The chassis is secured to the wall with a wall mount bracket.

Optional wall mounting brackets exist for the 9.5" chassis (refer to [Figure 3-55 Optional Wall Mounting Brackets for 9.5" Chassis](#)). **Option 1** attaches the mounting bracket to the wall and the chassis attached to the bracket. **Option 2** attaches the bracket to the 9.5" chassis and then, using the key-holes as a guide, the assembled unit slides over screws secured to the wall using the template shown in [Figure 3-56 Wall Mount Spacing Guide \(9.5" Chassis\)](#) on page 3-48.

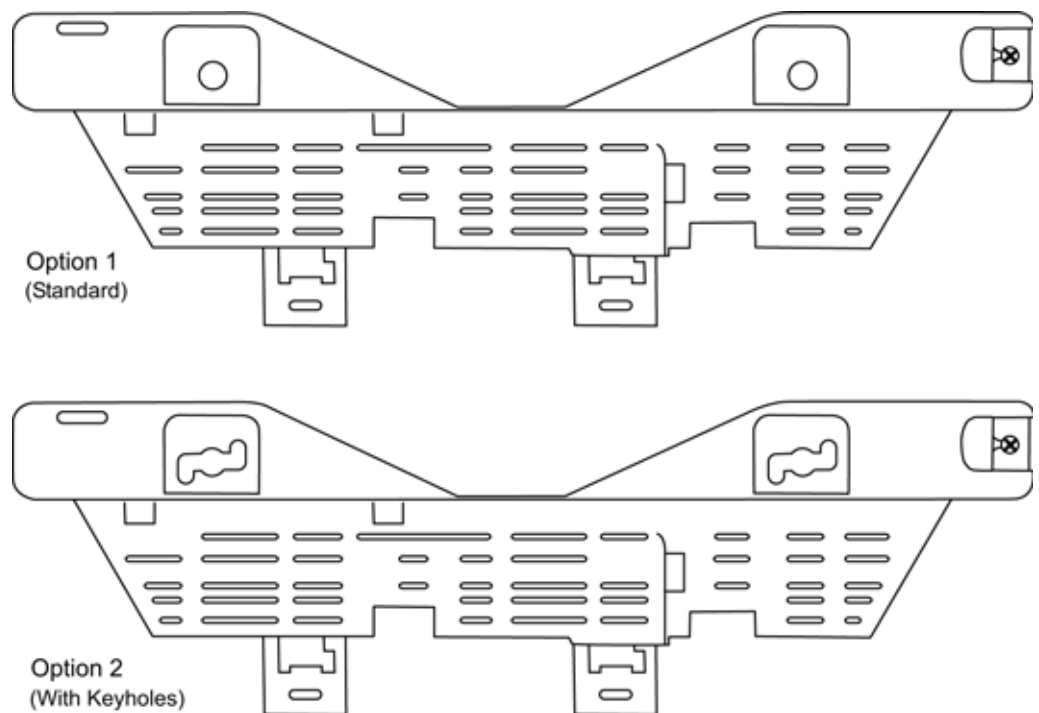


Figure 3-55 Optional Wall Mounting Brackets for 9.5" Chassis

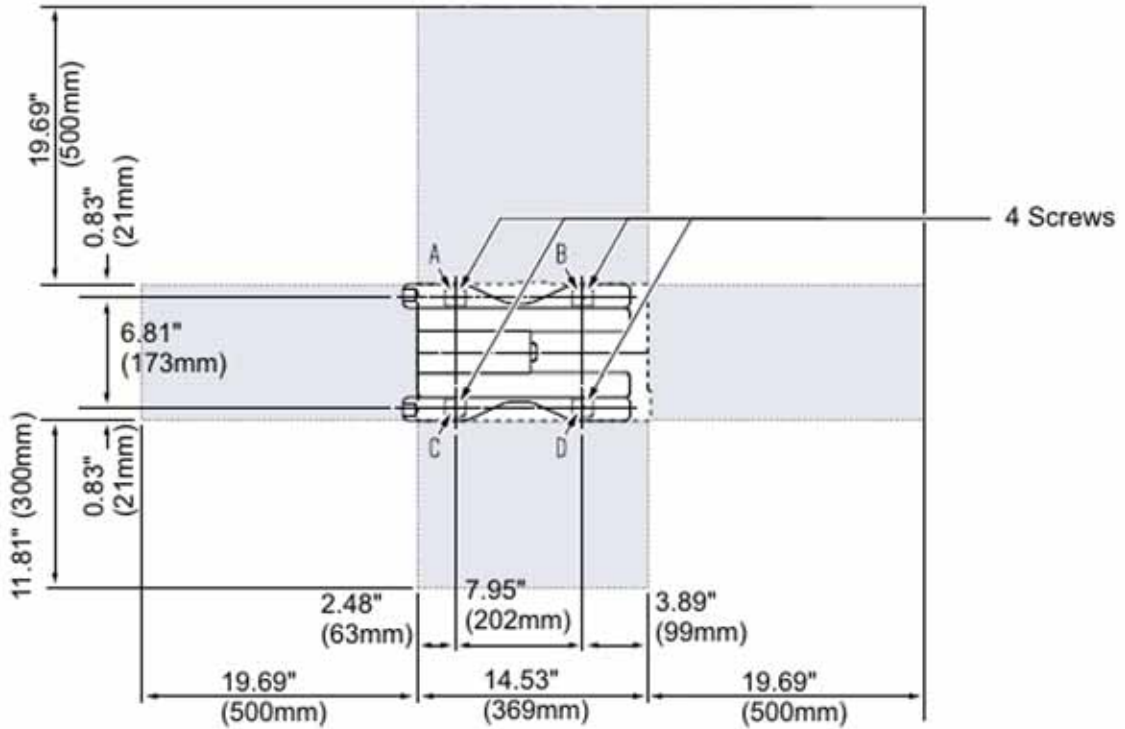


Figure 3-56 Wall Mount Spacing Guide (9.5" Chassis)

4.2.1 Option 1 – Wall Mount Bracket (Standard) to Wall

1. Use the template shown in [Figure 3-56 Wall Mount Spacing Guide \(9.5" Chassis\)](#) for required spacing before drilling.



*Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.*

2. Mark and drill four holes
3. Align the bracket halves with the precut holes in the metal expansion fitting provided (refer to [Figure 3-57 9.5" Mounting Brackets and Metal Expansion Fitting on page 3-49](#)).

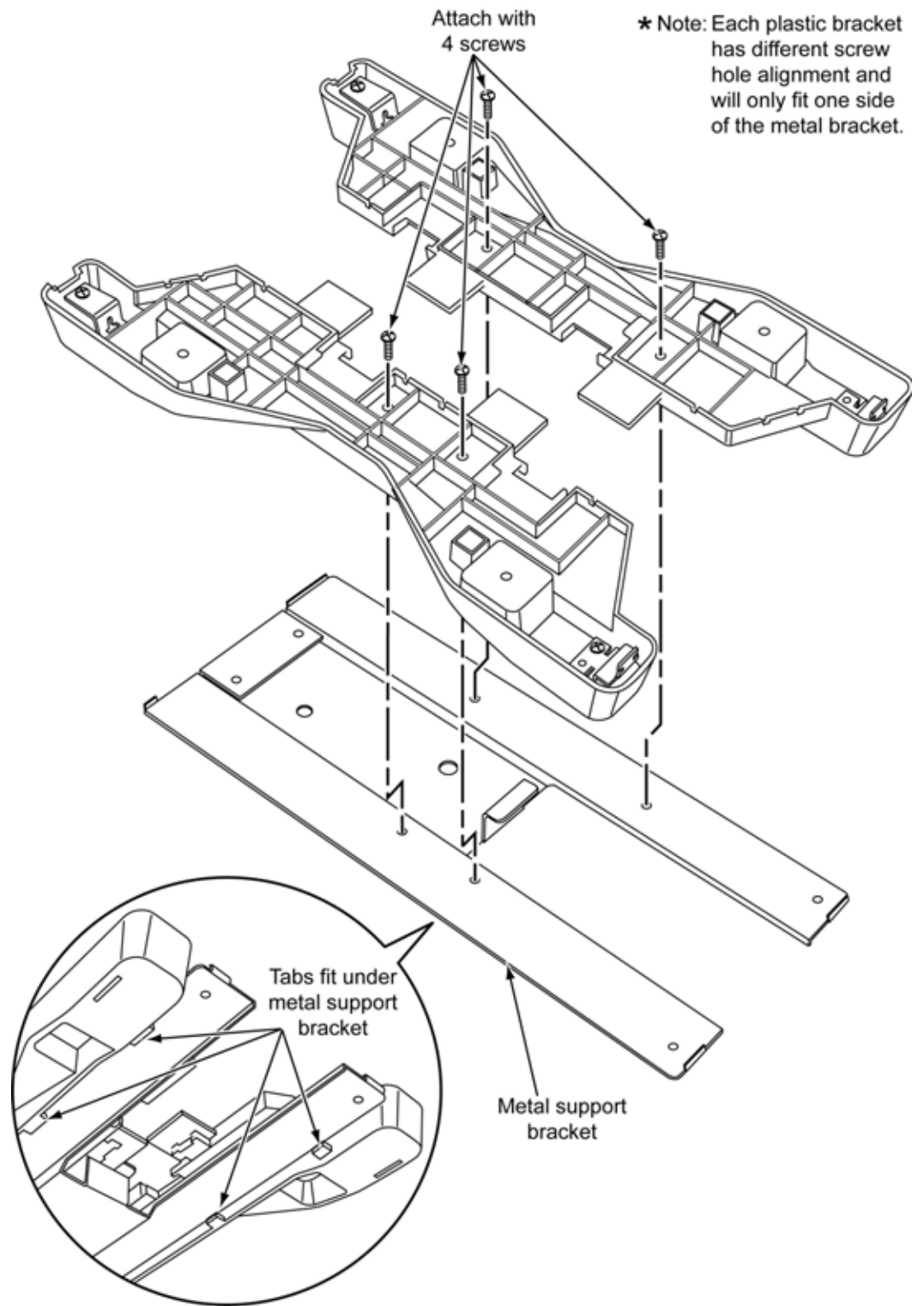
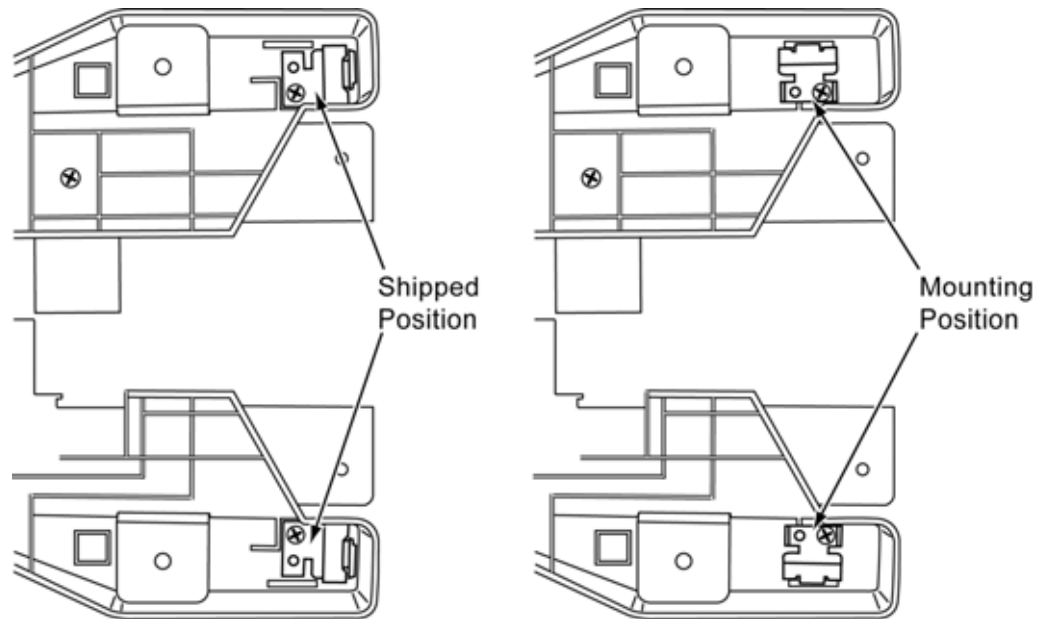


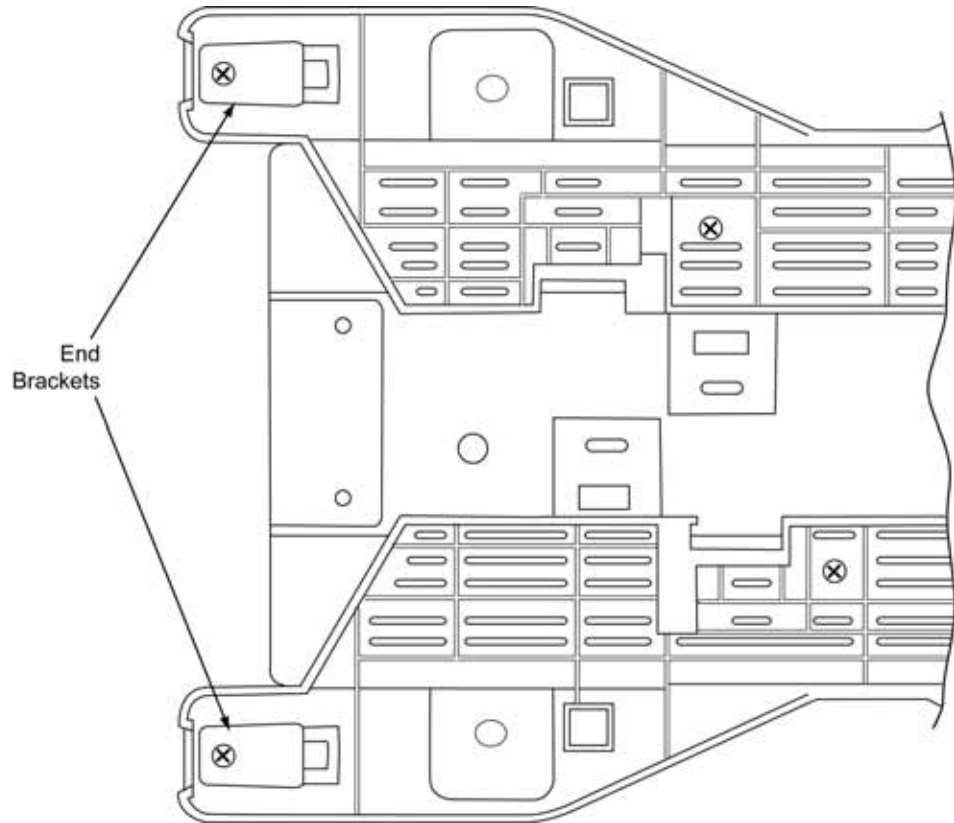
Figure 3-57 9.5" Mounting Brackets and Metal Expansion Fitting

4. Secure the bracket halves to the expansion fitting using the four supplied screws (refer to [Figure 3-57 9.5" Mounting Brackets and Metal Expansion Fitting on page 3-49](#)).
5. Turn bracket assembly over and remove the screws holding two brackets in the shipped position.



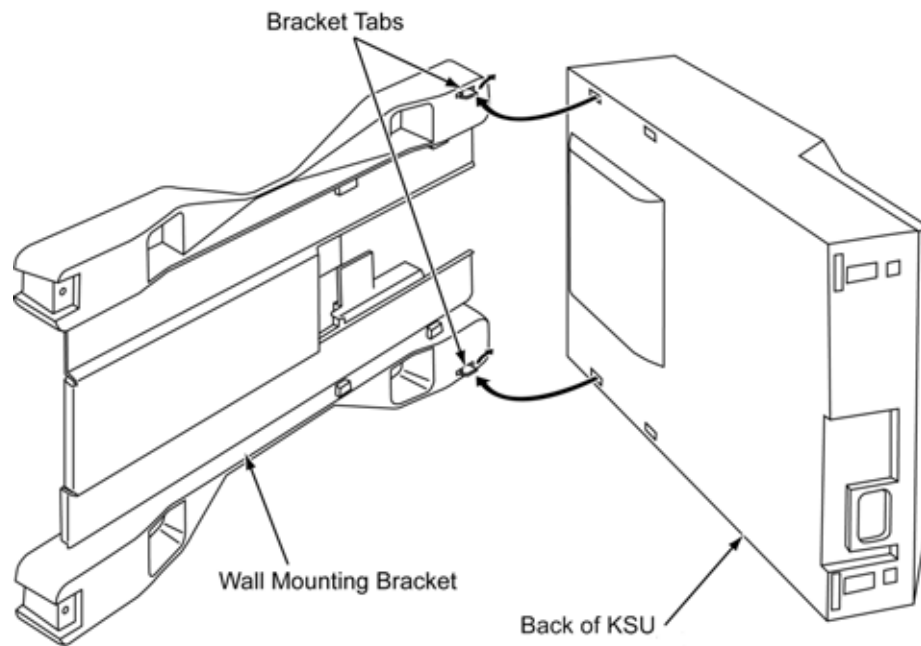
**Figure 3-58 Brackets Secured in Mounting Position with Screws**

6. Rotate the brackets into the mounting position. Using the same screws, secure the metal brackets to the bracket assembly (refer to [Figure 3-58 Brackets Secured in Mounting Position with Screws](#)).
7. Remove the end brackets from the remaining two corners and set aside (refer to [Figure 3-59 Remove End Brackets on page 3-51](#)).



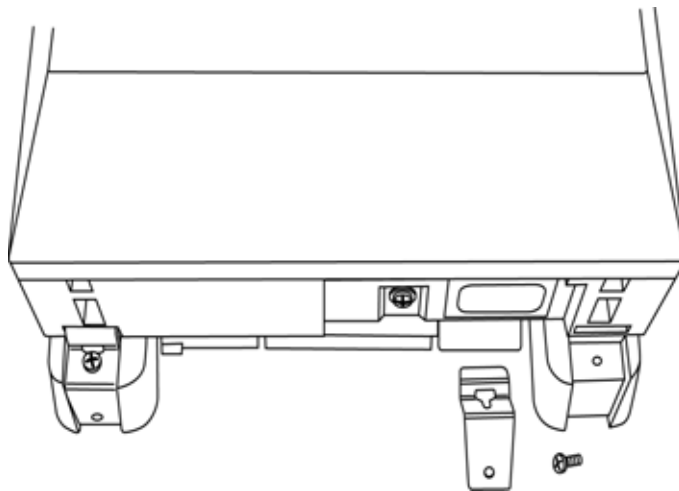
**Figure 3-59 Remove End Brackets**

8. Using four screws, secure bracket assembly to the four pre-drilled holes in the wall.
9. Fit the precut holes on the 9.5" chassis over the metal tabs (refer to [Figure 3-60 Attach 9.5" Chassis to Wall Mounting Bracket on page 3-52](#)).



**Figure 3-60 Attach 9.5" Chassis to Wall Mounting Bracket**

10. Using the screws removed earlier, install the end brackets to secure the 9.5" chassis to the mounted bracket assembly.



**Figure 3-61 Install End Brackets**

11. Connect grounding wire to chassis. Refer to Chapter 4 paragraph 3.4 [Installing the 9.5" Gateway \(CHS2U GW-US\) and Base \(CHS2U B-US\) Chassis](#) on page 3-22 for complete details on grounding the system.



12. Refer to [3.4.2 Install AC Power Cord 9.5" Gateway or Base Chassis on page 3-23](#) to continue installation of the chassis or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

#### 4.2.2 Option 2 – Wall Mount Bracket (Keyhole) to Chassis

1. Use the template shown in [Figure 3-56 Wall Mount Spacing Guide \(9.5" Chassis\) on page 3-48](#) for required spacing before drilling.



*Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.*

2. Mark and drill four holes.
3. Install four screws into the four drilled holes (refer to [Figure 3-62 Install Screws \(Option 2\) on page 3-54](#)).

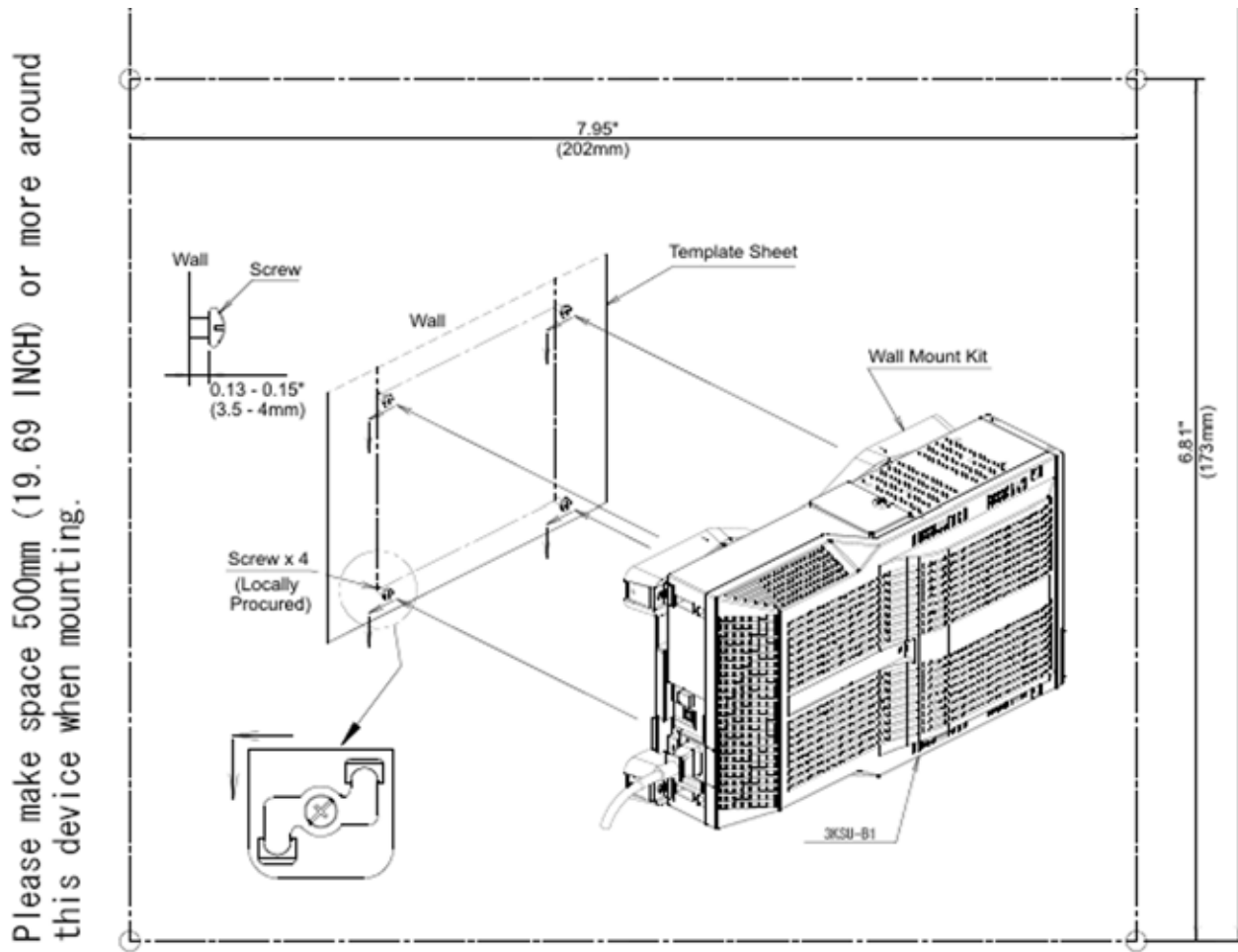


Figure 3-62 Install Screws (Option 2)

4. Align the bracket halves with the precut holes in the metal expansion fitting provided.

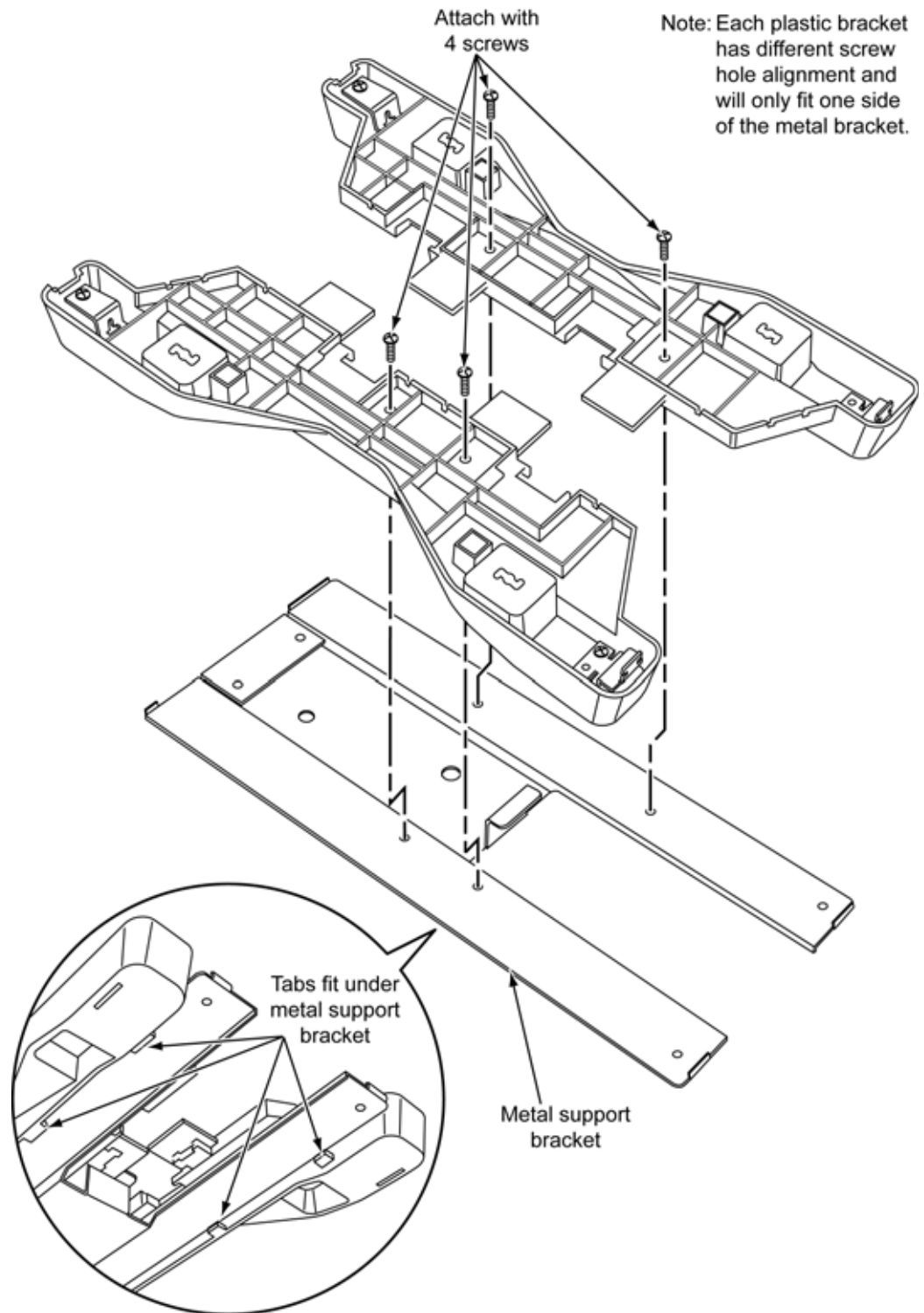
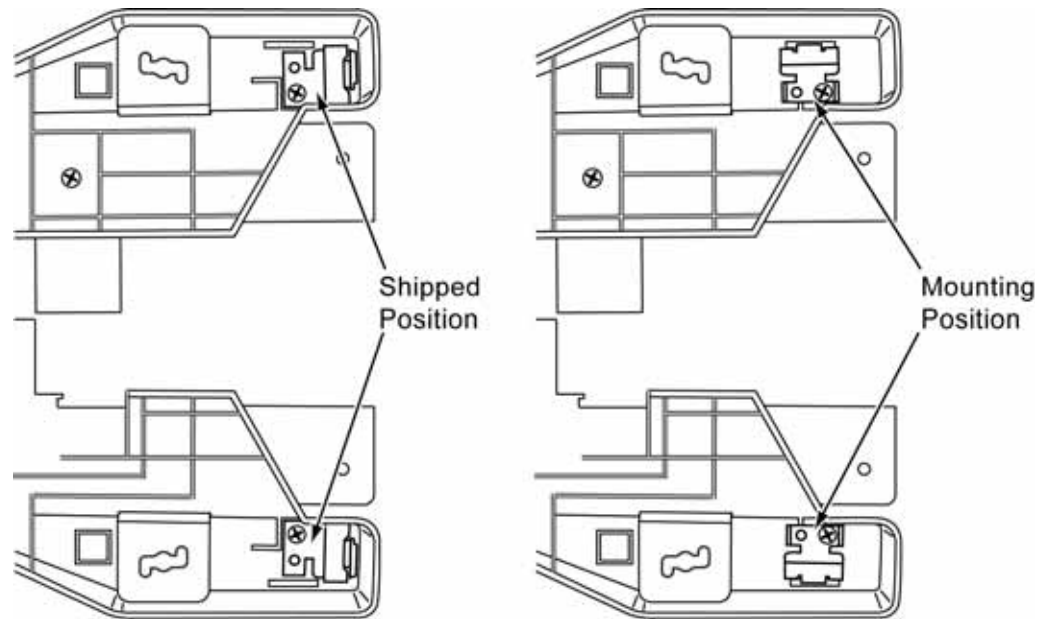


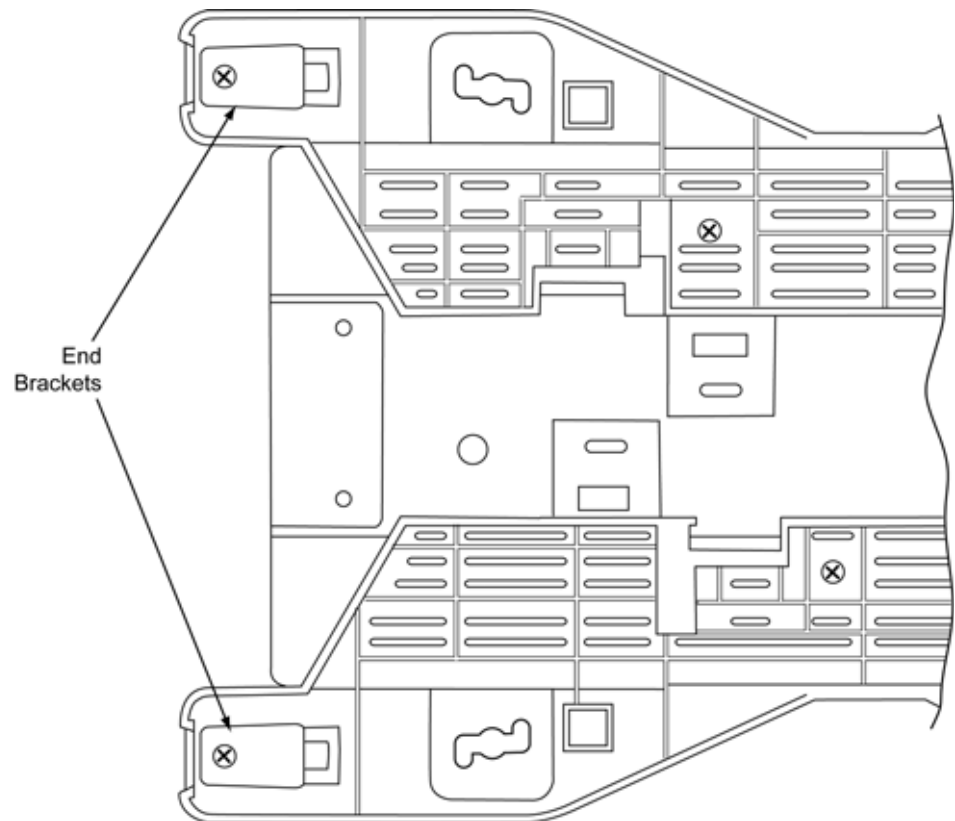
Figure 3-63 9.5" Mounting Brackets and Metal Expansion Fitting

5. Secure the bracket halves to the expansion fitting using the four supplied screws (refer to [Figure 3-63 9.5" Mounting Brackets and Metal Expansion Fitting on page 3-55](#)).
6. Turn bracket assembly over and remove the screws holding two brackets in the shipped position.



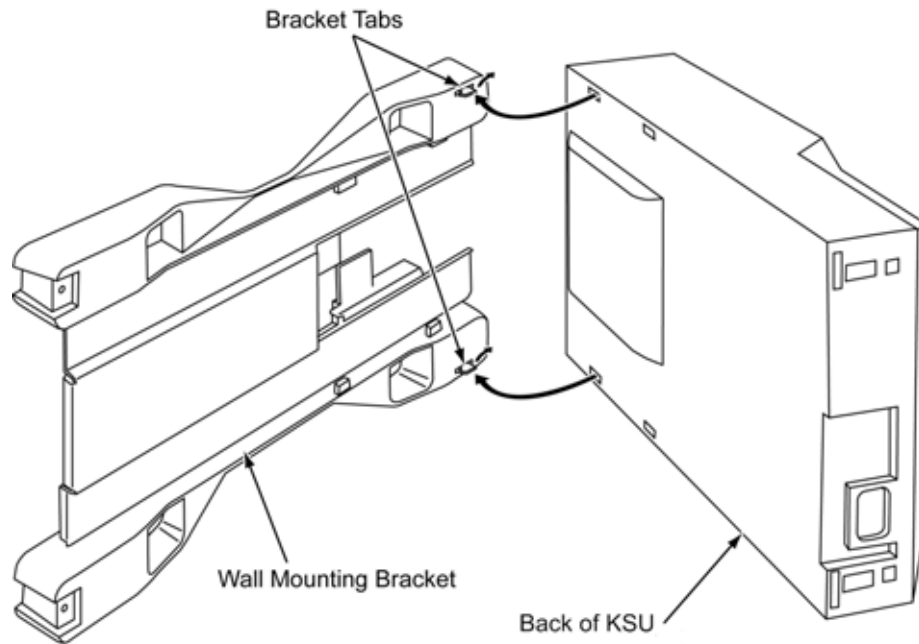
**Figure 3-64 Brackets Secured in Mounting Position with Screws**

7. Rotate the brackets into the mounting position. Using the same screws, secure the metal brackets to the bracket assembly (refer to [Figure 3-64 Brackets Secured in Mounting Position with Screws](#)).
8. Remove the end brackets from the remaining two corners and set aside (refer to [Figure 3-65 Remove End Brackets on page 3-57](#)).



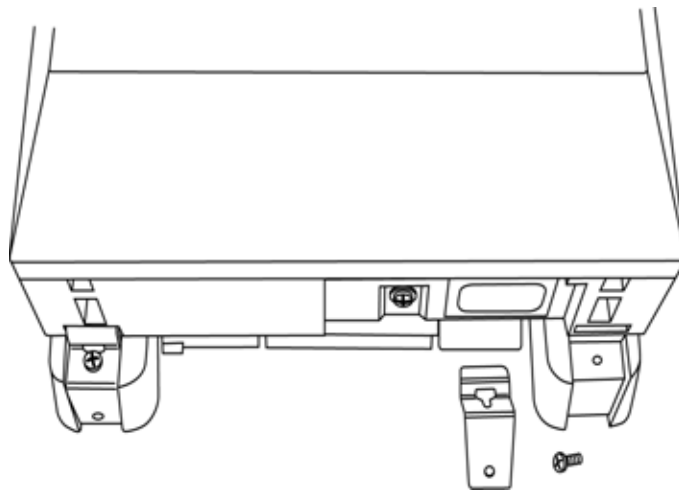
**Figure 3-65 Remove End Brackets**

9. Fit the precut holes on the 9.5" chassis over the metal tabs (refer to [Figure 3-66 Attach 9.5" Chassis to Wall Mounting Bracket on page 3-58](#)).



**Figure 3-66 Attach 9.5" Chassis to Wall Mounting Bracket**

10. Using the screws removed earlier, install the end brackets to secure the 9.5" chassis to the mounted bracket assembly.

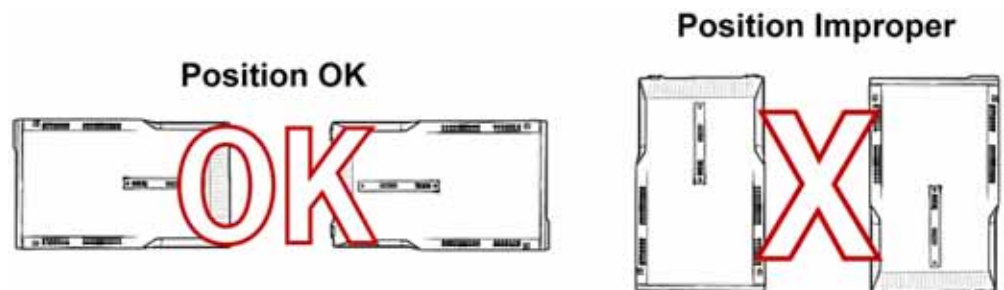


**Figure 3-67 Install End Brackets**

11. Using the key-holes as a guide, slide the assembled unit over the screws previously installed in the wall (refer to [Figure 3-62 Install Screws \(Option 2\) on page 3-54](#)).
12. Connect grounding wire to chassis. Refer to Chapter 4 paragraph [3.4 Installing the 9.5" Gateway \(CHS2U GW-US\) and Base \(CHS2U B-US\) Chassis on page 3-22](#) for complete details on grounding the system.
13. Refer to [3.4.2 Install AC Power Cord 9.5" Gateway or Base Chassis on page 3-23](#) for installation of the power cord or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

### 4.3 Wall Mounting the 9.5" Base (CHS2U B-US) and Expansion (CHS2U E) Chassis

When wall mounting the 9.5" Base and Expansion chassis, ensure the wall can support the weight of the chassis (9.48 lbs per each 3-slot chassis – including blades, cords, power supply, etc.). For proper air circulation, the chassis must be secured to the wall sideways (refer to [Figure 3-68 Wall Mount Positioning for 9.5" Base/Expansion Chassis](#)) with a wall mount bracket. Ensure enough space is available above and below to allow installation of additional expansion chassis.



**Figure 3-68 Wall Mount Positioning for 9.5" Base/Expansion Chassis**

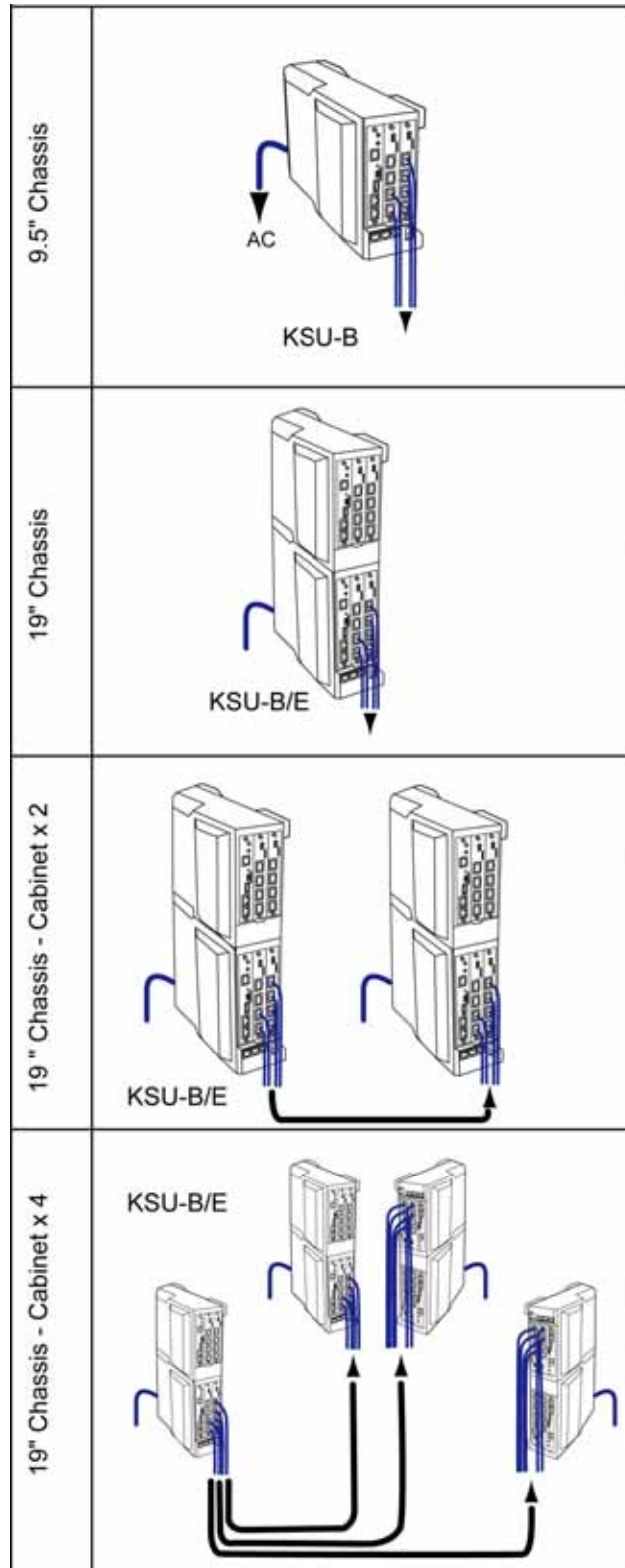


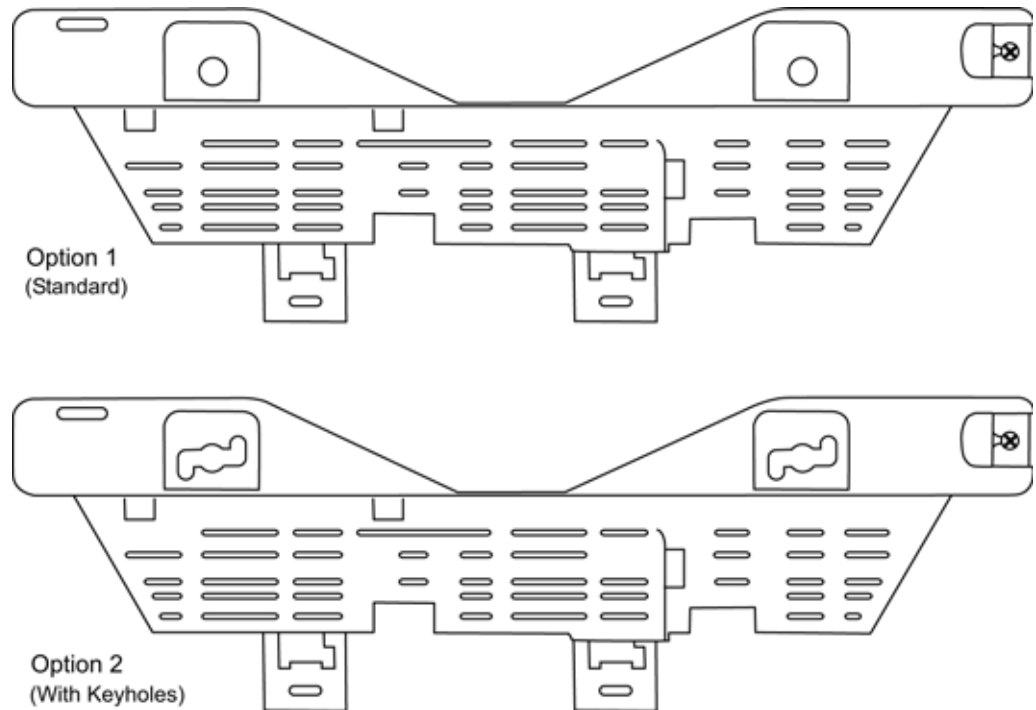
Figure 3-69 Wall Mounting the 9.5" Base/Expansion Chassis



#### 4.3.1 9.5" Base and Expansion Chassis Wall Mount Installation

Optional wall mounting brackets exist for the 9.5" chassis (refer to [Figure 3-70 Optional Wall Mounting Brackets for 9.5" Chassis](#)).

**Option 1** secures the mounting bracket to the wall and the chassis is attached to the bracket. **Option 2** attaches the bracket to the 9.5" chassis. Then, using the key-holes as a guide, the assembled unit slides over the screw heads exposed approximately 3/16" out of the wall.

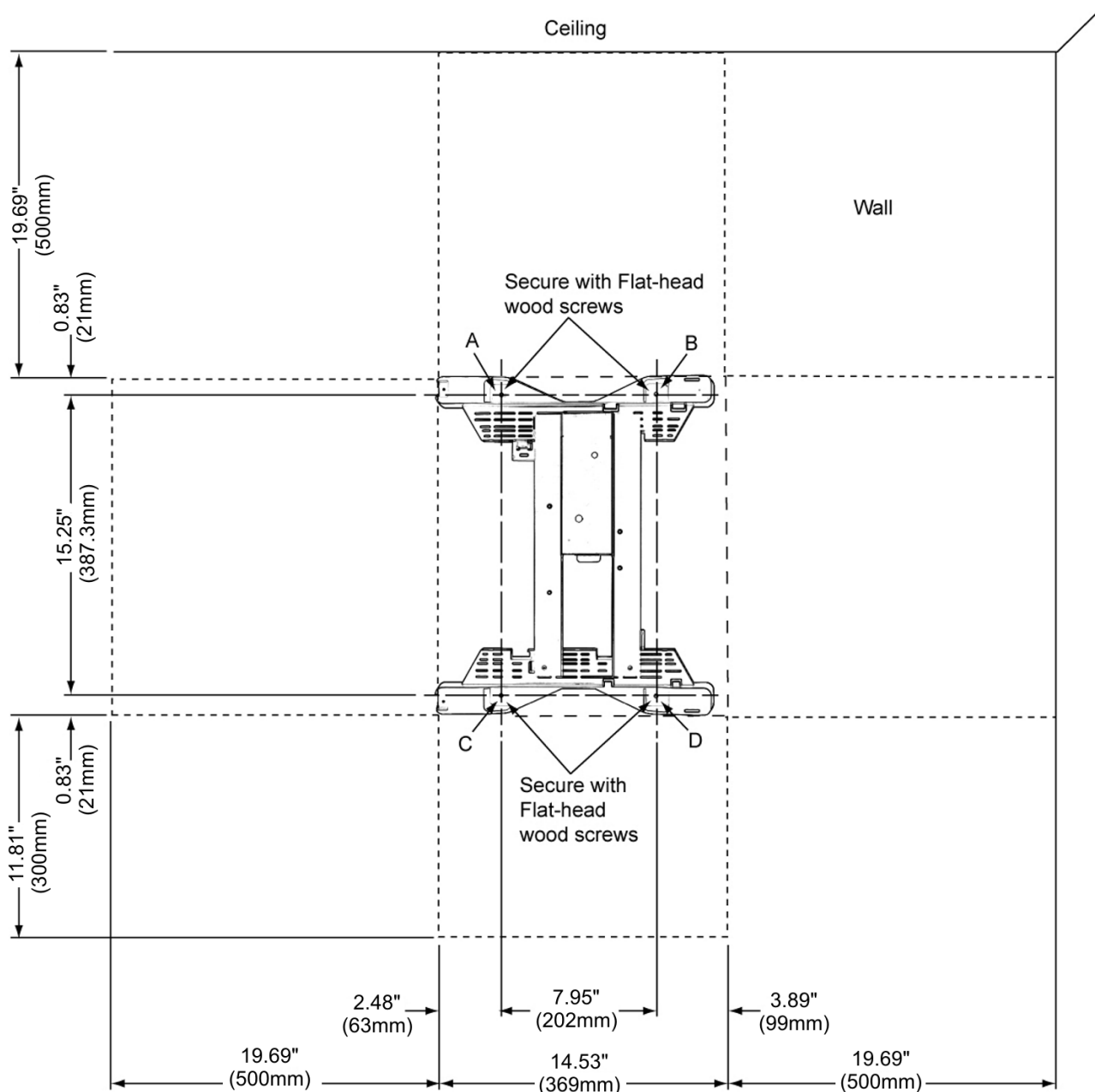


**Figure 3-70 Optional Wall Mounting Brackets for 9.5" Chassis**

1. Use the template shown in [Figure 3-71 Wall Mount Spacing Guide – 9.5" Base and Expansion Chassis](#) on page 3-62 for the required spacing before drilling.

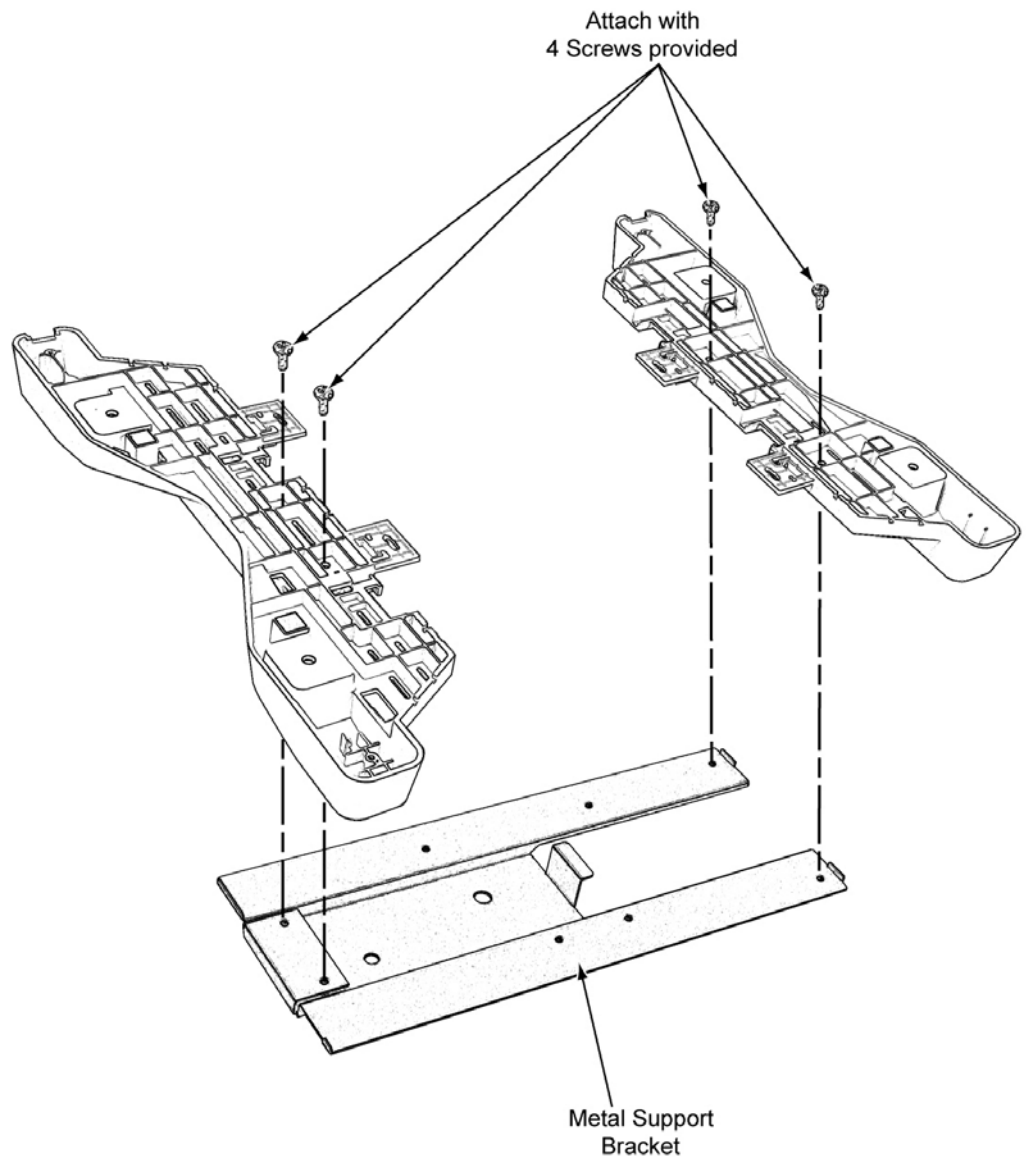


- *Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.*



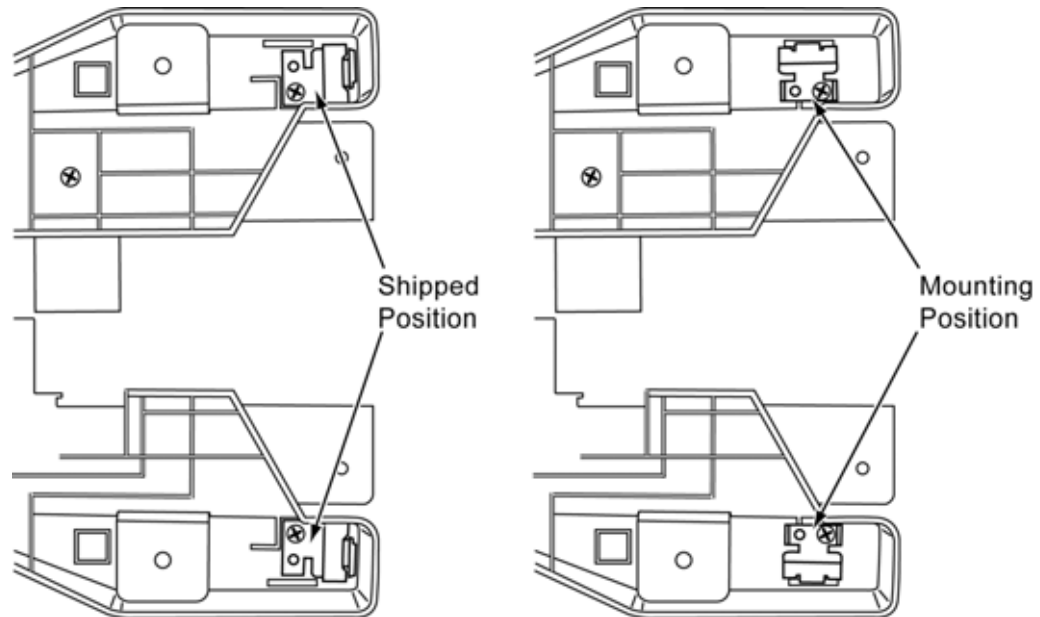
**Figure 3-71 Wall Mount Spacing Guide – 9.5” Base and Expansion Chassis**

2. Mark and drill four holes.
3. Align the bracket halves with the precut holes in the metal expansion fitting provided (refer to [Figure 3-72 9.5” Mounting Brackets and Metal Expansion Fitting](#) on page 3-63).



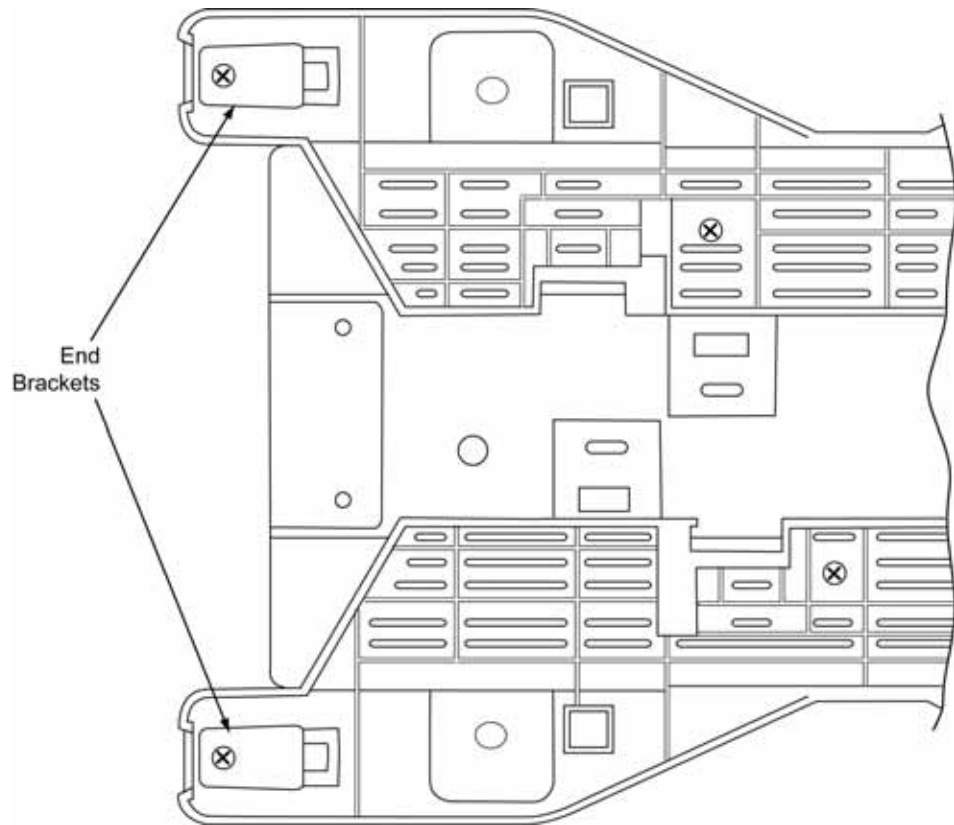
**Figure 3-72 9.5" Mounting Brackets and Metal Expansion Fitting**

4. Secure the bracket halves to the expansion fitting using the four supplied screws (refer to [Figure 3-72 9.5" Mounting Brackets and Metal Expansion Fitting](#)).
5. Turn bracket assembly over and remove the screws holding two brackets in the shipped position (refer to [Figure 3-73 Brackets Secured in Mounting Position with Screws](#) on page 3-64).



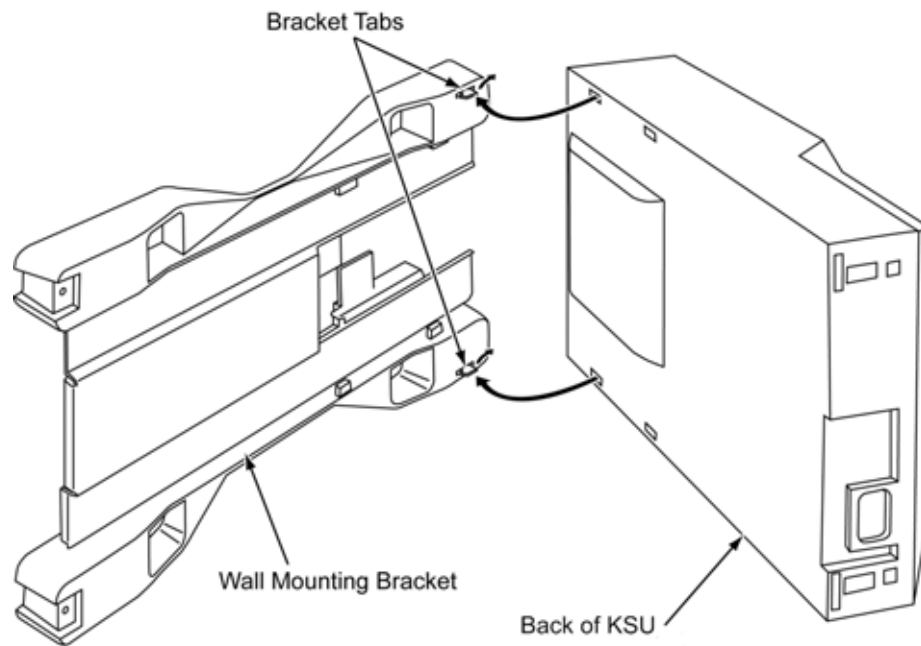
**Figure 3-73 Brackets Secured in Mounting Position with Screws**

6. Rotate the brackets into the mounting position. Using the same screws, secure the metal brackets to the bracket assembly (refer to [Figure 3-73 Brackets Secured in Mounting Position with Screws](#)).
7. Remove the end brackets from the remaining two corners and set aside (refer to [Figure 3-74 Remove End Brackets on page 3-65](#)).



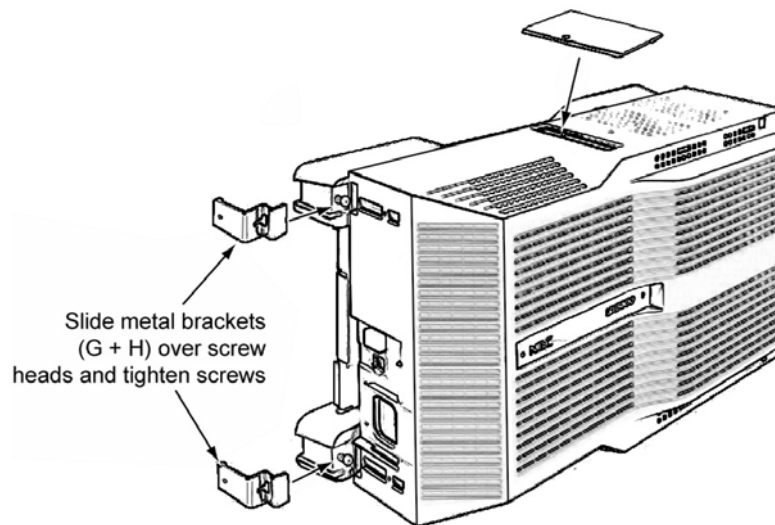
**Figure 3-74 Remove End Brackets**

8. Using four screws, secure bracket assembly to the four pre-drilled holes in the wall.
9. Fit the precut holes on the 9.5" chassis over the metal tabs (refer to [Figure 3-75 Attach 9.5" Chassis to Wall Mounting Bracket on page 3-66](#)).



**Figure 3-75 Attach 9.5" Chassis to Wall Mounting Bracket**

10. Using the screws removed earlier, install the end brackets to secure the 9.5" chassis to the mounted bracket assembly.



**Figure 3-76 Install End Brackets**

11. Install the backboard connector to prevent dust/foreign objects from entering the chassis (refer to [Figure 3-76 Install End Brackets](#)).

12. Connect grounding wire to chassis. Refer to Chapter 4 paragraph [3.5 Installing the 9.5" Base \(CHS2U B-US\) and Expansion \(CHS2U E\) Chassis on page 3-24](#) for complete details on grounding the system.
13. Refer to [3.5.5 Install AC Power Cord on 9.5" Base and Expansion Chassis on page 3-39](#) for installation of the power cord or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

## SECTION 5 FLOOR MOUNTING THE CHASSIS

### 5.1 Floor Mounting the 19" (CHS2U-US) Chassis

The CHS2U-US controlling and expansion chassis can be mounted on the floor using the CHS BASE UNIT and the CHS2U JOINT BRACKET KIT.

#### 5.1.1 CHS2U-US Chassis Installation

1. Use the template shown in [Figure 3-77 Floor Mount Spacing Guide](#) for required spacing before drilling holes for 0.39" (10mm) anchor bolts (locally procured).

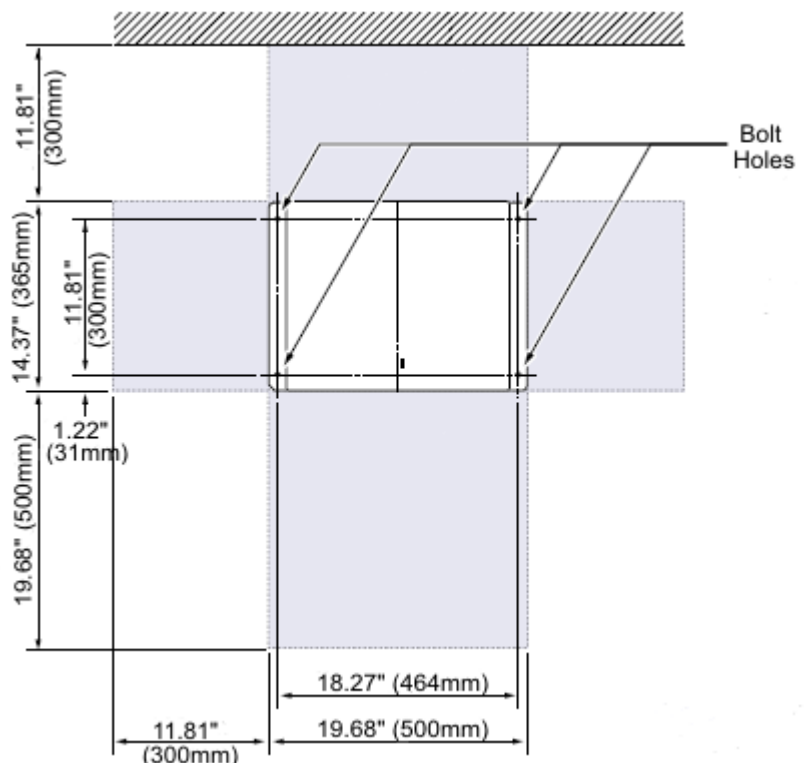
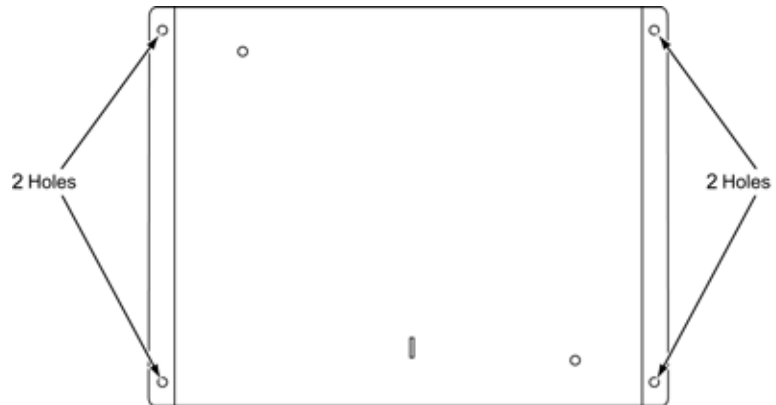


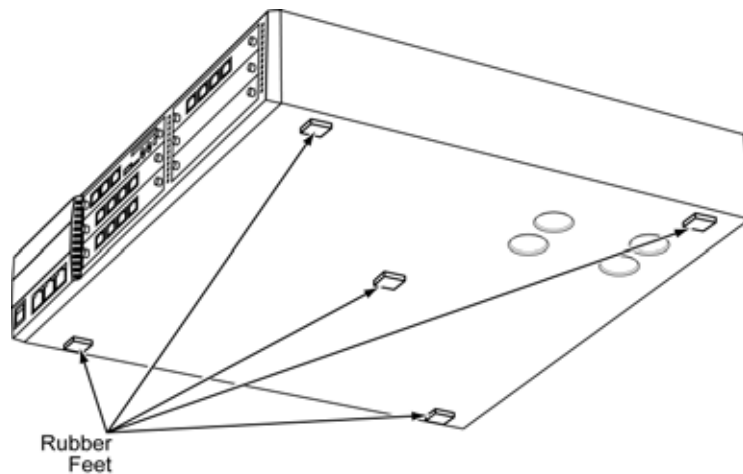
Figure 3-77 Floor Mount Spacing Guide

2. Mark and drill the four holes required to install the CHS BASE UNIT.
3. Using anchor bolts, secure the CHS BASE UNIT to the floor. Refer to [Figure 3-78 Secure CHS BASE UNIT with Anchor Bolts](#) for screw location.



**Figure 3-78 Secure CHS BASE UNIT with Anchor Bolts**

4. Install the five rubber feet to the bottom of the chassis.

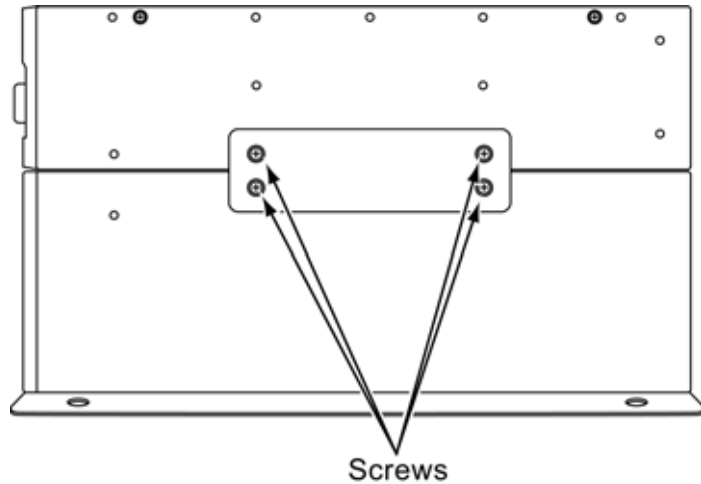


**Figure 3-79 Install Rubber Feet (19" Chassis)**

5. Position the chassis on top of the CHS BASE UNIT.



- Secure the chassis to the CHS BASE UNIT using eight screws supplied with the CHS2U JOINT BRACKET KIT.



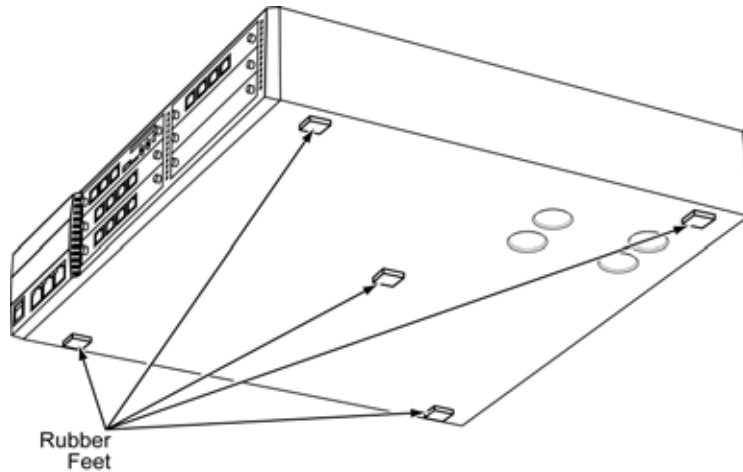
**Figure 3-80 Install CHS2U JOINT BRACKET KIT**

- Connect the ground wire to all chassis. Refer to [3.3.3 Install Grounding on 19" Chassis on page 3-18](#) for complete details on grounding the system.
- Refer to [3.3.5 Install AC Power Cords on 19" Chassis on page 3-20](#) to continue installation of the chassis or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

### 5.1.2 Multiple CHS2U-US Chassis Installation

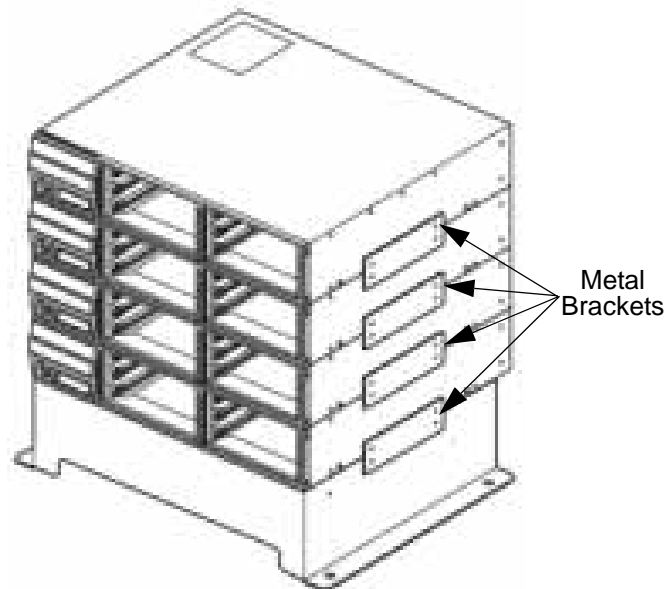
Expansion chassis can be secured to the CHS BASE UNIT and require an additional CHS2U JOINT BRACKET KIT per chassis.

1. Install the five rubber feet to the bottom of each chassis.



**Figure 3-81 Install Rubber Feet for Multiple Chassis**

2. Using supplied screws in the CHS2U JOINT BRACKET KIT, attach metal brackets to both ends of the 19" chassis and the CHS BASE UNIT. Refer to [Figure 3-82 Install Metal Brackets with Screws](#).



**Figure 3-82 Install Metal Brackets with Screws**

3. Connect the ground wire to all chassis. Refer to [3.3.3 Install Grounding on 19" Chassis on page 3-18](#) for complete details on grounding the system.
4. Refer to [3.3.5 Install AC Power Cords on 19" Chassis on page 3-20](#) to continue installation of the chassis or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

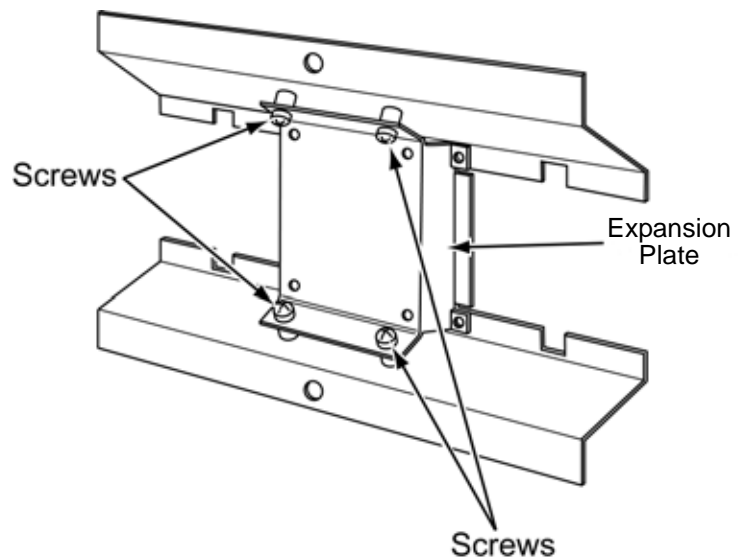
## SECTION 6 STAND MOUNTING THE CHASSIS

### 6.1 Stand Mounting the 19" (CHS2U-US) Chassis

A single or multiple chassis can be stand mounted. Controlling and Expansion chassis can be stand mounted using the CHS2U STAND KIT(K) and CHS2U STAND KIT (EXT).

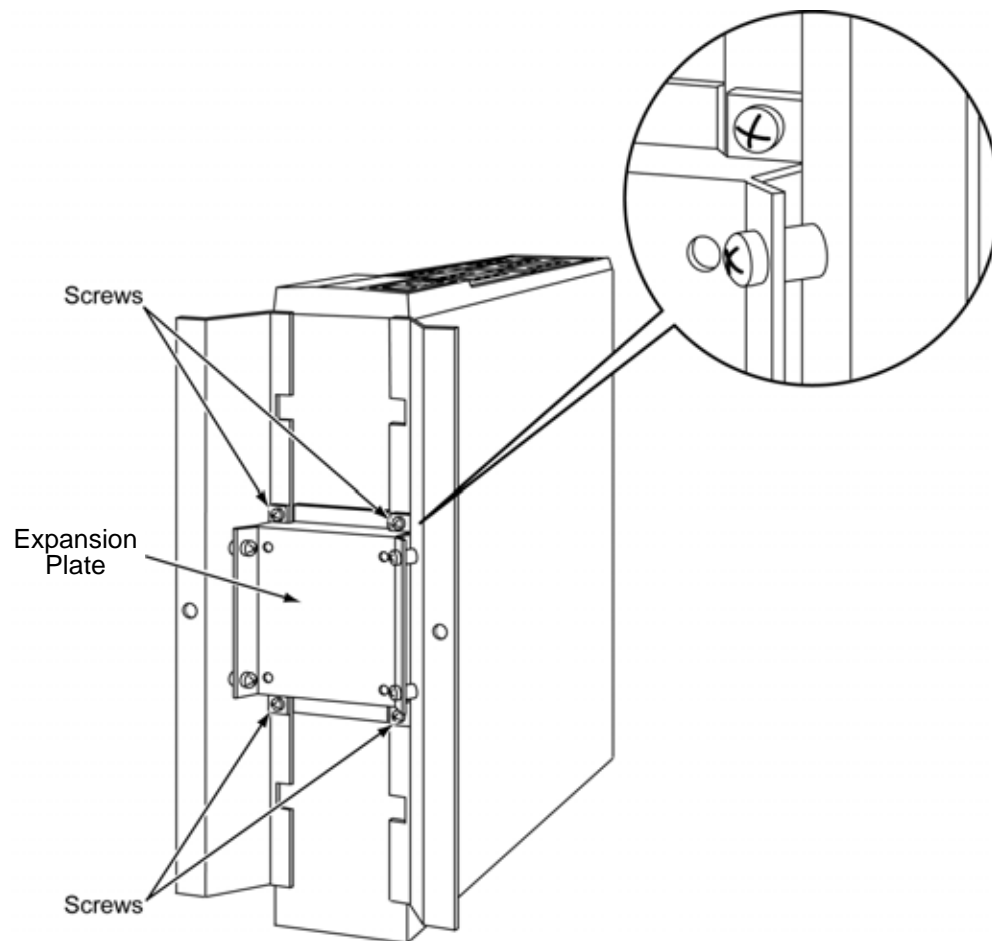
#### 6.1.1 CHS2U-US Chassis Installation

1. Using the supplied screws, assemble the CHS2U STAND KIT(K) and CHS2U STAND KIT (EXT) (refer to [Figure 3-83 Assemble Stand Mount with Screws](#)).



**Figure 3-83 Assemble Stand Mount with Screws**

2. Secure the CHS2U-US chassis to the assembled CHS2U STAND KIT, see [Figure 3-84 Secure CHS2U-US Chassis to CHS2U STAND KIT with Screws on page 3-72](#).

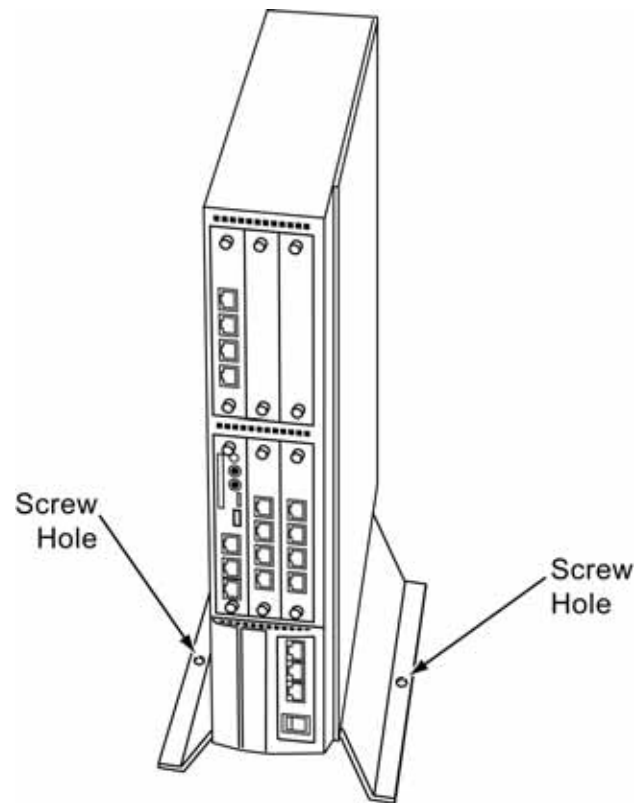


**Figure 3-84 Secure CHS2U-US Chassis to CHS2U STAND KIT with Screws**

3. Using supplied screws, secure the CHS2U STAND KIT to the floor (refer to [Figure 3-85 Secure Stand Mount to Floor with Screws](#) on page 3-73).



*To prevent possible damage to the 19" chassis due to falling, NEC recommends screws be installed in the stand mount brackets as soon as possible.*



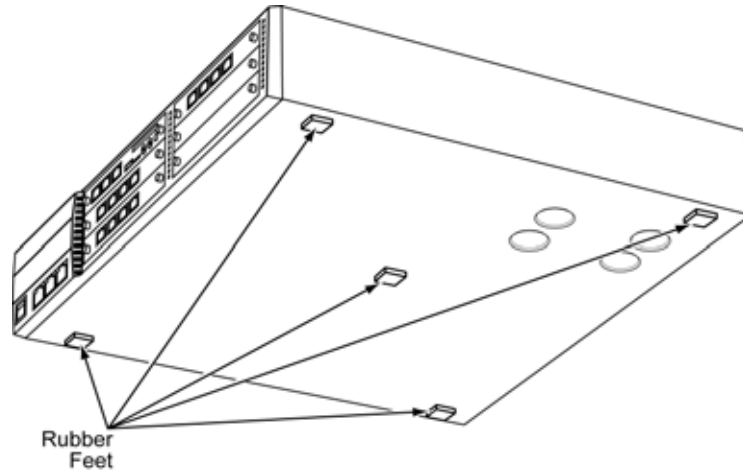
**Figure 3-85 Secure Stand Mount to Floor with Screws**

4. Connect the ground wire to all chassis. Refer to [3.3.3 Install Grounding on 19" Chassis on page 3-18](#) for complete details on grounding the system.
5. Refer to [3.3.5 Install AC Power Cords on 19" Chassis on page 3-20](#) to continue installation of the chassis or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

### 6.1.2 Multiple CHS2U-US Chassis Installation

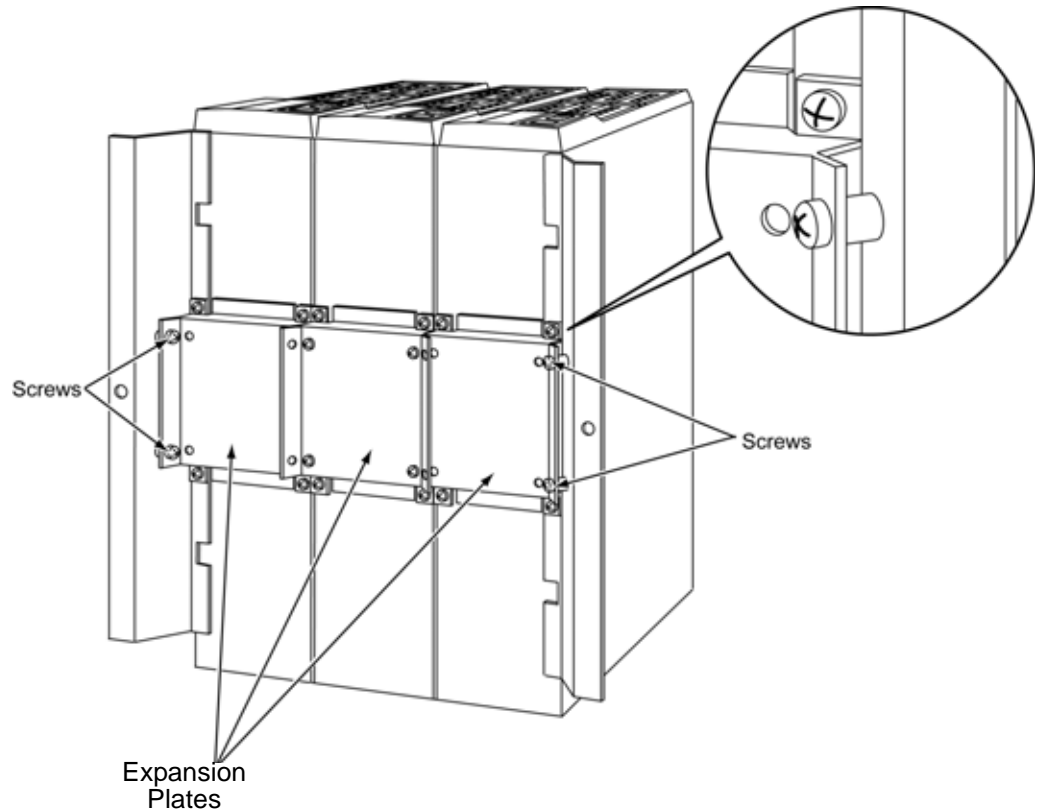
Expansion chassis (maximum of three) can be added to the CHS2U STAND KIT and require an additional CHS2U STAND KIT (EXT) per chassis.

1. Install the five rubber feet to the bottom of each chassis.



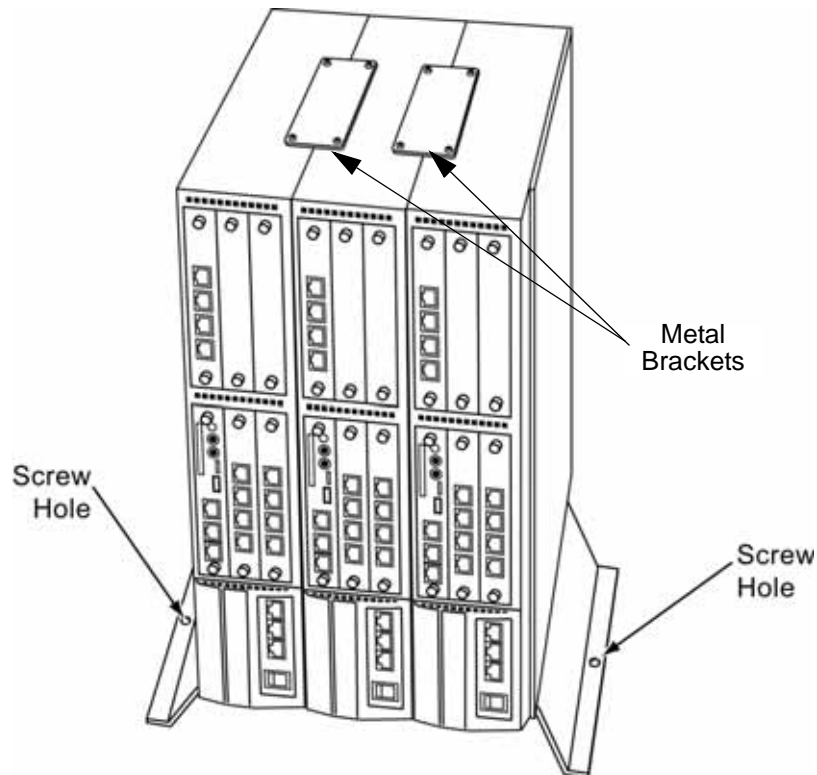
**Figure 3-86 Attach Rubber Feet to CHS2U-US Chassis**

2. Each additional chassis requires a CHS2U STAND KIT (EXT) to be installed (refer to [Figure 3-87 Install Additional CHS2U STAND KIT \(EXT\)](#) on page 3-75).



**Figure 3-87 Install Additional CHS2U STAND KIT (EXT)**

3. Metal brackets from the CHS2U JOINT BRACKET KITs are required to secure the top end of the chassis with screws. See [Figure 3-88 Install Additional Brackets from CHS2U JOINT BRACKET KIT](#) on page 3-76.



**Figure 3-88 Install Additional Brackets from CHS2U JOINT BRACKET KIT**

4. Using supplied screws, secure the CHS2U STAND KIT to the floor (refer to [Figure 3-88 Install Additional Brackets from CHS2U JOINT BRACKET KIT](#)).



*To prevent possible damage to the 19" chassis due to falling, NEC recommends screws be installed in the stand mount brackets as soon as possible.*

5. Connect the ground wire to all chassis. Refer to [3.3.3 Install Grounding on 19" Chassis on page 3-18](#) for complete details on grounding the system.
6. Refer to [3.3.5 Install AC Power Cords on 19" Chassis on page 3-20](#) to continue installation of the chassis or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.



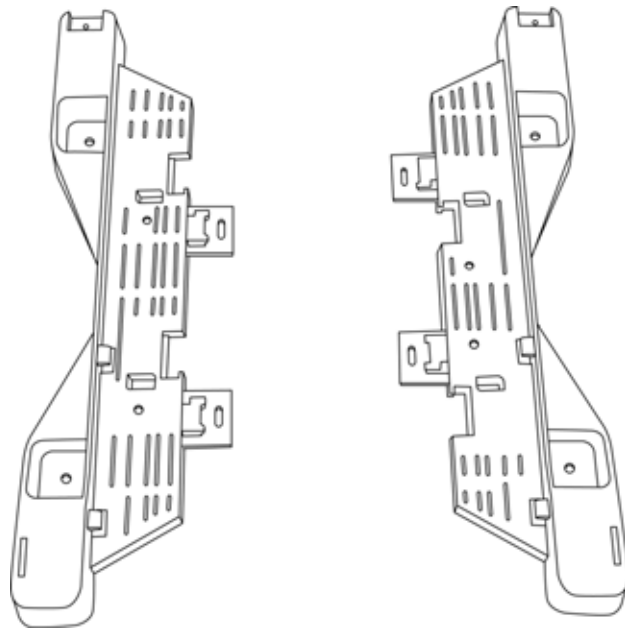
## 6.2 Stand Mounting the 9.5" Gateway (CHS2U GW-US) and Base (CHS2U B-US) Chassis

The 9.5" chassis can be stand mounted using the brackets supplied. The following section describes this procedure.



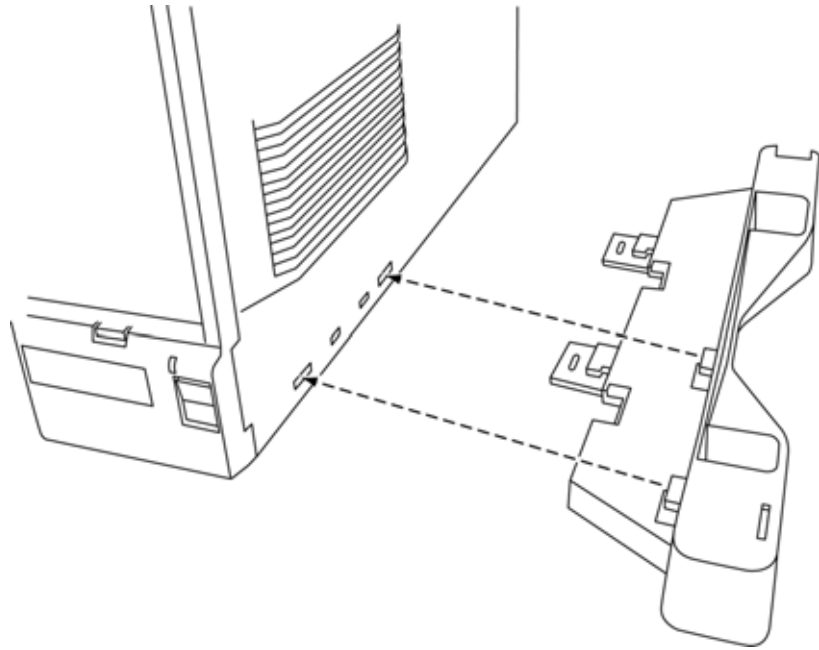
*This bracket is not for use with a combined Base (CHS2U B-US) and Expansion (CHS2U E) chassis. A combined Base and Expansion chassis should only be rack or wall mounted.*

1. Lay the two bracket halves on a flat surface.

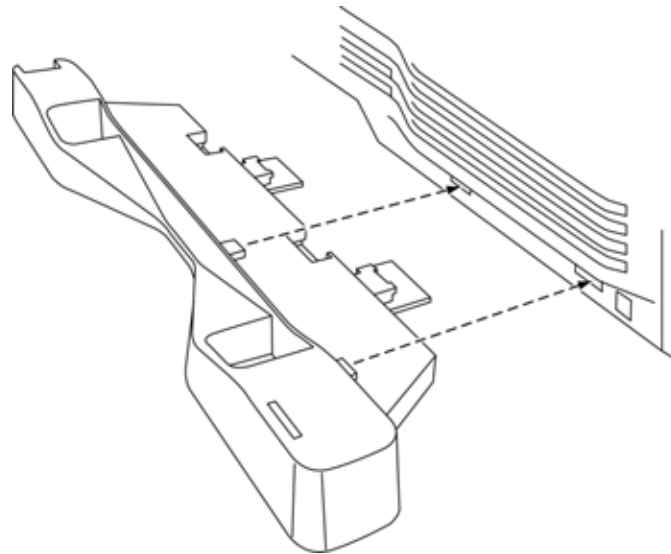


**Figure 3-89 Position the 9.5" Stand Mount Brackets**

2. Using the slots on the sides of the 9.5" chassis as guides, insert the stand mount brackets into the chassis (refer to [Figure 3-90 Attach 9.5" Stand Mount Bracket](#) and [Figure 3-91 Attach Remaining 9.5" Stand Mount Bracket on page 3-78](#)).



**Figure 3-90 Attach 9.5" Stand Mount Bracket**



**Figure 3-91 Attach Remaining 9.5" Stand Mount Bracket**

3. With brackets snug against the 9.5" chassis, carefully slide the brackets in opposite directions (refer to arrows [Figure 3-92 Stand Mount Brackets Installed](#)), until they snap into place.

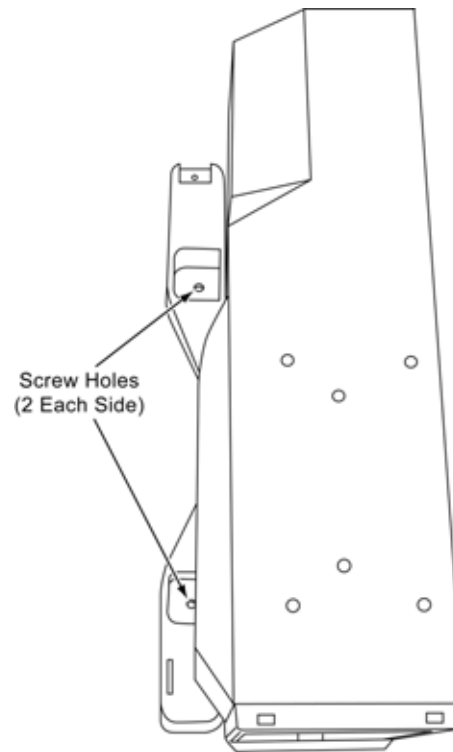


**Figure 3-92 Stand Mount Brackets Installed**

4. Secure the 9.5" assembly to a flat surface with the four screws supplied (refer to [Figure 3-93 Secure the 9.5" Stand Mounting with Screws](#) on page 3-80).



*To prevent possible damage to the 9.5" chassis due to falling, NEC recommends the screws be installed in the stand mount brackets as soon as possible.*



**Figure 3-93 Secure the 9.5" Stand Mounting with Screws**

5. Connect grounding wire to chassis. Refer to Chapter 4 paragraph [3.4 Installing the 9.5" Gateway \(CHS2U GW-US\) and Base \(CHS2U B-US\) Chassis on page 3-22](#) for complete details on grounding the system.
6. Refer to [3.3.5 Install AC Power Cords on 19" Chassis on page 3-20](#) for installation of the power cord or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

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## SECTION 7 RACK MOUNTING THE CHASSIS

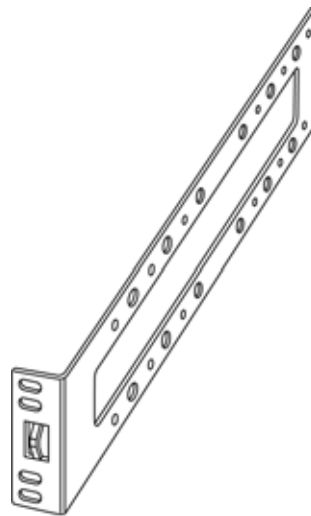
### 7.1 Rack Mounting the 19" (CHS2U-US) Chassis

A single or multiple chassis can be rack mounted. Controlling and Expansion chassis can be racked mounted by stacking them horizontally.

1. The 19" chassis requires two rack mount brackets per chassis for mounting. Each 19" chassis requires its own set of rack mount bracket(s). Refer to [Figure 3-94 CHS2U-US Rack Mount Brackets](#).



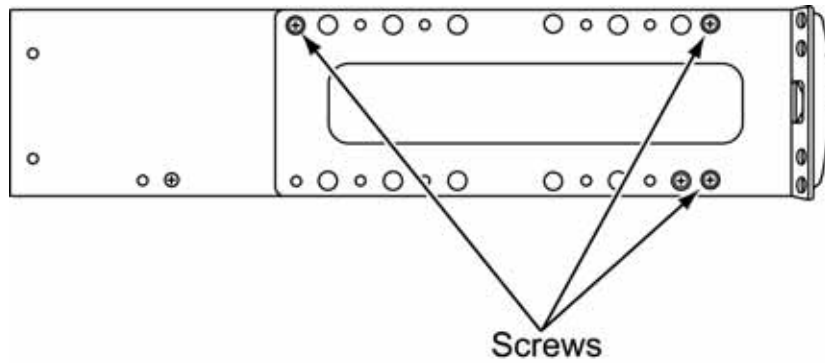
*Stacking additional chassis (without rack mount brackets) on top of one rack mounted chassis is not recommended.*



**Figure 3-94 CHS2U-US Rack Mount Brackets**

2. Line up the Rack Mount Bracket(s) with the pre-drilled holes on each side of the 19" chassis.
3. Secure the brackets to the chassis using the supplied screws. Refer to [Figure 3-95 Rack Mount Bracket Installed 19" CHS2U-US on page 3-82](#) for the 19" chassis.

Repeat for additional chassis mounting.



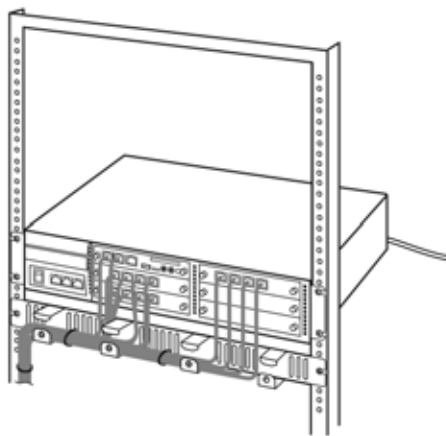
**Figure 3-95 Rack Mount Bracket Installed 19" CHS2U-US**

4. Carefully slide the chassis into desired location in the rack. Make sure the hooks on the mounting bracket are inserted into the back of the chassis, securing it in place. Note that the cabling is run through the front of the rack for ease of access.

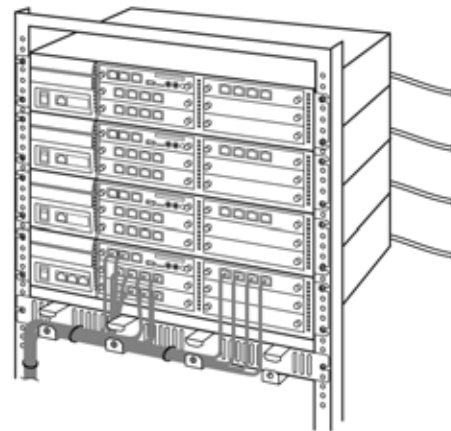


*Each CHS2U-US chassis will require approximately 3.5" of height within the rack.*

5. Secure the brackets to the rack using the screws supplied.  
Repeat for additional chassis mounting.



Single CHS2U-US Rack Mount



Single CHS2U-US Rack Mount with Three Expansion Chassis

**Figure 3-96 Rack Mount 19" CHS2U-US**

6. Connect the ground wire to all chassis. Refer to [3.3.3 Install Grounding on 19" Chassis on page 3-18](#) for complete details on grounding the system.
7. Refer to [3.3.5 Install AC Power Cords on 19" Chassis on page 3-20](#) to continue installation of the chassis or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

## 7.2 Rack Mounting the 9.5" Base (CHS2U B-US) and Expansion (CHS2U E) Chassis

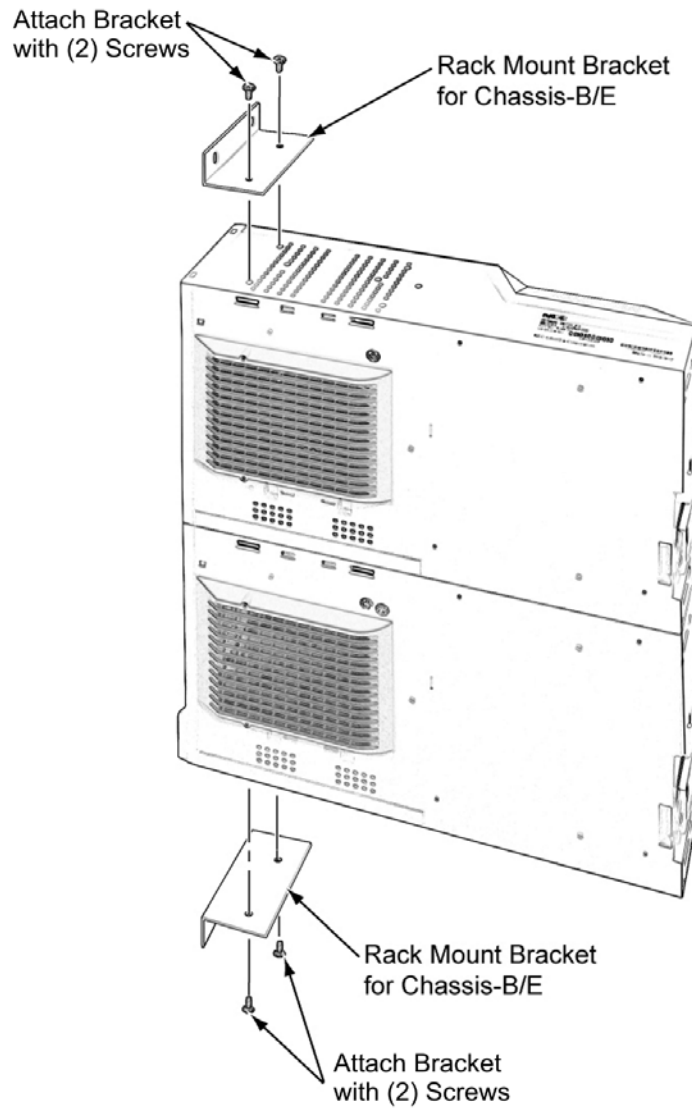
To rack mount the combined Base (CHS2U B-US) and Expansion (CHS2U E) chassis, the IP3-RACK MOUNT BAR SET is required.



*Controlling and Expansion chassis must be installed vertically for proper air circulation.*

### 7.2.1 CHS2U B-US and CHS2U E Chassis Installation

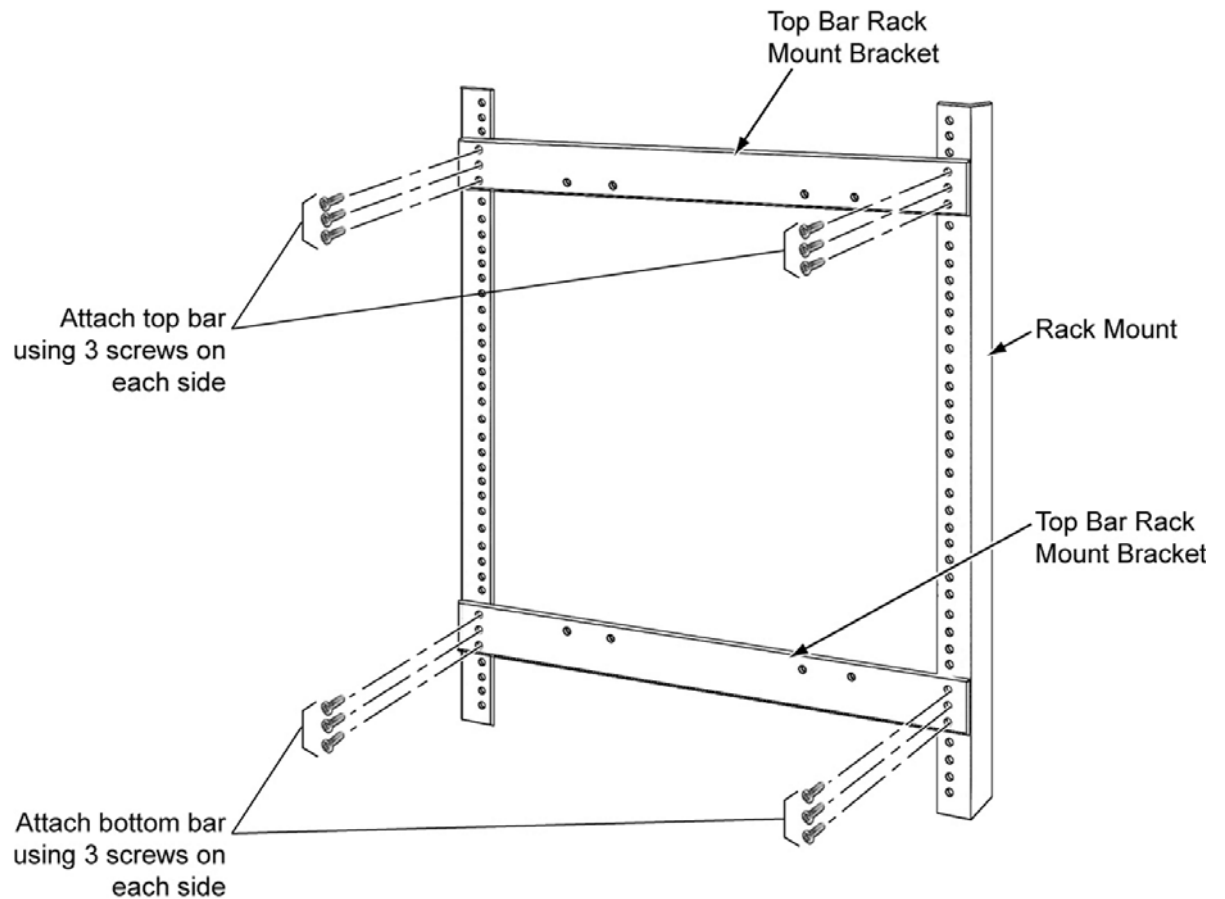
1. Attach the metal rack mount brackets to each side of the chassis using the screws provided (refer to [Figure 3-97 Attach Rack Mount Brackets to 9.5" Chassis on page 3-84](#)).



**Figure 3-97 Attach Rack Mount Brackets to 9.5" Chassis**



2. Attach the two horizontal rack bars at the correct positions on the rack with the screws provided. The bars are used to secure the chassis vertically in the rack.

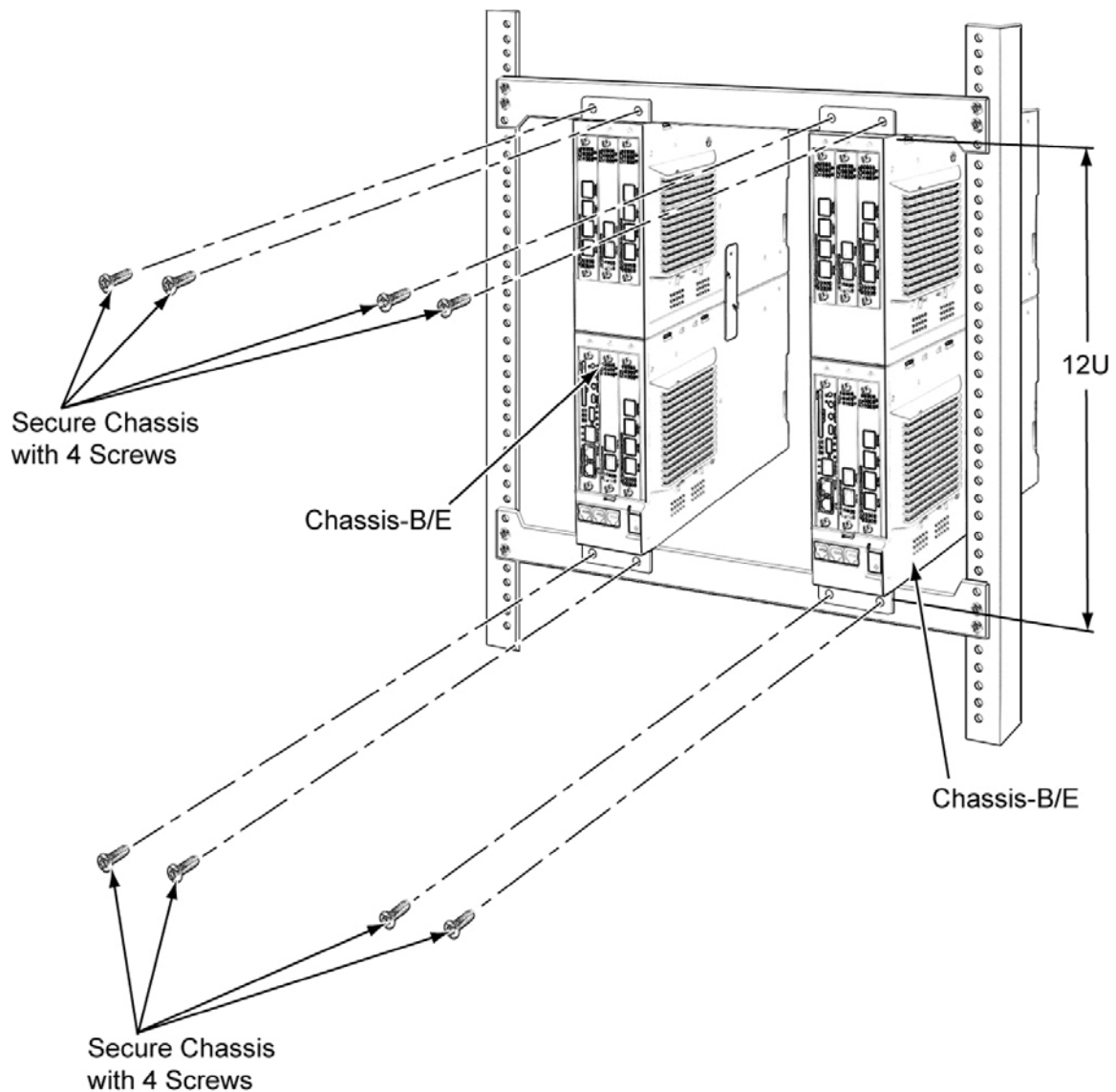


**Figure 3-98 Attach Horizontal Brackets to Rack**

3. Secure the (CHS2U B-US) and (CHS2U E) chassis to the horizontal bars using two screws at each point (refer to [Figure 3-99 Attach \(CHS2U B-US\) and \(CHS2U E\) Chassis to Rack on page 3-86](#)).



***Controlling and Expansion chassis must be installed vertically for proper air circulation.***



**Figure 3-99 Attach (CHS2U B-US) and (CHS2U E) Chassis to Rack**

4. Connect grounding wire to chassis. Refer to Chapter 4 paragraph [3.5 Installing the 9.5" Base \(CHS2U B-US\) and Expansion \(CHS2U E\) Chassis on page 3-24](#) for complete details on grounding the system.
5. Refer to [3.5.5 Install AC Power Cord on 9.5" Base and Expansion Chassis on page 3-39](#) for installation of the power cord or, Chapter 6 paragraph [2.1 Installation and Safety Precautions on page 4-4](#) for installation of blades.

## SECTION 8 BATTERY CONNECTION

Two types of battery connection provide battery life during a power failure, the internal battery and an external battery with CHS LARGE BATT BOX.

### 8.1 Installing the Internal Batteries 19" (CHS2U-US) Chassis

An internal battery source using two batteries can be installed using the CHS2U BATT MTG KIT (mounting kit) and CHS2U BATT CABLE INT (internal cabling).

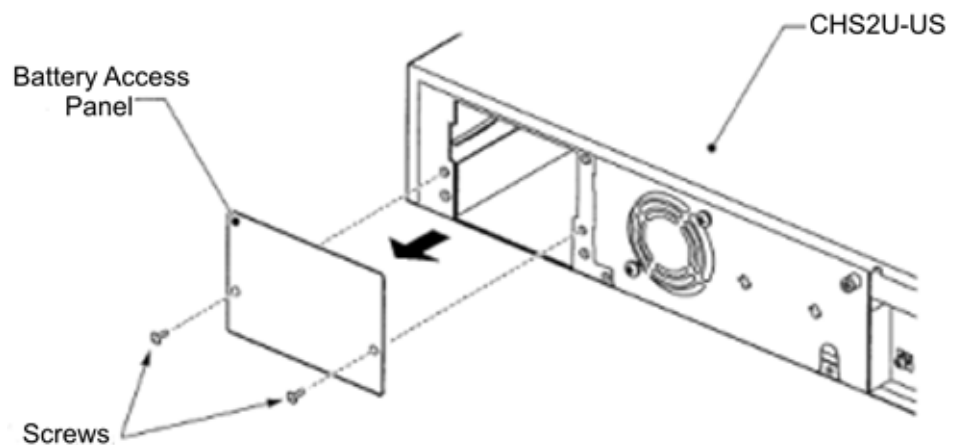
CHS2U BATT MTG KIT (Backup time = 10 Minutes/24 Terminals)

1. Power down the CHS2U-US chassis.



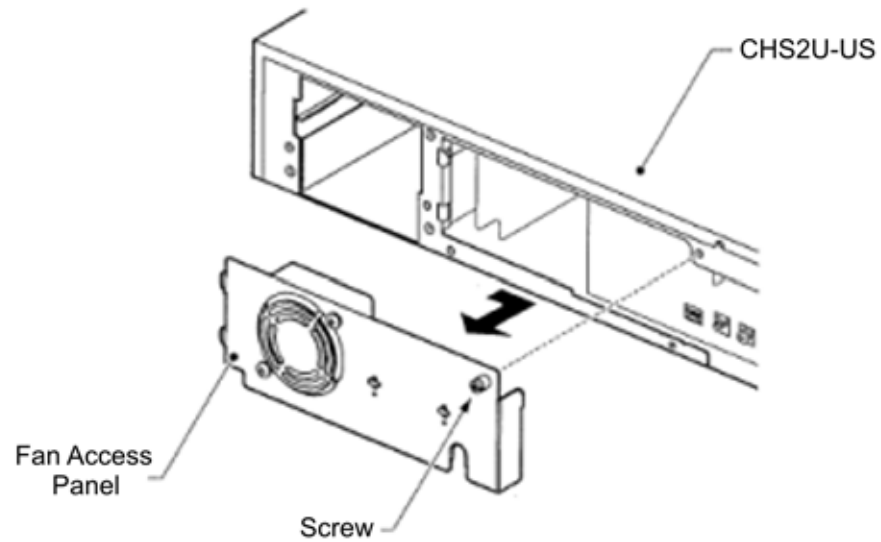
*Ensure the CHS2U-US chassis is powered OFF.*

2. Disconnect AC power and grounding cable from rear of chassis.
3. Remove screws from battery access panel on rear of chassis.

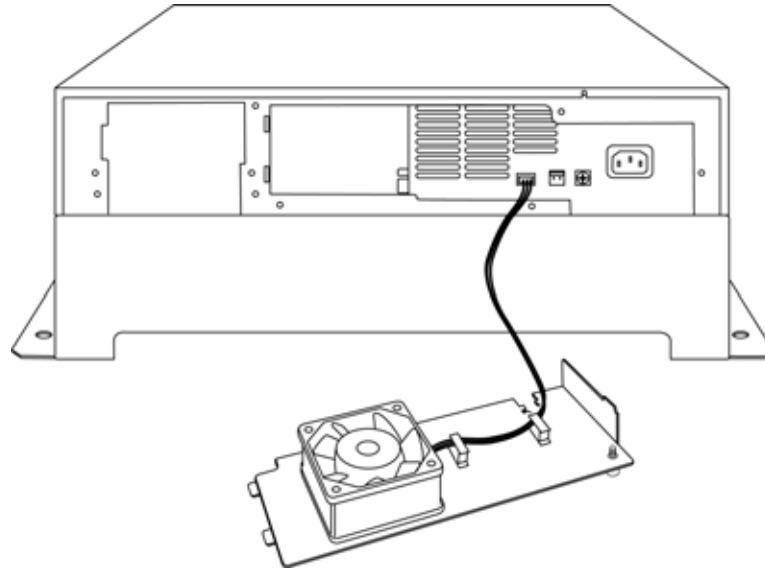


**Figure 3-100 Removing Battery Access Panel**

4. Remove access panel containing the fan. Refer to [Figure 3-101 Removing Access Panel](#) and [Figure 3-102 Access Panel Removed](#).

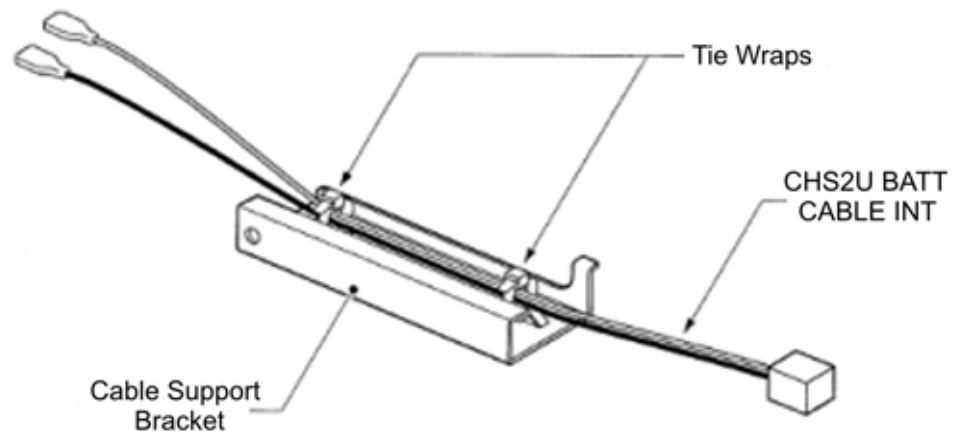


**Figure 3-101 Removing Access Panel**



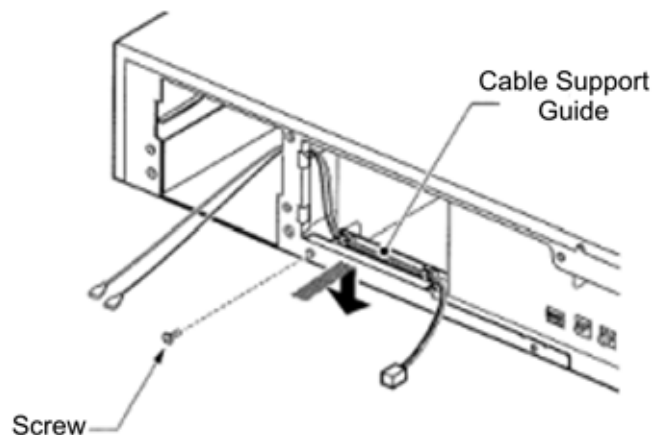
**Figure 3-102 Access Panel Removed**

- Using tie wraps, secure CHS2U BATT CABLE INT in cable guide bracket.




**Figure 3-103 Secure Cable in Support Bracket**

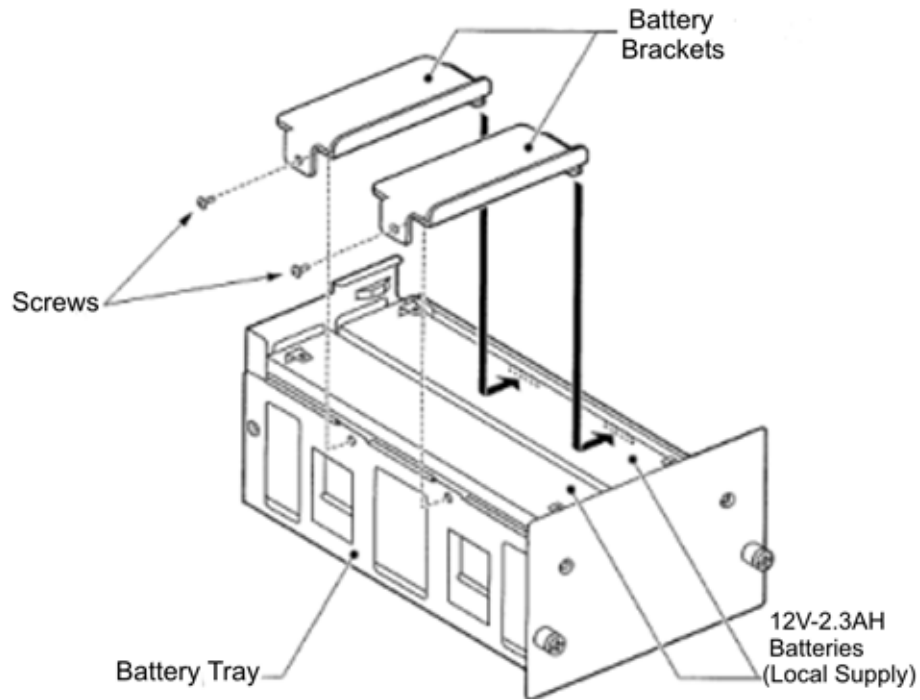
- With supplied screw, install cable guide in chassis.



**Figure 3-104 Installing Cable Support Guide**

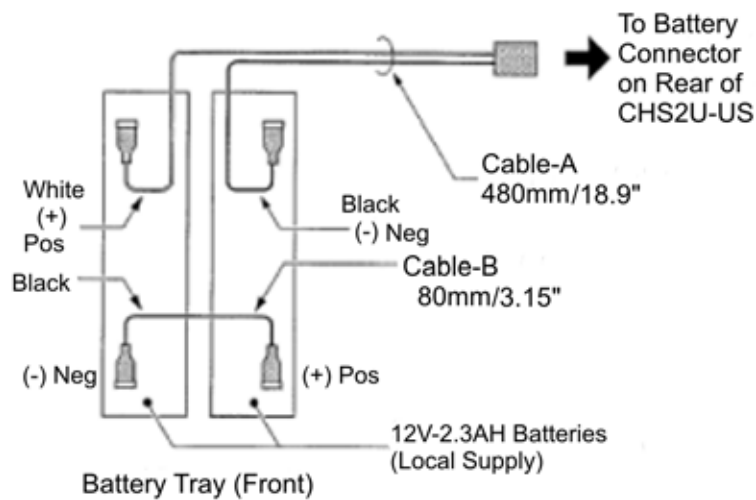
- Install two 2.3 AH-12V batteries (locally procured) into the CHS2U BATT MTG KIT (refer to [Figure 3-105 Installing Two Batteries on page 3-90](#)).

 *The first battery must be installed on the left side, then slid to the right due to an installation tab on the mounting kit.*



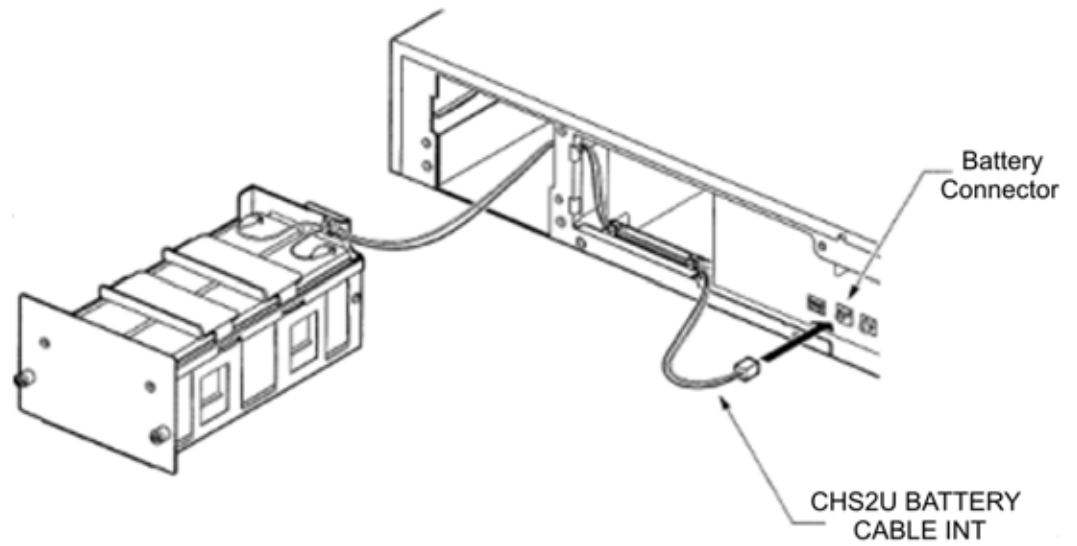
**Figure 3-105 Installing Two Batteries**

8. Using the supplied screws, secure the brackets to the CHS2U BATT MTG KIT (refer to [Figure 3-105 Installing Two Batteries](#)).
9. Connect the provided battery cables to the batteries.



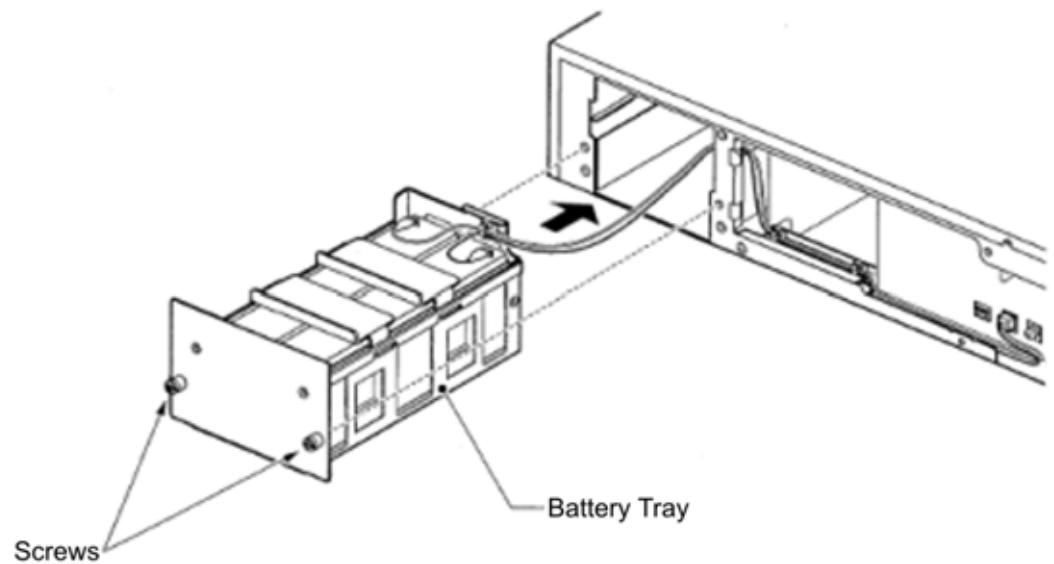
**Figure 3-106 Installing Battery Cable**

10. Connect CHS2U BATT CABLE INT to battery connector.



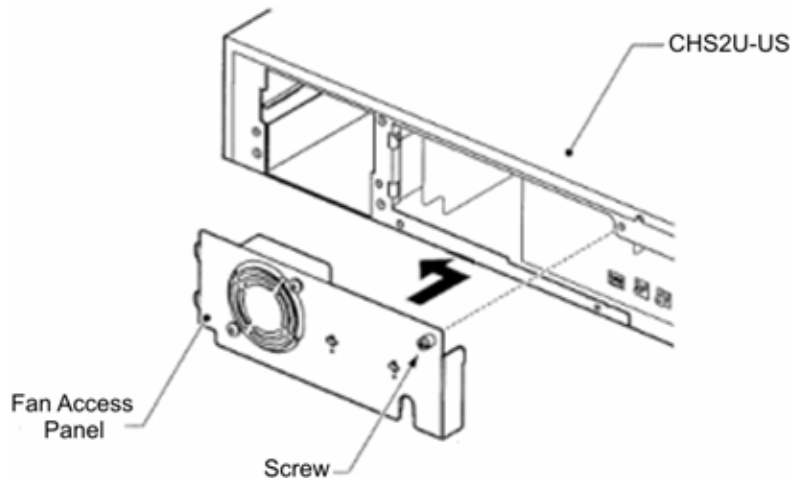
**Figure 3-107 Connecting CHS2U BATT CABLE INT**

11. Install CHS2U BATT MTG KIT into CHS2U-US chassis and tighten the retaining screws.



**Figure 3-108 Installing Battery Tray into CHS2U-US Chassis**

12. Reinstall access panel containing the fan and secure with supplied screw.



**Figure 3-109** Installing the Access Panel

13. Connect grounding and AC power cable.


## 8.2 Installing the External Batteries 19" (CHS2U-US) Chassis

An optional (locally procured), external battery source can be used to provide power during a power failure.

CHS LARGE BATT BOX (Backup time = Three Hours for 30 Terminals)

**Table 3-5 CHS LARGE BATT BOX Capacity**

Configuration	Battery Capacity (Number of Batteries)	Number of CHS LARGE BATT BOX
<b>SV8100</b>		
2U x 1	21AH (=3 sets of [2x12V-7AH])	1
2U x 2	42AH (=6 sets of [2x12V-7AH])	2
2U x 3	63AH (=9 sets of [2x12V-7AH])	3
2U x 4	84AH (=12 sets of [2x12V-7AH])	4

 One CHS LARGE BATT BOX can be used for 4 x 2U chassis for approximately 45 minutes.



## 8.2.1 Floor Mounting the CHS LARGE BATT BOX

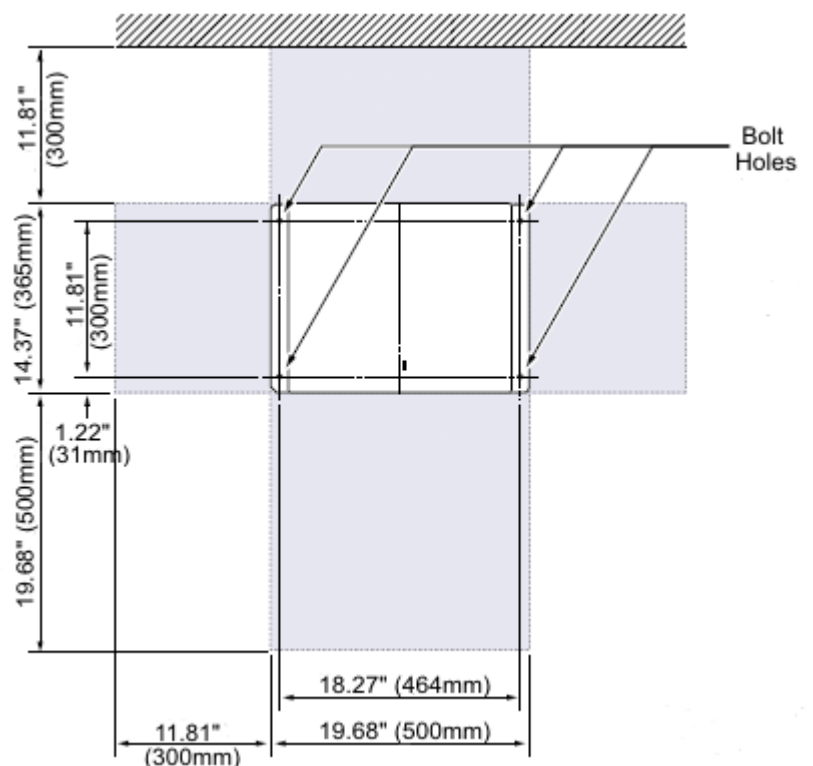


- *Because of injury from falling equipment, wall mounting the CHS LARGE BATT BOX is not recommended.*
- *Mounting the CHS LARGE BATT BOX directly on the floor is not recommended.*



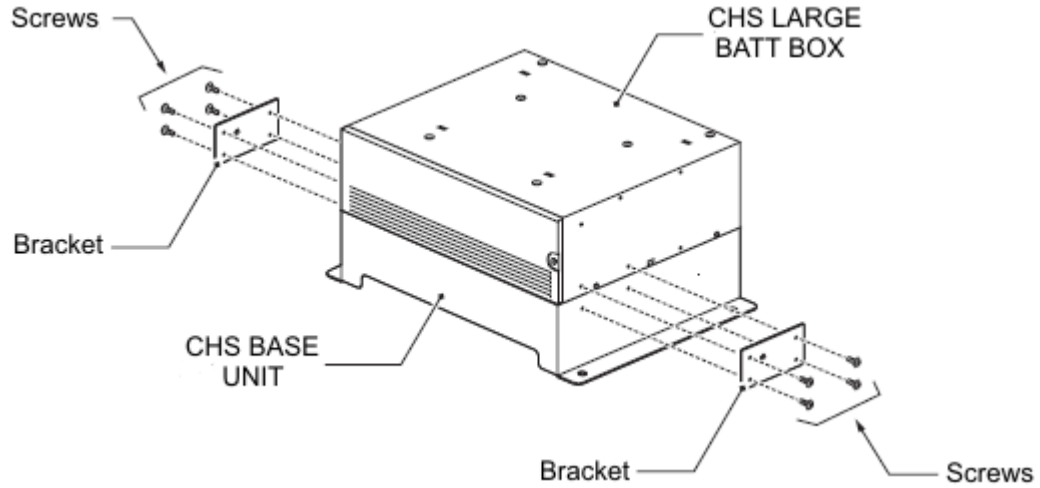
- *The CHS BASE UNIT raises the height of the CHS LARGE BATT BOX 120mm (4.72").*
- *When the CHS LARGE BATT BOX and CHS2U-US are connected for long term use, the CHS2U JOINT BRACKET KIT is used.*

1. Use the template shown in [Figure 3-110 Floor Mount Spacing Guide](#) for required spacing before drilling holes for 0.39" (10mm) anchor bolts (locally procured).



**Figure 3-110 Floor Mount Spacing Guide**

2. Mark and drill the four holes required to install the CHS BASE UNIT.
3. Align bolt holes in CHS BASE UNIT (see [Figure 3-110 Floor Mount Spacing Guide on page 3-93](#)) with holes drilled in floor and secure using four anchor bolts.
4. Align and install the CHS LARGE BATT BOX on top of the CHS BASE UNIT.

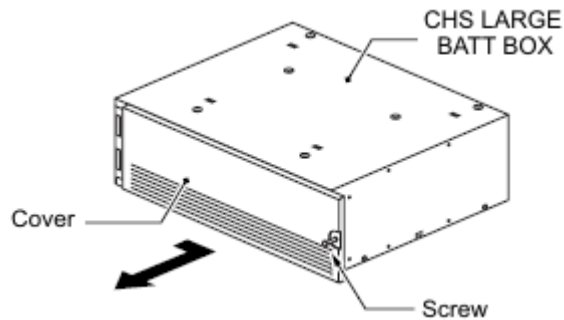


**Figure 3-111 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT**

5. Secure the CHS LARGE BATT BOX to the CHS BASE UNIT using the CHS2U JOINT BRACKET KIT. Refer to [Figure 3-111 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT](#).

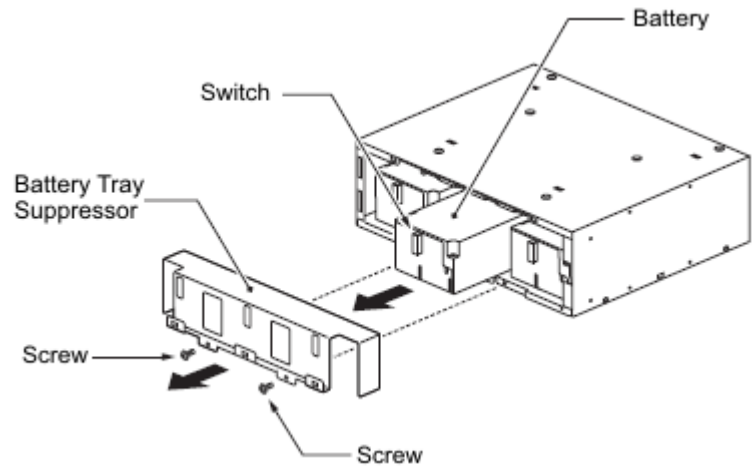
### 8.2.2 Battery Installation

1. Loosen screw on front of CHS LARGE BATT BOX.



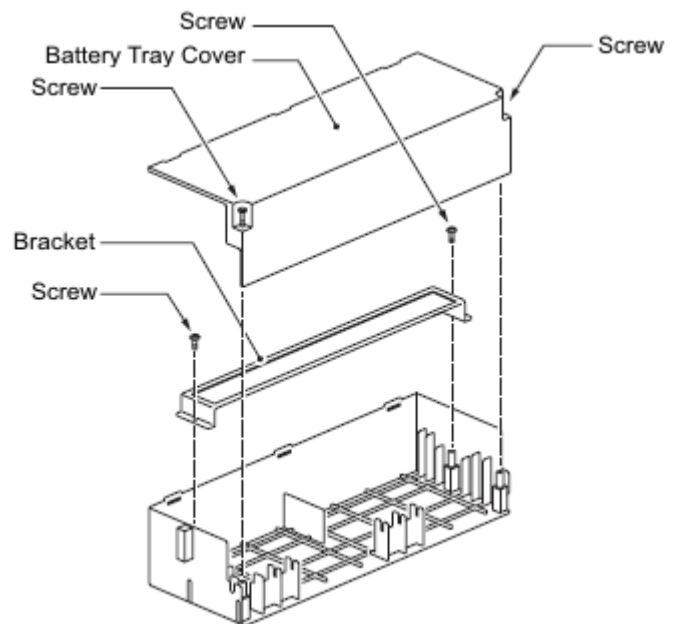
**Figure 3-112 Removing CHS LARGE BATT BOX Cover**

2. Swing cover outward and detach from CHS LARGE BATT BOX.
3. Remove two screws from front of Battery Tray Suppressor.



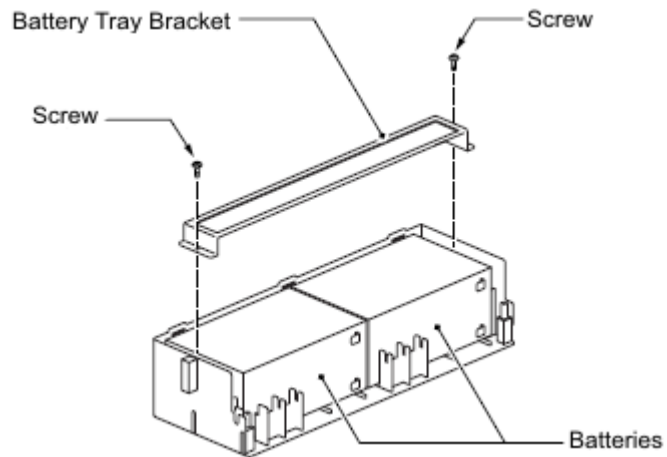
**Figure 3-113 Removing Battery Tray Suppressor**

4. Slide Battery Tray Suppressor outward to remove.
5. Slide Battery Tray(s) out of CHS LARGE BATT BOX.
6. Loosen two screws and remove the Battery Tray Cover.



**Figure 3-114 Removing Battery Tray Cover**

7. Remove two screws and remove the Battery Tray Bracket.

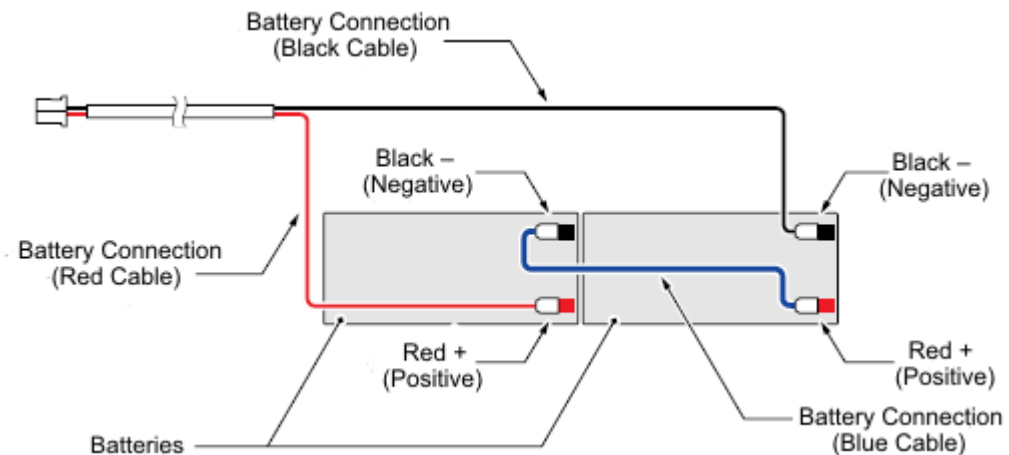


**Figure 3-115 Removing Battery Tray Bracket**

8. Refer to [Figure 3-116 Battery Cable Connection Guide](#) for connection of battery cable to battery terminals. Repeat for additional battery connection.

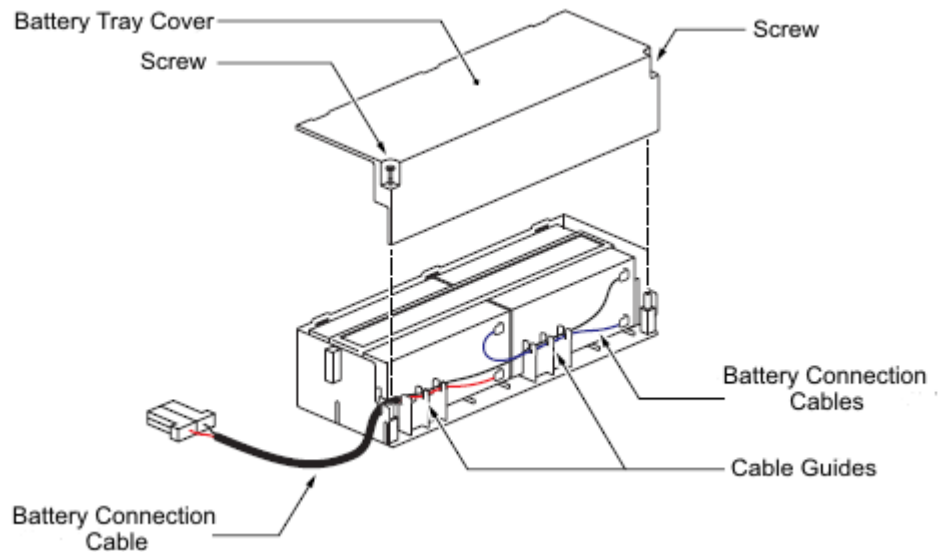


***Incorrect installation of batteries may damage the Fuse Unit or cause possible fire.***



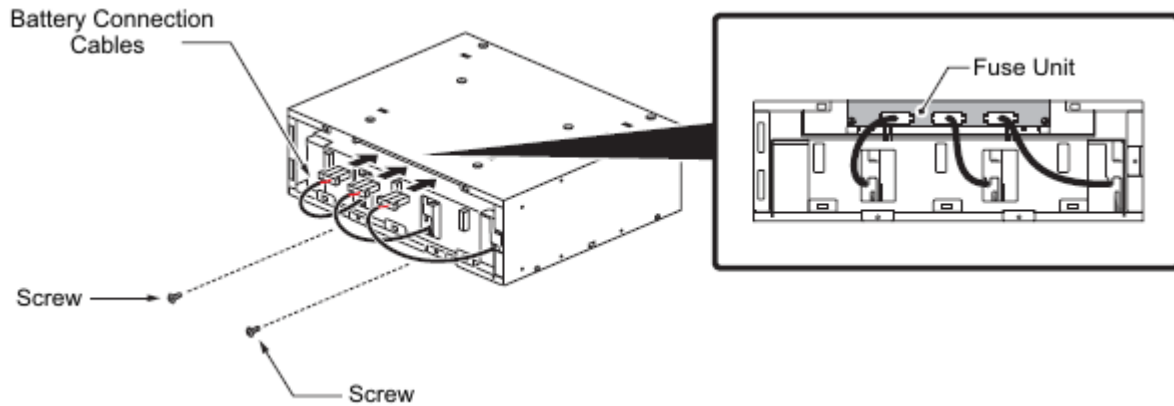
**Figure 3-116 Battery Cable Connection Guide**

9. Install batteries into Battery Tray. Refer to [Figure 3-117 Installing Battery Connection Cable](#).
10. Using two screws, install the Battery Tray Bracket. Refer to [Figure 3-115 Removing Battery Tray Bracket on page 3-96](#).



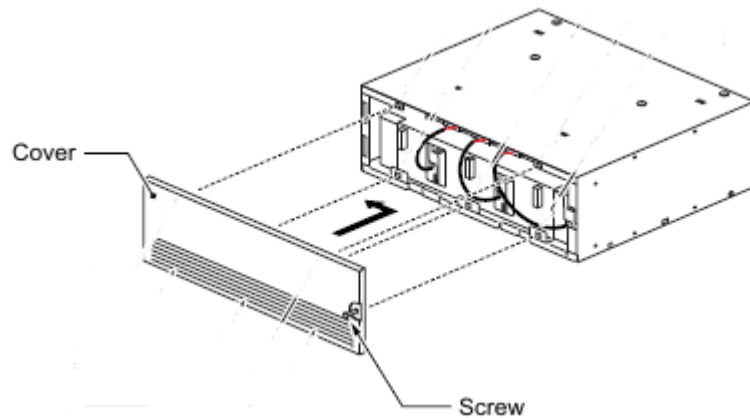
**Figure 3-117 Installing Battery Connection Cable**

11. Insert Battery Connection Cable into cable guides. Refer to [Figure 3-117 Installing Battery Connection Cable](#).
12. Install the Battery Tray Cover and tighten the two screws. Refer to [Figure 3-117 Installing Battery Connection Cable](#).
13. Slide the Battery Trays into the CHS LARGE BATT BOX.
14. Install the Battery Tray Suppressor while pulling the Battery Connection Cable(s) through the cutouts provided. Refer to [Figure 3-118 Connecting Battery Cables on page 3-98](#). Secure with two screws.
15. Plug the Battery Connection Cable(s) into the Fuse Unit. Refer to [Figure 3-118 Connecting Battery Cables on page 3-98](#).



**Figure 3-118 Connecting Battery Cables**

16. Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw.



**Figure 3-119 Installing Cover Battery**

### 8.2.3 CHS LARGE BATT BOX to CHS2U-US Connection

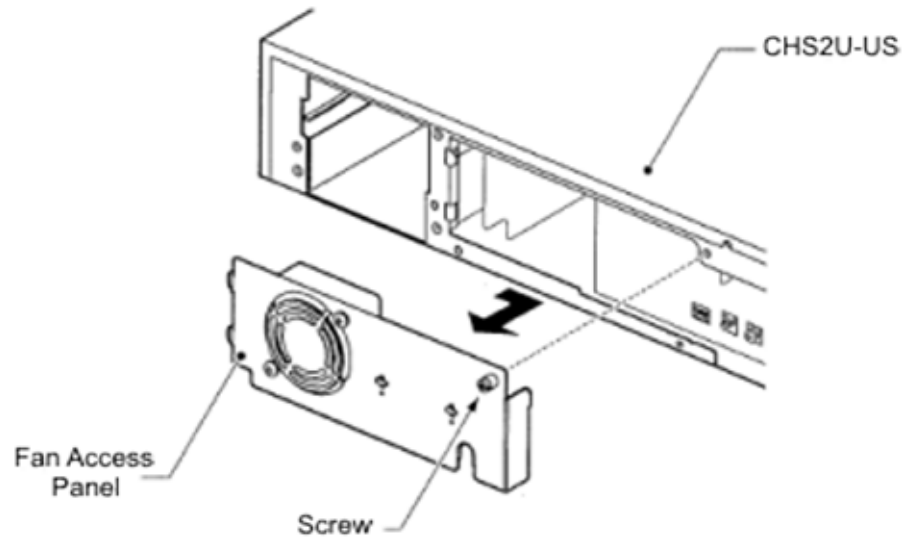
1. Power down the CHS2U-US chassis.



***Ensure the CHS2U-US chassis is powered OFF.***

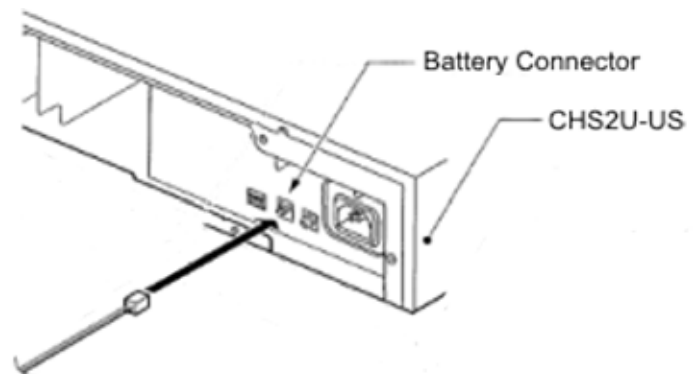
2. Disconnect AC power cable from rear of chassis.

3. Remove fan access panel from rear of CHS2U-US chassis.



**Figure 3-120 Removing Fan Access Panel**

4. Connect one end of Battery Connection Cable to Battery Connector on rear of Basic and Expansion chassis.



**Figure 3-121 Connecting External Battery to CHS2U-US**

5. Connect other end of cable to Battery Connector on rear of CHS LARGE BATT BOX chassis. Refer to [Figure 3-122 Single CHS LARGE BATT BOX Connection](#) or [Figure 3-123 Dual CHS LARGE BATT BOX Connection](#) on page 3-100.

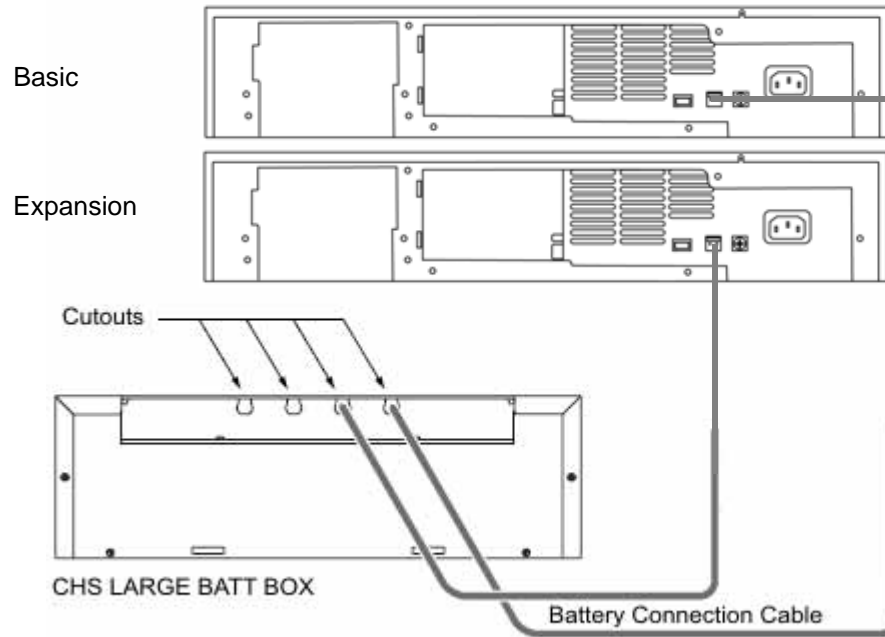


Figure 3-122 Single CHS LARGE BATT BOX Connection

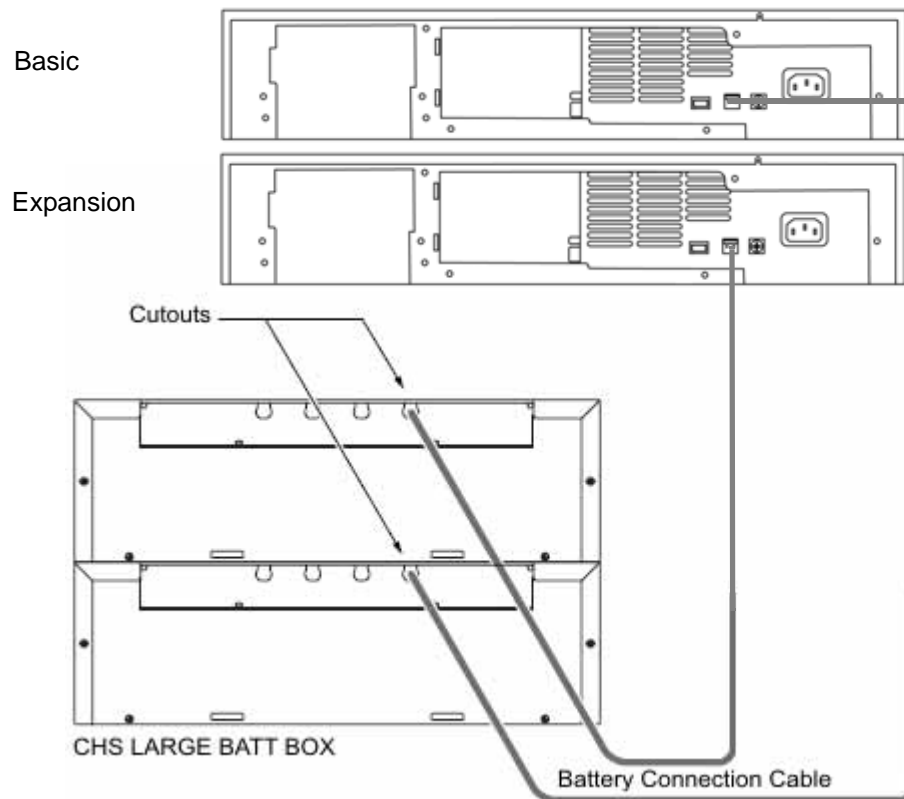
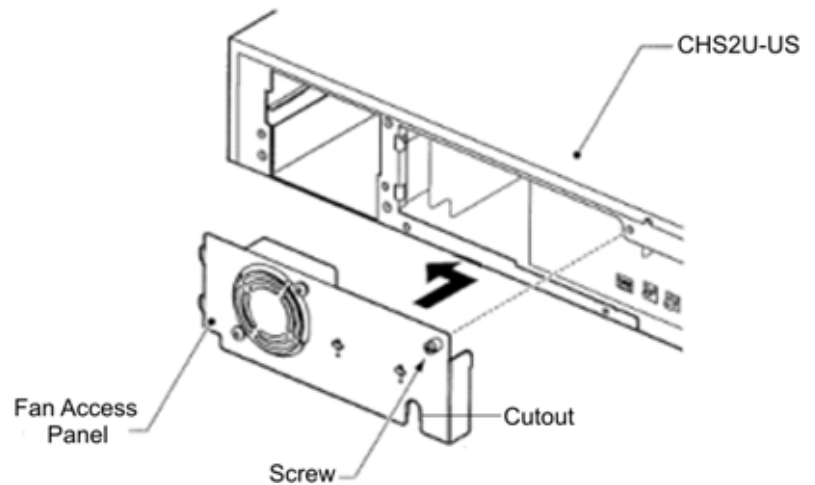


Figure 3-123 Dual CHS LARGE BATT BOX Connection



6. Insert the access panel tab into the rear of the CHS1U-US chassis running the Battery Connection Cable through the cutout. Secure panel with the retaining screw.

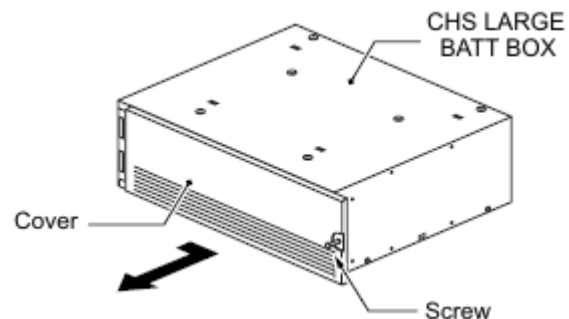


**Figure 3-124 Install the Fan Access Panel**

7. Connect grounding and AC power cables.
8. Apply power to chassis (refer to [Chapter 4, 2.6 Powering Up the SV8100 System on page 4-9](#)).

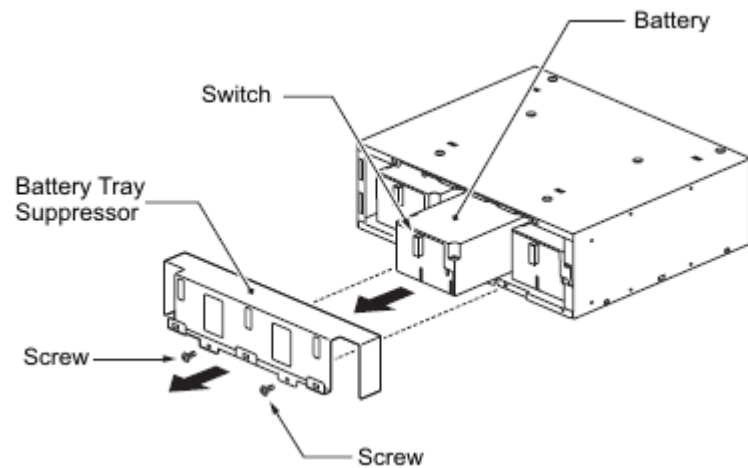
#### 8.2.4 CHS LARGE BATT BOX Fuse Replacement

1. Loosen screw on front of CHS LARGE BATT BOX.



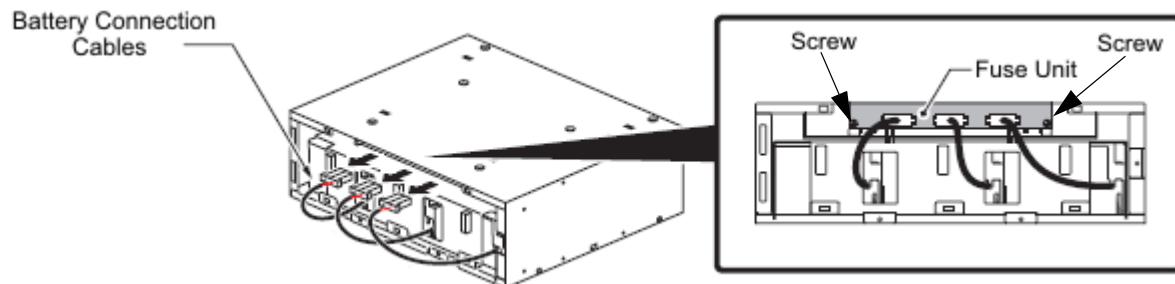
**Figure 3-125 Removing CHS LARGE BATT BOX Cover**

2. Remove two screws from front of Battery Tray Suppressor (Refer to [Figure 3-126 Removing Battery Tray Suppressor on page 3-102](#)).



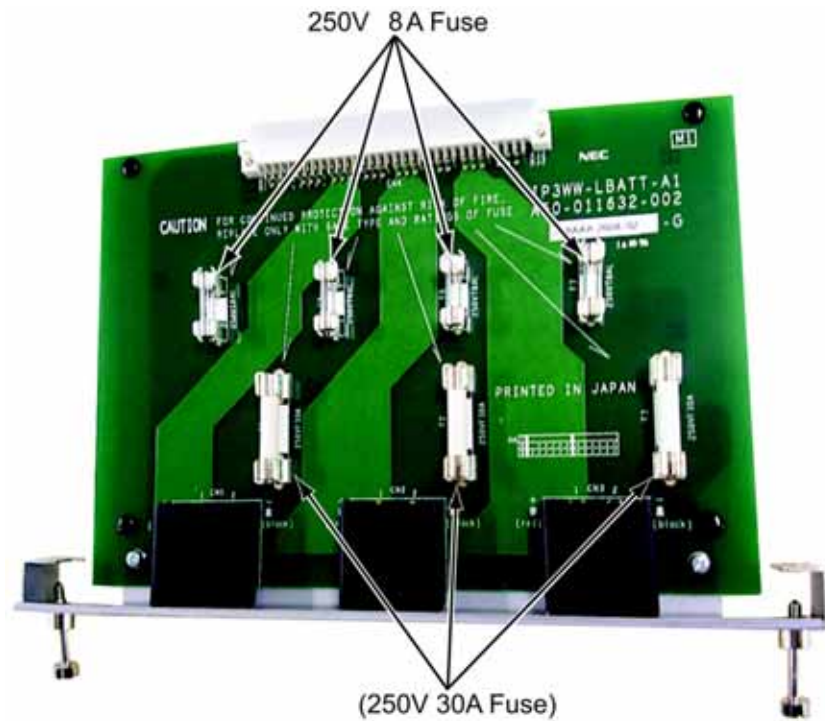
**Figure 3-126 Removing Battery Tray Suppressor**

3. Slide Battery Tray Suppressor outward to remove.
4. Disconnect the Battery Connection Cables from the Fuse Unit.



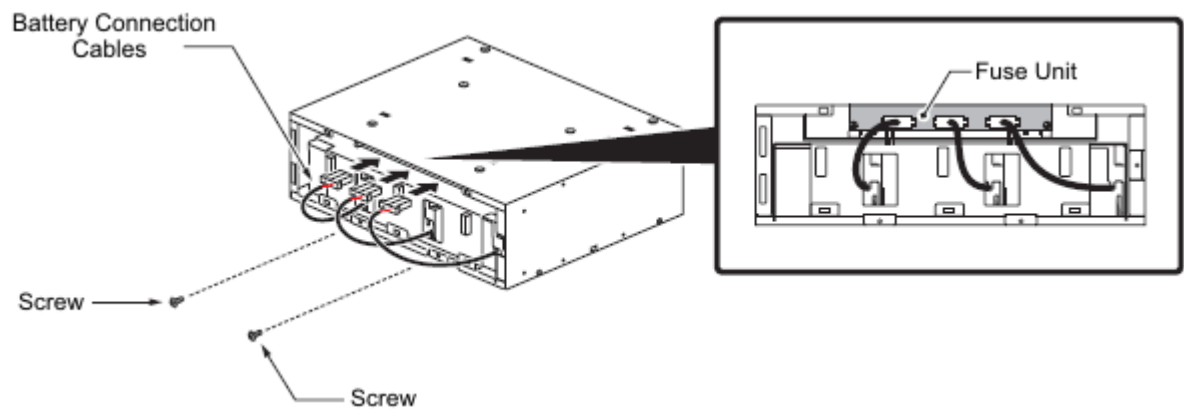
**Figure 3-127 Disconnecting Battery Cables**

5. Loosen two screws and pull Fuse Unit out of the CHS LARGE BATT BOX.
6. Refer to [Figure 3-128 CHS LARGE BATT BOX Fuse Unit on page 3-103](#) for replacement of 8A or 30A fuses.



**Figure 3-128 CHS LARGE BATT BOX Fuse Unit**

7. Slide the Fuse Unit into the and tighten the two screws (refer to [Figure 3-127 Disconnecting Battery Cables on page 3-102](#)).
8. Plug the Battery Connection Cables into the Fuse Unit.



**Figure 3-129 Connecting Battery Cables**

9. Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw.

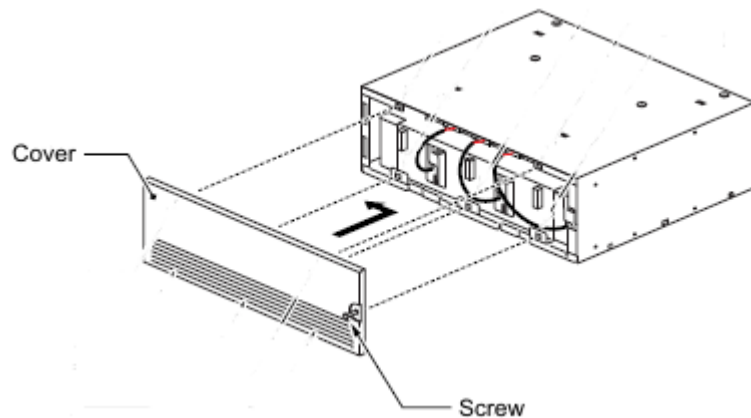


Figure 3-130 Installing Cover Battery

### 8.3 Installing the External Batteries (CHSGW SMALL BATT BOX) on 9.5" Gateway (CHS2U GW-US) and Base (CHS2U B-US) Chassis

An optional, CHSGW SMALL BATT BOX can be installed to provide external battery power to the CHS2U GW-US and CHS2U B-US chassis during a power failure. The short-term battery box will power the system for approximately 10 minutes.

#### 8.3.1 CHSGW SMALL BATT BOX Installation

1. On the battery box compartment, remove the two screws then lift and set aside the top cover.

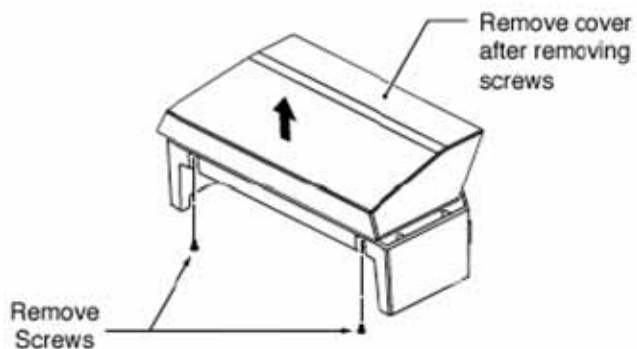
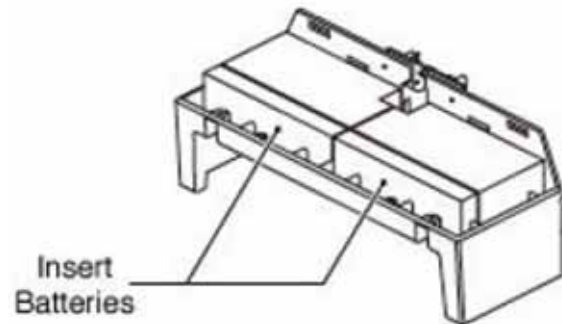


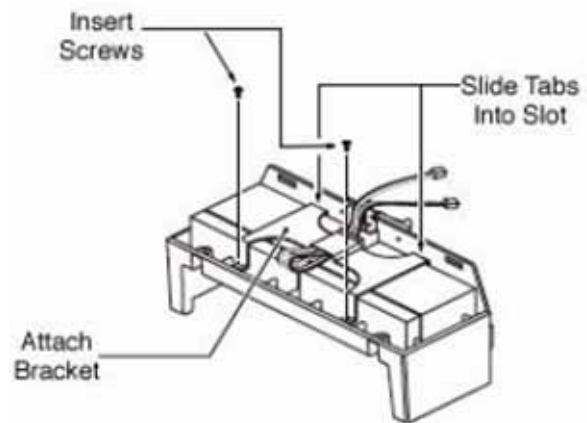
Figure 3-131 Remove Top Cover of Battery Compartment

2. Remove the metal support bracket.
3. Insert the two short-term batteries.



**Figure 3-132 Installing the Batteries**

4. Place the battery cable on top of the batteries and adjust to take up the extra length. Allow enough length for the connections to be made to the equipment.
5. The metal bracket is placed on top of the batteries and able to hold them in place. Insert the metal tabs of the bracket into the slots on the side of the battery compartment and lower into place. Using the two screws provided, attach the bracket to the battery compartment.



**Figure 3-133 Installing the Bracket Using Screws**

6. Insert the battery cable through the slot on the battery compartment and connect the battery cable to the connection points on the battery compartment.

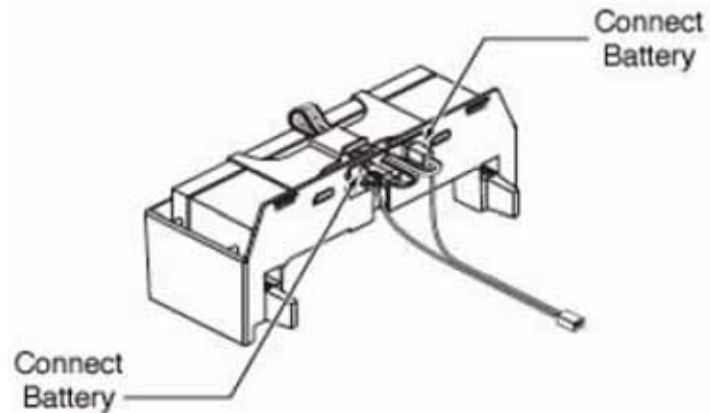


Figure 3-134 Installing the Battery Connection Cables

7. Reattach the cover with the two screws previously removed.

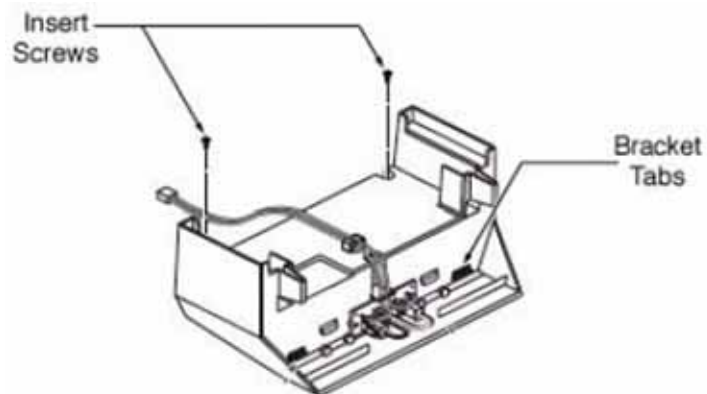


Figure 3-135 Reattaching the Top Cover Using Screws

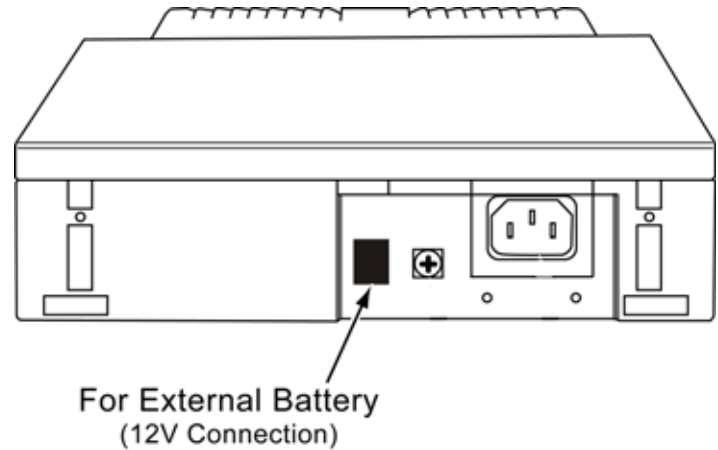
### 8.3.2 CHSGW SMALL BATT BOX to 9.5" Gateway (CHS2U GW-US) or Base (CHS2U B-US) Chassis Connection

1. Power down the CHS2U GW-US or CHS2U B-US chassis.



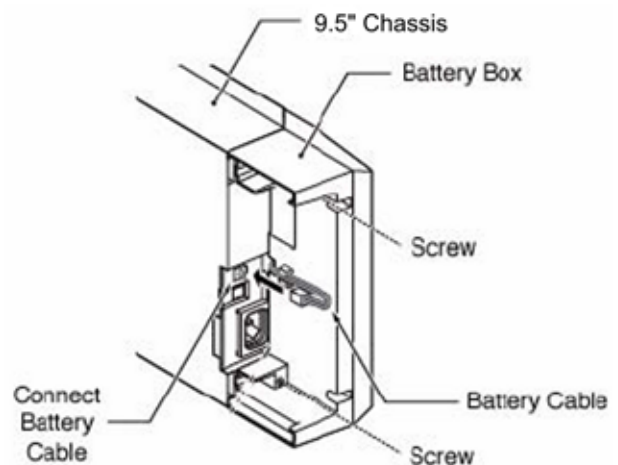
***Ensure the CHS2U GW-US or CHS2U B-US chassis is powered OFF.***

2. Disconnect AC power cable from rear of chassis.
3. From the back of the 9.5" chassis, remove the black plastic square covering the two-prong battery terminal leads.



**Figure 3-136 9.5" Battery Terminal Cover**

4. Secure the battery compartment to the chassis using the two screws provided and attach the battery cable to the 9.5" chassis.



**Figure 3-137 Attach to the CHS2U GW-US or CHS2U B-US Chassis and Connect Battery Cable**

5. Reconnect AC power cable to rear of chassis.

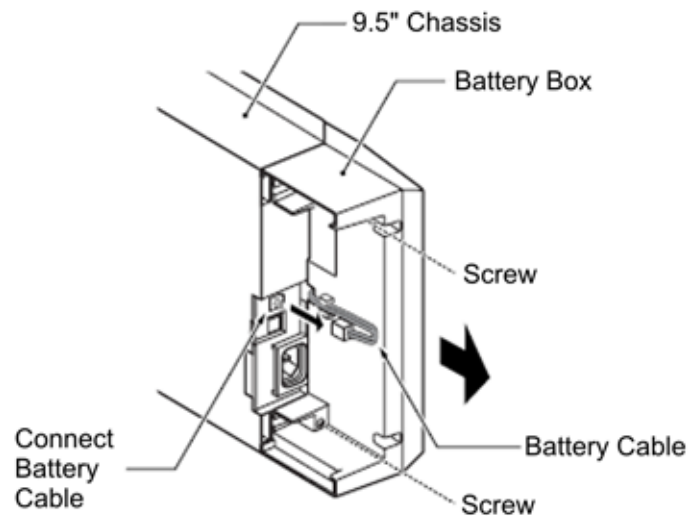
6. To power on the 9.5" chassis, refer to [Chapter 4, 2.6 Powering Up the SV8100 System on page 4-9](#).

### 8.3.3 CHSGW SMALL BATT BOX Fuse Replacement



- *Only replace fuses of the same rating.*
- *Fuses may be hot, use caution when replacing them.*

1. Correct the issue which caused the fuse problem.
  - ✎ *Replacing fuses without first correcting the issue could cause a fire and/or electric shock hazard.*
2. Disconnect AC power cable from rear of chassis.
  - ✎ *Make sure to unplug the unit from the electrical outlet prior to removing the connection cables in the battery box unit.*
3. Unplug all the cable connectors from the battery box.



**Figure 3-138 Removing the CHSGW SMALL BATT BOX**

4. Loosen the two thumb screws on the battery box and remove the box by pulling on the two thumb screws.
5. Replace the fuse(s) as needed.
6. Replace the battery box and tighten the thumb screw on either side of the box.



7. Replace the battery connection cables to the battery box.

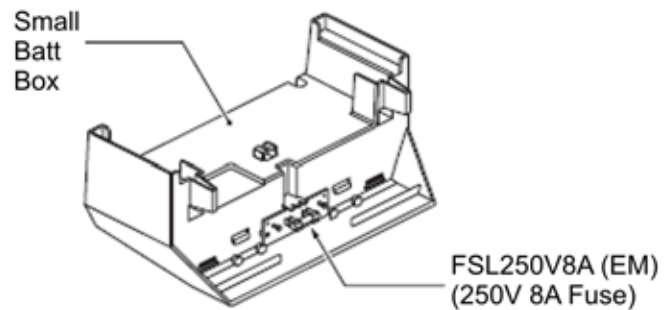


Figure 3-139 Replacing the CHSGW SMALL BATT BOX Fuse

#### 8.4 Installing the External Batteries (CHS LARGE BATT BOX) to the 9.5" Gateway (CHS2U GW-US) or Base (CHS2U B-US) Chassis

An optional, CHS LARGE BATT BOX can be installed to provide external battery power to the CHS2U GW-US chassis during a power failure. The long-term battery box powers the system for approximately three hours.



- *Because of injury from falling equipment, wall mounting the CHS LARGE BATT BOX is not recommended.*
- *Mounting the CHS LARGE BATT BOX directly on the floor is not recommended.*
- *Due to possible water damage, floor mounting the 9.5" chassis is not recommended by NEC.*



- *The CHS BASE UNIT raises the height of the CHS LARGE BATT BOX 120mm (4.72").*

##### 8.4.1 CHS LARGE BATT BOX Installation

To install the batteries in the CHS LARGE BATT BOX, refer to [Chapter 3](#), section [8.2.2 Battery Installation](#) on page 3-94.

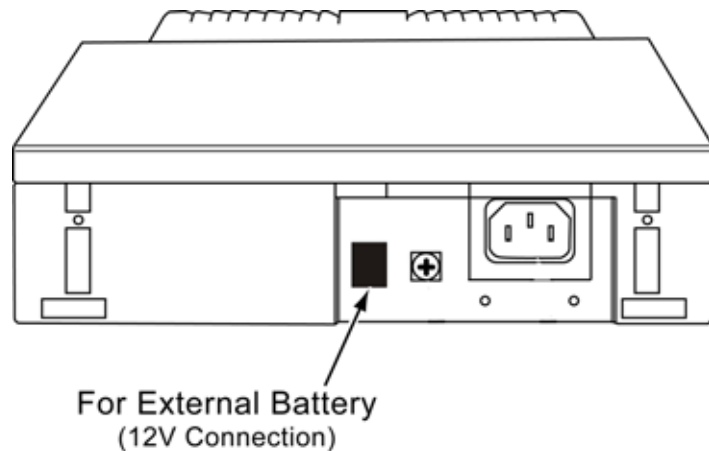
#### 8.4.2 CHS LARGE BATT BOX to 9.5" Gateway (CHS2U GW-US) or Base (CHS2U B-US) Chassis Connection

1. Power down the CHS2U GW-US or CHS2U B-US chassis.



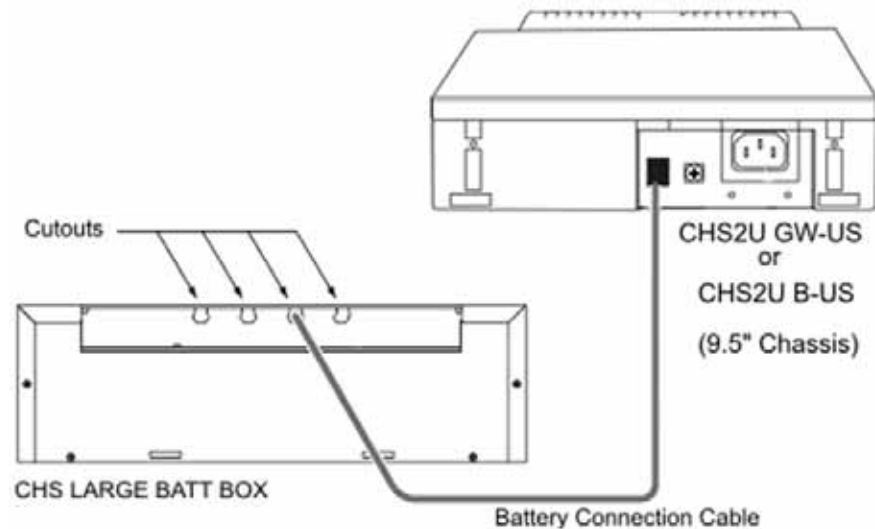
***Ensure the CHS2U GW-US or CHS2U B-US chassis is powered OFF.***

2. Disconnect AC power cable from rear of chassis.
3. From the back of the 9.5" chassis, remove the black plastic square covering the two-prong battery terminal leads (refer to [Figure 3-140 9.5" Battery Terminal Cover](#)).



**Figure 3-140 9.5" Battery Terminal Cover**

4. Connect one end of Battery Connection Cable to Battery Connector on rear of 9.5" chassis.
5. Connect other end of cable to Battery Connector on rear of CHS LARGE BATT BOX chassis (refer to [Figure 3-141 CHS LARGE BATT BOX to CHS2U GW-US or CHS2U B-US Connection on page 3-111](#)).



**Figure 3-141 CHS LARGE BATT BOX to CHS2U GW-US or CHS2U B-US Connection**

6. Reconnect AC power cable to rear of 9.5" chassis.
7. To power on the 9.5" chassis, refer to [Chapter 4, 2.6 Powering Up the SV8100 System on page 4-9](#).

#### 8.4.3 CHS LARGE BATT BOX Fuse Replacement

To replace the fuse(s) in the CHS LARGE BATT BOX, refer to [Chapter 3, section 8.2.4 CHS LARGE BATT BOX Fuse Replacement on page 3-101](#).

## SECTION 9 POWER SUPPLY



***Do not attempt to replace the power supply on the CHS2U-US or CHS2U GW-US chassis. The MPS7101 is not a field replaceable part. If the power supply fails, contact NEC.***

## SECTION 10 REMOVE AND INSTALL COOLING FAN

If required, the cooling fan installed in the CHS2U-US chassis can be removed and replaced. Follow the procedure below for the CHS2U-US chassis.

### 10.1 CHS2U-US Chassis

#### 10.1.1 Remove Cooling Fan



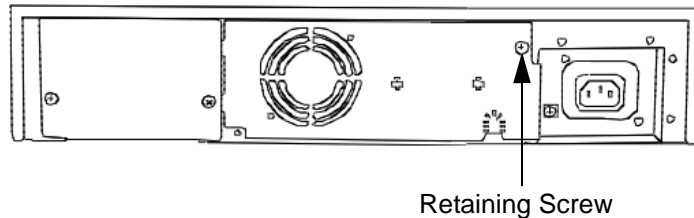
*To reduce the possibility of electrical shock or damage to equipment, NEC recommends powering off the chassis and disconnecting the AC cable from the power source before removing the chassis cover.*

1. Ensure the chassis is powered down.



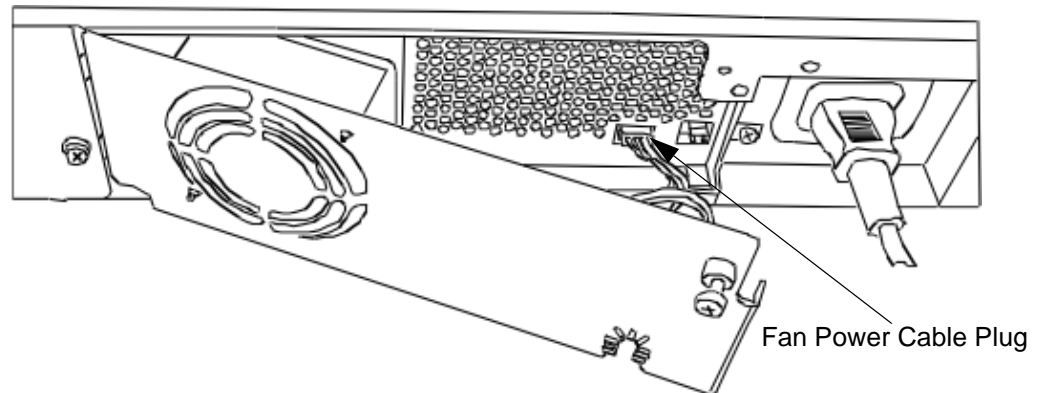
*To reduce the possibility of damage to equipment, the installer must wear a grounded wrist strap to protect the equipment from static electricity.*

2. Loosen retaining screw from chassis access panel.



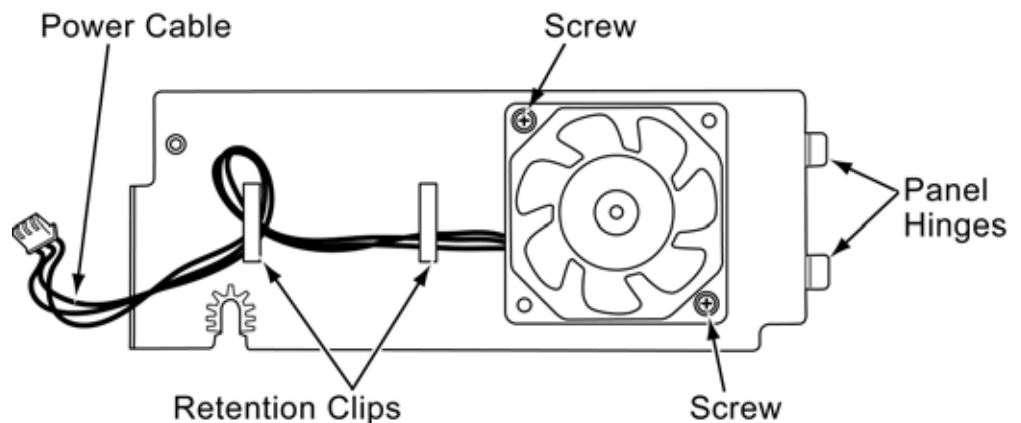
**Figure 3-142 19" Chassis Access Panel**

3. Swing access panel outward and unplug fan power cable.



**Figure 3-143 Opening Chassis Access Panel (19" Chassis)**

4. Remove chassis access panel from rear of chassis.
5. Remove cabling from retention clips.



**Figure 3-144 Chassis Access Panel Removed (19" Chassis)**

6. Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan [refer to [Figure 3-144 Chassis Access Panel Removed \(19" Chassis\)](#)].

#### 10.1.2 Install Cooling Fan

1. Align replacement fan with holes and secure with two screws [refer to [Figure 3-144 Chassis Access Panel Removed \(19" Chassis\)](#)].

2. Install cabling into retention clips [refer to [Figure 3-144 Chassis Access Panel Removed \(19" Chassis\)](#) on page 3-113].
3. Insert access panel hinges into slots on rear of chassis.
4. Plug fan power cable into three prong plug [refer to [Figure 3-143 Opening Chassis Access Panel \(19" Chassis\)](#) on page 3-113].
5. Reinstall access cover and secure with retaining screw (refer to [Figure 3-142 19" Chassis Access Panel](#) on page 3-112).

# Installing the SV8100 Blades

## SECTION 1 GENERAL INFORMATION

This chapter contains information to help the technician install the blades for the UNIVERGE SV8100 system. The technician should be familiar with this section before installing any equipment.

### 1.1 Slot Locations

Each CHS2U-US has six slots. In the Controlling Chassis, the CD-CP00-US (for Key Systems) must be installed in the first slot (slot 1). In the CHS2U GW-US and CHS2U B-US, the CD-CP00-US must be installed in the first slot (slot 1).

#### Slot Locations in the CHS2U-US (19" Controlling Chassis):

- Slot 1 – dedicated for the CPU
- Slots 2~6 – universal

#### Slot Locating in the CHS2U-US (19" Expansion Chassis):

- Slots 1~6 are universal. (i.e., any type of blade except the CPU can be installed in these slots).

#### Slot Locations in the CHS2U GW-US and CHS2U B-US Base (9.5" Chassis):

- Slot 1 – CPU
- Slots 2 and 3 – universal

#### Slot Locations in the 9.5" CHS2U B-US and CHS2U E (Controlling Chassis with CPU):

- Slot 1 – CPU
- Slots 2~6 – universal

#### Slot Locations in the 9.5" CHS2U B-US and CHS2U E (Expansion Chassis no CPU):

- Slots 1~6 – universal

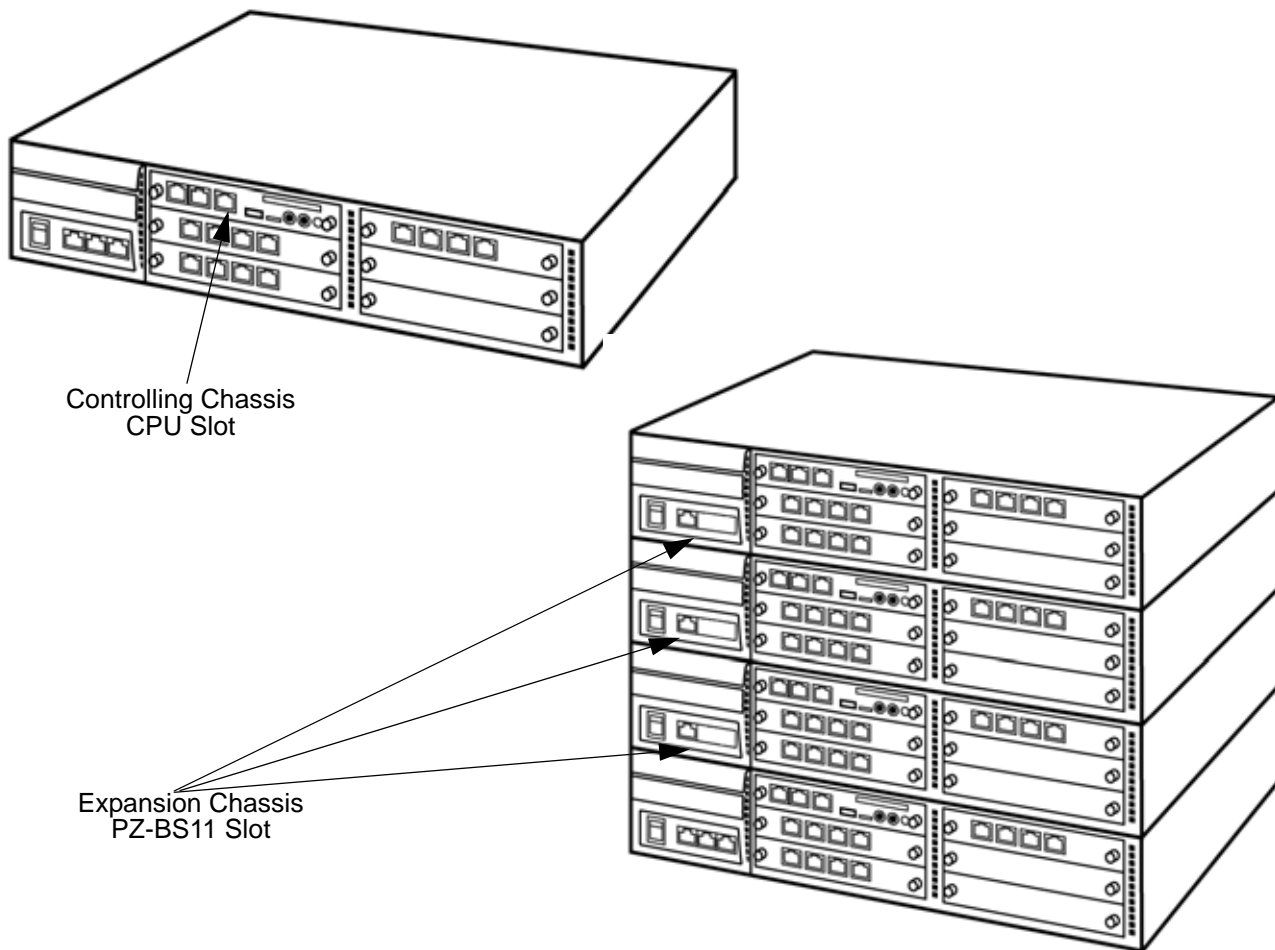


Figure 4-1 19" Chassis CPU and Expansion Slot Locations

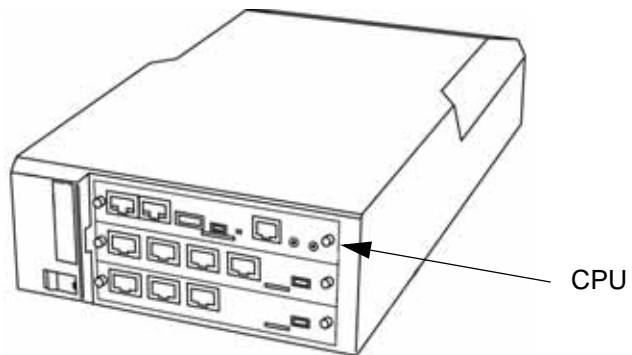
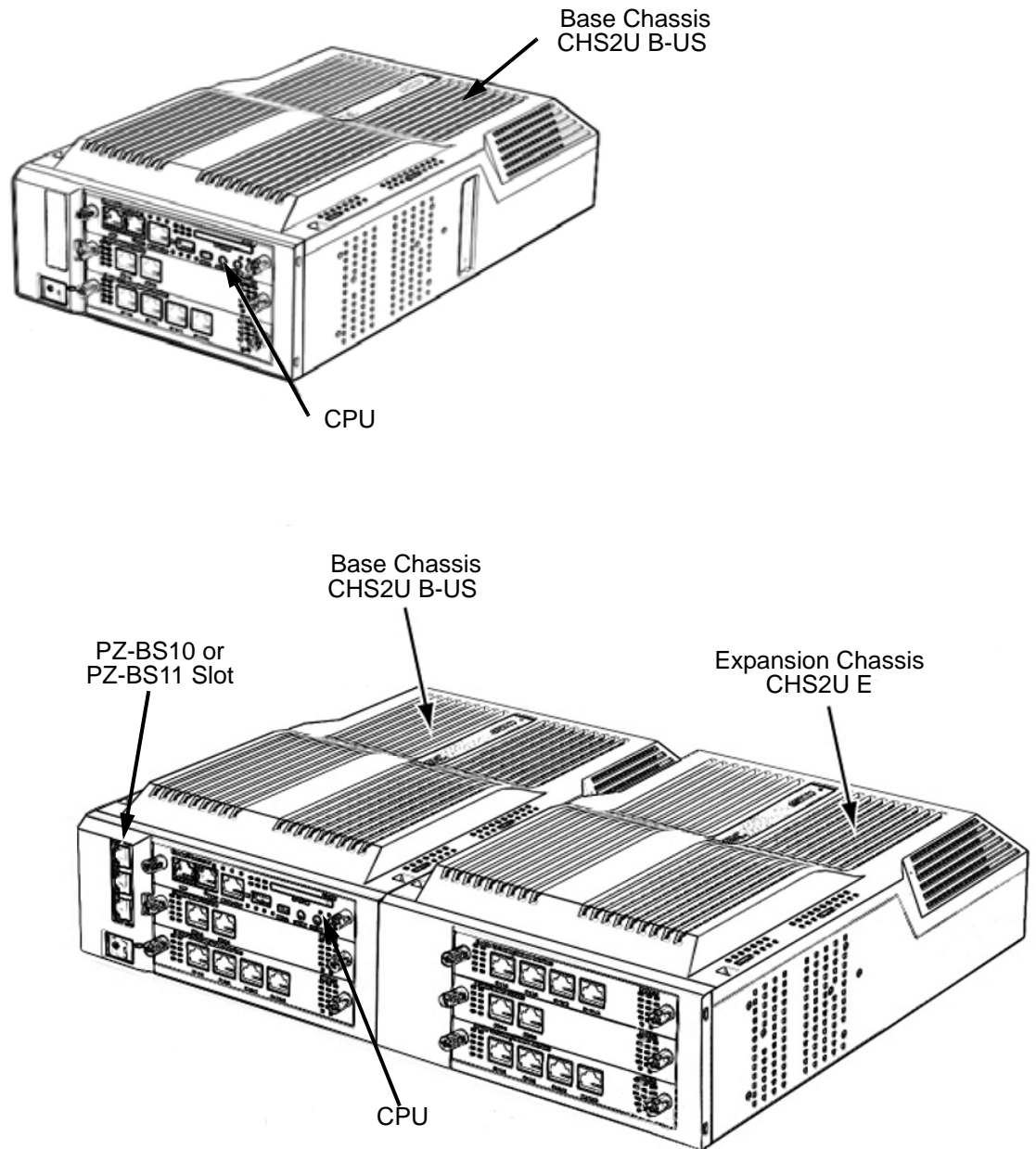


Figure 4-2 9.5" Gateway Chassis CPU Location





**Figure 4-3 9.5" Base and Expansion Chassis CPU Location**

## SECTION 2      INSTALLATION

Pre-installation planning is essential. Advanced planning minimizes installation time, cost, and disruption of the customer business activities.

### 2.1      Installation and Safety Precautions



*Observe the following precautions when installing the blades to avoid static electricity damage to hardware or exposure to hazardous voltages.*

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Ground the Controlling and Expansion chassis before installing or removing the blades.
- The Expansion Chassis **must be installed with the system power OFF**.
- *Do not* touch the blade components.
- Carry the blade in a conductive polyethylene bag to prevent static electricity until ready to install the blade.
- When installing or removing the blades from the chassis, the installer must wear a grounded wrist strap to protect the blade from static electricity.
- Although it is recommended to install the blades with the **system power OFF**, most blades can be installed hot except for the following that **must be installed with the power OFF**:
  - CD-CP00-US
  - PZ-BS10 and PZ-BS11

## 2.2 Installing an Extension or Trunk Blade

### 2.2.1 Installing the Blades

To install an extension/trunk blade with the system running:

1. Insert the blade in the guide rail and push it securely into position. Tighten the thumb screw on either side of the blade.
2. The Status LED starts flashing when the blade starts processing (15 seconds).

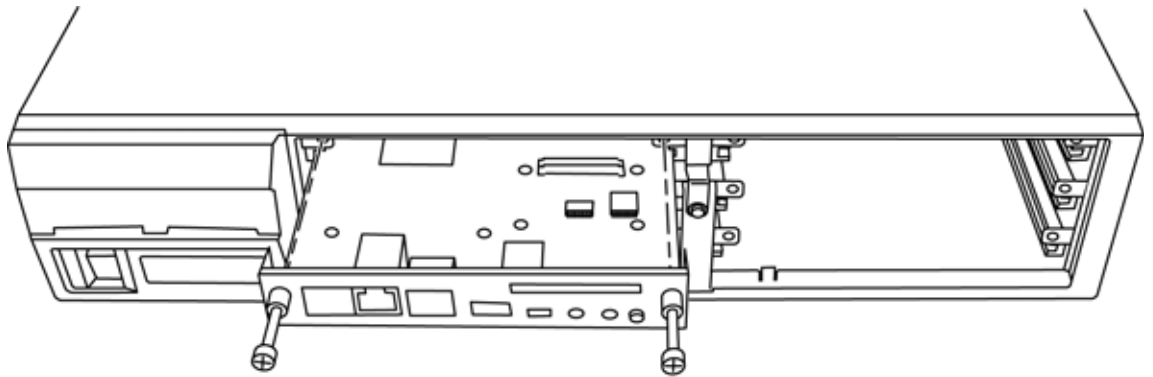


Figure 4-4 Inserting Blades in the 19" Chassis

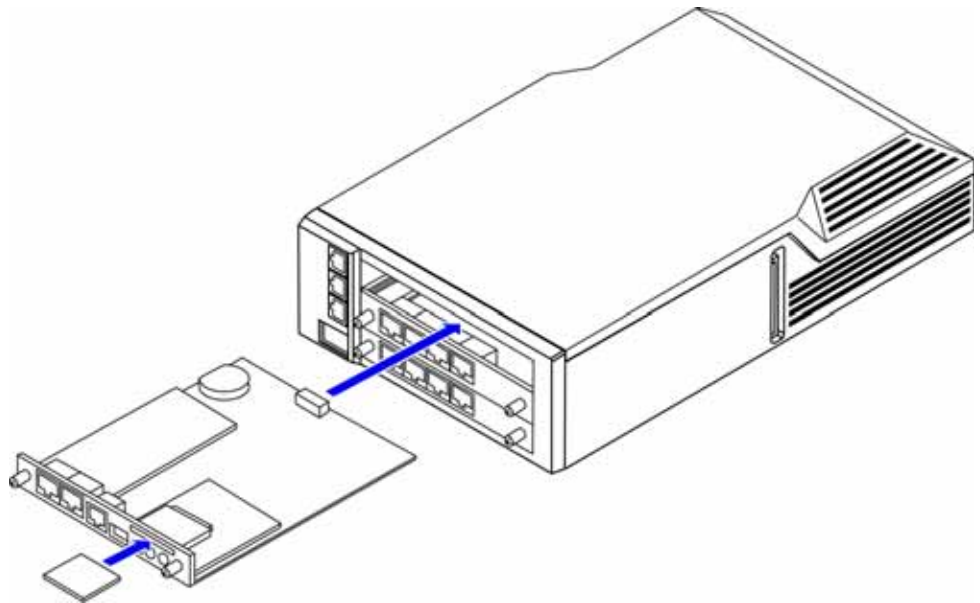


Figure 4-5 Inserting Blades in the 9.5" Chassis

2.2.2 Order of Installing Extension Blades

The order in which the station blades (CD-8DLCA with PZ-8DLCB, CD-16DLCA, CD-4LCA, and CD-8LCA with PZ-8LCE) are physically inserted determines the numbering plan.



*To avoid unexpected extension/trunk numbering if the VoIP or Voice Mail daughter board registers with the system first, install these boards after the other extension and trunk blades are installed.*

For example, when a digital station blade (CD-16DLCA) is in Slot 1 (ext. 101~116) and three additional digital station blades are installed **in the following order**, the numbering plan below in [Table 4-1 Extension Blade Installation Order Example](#) applies.

**Table 4-1 Extension Blade Installation Order Example**

Order of Installation	Blade Slot Number	Blade	Extension Numbers
1	1	CD-16DLCA	101~116
2	2	CD-16DLCA	117~132
3	4	CD-8DLCA PZ-8LCE	133~148
4	3	CD-8DLCA	149~156

After the initial powering up of the system, subsequent powering up or reset does not change the slot identification. Program 90-05 must be performed to change the slot identification.

Adding any daughter board to increase the available ports or go to a higher capacity blade (e.g., CD-16DLCA) may require that the slot be deleted in programming and the blade reinstalled. In the following example, to add a daughter board to slot 2, the blade must be removed, deleted in Program 90-05-01, then reinstalled with the daughter board attached, otherwise the additional ports are not recognized. This however, uses new ports for the combined blade – the initial ports (ports 17~24 using the example below) are not used.

**Table 4-2 Adding Daughter Board to Chassis Example**

Initial Blade			Updated Blade		
Blade Slot #	Blade	Extension Numbers	Blade Slot #	Blade	Extension Numbers
1	CD-16DLCA	101~116	1	CD-16DLCA	101~116
2	CD-8DLCA (no daughter board)	117~124	2	—	—
3	CD-16DLCA	125~140	3	CD-16DLCA	125~140
—	—	—	4	CD-8DLCA (with daughter board)	141~156

The system automatically recognizes each blade installed in the system. *If a blade was installed previously* in a slot and another type of blade is to be installed in that same slot, the blade must first be removed from the chassis and then the slot definition removed using Program 90-05 prior to installing the new blade.

This same condition applies to extensions and other devices connected to the system. For example, if a port was used previously for a telephone and a DSS Console is to be installed in that same port, the telephone must be undefined in Program 10-03 before the console is connected.

### 2.2.3 Order of Installing Trunk Blades

#### 2.2.3.1 Installing CD-4COTB, CD-4DIOPA, CD-4ODTA or CD-2BRIA Blades

The order in which trunk blades are physically inserted determines the numbering plan.



***To avoid unexpected extension/trunk numbering if the VoIP or Voice Mail daughter board registers with the system first, install these boards after the other extension and trunk blades are installed.***

For example, if four blades are installed *in the following order*, the numbering plan below applies.

**Table 4-3 Trunk Blade Installation Order Example**

Order of Installation	Blade Slot Number	Blade	Line Circuits
1	4	CD-4COTB with PZ-4COTF	1~8
2	5	CD-4COTB	9~12
3	7	CD-4ODTA	13~16
4	6	CD-4ODTA	17~20

### 2.2.3.2 Installing CD-PRTA (T1/PRI) Blades

The CD-PRTA (T1/PRI) Interface blade uses the first block of 24 consecutive trunks.

For example, if a CD-4COTB blade with PZ-4COTF daughter board is installed for trunks 1~8, the CD-PRTA (T1/PRI) blade automatically uses trunks 9~32. If CD-4COTB with PZ-4COTF is installed for trunks 1~8 and 17~24, the CD-PRTA (T1/PRI) blade uses trunks 25~48. The CD-PRTA (T1/PRI) blade cannot use trunks 9~16 (even if available) since they are not part of a consecutive block of 24 trunks.

## 2.3 Remove an Extension or Trunk Blade

Any blade, **EXCEPT** the ones listed below can be removed while the system is powered up. To remove any blade listed below, the system *must first be powered down*.

- CD-CP00-US
- PZ-BS10 and PZ-BS11

To remove an extension/trunk blade with the system running:

1. When LED 2 is extinguished, all extensions/trunks are idle.
2. Loosen the thumb screw on either side of the blade and pull it out of the chassis.

## 2.4 Uninstalling a Blade Slot Through Software

The installer can turn off (busy out) and delete (remove from software) blade slots in the Controlling and Expansion Chassis in programming for port renumbering or to replace it with a different blade. Deleting a blade may affect blade slot programming ability. Refer to Program 90-05 in the UNIVERGE SV8100 Programming Manual for detailed information.

## 2.5 Blade Capacities

The universal architecture of the UNIVERGE SV8100 provides flexibility when installing blades. With the exception of the CD-CP00-US, PZ-BS10, and PZ-BS11 blades, any blade can be installed in any slot. [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#) and [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#) provide a list of the blades and the maximum capacities with various chassis configurations.

## 2.6 Powering Up the SV8100 System

### 2.6.1 Performing a Cold Start

This section describes the process for starting the system (19" and 9.5" chassis) for the first time or starting a system that has been turned off.



### IMPORTANT CONSIDERATIONS

- *System software is loaded from flash memory, and the customer data is loaded from RAM memory.*
- *To avoid extension and trunk renumbering, if certain blades are recognized first, remove them from their respective slots until the system has been reset. Then, slot the blade cards in the correct order to retain the proper system numbering. (Use Program 10-03 prior to performing a cold start to record the current slot definitions.)*

To perform a cold start:

1. Turn the system power off.
2. Once the system has powered down, push in and hold the **Load** button.

3. Turn the power switch back on to power the system back up.
  - With a multi-chassis system, turn on the Expansion Chassis power supply, then the Controlling Chassis power supply.
4. Continue holding the **Load** button for approximately three seconds or until LED 2 starts flashing red.
5. Release the **Load** button.
6. When the system has completed reloading the software (two minutes), the Status LED is flashing on the CD-CP00-US.

### 2.6.2 Performing a Hot Start

The section describes how to load system software from flash memory and customer data from RAM memory.



#### IMPORTANT CONSIDERATIONS

*System software is loaded from flash memory, and the customer data is loaded from RAM memory.*

1. Turn the system power off.
2. After it has powered down, press the button again to power the system back up. Wait approximately two minutes.
3. When the system has completed reloading the software, the Status LED is flashing on the CD-CP00-US.

### 2.6.3 Resetting the System

This section describes resetting a system that is running. Observe the important information listed below.

To reset the system:


#### 2.6.3.1 Initial Programming

The system can be programmed using three methods:

- Programming using a multiline terminal
- PC Programming
- Web Programming



To program using a multiline terminal, enter programming mode:

1. Go to any working display telephone.
2. *Do not* lift the handset.
  -  *In a newly installed system, use extension (port 1).*
3. Press **Speaker**.
4. **##\*#**.

#### Password

5. Dial the system password + **Transfer**.

### 2.6.3.2 Port Defaults

With the default settings, the ports are assigned as follows:

**Table 4-4 Default Port Settings**

<b>Station Ports:</b>	Port 1~99 : 101~199 Port 100~199 : 3101~3200 Port 200~512 : 3201~3513
<b>Virtual Station Ports:</b>	Port 1~99 : 201~299 Port 100~199 : 3601~3700 Port 200~256 : 3701~3757
<b>Trunk Ports:</b>	1~200

In the initial configuration:

- All Programmable Function keys are line keys (e.g., key 1 is line 1).
- All trunks are loop start DTMF.

### 2.6.3.3 Setting Up Extension Circuit Types

Run Program 10-03 to set up extension circuit types as required. The system automatically detects and assigns most circuit types when the device is connected.

1. Dial 10-03-01.
2. Press TRANSFER to Select the slot, port or channel (with ESIU Blades) to be programmed.
3. Set the terminal type or option as needed.

 *If the system has DSS Consoles, Program 30-02 must be used to define DSS extension assignments.*

As the system recognizes the extension devices automatically, when replacing the connected device, it must be undefined in Program 10-03 prior to connecting the new device. For example, if a port was previously used for a telephone and a DSS Console is to be installed in that same port, the telephone must first be undefined in Program 10-03 before the console is connected.

#### 2.6.3.4 Saving Your Configuration

When programming is completed, to exit out of the program option and save changes to the CD-CP00-US:

1. Press **EXIT** to exit the program options, if needed.
2. Press **Speaker**.  
Saving System Data is displayed if changes were made to system programming.
3. The display shows Complete Data Save when completed and the telephone becomes idle.

#### 2.6.3.5 Backing Up/Restoring a Database

As a precaution, it is recommended that the customer database be saved prior to updating the system software. There are two methods to save the database – either use the PCPro application or save directly to USB Memory on CD-CP00-US. Using PCPro, download the database and save the file on the PC hard drive. To save the database using a blank USB Memory, insert the USB Memory into the USB Port on the CD-CP00-US blade and, using Program 90-03, save the software. Due to the file naming structure, note that a USB Memory can hold only one customer database (each database is saved to a directory called DATA – this directory is overwritten if a second database is saved to the same card). Each database to be saved requires its own separate card (unless you choose to rename the directory after it is saved, then rename it back to DATA when you need to access the database).

If the customer data needs to be reloaded, the method for restoring the database is determined by how the database was saved. Using PCPro, the customer database is uploaded using the Upload option in the application. If the database is stored on a USB Memory, use Program 90-04, with the database to be restored installed in the USB Port on the CD-CP00-US blade.

When restoring a database file, as the slot definitions may be different, remove all blades from the system except the CD-CP00-US and the CD-8DLCA/CD-16DLCA in slot 2. After the system is reset, blades can be installed again. Program 10-03 or Program 90-04 can be used prior to updating to record the current slot definitions. If the blades are not removed, the trunk and extension port assignments may be reassigned, depending on which blade syncs up with the system first.

After reloading the customer data to the system, exit programming mode (this could take a minute or more to save the database), **then reset the system by powering down and back up.** If the system is not reset, not all the uploaded programming changes are in effect. Wait a few minutes for the programming to take affect before accessing any line or special system feature. Otherwise, some unusual LED indications may be experienced. To prevent the USB Memory from possibly being overwritten, remove the card after reloading the database.

#### 2.6.4 Performing a Software Upgrade

This section describes the procedure to perform a software upgrade on the CD-CP00-US.



#### IMPORTANT CONSIDERATIONS

- *To save customer data prior to updating, a blank USB Memory is required. Insert the USB Memory into the USB Port on the CD-CP00-US blade. Use Program 90-03 to save the software to the USB Memory. Note that a USB Memory can hold only one customer database. Each database to be saved requires its own separate USB Drive. Use Program 90-04, with the database to be restored installed in the CD-CP00-US, to reload the customer data if necessary.*
- *After uploading programming data to the system using Program 90-04, exit programming mode (this could take a minute or more to save the database), then reset the system by powering down and back up. Wait a few minutes for the programming to take affect before accessing any line or special system feature. Otherwise some unusual LED indications may be experienced. To prevent the USB Memory from possibly being overwritten, remove the USB Memory after downloading the database.*
- *When restoring a database file, as the slot definitions may be different, remove all blades from the system except the CD-CP00-US and CD-8DLCA/CD-16DLCA in slot 2. After the system is reset, the blades can be reinstalled. Use Program 10-03 prior to updating to record the current slot definitions.*
- *If the PZ-ME50-US is installed on the CPU at a later date, a system upgrade must be performed using the CD-CP00-US upgrade procedures. When a PZ-ME50-US is mounted on a CPU, all software upgrades are stored on this daughter board. If the PZ-ME50-US were to be removed from the CPU, a software upgrade must be performed to bring the CPU to the latest version.*

To perform a system software and firmware upgrade:

1. Turn the system power off.
2. After the system powers down, insert the USB Memory containing the software upgrade into the USB port on the CD-CP00-US.
3. Push in and hold the **Load** button.
4. Turn the system power on.
5. Continue holding the **Load** button for approximately 10 seconds or until Status LED5 begins flashing red.
6. Release the **Load** button.
7. Wait until the Status LEDs on the CD-CP00-US have the following indications (approximately two minutes):
  - LED 2: Flashing Red
  - LED 3: Flashing Red
  - LED 4: Flashing Red
  - LED 5: Steady Red
8. Turn the system power off and remove the USB Memory.
9. Turn the system power back on.
10. When the system has completed reloading the software, the Status LED begins flashing on the CD-CP00-US. The remaining four LEDs are off.
  - To confirm the new software version is installed, press the FEATURE + 3 keys on any display multiline terminal to view the system version number.
  - The existing system software in the flash memory is replaced, but the customer data (stored in the RAM) is saved.

### SECTION 3 COMMON CONTROL BLADES

The blades described in this section control the common functions of the chassis.

#### 3.1 CD-CP00-US (SV8100 Central Processing Unit)

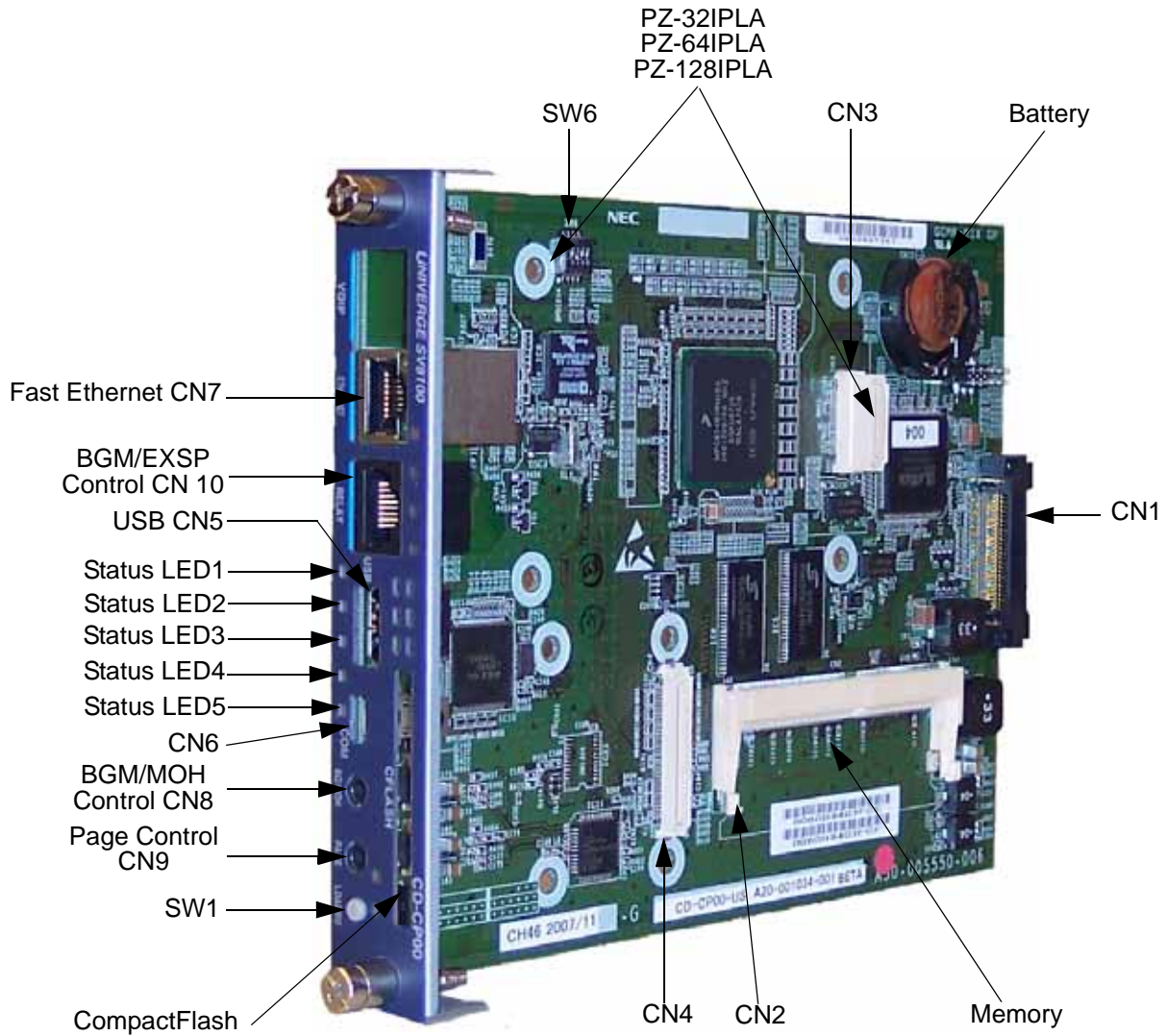
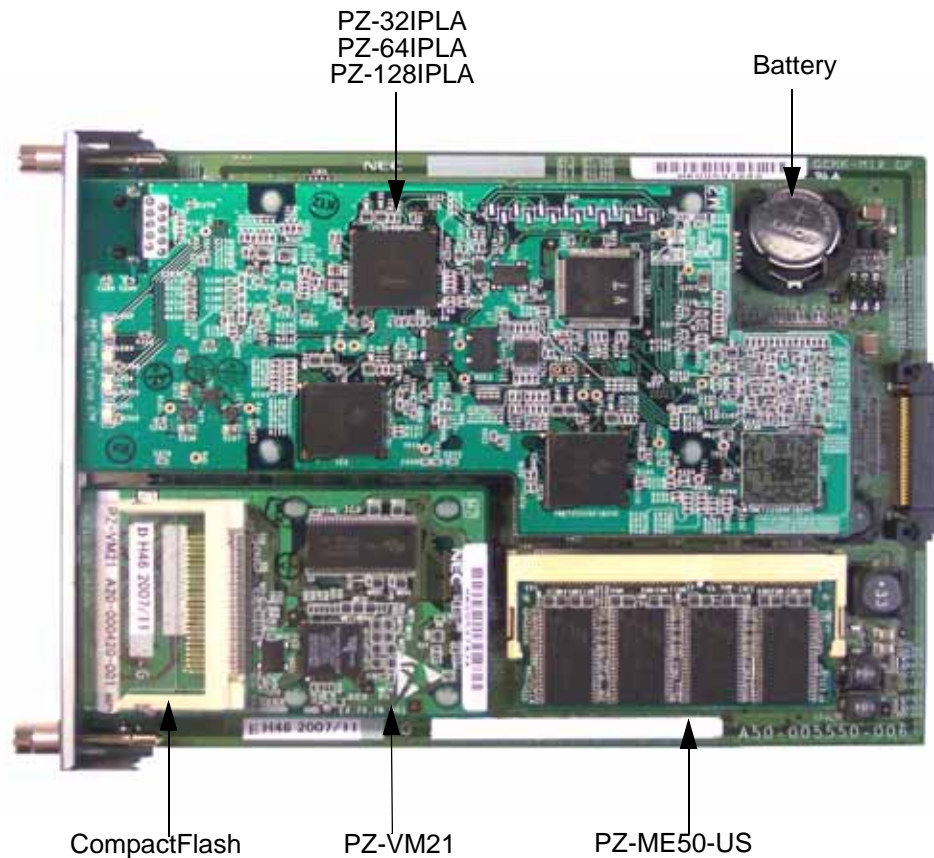


Figure 4-6 CD-CP00-US Blade Layout



**Figure 4-7 CD-CP00-US Blade with Daughter Boards Installed**

### 3.1.1 Description

The CD-CP00-US controls all the functions and operations of the SV8100 system using the system software loaded into the CD-CP00-US memory. The system software can be upgraded as new software becomes available.

One CD-CP00-US blade must be installed in the Controlling Chassis.

**The CD-CP00-US functions are:**



- Music on Hold tone Circuit, External Source Control Circuit
- PZ-VM21 Interface Circuit
- System Program and System Data Storing Memory Circuit
- USB Interface Circuit

- Ethernet Interface Circuit
- PZ-BS10/PZ-BS11 Interface Circuit
- Main Processing 32-Bit CPU Circuit (MPC8248 @ 266 MHz)
- Time Switch, Optional Blade Control Circuit
- Backboard Interface Circuit

**The CD-CP00-US provides:**

- 200 trunk ports maximum
- 512 extension ports maximum
  - 512 ports digital/IP extensions maximum
  - 320 analog ports maximum
- 256 virtual extensions
- Connection for PZ-32IPLA/PZ-64IPLA/PZ-128IPLA Daughter Board
- Connection for PZ-VM21 Daughter Board
- Connection for Expanded Memory (PZ-ME50-US Daughter Board)
- Supports TAPI 2.x
- One Green Status LED
- Four Red Status LEDs
- Five diagnostic LEDs which indicate the status of various system functions
- During normal operation, the RUN LED is flashing and the remaining LEDs are off
- Time Division Multiplex Switch (TDM Switch)
- Digital Phase Locked Loop (DPLL)
- Tone Generator
- Tone Processing DSP
- Connection for Memory Module
- Digital Signal Processor (DSP)
- DTMF Tone Sender
- DTMF Tone Receiver
- Dial Tone Generator (DTG)
- The PZ-BS10 provides 64 channels for Telephony Resource (e.g., DTMF Receiver, Caller ID Receiver, and Call Progress Tone Detection)
- System Tone Sender
- MF Receiver
- MF Sender



- MFC Tone Sender
- MF Signal Sender (Sends caller information to CO for E911)
- Call Progress Tone Detection
- C-Channel Control
- Conference: 64 Channels
- Caller ID Receiver; 32 Channels
- A load switch which is used for initial system startup, resetting the system, or when upgrading system software
- One Serial Port (null modem/cross-over cable required)
- One USB Port – USB 1.1 (requires USB driver – download from NEC web site)
  -  *Memory size – minimum of 32MB (normally 512MB or 1GB) should be used.*
  -  *USB device power consumption is less than 200mA (1W).*
- One Gbit Ethernet Port for VoIP function
- One CompactFlash Card Slot
- Background Music/EXSP Control Port
- Status LED
- Two Audio Input/Output Terminals
- One Music On Hold External Source
- High-Level Data Link Control (HDLC) Packet Processing
- Real Time Clock (tolerance 30 seconds/month)
- Call Control Server (ex: Conference Bridge Server, Voice Mail Server, SIP Server, RTP Forwarding, VoCoder Conversion)
- One lithium battery (Sony CR2032 or equivalent) which provides battery back-up of system data and RAM memory for approximately 30 months.

The CD-CP00-US functions provided are:

- Call Control Server
- Conference Bridge Server
- Voice Mail Server (voice mail requires a compact flash card)
- SIP Server
- RTP Forwarding
- VoCoder Conversion

### 3.1.2 Installation

Each SV8100 system **must have the** CD-CP00-US **installed in Slot 1** of the Controlling Chassis.



#### IMPORTANT INSTALLATION NOTES

- *The chassis power must be off when installing or removing the CD-CP00-US.*
  - *After removing a previously installed CD-CP00-US, handle the blade, carefully, from the edges. If certain solder points/resistors are touched on the back of the blade, some RAM/temporary memory may be lost (e.g., time, date, user-defined settings, etc.)*
1. Install the battery on the CD-CP00-US. The polarity + symbol must be on top as illustrated in [Figure 4-8 CD-CP00-US Battery Installation](#).

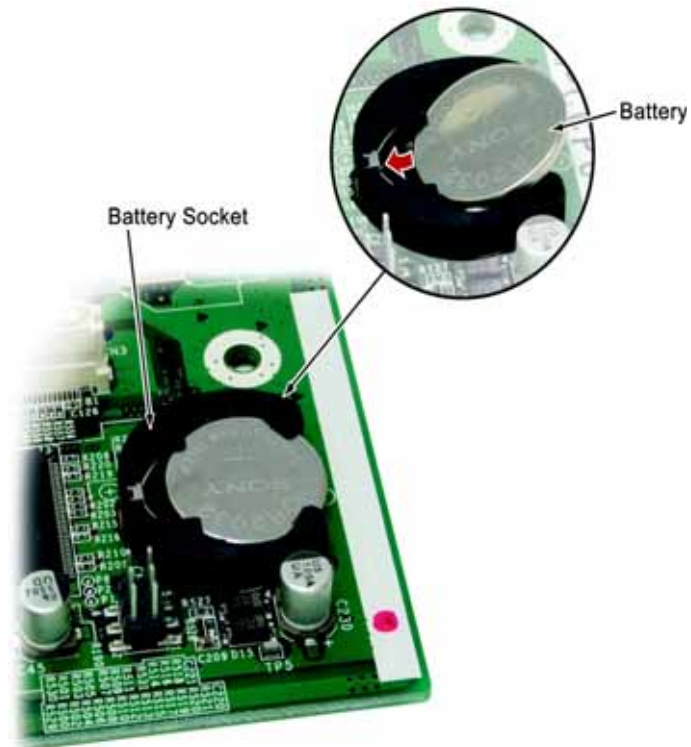



Figure 4-8 CD-CP00-US Battery Installation

2. Refer to [Figure 4-7 CD-CP00-US Blade with Daughter Boards Installed on page 4-17](#) to Install the PZ-VM21, PZ-ME50-US and/or PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter board, if required.
3. Ensure the power supply is **OFF**, then slide the CD-CP00-US into Slot 1 in the Controlling Chassis.
4. If external Background Music (BGM) or Music on Hold (MOH) is being installed, plug the cable into the CN8 or CN9 pin jack connector on the CD-CP00-US. The other end of the cable plugs into the music source.
  - Refer to the PGD(2)-U10 ADP in the [Chapter 9 Installing SV8100 Optional Equipment section 2.1 Using a PGD\(2\)-U10 ADP on page 9-1](#) for details on connecting to a music source.
  - When the system software is upgraded, the flash memory is updated with the new software version. Either the Hot or Cold start-up method can be used or the system can be upgraded using system software. Refer to [2.6.1 Performing a Cold Start on page 4-9](#), [2.6.2 Performing a Hot Start on page 4-10](#), or [2.6.4 Performing a Software Upgrade on page 4-14](#).
  - Customer information is stored in the RAM memory which is restored after a power failure is cleared. The lithium battery in the system saves the RAM memory when power is lost.

### 3.1.3 Switch Settings

Refer to [Table 4-5 CD-CP00-US Switch Settings](#) for system restart/system reset and with system power on. [Figure 4-6 CD-CP00-US Blade Layout on page 4-16](#) shows the location of the SW1 switch on the CD-CP00-US blade.

**Table 4-5 CD-CP00-US Switch Settings**

	USB Memory Status	Operation
<b>Switch SW1 – Load Switch</b>	<b>With a system restart or a system reset while holding the SW1 switch:</b>	
	When USB Memory is not installed:	Cold Start occurs.  Database default occurs
	When USB Memory is installed:	USB Memory contents loaded.
	When an unauthorized USB device is installed:	System does not start and an Illegal USB device is connected alarm is recorded.

**Table 4-6 CD-CP00-US Switch 6 Settings**

	<b>Configuration</b>	<b>Note</b>
SW6-1	ON	Not Used
SW6-2	OFF	Test Mode ON = Test Mode OFF = Normal
SW6-3	OFF	RS232C Select ON = Use OFF = Not Used
SW6-4	ON	Reset Configuration ON = Normal OFF = ICE Mode

### 3.1.4 LED Indications

The LEDs on the CD-CP00-US indicate the following:

- RUN (LED 1) = The CPU is operating (green)
- LED 2, and 3 = Alarms (red)
- LED 4 = Flash access indication (red)
- LED 5 = The USB memory connection status (red)  
(LED off when no USB memory installed)
- Refer to Program 90-10: System Alarm Setup for details on assigning alarm LEDs.

[Table 4-7 CD-CP00-US LED Indications](#) provides a list of each LED and associated operation and status indications. Refer to [Figure 4-6 CD-CP00-US Blade Layout on page 4-16](#) for the location of the LEDs on the CD-CP00-US.

**Table 4-7 CD-CP00-US LED Indications**

<b>LED Indication</b>					<b>Status</b>
<b>RUN (LED1)</b>	<b>LED2</b>	<b>LED3</b>	<b>LED4</b>	<b>LED5</b>	
Blinking	Off	Off	Off	On Steady When USB Memory is Installing	System operating normally
Off	Off	Off	Off	Blinking	Boot is starting
Off	On	Off	Off	Off	Initializing the disk or formatting

Table 4-7 CD-CP00-US LED Indications (Continued)

LED Indication					Status
RUN (LED1)	LED2	LED3	LED4	LED5	
Blinking	Blinking	Off	Access Blink	On Steady When USB Memory is Installing	Boot program is initializing in the flash memory
Off	On	On	Access Blink	On Steady When USB Memory is Installing	Reading system software
Off	On	Off	Access Blink	On Steady When USB Memory is Installing	Upgrading system software
On	Blinking	Blinking	Blinking	On Steady When USB Memory is Installing	Finish formatting (SRAM, Flash)
Blinking	Off	Off	Off	Off	DRAM error
Blinking	Off	Off	On	On Steady When USB Memory is Installing	FPGA version error
Blinking	Off	On	Off	On Steady When USB Memory is Installing	SRAM error
Blinking	Off	On	On	On Steady When USB Memory is Installing	Flash memory booting error
Blinking	On	On	On	On Steady When USB Memory is Installing	Flash memory data error
Blinking	Blinking	Blinking	Blinking	On Steady When USB Memory is Installing	Reading error of system program
Blinking	On	Off	Off	On Steady When USB Memory is Installing	Error: Major alarm occurred
Blinking	Blinking	Off	Off	On Steady When USB Memory is Installing	Error: Minor alarm occurred
On	Off	Off	Off	Off	System starting up

### 3.1.5 Connectors

Table 4-8 CD-CP00-US Connections describes each connector on the CD-CP00-US, Table 4-9 CD-LTA RJ45 Cable Connector Pin-Outs describes the pin-outs for connectors on the CCPU-A. Refer to Figure 4-6 CD-CP00-US Blade Layout on page 4-16 for the location of the connections on the CD-CP00-US blade.

**Table 4-8 CD-CP00-US Connections**

Connector	Connector Description
CN1	Backboard Connection
CN2	PZ-ME50-US (Expanded Memory) Connection
CN3	PZ-32IPLA/PZ-64IPLA/PZ-128IPLA Connection
CN4	PZ-VM21 Connection
CN5	USB Memory Connection (used for upgrading software or downloading system data)
CN6/SW2	Used for Debug
CN7	Ethernet Cable Connection (for PCPro or WebPro, CTI, ACD MIS, IP Phone)
CN8/CN9	Pin Jack for External Source Connection (External MOH, External Speaker, etc.)
CN10	External Source Control Connection
SW1	Load Switch
BAT	Lithium Battery Socket (for backup of SRAM memory data)

**Table 4-9 CD-LTA RJ45 Cable Connector Pin-Outs**

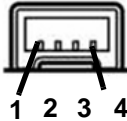
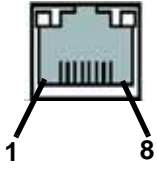

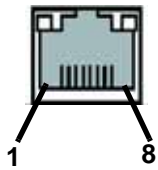
USB Cable Connector – CN5 (Type A, Female) (USB 1.1/2.0 Standard)		
	Pin No.	Signal
	1	Vcc
	2	-D
	3	+D
	4	GND

Table 4-9 CD-LTA RJ45 Cable Connector Pin-Outs (Continued)

Ethernet Cable Connector – CN7 (RJ-45) (10Base-T/100Base-TX Port)		
	Pin No.	Connection
	1	Tx+
	2	Tx-
	3	Rx+
	4	–
	5	–
	6	Rx-
	7	–
8	–	
Pin Jack – CN8/CN9 (Polarity)		
	Pin No.	Signal
	1	EXT1
	2	EXT2
RJ-45 Cable Connector – CN10 (External Source Control) (No Polarity)		
	Pin No.	Connection
	1	NC
	2	NC
	3	EXCNT2
	4	EXCNT1
	5	EXCNT1
	6	EXCNT2
	7	NC
8	NC	

### 3.2 PZ-ME50-US (Memory Expansion Daughter Board)



Figure 4-9 PZ-ME50-US Daughter Board

#### 3.2.1 Description

The Memory Expansion daughter board provides additional memory for the system to use with license control, expanded system networking, and software updates. This daughter board is mounted on the CD-CP00-US and provides the SDRAM, Flash Memory and SRAM. [Table 4-10 PZ-ME50-US Memory Capacities](#) lists each memory and its capacity.

[Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#) and [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#) list the maximum capacities for the PZ-ME50-US daughter board when upgraded.

[Table 4-10 PZ-ME50-US Memory Capacities](#) provides the memory capacities for the PZ-ME50-US daughter board.

Table 4-10 PZ-ME50-US Memory Capacities

Description	Memory Capacity	Equipped Memory
SDRAM	128 MB	256 MB / 16-bit x 4 pcs
Flash Memory	32 MB	256 MB / 16-bit x 1 pc
SRAM	1 MB	4 MB / 16-bit x 2 pcs



Table 4-11 PZ-ME50-US Port Capacities provides the maximum capacities for the PZ-ME50-US daughter board.


**Table 4-11 PZ-ME50-US Port Capacities**


	Basic System (CD-CP00-US)	Memory Expansion Board PZ-ME50- US	System 256 Port License	System Unlimited Port License	* NetLink (Networked Chassis)
64 Ports without PZ-ME50-US	X	–	–	–	–
64 Ports with PZ-ME50-US (Memory Expansion Board)	X	X	–	–	X
256 Ports	X	X	X	–	X
Unlimited Ports (Up to 512)	X	X	X	X	X

X = Supported

– = Not Supported

\* Refer to NetLink feature in the SV8100 Features and Specifications Manual for more details regarding the NetLink feature.

 Only one CD-LTA blade can be installed when the CD-CP00-US is installed without the PZ-ME50-US. Up to eight CD-LTA blades can be installed per system (no more than two per chassis) when the PZ-ME50-US is installed on the CD-CP00-US.

 Only eight ports of VRS are available when the PZ-ME50-US is not installed on the CD-CP00-US.


### 3.2.2 Installation

To install a PZ-ME50-US on the CD-CP00-US:



***Do not remove or install the CD-CP00-US with the power on.***

For installation on the CD-CP00-US blade refer to [Figure 4-7 CD-CP00-US Blade with Daughter Boards Installed on page 4-17](#).

 This daughter board does not have any switch which needs to be set and does not require any hardware setting.



- *Each node in a NetLink network requires the PZ-ME50-US.*
- *CD-CP00-US without the PZ-ME50-US installed, supports a single chassis system (six slots only).*
- *CD-CP00-US with the PZ-ME50-US is required to support a system with multiple chassis.*
- *CD-CP00-US without the PZ-ME50-US supports only (one) CD-LTA (8 Digital Station/ 2SLT) blade.*



- *Failure to properly install and program ports higher than 64 (as described below) can corrupt the SV8100 database.  
When the PZ-ME50-US is not physically installed on the CD-CP00-US, do not attempt to change the PCPro database configuration to indicate that the PZ-ME50-US is installed on the CD-CP00-US, Program ports 64 and higher, and then upload the PCPro configuration to the SV8100 system. This process can cause the SV8100 database to be corrupted. Refer to the next bullet for the proper installation/ programming procedure.*
- *To properly install and configure the PZ-ME50-US; first install the PZ-ME50-US on the CD-CP00-US. To program the ports above 64 using PCPro, perform a new download before attempting to program the ports.*
- *If the PZ-ME50-US is installed on the CPU at a later date, a system upgrade must be performed using the CD-CP00-US upgrade procedures. When a PZ-ME50-US is mounted on a CPU, all software upgrades are stored on this daughter board. If the PZ-ME50-US were to be removed from the CPU, a software upgrade must be performed to bring the CPU to the latest version.*

### 3.3 PZ-VM21 (Voice Mail Daughter Board)



Figure 4-10 PZ-VM21 Daughter Board

#### 3.3.1 Description

The SV8100 voice mail is a fully integrated, “in-skin” voice mail with Automated Attendant. In addition to the voice mail function, the daughter board provides Voice Response System (VRS) and an optional modem ability for remote maintenance functions. Its robust feature set rivals the abilities of standalone products on a single, plug-in voice mail blade.

This daughter board is installed on the CD-CP00-US blade and is available for:

- PZ-VM21 – providing eight channels for voice mail (a compact flash card is required for voice mail) and a single channel V34 modem.

Refer to the following tables for maximum upgrade capacities of the PZ-VM21 daughter board:

- [Table 2-6 SV8100 Maximum 9.5” Gateway and 19” System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5” Base and Expansion System Capacities – Blades on page 2-15](#)

Depending on the compact flash card used, the voice mail can provide:

**Table 4-12 CompactFlash Voice Mail Specifications**

<b>UNIVERGE SV8100 VM8000 InMail Part Numbers and Capacities</b>	
P/N 670831	UNIVERGE SV8100 VM8000 InMail 512M Drive ○ (1) 32-hour CompactFlash Card with software.
P/N 670784	UNIVERGE SV8100 VM8000 InMail 8-Port License
P/N 670872	UNIVERGE SV8100 VM8000 InMail 2-Port License
P/N 670873	UNIVERGE SV8100 VM8000 InMail 4-Port License
P/N 670874	Language License
P/N 670103	○ (1) Daughter Board Interface for InMail CF.
Mailboxes	Station Mailboxes = 512 Routing Mailboxes = 32 Group Mailboxes = 32 Total Mailboxes = 576

### 3.3.2 Installation

To install a PZ-VM21 on the CD-CP00-US:

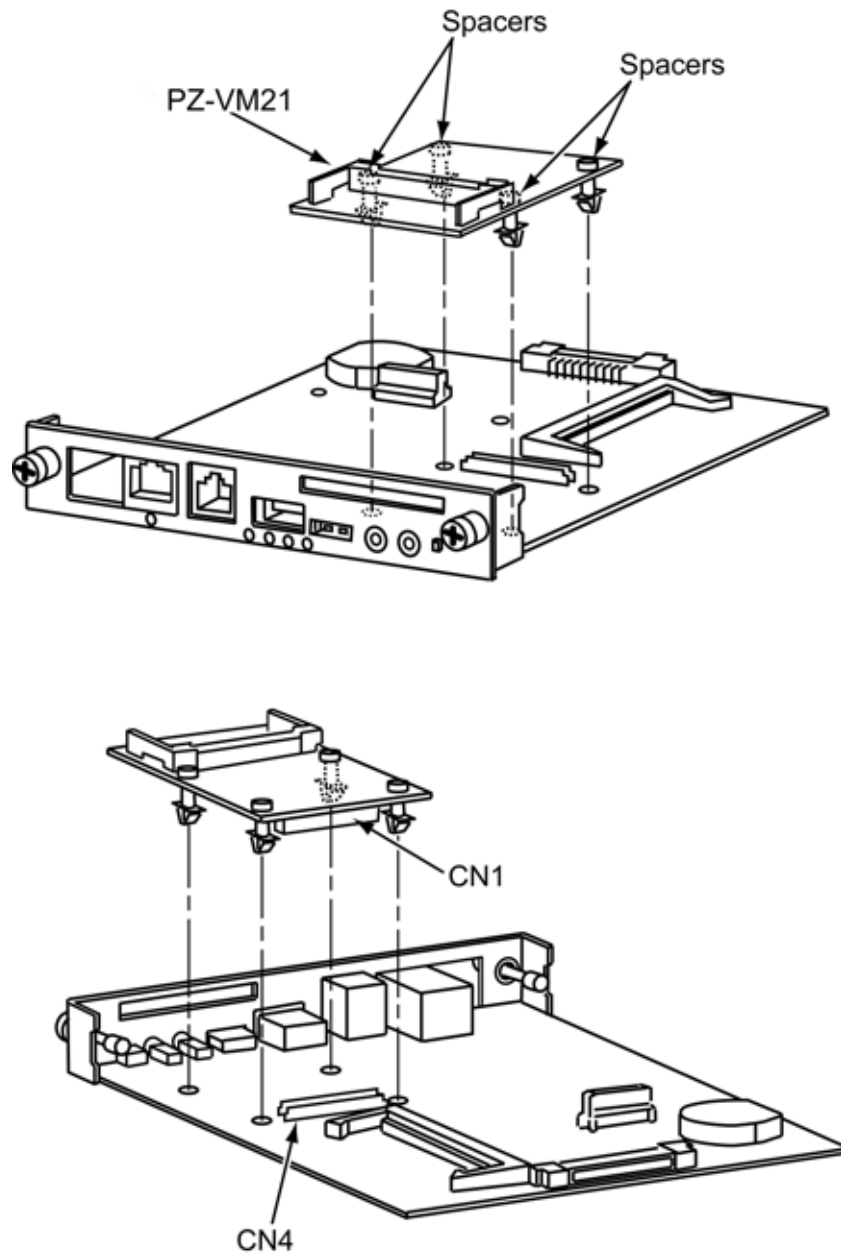


***Do not remove or install the CD-CP00-US with the power on.***

1. Four plastic spacers are included with the PZ-VM21. Install the plastic spacers on the PZ-VM21. Make sure to attach the spacers so that they extend out on the side of the daughter board which has the CN1 connector. Refer to [Figure 4-11 Installing the PZ-VM21 on page 4-31](#).
2. For installation on the CD-CP00-US blade refer to [Figure 4-7 CD-CP00-US Blade with Daughter Boards Installed on page 4-17](#).
3. Position the PZ-VM21 CN1 connector over the CN4 connector on the CD-CP00-US blade. Press the blade and board together, ensuring the plastic spacers lock in place.

4. Insert the CompactFlash card into the CN2 slot.

*The LED1 status light is on steady when a card is installed.*



**Figure 4-11** Installing the PZ-VM21

One PZ-VM21 daughter board providing InMail can be installed per system.

Refer to the UNIVERGE SV8100 InMail System Guide for complete set-up information.

### 3.3.3 Switch Settings

This daughter board does not have any switch that needs to be set and does not require any hardware setting.

## 3.4 PZ-32IPLA/PZ-64IPLA/PZ-128IPLA (Voice over IP Daughter Boards)

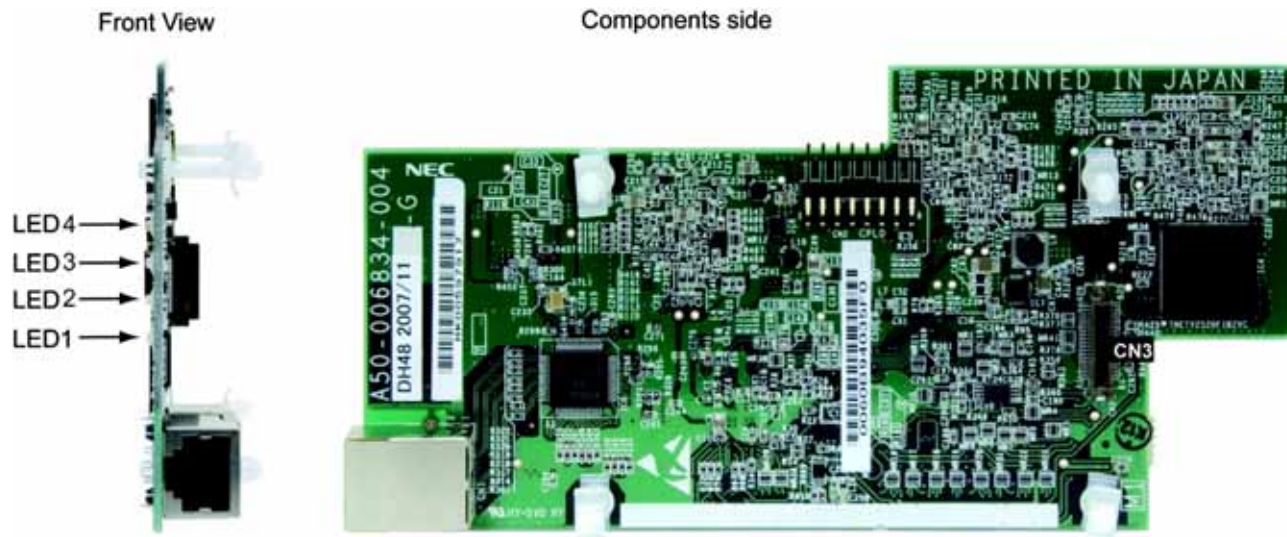


Figure 4-12 IPLA Daughter Board

### 3.4.1 Description

The PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter board is used to convert the RTP (Real Time Transfer Protocol) packets via the IP network and PCM highway. The daughter board is installed on the CD-CP00-US blade. The IP telephones are connected directly to the IP bus. When IP telephones must be connected to a conventional PCM-based digital circuit, this board converts the IP packet signal to a PCM signal format and connects to the PCM time division switch.

The PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter board is required for IP telephones to communicate with non-VoIP UNIVERGE SV8100 telephones, and place or receive outside calls.

The IPLA daughter board provides the voice (RTP/RTCP) processing function. The call control function is mounted on the CD-CP00-US. Only one version of the IPLA daughter board (PZ-32IPLA, PZ-64IPLA or PZ-128IPLA) can be installed on the CD-CP00-US.

The IPLA daughter board provides:

- 32 (PZ-32IPLA) channels
- 64 (PZ-64IPLA) channels
- 128 (PZ-128IPLA) channels

Refer to the following tables for maximum upgrade capacities of the PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter board:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)


When installing an IPLA daughter board, the system allocates the maximum number of trunk ports for the blade being installed.

### 3.4.2 Installation

To install a PZ-32IPLA/PZ-64IPLA/PZ-128IPLA on the CD-CP00-US:



***Do not remove or install the CD-CP00-US with the power on.***

1. Turn off system power, and remove the CD-CP00-US.
2. Install the IPLA daughter board on the CD-CP00-US blade.
3. Insert the CD-CP00-US into slot 1 in the Controlling Chassis.
  -  Refer to [Figure 3-3 19" Controlling Chassis – Guides Slot 1 on page 3-8](#) for more details.
4. Connect the IPLA daughter board to the CD-RTB or to an external switching hub using an ethernet cable.
5. Refer to the UNIVERGE SV8100 Programming Manual for detailed programming instructions.

### 3.4.3 Switch Settings

This daughter board does not have any switch that needs to be set and does not require any hardware setting.

### 3.4.4 LED Indications

LED indications for the PZ-32IPLA, PZ-64IPLA and PZ-128IPLA Daughter Boards are indicated in [Table 4-13 IPLA Daughter Board LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-7 CD-CP00-US Blade with Daughter Boards Installed on page 4-17](#) for the location of the LEDs on the blades.

**Table 4-13 IPLA Daughter Board LED Indications**

LED	Function	LED Status	Operation Status
Link 10/100 (LED 1)	10 Base-T/100 Base-TX link speed indicator	On Red	100 Base-TX link up
LINK 1000 (LED2)	1000 Base-T link speed indicator	On Red	1000 Base-T link up
DUPLEX (LED3)	Duplex Status	On Yellow	Full duplex operation
ACT (LED4)	Link activity or data transmission and reception	On Green	Link up completed

The following table shows the LED indication when transmitting or receiving data on CN1.

**Table 4-14 IPLA Daughter Board LED CN1 Transmit/Receive Data Indications**

LED	Link Up									
	Auto Negotiation Mode					Force Mode				
	1000 Mbps	100Mbps		10Mbps		1000 Mbps	100Mbps		10Mbps	
		Half	Full	Half	Full		Half	Full	Half	Full
ACT (LED4)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
DUPLEX (LED3)	ON	OFF	ON	OFF	ON	ON	OFF	ON	OFF	ON
LINK1000 (LED2)	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
LINK10_100 (LED1)	OFF	ON	ON	OFF	OFF	OFF	ON	ON	ON	ON



3.4.5 Connectors

Figure 4-13 VoIP Connections shows a typical connection layout. Figure 4-14 Connecting a IPLA Daughter Board to a Network/PC illustrates how to connect a VoIP Daughter Board to a Network or PC.

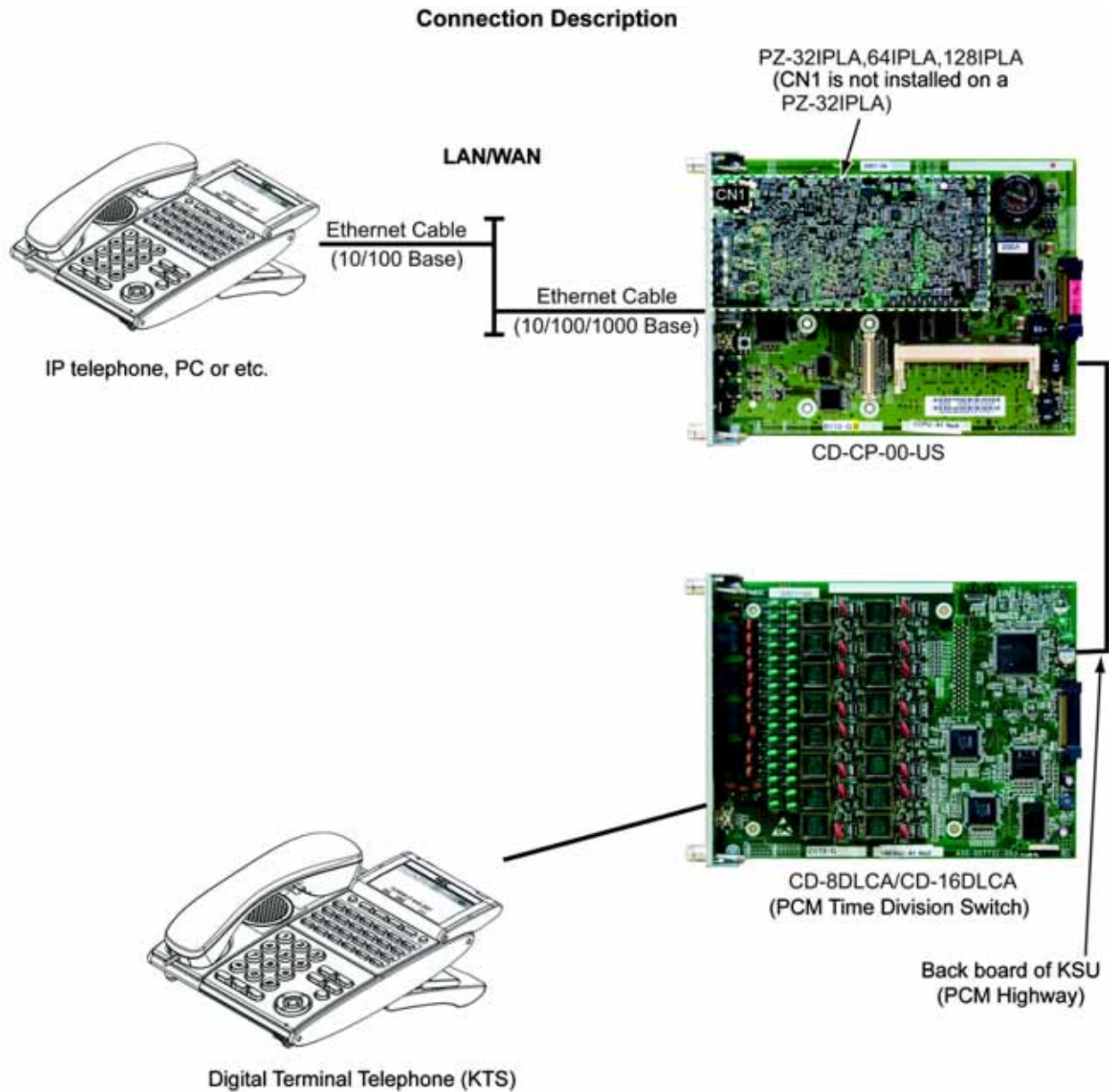


Figure 4-13 VoIP Connections

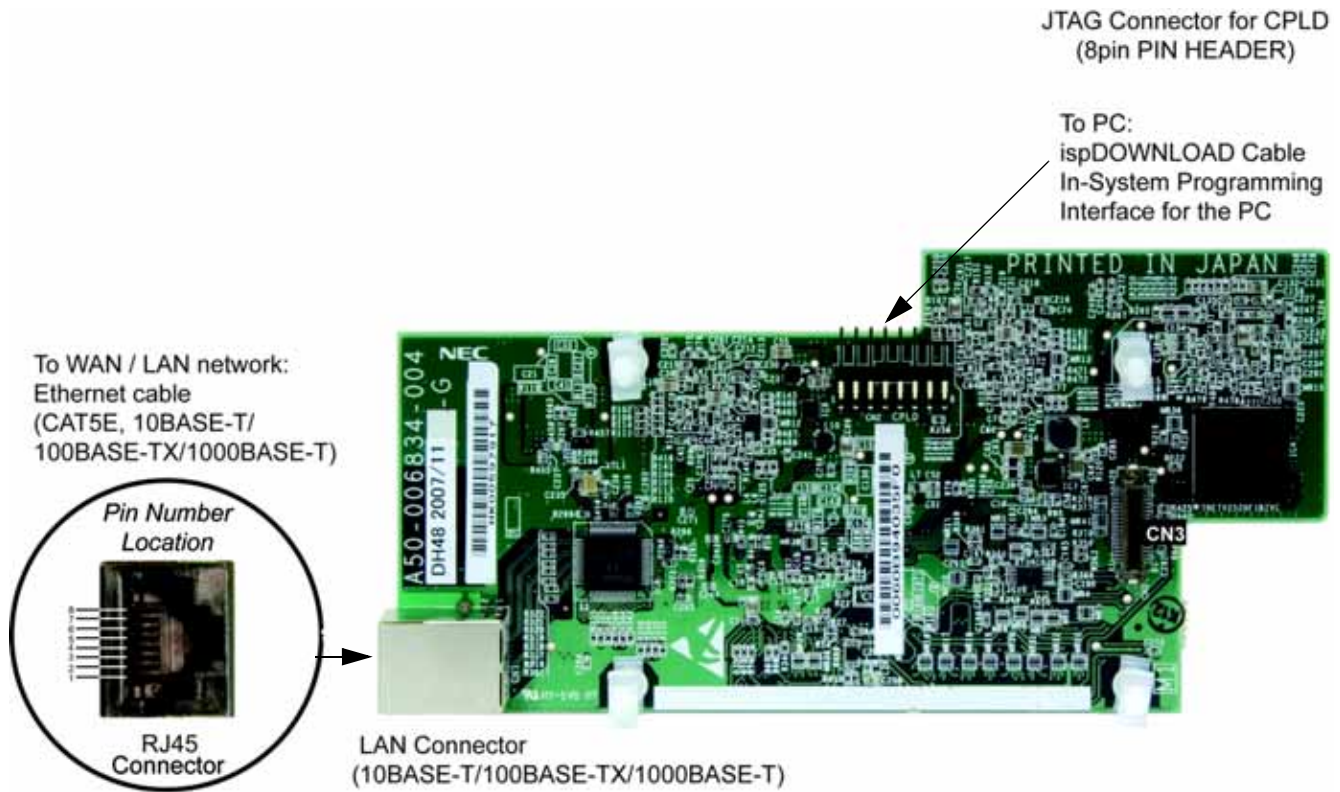
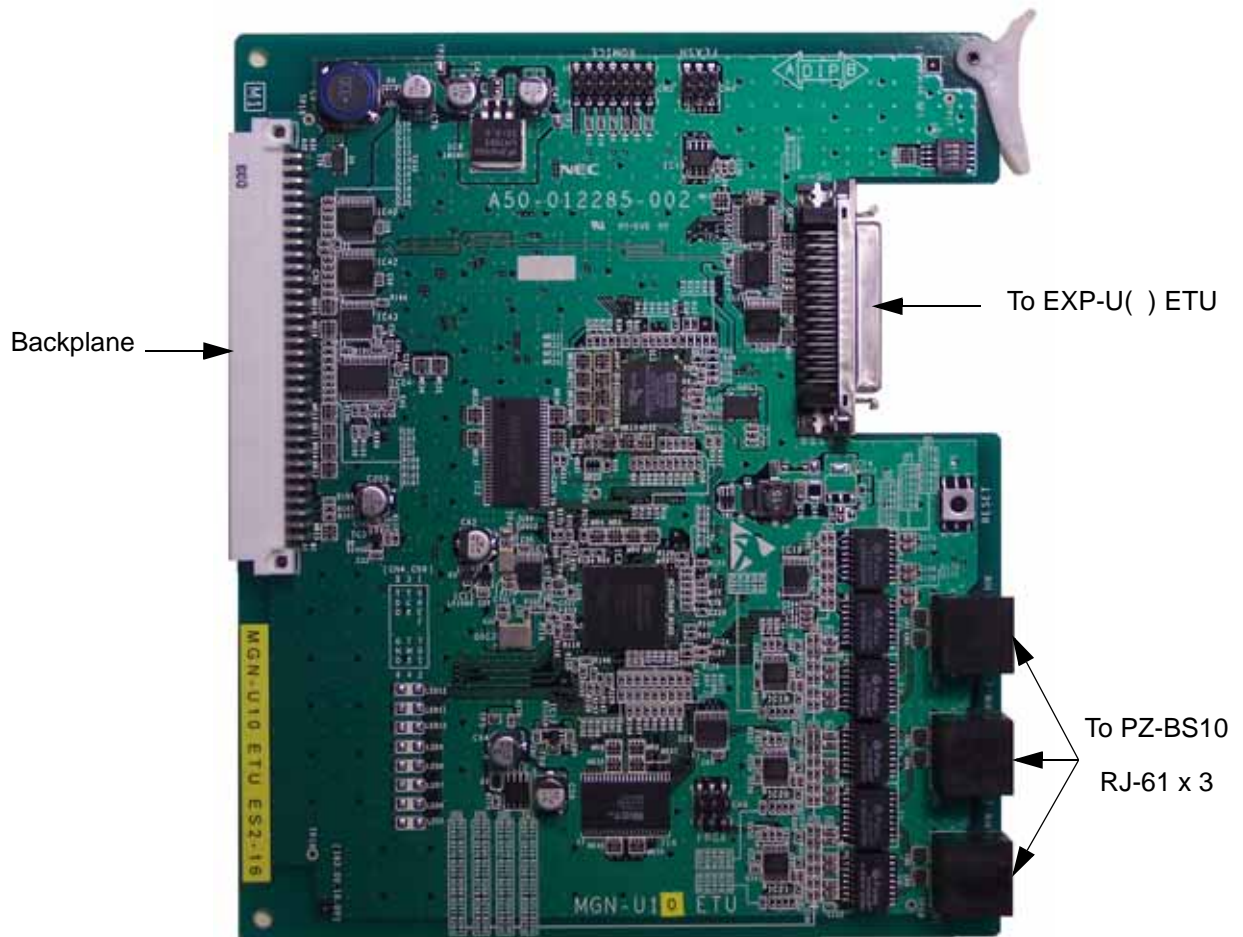


Figure 4-14 Connecting a IPLA Daughter Board to a Network/PC

### 3.5 MGN-U10 ETU (IPK/IPK II Migration Board)



**Figure 4-15 MGN-U10 ETU Migration Board**

#### 3.5.1 Description

The MGN-U10 ETU is supported only in the B64-U10, U20, and U30 KSU's.

The MGN-U10 ETU provides a connection between the IPK/IPK II and the UNIVERGE SV8100 system. The MGN-U10 ETU is installed in the CPU/EXP slot of the IPK/IPK II KSU.

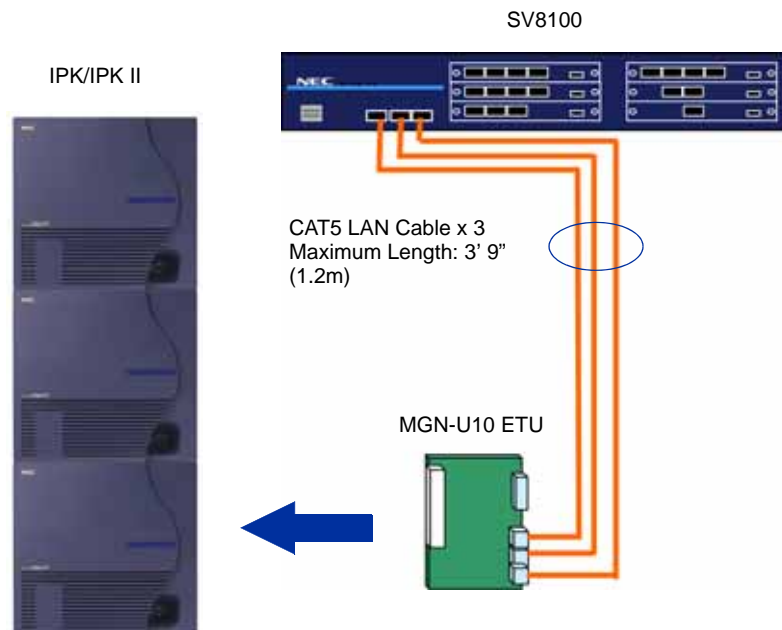
IPK/IPKII Migration is supported only with the CHS2U-US (6-slot) chassis. The CHS2U GW-US (3-slot) chassis is not supported.

A single SV8100 chassis is supported in an IPK/IPK II Migration system.

### 3.5.2 Conditions

- The IPK/IPKII systems are limited to 18 total card slots.
- An IPK system can support the migration card, provided the cards and terminals are listed below as being supported. It may be necessary to upgrade firmware as noted.
- MEGACO is not supported.

**Figure 4-16 SV8100 to IPK/IPK II Connection** illustrates a typical connection layout of the SV8100 and IPK/IPK II.



**Figure 4-16 SV8100 to IPK/IPK II Connection**

### 3.5.3 Installation



***Do not install or remove this board with the IPK/IPK II cabinet power on.***

The MGN-U10 ETU board requires the CD-CP00-US, PZ-ME50-US and PZ-BS10 to be installed in the controlling CHS2U-US.



***The SV8100 should be at default state. Any non-supported IPK II boards should be removed at this time. Refer to Table 4-15 IPK II Supported Hardware on page 4-39.***

1. Install MGN-U10 ETU into IPK/IPK II CPU/EXP slot.
2. Install PZ-BS10 into the expansion slot in the SV8100.



- *Do not plug the CAT5 cables in to any other interface i.e. DLCA as serious damage could occur.*
- *Ensure the CAT 5 LAN cable is connected between CN5~CN7 on the MGN-U10 ETU to CN2~CN4 on the PZ-BS10.*

3. Connect the CAT 5 cables between CN5~CN7 on the MGN-U10 ETU to CN2~CN4 on the PZ-BS10.
4. Power on the IPK/IPK II KSU.
5. Power on the SV8100 main chassis and allow it to boot completely. Allow the green FS1~3\_ACT lights on the MGN-U10 to come on steady, and wait for the red live light to begin flashing.
6. Make programming changes as necessary.



*IPK/IPK II PCPro data does not upload to a migration package.*

#### 3.5.4 Supported Hardware (IPK II)

**Table 4-15 IPK II Supported Hardware**

	<b>Package Name</b>	<b>Description</b>	<b>Supported</b>
EXP	EXP-U10	Expansion Unit	Y
ESI	ESI(8)-U10	8-Port Electronic Station Interface	Y
	ESIB(8)/ESIE(8)-U10	8-Port Electronic Station Interface	Y
	ESIB(8)/ESIE(8)-U20	8-Port Electronic Station Interface	Y
SLI	SLIB(4)/SLIE(4)-U10	4-Port Single Line Interface	Y
	SLI(8)-U10	8-Port Single Line Interface	Y
	SLIB(4)/SLIE(4)-U10 (F/W 1.74 or above)	4-Port Single Line Interface	Y



**Table 4-15 IPK II Supported Hardware (Continued)**

	<b>Package Name</b>	<b>Description</b>	<b>Supported</b>
OPX	OPX(2)-U10	Off-Premise Extension Interface	Y
COI	COI(4)-U( )	CO/PBX Line Interface	Y
	COI(8)-U( )	CO/PBX Line Interface	Y
	COID(4)-U( )	CO/PBX Line Interface	Y
	COID(8)-U( )	CO/PBX Line Interface	Y
	COIB(4)-U10	CO/PBX Line Interface	Y
	COIB(4)-U20	CO/PBX Line Interface	Y
	COIB(4)-U30	CO/PBX Line Interface	Y
	COIB(8)-U( )	CO/PBX Line Interface	Y
	COIB(8)-U30	CO/PBX Line Interface	Y
DID	DID(4)-U10	Direct Inward Dialing Interface	Y
TLI	TLI(2)-U10	Tie Line Interface	Y
ISDN	BRT-U20 (F/W Ver. 4.0 or later)	ISDN Interface	Y
	DTI-U40 (PRT mode) (F/W Ver. 5.0 or later)	ISDN-Primary Rate Trunk Interface	Y
DTI	DTI-U10/20/30/40	T1/FT1 Trunk Interface	Y
HUB	Hub(8)-U10	Switching Hub	Y

### 3.5.5 Optional Equipment

[Table 4-16 Supported Optional Equipment \(via MGN-U10 ETU\)](#) provides a listing of the DTU/DTP and DTH/DTR optional equipment supported for terminals connected to the IPK/IPK II KSU's

**Table 4-16 Supported Optional Equipment (via MGN-U10 ETU)**

Description	DTU/DTP	DTH/DTR
Ancillary Device Adapter	ADA-U	ADA-R
Analog Port Adapter	APA-U	APA-R
Analog Port Ringer	APR-U	APR-R
Single Line Telephone Adapter	SLT2 ADP	SLT2 ADP
Hands Free Unit	HF-U	HF-R
Attendant Console	DCU-60-1	DCR-60-1
Paging/Door Box Adapter	PGDAD	PGDAD
Add on Module	—	16-ADM
Computer Telephony Adapter	CTA-U	CTA-R
Computer Telephony Adapter	—	CTU-R
DTH16LD-1 Terminal	—	DESI-less
Voice Security Recorder	VSR	VSR

[Table 4-17 Supported Optional Equipment](#) provides a listing of the DT300 Series optional equipment supported for terminals connected to the SV8100 chassis.

**Table 4-17 Supported Optional Equipment**


Equipment Name	DTH/DTR	DT300
ADA	✓	✓
APR	✓	✓
SLT ADP	✓	✓
60DSS Console	✓	✓
PGDAD	✓	✓
Desi-less	✓	✓
VSR	✓	✓
8LK-L UNIT	—	✓


**Table 4-17 Supported Optional Equipment**

Equipment Name	DTH/DTR	DT300
BCH-L (BK) UNIT	—	✓
BHA-L UNIT	—	✓
PSA-L UNIT	—	✓

### 3.5.6 Supported Terminals

**Table 4-18 Supported Terminals**

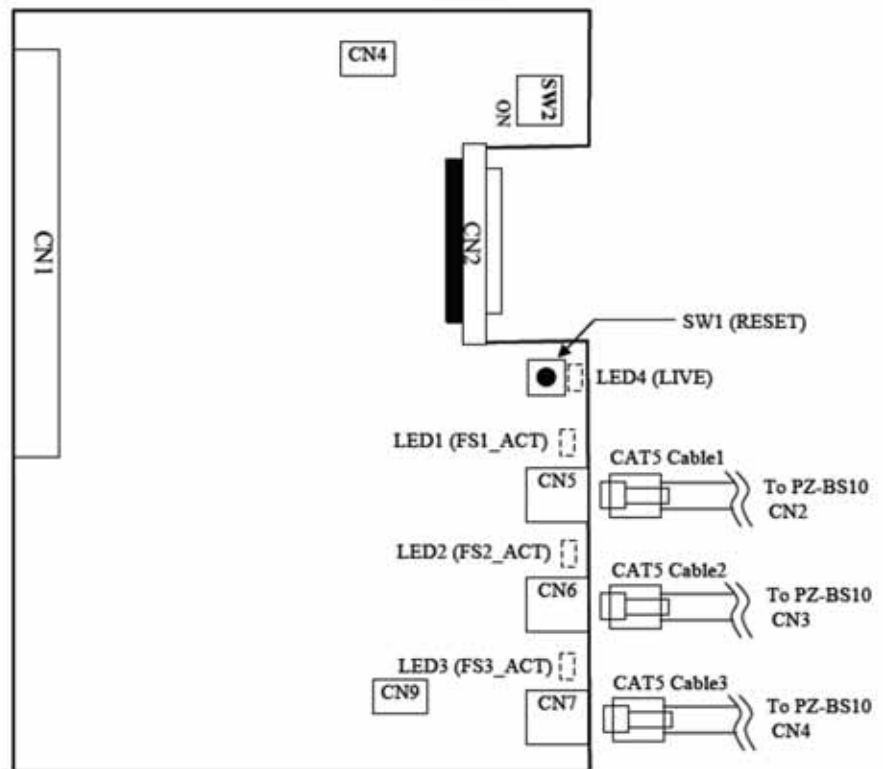
Terminal	Description
DTL/DT300	Retro key pad required All of Model-A Terminals  <i>DT300 series terminals are not supported in a migration system unless connected to a DLCA blade in the controlling SV8100 chassis.</i>
DTH/DTR Series i	All of Model-B Terminals

 *D<sup>term</sup> Series E (DTU/DTP) support is available with **Version 2.51 or higher.***



### 3.5.7 Switch Settings

Refer to [Figure 4-17 MGN-U10 ETU Migration Board](#) for the location of switches on the MGN-U10 ETU and [Table 4-19 SW1 MGN-U10 ETU on page 4-43](#) for a brief explanation of SW1 and SW2.



**Figure 4-17 MGN-U10 ETU Migration Board**

Refer to [Table 4-19 SW1 MGN-U10 ETU](#) and [Table 4-20 SW2 MGN-U10 ETU](#) for a brief description of SW1 and SW2.

**Table 4-19 SW1 MGN-U10 ETU**

Switch	Description
SW1 (RESET)	Momentary switch Resets the operation of the card

Table 4-20 SW2 MGN-U10 ETU

Switch	Bit1	Bit2	Bit3	Bit4	Mode	Description
SW2	OFF	OFF	Don't Care	Don't Care	Normal Operation	Default
	ON	OFF			Monitor Program	For maintenance use
	OFF	ON			FROM Loader	For firmware update
	ON	ON			Test Program	Manufacture inspection mode

### 3.5.8 LED Indications

LEDs for the MGN-U10 ETU are described in [Table 4-21 MGN-U10 ETU LED Indications](#). Each LED is listed with its associated function and LED and Operational status.


 All LEDs are mounted on solder side.

Table 4-21 MGN-U10 ETU LED Indications

LED	Description	On	Off	Flashing
LED 1 (FS1_ACT)	Link status of cable 1	Link Established	Link down	N/A
LED 2 (FS2_ACT)	Link status of cable 2	Link Established	Link down	N/A
LED 3 (FS3_ACT)	Link status of cable 3	Link Established	Link down	N/A
LED 4 (LIVE)	Unit status	Operation stopped (Power On)	No Power	Normal Operation (1sec ON/1sec OFF)

### 3.5.9 Connectors

Refer to [Figure 4-17 MGN-U10 ETU Migration Board on page 4-43](#) for location of the connectors described in [Table 4-22 MGN-U10 ETU Connectors](#).

Table 4-22 MGN-U10 ETU Connectors

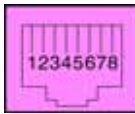
Connector	Connector Description
CN 1	Connects to the backboard.
CN 2	Connects to CN 2 on the EXP-U ( ) ETU (Installed in the first expansion cabinet) using an expansion cable.

**Table 4-22 MGN-U10 ETU Connectors (Continued)**

Connector	Connector Description
CN 4	For maintenance.
CN 5	Connects to CN 2 on the PZ-BS10 in SV8100 system using the NEC provided CAT5 straight-through cable.
CN 6	Connects to CN 3 on the PZ-BS10 in SV8100 system using the NEC provided CAT5 straight-through cable.
CN 7	Connects to CN 4 on the PZ-BS10 in SV8100 system using the NEC provided CAT5 straight-through cable.
CN 9	For maintenance.

Table 4-23 MGN-U10 ETU Connector Pin-Out show the pin-outs for the RJ-61 connector. Figure 4-15 MGN-U10 ETU Migration Board on page 4-37 shows the location of the connectors on the MGN-U10 ETU board.

**Table 4-23 MGN-U10 ETU Connector Pin-Out**

RJ-61 Cable Connector MGN-U10 ETU – CN5, CN6, CN7		
	Pin No.	Connection
	1	HW_UP (+)
	2	HW_UP (-)
	3	HW_DWN (+)
	4	FS (+)
	5	FS (-)
	6	HW_DWN (-)
	7	CK8M (+)
	8	CK8M (-)

## SECTION 4 STATION BLADES

### 4.1 CD-8DLCA/CD-16DLCA (Digital Station Interface)

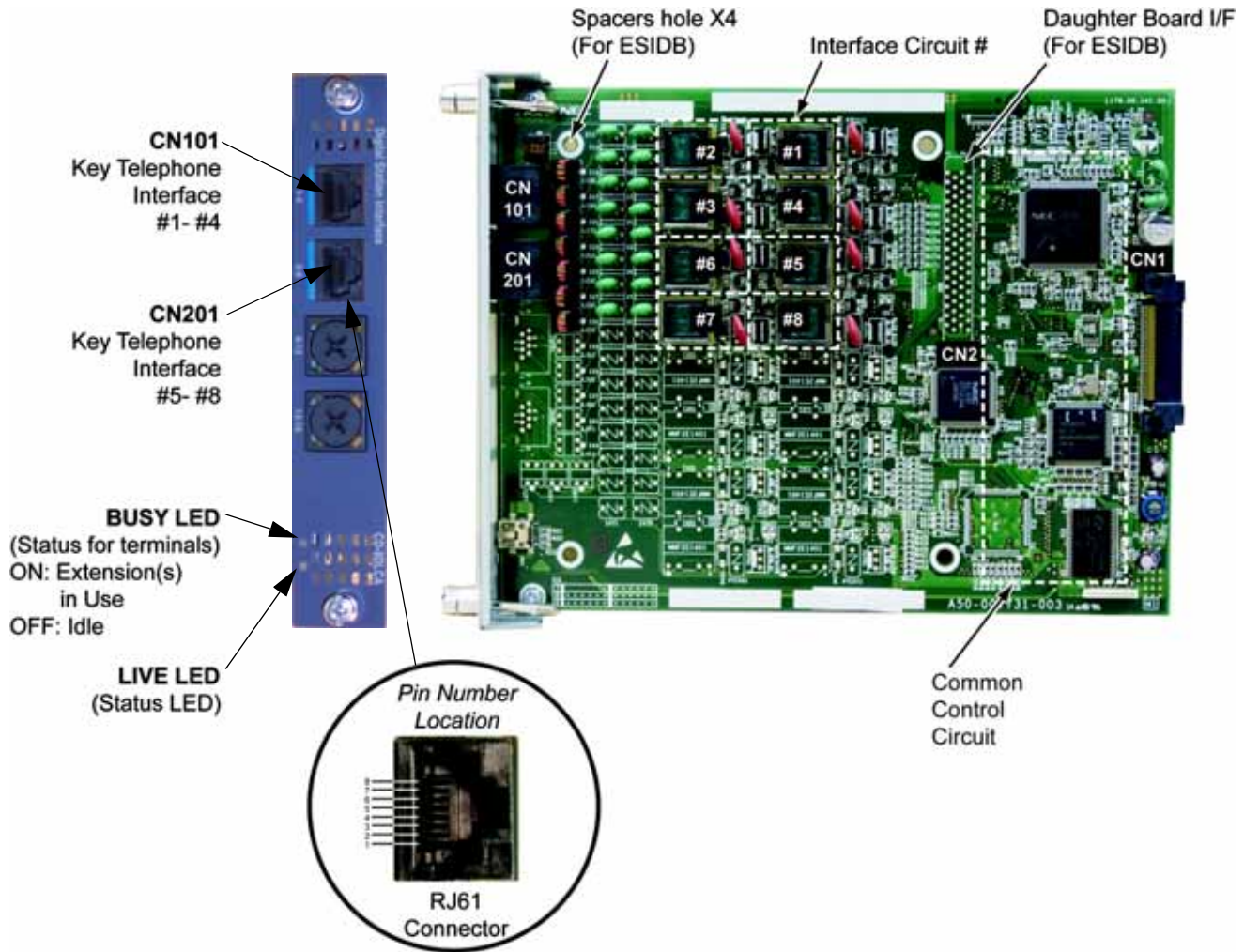
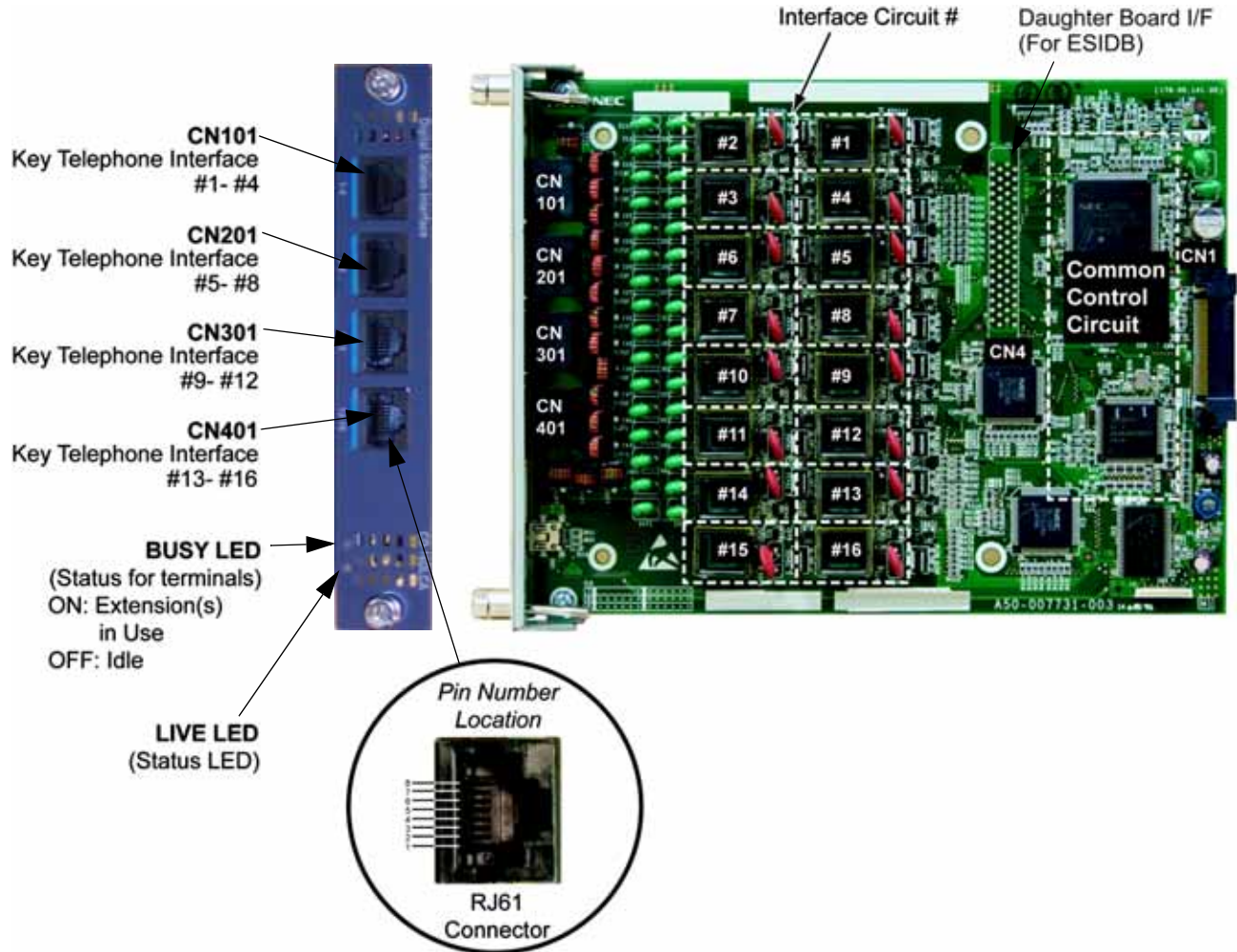


Figure 4-18 CD-8DLCA Blade



**Figure 4-19 CD-16DLCA Blade**

#### 4.1.1 Description

The CD-8DLCA and the CD-16DLCA are both discussed in this section. Any differences between the two are noted. These blades provide:

- 8 (CD-8DLCA) OR 16 (CD-16DLCA) digital extension circuits (used for digital telephones, DSS consoles, SLT(1)-U( ) ADP, PGD(2)-U10 ADP adapters)
- These ports provide -48V feeding.
- Two blade status LEDs – One Live LED, One Busy/Idle LED

Refer to the following tables for maximum upgrade capacities of the CD-8DLCA/CD-16DLCA ESIU blades:

- ❑ [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- ❑ [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

#### 4.1.2 Installation

The CD-8DLCA/CD-16DLCA blade can be installed in any universal slot in the system and up to a maximum of 20 DLCA blades can be installed per system, providing up to 320 digital ports.

To install the PZ-8DLCA/CD-16DLCA:

1. If installing the CD-8DLCA and the PZ-8DLCA daughter board is to be attached, do it now. Refer to [4.2.2 Installation on page 4-51](#).
2. Each CNx01 connector (CN101, CN201, CN301, CN401) is used to connect up to four digital extensions.

#### 4.1.3 LED Indications

LEDs for the CD-8DLCA/CD-16DLCA are described in [Table 4-24 CD-8DLCA/CD-16DLCA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-18 CD-8DLCA Blade on page 4-46](#) and [Figure 4-19 CD-16DLCA Blade on page 4-47](#) for the location of the LEDs on the blades.

**Table 4-24 CD-8DLCA/CD-16DLCA LED Indications**

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–

**Table 4-24 CD-8DLCA/CD-16DLCA LED Indications (Continued)**

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–

#### 4.1.4 Connectors

The CNx01 connectors provide connection to four digital station ports. With the CD-16DLCA blade, the CN101, CN201, CN301, and CN401 connectors are available. With the CD-8DLCA blade the CN301 and CN401 connectors are removed from the blade.

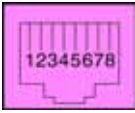


***Any cabling to the DLCA blade must be in the building - no outside cabling is permitted.***

[Table 4-25 CD-8DLCA/CD-16DLCA/ RJ-61 Cable Connector Pin-Outs](#) on page 4-50 show the pin-outs for the RJ-61 connector. Refer to [Figure 4-18 CD-8DLCA Blade](#) on page 4-46 and [Figure 4-19 CD-16DLCA Blade](#) on page 4-47 for the location of the connectors on the ESIU blades.



**Table 4-25 CD-8DLCA/CD-16DLCA/ RJ-61 Cable Connector Pin-Outs**

<b>RJ-61 Cable Connector</b> <b>CD-8DLCA – CN101 (ports 1~4), CN201 (ports 5~8)</b> <b>CD-16DLCA – CN101 (ports 1~4), CN201 (ports 5~8),</b> <b>CN301 (ports 9~12), CN401 (ports 13~16)</b>		
	<b>Pin No.</b>	<b>Connection</b>
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)



## 4.2 PZ-8DLCB (Digital Station Daughter Board)

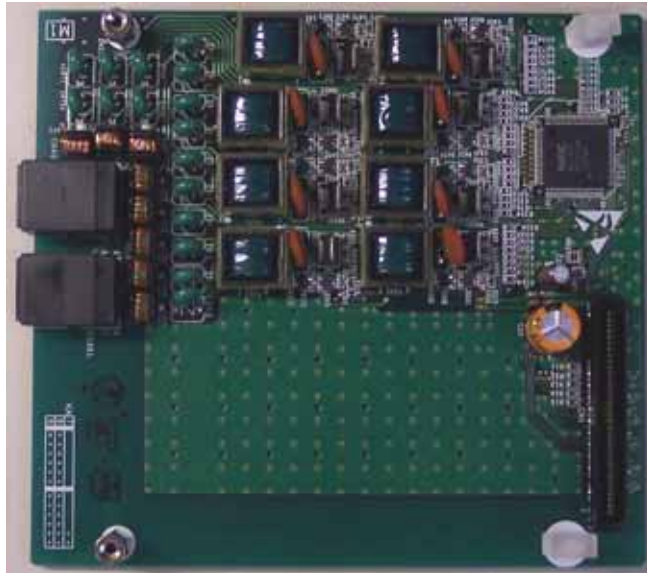


Figure 4-20 PZ-8DLCB Blade

### 4.2.1 Description

The PZ-8DLCB daughter board provides eight digital extensions. This daughter board is installed on the CD-8DLCA and expands the port capacity for the combined blades to 16.

Refer to the following tables for maximum upgrade capacities of the PZ-8DLCB daughter board:

- ❑ [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- ❑ [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 4.2.2 Installation

The PZ-8DLCB is installed on the CD-8DLCA. To install:


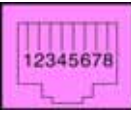
1. Connect the PZ-8DLCB to the CN2 connector on the CD-8DLCA blade. Refer to [Figure 4-18 CD-8DLCA Blade on page 4-46](#) for the location of the connectors on the blade.
2. Install the CD-8DLCA into a slot.
3. Each CNx01 connector (CN101, CN201, CN301, CN401) is used to connect up to four digital extensions.

4.2.3 PZ-8DLCB Daughter Board Cable Connection

The PZ-8DLCB blade has connections for CN301 and CN401 Refer to [Figure 4-19 CD-16DLCA Blade](#) for connector locations.

The following tables show the cable connections of the two RJ-61 connectors on the PZ-8DLCB.

**Table 4-26 PZ-8DLCB RJ-61 Cable Connector Pin-Outs**

<b>RJ-61 Cable Connector CN301 (ports 9~12)</b>		
	<b>Pin No.</b>	<b>Connection</b>
	1	(T4) Tip for port 12
	2	(T3) Tip for port 11
	3	(T2) Tip for port 10
	4	(R1) Ring for port 9
	5	(T1) Tip for port 9
	6	(R2) Ring for port 10
	7	(R3) Ring for port 11
8	(R4) Ring for port 12	
<b>RJ-61 Cable Connector CN401 (ports 13~16)</b>		
	<b>Pin No.</b>	<b>Connection</b>
	1	(T4) Tip for port 16
	2	(T3) Tip for port 15
	3	(T2) Tip for port 14
	4	(R1) Ring for port 13
	5	(T1) Tip for port 13
	6	(R2) Ring for port 14
	7	(R3) Ring for port 15
8	(R4) Ring for port 16	

### 4.3 CD-4LCA/CD-8LCA (4-Port/8-Port Single Line Interface)

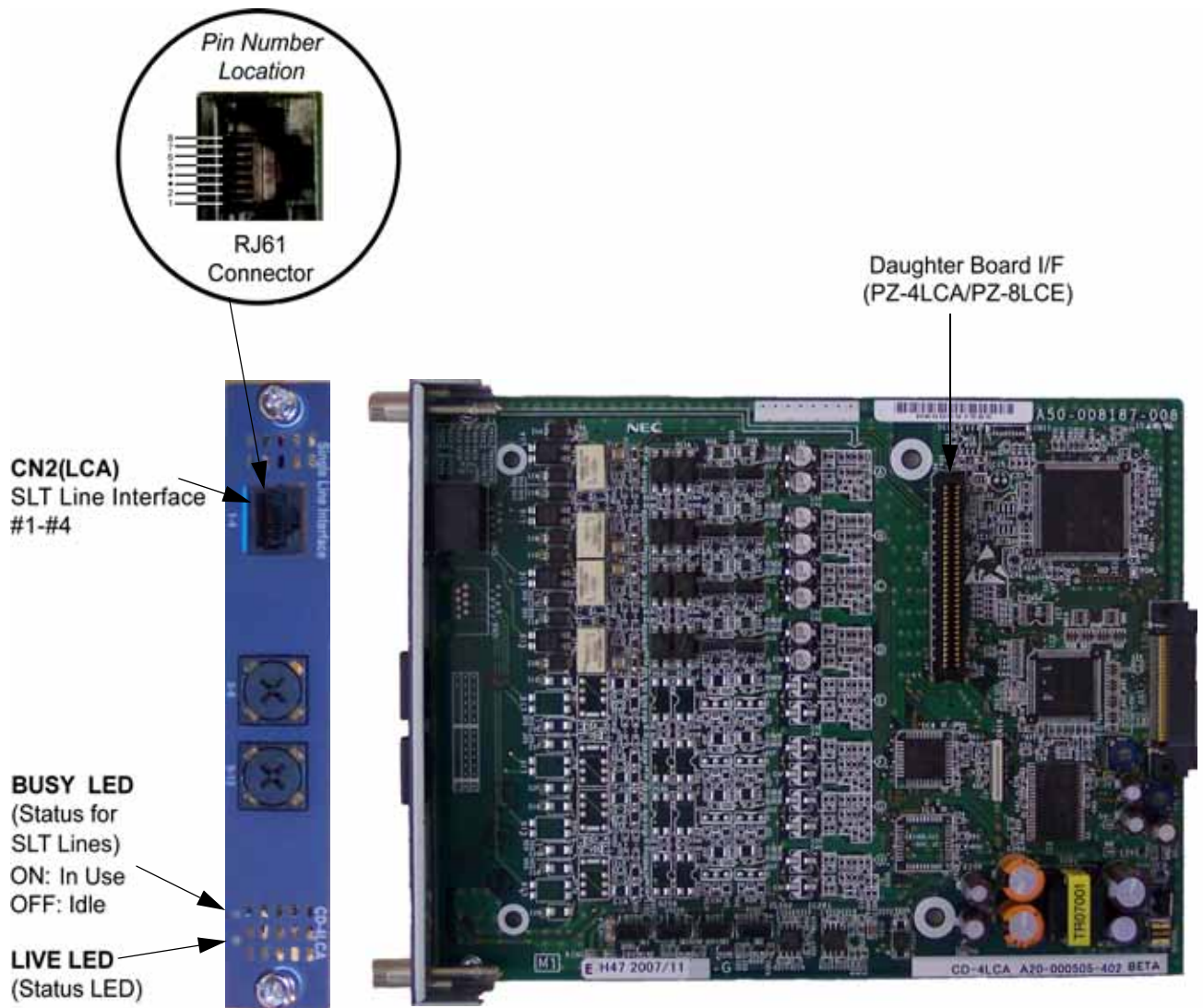


Figure 4-21 CD-4LCA Blade

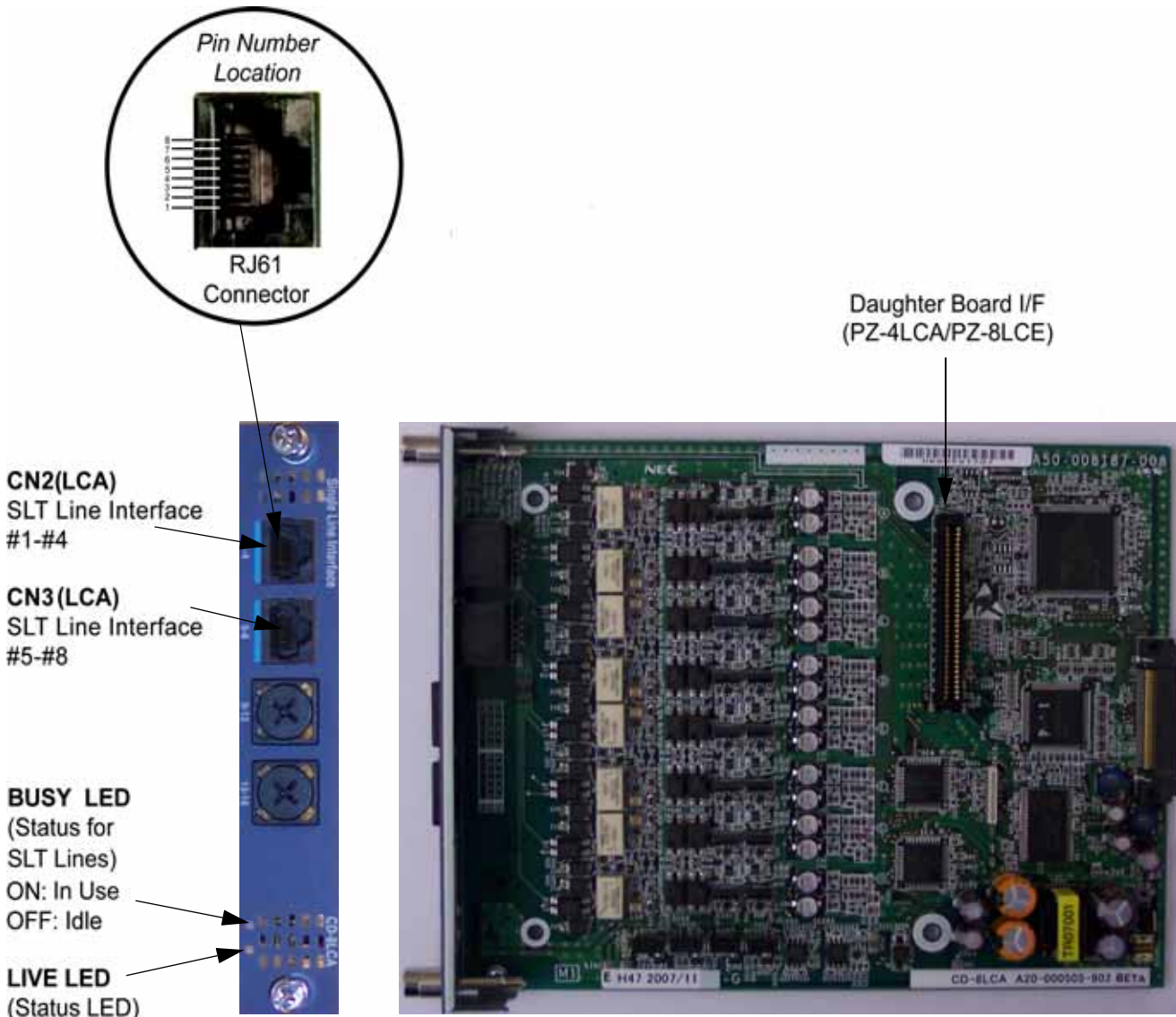


Figure 4-22 CD-8LCA Blade

### 4.3.1 Description

The CD-4LCA/CD-8LCA blade provides four analog (SLIU) extension ports or eight analog (SLIU) extension ports (used for on-premise analog telephones, fax machines, and analog modems).

The CD-4LCA and CD-8LCA are not rated for OPX use. A CD-4DIOPA blade should be used instead (it supports the analog DID and single line telephone interface functions, such as Off-Premise Extensions).

- One extension status LED
- One blade status LEDs
- Constant current type battery feeding (25mA / -28Vdc)
- Feeding Polarity Reverse Ability
- Connector for PZ-4LCA/PZ-8LCE Daughter Board
- Ring Generator
- Caller ID Sending Ability
- Message Wait Lamp Ability

The CD-8LCA consumes eight ports ranging between ports 001~256. The CN3 and CN5 connectors each provide connection to four analog station ports. The CNx connectors are not polarity sensitive.

Refer to the following tables for maximum upgrade capacities of the CD-4LCA/CD-8LCA SLIU blades:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)


#### 4.3.2 Installation

- *When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to 1 (special terminal) to avoid communication problems.*



- *The CD-4LCA/CD-8LCA blade and the PZ-4LCA/PZ-8LCE daughter board are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to these blades or daughter boards must be in the building – no outside cabling is permitted.*
- *Branch connection is not acceptable.*

Install the CD-4LCA/ CD-8LCA blade in any available universal slot.

 *If the PZ-4LCA/PZ-8LCE is used, install it prior to inserting the CD-8LCA into the chassis.*

### 4.3.3 LED Indications

LED indications for the CD-4LCA/CD-8LCA are listed in [Table 4-27 CD-4LCA/CD-8LCA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-21 CD-4LCA Blade on page 4-53](#) and [Figure 4-22 CD-8LCA Blade on page 4-54](#) for the location of the LEDs on the blades.

**Table 4-27 CD-4LCA/CD-8LCA LED Indications**

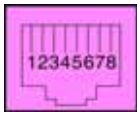
LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–



#### 4.3.4 Connectors

Table 4-28 CD-4LCA/CD-8LCA RJ-61 Cable Connector Pin-Outs show the pin-outs for the RJ-61 connector. Figure 4-21 CD-4LCA Blade on page 4-53 and Figure 4-22 CD-8LCA Blade on page 4-54 show the location of the connectors and the pin number locations on the CD-4LCA/CD-8LCA blades.

**Table 4-28 CD-4LCA/CD-8LCA RJ-61 Cable Connector Pin-Outs**

<b>RJ-61 Cable Connector</b> <b>CD-4LCA – CN2 (ports 1~4)</b> <b>CD-8LCA – CN2 (ports 1~4), CN3 (ports 5~8)</b>		
	<b>Pin No.</b>	<b>Connection</b>
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)

### 4.4 PZ-4LCA/PZ-8LCE (4-Port/8-Port SLI Daughter Board)

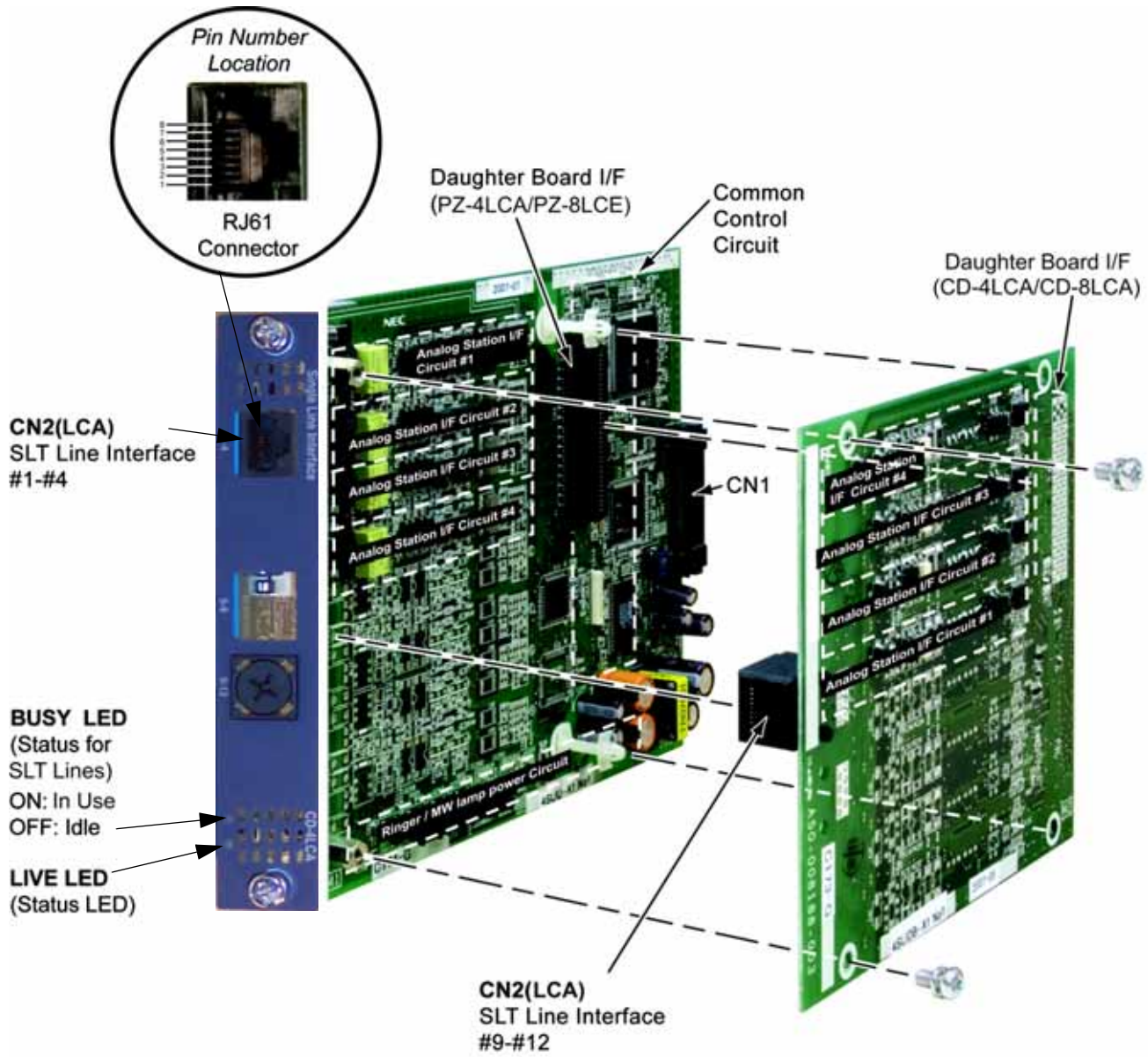


Figure 4-23 Installing the PZ-4LCA Daughter Board



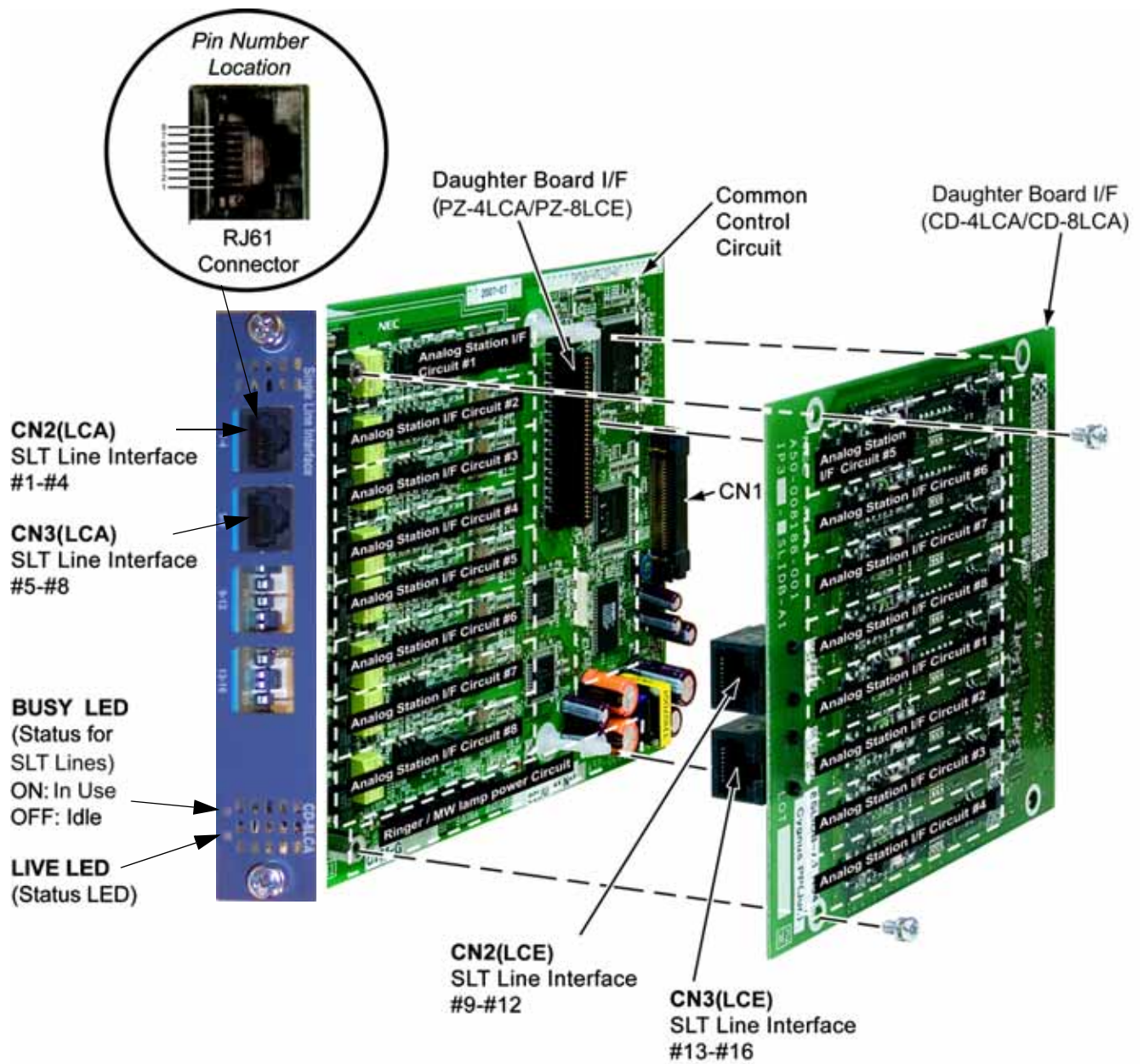



Figure 4-24 Installing the PZ-8LCE Daughter Board

#### 4.4.1 Description

The PZ-4LCA and PZ-8LCE daughter boards are mounted on the CD-4LCA/CD-8LCA. These boards provide:

- 4-Port Single Line and 8-Port Single Line analog extension ports (used for on-premise analog telephones, fax machines, and analog modems).
  -  *The CD-4LCA/CD-8LCA is not rated for OPX use. A CD-4DIOPA blade should be used instead (it supports the analog DID and single line telephone interface functions, such as Off-Premise Extensions).*
- Connector for CD-4LCA and CD-8LCA Blades
- Ring Generator
- Caller ID Sending Ability
- Message Wait Lamp Ability
- Constant current type battery feeding (25mA / -28Vdc)
- Feeding Polarity Reverse Ability

Each CN2 (PZ-4LCA/PZ-8LCE) or CN3 (PZ-8LCE only) connector provides connection to four analog station ports and is not polarity sensitive. The PZ-8LCE consumes eight ports ranging between ports 001~256 (remember that the CD-8LCA consumes eight ports).

Refer to the following tables for maximum upgrade capacity of the PZ-4LCA/PZ-8LCE SLI daughter board:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

#### 4.4.2 Installation

- *When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to 1 (special terminal) to avoid communication problems.*
- *The CD-4LCA/CD-8LCA blade and the PZ-4LCA/PZ-8LCE daughter board are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to these blades or daughter boards must be in the building – no outside cabling is permitted.*
- *Branch connection is not acceptable.*



This daughter board can be installed on the CD-4LCA or CD-8LCA blade.


To install the PZ-4LCA/PZ-8LCE:

1. Four plastic spacers are Included with the PZ-4LCA/PZ-8LCE. Install the plastic spacers on either the CD-4LCA or CD-8LCA. Make sure to attach the spacers so that they extend out on the side of the daughter board which has the CN1 connector. Refer to [Figure 4-23 Installing the PZ-4LCA Daughter Board on page 4-58](#) and [Figure 4-24 Installing the PZ-8LCE Daughter Board on page 4-59](#).
2. Position the PZ-4LCA/PZ-8LCE CN1 connector over the CN4 connector on the CD-4LCA/CD-8LCA blade. Press the blade and board together, ensuring the plastic spacers lock in place. Refer to [Figure 4-23 Installing the PZ-4LCA Daughter Board on page 4-58](#) and [Figure 4-24 Installing the PZ-8LCE Daughter Board on page 4-59](#).
3. Install the CD-4LCA/CD-8LCA blade in the slot in the chassis.

#### 4.4.3 Connectors

[Table 4-29 PZ-4LCA/PZ-8LCE/ RJ-61 Cable Connector Pin-Outs](#) show the pin-outs for the RJ-61 connector. [Figure 4-23 Installing the PZ-4LCA Daughter Board on page 4-58](#) and [Figure 4-24 Installing the PZ-8LCE Daughter Board on page 4-59](#) show the location of the connectors on the PZ-4LCA/PZ-8LCE daughter boards.

**Table 4-29 PZ-4LCA/PZ-8LCE/ RJ-61 Cable Connector Pin-Outs**

RJ-61 Cable Connector – PZ-4LCA – CN2 (ports 9~12) PZ-8LCE – CN2 (ports 9~12), CN3 (ports 13~16)		
	Pin No.	Connection
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)

### 4.5 CD-LTA ( $D^{term}$ /SLT Combination)

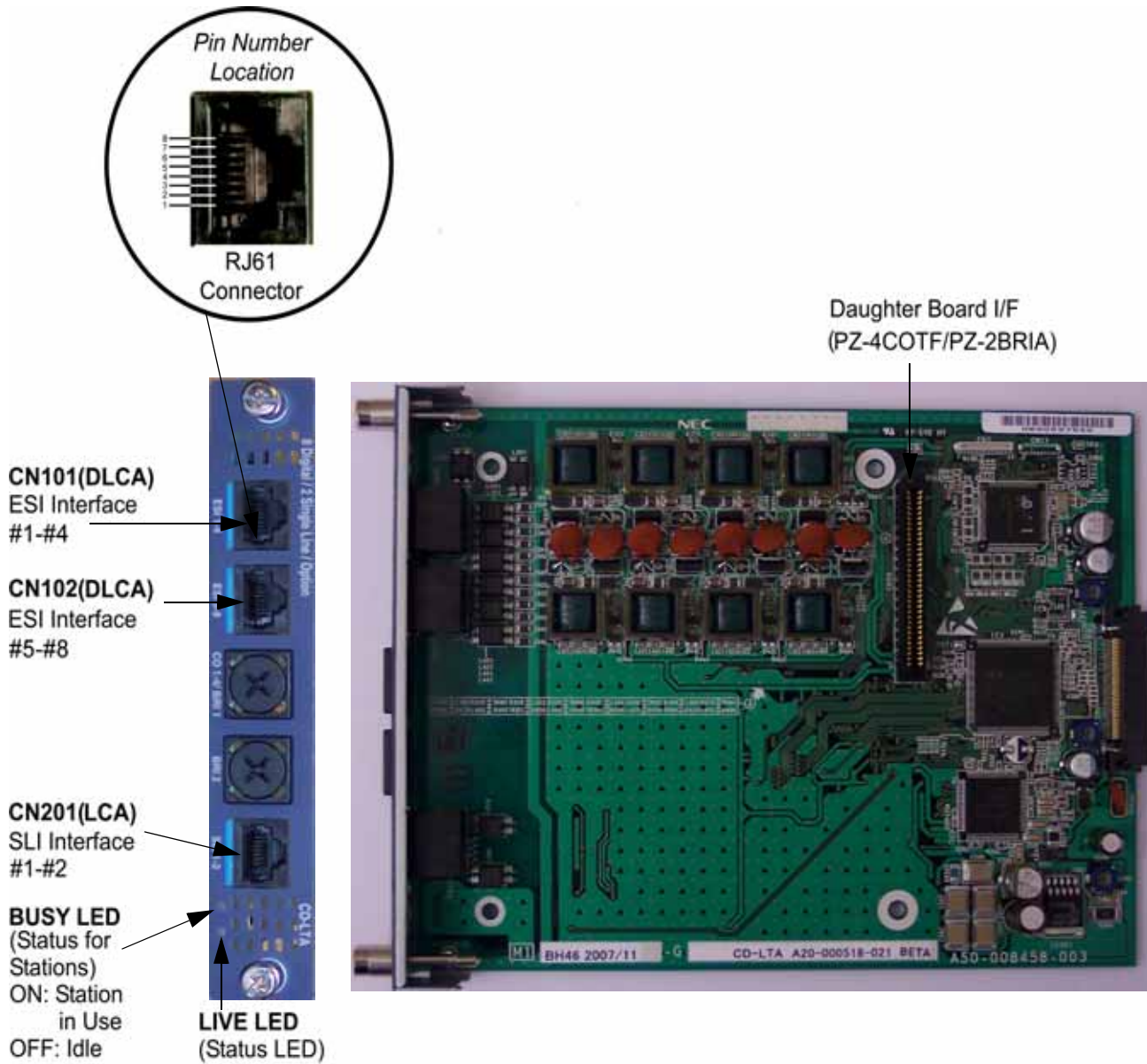


Figure 4-25 CD-LTA Blade

#### 4.5.1 Description

The Digital Station/SLT Combination blade provides eight Digital Station ports and two analog ports. This blade allows either a PZ-4COTF analog trunk daughter board or PZ-2BR1A daughter board to be installed.

The blade provides:

- Eight Digital Station ports
- Two analog extension ports
- Two status LEDs

Refer to the following tables for maximum upgrade capacities of the CD-LTA blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

[Table 4-30 CD-LTA Maximum Capacities](#) provides the maximum capacities for the CD-LTA blade(s) when installed.

**Table 4-30 CD-LTA Maximum Capacities**

CCPU	CD-LTA
Without PZ-ME50-US	Only one supported
With PZ-ME50-US	Maximum of eight per system No more than two per chassis

#### 4.5.2 Installation

Install the CD-LTA blade in any available universal slot.



- *When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to 1 (special terminal) to avoid communication problems.*
- *The CD-LTA is categorized as TNV2. With this designation, off-premise wiring is not acceptable.*
- *Branch connection is not acceptable.*

## 4.5.3 LED Indications

LED indications for the CD-LTA are indicated in [Table 4-31 CD-LTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-25 CD-LTA Blade on page 4-62](#) for the location of the LEDs on the blade.

**Table 4-31 CD-LTA LED Indications**



LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–



## 4.5.4 Connectors

Table 4-32 CD-LTA RJ11 Cable Connector Pin-Outs shows the pin-outs for the RJ-61 connector. Refer to [Figure 4-25 CD-LTA Blade on page 4-62](#) for an illustration showing the location of the connectors on the CD-LTA blade.

Table 4-32 CD-LTA RJ11 Cable Connector Pin-Outs

RJ11 Cable Connector DLCA: CN101 (ports 1~4) DLCA: CN102 (ports 5~8)		
	Pin No.	Connection
	1	T4/T8 (Tip for port 4 or 8)
	2	T3/T7 (Tip for port 3 or 7)
	3	T2/T6 (Tip for port 2 or 6)
	4	R1/R5 (Ring for port 1 or 5)
	5	T1/T5 (Tip for port 1 or 5)
	6	R2/R6 (Ring for port 2 or 6)
	7	R3/R7 (Ring for port 3 or 7)
	8	R4/R8 (Ring for port 4 or 8)
RJ11 Cable Connector LCA: CN201 (ports 1~2)		
	Pin No.	Connection
	1	—
	2	—
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	—
8	—	

## SECTION 5 TRUNK BLADES

### 5.1 CD-4COTB (4 Loop and Ground Start Interface)

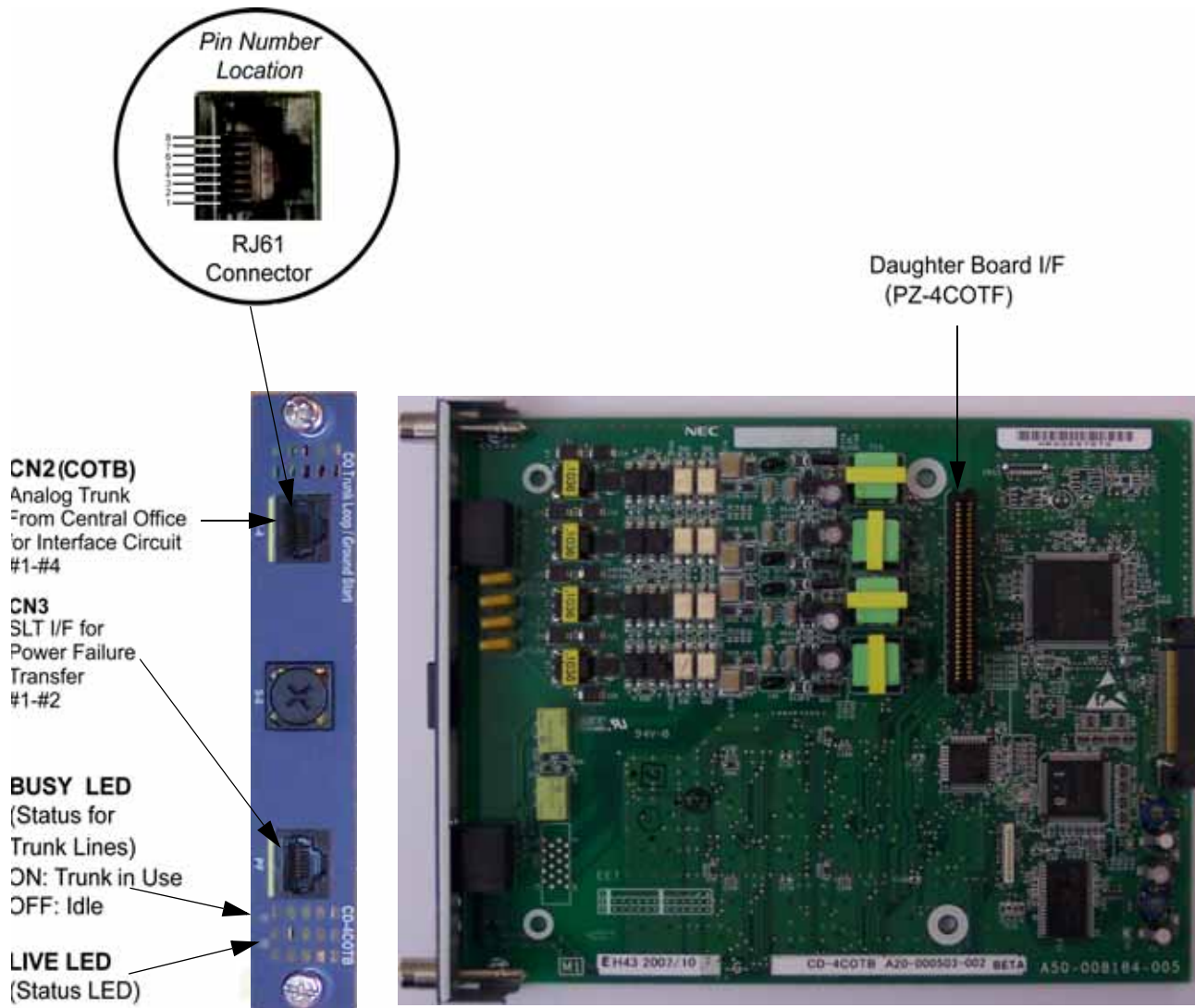


Figure 4-26 CD-4COTB Blade

#### 5.1.1 Description

The CD-4COTB blade provides:

- CD-4COTB: Four analog loop start/ground start trunk circuits
- One trunk status LED



- One Blade status LED
- Four Caller ID Circuits
- Two Power Failure Transfer Circuits
- Connection for PZ-4COTF Daughter Board

The CD-4COTB blade consumes four trunk ports ranging between ports 001~200. The CN2 connector provides connection to four analog trunk ports, **which are polarity sensitive (tip-to-tip, ring-to-ring)**. The power failure circuits (CN3), however, are not polarity sensitive.

- *When using the CD-4COTB blade for ground start trunks, the PBX ground must be connected as described in Chapter 3 Installing the SV8100 Chassis, section 3.3.3 Install Grounding on 19" Chassis on page 3-18 for the trunks to function correctly.*




- *The trunk ports are polarity sensitive. Be careful when wiring the trunks.*
- *When connecting the RJ-61 cables to the CD-4COTB blades, note the position of the Power Failure connector (CN3). Do not confuse this connector as the trunk connector (CN2).*
- *Switching from Loop Start to Ground Start is set in system programming.*
- *Do not wire an RJ-11 directly to the CD-4COTB interface. Use the appropriate RJ-61 wiring when connecting to the CD-4COTB.*

Refer to the following tables for maximum upgrade capacities of the CD-4COTB blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 5.1.2 Installation

Install the CD-4COTB blade into an available slot in the chassis. (Refer to [Figure 4-26 CD-4COTB Blade on page 4-66](#) for a layout of the blade.)

-  *If the PZ-4COTF is to be used, install this prior to inserting the CD-4COTB blade into the chassis.*

### 5.1.3 LED Indications

LED indications for the CD-4COTB are listed in [Table 4-33 CD-4COTB LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-26 CD-4COTB Blade on page 4-66](#) for the location of the LEDs on the blades.



**Table 4-33 CD-4COTB LED Indications**

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–

## 5.1.4 Connectors

Table 4-34 CD-4COTB RJ-61 Cable Connector Pin-Outs shows the pin-outs for the RJ-61 connector. Refer to [Figure 4-26 CD-4COTB Blade on page 4-66](#) for an illustration showing the location of the connectors on the CD-4COTB blades.

**Table 4-34 CD-4COTB RJ-61 Cable Connector Pin-Outs**

<b>RJ-61 Cable Connector – CN2, Trunks</b> The CN2 connector is <i>polarity sensitive (tip-to-tip, ring-to-ring)</i>		
	<b>Pin No.</b>	<b>Connection</b>
	1	Circuit 4 – Tip
	2	Circuit 3 – Tip
	3	Circuit 2 – Tip
	4	Circuit 1 – Ring
	5	Circuit 1 – Tip
	6	Circuit 2 – Ring
	7	Circuit 3 – Ring
	8	Circuit 4 – Ring
<b>RJ-61 Cable Connector – CN3, SLT Interface for Power Failure</b>		
	<b>Pin No.</b>	<b>Connection</b>
	1	–
	2	–
	3	Circuit 2 – Tip
	4	Circuit 1 – Ring
	5	Circuit 1 – Tip
	6	Circuit 2 – Ring
	7	–
	8	–

## 5.2 PZ-4COTF (4 Loop and Ground Start Interface Daughter Board)

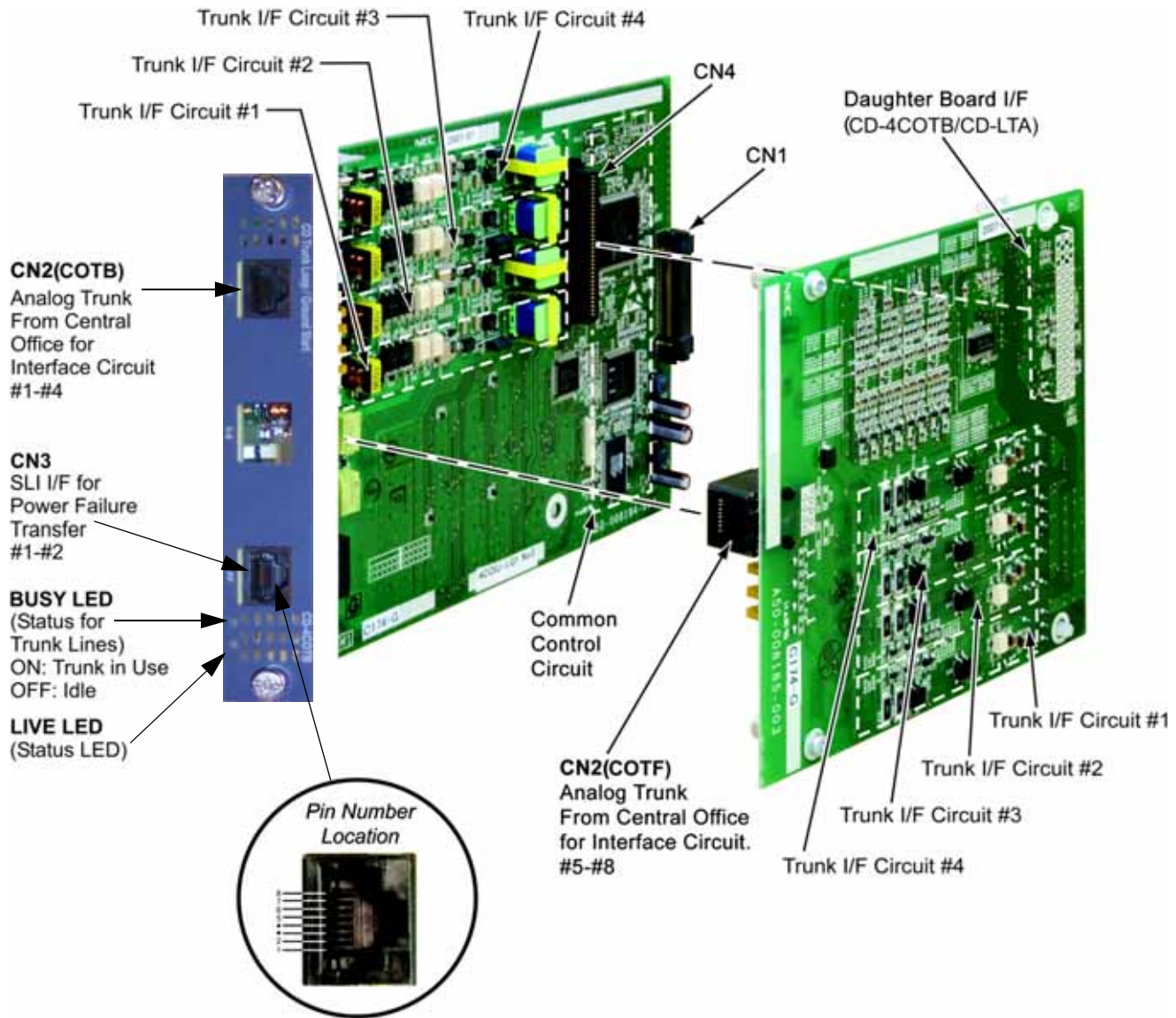


Figure 4-27 Installing the PZ-4COTF Daughter Board

### 5.2.1 Description

The PZ-4COTF daughter board provides:

- Four analog loop start/ground start trunk circuits
- Four Caller ID Circuits
- Connector for CD-4COTB Blade
- Connector for CD-LTA

The PZ-4COTF consumes four trunk ports ranging between ports 001~200. The CN2 connector provides connection to four analog trunk ports, **which are polarity sensitive (tip-to-tip, ring-to-ring)**. The power failure circuits (CN3), however, are not polarity sensitive.



- *When using the PZ-4COTF daughter board for ground start trunks, the PBX ground must be connected as described in Chapter 3 Installing the SV8100 Chassis, section 3.3.3 Install Grounding on 19" Chassis on page 3-18 for the trunks to function correctly.*
- *The trunk ports are polarity sensitive. Be careful when wiring the trunks.*
- *When connecting the RJ-61 cable to the PZ-4COTF daughter board, note the position of the Power Failure connector (CN3). Do not confuse this connector as the trunk connector (CN2).*
- *Switching from Loop Start to Ground Start is set in system programming.*
- *Do not wire an RJ-11 directly to the CD-4COTB interface. Use the appropriate RJ-61 wiring when connecting to the CD-4COTB.*

Refer to the following tables for maximum upgrade capacities of the PZ-4COTF COI daughter board:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

## 5.2.2 Installation



To install the PZ-4COTF:

1. Four spacers are included with the PZ-4COTF. Install the plastic spacers on the CD-4COTB or CD-LTA blade. Make sure to attach the spacers so that they extend out on the side of the daughter board which has the CN1 connector.
2. Position the PZ-4COTF CN1 connector over the CN4 connector on the CD-4COTB or CD-LTA. Press the blade and board together, ensuring the plastic spacers lock in place.
3. Install the PZ-4COTF blade (refer to [Figure 4-27 Installing the PZ-4COTF Daughter Board on page 4-70](#)).

5.2.3 Connectors

Table 4-35 PZ-4COTF RJ-61 Cable Connector Pin-Outs shows the pin-outs for the RJ-61 connector. Figure 4-27 Installing the PZ-4COTF Daughter Board on page 4-70 shows the location of the connectors on the PZ-4COTF daughter board.

Table 4-35 PZ-4COTF RJ-61 Cable Connector Pin-Outs

<b>RJ-61 Cable Connector</b> <b>CN2, Trunks – Connecting to CD-4COTB Blade</b> <b>The CN2 connector is <i>polarity sensitive</i> (tip-to-tip, ring-to-ring)</b>		
	Pin No.	Connection
	1	Circuit 8 – Tip
	2	Circuit 7 – Tip
	3	Circuit 6 – Tip
	4	Circuit 5 – Ring
	5	Circuit 5 – Tip
	6	Circuit 6 – Ring
	7	Circuit 7 – Ring
8	Circuit 8 – Ring	
<b>RJ-61 Cable Connector</b> <b>CN2, Trunks – Connecting to CD-LTB/CD-LTA Blade</b> <b>The CN2 connector is <i>polarity sensitive</i> (tip-to-tip, ring-to-ring)</b>		
	Pin No.	Connection
	1	Circuit 4 – Tip
	2	Circuit 3 – Tip
	3	Circuit 2 – Tip
	4	Circuit 1 – Ring
	5	Circuit 1 – Tip
	6	Circuit 2 – Ring
	7	Circuit 3 – Ring
8	Circuit 4 – Ring	



### 5.3 CD-2BRIA (2 Basic Rate Interface)

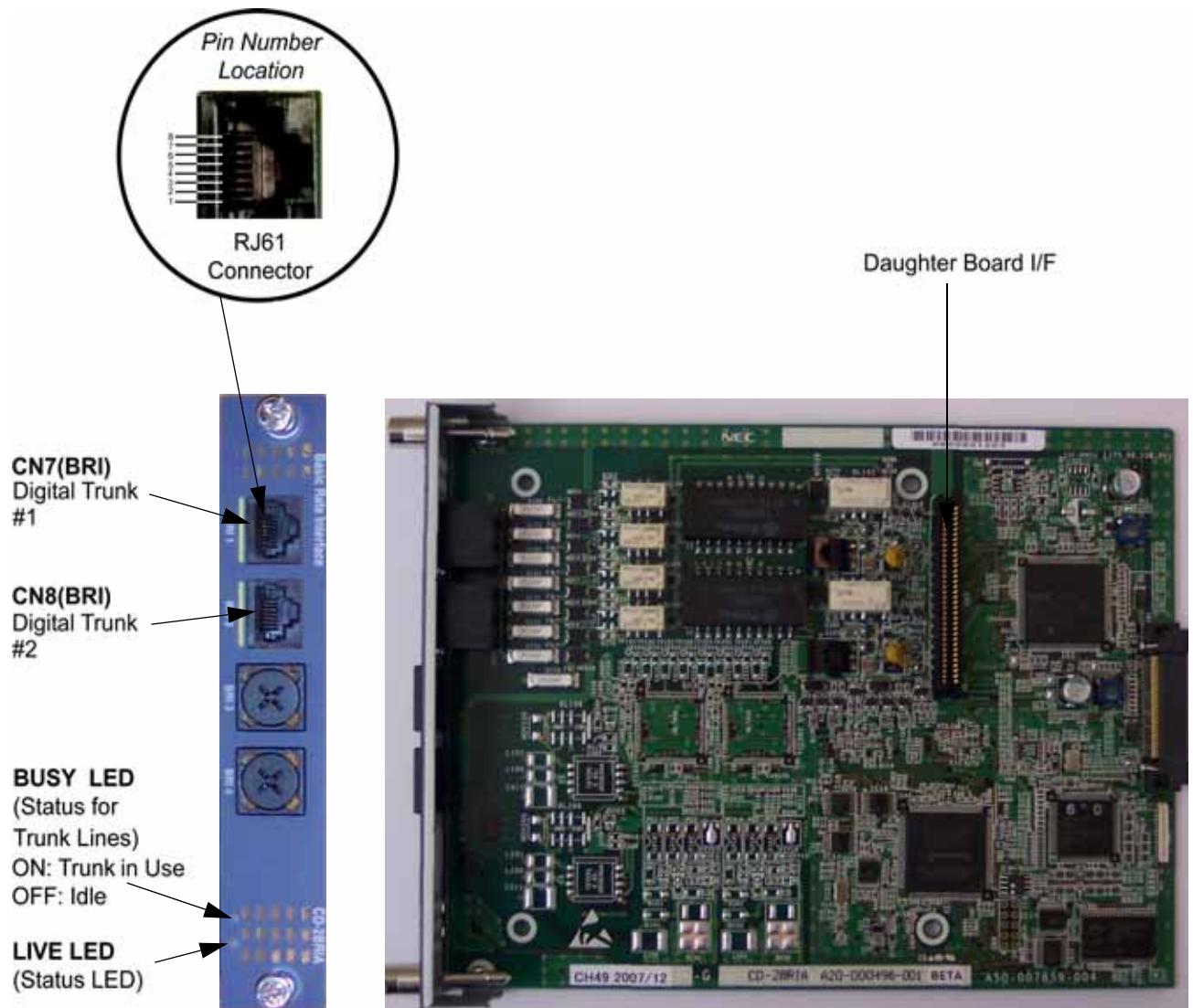


Figure 4-28 CD-2BRIA Blade

#### 5.3.1 Description

This unit is an interface unit that accommodates an ISDN (Basic Rate) circuit.

The BRI blade provides:


- Two (CD-2BRIA) 2-Channel Circuits (2B + D) configured as T-Bus
- 64Kb/s Clear B-Channel and 16Kb/s D-Channel
- Two Status LEDs
- Connector for PZ-2BRIA

These trunk circuits can be connected to either ISDN trunks or ISDN telephones, depending on the switch setting in system programming. All ISDN telephone circuits (#1-2 and #3-4 with the BRI daughter board) are supplied DC power from the system.

The BRI Interface blade uses a single universal slot. Each blade connects to the network via an NTI Network Termination.

To block new calls on the blade, system programming must be used. This program prevents new calls from being established on the blade, but it does not terminate any existing call.

With the maximum number of blades installed, the following can be provided:

-  *The 2BRI provides 30 BRI circuits and 60 BRI channels.  
(Port Consumption: T-Bus=4 ports)*

Refer to the following tables for maximum upgrade capacities of the CD-2BRIA blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 5.3.2 Installation

To install the CD-2BRIA:

1. Plug the CD-2BRIA blade into the system chassis.
2. Before proceeding to Step 3, wait to verify that the STATUS LED starts to flash. (Refer to [Figure 4-28 CD-2BRIA Blade on page 4-73](#) for the location of the LEDs on the blade.)



- *With normal operation, the status LED flashes fast. If trouble was found during the self diagnostics routine, the status LED flashes slow.*
- *Once connected, the PKG LED will not be indicated for the status of Layer 1 Link.*



3. Connect the cable from the NT1 Network Termination cable to the CN7 or CN8 connector on the CD-2BRIA blade and/or PZ-2BRIA daughter board. (Refer to [Figure 4-28 CD-2BRIA Blade on page 4-73](#) for the location of the connectors on the blade.)

### 5.3.3 LED Indications

LED indications for the CD-2BRIA are listed in [Table 4-36 CD-2BRIA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-28 CD-2BRIA Blade on page 4-73](#) for the location of the LEDs on the blade.

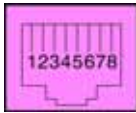
**Table 4-36 CD-2BRIA LED Indications**

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–

### 5.3.4 Connectors

Table 4-37 CD-2BRIA RJ-61 Cable Connector Pin-Outs show the pin-outs for the RJ-61 cable connector for T-Bus connections. Figure 4-28 CD-2BRIA Blade on page 4-73 shows the location of the connectors on the CD-2BRIA blade.

**Table 4-37 CD-2BRIA RJ-61 Cable Connector Pin-Outs**

RJ-61 Cable Connector – CN7, CN8 T-Bus Connection		
	Pin No.	Connection
	1	—
	2	—
	3	TA
	4	RA
	5	RB
	6	TB
	7	—
	8	—

### 5.4 PZ-2BRIA (2 Basic Rate Interface Daughter Board)

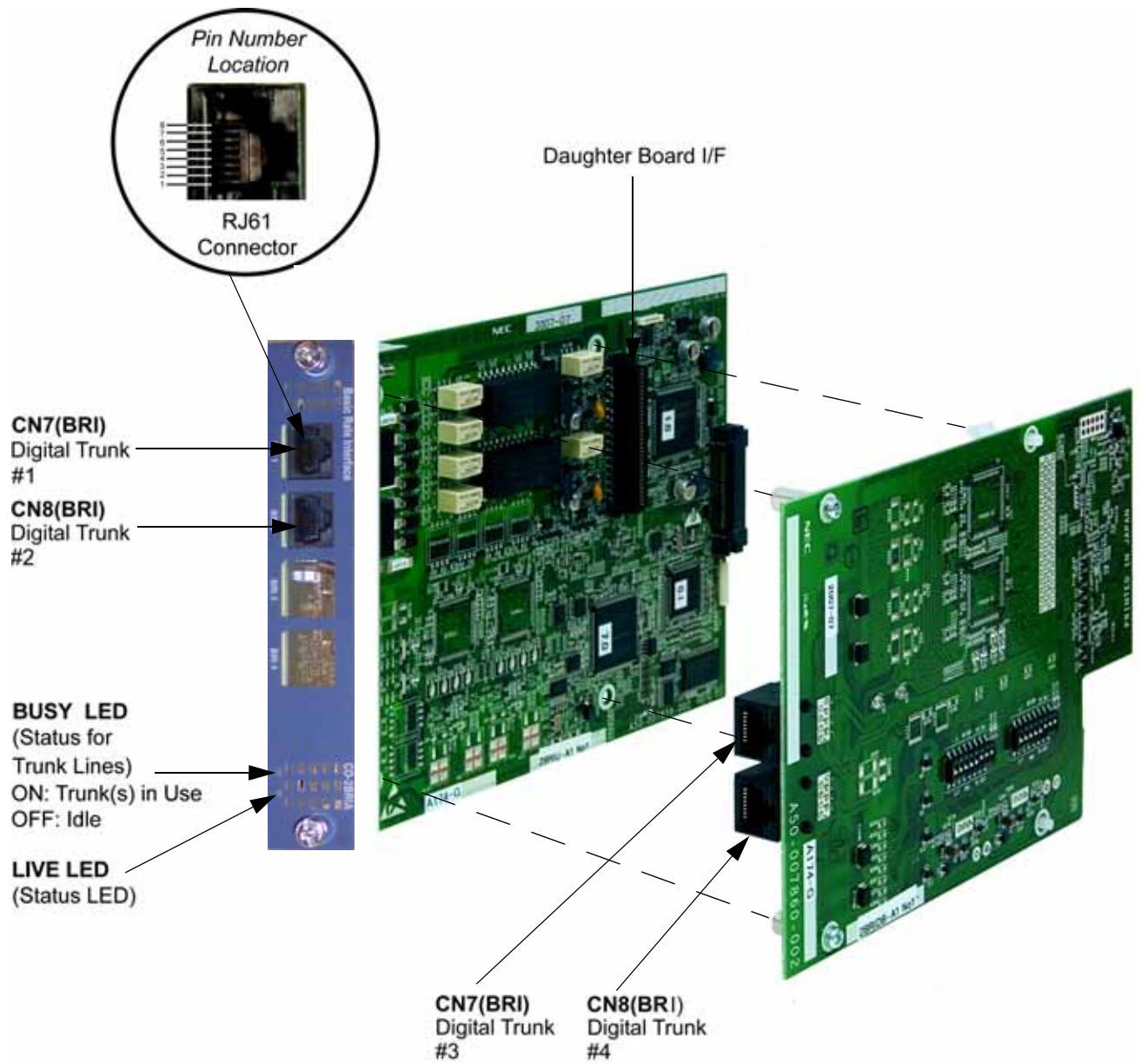


Figure 4-29 Installing the PZ-2BRIA Daughter Board

### 5.4.1 Description

This daughter board provides two BRI circuits and is installed on the CD-2BRIA blade. This board provides:

- Two (CD-2BRIA) 2-Channel Circuits (2B + D) configured as T-Bus
- 64Kb/s Clear B-Channel and 16Kb/s D-Channel
- Connection point for CD-2BRIA
- Connection point for CD-LTA

These trunk circuits can be connected to ISDN trunks or ISDN telephones, depending on the switch setting in system programming. All ISDN telephone circuits [#1-2 (BRI blade) and #3-4 (with the BRI daughter board)] are supplied DC power from the UNIVERGE SV8100 system.


System programming must be used to block new calls on the blade. This program prevents new calls from being established on the blade, but does not terminate any existing call.

Refer to the following tables for maximum upgrade capacities of the PZ-2BRIA daughter board:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 5.4.2 Installation

To install the PZ-2BRIA on the CD-2BRIA:

 *Attach the PZ-2BRIA daughter board to the CD-2BRIA blade by lining up the CN5 connectors and pressing the boards together. (Refer to [Figure 4-29 Installing the PZ-2BRIA Daughter Board on page 4-77.](#))*

1. Install the CD-2BRIA blade into the system chassis.
2. Before proceeding to Step 3, wait to verify that the STATUS LED starts to flash.




- *With normal operation, the status LED flashes fast. If trouble was found during the self diagnostics routine, the status LED flashes slow.*
- *Once connected, the PKG LED is not indicated for the status of Layer 1 Link.*

3. Connect the cable from the NT1 Network Termination cable to the CN7 or CN8 connector on the CD-2BRIA and/or PZ-2BRIA daughter board.

#### 5.4.3 Connectors

Table 4-38 PZ-2BRIA RJ-61 Cable Connector Pin-Outs shows the pin-outs for the RJ-61 cable connector for T-Bus connections. Figure 4-29 Installing the PZ-2BRIA Daughter Board on page 4-77 shows the location of the connectors on the PZ-2BRIA daughter board.

**Table 4-38 PZ-2BRIA RJ-61 Cable Connector Pin-Outs**

<b>RJ-61 Cable Connector – CN7, CN8 T-Bus Connection</b>		
	<b>Pin No.</b>	<b>Connection</b>
	1	—
	2	—
	3	TA
	4	RA
	5	RB
	6	TB
	7	—
	8	—

### 5.5 CD-4DIOPA (DID/OPX Interface)

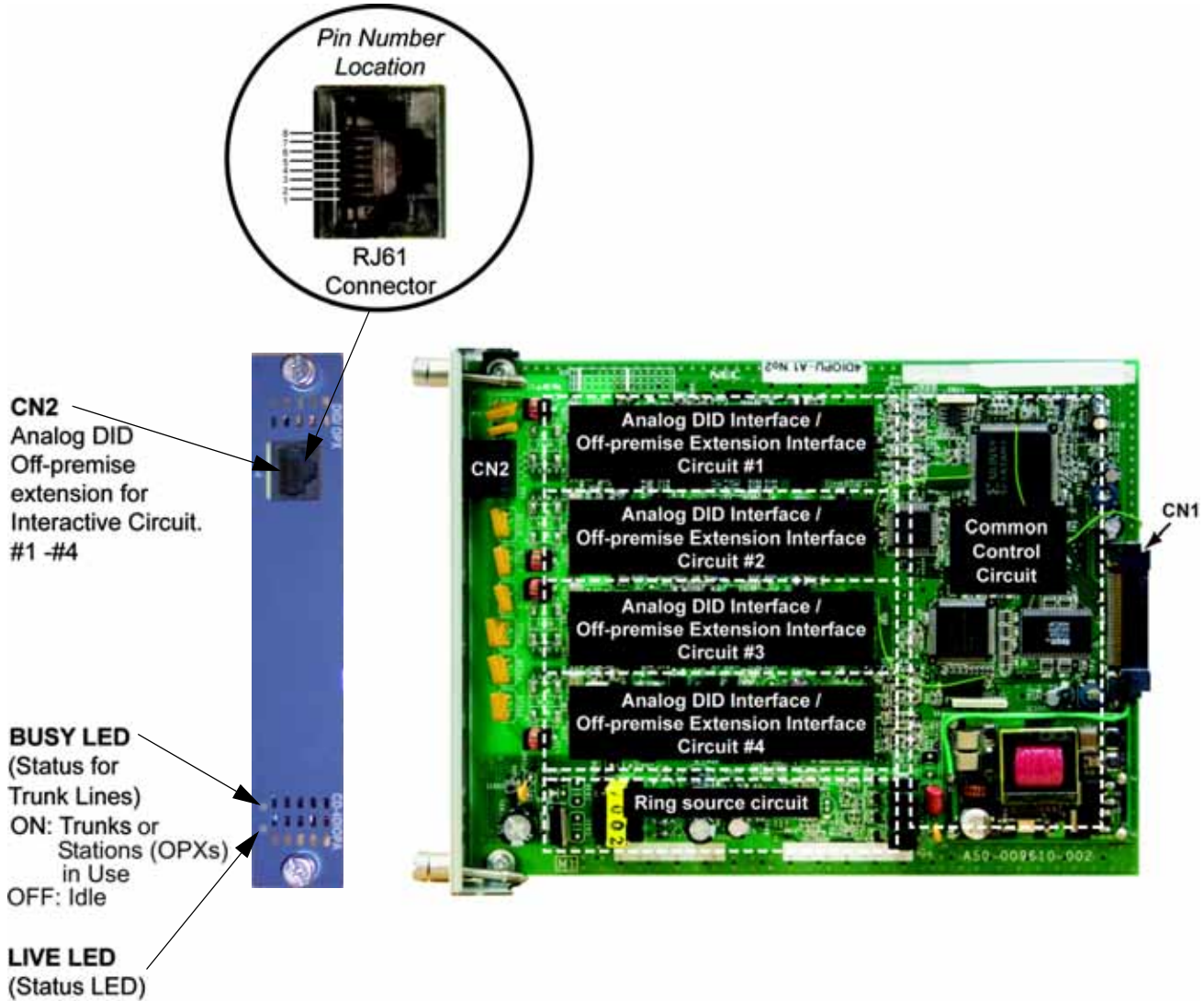


Figure 4-30 CD-4DIOPA Blade

#### 5.5.1 Description

The CD-4DIOPA supports the analog DID and single line telephone interface functions (such as Off-Premise Extension). The function type is assigned in programming for each port. The circuit types, however, should be grouped together. For example, with three DID circuits and one OPX circuit, they should be grouped as DID, DID, DID and OPX and not DID, DID, OPX and DID.

The CD-4DIOPA provides:

- Four (DIOPA) DID trunk circuits or four OPX circuits
- Two Blade status LEDs
- 48VDC

Refer to the following tables for maximum upgrade capacities of the CD-4DIOPA blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 5.5.2 Installation

The CD-4DIOPA can be installed in any universal slot.

### 5.5.3 LED Indications

LED indications for the CD-4DIOPA are listed in [Table 4-39 CD-4DIOPA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-30 CD-4DIOPA Blade on page 4-80](#) for the location of the LEDs on the blade.

**Table 4-39 CD-4DIOPA LED Indications**


LED Indication		Operation Status	Remarks
Live LED (Green)	Busy LED (Red)		
On	On	System Initializing	–
Flash (1s)	On	The assignment of the unit is refused.	When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.	–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).
	Off		All channels are idle.
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).
	Off		All channels are idle.
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.	–

5.5.4 Connectors

The CN2 connector provides connection to four analog DID trunk ports, **which are polarity sensitive (tip-to-tip, ring-to-ring)**. The OPX circuits, however, are not polarity sensitive. The CD-4DIOPA requires one universal slot. (Refer to [Figure 4-30 CD-4DIOPA Blade on page 4-80](#).) If Program 10-03-01 has OPX defined, note that the blade consumes four (4DIOPA) trunks and extension ports when installed. If OPX is not defined, then only trunks ports are consumed.

[Table 4-40 CD-4DIOPA RJ-61 Cable Connector Pin-Outs](#) shows the pin-outs for the RJ-61 connector. [Figure 4-30 CD-4DIOPA Blade on page 4-80](#) shows the location of the connectors on the 4DIOPA blade.

**Table 4-40 CD-4DIOPA RJ-61 Cable Connector Pin-Outs**

RJ-61 Cable Connector – CN2			
	Line No.	Pin No.	Connection
	1	5	Tip
		4	Ring
	2	3	Tip
		6	Ring
	3	2	Tip
		7	Ring
	4	1	Tip
		8	Ring



## 5.6 CD-PRTA (PRI/T1 Interface)

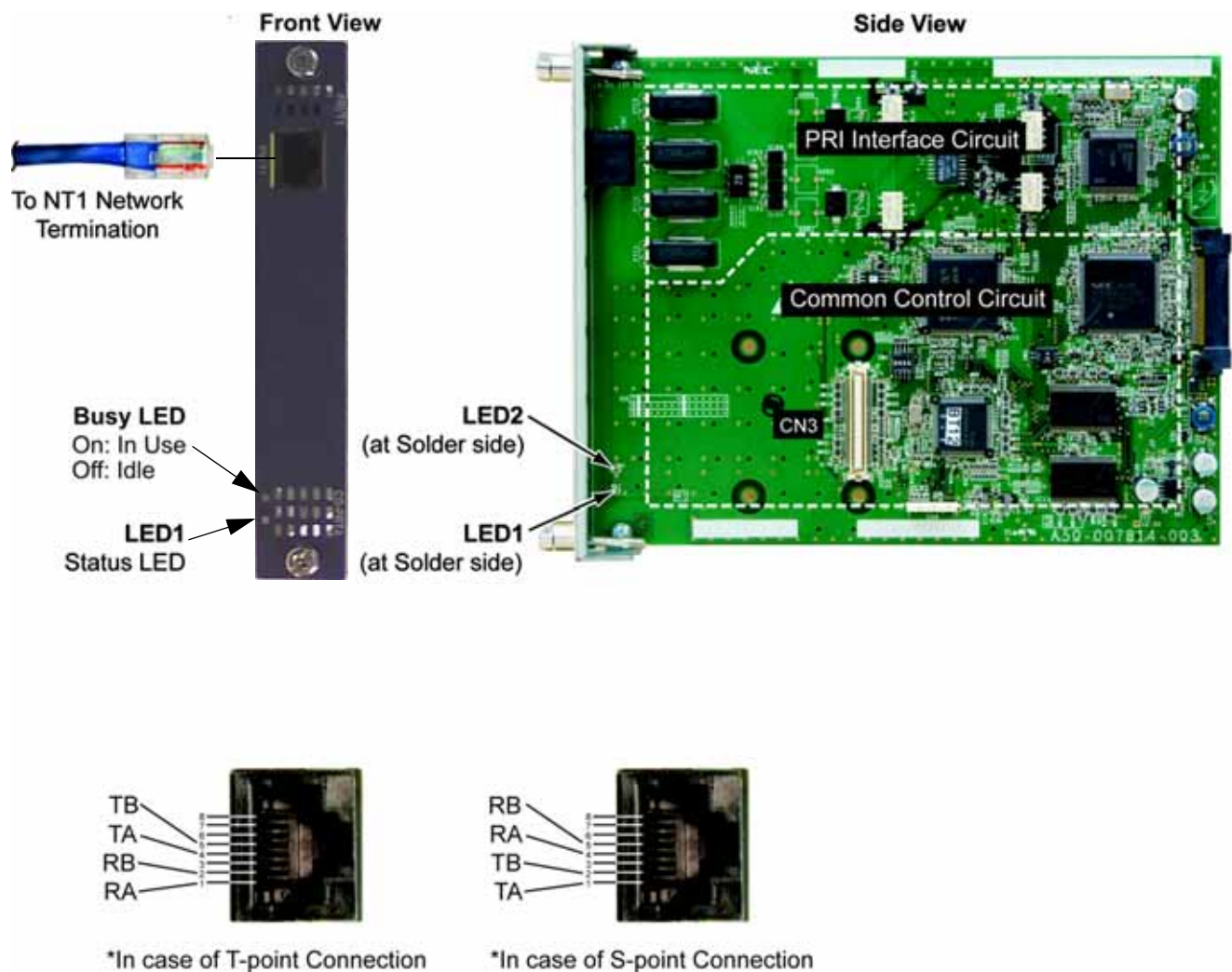


Figure 4-31 CD-PRTA Blade (Front and Side View)

### 5.6.1 Description

The CD-PRTA T1/PRI blade provides an interface for T1 and ISDN Primary Rate Interface (PRI) applications. This blade has a single 24-channel 64Kb per second digital signal circuit that can be configured for either T1 trunks or PRI. Each blade connects to the network via an NTI Network Termination.

If set for T1, the T1/PRI blade provides 24 trunks in a single universal slot. These trunks can be one of the following:

- Loop Start
- Ground Start
- DID
- E&M Trunks
- ANI/DNIS E&M Trunks

T1 provides advanced digital trunking and conserves universal slots. For example, a system with 12 loop start trunks, two tie lines and six DID trunks uses up to five universal slots. With T1, all these trunks are available in a single universal slot. This frees up four additional universal slots for other uses.

If set for PRI, each T1/PRI blade provides 24 PRI (23 B & 1 D) channels running at 1.544Mbps with 64Kb/s clear channel. This blade supports the following PRI services:

- Basic PRI Call Control (BCC)
- Display of incoming caller's name and number (when allowed by the telco)
- Speech and 3.1 KHz audio

When installed, CD-PRTA uses the first block of 24 consecutive trunk ports. For example, if a COIU blade is installed for trunks 1~8, the CD-PRTA automatically uses trunks 9~32. If the COIU blades are installed for trunks 1~8 and 17~24, CD-PRTA uses trunks 25~48. The CD-PRTA cannot use trunks 9~16 (even if available) since they are not part of a consecutive block of 24 trunks. Each CD-PRTA requires 24 ports in the system, even if not all the ports are used, otherwise the blade does not function.

The CD-PRTA requires one universal slot and provides:

- 1.5M or T1 Function

Refer to the following tables for maximum upgrade capacities of the CD-PRTA blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

## 5.6.2 Installation

To install the CD-PRTA:

1. Plug the CD-PRTA into any universal slot in the chassis.
2. Use Program 10-51-01 (PRI/T-1) to set the CD-PRTA blade to either PRI or T-1.



*With normal operation, LED 1 flashes green.*

3. Connect the cable from the NT1 Network Termination cable to the CN2 connector on the CD-PRTA. [Figure 4-32 PRI Layout for NT-1 Network on page 4-85](#) is a cabling diagram.)

- *The CSU connects to the network through an 8-pin RJ-45/RJ48C connector. Use either the RJ48C plug-to-RJ48C plug, which ships with the CSU or an RJ-45/48C plug-to RJ-45/48C plug straight through or CAT5 cable to connect the T1 to the CSU. (Refer to [Table 4-44 CD-PRTA RJ48C Connector Pin-outs on page 4-88.](#))*



- *With PRI Networking, a crossover cable must be used on the master system T1/PRI blade or CSU to the telco demarcation. If the systems are networked side by side and not through telco, a straight-through cable is used.*

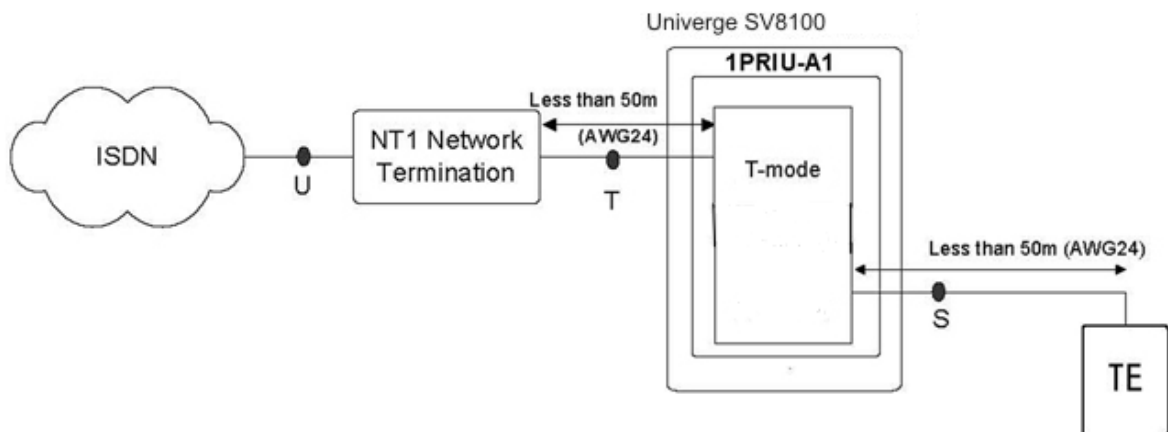


Figure 4-32 PRI Layout for NT-1 Network

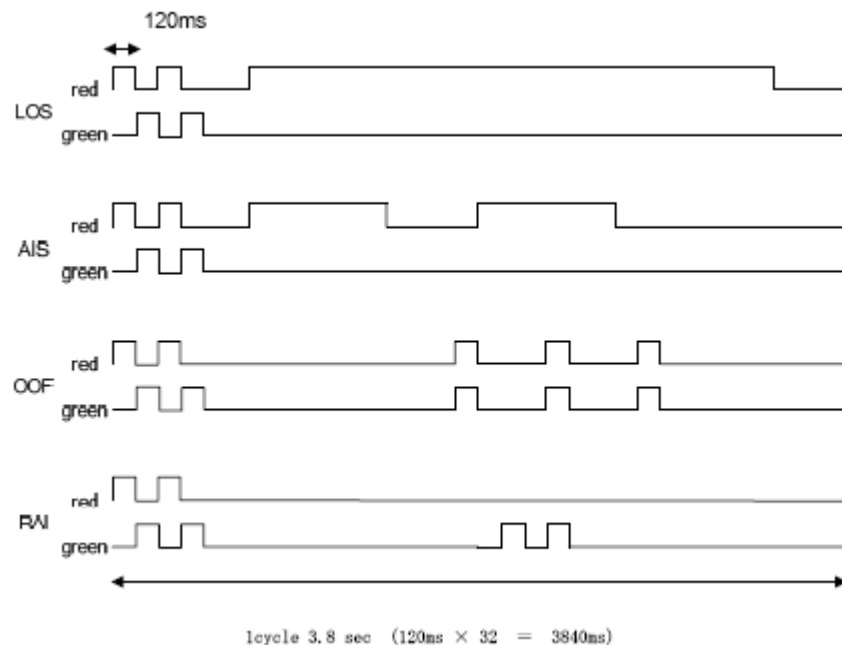
## 5.6.3 LED Indications

LED indications for the CD-PRTA are listed in [Table 4-41 CD-PRTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status.

**Table 4-41 CD-PRTA LED Indications**

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–

Refer to [Figure 4-33 CD-PRTA LED Indication Pattern of Layer 1 on T1 Unit](#) for LED pattern information. LED indications for the T1 are listed in [Table 4-42 T1 LED Indications](#).



**Figure 4-33 CD-PRTA LED Indication Pattern of Layer 1 on T1 Unit**

**Table 4-42 T1 LED Indications**

Alarm	Details of the Alarm	LED Indication Pattern
LOS	Loss of Signal (Red Alarm) No Signal (Analog Interface)	Following an alarm blink (red, green, red, green) a Red LED lights.
AIS	Alarm Indication Signal (Blue Alarm)	Following an alarm blink (red, green, red, green) a Red LED slowly flashes On and Off twice.
OOF	Out Of Frame (Red Alarm)	Following an alarm blink (red, green, red, green) a Red LED and Green LED flash On and Off three times simultaneously.
RAI	Remote Alarm Indication (Yellow Alarm)	Following an alarm blink (red, green, red, green) a Green LED flashes On and Off twice.
No Alarm	The system does the LED control.	

The order of priority is set up to alarm in the order LOS→AIS→OOF→RAI.

5.6.4 Connectors

Table 4-43 CD-PRTA RJ-45 Cable Connector Pin-Outs shows the pin-outs for the T-Bus RJ-45 connections. Figure 4-31 CD-PRTA Blade (Front and Side View) on page 4-83 shows the location of the connectors on the PRT blade.

Table 4-43 CD-PRTA RJ-45 Cable Connector Pin-Outs

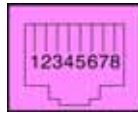
RJ-45 Cable Connector – CN2 T-Bus Connection		
	Pin No.	Connection
	1	RA
	2	RB
	3	—
	4	TA
	5	TB
	6	—
	7	—
	8	—

Table 4-44 CD-PRTA RJ48C Connector Pin-outs shows the pin-outs for the 8-pin RJ48C connector for the network and terminal interfaces.

Table 4-44 CD-PRTA RJ48C Connector Pin-outs

Network Interface Pinout for the 8-Pin RJ48C Connector		For connection to T1 network: Use AT&T Type ABAM cable or equivalent (individually-shielded twisted pair, rated at 100 ohms at 1 MHz).	Terminal Interface Pinout for the 8-Pin RJ48C Connector	
Pin No.	Connection		Pin No.	Connection
1	RxD (R1)		1	RxD (R)
2	RxD (T1)		2	RxD (T)
4	TxD (R)		4	TxD (R1)
5	TxD (T)		5	TxD (T1)
3, 6	No Connection		3, 6	No Connection
7, 8	No Connection		7, 8	No Connection

## 5.7 CD-4ODTA (4-Port Tie Line Interface Blade)

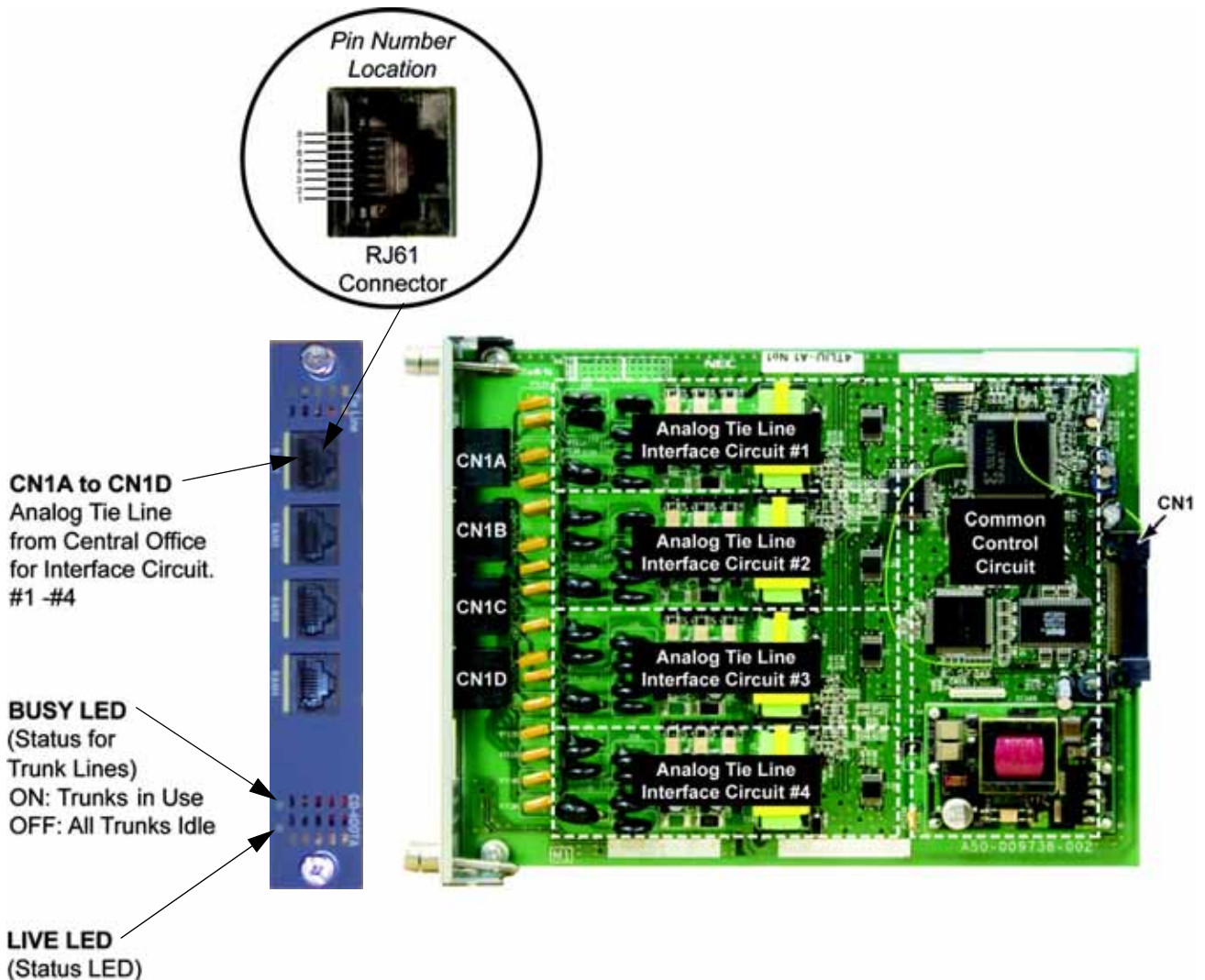


Figure 4-34 CD-4ODTA Blade

### 5.7.1 Description

The CD-4ODTA Tie Line blade is an out band dial type analog tie line interface blade. This blade supports system connections to either 2-wire (four lead, tip/ring) or 4-wire (six lead, tip/ring/tip 1/ring 1) E&M signalling tie lines (determined in Program 10-13). System programming is used also to select the connection types with Type I or Type V. The CD-4ODTA consumes four ports ranging between ports 001~200 (SV8100). Each blade requires one universal slot and provides:



- Four analog 4-circuit tie line interfaces
- Two Blade status LEDs
- Two straps and one switch per circuit to determine the circuit type



***Limitation depends on the connecting Router, Multiplexer or Exchange. If the UNIVERGE SV8100 is connected to another UNIVERGE SV8100 directly, there is up to 1,500 ohms loop resistance (including system).***

Refer to the following tables for maximum upgrade capacities of the CD-4ODTA blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 5.7.2 Installation



- ***When a router or multiplexer is connected instead of a trunk, the SG terminal of the router or multiplexer must be connected to the FG grounding terminal on the UNIVERGE SV8100 chassis. When a tie line trunk is connected, the FG terminal must be connected to the ground. If the FG terminal is not connected correctly, the signal may fail.***
- ***When tie lines are connected to the system, be careful of the Tip and Ring polarity.***

1. Set the straps for either the 2-wire or 4-wire. Refer to [Figure 4-34 CD-4ODTA Blade on page 4-89](#).
2. Install the CD-4ODTA into a slot in the chassis.



### 5.7.3 LED Indications

LED indications for the **CD-4ODTA** are listed in [Table 4-45 CD-4ODTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-34 CD-4ODTA Blade on page 4-89](#) for the location of the LEDs on the blade.




**Table 4-45 CD-4ODTA LED Indications**

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–

### 5.7.4 Connectors

[Table 4-46 CD-4ODTA RJ-61 Cable Connector Pin-Outs on page 4-92](#) shows the pin-outs for the RJ-61 connector. [Figure 4-34 CD-4ODTA Blade on page 4-89](#) shows the location of the connectors on the ODT blade.

**Table 4-46 CD-4ODTA RJ-61 Cable Connector Pin-Outs**

<b>RJ-61 Cable Connector – 2-Wire E&amp;M, CN1A~CN1D</b>																																			
	<b>Pin No.</b>	<b>Connection</b>	<b>Description</b>																																
	1	—	Not Used																																
	2	M	Control signal to trunk																																
	3	—	Not Used																																
	4	R	Voice signal both ways																																
	5	T	Voice signal both ways																																
	6	—	Not Used																																
	7	E	Control signal from trunk																																
8	—	Not Used																																	
<b>RJ-61 Cable Connector – 4-Wire E&amp;M, CN100~CN400</b>																																			
	<b>Pin No.</b>	<b>Connection</b>	<b>Description</b>																																
	1	—	Not Used																																
	2	M	Control signal to trunk																																
	3	R	Voice signal to trunk																																
	4	R1	Voice signal from trunk																																
	5	T1	Voice signal from trunk																																
	6	T	Voice signal to trunk																																
	7	E	Control signal from trunk																																
8	—	Not Used																																	
<p> Using Type I or Type V, a system loopback test can be performed by connecting E&amp;M1 to E&amp;M2.</p> <table border="0"> <tr> <td colspan="2" style="text-align: center;"><b>&lt;2-Wire E&amp;M&gt;</b></td> <td colspan="2" style="text-align: center;"><b>&lt;4-Wire E&amp;M&gt;</b></td> </tr> <tr> <td style="text-align: center;"><b><u>E&amp;M1</u></b></td> <td style="text-align: center;"><b><u>E&amp;M2</u></b></td> <td style="text-align: center;"><b><u>E&amp;M1</u></b></td> <td style="text-align: center;"><b><u>E&amp;M2</u></b></td> </tr> <tr> <td style="text-align: center;">E →</td> <td style="text-align: center;">M</td> <td style="text-align: center;">E →</td> <td style="text-align: center;">M</td> </tr> <tr> <td style="text-align: center;">M →</td> <td style="text-align: center;">E</td> <td style="text-align: center;">M →</td> <td style="text-align: center;">E</td> </tr> <tr> <td style="text-align: center;">R →</td> <td style="text-align: center;">T</td> <td style="text-align: center;">R →</td> <td style="text-align: center;">T1</td> </tr> <tr> <td style="text-align: center;">T →</td> <td style="text-align: center;">R</td> <td style="text-align: center;">T →</td> <td style="text-align: center;">R1</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">R1 →</td> <td style="text-align: center;">T</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">T1 →</td> <td style="text-align: center;">R</td> </tr> </table>				<b>&lt;2-Wire E&amp;M&gt;</b>		<b>&lt;4-Wire E&amp;M&gt;</b>		<b><u>E&amp;M1</u></b>	<b><u>E&amp;M2</u></b>	<b><u>E&amp;M1</u></b>	<b><u>E&amp;M2</u></b>	E →	M	E →	M	M →	E	M →	E	R →	T	R →	T1	T →	R	T →	R1			R1 →	T			T1 →	R
<b>&lt;2-Wire E&amp;M&gt;</b>		<b>&lt;4-Wire E&amp;M&gt;</b>																																	
<b><u>E&amp;M1</u></b>	<b><u>E&amp;M2</u></b>	<b><u>E&amp;M1</u></b>	<b><u>E&amp;M2</u></b>																																
E →	M	E →	M																																
M →	E	M →	E																																
R →	T	R →	T1																																
T →	R	T →	R1																																
		R1 →	T																																
		T1 →	R																																

## 5.7.5 Connections

Figure 4-35 Voice Signal Connection for Type I And V and Figure 4-36 Control Signal Connection on page 4-94 show the signaling methods for circuit types.

(1) Voice signal connection for type I and V.

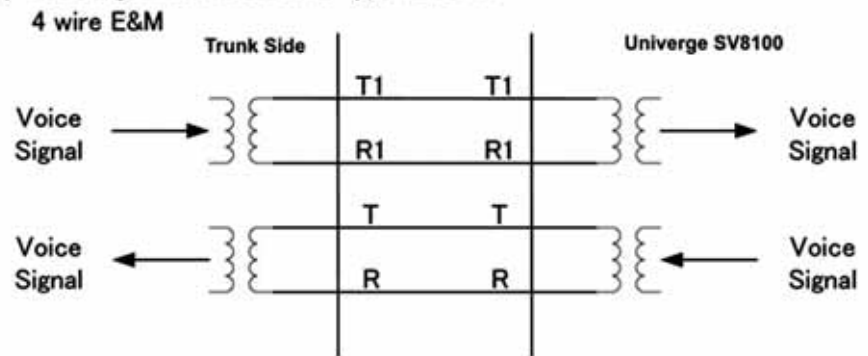
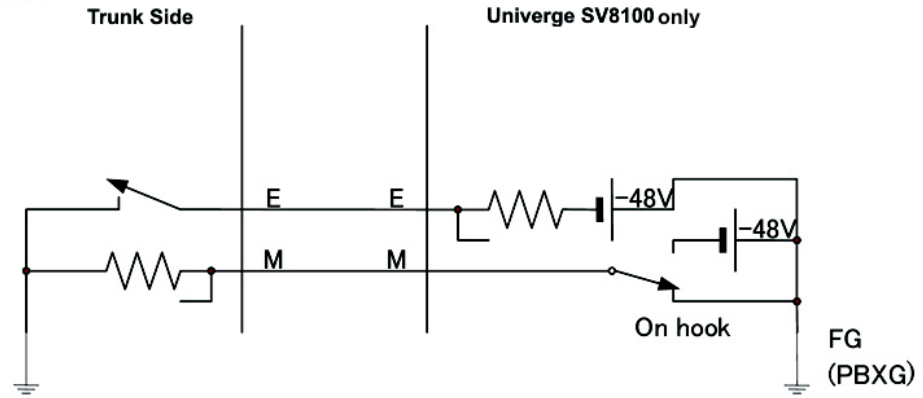


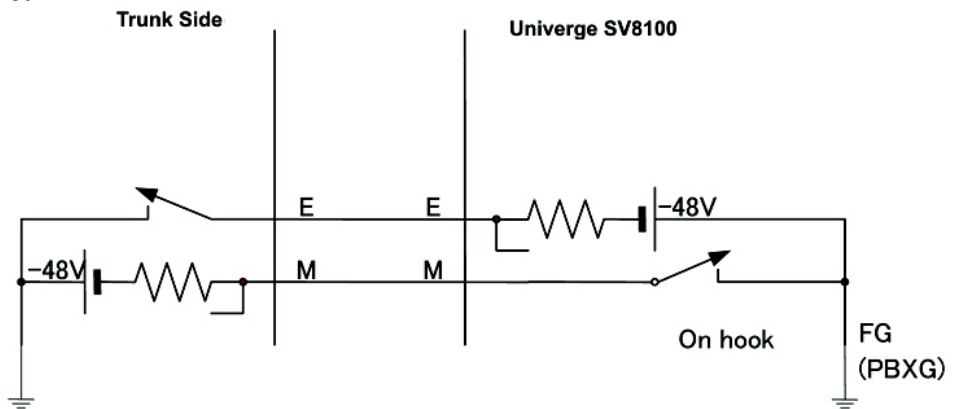
Figure 4-35 Voice Signal Connection for Type I And V

(2) Control Signal connection

Type I



Type V



Type V (Back to Back connection)

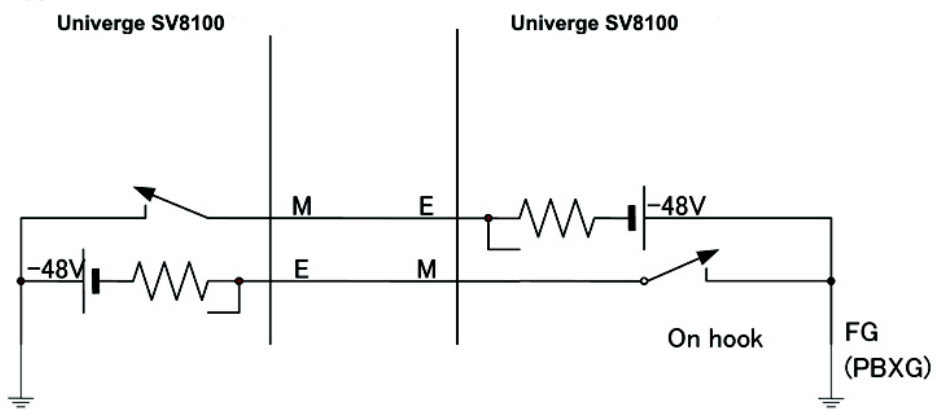
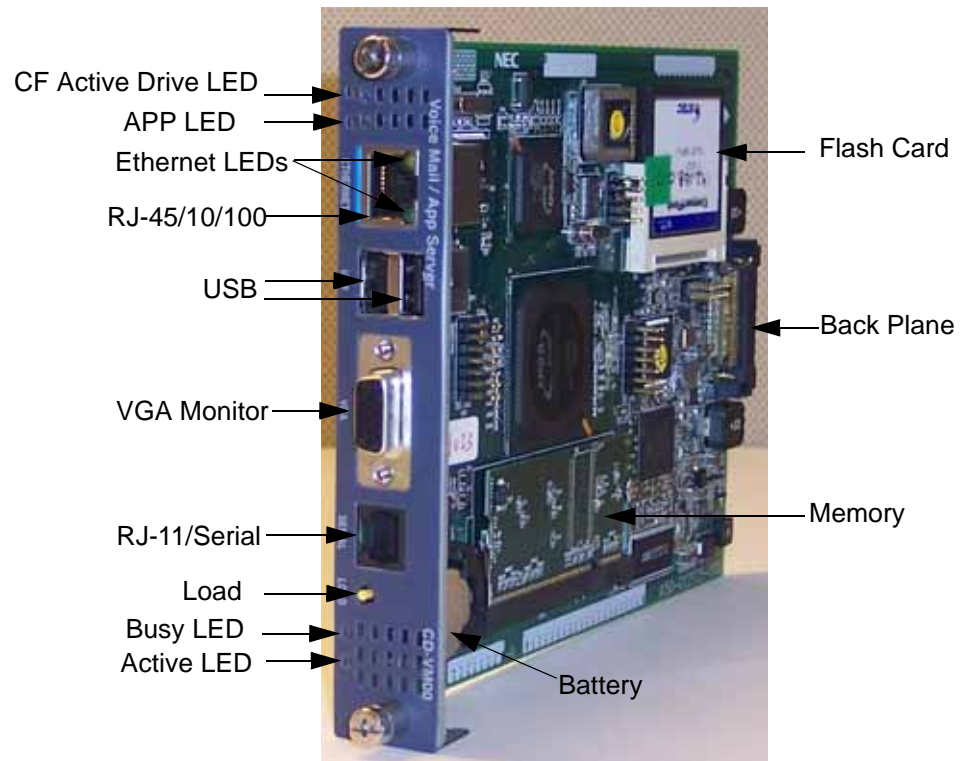


Figure 4-36 Control Signal Connection

## SECTION 6 OPTIONAL BLADES

### 6.1 CD-VM00 (Voice Mail and Server)



**Figure 4-37 CD-VM00 Blade**

#### 6.1.1 Description

This blade is a PC platform installed in the UNIVERGE SV8100 that contains data storage for voice recording and application software supporting a maximum of 16 ports.

A digital signal processor/voice processing section handles the following functions:

- DTMF detection
- DTMF generation
- General tone detection
- FAX CNG tone detection
- PCM compression for audio recording/playback
- Two USB 1.0 ports for USB keyboard support, database backup and software upgrades

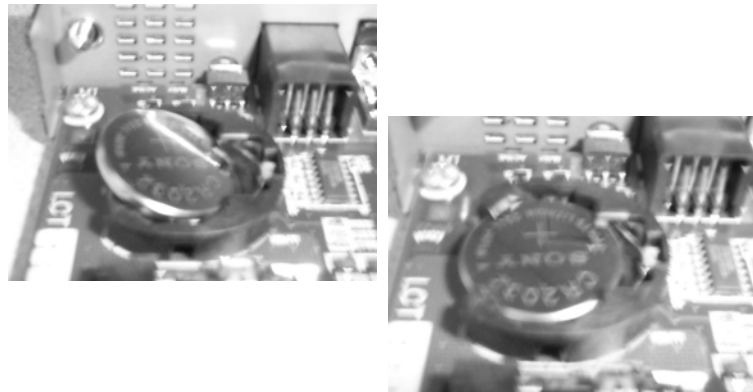
- ❑ One 15-pin VGA connector for VHA monitor support

### 6.1.2 Installation

Only one CD-VM00 can be installed per system.

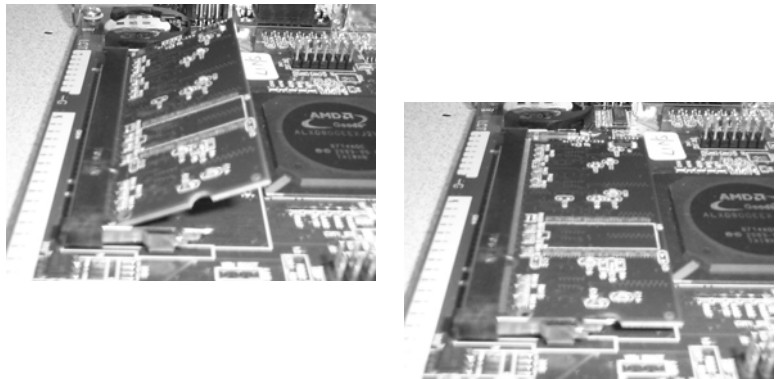


- *Handle the CF drive carefully. To prevent damage, do not drop the drive or apply pressure to it.*
  - *This unit makes extensive use of CMOS technology and is very susceptible to static; extreme care must be taken to avoid static discharge when handling.*
1. Wear a grounding strap while handling the CD-VM00 and lay it on a flat workspace.
  2. Mount the CR-2032 battery with the + side up in the BATT slot on the CD-VM00 (refer to [Figure 4-38 Install the CR-2032 Battery](#)).



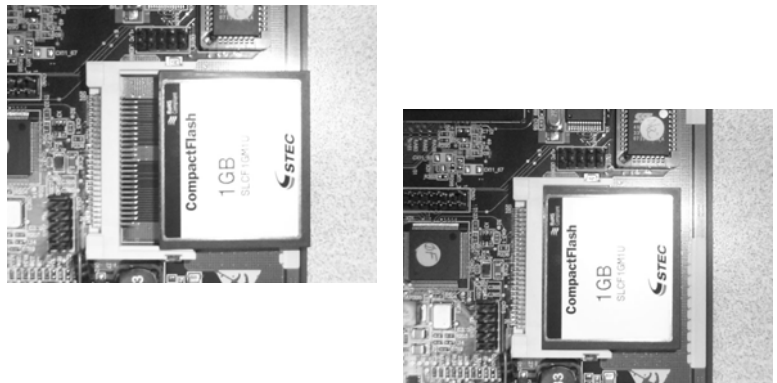
**Figure 4-38 Install the CR-2032 Battery**

3. To install the SO-DIMM memory on the CD-VM00 blade, insert the end with the brass connectors into the CN14 1 slot first.
4. Push the other end down until the lock on both sides locks into place (refer to [Figure 4-39 Install the SO-DIMM Memory on page 4-97](#)).



**Figure 4-39 Install the SO-DIMM Memory**

5. Install the Compact Flash drive into slot CN7, make sure the drive is fully seated in the slot (refer to [Figure 4-40 Install the Compact Flash Drive](#)).



**Figure 4-40 Install the Compact Flash Drive**

### 6.1.3 LED Indications

#### 6.1.3.1 Active LED – Green

The Active LED is controlled by the DSP and indicates the board operational status.

- Off: Power off.
- On: Reset.
- Slow Flash: Board is running but not in sync with the chassis yet.
- Fast Flash: Board is in sync with the chassis and operating normally.

#### 6.1.3.2 Busy LED – Red

The Busy LED is controlled by the DSP and indicates the port status.

- Off: Power off or idle.
- On: Reset.

#### 6.1.3.3 Application LED – Red/Green (Dual Color)

The Application LED is controlled by the DSP indicates the state of the software running on the APSU.

- Off: Power off.
- Solid Red/Green (Yellow): Reset.
- Flashing Green: OS is running, application not started.
- Solid Green: Application running.
- Solid Red: Application problem.

#### 6.1.3.4 CompactFlash Card Activity LED – Red

The CompactFlash Card Activity LED is controlled by the IDE controller and indicates read/write activity on the CompactFlash card.

### 6.1.4 Connectors

The following sections go into detail on each user interface.

#### 6.1.4.1 RS-232 Interface

The RJ-11 connector with DB9 adapter (part number 1091014) is used for connection to an external PMS Application or the PMS-U10. The cable used for a PC type DTE connection is a standard line cord shown in [6.1.4.3 RS-232 Serial Cable \(DTE\)](#). The connection for a DCE device uses the swapped line cord shown in [6.1.4.4 RS-232 Serial Cable \(DCE\)](#).



6.1.4.2 DB9 to 6-pin Modular RS-232 Adapter

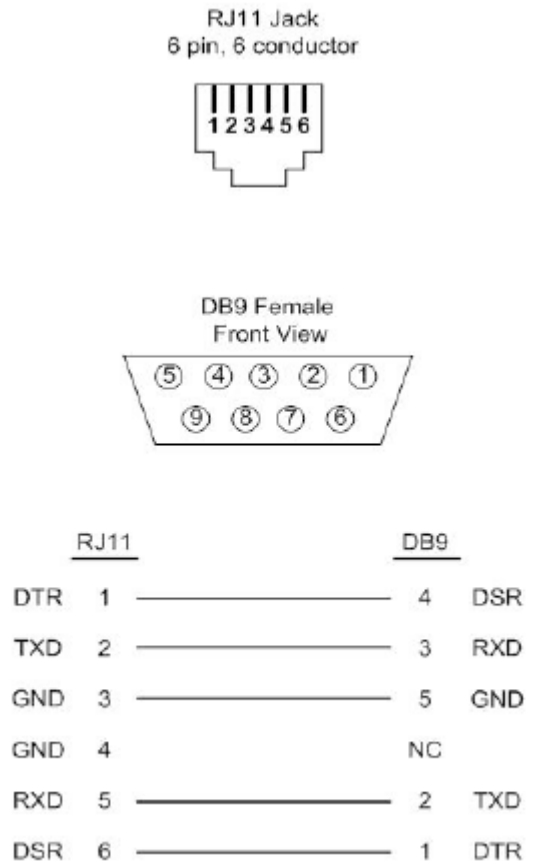


Figure 4-41 CD-VM00 DB9 to 6-Pin Modular RS-232 Adapter

6.1.4.3 RS-232 Serial Cable (DTE)

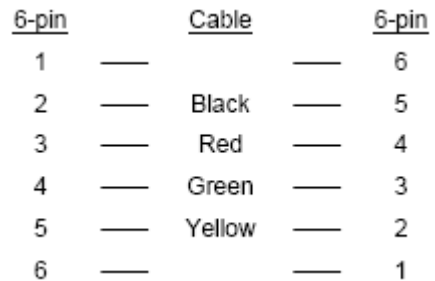


Figure 4-42 CD-VM00 RS-232 Serial Cable (DTE)

#### 6.1.4.4 RS-232 Serial Cable (DCE)

<u>6-pin</u>		<u>Cable</u>		<u>6-pin</u>
1	—		—	1
2	—	Black	—	2
3	—	Red	—	3
4	—	Green	—	4
5	—	Yellow	—	5
6	—		—	6

**Figure 4-43 CD-VM00 RS-232 Serial Cable (DCE)**

#### 6.1.4.5 USB Interface

The APSU provides two USB interfaces that can be used for the following devices:

- USB Keyboard
- USB Memory Device

#### 6.1.4.6 VGA Display Interface

The APSU card provides a VGA display interface through a standard DB-15 connector.

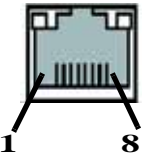
#### 6.1.4.7 10 Base-T/100 Base-TX Ethernet Interface

The APSU card provides a 10 Base-T/100 Base-TX Ethernet interface through an RJ-45 connector. Some possible uses for the Ethernet port are the following:

- Unified Messaging (Email)
- Software Update
- Application Configuration
- Text to Speech and Speech Recognition using an external server
- Network Attached Storage (NAS)

The RJ-45 connector pin-out is shown in [Table 4-47 Ethernet Connector Pin-Out on page 4-101](#).

Table 4-47 Ethernet Connector Pin-Out

View	Pin No.	Signal	Note
PIN1 ---- PIN8	1	Tx+	10 Base-T/100 Base-TX port (RJ-45 connector)
	2	Tx-	
	3	Rx+	
	4	NC	
	5	NC	
	6	Rx-	
	7	NC	
	8	NC	

## 6.2 CD-PVAA (Packet Voice Application)

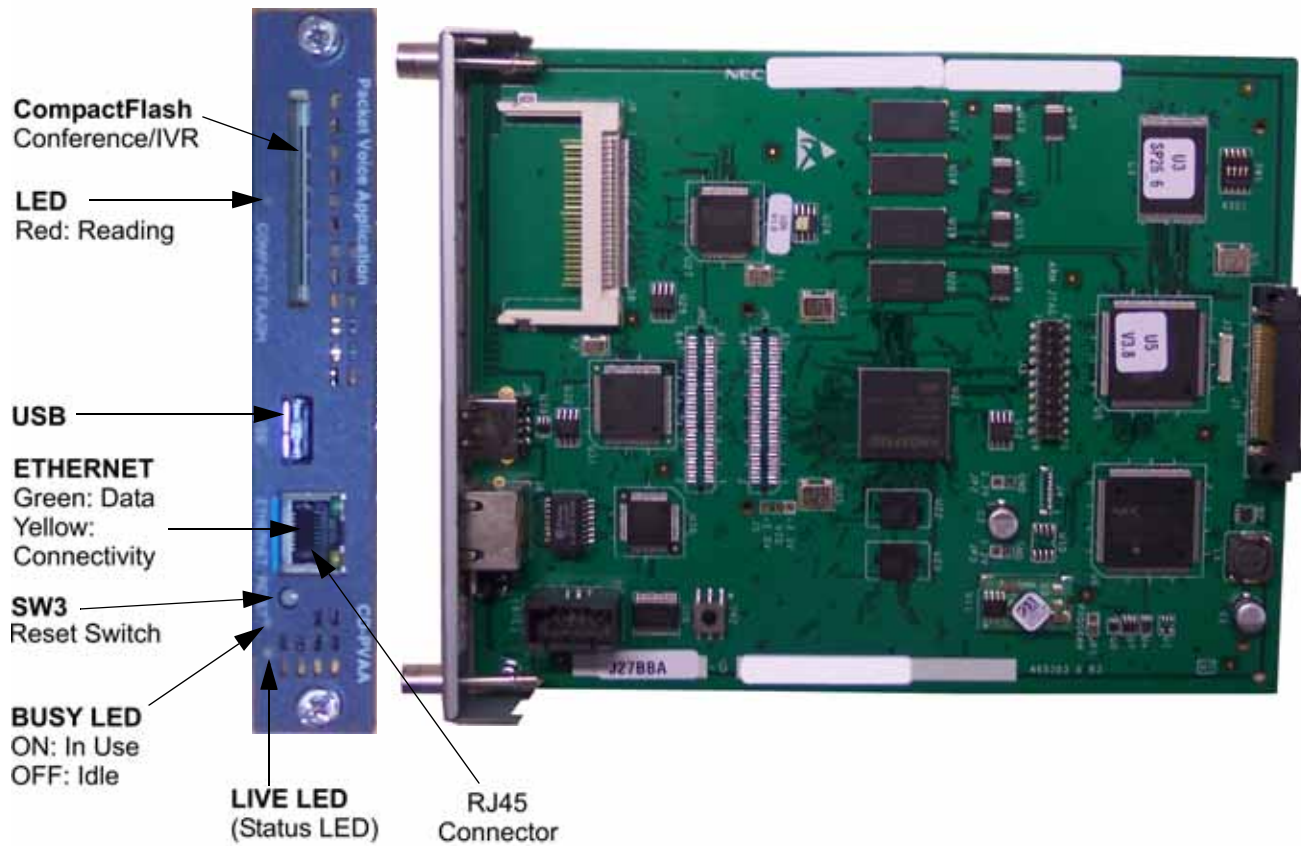


Figure 4-44 CD-PVAA Blade

### 6.2.1 Description

The Packet Voice Application, CD-PVAA blade is an optional interface that supports Application Packages (Univerge Multimedia Conference Bridge, Interactive Voice Response Application, and CCISoIP Point-to-Multipoint). This blade can be assigned as a CNF package to support Multimedia Conference Bridge or IVR package to support the Interactive Voice Response Application supporting a maximum of 16 ports. The CCISoIP P2MP application can have a total of 24 ports of CCIS trunks.

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A digital signal processor/voice processing section handles the following functions:

- DTMF detection
- DTMF generation
- General tone detection
- Automatic Gain Control (AGC)

#### Basic Support Package

Each blade installed with the CNF or IVR package accounts for up to 16 Extension Ports of the Total Port capacity (One Conference or One IVR blade maximum). Each CCISoIP package can be licensed for up to 24 ports and counts towards total trunk port capacity.

Refer to the following tables for maximum upgrade capacities of the CD-PVAA blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 6.2.2 Installation

To install the CD-PVAA:

- Install CompactFlash on CD-PVAA
- Plug the blade into any universal slot on the chassis
- Refer to Program 10-55-01 to configure the IP Address of the CD-PVAA
- Refer to Program 10-55-04 to configure the Subnet Mask of the CD-PVAA
- Refer to Program 10-55-05 to configure the Gateway of the CD-PVAA
- The CD-PVAA blade is hot swappable and can be removed from the chassis without powering down the blade or the SV8100 system
- When the SV8100 requires system reset, this blade comes back on line

### 6.2.3 Switch Settings

The CD-PVAA blade has the following switches:

#### Reset Switch SW3

- This switch allows the technician to reset the CD-PVAA without having to remove and reinsert the blade into the chassis.

#### 6.2.4 LED Indications

##### Active LED – Green

The Active LED is controlled by the DSP and indicates the board operational status.

- Off: Power off
- On: Reset
- Slow Flash: Board is running but not in sync with the chassis
- Fast Flash: Board is in sync with the chassis and operating normally

##### Busy LED – Red

- On: Application problem

##### CompactFlash Card Activity LED – Red

- CompactFlash Card Activity LED is controlled by the IDE controller and indicates read/write activity on the CompactFlash card.

#### 6.2.5 Connectors

##### Ethernet Connector

This connector is a single 10 Base-T/100 Base-T-X Mbps Ethernet connector. This port has Auto-Medium Dependent Interface Crossover (MDIX) to select either a straight-through or crossover Ethernet cable for connection to a PC.

### 6.3 CD-CCTA (CCIS Trunk Interface)



Figure 4-45 CD-CCTA Blade

#### 6.3.1 Description

The Common Channel Handler Interface blade is a digital trunk ETU that terminates FT1 trunks (up to 24 DS-0 channels) providing a common channel signal interface.

The CD-CCTA (Common Channel Handler) is an optional blade that provides a common channel signal through the CD-CCTA to a K-CCIS network and controls the signaling between the KTS and the CP00. Each CD-CCTA blade supports one K-CCIS links. Four CD-CCTA blades can be installed per system.

The T1 interface has a single 24 channel 64kb/s digital signal circuit which can be configured either for T1 trunking.

Refer to the following tables for maximum upgrade capacities of the CD-CCTA blade:

- ❑ [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- ❑ [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

### 6.3.2 Installation


Install the CD-CCTA in any universal slot.

### 6.3.3 LED Indications

LED indications for the CD-CCTA are listed in [Table 4-48 CD-CCTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-46 CD-CCTA LED Indication Pattern of Layer 1 on T1 Unit on page 4-107](#) for LED pattern information.

**Table 4-48 CD-CCTA LED Indications**

Alarm	Details of the Alarm	LED Indication Pattern
LOS	Loss of Signal (Red Alarm) No Signal (Analog Interface)	Following an alarm blink (red, green, red, green) a Red LED lights.
AIS	Alarm Indication Signal (Blue Alarm)	Following an alarm blink (red, green, red, green) a Red LED slowly flashes On and Off twice.
OOF	Out Of Frame (Red Alarm)	Following an alarm blink (red, green, red, green) a Red LED and Green LED flash On and Off three times simultaneously.
RAI	Remote Alarm Indication (Yellow Alarm)	Following an alarm blink (red, green, red, green) a Green LED flashes On and Off twice.
No Alarm	The system does the LED control.	

 The order of priority is set up to alarm in the order LOS→AIS→OOF→RAI.



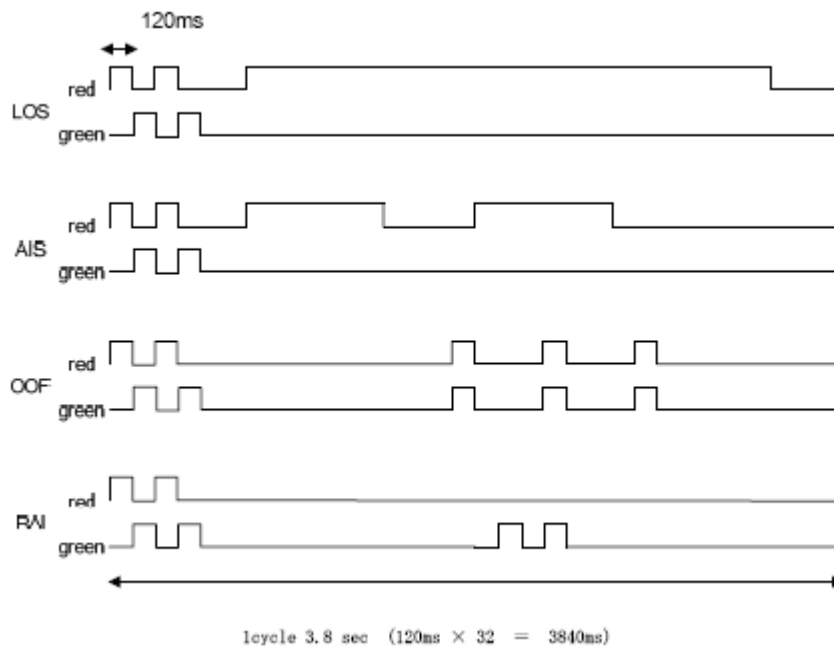



Figure 4-46 CD-CCTA LED Indication Pattern of Layer 1 on T1 Unit

6.3.4 Connectors

Table 4-49 CD-CCTA RJ-45 Cable Connector Pin-Outs shows the pin-outs for the RJ-45 connector. Figure 4-45 CD-CCTA Blade on page 4-105 shows the location of the connectors on the CD-CCTA blade.

Table 4-49 CD-CCTA RJ-45 Cable Connector Pin-Outs

RJ-45 Cable Connector – CN2		
	Pin No.	Connection
	1	RA
	2	RB
	3	—
	4	TA
	5	TB
	6	—
	7	—
	8	—

## 6.4 CD-RTB (4-Port Router)

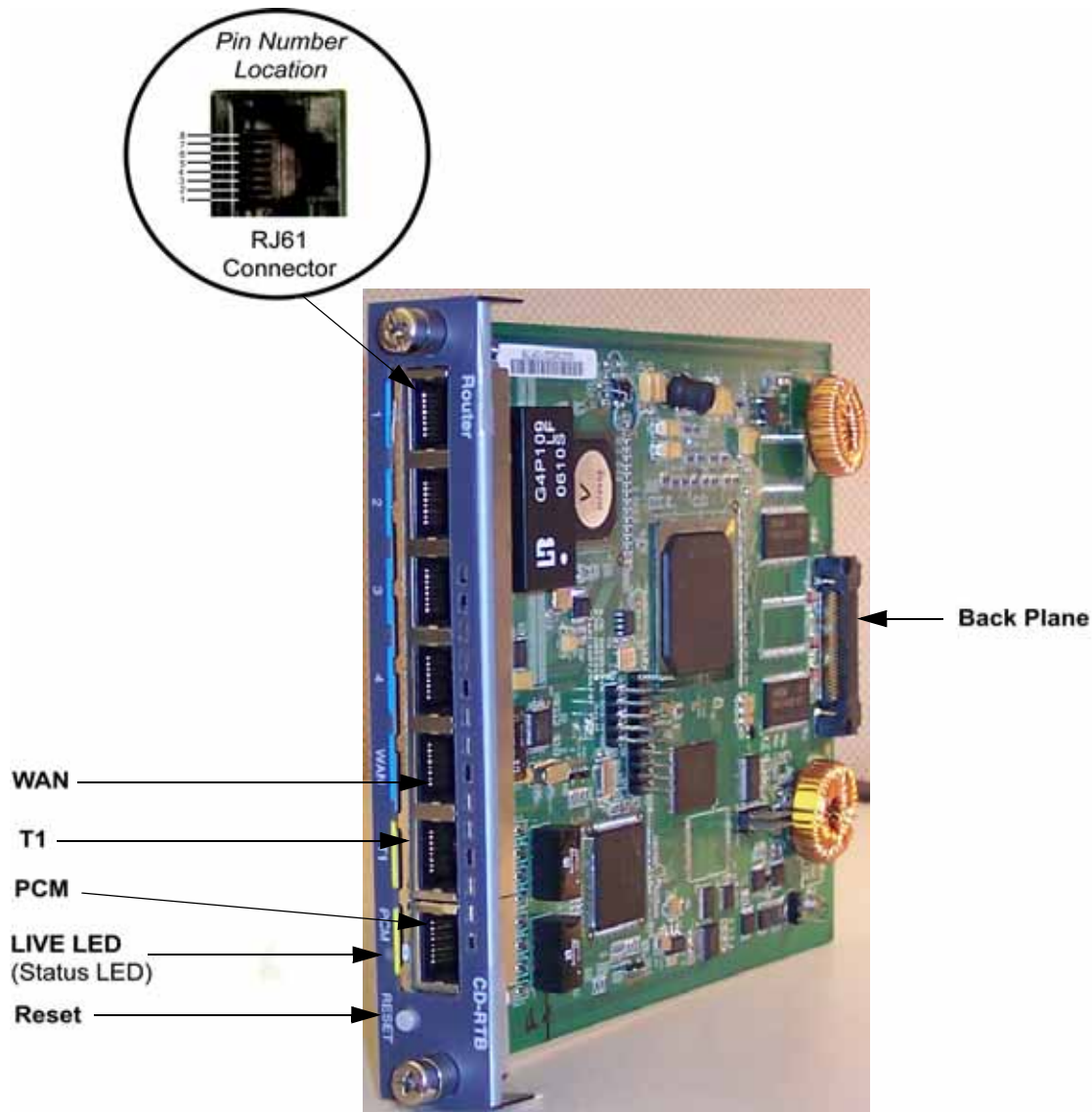


Figure 4-47 CD-RTB Blade

### 6.4.1 Description

The Router blade is a 4-port switching hub which complies with the ethernet specification for both 100 Base-TX and 10 Base-T. This blade is compatible in LAN applications using 10Mbps and 100Mbps. All ports automatically identify and switch 100 Base-TX, 10 Base-T and Full/Half Duplex.

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This blade provides:

- Configurable on Each Port: Auto Negotiation/Full Duplex/Half Duplex
- MDI/MDI-X Auto Crossover
- Tag VLAN Based on IEEE802.1Q
- Port-Base VLAN
- Port Mirroring
- PPPoE Client
- Multi-Protocol Bridge
- RIP/RIPV2/OSPFv2/BGP4
- Policy Routing
- DHCP
- NAT/NAPT
- SIP-NAT
- IPnP NAT Traversal
- DNS Proxy
- NTP/SNTP
- QoS (PQ, CBQ, LLQ, Shaping)
- VPN (IPSec/IKE)
- AAA (Login)
- Firewall (Static/Dynamic Filter)
- SNMPv1
- Syslog
- TFTP Client
- Backpressure/Flow Control Feature
- Auto MAC Address Learning/Migrating/Aging
- Learn Maximum 8k MAC Addresses
- Store and Forward Switching Method
- Maximum 100m Transmission Distance by CAT-5 Cable
- Two Status LEDs

The VoIPDB, required for IP telephones to communicate with non-VoIP UNIVERGE SV8100 telephones, and to place or receive outside calls, must be connected to either an external switching hub or to the Router blade.

The blade plugs into a universal slot and does not consume any port. Each blade provides eight RJ-45 port connectors. These connect to LAN terminals. Depending on the type of LAN terminal, the blade may not detect the difference between straight cable and crossover cable automatically. If auto-crossover is not functioning, use straight cable for that terminal connection.

Refer to the following tables for maximum upgrade capacities of the CD-RTB blade:

- ❑ [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- ❑ [Table 2-7 SV8100 Maximum 9.5" Base and Expansion System Capacities – Blades on page 2-15](#)

#### 6.4.2 Installation

To install the CD-RTB:

1. Plug the CD-RTB blade in any universal slot.
2. Refer to the Univerge SV8100 Programming Manual for required programming.

#### 6.4.3 LED Indications

LED indications for the CD-RTB are indicated in [Table 4-50 CD-RTB LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 4-47 CD-RTB Blade on page 4-108](#) for the location of the LEDs on the blade.

**Table 4-50 CD-RTB LED Indications**

LED	Function	LED Status	Operation Status	Comments
CN2, CN3 LINK/ACT	LAN Operation Status	Green On	Link Established	Individually for Ports 1~8
		Green Flashing	Communicating Data	Individually for Ports 1~8
		Green Off	Not Activated	Individually for Ports 1~8
CN2, CN3 10/100	LAN Speed Status	Orange On	100Mbps	Individually for Ports 1~8
		Orange Off	10Mbps	Individually for Ports 1~8

## 6.5 CD-ETIA (Gigabit PoE Switch)

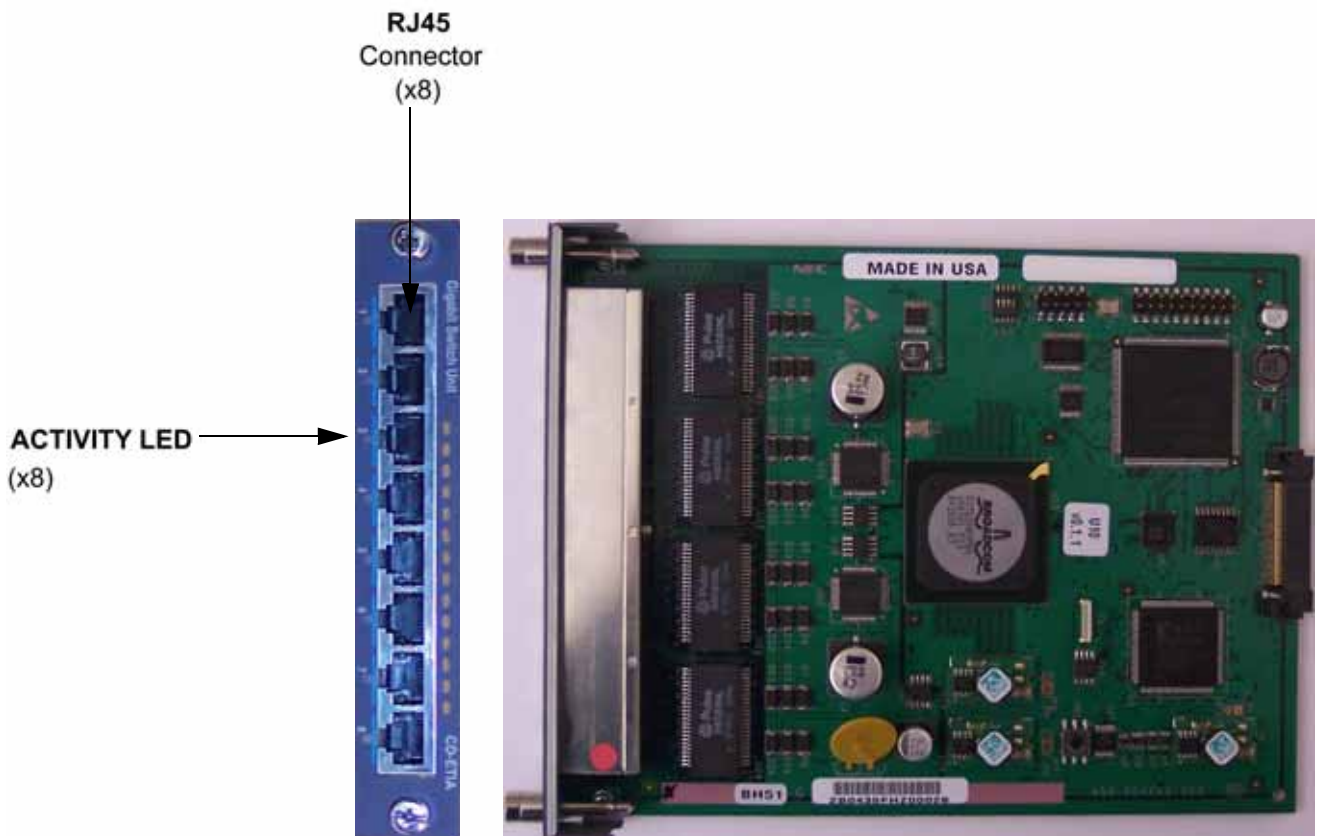


Figure 4-48 CD-ETIA Blade

### 6.5.1 Description

The CD-ETIA blade is a managed 8-port gigabit ethernet PoE switch. Ports 1 and 8 are the default uplink ports. All the user management and stacking are based on this setup. This blade provides:

- 8 Gigabit Ethernet (10 Base-T/100 Base-TX/1000 Base-T) Ports
- Per Port Status LED Indicating Link, Speed and Activity
- 802.3af PoE on All Ports Providing up to 15.4W of Power  
- Selectable level per port via web-based management interface
- Auto-MDI/MDI-X Auto Crossover (when auto-negotiation is available)
- Layer 2 Switching
- QoS
- 802.1Q VLANs

- 802.1p Priority Queuing
- Port Mirroring
- 802.3x Flow Control
- Independent VLAN Learning Support
- TCP/IP Networking Stack
- Multi-Unit Stacking (multiple blades in a system are managed from the same user interface)
- Dynamic PoE Control (allows setting the proper PoE classifications for each port to stay within the system power budget)
- Switch Management Through Web-Based GUI
- Software Upgrades Via TFTP

Refer to the following tables for maximum upgrade capacities of the CD-ETIA blade:

- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)
- [Table 2-6 SV8100 Maximum 9.5" Gateway and 19" System Capacities – Blades on page 2-13](#)

## 6.5.2 Installation

### 6.5.2.1 Stacking Architecture

Stacking allows the user to manage the multiple Gigabit Switch Unit (GSWU) cards in one system as one switch, instead of individual units and IP addresses. For example, a set of three blades would appear to the UI as a 24 port switch instead of three 8-port switches. Stacking works by assigning a Master Management Card which provides all the GUI information for all the blades in the same stack. The CCPU assigns the Master by issuing an IP address via PAW/PRW. All other GSWU cards detected in the system are assigned as Slave blades.

A single system can have up to 12 GSWU cards per system. However, only three GSWU units can be grouped together forming a single 20 port switch. When more than three GSWU units are present in a system, the additional units do not have any software feature specified in this document. They behave as an unmanaged Gigabit Ethernet switch.

The three GSWU boards can be categorized into one **Main** board, with two **Add-on** boards.

#### 6.5.2.2 CD-CP00-US IP Address Assignment

The GSWU Main board is provided with an IP address from the back plane CPU during the initialization sequence. The provision of an IP address from the back plane identifies the Main board. If the IP address is set to **0** by the CPU during initialization, the blade is determined to be an **Add-on**.

The IP address for the GSWU is assigned in Program 10-55 on the system. It contains the settings for the IP Address, Subnet Mask and Gateway IP Address.


#### 6.5.2.3 Group Formation

When a GSWU determines that it is an **Add-on** board due to the lack of an IP address from the backplane, it sends a broadcast P2P message (defined in separate documentation) to all the GSWU units in the system until it receives an acknowledge message from the Main board.

The Main board receiving this broadcast message acknowledges by sending port identification information to the Add-on board.

#### 6.5.2.4 Port Number Determination

When a Main board is initialized, the board assigns the first eight ports as port 1 ~ 8. When subsequent Add-on boards' broadcast messages are received, the Main board assigns port numbers on a first-come, first-serve basis.



 *To have deterministic port assignment, it is recommended that the Add-on boards be inserted sequentially starting with the desired lower port numbers first.*

When a board is removed, the port numbers are not automatically removed. The operator, however, can remove any assignment by accessing the Main board GUI.

Example:

Main board is inserted in slot 3, one Add-on board inserted in slot 5. Main board has ports 1 ~ 8; Add-on board has ports 9 ~ 16.

1. User inserts a new Add-on board in slot 2.
  - The new board gets assigned ports 17 ~ 24.

2. User removes Add-on board and moves it to slot 6.
  - The re-inserted board automatically gets ports 17 ~ 24 (9 ~ 16 are unavailable)
    -  *User can erase the ports 9 ~ 16.*
    -  *Then reinsert the board in slot 6 to get ports 9 ~ 16.*
3. User relocates the Main board to slot 4.
  - None of the port numbers change. However, the programming in Program 10-55 must be changed to reflect this move

The grouping of the three GSWU units to form a 20 port switch is restricted to reside in a single system location. The grouping is not allowed where the GSWU units are placed as part of the NetLink feature in the Univerge SV8100 system.

#### 6.5.2.5 Unmanaged Switch Functions

In the unmanaged mode, a GSWU unit has the following functions only:

- 10 Base-T/100 Base-TX/1000 Base-T) Ethernet ports (x8)
- PoE Class 3 (lowest power class)

#### 6.5.3 LED Indications

**Table 4-51 CD-ETIA LED Indications**

Port State	LED Display
1000Mbps Link	Green Solid
10/100Mbps Link	Yellow Solid
No Link	Off
Port Activity	LED Blinking

#### 6.5.4 Connectors

Backplane Connector – J1 connection to system CPU board and other boards in the chassis.



## SECTION 7 CABLING AND MDF CONNECTION

### 7.1 Connection Requirements

The chassis is connected to each multiline terminal, single line telephone, optional equipment, CD-PVAA, DID/OPX, E&M Tie lines and digital trunks by a separate twisted-pair cable through the Main Distribution Frame (MDF). The E&M Tie lines are T1/FT1 lines and require multiple twisted pair cabling.

### 7.2 Cabling Precautions

When selecting cables and the MDF, future expansion or assignment changes should be given due consideration. Avoid running cables in the following places:

- A place exposed to the wind or rain.
- A place near heat radiating equipment or where the PVC covering could be affected by gases or chemicals.
- An unstable place subject to vibration.

### 7.3 Wiring Between the Chassis and the MDF

#### 7.3.1 Chassis Cables

The chassis is equipped with two MDF Cable Assemblies. NEC recommends that the MDF Cable Assembly be used to connect the multiline terminals, single line telephones (except PFT), PVAA and DID/OPX lines. Refer to [Figure 4-49 MDF Pin-Out \(Connectors 1~6\)](#) and [Table 4-53 MDF Cable Connections \(Station\)](#) on page 4-116 or [Table 4-54 MDF Cable Connections \(Trunk\)](#) on page 4-118. When installing E&M Tie lines, single line telephones with PFT, and other optional equipment with the CD-8DLCA/CD-16DLCA, the connector and cabling must be locally provided.

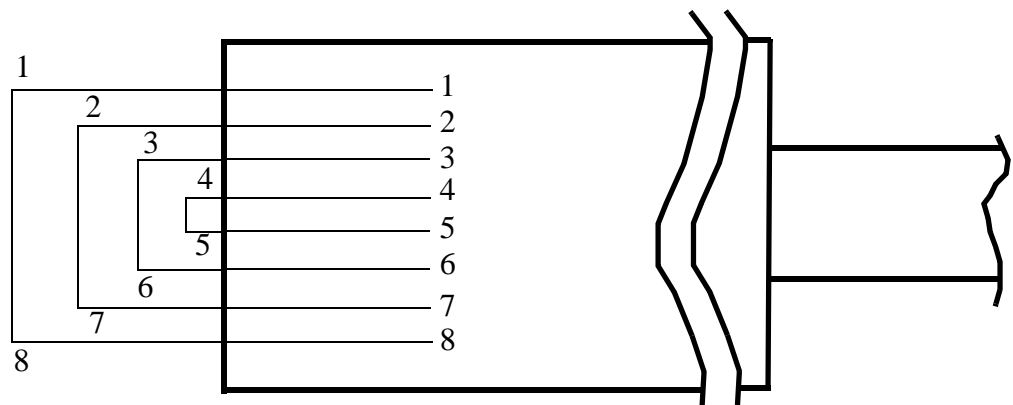


Figure 4-49 MDF Pin-Out (Connectors 1~6)

**Table 4-52 MDF Cable Colors**

Pin Outs	Cable Colors					
	1	2	3	4	5	6
1	BR-WH	GN-RD	BR-BK	BL-YL	SL-YL	BR-VI
2	GN-WH	OR-RD	BL-BK	SL-BK	BR-YL	GN-VI
3	OR-WH	BL-RD	SL-RD	BR-GN	GN-YL	OR-VI
4	WH-BL	WH-SL	RD-BR	BK-GN	YL-OR	VI-BL
5	BL-WH	SL-WH	BR-RD	GN-BK	OR-YL	BL-VI
6	WH-OR	RD-BL	RD-SL	GN-BR	YL-GN	VI-OR
7	WH-GN	RD-OR	BK-BL	BK-SL	YL-BR	VI-GN
8	WH-BR	RD-GN	BK-OR	YL-BL	YL-SL	VI-BR

**Table 4-53 MDF Cable Connections (Station)**

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA		LTA			
				8	16	4	8	DLCA	LCA	BRI	COTB
1	26 1	WH-BL BL-WH	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	27 2	WH-OR OR-WH	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	28 3	WH-GN GN-WH	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	29 4	WH-BR BR-WH	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
2	30 5	WH-SL SL-WH	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	31 6	RD-BL BL-RD	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	32 7	RD-OR OR-RD	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	33 8	RD-GN GN-RD	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R

Table 4-53 MDF Cable Connections (Station) (Continued)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA		LTA			
				8	16	4	8	DLCA	LCA	BRI	COTB
3	34 9	RD-BR BR-RD	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	35 10	RD-SL SL-RD	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	36 11	BK-BL BL-BK	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	37 12	BK-OR OR-BK	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
4	38 13	BK-GN GN-BK	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	39 14	BK-BR BR-BK	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	40 15	BK-SL SL-BK	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	41 16	YL-BL BL-YL	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
5	42 17	YL-OR OR-YL	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	43 18	YL-GN GN-YL	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	44 19	YL-BR BR-YL	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	45 20	YL-SL SL-YL	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
6	46 21	VI-BL BL-VI	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	47 22	VI-OR OR-VI	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	48 23	VI-GN GN-VI	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	49 24	VI-BR BR-VI	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
50	-	-	-	-	-	-	-	-	-	-	
25	-	-	-	-	-	-	-	-	-	-	

Table 4-54 MDF Cable Connections (Trunk)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	COTB		DIOPA		PRTA		BRIA	CCTA
				4	8	DID	OPX	PRI	T1		
1	26 1	WH-BL BL-WH	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	27 2	WH-OR OR-WH	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	28 3	WH-GN GN-WH	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	29 4	WH-BR BR-WH	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
2	30 5	WH-SL SL-WH	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	31 6	RD-BL BL-RD	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	32 7	RD-OR OR-RD	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	33 8	RD-GN GN-RD	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
3	34 9	RD-BR BR-RD	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	35 10	RD-SL SL-RD	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	36 11	BK-BL BL-BK	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	37 12	BK-OR OR-BK	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
4	38 13	BK-GN GN-BK	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	39 14	BK-BR BR-BK	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	40 15	BK-SL SL-BK	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	41 16	YL-BL BL-YL	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
5	42 17	YL-OR OR-YL	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	43 18	YL-GN GN-YL	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	44 19	YL-BR BR-YL	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	45 20	YL-SL SL-YL	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -

**Table 4-54 MDF Cable Connections (Trunk) (Continued)**

Connector	MDF Pin No.	Running Cable	Station Cable DTL	COTB		DIOPA		PRTA		BRIA	CCTA
				4	8	DID	OPX	PRI	T1		
6	46 21	VI-BL BL-VI	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	47 22	VI-OR OR-VI	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	48 23	VI-GN GN-VI	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	49 24	VI-BR BR-VI	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
	50	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-

### 7.3.2 Outside Lines

An RJ-61 connector is authorized by the FCC for connection of CO lines. The lines are connected in sequence in this termination block. Therefore, the lines must be ordered in the appearance order best suited to the user. Refer to [Table 4-53 MDF Cable Connections \(Station\) on page 4-116](#) or [Table 4-54 MDF Cable Connections \(Trunk\) on page 4-118](#) for information about the MDF Connector Assembly Cable positions, the cable number, and lead functions.

Ground Start and/or Loop Start, Loop Dial, DID/OPX, E&M Tie lines, and T1 can be connected to this system. Using only twisted-pair wiring to cross connect the lines from the RJ-61 termination block to the MDF is recommended.

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# *Installing DT300/DT700 Series (DTL/ITL) Digital and IP Multiline Terminals*

## SECTION 1 GENERAL DESCRIPTION

This chapter provides information about the DT300/DT700 Series digital and IP terminals in addition to the single line telephones, cordless telephones and wireless telephones.

Only the DT300/DT700, *D<sup>term</sup>* Series i telephones, single line telephones, cordless telephones and wireless telephones discussed in the document can be installed on the SV8100 system.



*To avoid damage to equipment, do not install the *D<sup>term</sup>70* on the SV8100 system. The *D<sup>term</sup>70* (DTU/DTP) terminal uses -24V and has no protection from the -48V power supply used by the SV8100 system.*

[Table 5-1 Terminal Category Reference Chart \(DT300/DT700\)](#) on page 5-2 provides a quick reference of the DT300/DT700 terminals.

Table 5-1 Terminal Category Reference Chart (DT300/DT700)

Series Name		Equipment ID	System Compatibility SV8100	Comments
DT 300 Series Digital Terminal (TDM)	DT 310 (Economy)	DTL-2E-( )	✓	<ul style="list-style-type: none"> <li>○ economical terminal providing access to basic telephony and messaging service</li> <li>○ fully functional keypad providing standard business functions such as hold, transfer, speaker, microphone and other features</li> <li>○ 2-button terminal is non-display</li> <li>○ 6-button terminal equipped with LCD and full-featured keypad</li> <li>○ available in black</li> </ul>
		DTL-6DE-( )		
	DT 330 (Value)	DTL-8LD-( )	✓	<ul style="list-style-type: none"> <li>○ 8-button DESI-Less LCD telephone</li> <li>○ also available are 12-, 24-, 32-button LCD telephones</li> <li>○ provides access to more sophisticated system features and allowing room for growth</li> <li>○ all DT 330s come with a standard LCD display, full duplex speakerphone capability, module support for expansion and feature add-on capability</li> <li>○ optional 60-button DSS Console provides 60 programmable keys and provides users a Busy Lamp Field (BLF) and 1-button access to extensions, trunks, and system features</li> <li>○ available in black and white</li> </ul>
		DTL-12D-( )		
DTL-24D-( )				
DTL-32-D-( )				
		DTL-12BT( )	✓	○ Bluetooth available in black
		DTL-12PA( )	✓	○ Power Save Adapter provides backup for analog trunk connection



Table 5-1 Terminal Category Reference Chart (DT300/DT700) (Continued)

Series Name		Equipment ID	System Compatibility SV8100	Comments
DT 700 Series IP Terminals	DT 710 (Economy)	ITL-2-( ) ITL-6D-( )	✓	<ul style="list-style-type: none"> <li>○ economical terminal providing access to basic telephony and messaging service</li> <li>○ fully functional keypad providing standard business functions such as hold, transfer, speaker, microphone and other features</li> <li>○ 2-button terminal is non-display</li> <li>○ 6-button terminal equipped with LCD and full-featured keypad</li> <li>○ available in black</li> <li>○ IP formatted terminal has a dual port, supports compression, full-duplex handsfree operation</li> </ul>
	DT 730 (Value)	ITL-8LD-( ) ITL-12D-( ) ITL-24D-( ) ITL-32-D-( )	✓	<ul style="list-style-type: none"> <li>○ 8-button DESI-Less LCD telephone</li> <li>○ also available are 12-, 24-, 32-button LCD telephones</li> <li>○ provides access to more sophisticated system features allowing room for growth</li> <li>○ all DT 730s come with a standard backlit LCD display, full duplex speakerphone capability, module support for expansion and feature add-on capability</li> <li>○ available in black and white</li> <li>○ expands the capability by providing XML display to provide more productivity enhanced applications to the users</li> <li>○ optional 60-button DSS Console provides 60 programmable keys and provides users a Busy Lamp Field (BLF) and 1-button access to extensions, trunks, and system features</li> </ul>
		ITL-12PA( )	✓	<ul style="list-style-type: none"> <li>○ Power Save Adapter provides backup for analog trunk connection</li> </ul>
	DT 750 (Sophisticated)	ITL-320C-( )	✓	<ul style="list-style-type: none"> <li>○ IP terminal provides a 5" color touch panel</li> <li>○ features of the telephone provide easy use of NEC Unified communications and third-party telephony XML applications</li> <li>○ access to 32 telephony feature lines across an IP backbone, built-in full duplex speakerphone and DESI-Less line key labeling are standard</li> <li>○ optional 60-button DSS Console provides 60 programmable keys and provides users a Busy Lamp Field (BLF) and one-button access to extensions, trunks, and system features</li> </ul>
Wireless Handset		C124	✓	SIP DECT
		G955	✓	SIP DECT
Cordless		DTH-4R-1	✓	Cordless II Lite
		DTL-8R-1	✓	Cordless DECT

The DT300/DT700 Series offers a line up of modular telephones. This modular design allows the telephones to be upgraded and customized. Optional LCD panels, keypads, handset cradles, face plates and colored side panels can easily be snapped on and off.

The easy-to-use adjustable footplate allows a variety of height positions.

Several easy-to-read LCD displays are available, including a new large color touch panel LCD.

[Table 5-2 Terminal and Adapter Compatibility](#) shows the compatibility between the terminals and adapter used in the system.

**Table 5-2 Terminal and Adapter Compatibility**

Terminal	Adapter Unit						
	ADA-L	APR-L	ILPA	PSA-L	BCH-L	BHA-L	GBA-L
<b>Digital Terminals:</b>							
DTL-2E-1 (BK) TEL	—	—	—	—	—	—	—
DTL-6DE-1 (BK) TEL	—	—	—	—	—	—	—
DTL-8LD(BK)/(WH) TEL	✓	✓	—	✓	✓	✓	—
DTL-12BT-1 (BK) TEL	—	—	—	—	—	—	—
DTL-12D-1 (BK)/(WH) TEL	✓	✓	—	✓	✓	✓	—
DTL-12PA-1 (BK) TEL	✓	✓	—	✓	—	—	—
DTL-24D-1 (BK)/(WH) TEL	✓	✓	—	✓	✓	✓	—
DTL-32D-1 (BK)/(WH) TEL	✓	✓	—	✓	✓	✓	—
<b>IP Terminals:</b>							
ITL-2E-1 (BK) TEL	—	—	✓	—	—	—	—
ITL-6DE-1 (BK) TEL	—	—	✓	—	—	—	—
ITL-8LD-1 (BK)/(WH) TEL	✓	—	✓	✓	—	—	✓
ITL-12D-1 (BK)/(WH) TEL	✓	—	✓	✓	—	—	✓
ITL-12PA-1 (BK) TEL	✓	—	✓	✓	—	—	✓
ITL-24D-1 (BK)/(WH) TEL	✓	—	✓	✓	—	—	✓
ITL-32D-1 (BK)/(WH) TEL	✓	—	✓	✓	—	—	✓
ITL-320C-1 (BK) TEL	✓	—	✓	✓	—	—	✓

**Table 5-2 Terminal and Adapter Compatibility (Continued)**


Terminal	Adapter Unit						
	ADA-L	APR-L	ILPA	PSA-L	BCH-L	BHA-L	GBA-L
<b>Console:</b>							
DCL-60-1 (BK)/(WH) CONSOLE	—	—	—	—	✓	✓	✓

— = Option Not Available

✓ = Optional Available

**Table 5-3 Firmware Compatibility Matrix**

		BCH-L Unit Lot Number	
		xxxDxx or lower	xxxExx or higher
<b>Terminal Lot Number DT-330</b>	xxx I xx or lower (Version 8.10 and 1, E0 or lower)	Supported	Supported
	xxxJxx or higher (Version 2.20 or higher)	Not supported	Supported

 *BCH Support may differ based on terminal firmware. To verify both DT-330 terminal and BCH-L Unit firmware, hold down keypad buttons 1, 2 and 3 while plugging the line cord into the terminal.*

**Table 5-4 DT330 Compatibility Settings**

ADA-L Unit Switch Settings	Terminal Lot Number DT-330		
	xxx I Lx or lower (Version 1.E0 or lower)	xxx I Mx (Version 8.10)	xxxJSx or higher (Version 2.20 or higher)
ADA Connection for Recording Only.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.
ADA Connection for Sending Recorded Calls to the Telephone.	Dip switches 2, 3, 5, 7 and 8 are OFF. Switches 1, 4 and 6 are ON.	Dip switches 2, 3, 5, 7 and 8 are OFF. Switches 1, 4 and 6 are ON.	Dip switches 2, 3, 5, 7 and 8 are OFF. Switches 1, 4 and 6 are ON.
To Send and Receive to the Terminal	Not supported	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.

Lot Numbers: I, J – Hardware Revision

Lot Numbers: L, M, S – Software Revision


 *To verify DT-330 terminal firmware, hold down keypad buttons 1, 2 and 3 while plugging the line cord into the terminal.*

Table 5-5 Terminal and Line Key/LCD Compatibility shows the compatibility between the terminals and Line Key or LCD used in the system.

**Table 5-5 Terminal and Line Key/LCD Compatibility**

Terminal	Line Key/LCD					
	8 LK-L	8LKD(LD)-L	8LKI(LD)-L	12LK-L	LCD (BL)-L	DCL-60
<b>Digital Terminals:</b>						
DTL-2E-1 (BK) TEL	—	—	—	—	—	—
DTL-6DE-1 (BK) TEL	—	—	—	—	—	—
DTL-8LD(BK)/(WH) TEL	✓	—	—	—	—	✓
DTL-12BT-1 (BK) TEL	✓	✓	—	✓	✓	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	—	✓	✓	✓
DTL-12PA-1 (BK) TEL	✓	✓	—	✓	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	—	—	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	—	—	✓	✓
<b>IP Terminals:</b>						
ITL-2E-1 (BK) TEL	—	—	—	—	—	—
ITL-6DE-1 (BK) TEL	—	—	—	—	—	—
ITL-8LD-1 (BK)/(WH) TEL	✓	—	—	—	—	✓
ITL-12D-1 (BK)/(WH) TEL	✓	—	✓	✓	—	✓
ITL-12PA-1 (BK) TEL	✓	—	✓	✓	—	✓
ITL-24D-1 (BK)/(WH) TEL	✓	—	✓	—	—	✓
ITL-32D-1 (BK)/(WH) TEL	✓	—	✓	—	—	✓
ITL-320C-1 (BK) TEL	✓	—	—	—	—	✓

— = Option Not Available

✓ = Optional Available

Table 5-6 Terminal and Ten Key Kit Compatibility shows the compatibility between the terminals and Ten Key kits used in the system.

**Table 5-6 Terminal and Ten Key Kit Compatibility**

Terminal	Ten Key Kit					
	BS(F)-L	BS(S)-L	Sticker-Braille-L KIT	BS(Retro)-I	BS (V-Hotel)	BS (S-Hotel)
<b>Digital Terminals:</b>						
DTL-2E-1 (BK) TEL	—	—	—	✓	—	—
DTL-6DE-1 (BK) TEL	—	—	—	✓	—	—
DTL-8LD(BK)/(WH) TEL	✓	✓	✓	✓	✓	—
DTL-12D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓	—
DTL-12BT-1 (BK) TEL	✓	✓	✓	✓	✓	—
DTL-12PA-1 (BK) TEL	✓	✓	✓	✓	✓	—
DTL-24D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓	—
DTL-32D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓	—
<b>IP Terminals:</b>						
ITL-2E-1 (BK) TEL	—	—	—	✓	—	—
ITL-6DE-1 (BK) TEL	—	—	—	✓	—	—
ITL-8LD-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓	—
ITL-12D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓	—
ITL-12PA-1 (BK) TEL	✓	✓	✓	✓	✓	—
ITL-24D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓	—
ITL-32D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓	—
ITL-320C-1 (BK) TEL	✓	✓	✓	✓	—	✓

— = Option Not Available

✓ = Optional Available

The Sticker-Braille-L KIT kit consists of stickers to be installed.

Table 5-7 Terminal and Optional Equipment Compatibility shows the compatibility between the terminals and optional equipment used in the system.

**Table 5-7 Terminal and Optional Equipment Compatibility**

Terminal	Equipment		
	PSA-L	WM-L* <sub>1</sub>	PANEL-L
<b>Digital Terminals:</b>			
DTL-2E-1 (BK) TEL	—	✓	✓
DTL-6DE-1 (BK) TEL	—	✓	✓
DTL-8LD(BK)/(WH) TEL	✓	✓	✓
DTL-12BT-1 (BK) TEL	—	✓	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	✓
DTL-12PA-1 (BK) TEL	—	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	✓
<b>IP Terminals:</b>			
ITL-2E-1 (BK) TEL	—	✓	✓
ITL-6DE-1 (BK) TEL	—	✓	✓
ITL-8LD-1 (BK)/(WH) TEL	✓	✓	✓
ITL-12D-1 (BK)/(WH) TEL	✓	✓	✓
ITL-12PA-1 (BK) TEL	—	✓	✓
ITL-24D-1 (BK)/(WH) TEL	✓	✓	✓
ITL-32D-1 (BK)/(WH) TEL	✓	✓	✓
ITL-320C-1 (BK) TEL	✓	✓	✓
<b>Console:</b>			
DCL-60-1 CONSOLE * <sub>2</sub>	—	✓	—

— = Option Not Available

✓ = Optional Available

\*<sub>1</sub> The WM-L is required if the ADA-L UNIT or APR-L UNIT is installed on the telephone.


\*<sub>2</sub> DCL-60-1 = Special Wall Mount

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## SECTION 2 DT300 SERIES DIGITAL MULTILINE TERMINALS

The DT300 Series offers a new exciting line up of digital telephones. These telephones (except economy), have a modular design that allows the telephone to be upgraded and customized. Optional LCD panels, dial pads, feature key kits, handset cradles, face plates and colored side panels can easily be snapped on and off to upgrade and customize as the customer desires.

 *The DT300 Series Digital multiline terminals are supported by the Electra Elite IPK II system (similar to the D<sup>term</sup> Series i Telephones) with optional Retro key pad installed.*

### 2.1 Digital Multiline Terminals

#### 2.1.1 DTL-2E-1 (BK) TEL

This digital economy non-display multiline terminal has two programmable line keys and is available in black only. The terminal features:

- Non-modular design
- Four-step adjustable base
- Half-duplex speaker phone
- Two line keys (Red, Green)
- Three-color LED



**Figure 5-1 DTL-2E-1 TEL**

### 2.1.2 DTL-6DE-1 (BK) TEL

This digital economy multiline terminal has six line keys with display and is available in black only. The terminal features:

- Non-modular design
- Four-step adjustable base
- Half-duplex speaker phone
- Six line keys (Red, Green)
- Four Softkeys (Help, Exit)
- Three-color LED
- 24 X 3 character LCD display



Figure 5-2 DTL-6DE-1 TEL

### 2.1.3 DTL-8LD-1 (BK) TEL/DTL-8LD-1 (WH) TEL

This digital value multiline terminal has eight line keys with display and is available in both black and white. The terminal features:

- Modular design
- Four step adjustable base
- Full-duplex speaker phone
- Eight line keys (Red, Green)
- Four Softkeys (Help, Exit)
- DESI-Less line key displays eight lines per page (four pages of eight lines available using scroll key)
- Three color LED
- Two 168 X 55 dot matrix backlit LCDs with cursor keys



- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation



**Figure 5-3 DTL-8LD-1 TEL**

#### 2.1.4 DTL-12BT-1 (BK) TEL

This digital value multiline terminal has 12 line keys and is available in black only. The terminal features:

- Keypad-like Handset
- 12 Line Buttons
- Function Button
- Dial Button
- Display
- All multiline terminal functions with Main Unit
- Cradle Charges Handset
- Base Side RF Block (50 meters, Class 1)
- Bluetooth Distance: 50 Meters
- Full-duplex handsfree operation

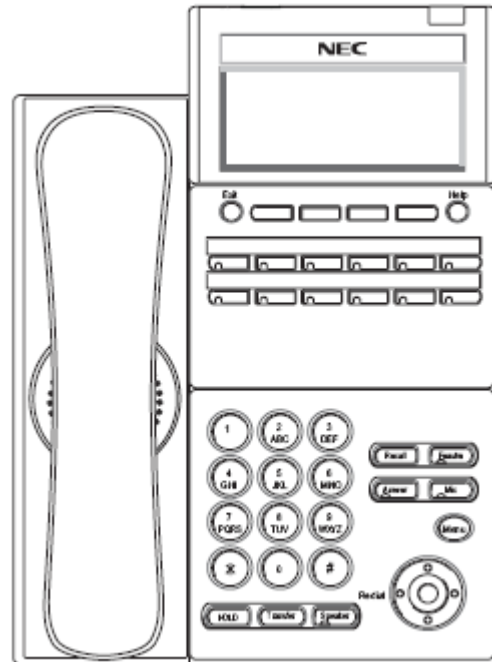


**Figure 5-4 DTL-12BT-1 TEL**

#### 2.1.5 DTL-12D-1 (BK) TEL/DTL-12D-1 (WH) TEL

This digital value multiline terminal has 12 line keys and is available in both black and white. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- 12 line keys (Red, Green)
- Four Softkeys (Help, Exit)
- Three-color LED
- 168 X 58 dot matrix LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation



**Figure 5-5 DTL-12D-1 TEL**

#### 2.1.6 DTL-12PA-1 (BK) TEL

This digital value multiline terminal with Analog Power Failure adapter has 12 line keys and is available in black only. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- 12 line keys (Red, Green)
- Four Softkeys (Help, Exit)
- Three-color LED
- 168 X 58 dot matrix LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation
- PSA-L adapter

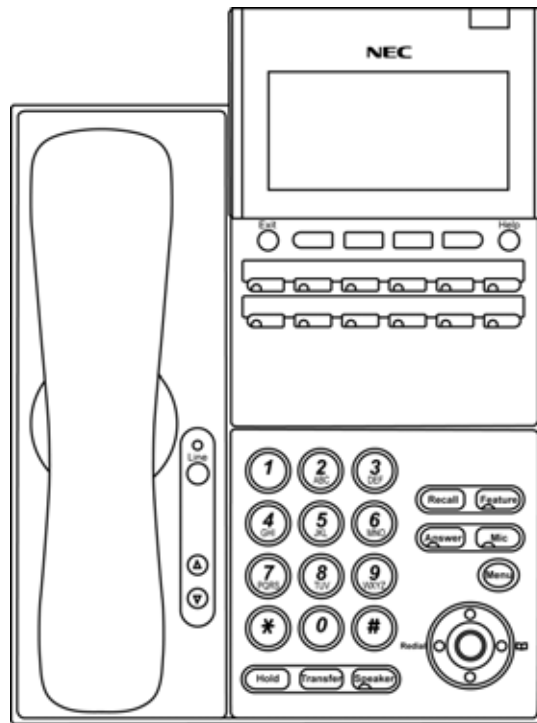


Figure 5-6 DTL-12PA-1 TEL

#### 2.1.7 DTL-24D-1 (BK) TEL/DTL-24D-1 (WH) TEL

This digital value multiline terminal has 24 line keys and is available in both black and white. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- 24 line keys (Red, Green)
- Four Softkeys (Help, Exit)
- Three-color LED
- 168 X 58 dot matrix LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation



**Figure 5-7 DTL-24D-1 TEL**

#### 2.1.8 DTL-32D-1 (BK) TEL/DTL-32D-1 (WH) TEL

This digital value multiline terminal has 32 line keys (24 line keys plus eight line key LK Unit) and is available in both black and white. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- 32 line keys (Red, Green)
- Four Softkeys (Help, Exit)
- Three-color LED
- 168 X 58 dot matrix LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation

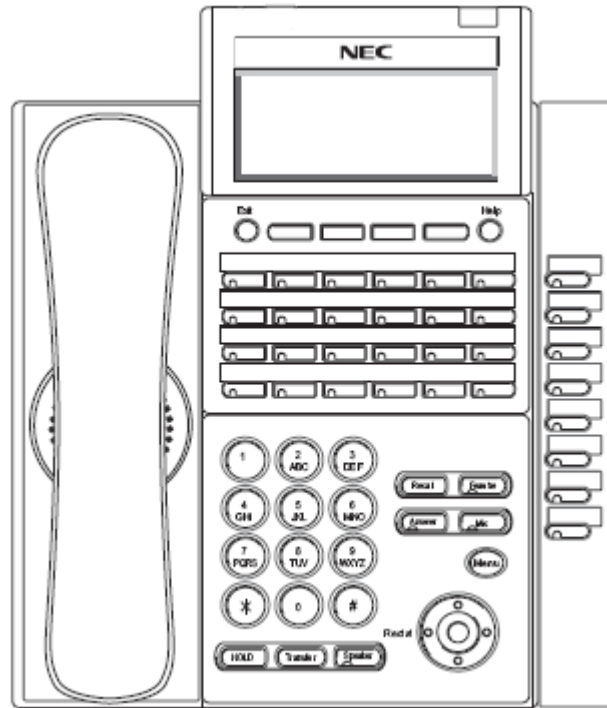



Figure 5-8 DTL-32D-1 TEL

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## SECTION 3 DT700 SERIES IP MULTILINE TERMINALS

The DT700 Series offers a new exciting line up of IP telephones. These telephones (except economy), have a modular design that allows the telephones to be upgraded and customized. Optional LCD panels, dial pads, feature key kits, handset cradles, face plates and colored side panels can easily be snapped on and off to upgrade and customize as the customer desires.

 *The DT700 Series IP multiline terminals are not supported by the Electra Elite IPK II system.*

### 3.1 IP Multiline Terminals

#### 3.1.1 ITL-2E-1 (BK) TEL

This IP economy non-display multiline terminal has two programmable line keys and is available in black only. The terminal features:

- Non-modular design
- Four-step adjustable base
- Full-duplex speaker phone
- Three-color LED
- IEEE 802.3af compliant
- XML open interface (limited)
- 10 Base-T/100 Base-TX network interface
- Remote Login and Maintenance



**Figure 5-9 ITL-2E-1 TEL**

### 3.1.2 ITL-6DE-1 (BK) TEL

This IP economy multiline terminal has six line keys with display and is available in black only. The terminal features:

- Non-modular design
- Four-step adjustable base
- Remote login and maintenance
- Full-duplex speaker phone
- Three-color LED for message waiting
- 168 X 41 full dot black and white LCD with cursor keys
- IEEE 802.3af compliant
- XML open interface (limited)
- 10 Base-T/100 Base-TX network interface



**Figure 5-10 ITL-6DE-1 TEL**

### 3.1.3 ITL-8LD-1 (BK) TEL/ITL-8LD-1 (WH) TEL

This IP value multiline terminal has eight line keys with display and is available in both black and white. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- DESI-Less line key displays eight lines per page (four pages of eight lines available using scroll key)
- Protection button (lock)
- Seven-color LED for incoming calls



- Two 224 X 96 full dot gray scale LCDs with cursor keys
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation
- Wideband handset
- IEEE 802.3af compliant
- XML open interface
- 10 Base-T/100 Base-TX network interface
- Backlit LCD



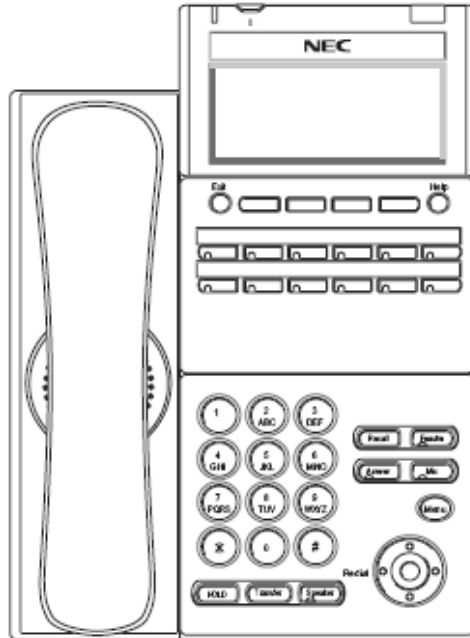
**Figure 5-11 ITL-8LD-1 TEL**

#### 3.1.4 ITL-12D-1 (BK) TEL/ITL-12D-1 (WH) TEL

This IP value multiline terminal has 12 line keys and is available in both black and white. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- Protection button
- Seven-color LED for incoming calls
- 224 X 96 full dot gray scale LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation
- IEEE 802.3af compliant

- XML open interface
- 10 Base-T/100 Base-TX network interface
- Backlit LCD



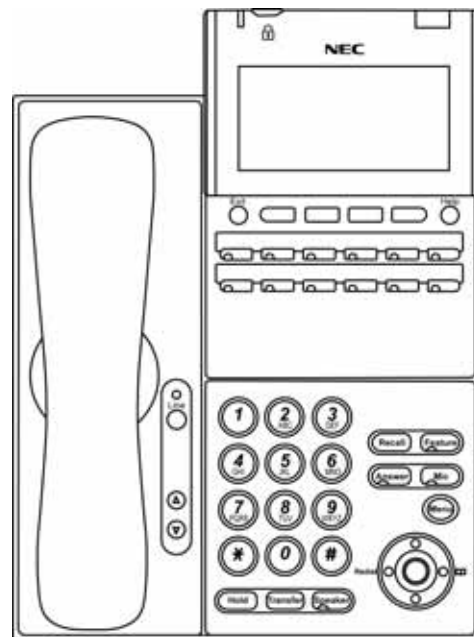
**Figure 5-12 ITL-12D-1 TEL**

### 3.1.5 ITL-12PA-1 (BK) TEL

This IP value multiline terminal with Analog Power Failure adapter has 12 line keys and is available in black only. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- Protection button
- Seven-color LED for incoming calls
- 224 X 96 full dot gray scale LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation
- IEEE 802.3af compliant
- XML open interface
- 10 Base-T/100 Base-TX network interface

- Backlit LCD
- PSA Adapter for Power Failure



**Figure 5-13 ITL-12PA-1 TEL**

### 3.1.6 ITL-24D-1 (BK) TEL/ITL-24D-1 (WH) TEL

This IP value multiline terminal has 24 line keys and is available in both black and white. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- Protection button
- Seven-color LED for incoming calls
- 224 X 96 full dot gray scale LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation
- IEEE 802.3af compliant
- XML open interface
- 10 Base-T/100 Base-TX network interface
- Backlit LCD



**Figure 5-14 ITL-24D-1 TEL**

### 3.1.7 ITL-32D-1 (BK) TEL/ITL-32D-1 (WH) TEL

This IP value multiline terminal has 32 line keys (24 line keys plus an eight line key LK Unit) and is available in both black and white. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- Protection button
- Seven-color LED for incoming calls
- 224 X 96 full dot gray scale LCD with cursor keys
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation
- IEEE 802.3af compliant
- XML open interface
- 10 Base-T/100 Base-TX network interface
- Backlit LCD

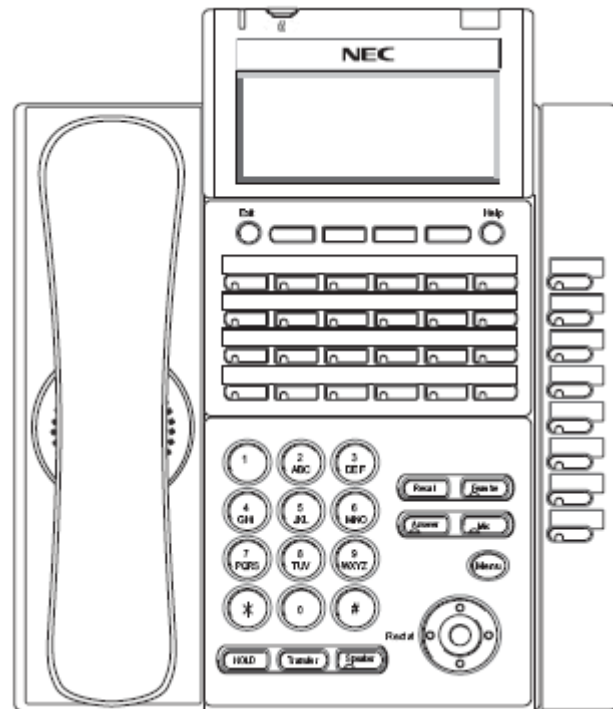


Figure 5-15 ITL-32D-1 TEL

### 3.1.8 ITL-320C-1 (BK) TEL

This IP multiline terminal features a large color touch panel LCD and is available in black only. The terminal features:

- Modular design
- Four-step adjustable base
- Full-duplex speaker phone
- Protection button
- Seven-color LED for incoming calls
- Large color touch LCD
- Menu/Softkey operation provided on the LCD
- Backlit Numbered Keypad for easy viewing
- Full-duplex handsfree operation
- IEEE 802.3af compliant
- XML open interface
- 10 Base-T/100 Base-TX network interface
- Backlit LCD



Figure 5-16 ITL-320C-1 TEL

## SECTION 4 INSTALL MULTILINE TERMINALS

### 4.1 Connecting the DT300 Series Multiline Terminal to the System

This instruction applies to all DT300 Series multiline terminals.

1. Plug the telephone cord into the modular jack on the bottom of the multiline terminal. The handset is also attached to the bottom of the multiline terminal.

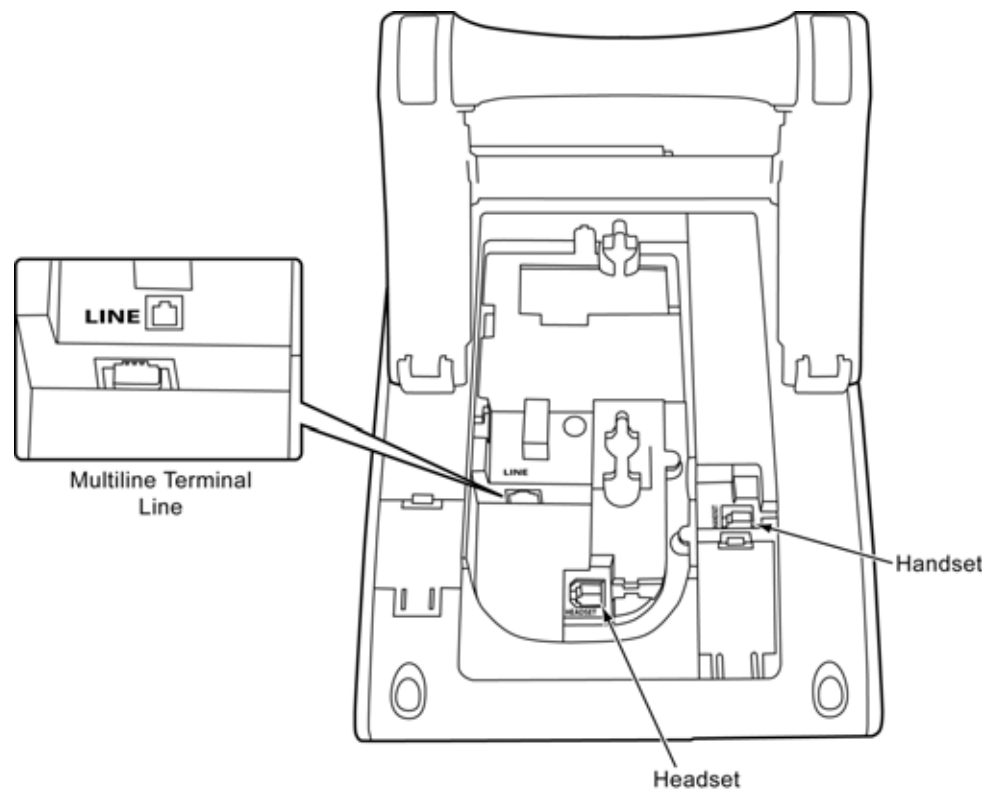
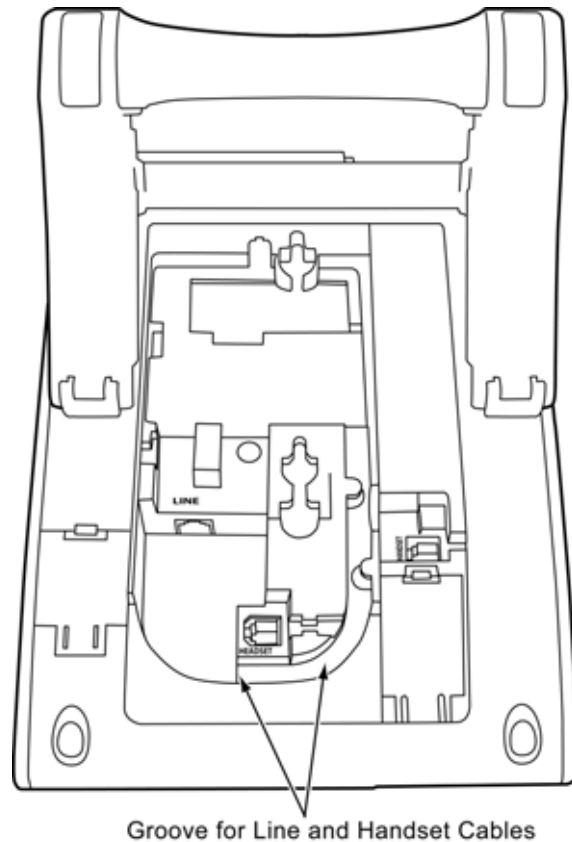


Figure 5-17 Connecting a Multiline Terminal to the System

2. Lead the Line and Handset cables through the applicable grooves.



**Figure 5-18** Leading Line Cords on a Multiline Terminal

## 4.2 Applying Power to the DT700 Multiline Terminal

The DT700 terminal supports two different power sources for the terminal:

- AC-2R/AC-3R  
Plug the optional AC-2R/AC-3R AC Adapter input Jack in the terminal base unit, and plug the 2-prong wall plug of the AC Adapter in a standard 120 Vac wall outlet.
- In-Line Power/PoE (Power over Ethernet)  
In-Line Power (sometimes called Power Over Ethernet) is a LAN technology that allows standard 10 Base-T/100 Base-TX data cables to pass electrical current from a power source to a requesting end device.

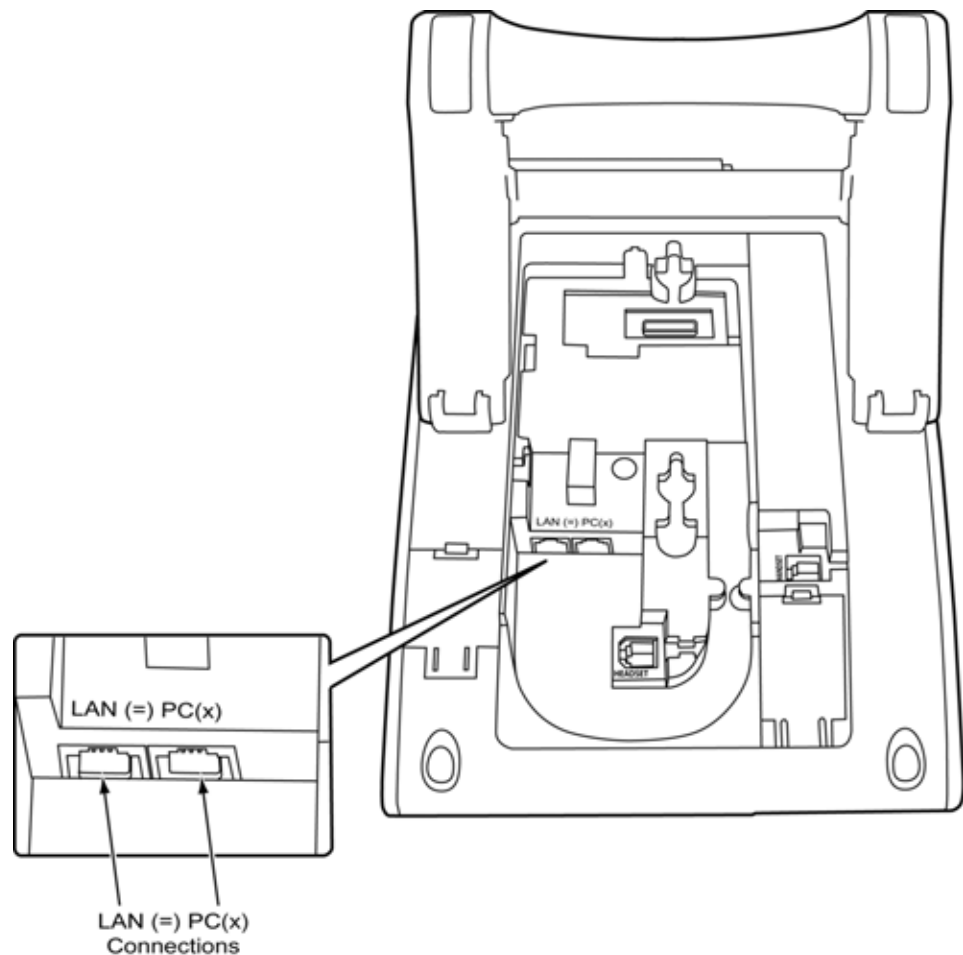


### 4.3 Connecting the IP Multiline Terminal to the Network and PC

These instructions for connecting an IP multiline terminal to the Network and PC apply to DT700 multiline terminals. Refer to [Figure 5-19 IP Terminal Connector Locations](#).

1. Connect the LAN Network 10 Base-T/100 Base-TX cable to the LAN (=) connector.
2. The IP terminal has a switching HUB to connect a PC to the LAN Network. Connect the 10 Base-T/100 Base-TX straight cable used for this connection to the PC(x) connector and to the PC.

Refer to [Figure 5-20 Typical Network IP Connection on page 5-28](#).



**Figure 5-19 IP Terminal Connector Locations**

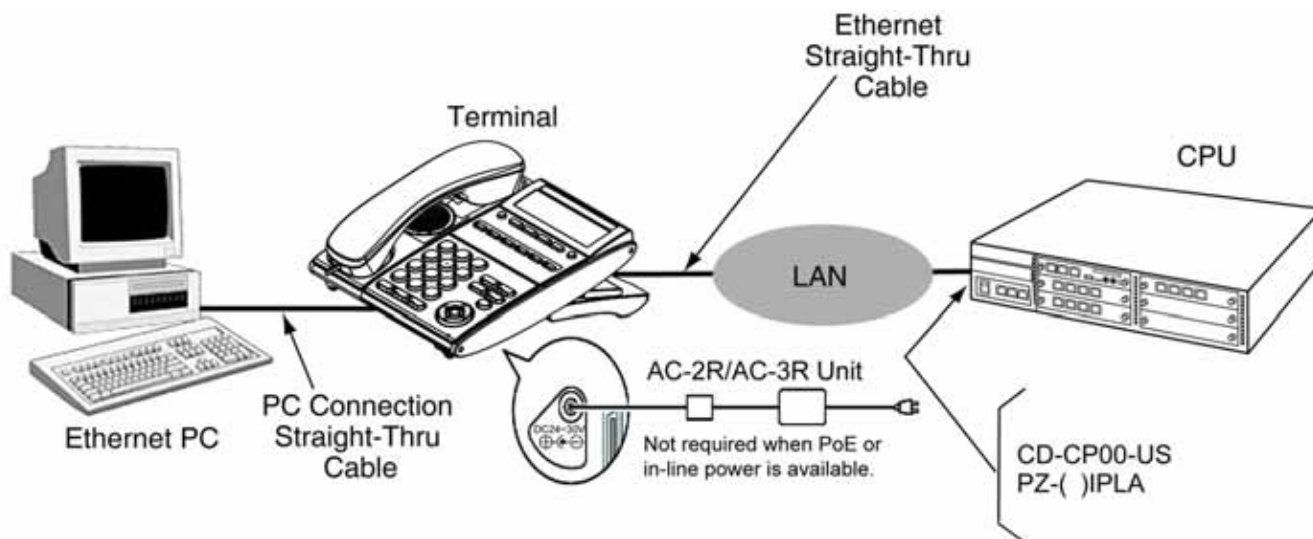


Figure 5-20 Typical Network IP Connection

#### 4.4 Adjusting the LCD on the Multiline Terminal

DT300/DT700 Series display multiline terminals have an adjustable Liquid Crystal Display (LCD). The LCD can be adjusted by pulling up or pushing down as desired.



Figure 5-21 Adjusting the LCD on a Multiline Terminal

## 4.5 Installing Line Key Kit (12LK-L KIT)

The 12LK-L KIT Provides 12 additional buttons to ITL or DTL multiline terminals. The 12LK-L KIT kit:

- Mounts directly to top side of terminal
- Supports Red and Green LED colors



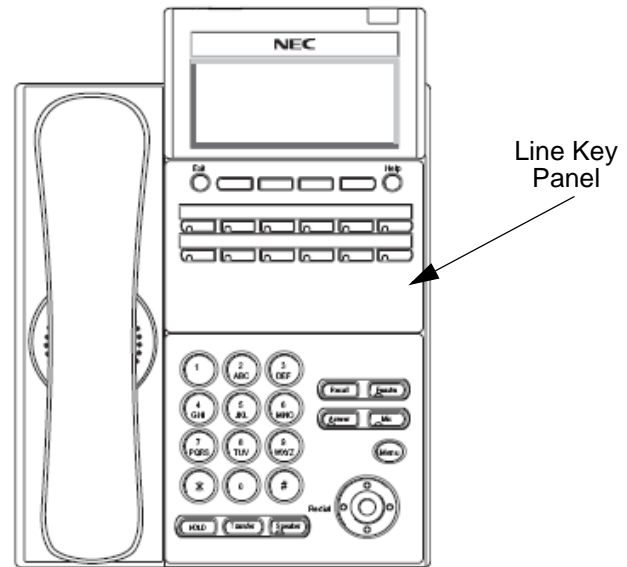
Figure 5-22 12LK-L Kit

### 4.5.1 Installing the 12LK-L KIT



*To prevent possible damage to the 12LK-L KIT or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.*

1. Turn multiline terminal upside down.
  - ✎ *Only one 12LK-L KIT can be attached to the DTL/ITL multiline terminal.*
2. Pry the right side panel from the multiline terminal.
3. From the lower left or right corner, pry the Line Key Panel from the multiline terminal (refer to [Figure 5-23 Removing the Line Key Panel on page 5-30](#)).



**Figure 5-23 Removing the Line Key Panel**

4. Lift and remove the DESI sheet.



**Figure 5-24 Removing the DESI Sheet**

5. Press the right end of the Line Key placeholder and lift to remove (refer to [Figure 5-25 Removing the Line Key Placeholder](#) on page 5-31).

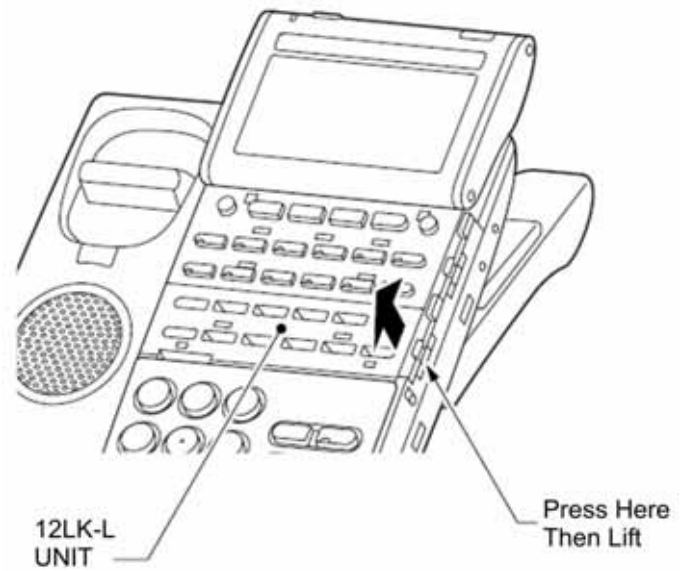


Figure 5-25 Removing the Line Key Placeholder

6. Install the 12LK-L KIT and slide until aligned with the Tab Hole.

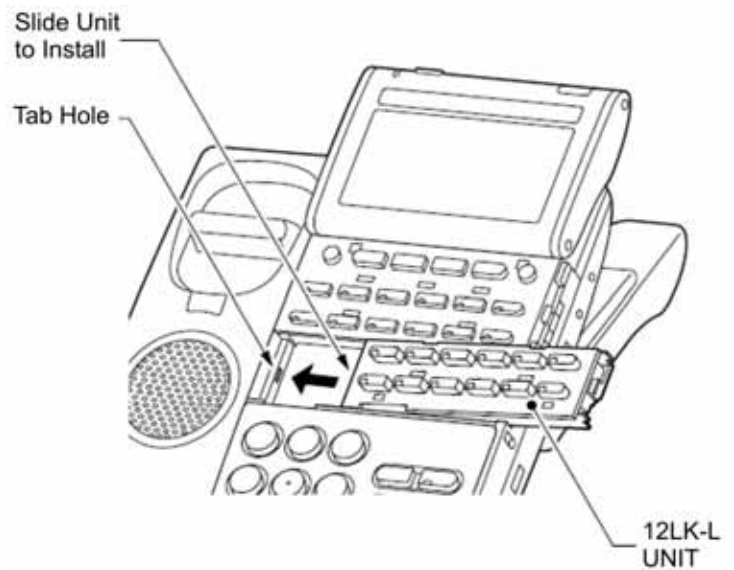


Figure 5-26 Aligning the 12LK-L KIT

7. Press on the right end of the 12LK-L KIT until a click is heard.



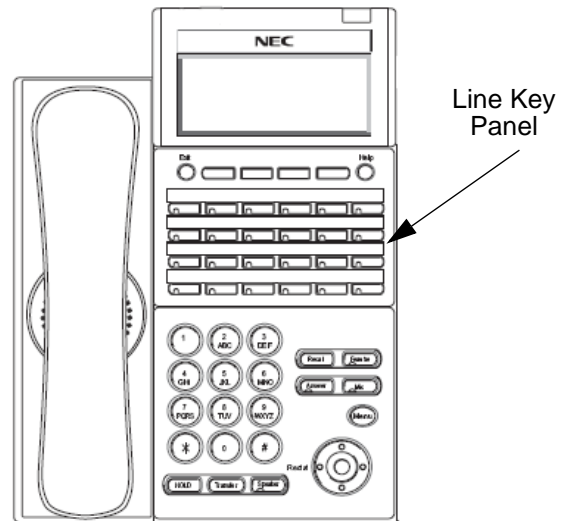
**Figure 5-27** Installing the 12LK-L KIT

8. If desired, print and install the new DESI sheet.



**Figure 5-28** Installing the DESI Sheet

9. Install the supplied Line Key Panel (refer to [Figure 5-29 Installing the Line Key Panel](#)). A variety of colors is now available for the 12 and 24 button LK Panels (refer to [Chapter 1, Table 1-8 DT300/DT700 Series Optional Equipment List on page 1-10](#)).



**Figure 5-29 Installing the Line Key Panel**

10. Install the side panel.
  11. Connect the line cord/LAN cable and the AC/DC adapter to the DTL/ITL multiline terminal.
- 4.5.2 Configuring the Digital Telephone for the Correct Number of Line Keys
1. With the telephone not plugged in and the handset on-hook, press the **4** and **6** buttons on the numbered keypad and connect the telephone cable.
    - ☞ *This places the telephone into Service Class Read/Write (R/W) mode. The Message Waiting (MW) LED should be On.*
  2. Press **1** to enter the Line Key Type mode.
    - ☞ *The Message Waiting LED should flash.*

3. Follow the directions below for the type of line key module installed:

**Table 5-8 Line Key Type**

Line Key Type	Push
2-Button	1
6-Button	2
8-Button	3
12-Button	4
24-Button	5

4. Save to memory by pressing line key 2, 8, 14 or 20. The display changes back to the Service Class R/W mode and the Message Waiting (MW) LED is On Red.
5. Press **Exit** to return the telephone to idle.

#### 4.5.3 Configuring the IP Telephone for the Correct Number of Line Keys

1. Press **Menu**, then **0** (Config) to enter the terminal program mode.
2. At the Login screen, enter the user name (default = ADMIN) and password (default = 6633222) and press the **OK** Softkey.
3. Press **3** for Maintenance Setting.
4. Press **4** for Adjust.
5. Press **2** for Key Kit Type.
6. Press the Up/Down key to select the Key Kit.

**Table 5-9 Ten Key Kit Type**


Ten Key Kit Entry	Description
Kit1	Type A – Japan with cursor key
Kit2	Type A – US with cursor key
Kit3	Type B – US with cursor key
Kit4	



**Table 5-9 Ten Key Kit Type (Continued)**

Ten Key Kit Entry	Description
Kit8	32 Line Key without cursor key
Kit9	Type A – Japan without cursor key
Kit10	Type A – US without cursor key
Kit11	Type B – US without cursor key
Kit12	

7. Press Softkey **4** for Next.
8. Press the Up/Down key to select the Line Key kit.

 *By default, the correct line key kit for the keypad kit selected above is highlighted.*

**Table 5-10 Line Key Kit Type**

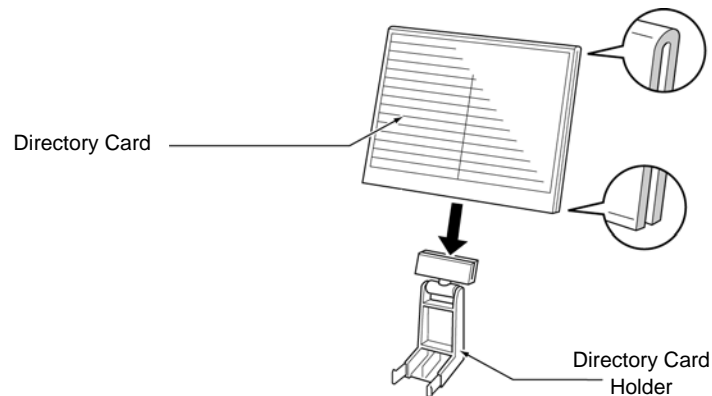
Line Key Kit Entry	Description
Kit12	Enhanced 12-Button
Kit24	Enhanced 24-Button
Kit32	Enhanced 32-Button
Kit8	DESI-Less
Kit6	Value 6-Button
Kit2	Value 2-Button
Kit0	IP-CTS

9. Press Softkey **4** for OK to complete.
10. Continue pressing Softkey **4** to exit (Exit-Exit-Save). The terminal resets automatically.

## 4.6 Installing the Directory Card on the Multiline Terminal


A directory card can be attached to DT300/DT700 Series multiline terminals. The directory card can be used to record often dialed numbers or other important information.

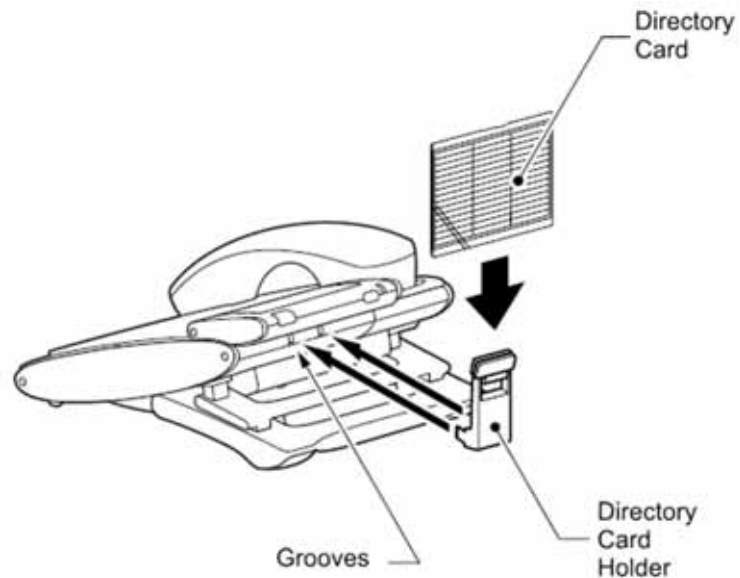
1. After recording the information on the lined insert, reinsert it between the plastic panels of the directory card. Attach the directory card to the directory card holder as illustrated in [Figure 5-30 Attaching Directory Card to Directory Card Holder](#). The open end slides into the directory card holder.



**Figure 5-30 Attaching Directory Card to Directory Card Holder**

2. Locate the two grooves on the top of the telephone as illustrated in [Figure 5-31 Attaching Directory Card Holder to the Multiline Terminal](#). Push the directory card holder into the grooves on the multiline terminal until they snap into place.

 *To remove the directory card, press the two sides of the directory card holder inward until the tabs release and pull the holder out of the grooves.*



**Figure 5-31 Attaching Directory Card Holder to the Multiline Terminal**

#### 4.7 Removal and Replacement of the Numbered Keypad

The Numbered Keypad (in black or white), is commonly delivered in the Business/Standard Layout configuration (refer to [Figure 5-32 Standard Numbered Keypad](#)) and can be easily removed and replaced.



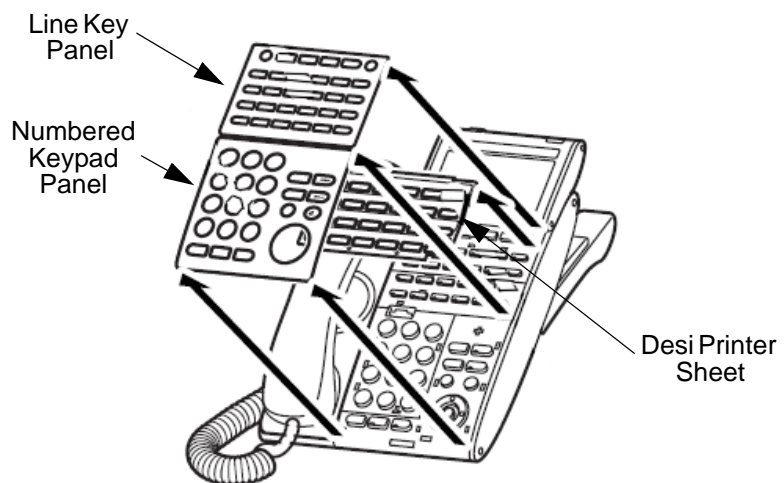
**Figure 5-32 Standard Numbered Keypad**

## 4.7.1 Removing the Numbered Keypad



*To prevent possible damage to the Numbered Keypad or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/ LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.*

1. Remove the Numbered Keypad Panel. (Refer to paragraph [Figure 5-33 Remove Plastic Panels.](#))



**Figure 5-33 Remove Plastic Panels**

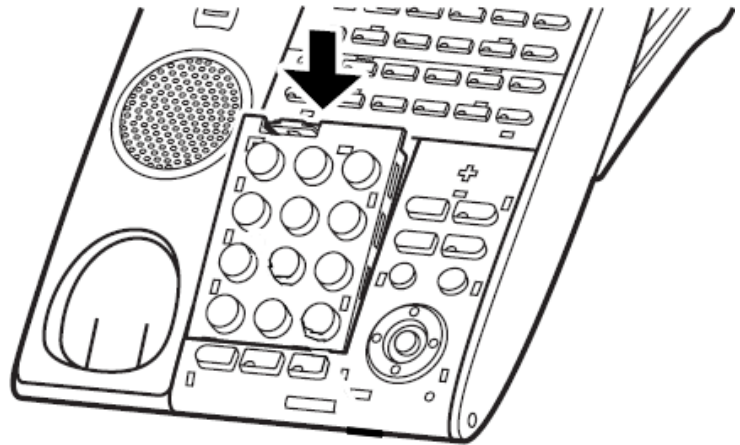
2. Pull down on the tab and lift the Numbered Keypad away from the telephone to remove the existing button. Refer to [Figure 5-34 Removing Numbered Keypad from DT300/DT700 Series Terminal.](#)



**Figure 5-34 Removing Numbered Keypad from DT300/DT700 Series Terminal**

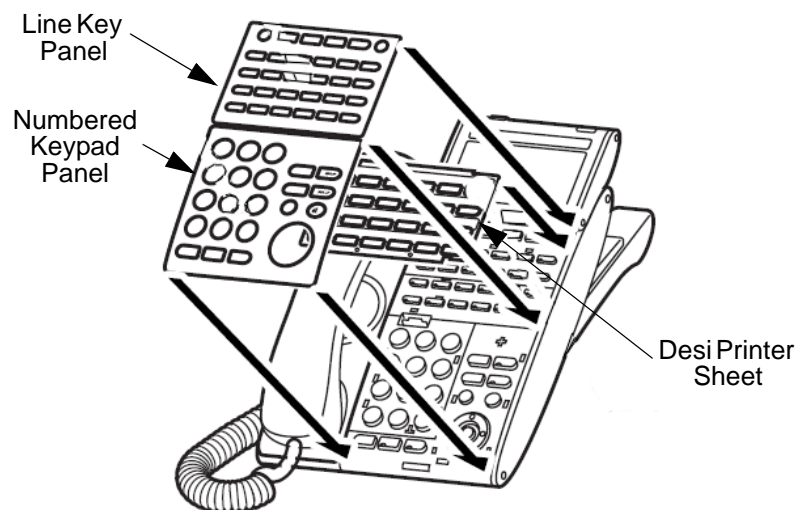
#### 4.7.2 Installing the Numbered Keypad

1. Slide the replacement numbered keypad into the grooves located on the inside of the telephone, then press down on the keypad to snap it into place. Refer to [Figure 5-35 Install New Numbered Keypad into DT300/DT700 Series Terminal](#).



**Figure 5-35 Install New Numbered Keypad into DT300/DT700 Series Terminal**

2. Install the Numbered Keypad Panel on the multiline terminal. Refer to [Figure 5-36 Install Plastic Panels](#).



**Figure 5-36 Install Plastic Panels**

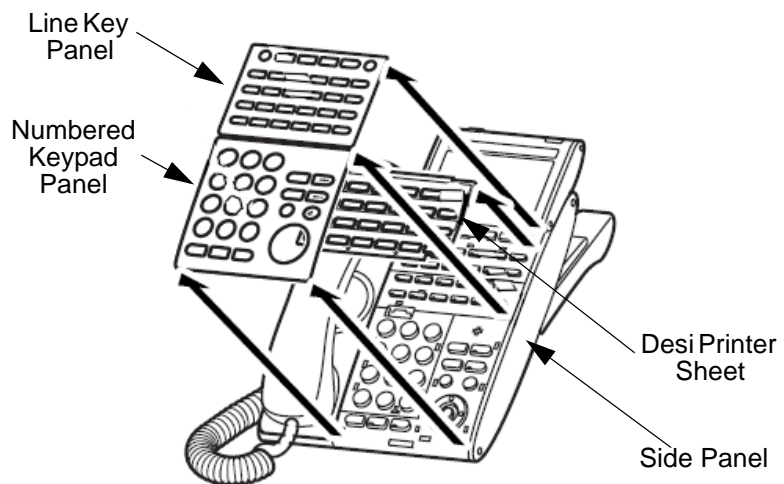
## 4.8 Removal and Replacement of the BS( )-L Kit (Ten Key Kit)

The Business BS( )-L Kit (in black or white), is commonly delivered with the UNIVERGE SV8100 multiline terminal. If required, the BS( )-L Kit can be removed and replaced on the DT300/DT700 Series multiline terminal.

The Retro BS( )-L Kit is an optional kit available to be used with the IPK II and IPS terminals.

### 4.8.1 Remove the BS( )-L Kit

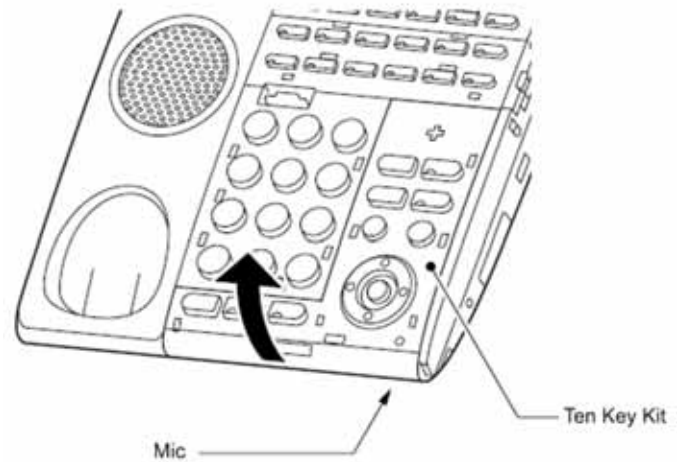
1. Pry the right side panel from the multiline terminal (refer to [Figure 5-37 Remove Plastic Panels](#)).



**Figure 5-37 Remove Plastic Panels**

2. Remove the Numbered Keypad panel. (Refer to paragraph [Figure 5-38 Remove the Ten Key Kit on page 5-41.](#))

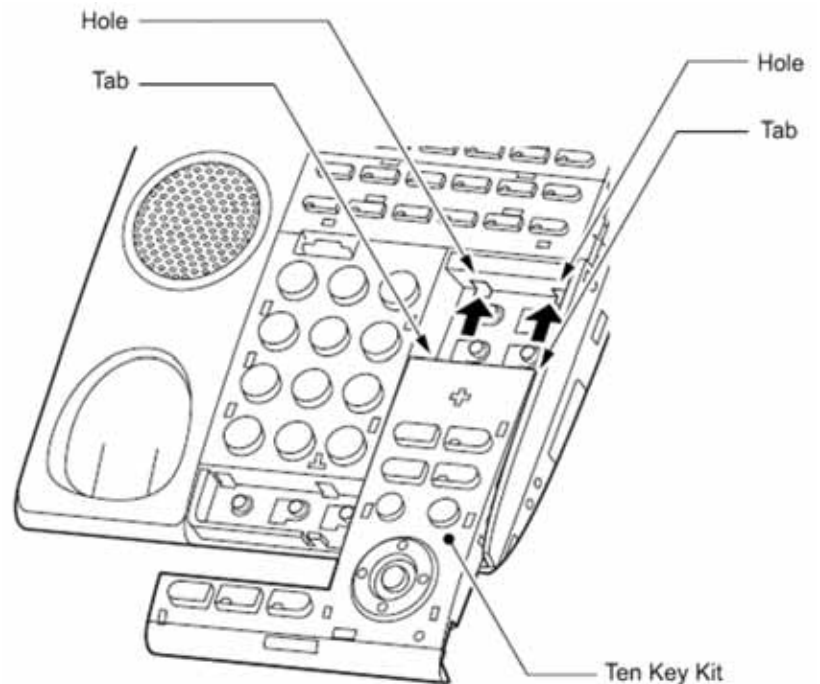
- Carefully pry and lift the Ten Key kit from the multiline terminal.



**Figure 5-38 Remove the Ten Key Kit**

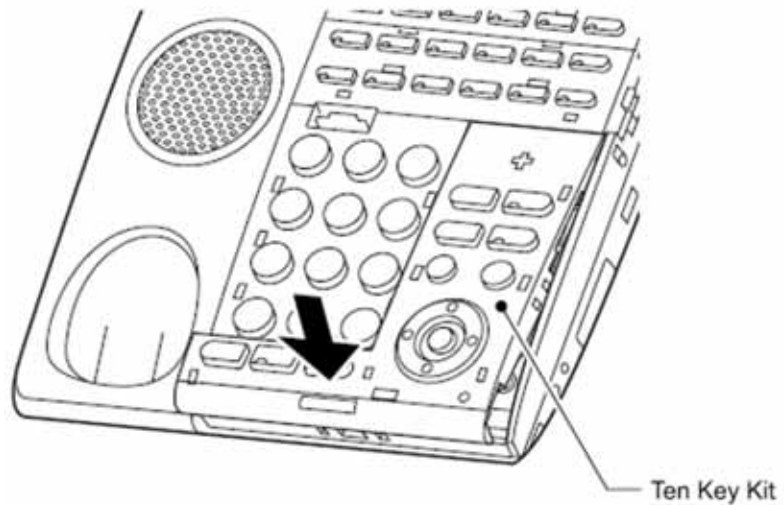
#### 4.8.2 Install the BS( )-L Kit

- Slide replacement Ten Key kit into position. Tabs of kit fit into holes on the multiline terminal.



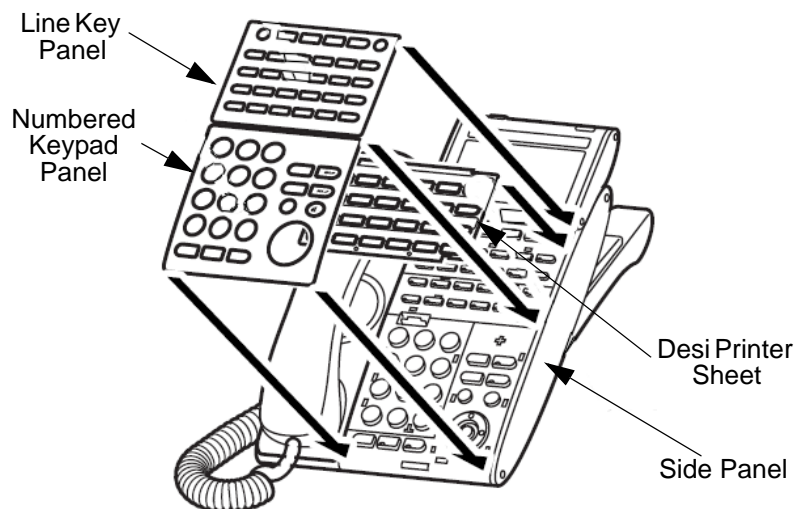
**Figure 5-39 Install the Ten Key Kit**

2. Press down until the Ten Key kit clicks into place.



**Figure 5-40 Secure the Ten Key Kit**

3. Reinstall the Line Key and Numbered Keypad panels on the multilane terminal.




**Figure 5-41 Install Plastic Panels**

4. Reinstall the right side panel (refer to [Figure 5-41 Install Plastic Panels](#)).




### 4.8.3 Configuring the Digital Telephone for the Ten Key Kit

1. With the telephone not plugged in and the handset on-hook, press the **4** and **6** buttons on the numbered keypad and connect the telephone cable.

 This places the telephone into Service Class Read/Write (R/W) mode. The Message Waiting LED should be On.

2. Press **2** on the numbered keypad to enter the Button Kit mode.

 The Message Waiting LED should flash.

3. Follow the directions below for the type of keypad installed:

**Table 5-11 Numbered Keypad Type**

Numbered Keypad Type	Push	LED Indication (2D Style Terminal)
Japan Value	01	Line 1 LED on Red
Model A Telephone	02	Line 2 LED on Red
Model B UX5000 Telephone	03	Line 1 and 2 LED on Red
Call Center	04	Line 1 LED on Green
Hotel-1	05	Line 2 LED on Green
Hotel-2	06	Line 1 and 2 LED on Green
Retirement Home	07	Line 1 LED flashing Red
Japan 32-Button	08	Line 2 LED flashing Red
Japan Economy	09	Line 1 and 2 LED flashing Red
Model A Economy	10	Line 1 LED flashing Green
Model B Economy	11	Line 2 LED flashing Green
Reserve	12	Line 1 and 2 LED flashing Green

4. Press line key 2, 8, 14 or 20 to save to memory. The display changes back to the Service Class R/W mode and the Red Message Waiting (MW) LED is On.
5. Press **Exit** to return the telephone to idle.

#### 4.8.4 Configuring the IP Telephone for the Ten Key Kit


1. Press **Menu**, then **0** (Config) to enter the terminal program mode.
2. At the Login screen, enter the user name (default = ADMIN) and password (default = 6633222) and press the **OK** Softkey.
3. Press **3** for Maintenance Setting.
4. Press **4** for Adjust.
5. Press **2** for Key Kit Type.
6. Press the Up/Down key to select the keypad kit.

**Table 5-12 Keypad Kit Type**

Keypad Kit Entry	Description
Kit1	Type A – Japan with cursor key
Kit2	Type A – US with cursor key
Kit3	Type B – US with cursor key
Kit4	–
Kit8	32 Line Key without cursor key
Kit9	Type A – Japan without cursor key
Kit10	Type A – US without cursor key
Kit11	Type B – US without cursor key
Kit12	–

7. Press **4** for Next.

8. Press the Up/Down key to select the line key kit.

 *By default, the correct line key kit for the keypad kit selected above is highlighted.*

**Table 5-13 Line Key Kit Type**

Line Key Kit Entry	Description
Kit12	Enhanced 12-Button
Kit24	Enhanced 24-Button
Kit32	Enhanced 32-Button
Kit8	DESI-Less
Kit6	Value 6-Button
Kit2	Value 2-Button
Kit0	IP-CTS

9. Press Softkey for OK to complete.
10. Continue pressing Softkey to exit (Exit-Exit-Save). The terminal resets automatically.

## 4.9 Install the Sticker-Braille-L KIT

### Stickers 1 and 2 (2-button, 6-button, 12-button and 24-button telephones)

Stickers 1 and 2 are attached by peeling the sticker from the sheet and applying it to the face plate (it can be applied over the LCD) or by cutting the sticker from the sheet and placing the sticker in the Directory Card holder.

### Sticker 3 (12-button and 24-button telephones)

The LN/LND sticker is applied directly to the button by peeling the sticker from the sheet and applying it directly on the button face.

### Sticker 4 (2-button, 6-button, 12-button, and 24-button telephones)

The HLD/HOLD, SP/SPK and CNF/CONF stickers are applied by peeling the sticker from the sheet and applying the sticker below the appropriate button.

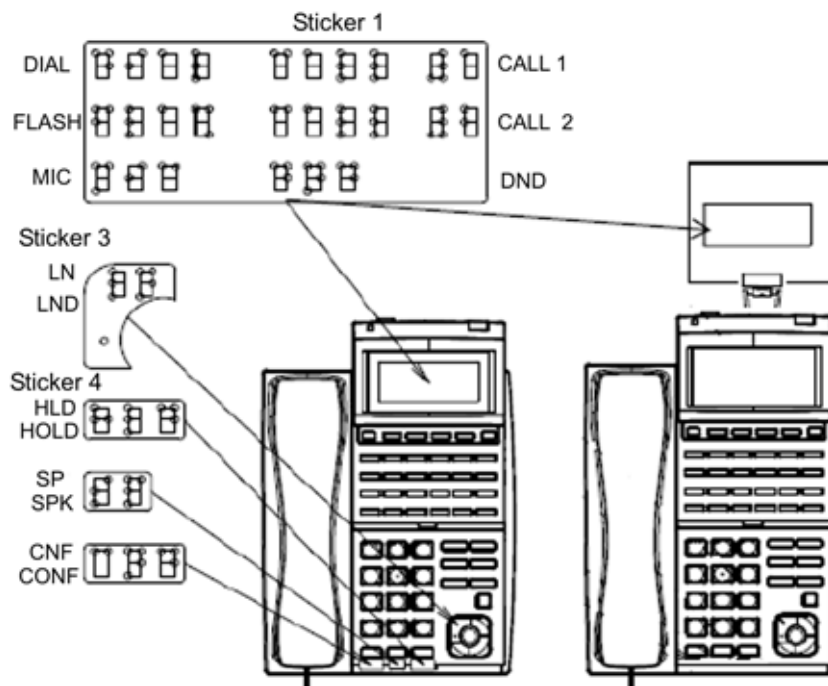


Figure 5-42 Sticker-Braille-L KIT (Sheet 1)

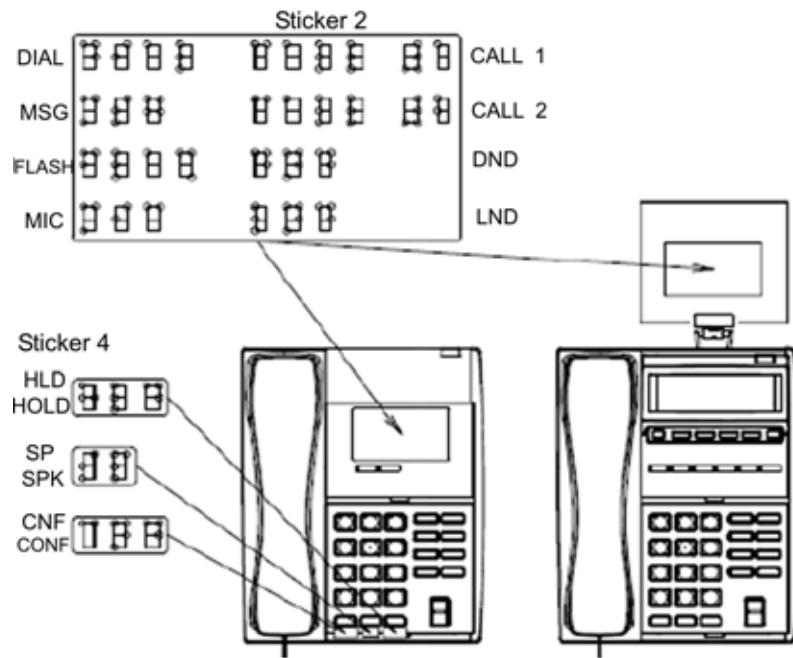
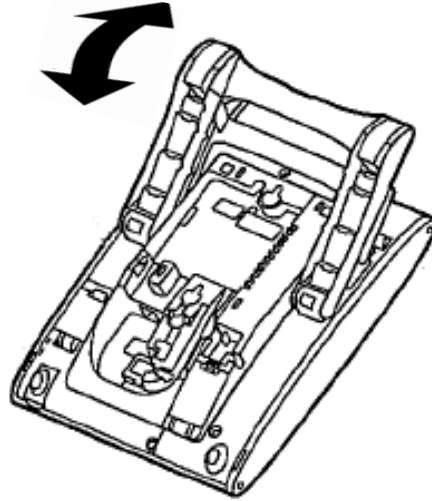


Figure 5-43 Sticker-Braille-L KIT (Sheet 2)

#### 4.10 Adjusting the Height on the Multiline Terminal

The height of the DT300/DT700 Series multiline terminals can be adjusted by moving the legs attached to the bottom of the terminal.

1. Turn telephone over (button side down).
2. Adjust legs to desired height (refer to [Figure 5-44 Adjust Height of DT300/DT700 Series Terminal](#)).



**Figure 5-44 Adjust Height of DT300/DT700 Series Terminal**

3. Turn telephone over (button side up).

## 4.11 Removing or Installing the Tilt Legs on the Multiline Terminal

The Tilt Legs can be removed or installed on the DT300/DT700 Series multiline terminal.

### 4.11.1 Remove Tilt Legs

1. Place the telephone on a flat surface (button side down).
2. Separate the Tilt Legs and place them flat against the telephone. Refer to [Figure 5-45 Separating the Tilt Legs](#).

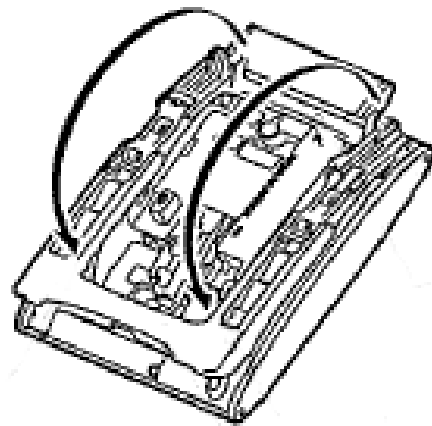


Figure 5-45 Separating the Tilt Legs

3. Push downward (two arrows) and slide downward (refer to [Figure 5-46 Removing Tilt Legs from Multiline Terminal](#)).

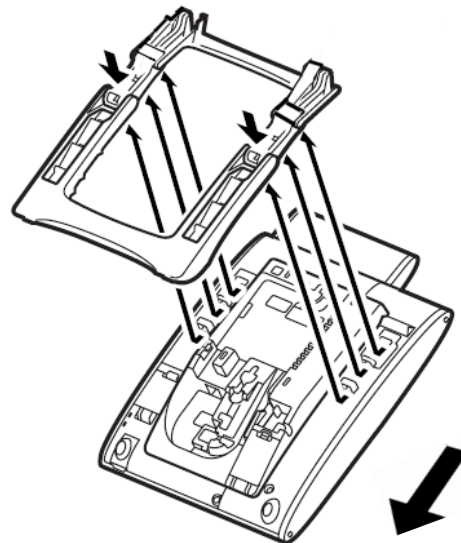
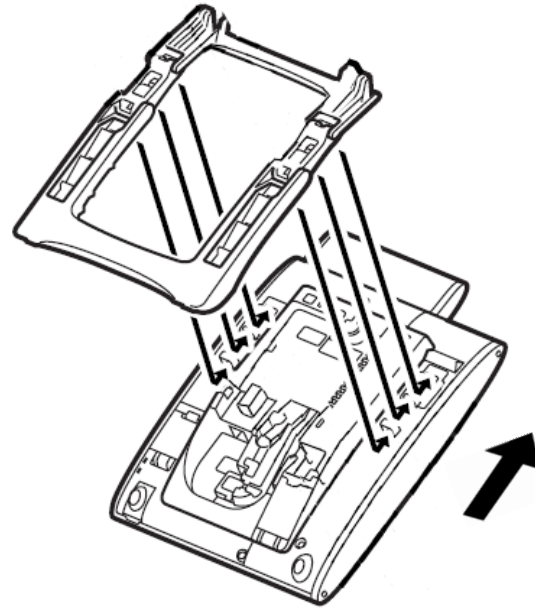


Figure 5-46 Removing Tilt Legs from Multiline Terminal

4. Lift and remove the Tilt Legs.

#### 4.11.2 Install Tilt Legs

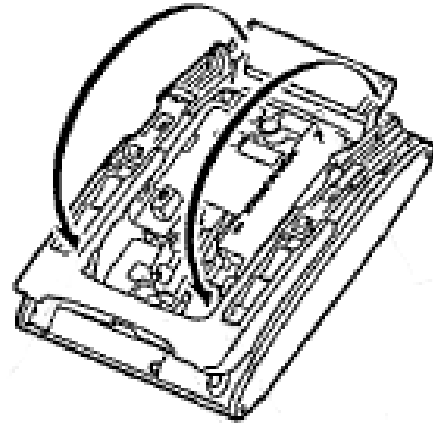
1. Place the telephone on a flat surface (button side down).
2. Lay the adjustable Tilt legs on top of the telephone. Refer to [Figure 5-47 Attach Tilt Legs to DT300/DT700 Series Terminal](#).



**Figure 5-47 Attach Tilt Legs to DT300/DT700 Series Terminal**

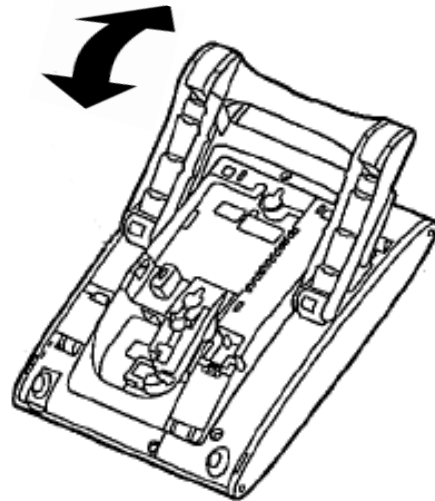
3. Push the Tilt Legs upward until they snap into place.
4. Lift both ends of Tilt Legs until they come together (refer to [Figure 5-48 Connecting the Tilt Legs on page 5-51](#)).





**Figure 5-48 Connecting the Tilt Legs**

5. Snap legs together and adjust to desired height. Refer to [Figure 5-49 Adjust Height of DT300/DT700 Series Terminal](#).



**Figure 5-49 Adjust Height of DT300/DT700 Series Terminal**

## 4.12 Wall Mounting the Multiline Terminal

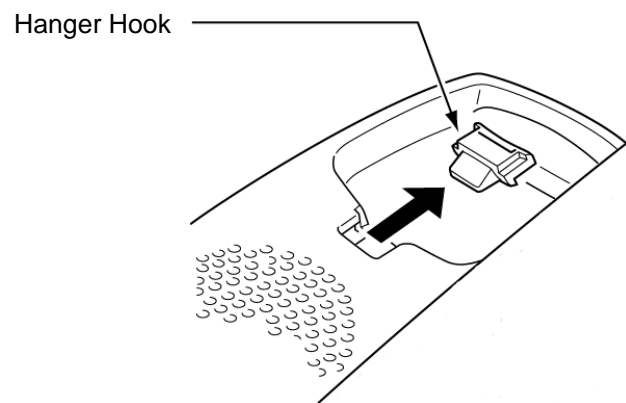
You can wall mount a DT300/DT700 Series connection multiline terminal using the base cover or an optional wall mount unit. A wall mount unit must be used if adapters are installed on the multiline terminal.

 When optional adapters are used, the multiline terminal must be installed on the wall using the WM-L UNIT (refer to 5.2.7 WM-L UNIT on page 5-74).

### 4.12.1 Wall Mounting a Multiline Terminal using the Base Plate

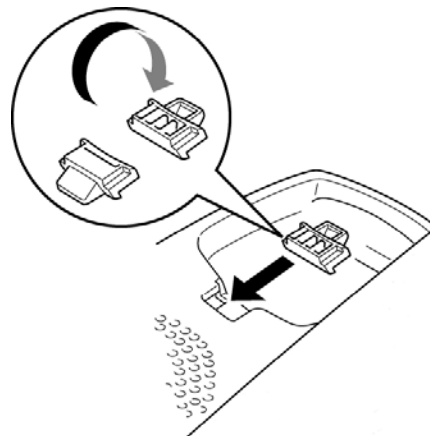
#### 4.12.1.1 Adjusting the Hanger Hook

1. Remove the hook from the unit.



**Figure 5-50 Removing the Hanger Hook on a DT300/DT700 Series Terminal**

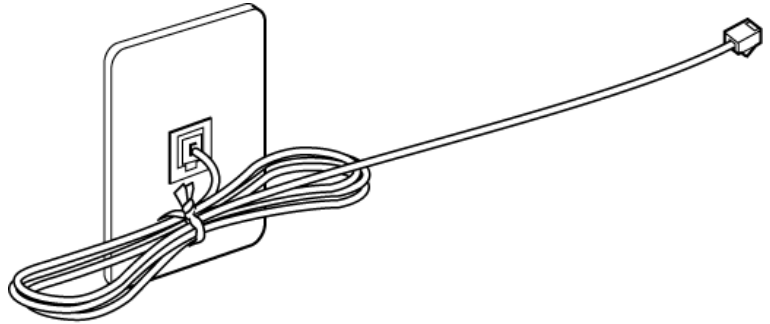
2. Turn the hook with the tab toward the top.
3. Slide the hook until it glides into position forming the hanger hook for the handset.



**Figure 5-51 Sliding the Hanger Hook into Position**

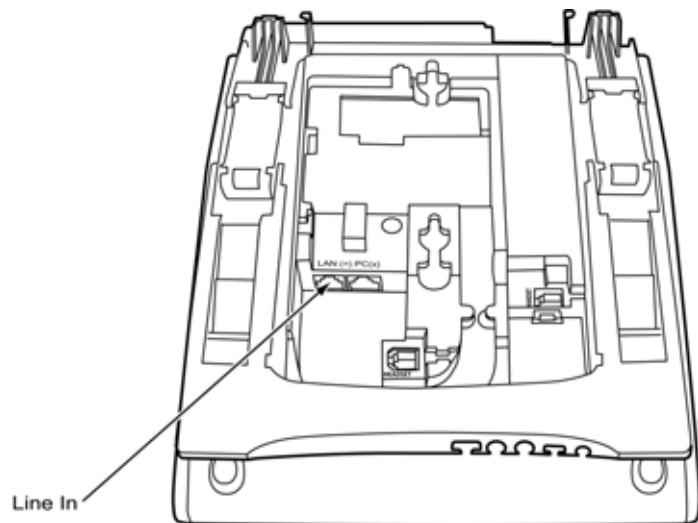
#### 4.12.1.2 Wall Mounting the Multiline Terminal

1. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest as shown in [Figure 5-52 Bundling the Line Cord](#).



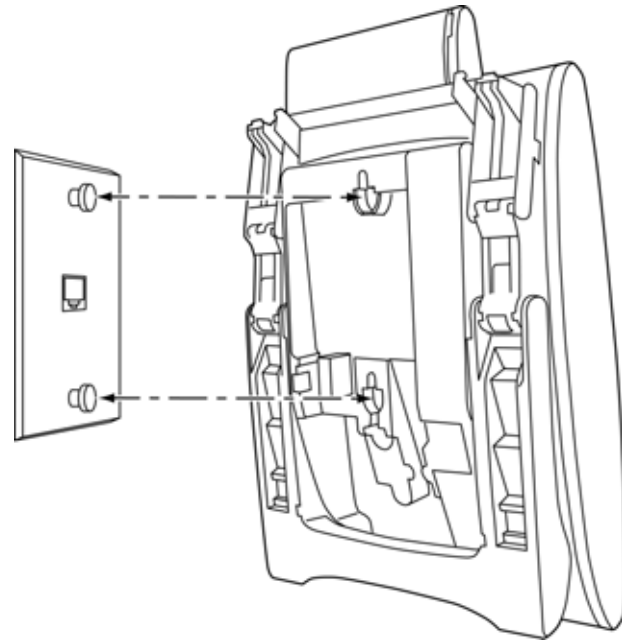
**Figure 5-52 Bundling the Line Cord**

2. Ensure the Tilt Legs are in the flat (unused position).
3. Plug the line cord into the multiline terminal as illustrated in [Figure 5-53 Plugging in Line Cord](#).



**Figure 5-53 Plugging in Line Cord**

4. Align the two holes on the back of the multiline terminal with the two screws on the wall plate and slide downward (refer to [Figure 5-54 Mount Multiline Terminal Wall on Wall Plate on page 5-54](#)).

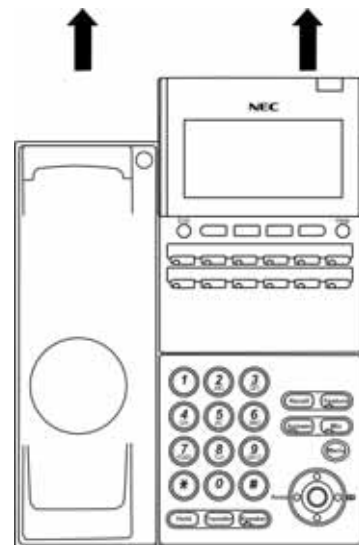


**Figure 5-54 Mount Multiline Terminal Wall on Wall Plate**

5. Push spare line cord behind the multiline terminal.

#### 4.12.1.3 Removing the Multiline Terminal from the Wall Mounted Base Plate.

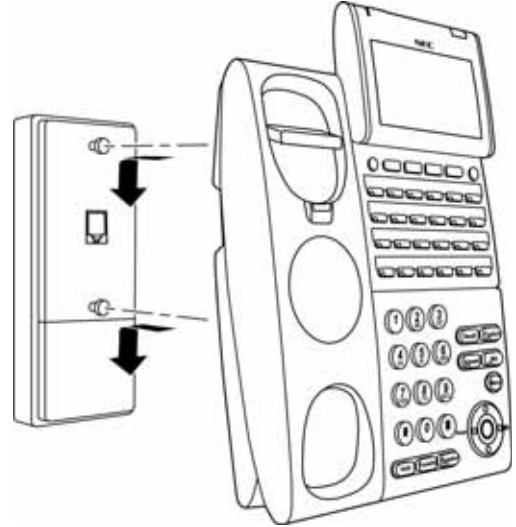
To remove the multiline terminal, push up on the telephone until it comes loose.



**Figure 5-55 Removing the Multiline Terminal**

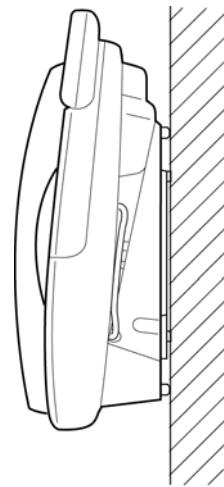
#### 4.12.1.4 Wall Mounting the Base on a Wall Plate

1. Locate the screw holes on the base and hang the cover over the screws on the wall plate as illustrated in [Figure 5-56 Wall Mounting Base on Wall Plate](#).




**Figure 5-56 Wall Mounting Base on Wall Plate**

2. Hang the multiline terminal on the base.



**Figure 5-57 Wall Mounted Multiline Terminal**

 *Because of variation in wall plates, this method is not recommended.*

## SECTION 5 MULTILINE TERMINALS OPTIONAL EQUIPMENT

### 5.1 DT300/DT700 Series Terminal Options

The following chart provides a quick overview of the options available with the DT300/DT700 Series telephones for UNIVERGE SV8100.

**Table 5-14 Connectivity of Options**

Terminal Options		IP Terminals			Digital Terminals	
		Sophisticated ITL-320C-1	Value ITL-8LD-1 ITL-12D-1 ITL-24D-1 ITL-32D-1	Economy ITL-2E-1 ITL-6DE-1	Value DTL-8LD-1 DTL-12D-1 DTL-24D-1 DTL-32D-1	Economy DTL-2E-1 DTL-6DE-1
Key Kit	Ten Key Kit	✓	✓	✓	✓	✓
	12LK Kit	N/A (Built in)	✓	N/A	✓	N/A
	8LK Unit	✓	✓ (Except 8LD-1 Unit)	N/A	✓ (Except 8LD-1 Unit)	N/A
Common	ADA: Analog Recording Adapter	✓	✓	N/A	✓	N/A
	PSA: PSTN Adapter for analog	✓	✓	N/A	✓	N/A
	DSS: 60-Button DSS Console	✓	✓	N/A	Connect to Digital Port on KTS	
Digital	APR: Analog Port adapter with Ringer				✓	N/A
	DESI-Less LK/LCD Unit				✓ (Except 8LD-1 Unit)	N/A
	Backlit LCD				✓ (Except 8LD-1 Unit)	N/A
IP	DESI-Less LK/LCD Unit	N/A (Built in)	✓	N/A	N/A	

## 5.2 DT300/DT700 Series Optional Terminal Equipment

### 5.2.1 8LK-L (BK) UNIT/8LK-L (WH) UNIT

Provides eight additional line keys to ITL or DTL terminals (except Economy). The unit features:

- Mounts directly to right side of terminal
- Supports Red and Green LED colors

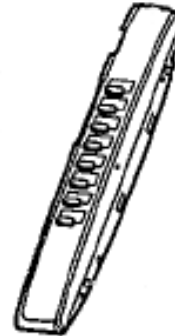



Figure 5-58 8LK-L UNIT

#### 5.2.1.1 Installing the 8LK-L UNIT

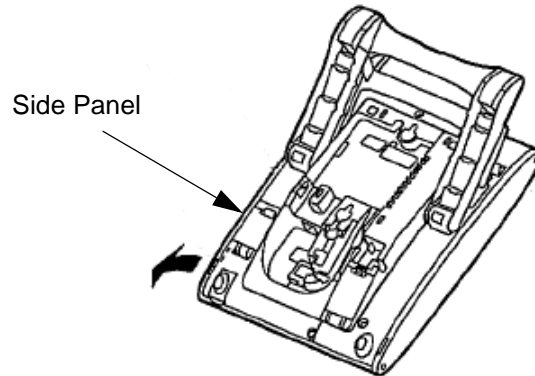


*To prevent possible damage to the 8LK-L UNIT or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.*

1. Remove both plastic panels from the front of the multiline terminal.
2. Turn multiline terminal upside down.

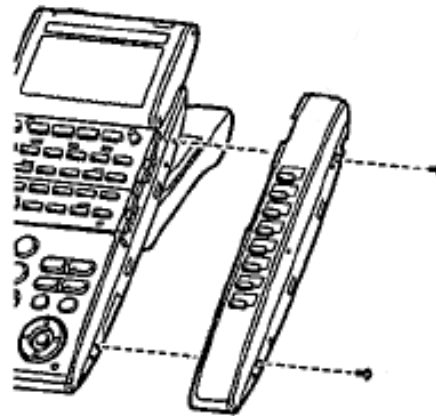
 *Only one 8LK-L UNIT can be attached to the DTL/ITL multiline terminal.*

3. Pry the side panel from the multiline terminal.



**Figure 5-59 Remove Side Panel from Multiline Terminal**

4. Return the multiline terminal to the buttons side up position.
5. Fit the projections on the side of the 8LK-L UNIT into the guide holes on the side of the multiline terminal.
6. Secure the 8LK-L UNIT with the two screws provided.

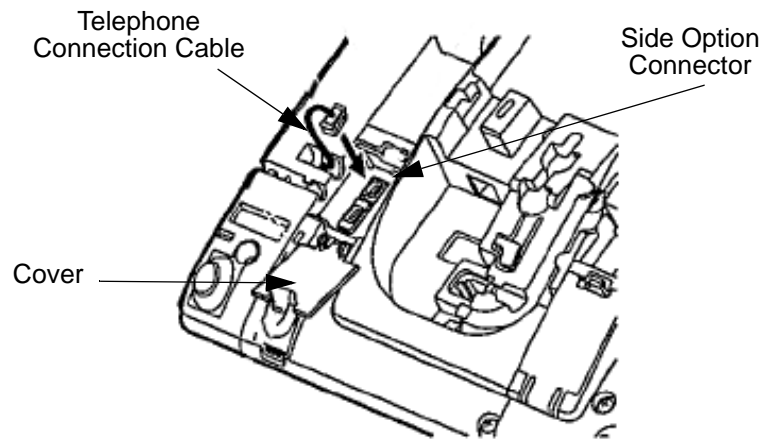


**Figure 5-60 Securing the 8LK-L UNIT with Screws**

7. Turn the multiline terminal upside down.



8. Open the small door covering the side option connectors by pulling the cover handle to the front.



**Figure 5-61 Install the 8LK-L UNIT Cable**

9. Connect the cable from the 8LK-L UNIT to the side option connector (see [Figure 5-61 Install the 8LK-L UNIT Cable](#)) on the multiline terminal and close the cover.
10. Attach the side panel to the side of the 8LK-L UNIT.
11. Return the multiline terminal to the buttons side up.
12. Complete the installation by reattaching both plastic panels to the front of the multiline terminal.

### 5.2.2 8LKD (LD)-L (BK) UNIT/8LKD (LD)-L (WH) UNIT

Provides eight additional line keys to DT300 Series (DTL) terminals.  
The unit features:

- Mounts directly to top of terminal
- Supports Desi-Less 2 LCD panels
- Eight line keys by four pages



Figure 5-62 8LKD (LD)-L UNIT

#### 5.2.2.1 Installing the 8LKD (LD)-L UNIT



*To prevent possible damage to the 8LKD (LD)-L UNIT or the DTL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL multiline terminal.*

1. Turn multiline terminal upside down.
  - ✎ Only one 8LKD (LD)-L UNIT can be attached to the DTL multiline terminal.
2. Pry the side panel from the multiline terminal.

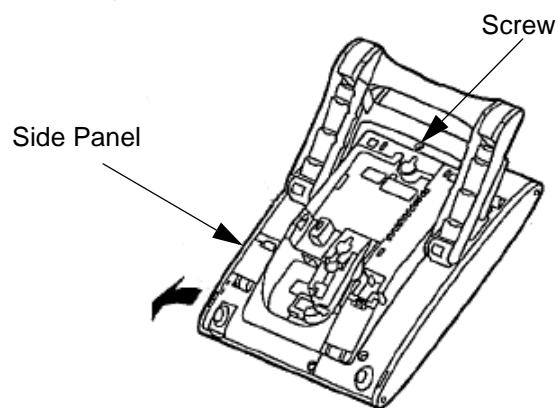


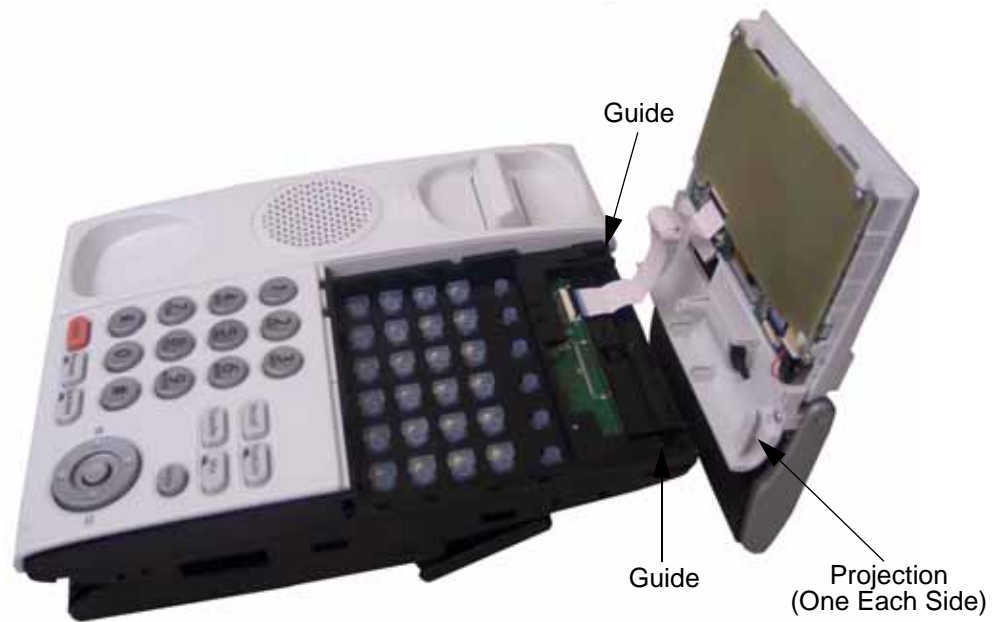
Figure 5-63 Remove Side Panel from Multiline Terminal

3. Remove the screw (refer to [Figure 5-63 Remove Side Panel from Multiline Terminal on page 5-60](#)).
4. Carefully, return the multiline terminal to the buttons side up.
5. Remove the Softkeys and Line Key kit from the telephone.
6. Gently lift the small black bar on the ribbon cable connector (refer to [Figure 5-64 Ribbon Cable Connector](#)).



**Figure 5-64 Ribbon Cable Connector**

7. Plug ribbon cable on back of 8LKD (LD)-L UNIT into connector until pressure is felt.
8. Press down on the black bar to lock the cable into place (refer to [Figure 5-65 Ribbon Cable Installed on page 5-62](#)).



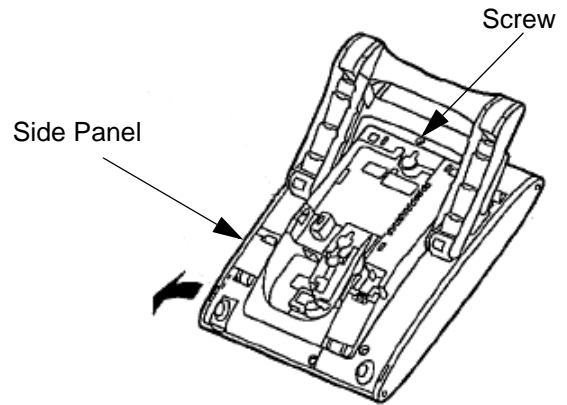
**Figure 5-65 Ribbon Cable Installed**

9. Align the projections on the bottom of the 8LKD (LD)-L UNIT with the guide holes on top of the multiline terminal.
10. Slide the 8LKD (LD)-L UNIT toward the keypad buttons until snug (refer to [Figure 5-66 8LKD \(LD\)-L UNIT Installed](#)).



**Figure 5-66 8LKD (LD)-L UNIT Installed**

11. Holding the LCD in place, turn the multiline terminal button side down.
12. Install the screw (refer to [Figure 5-67 Install Screw](#)).



**Figure 5-67 Install Screw**

13. Attach the side panel to the side of the 8LKD (LD)-L UNIT (refer to [Figure 5-73 Install Screw on page 5-67](#)).
14. Return the multiline terminal to the buttons side up.
15. Connect the line cord/LAN cable and the AC/DC adapter to the DTL multiline terminal.

### 5.2.3 8LKI (LD)-L (BK) UNIT/8LKI (LD)-L (WH) UNIT

Provides eight additional line keys to DT700 Series (ITL) DESI-Less terminals. The unit features:

- Mounts directly to top of terminal
- Supports Desi-Less 2 LCD panels
- Eight line keys by four pages



Figure 5-68 8LKI (LD)-L UNIT

#### 5.2.3.1 Installing the 8LKI (LD)-L UNIT



*To prevent possible damage to the 8LKI (LD)-L UNIT or the ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the ITL multiline terminal.*

1. Turn multiline terminal upside down.
  - ✎ *Only one 8LKI (LD)-L UNIT can be attached to the ITL multiline terminal.*
2. Pry the side panel from the multiline terminal.

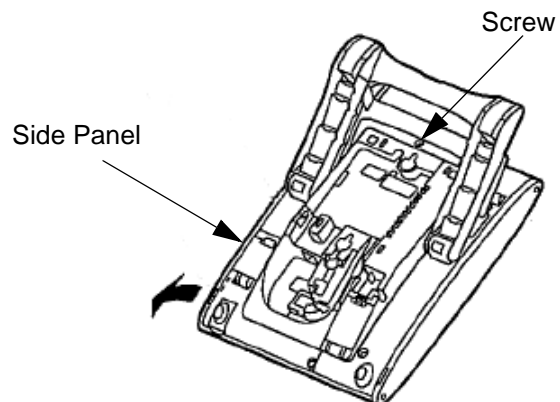
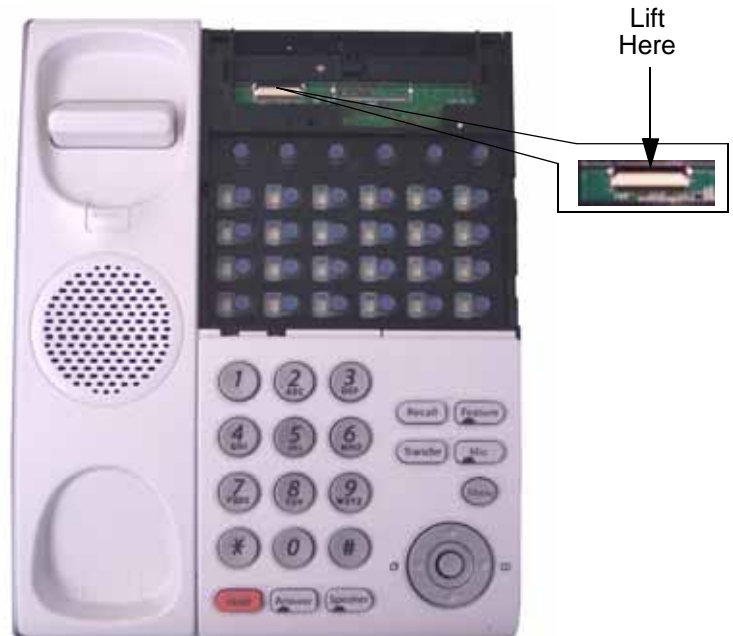


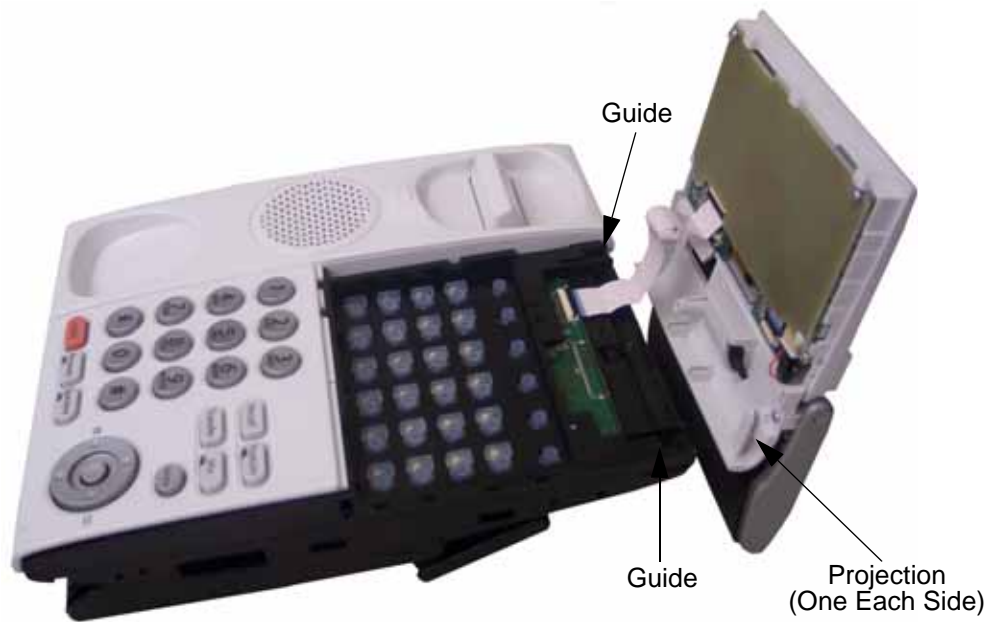
Figure 5-69 Remove Side Panel from Multiline Terminal

3. Remove the screw (refer to [Figure 5-69 Remove Side Panel from Multiline Terminal on page 5-64](#)).
4. Carefully, return the multiline terminal to the buttons side up.
5. Remove the Softkeys and Line Key kit from the telephone.
6. Gently lift the small black bar to open the ribbon cable connector.



**Figure 5-70 Ribbon Cable Connector**

7. Plug ribbon cable on back of 8LKI (LD)-L UNIT into connector (metal side down) until pressure is felt.
8. Press down on the black bar to lock the cable into place (refer to [Figure 5-71 Ribbon Cable Installed on page 5-66](#)).



**Figure 5-71 Ribbon Cable Installed**

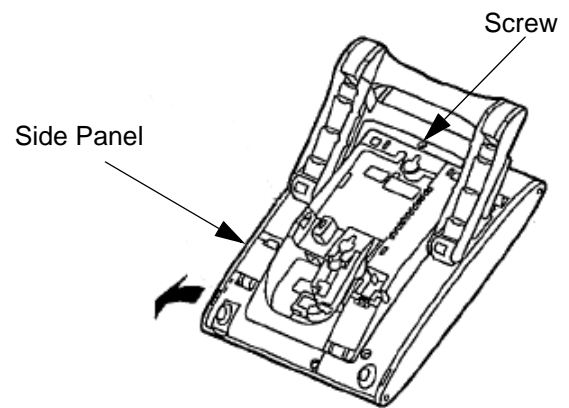
9. Align the projections on the bottom of the 8LKI (LD)-L UNIT with the guide holes on top of the multiline terminal (refer to [Figure 5-71 Ribbon Cable Installed](#)).
10. Slide the 8LKI (LD)-L UNIT toward the keypad buttons until snug (refer to [Figure 5-72 8LKI \(LD\)-L UNIT Installed](#)).



**Figure 5-72 8LKI (LD)-L UNIT Installed**



11. Holding the LCD in place, turn the multiline terminal button side down.
12. Install screw (refer to [Figure 5-73 Install Screw](#)).



**Figure 5-73 Install Screw**

13. Attach the side panel to the side of the 8LKI (LD)-L UNIT (refer to [Figure 5-73 Install Screw](#)).
14. Return the multiline terminal to the buttons side up.
15. Connect the line cord/LAN cable and the AC/DC adapter to the ITL multiline terminal.

#### 5.2.4 DCL-60-1 (BK) CONSOLE/DCL-60-1 (WH) CONSOLE

The Attendant Console has 60 programmable line keys and is available in black or white. The unit features:

- 60 programmable Direct Station Selection (DSS) keys (refer to system user guides)
- Supported on ITL or DTL modular terminals
- Green and Red LEDs

The DSS Console gives a multiline terminal user a Busy Lamp Field (BLF) and one-button access to extensions, trunks and system features. The 60-Button DSS Console provides an additional 60 programmable keys. The page switching key allows a maximum of 120 keys. There are two pages of 54 programmable keys and six fixed keys.

Keep the following in mind when installing DSS Consoles:

- A 60-Button DSS Console requires a separate digital station port when pairing with a digital multiline terminal. For IP terminals, the console is connected to the side option slot using a special cable.

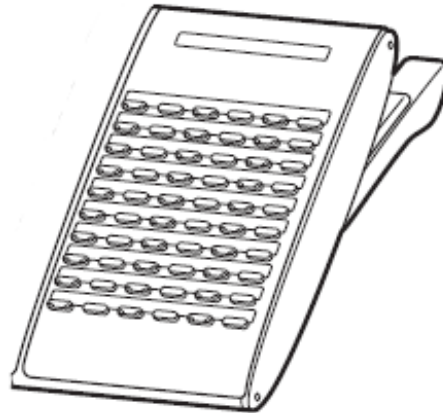


Figure 5-74 DCL-60-1 CONSOLE

#### 5.2.4.1 Installing the DCL-60-1 CONSOLE

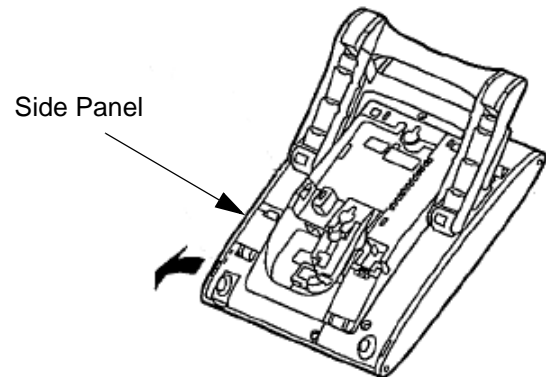


***To prevent possible damage to the DCL-60-1 CONSOLE or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.***

1. Remove both plastic panels from the front of the multiline terminal.
2. Turn multiline terminal upside down.

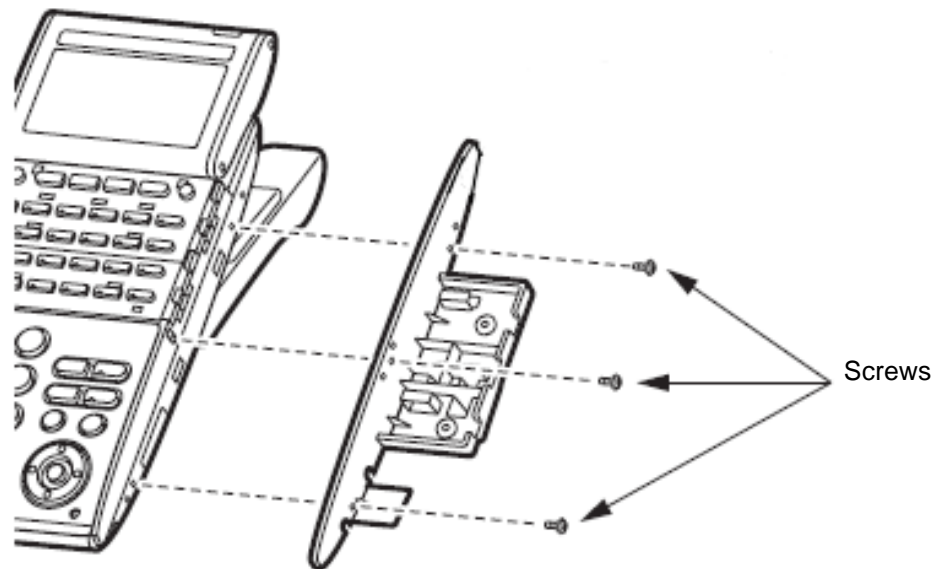
 *Only one DCL-60-1 CONSOLE can be attached to the DTL/ITL multiline terminal.*

3. Pry the side panel from the multiline terminal.



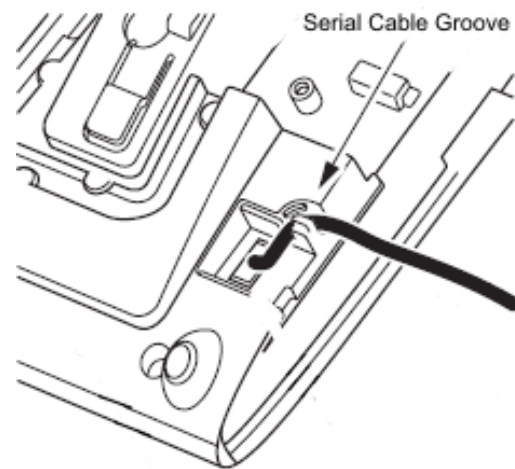
**Figure 5-75 Remove Side Panel from Multiline Terminal**

4. Turn the multiline terminal button side up.
5. Fit the projections of the supplied bracket into the side of the multiline terminal.
6. Attach the bracket with three supplied screws.



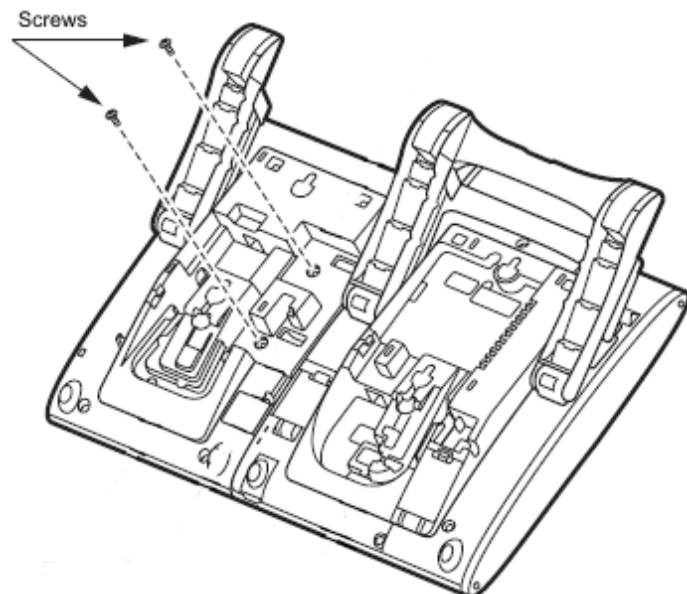
**Figure 5-76 Secure Bracket to Multiline Terminal with Screws**

7. Carefully push the Serial cable into the Serial Cable Groove (ITL, DT700 only).



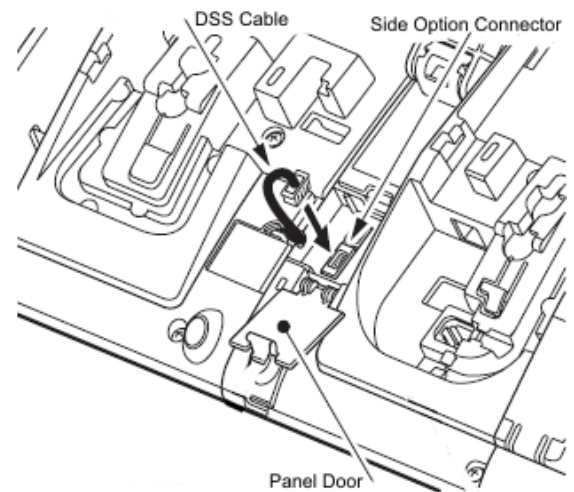
**Figure 5-77 Press Serial Cable into Groove**

8. Using the guides, slide the DCL-60-1 CONSOLE onto the installed bracket (refer to [Figure 5-77 Press Serial Cable into Groove](#)).
9. Secure the DCL-60-1 CONSOLE to the bracket with the two screws provided.



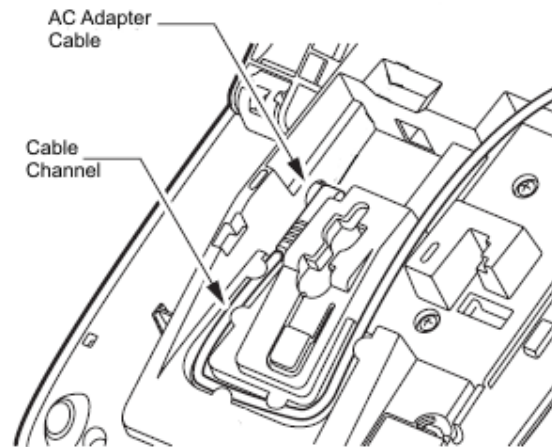
**Figure 5-78 Securing the DCL-60-1 CONSOLE with Screws**

10. Open the small door covering the side option connectors by pulling the cover latch toward you (refer to [Figure 5-79 Serial Cable Installed](#), ITL, DT700 only).
11. Connect the cable from the DCL-60-1 CONSOLE to the Side Option Connector on the multiline terminal and close the cover (ITL, DT700 only).



**Figure 5-79 Serial Cable Installed**

12. Set the tilt leg on the multiline terminal to the desired height.
13. Set the height of the tilt leg on the DCL-60-1 CONSOLE to match the tilt leg on the multiline terminal.
14. Attach the side panel to the side of the DCL-60-1 CONSOLE.
15. Return the multiline terminal and DCL-60-1 CONSOLE to the buttons side up position.
16. Connect the digital cable to the LINE jack (DT300 Series).
17. Connect the AC Adapter cable (DT300/DT700 Series) See [Figure 5-80 Connect AC Adapter Cable on page 5-72](#).



**Figure 5-80 Connect AC Adapter Cable**

18. Complete the installation by reattaching both plastic panels to the front of the multiline terminal.



**Figure 5-81 DCL-60-1 CONSOLE Installed**

### 5.2.5 LCD (BL)-L (BK) UNIT/LCD (BL)-L (WH) UNIT

The LCD (BL)-L UNIT is an optional LCD unit for modular terminals and supports the backlit LCD feature (DT300 Series only).

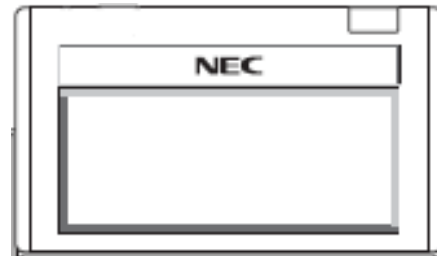



Figure 5-82 LCD (BL)-L UNIT

### 5.2.6 PANEL( )-L UNIT

Optional plastic color side panels allow users to customize the ITL/DTL terminals. A variety of colors are available for the Base (all), VLCD (Value LCD) and SLCD (Sophi LCD) terminals (refer to [Chapter 1](#), [Table 1-8 DT300/DT700 Series Optional Equipment List on page 1-10](#)).

 *Right and Left side panels are not interchangeable.*

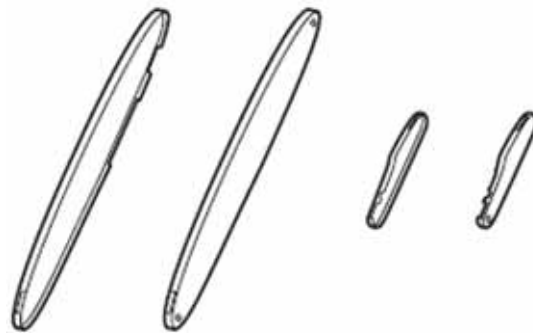


Figure 5-83 PANEL( )-L UNIT

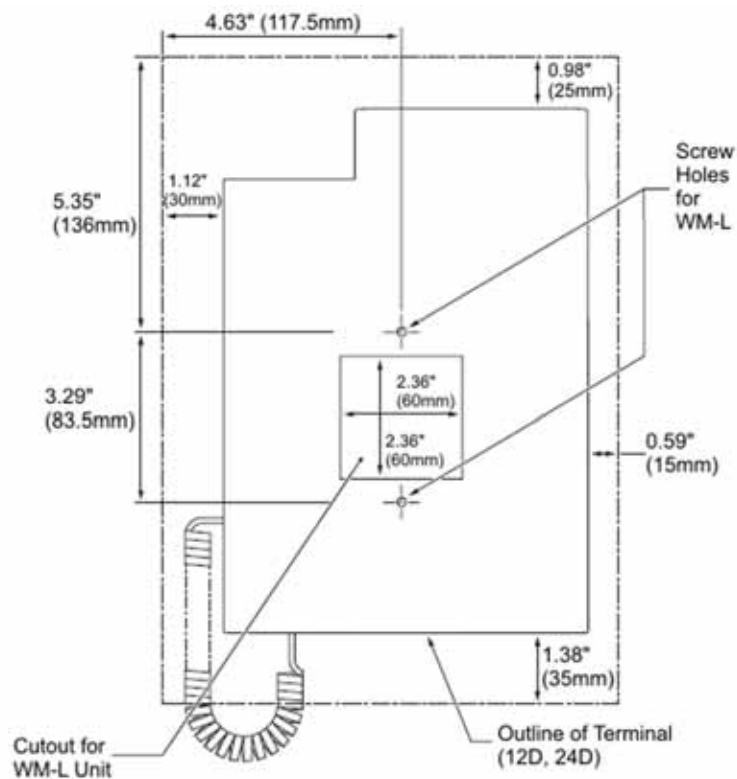
## 5.2.7 WM-L UNIT

The WM-L UNIT (Wall Mount Unit) is used to attach any DT300/DT700 Series multiline terminal to the wall. This unit connects to the bottom of the telephone.

When optional adapters are used, the multiline terminal must be installed on the wall using the WM-L UNIT.

### 5.2.7.1 Mount Multiline Terminal on Wall using WM-L UNIT

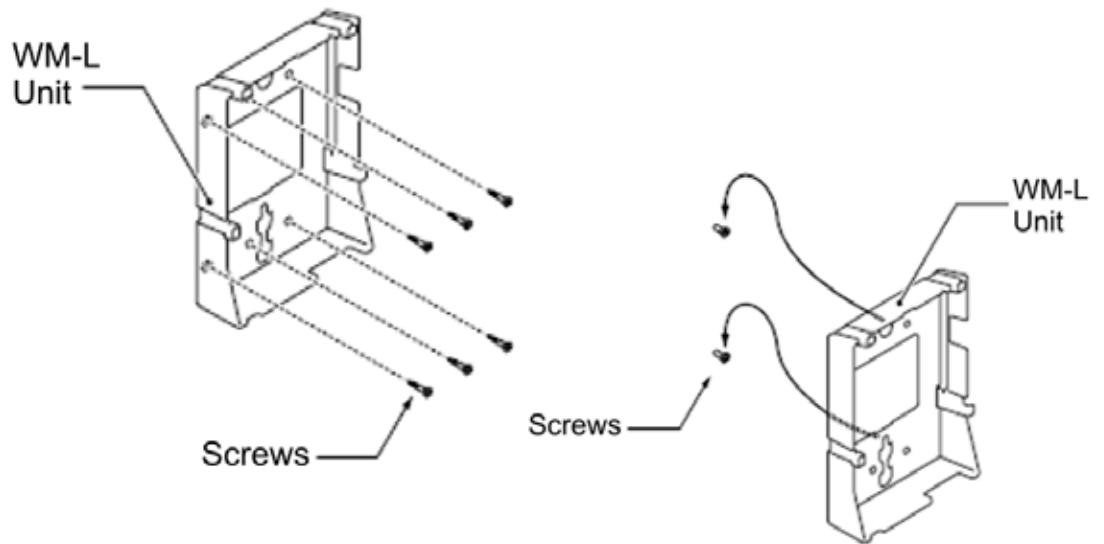
Use the template shown in [Figure 5-84 Wall Mount Spacing Guide \(WM-L UNIT\)](#) on page 5-74 for required spacing before drilling.



**Figure 5-84 Wall Mount Spacing Guide (WM-L UNIT)**

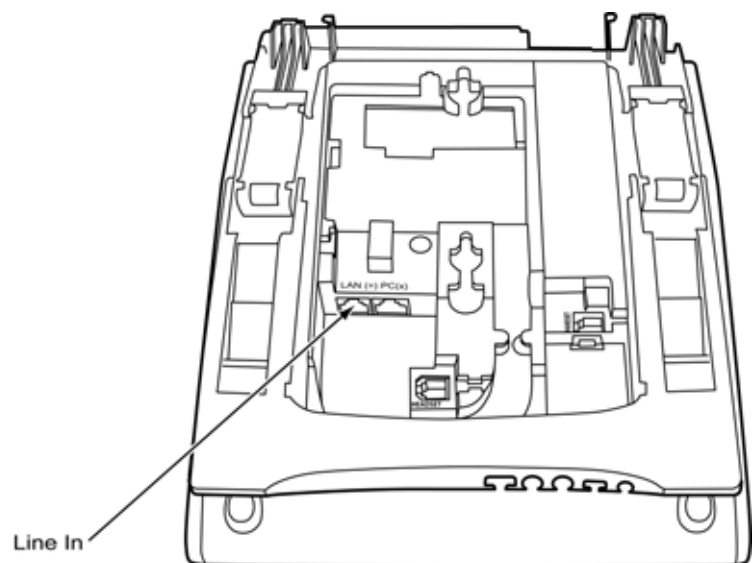
1. Attach the WM-L UNIT to the wall using six screws or, using two wall mounted screws (refer to [Figure 5-85 Attach WM-L UNIT Using Screws](#) on page 5-75).





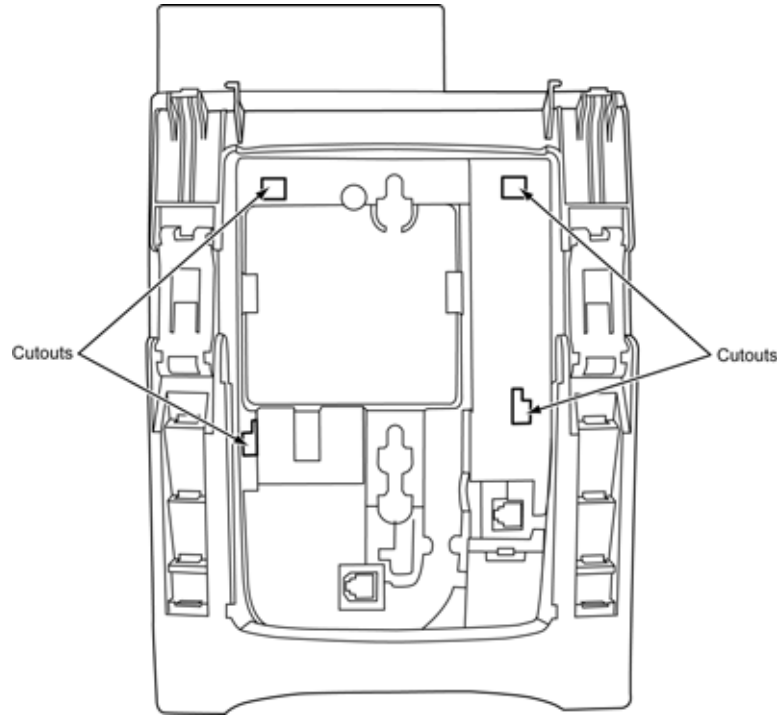
**Figure 5-85 Attach WM-L UNIT Using Screws**

2. Plug one end of the line cord into the wall receptacle. Leave about eight inches of cord and bundle the rest.
3. Plug the opposite end of the line cord into the multiline terminal as illustrated in [Figure 5-86 Plugging in Line Cord](#).

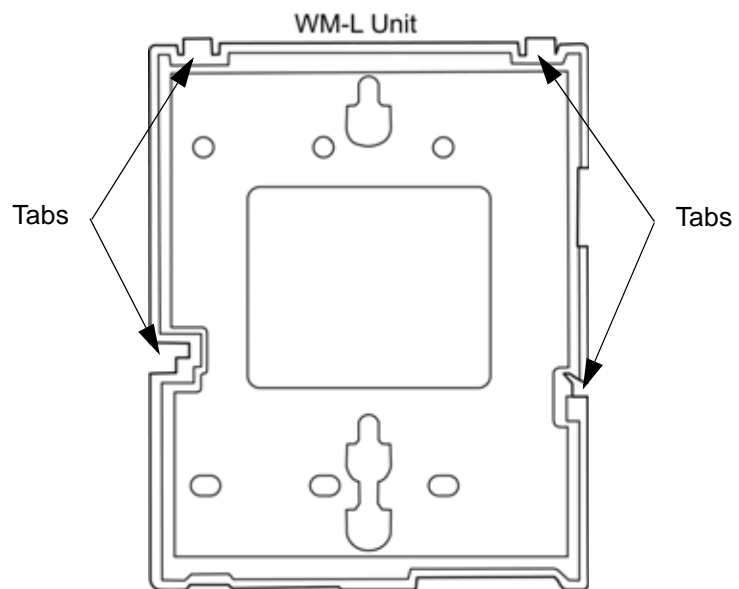


**Figure 5-86 Plugging in Line Cord**

4. Align the four cutouts on the bottom of the multiline terminal (refer to [Figure 5-87 Cutouts for WM-L UNIT](#)) with the tabs on the WM-L UNIT (refer to [Figure 5-88 WM-L UNIT Tabs](#)).

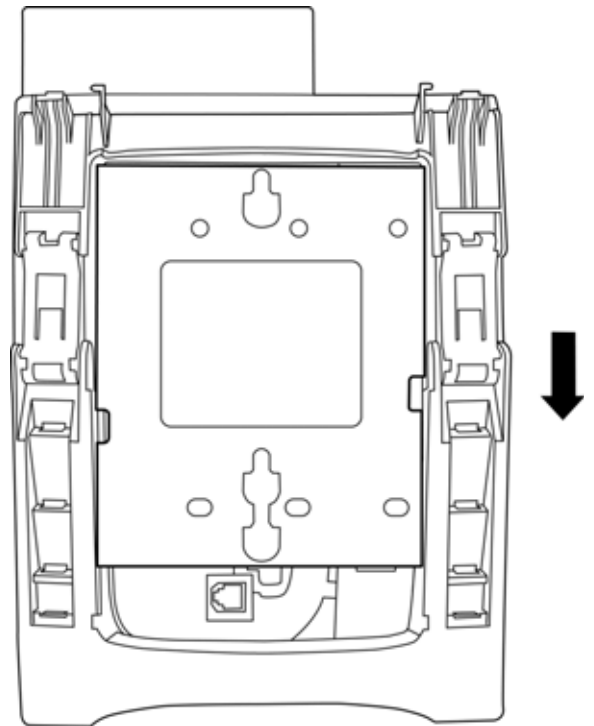


**Figure 5-87 Cutouts for WM-L UNIT**



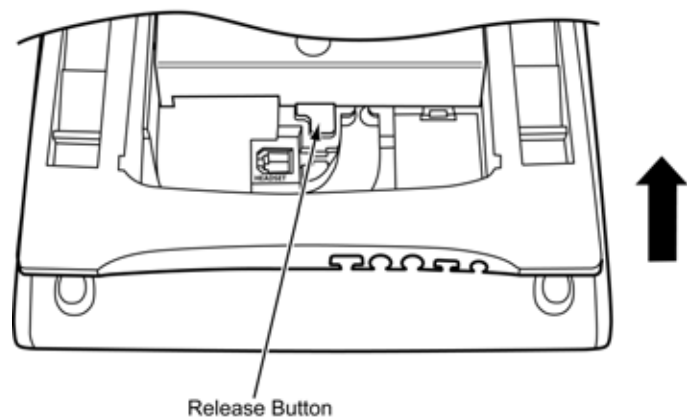
**Figure 5-88 WM-L UNIT Tabs**

5. Push down until the multiline terminal snaps into place (refer to [Figure 5-89 WM-L UNIT Installed](#)).



**Figure 5-89 WM-L UNIT Installed**

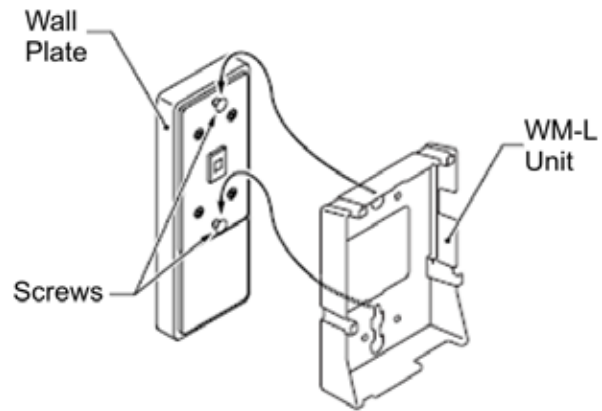
6. To release the multiline terminal from the WM-L UNIT, press the release button and push the telephone up (refer to [Figure 5-90 WM-L UNIT Release Button](#)).




**Figure 5-90 WM-L UNIT Release Button**

### 5.2.7.2 Mount Multiline Terminal on Wall Plate using WM-L UNIT

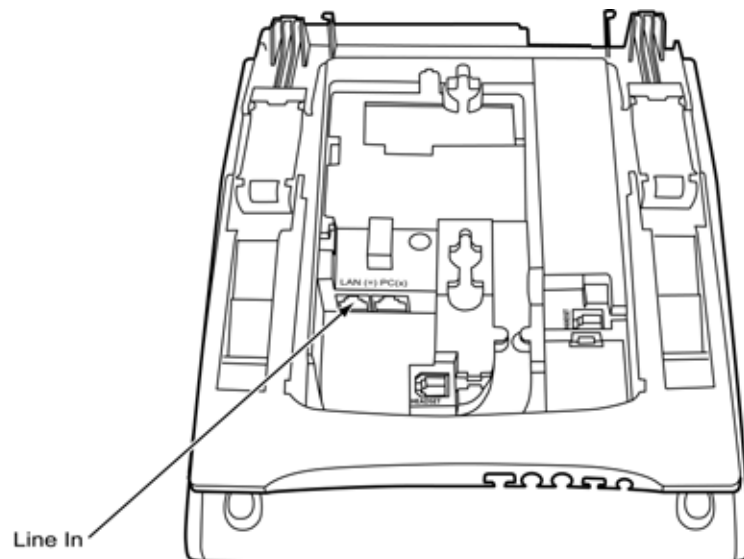
1. Locate the screw holes on the base and hang the cover over the screws on the wall plate as illustrated in [Figure 5-91 Attach WM-L UNIT to Wall Plate](#).



**Figure 5-91 Attach WM-L UNIT to Wall Plate**

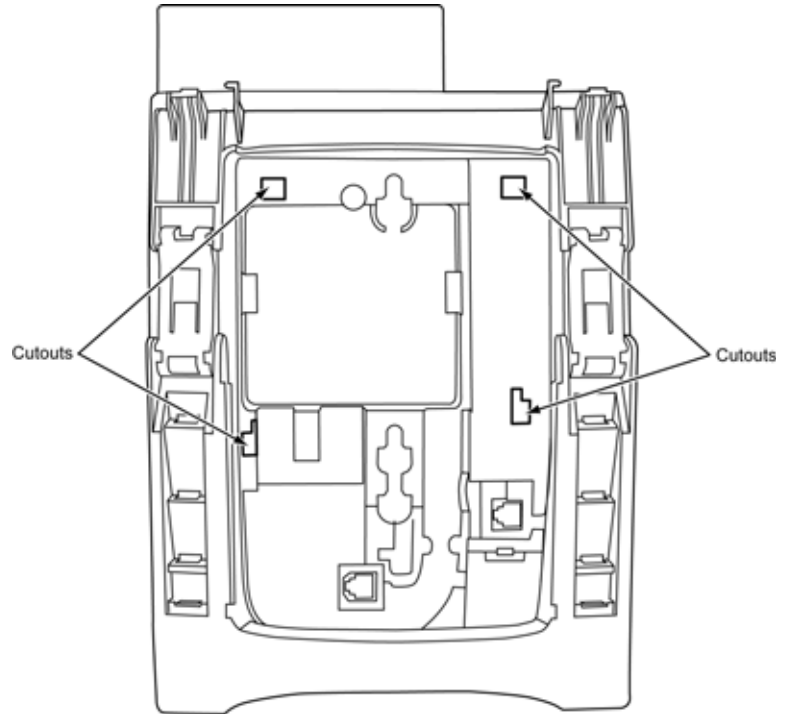
 *Because of variation in wall plates, this method is not recommended.*

2. Plug one end of the line cord into the wall receptacle. Leave about eight inches of cord and bundle the rest.
3. Plug the opposite end of the line cord into the multiline terminal as illustrated in [Figure 5-92 Plugging in Line Cord](#).

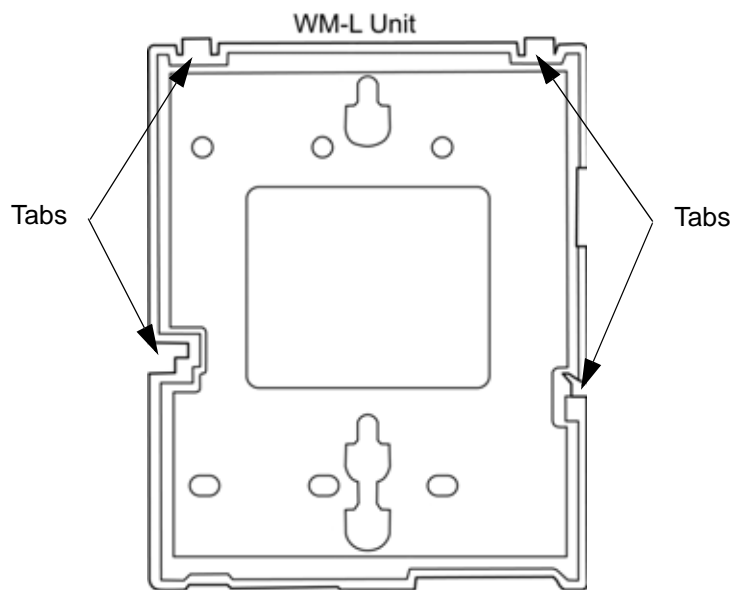


**Figure 5-92 Plugging in Line Cord**

4. Align the four cutouts on the bottom of the multiline terminal (refer to [Figure 5-93 Cutouts for WM-L UNIT](#)) with the tabs on the WM-L UNIT (refer to [Figure 5-94 WM-L UNIT Tabs](#)).

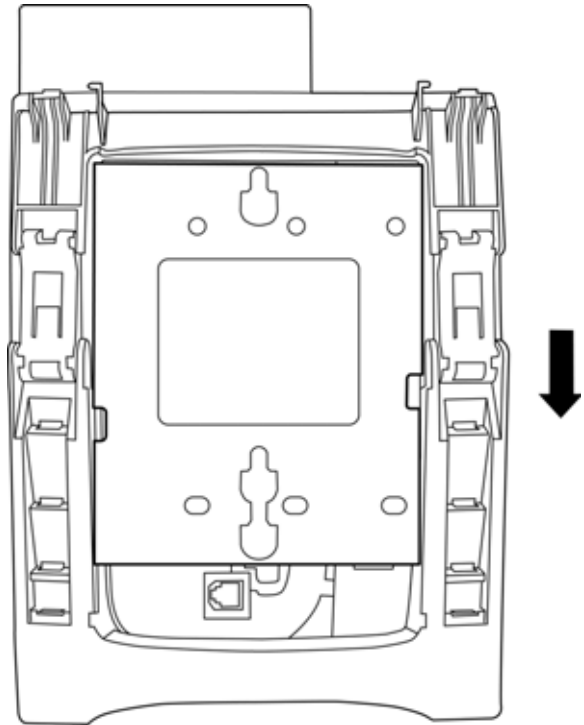


**Figure 5-93 Cutouts for WM-L UNIT**



**Figure 5-94 WM-L UNIT Tabs**

5. Push down until the multiline terminal snaps into place (refer to [Figure 5-95 WM-L UNIT Installed](#)).



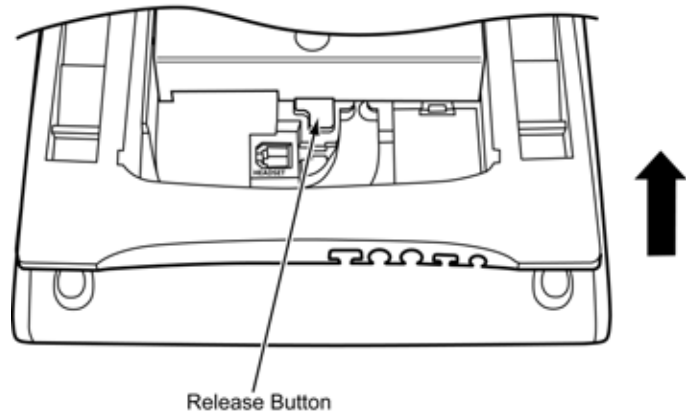
**Figure 5-95 WM-L UNIT Installed**

6. To remove the WM-L UNIT from the wall panel, push up on the telephone until it comes loose (refer to [Figure 5-96 Removing the Multiline Terminal](#)).



**Figure 5-96 Removing the Multiline Terminal**

7. To separate the multiline terminal from the WM-L UNIT, press the release button and slide the multiline terminal up (refer to [Figure 5-97 WM-L UNIT Release Button](#)).



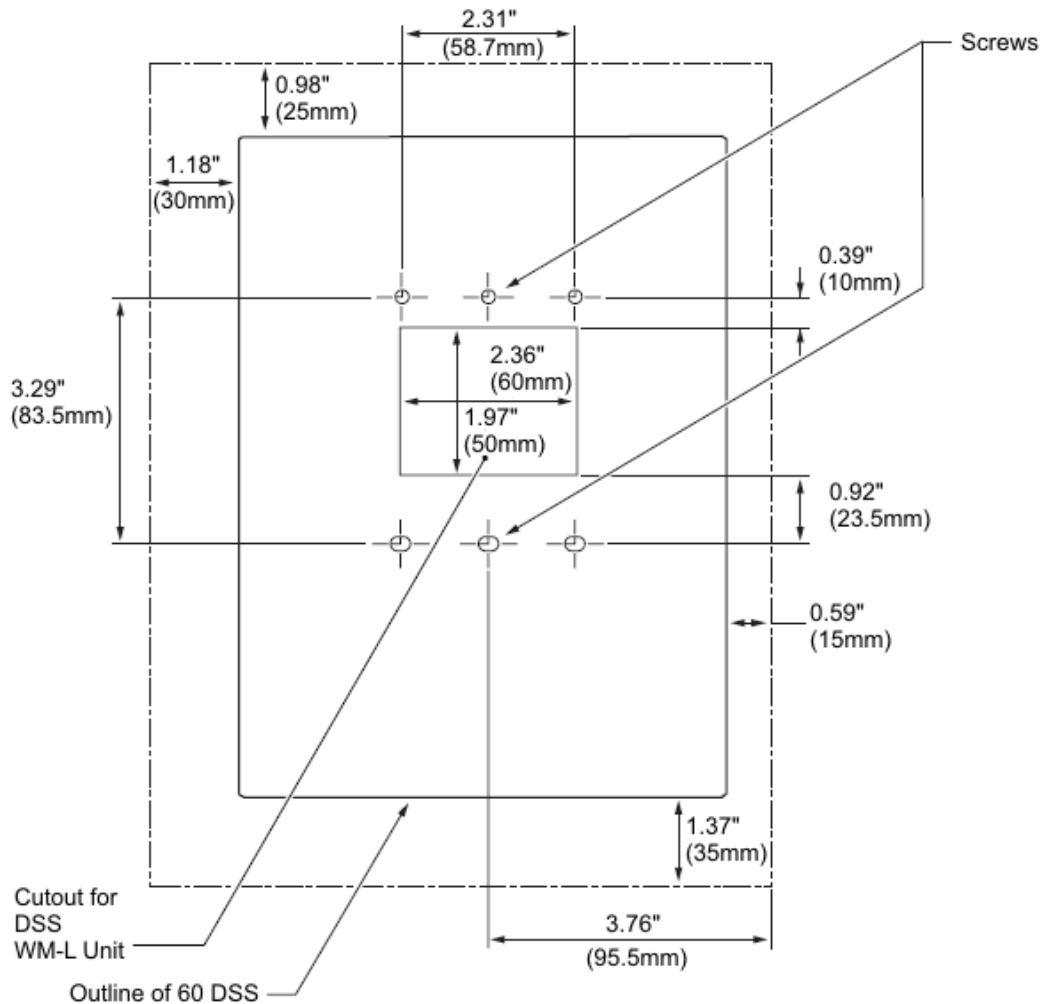
**Figure 5-97 WM-L UNIT Release Button**

### 5.2.8 DSS WM-L UNIT

The DSS WM-L UNIT (Wall Mount Unit) is used to attach the DCL-60-1 CONSOLE to the wall. This unit connects to the bottom of the terminal.

#### 5.2.8.1 Mount DCL-60-1 CONSOLE on Wall using DSS WM-L UNIT

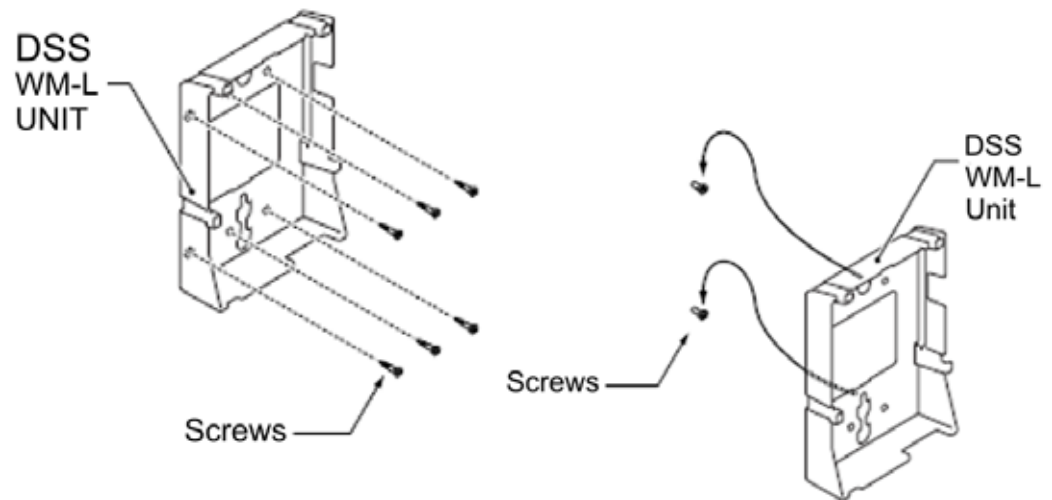
Use the template shown in [Figure 5-98 Wall Mount Spacing Guide \(DSS WM-L UNIT\)](#) for required spacing before drilling.



**Figure 5-98 Wall Mount Spacing Guide (DSS WM-L UNIT)**



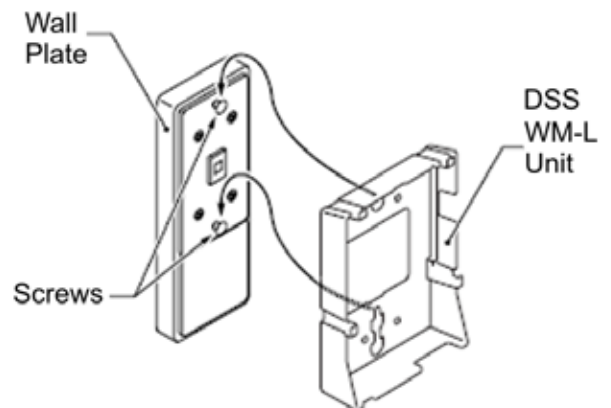
1. Attach the DSS WM-L UNIT to the wall using six screws or, using two wall mounted screws (refer to [Figure 5-99 Attach DSS WM-L UNIT Using Screws](#)).




**Figure 5-99 Attach DSS WM-L UNIT Using Screws**

#### 5.2.8.2 Mount DCL-60-1 CONSOLE on Wall Plate using DSS WM-L UNIT

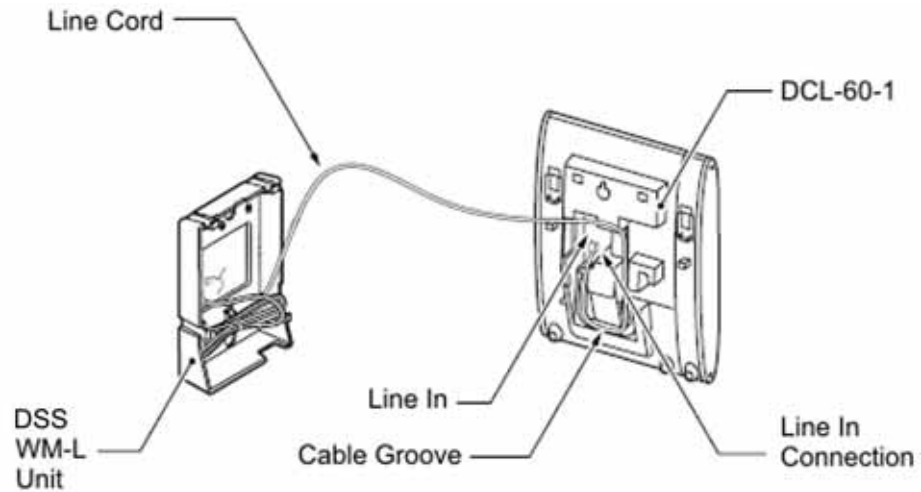
1. Locate the screw holes on the base and hang the cover over the screws on the wall plate as illustrated in [Figure 5-100 Attach DSS WM-L UNIT to Wall Plate](#).



**Figure 5-100 Attach DSS WM-L UNIT to Wall Plate**

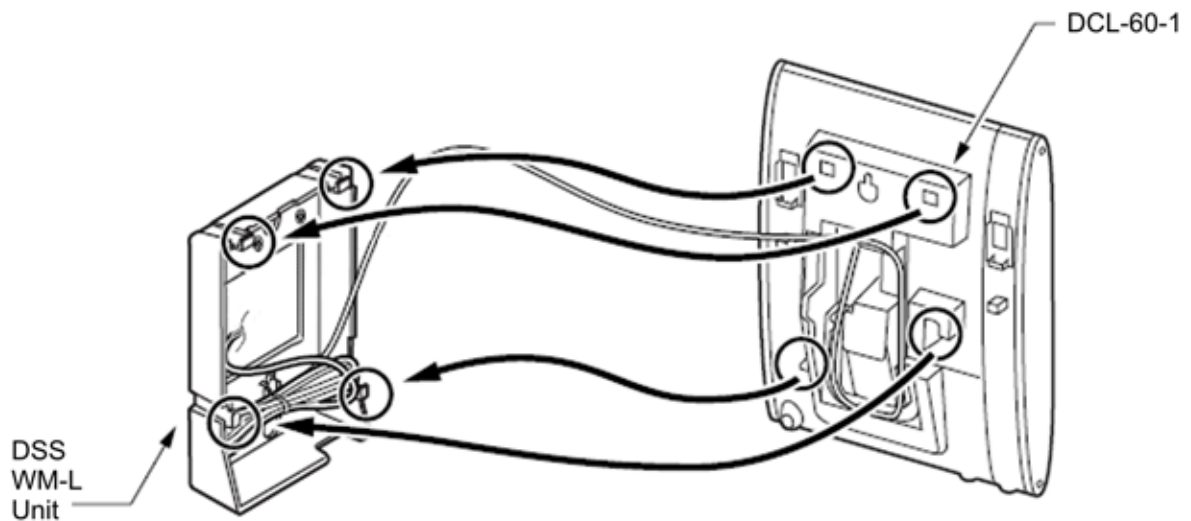
 *Because of variation in wall plates, this method is not recommended.*

2. Plug one end of the line cord into the wall receptacle. Leave about eight inches of cord and bundle the rest.



**Figure 5-101 Plug Cable into Wall**

3. Plug the opposite end of the line cord into the DCL-60-1 CONSOLE as illustrated in [Figure 5-102 Plugging Cable into DCL-60-1](#).



**Figure 5-102 Plugging Cable into DCL-60-1**

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## SECTION 6      **OPTIONAL HANDSETS**

### 6.1      **ITL/DTL PTM Handset**

The Push to Mute (PTM) handset has a single-pole, single-throw switch that must be continuously held down to provide local mute.

These replacement handsets for ITL/DTL terminals help to ensure a secure telephony environment by keeping unwanted audio from being transmitted over the corporate telephone network.

Using the PTM handset on an NEC digital or IP terminal prevents eavesdropping and eliminates the worry that privileged information could be transmitted without user authority. These handsets are also an ideal solution to filter unwanted audio transmissions from environments with ambient background noise.



**Figure 5-103 ITL / DTL PTM Handset**

### 6.2      **ITL / DTL PTT Handset**

The Push to Talk (PTT) handset has a single-pole, single-throw switch that must be continuously held down to transmit local audio.

These replacement handsets for ITL/DTL terminals help to ensure a secure telephony environment by keeping unwanted audio from being transmitted over the corporate telephone network.

Using the PTT handset on an NEC digital or IP terminal prevents eavesdropping and eliminates the worry that privileged information could be transmitted without user authority. These handsets are also an ideal solution to filter unwanted audio transmissions from environments with ambient background noise.



**Figure 5-104** ITL / DTL PTT Handset

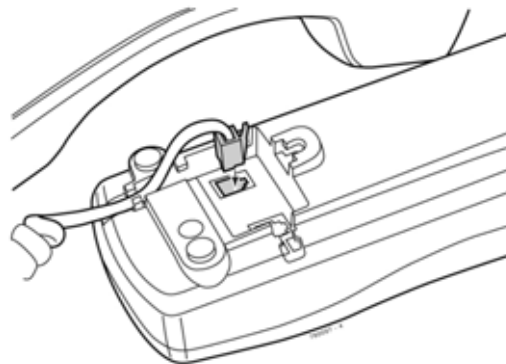
### 6.3 UTR-1-1 USB Handset

The NEC USB telephone can be plugged directly into a PC USB port, enabling the high quality voice input and output abilities of a standard desktop telephone. By connecting it to the USB port of a computer, calls can immediately be made and received using a SoftPhone without installation of additional software drivers.

The physical design eliminates stress associated with holding the handset between the ear and shoulder. The user immediately hears a dial tone after taking the handset off-hook, eliminating the need to click on/off hook icons in a PC application when making a call.

#### 6.3.1 Handset Connection

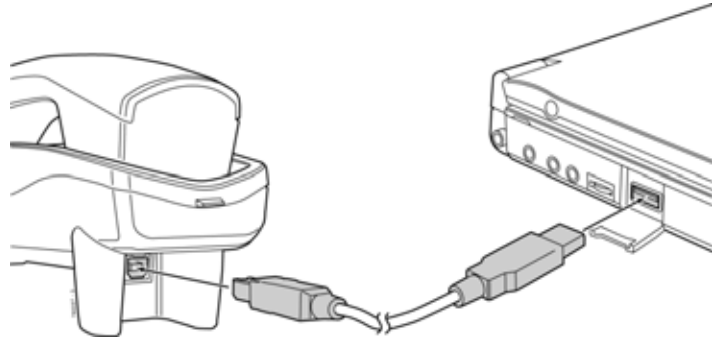
Plug the handset cable (RJ-11 connector) into the bottom of the cradle. Route the handset cable in the handset groove.



**Figure 5-105** Installing the UTR-1-1 USB Handset Cable

### 6.3.2 USB Connection

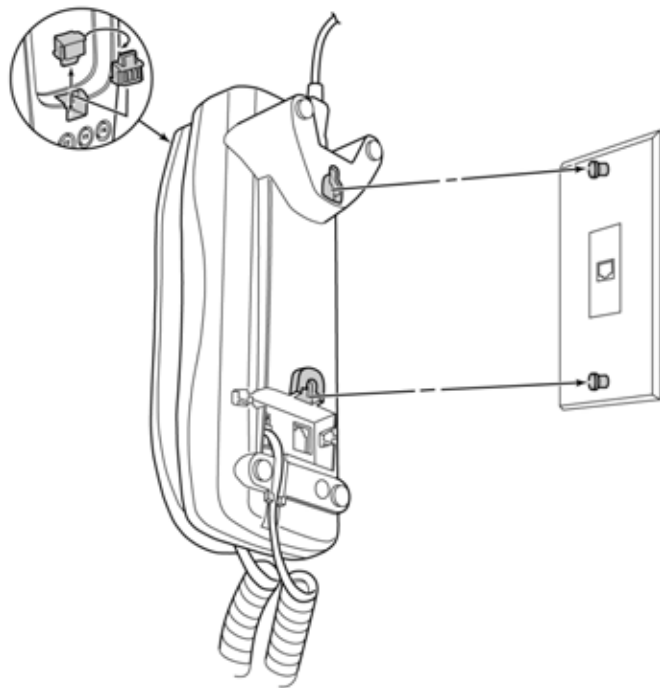
Plug a USB cable (type A connector) into the back of the cradle. Plug the USB cable (type B connector) in the USB port of a PC.




**Figure 5-106** Installing the UTR-1-1 USB Handset to a PC

### 6.3.3 Wall Mounting

The UTR-1-1 USB handset can be mounted on the wall using a wall plate or two screws. Align the two holes on the back of the UTR-1-1 and slide down onto the wall plate or screws.



**Figure 5-107** Wall Mounting the UTR-1-1 USB Handset

 *Because of variation in wall plates, this method is not recommended.*

## SECTION 7 SINGLE LINE TELEPHONE

### 7.1 Installing the SLT Adapter

The Single Line Telephone adapter provides an interface for Single Line Telephones and other similar devices from an ESI channel.

This adapter can be connected to any *ESI port*.

1. Connect one end of the RJ-11 to the ESI port on the chassis and one end to the **ESI** jack on the SLT Adapter.
2. Connect one end of a second RJ-11 to the TEL jack on the SLT Adapter and the other end to the Single Line Telephone.

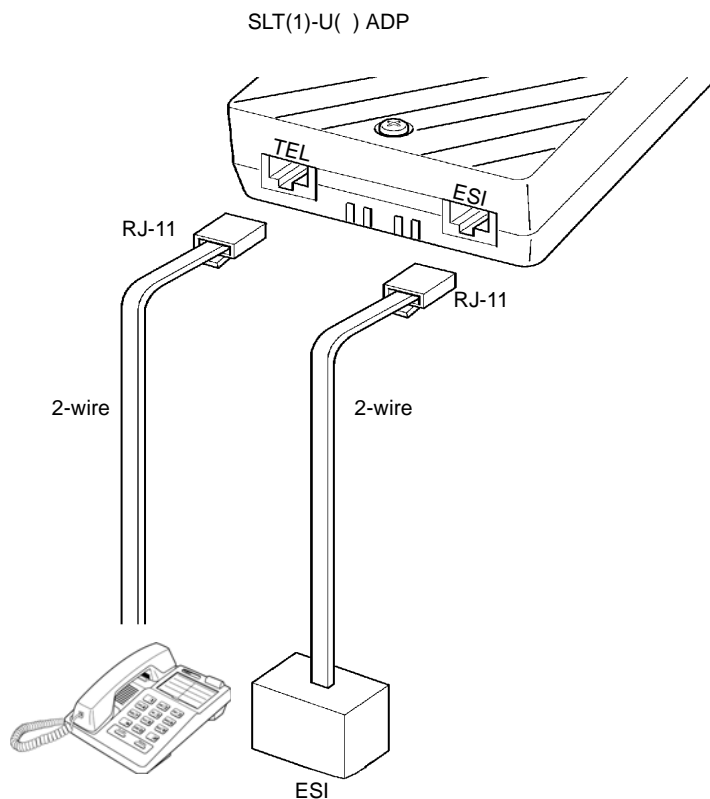
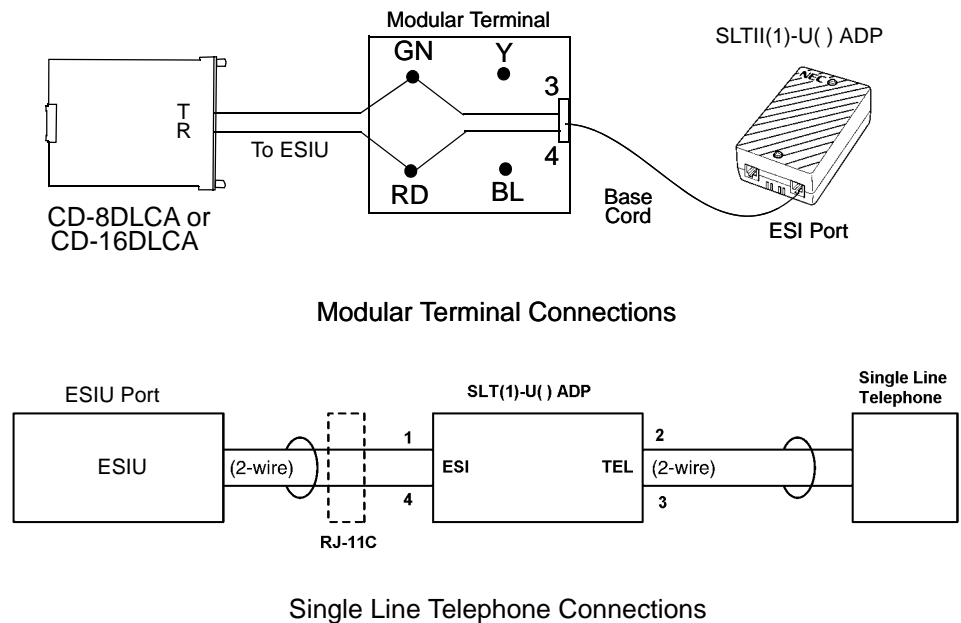


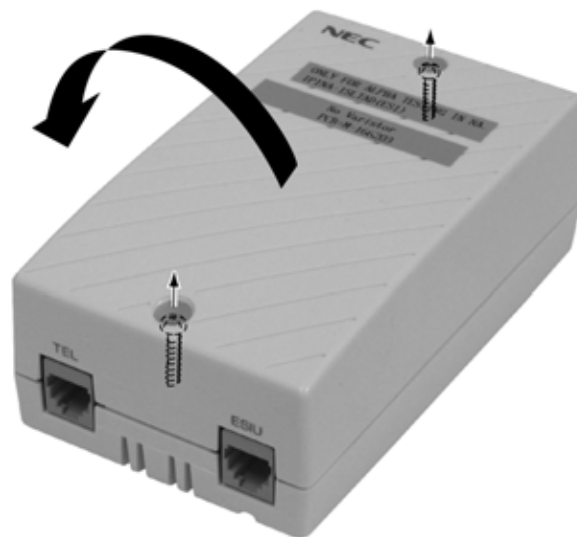
Figure 5-108 Installing SLT Adapter



**Figure 5-109 Connecting the SLT Adapter**

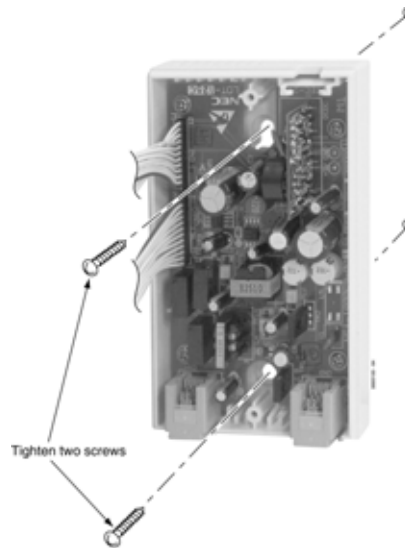
## 7.2 Wall-Mounting the SLT Adapter

1. Unplug the two line cords from the SLT Adapter.
2. Remove the two screws from the front of the SLT Adapter.
3. Lift the cover off the adapter.



**Figure 5-110 Removing the Cover**

4. Using the two screws provided with the SLT Adapter, attach the back cover to the desired location.



**Figure 5-111 Attaching the Unit**

5. Replace the front cover and the two screws removed in Step 2.
6. Plug the two modular line cords back into the SLT Adapter which were removed in Step 1.



# *Installing SV8100 Cordless Telephones*

## **SECTION 1 GENERAL DESCRIPTION**

This chapter provides information regarding cordless telephones that can be used with the UNIVERGE SV8100 system.

## **SECTION 2 CT-12 HEADSET CORDLESS TELEPHONE**

The CT-12 is a 2.4GHz cordless headset which connects to an analog port or an analog telephone line as a stand-alone unit or to an analog port adapter (APR, P/N 0890056). When the APR is set up with the same extension as the telephone, you can use the headset to answer and make calls using the cordless headset. The CT-12 offers Caller ID, but only if it is connected to an analog port on an analog station card. The CT-12 cannot receive Caller ID if it is connected to an APR adapter (these adapters do not output Caller ID).



**Figure 6-1 Cordless Single Line Headset CT-12**

The number of units which can be used on the system is greatly affected by the environment. The closer or smaller the area, the smaller the number of units can be used. Start with three or less. If there are no conflicts between the telephones, you can try adding additional units (up to five is the recommended maximum).

When using wireless LAN, keep in mind that although there should not be a problem with interference from the WLAN, 802.11b and 802.11g both share the same frequency as the CT-12 telephone. In theory, the CT-12 is a narrow band high power device but the 802.11b and 802.11g are both wide band low power technologies. Therefore, the higher power CT-12 could disrupt the low power device and slow the data network. There are, however, many exceptions to this (for example, if the WLAN uses a highly directional antenna, higher power relays between buildings, etc.). The CT-12 cannot lock down channels, unlike the 802.11b and 802.11g.

The CT-12 features include:

- 2.4GHz Cordless Headset Phone
- Range of Up to 150'
- Six Hours of Talk Time, 80 Hours Standby Time
- Audible Low Battery Indicator
- Single Line Operation
- Ultra-Compact Remote Unit with Belt Clip
- Variable Range Volume Control
- 10 Speed Dial Numbers
- Page/Find Feature
- Redial/Flash
- Mute with Audible Reminder
- Talk/Charge/Power Indicator Lights
- Built-in Headset Stand

## **2.1 Selecting an Installation Location**

Before choosing a location for your new telephone, consider these important guidelines:

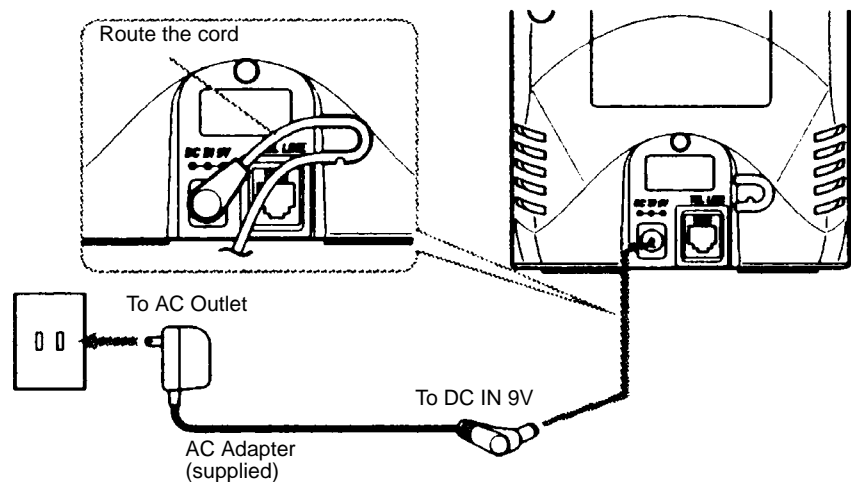
- The location should be close to both a telephone jack and continuous power outlet. A continuous power outlet is an AC outlet which does not have a switch to interrupt power.
- Keep the base and handset away from sources of electrical noise such as motors or fluorescent lighting.

- Be sure that the base antenna can be fully extended.
- The base can be placed on a desk or tabletop or mounted on a standard telephone wall plate.

Charge your new telephone for 15~20 hours before completing the installation or using the handset.

## 2.2 Connecting the Base Unit

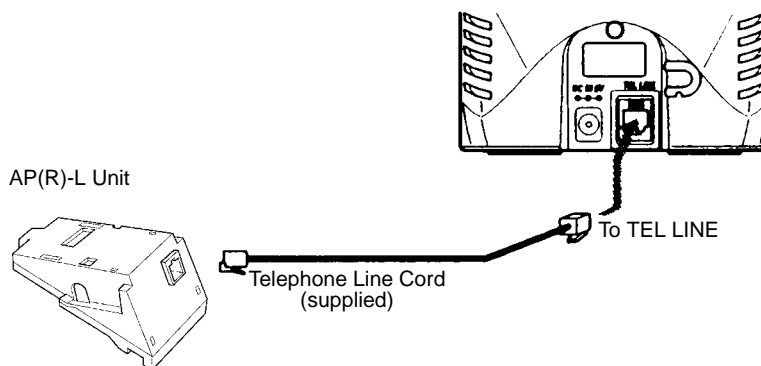
1. Connect the AC adapter to the *DC IN 9V* jack and to a standard 120V AC wall outlet.



**Figure 6-2 Connecting the *D<sup>term</sup>* Headset Cordless Base Unit to the Adapter**

2. Set the base on a desk or tabletop, and place the handset in the base unit as shown.
3. Place the antenna vertical.
  - ❑ Make sure the status LED is On. When the LED is Off, check to see that the AC adapter is plugged in and that the handset makes good contact with the base charging contacts.
  - ❑ Use only the supplied AC adapter (730627).
  - ❑ Connect the AC adapter to a continuous power supply.
  - ❑ Place the base unit close to the AC outlet so you can unplug the AC adapter easily.
  - ❑ After installing the battery pack in the handset, charge the handset at least three to five hours before plugging it into the telephone line.

4. Connect the telephone line cord to the *TEL LINE* jack and the other end to the AP(R)-L Unit. Refer to paragraph [12.4 APR-L UNIT on page 9-77](#) for detailed instructions for installing the AP(R)-L Unit. This unit can also be connected using an SLI(4)/(8)-U ( ) ETU.



**Figure 6-3 Connecting the *D<sup>term</sup>* Headset Cordless Telephone Cord to the AP(R)-L Unit**

5. Place the power cord so that it does not create a trip hazard or where it could become chafed and create a fire or electrical hazard.



***Observe the following warnings during installation:***

- Never install telephone wiring during a lightning storm.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

### SECTION 3 *D<sup>term</sup>*® CORDLESS II TERMINAL

The *D<sup>term</sup>* Cordless II terminal uses 900MHz Digital Spread Spectrum (DSS) Technology and is connected in tandem to a multiline terminal. The terminal has a 16-digit, 2-line LCD, dial pad, talk key, chan key, hold key, transfer key, conf key, mute key, vol key, a msg icon, vibrator, and four function keys with red LEDs.

In an ideal state, this terminal can be switched between cordless and the multiline terminal connected to it using Cordless or Desk key on the base unit.



Figure 6-4 *D<sup>term</sup>* Cordless II

### 3.1 Selecting an Installation Location

Select a location to avoid excessive heat or humidity. The base unit should be placed on a desk or tabletop near a standard 120 Vac outlet and within reach of the telephone line connection on the UNIVERGE SV8100 multiline terminal. Keep the base unit and the handset away from sources of electrical noise (e.g. fluorescent lighting).

### 3.2 Connecting the Telephone Cords

The *D<sup>term</sup>* Cordless II terminal is connected to the telephone line and to the host telephone using two telephone line jacks on the back of the Base Unit: LINE IN and LINE OUT.



***Observe the following warnings during installation:***

- Never install telephone wiring during a lightning storm.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

To connect the  $D^{term}$  Cordless Terminal to the host telephone:

1. Unplug the telephone line cord from the host telephone, and connect it to the LINE IN jack.
2. Using the telephone line cord supplied with the  $D^{term}$  Cordless Terminal, connect the LINE OUT jack to the host telephone jack.

### 3.3 Applying Power to the Base Unit

1. Plug the AC Adapter cord in the AC Adapter input jack on the Base Unit.
  - ☞ Use only the AC Adapter supplied with the  $D^{term}$  Handset Cordless Terminal.
2. Plug the AC Adapter into a standard 120 Vac wall outlet.
3. Route the power cord where it does not create a trip hazard or where it could become chafed and create a fire or other electrical hazards.

☞ The AC Adapter furnished with this telephone usually has a polarized line plug with one blade wider than the other. This plug fits into the power outlet only one way. When you cannot insert the plug fully into the outlet, reverse the plug. When the plug still does not fit, contact your facilities coordinator about replacing the obsolete plug. Do not alter the shape of the blades of the polarized plug.

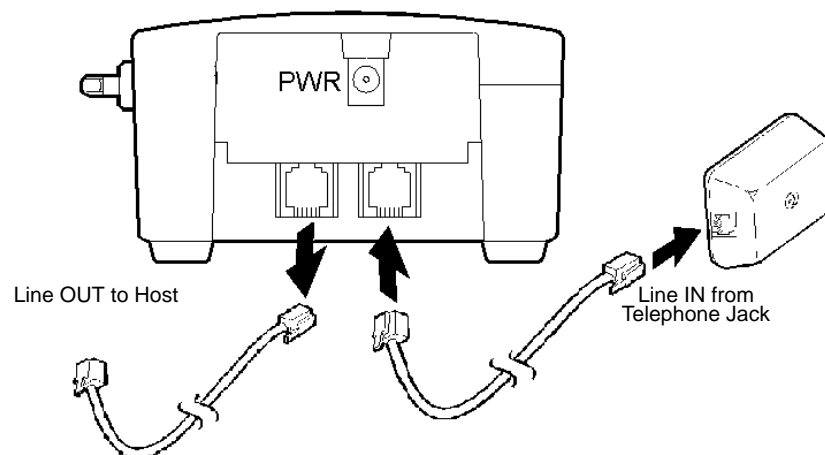


Figure 6-5 Connecting the Base Unit

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## SECTION 4 ***D<sup>term</sup>*® CORDLESS LITE II TERMINAL (DTH-4R-1)**

This cordless terminal achieves a maximum range of 50~150 feet for transmitting and receiving in accordance with the highest specifications set by the FCC and IC Part 15. Range is limited by environment, and too many variables preclude a standard determination. The range quoted is for reference as a means to compare with other range claims.

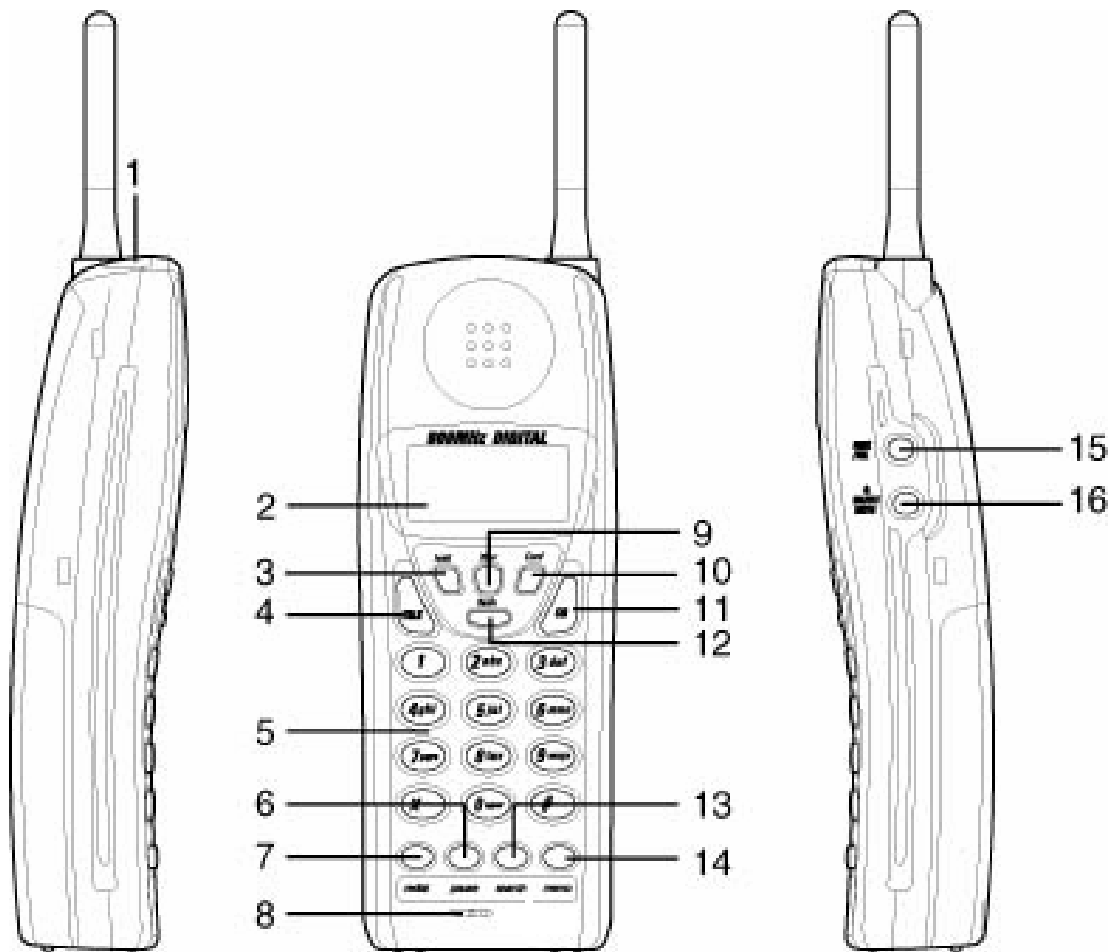
Radio interference can be caused by external sources such as TV, fluorescent lighting, electrical storms, or other wireless devices. The base unit should not be plugged into a circuit with a connection to a major appliance, and the antenna should always be fully extended.

### **4.1 Selecting a Location**

Select a location for the *D<sup>term</sup>* CORDLESS LITE II terminal to avoid excessive heat or humidity. The base unit of the terminal can be placed on a desk or tabletop near a standard 120 Vac outlet and telephone line jack. The base unit can be mounted also on a standard wall plate using the wall mount adapter. Keep the base unit and handset away from sources of electrical noise (motors, fluorescent lighting, computers, PC monitor).

### **4.2 Controls and Indicators**

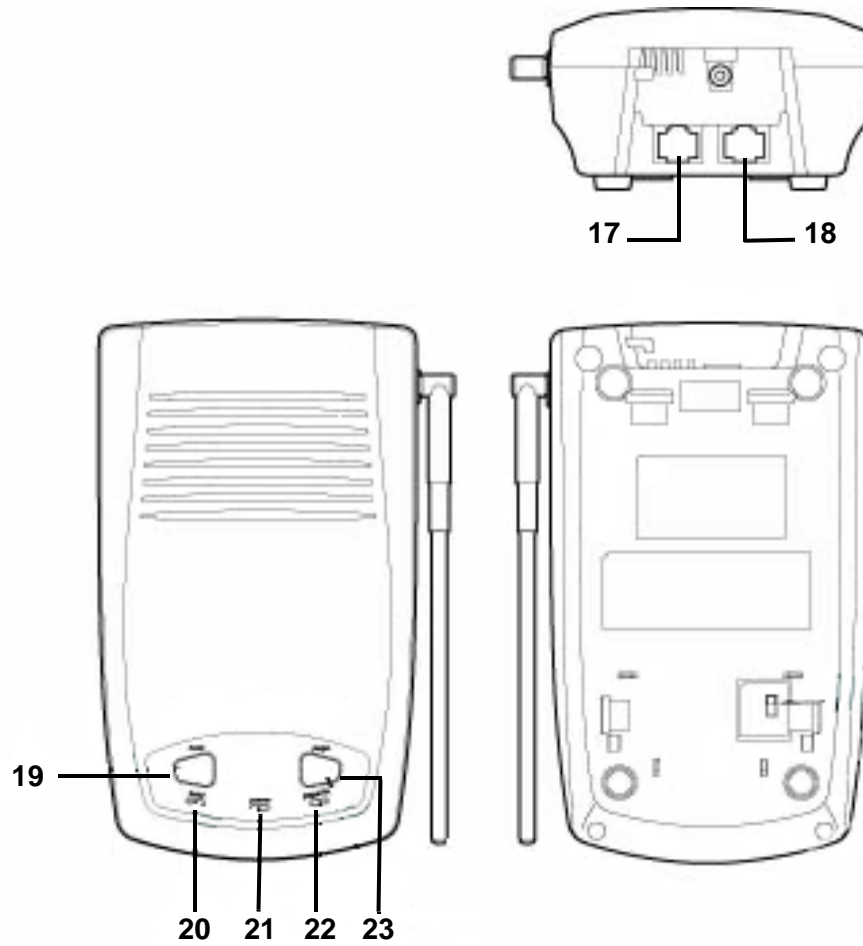
Controls and Indicators are shown in [Figure 6-6 \*D<sup>term</sup>\* Cordless Lite II Controls and Indicators on page 6-8.](#)



- |                             |  |
|-----------------------------|--|
| 1. Headset Jack             | 9. Conference ( <b>CONF</b> ) Key                                |
| 2. LCD Message Display      | 10. Transfer ( <b>TRANSFER</b> ) Key                             |
| 3. Hold ( <b>HOLD</b> ) Key | 11. Channel (CH) Key   |
| 4. Talk ( <b>TALK</b> ) Key | 12. Redial ( <b>REDIAL</b> ) or Desk/Cordless Softkey Switch Key |
| 5. Numeric Keypad           | 13. F3   |
| 6. F2                       | 14. F4   |
| 7. F1                       | 15. Ringer/Volume ( <b>Ring/Vol</b> ) Key                        |
| 8. Microphone               | 16. Mute ( <b>MUTE</b> ) Key                                     |

Figure 6-6 *D<sup>term</sup>* Cordless Lite II Controls and Indicators





- |                  |              |
|------------------|--------------|
| 17. Line Out     | 21. Power    |
| 18. Line In      | 22. Desk LED |
| 19. Cordless     | 23. Desk     |
| 20. Cordless LED |              |

**Figure 6-62 *D<sup>term</sup>* Cordless Lite II Controls and Indicators (Continued)**

### 4.3 Installation Precautions

To ensure optimum performance follow these guidelines:

- Base units must be placed at least 15 feet apart.
- The base antenna should be vertical.
- Always place the base unit on top of a desk or on higher shelves. Avoid locations surrounded by metal surfaces.
- Place the base away from any electrical component such as a PC, monitor, or other telephone.

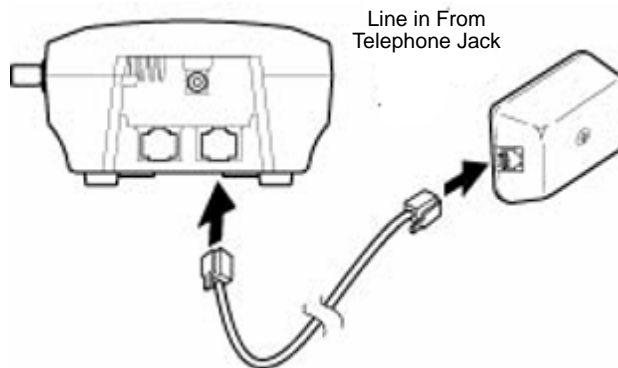
### 4.4 Connecting the Telephone Cords

When connecting the telephone cords, observe the following precautions:

- Never install telephone wiring during a lightning storm.
- Never touch bare telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

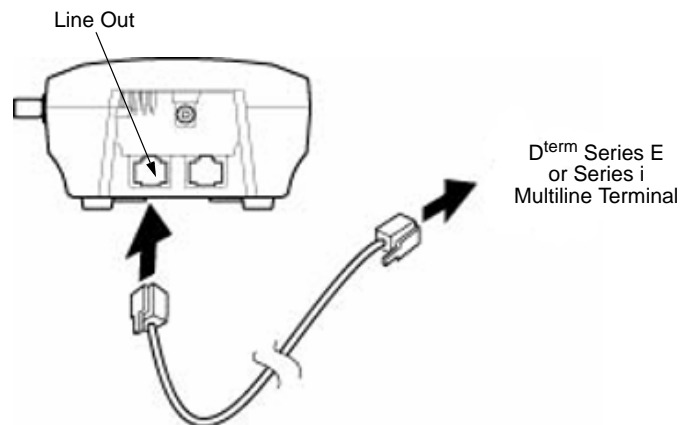
To connect the telephone cords:

1. Connect the cord from the telephone jack to the Base Unit LINE IN jack.



**Figure 6-7 Connecting Base Unit to the Telephone Jack**

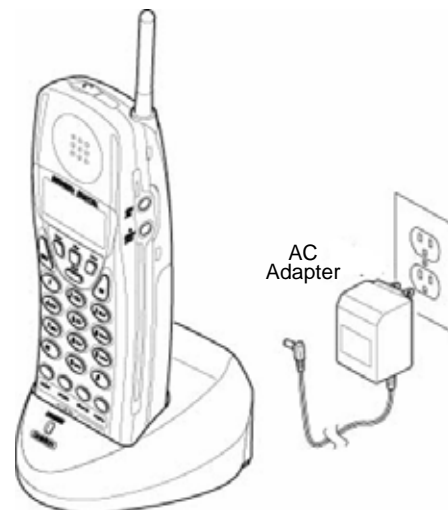
2. Connect a qualified NEC digital multiline terminal to the LINE OUT jack.



**Figure 6-8 Connecting the Base Unit to the Multiline Terminal**

#### 4.5 Applying Power to the Charging Unit

The unique design of the telephone allows the user to place the handset in the charging unit with or without the belt clip attached. The battery pack is recharged automatically in the handset unit.



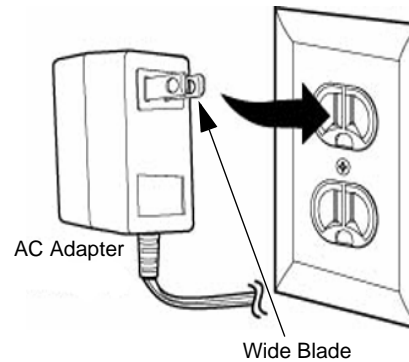
**Figure 6-9 Applying Power to the Charging Unit**



*Use only the supplied AC adapter for the charging unit.*

The AC adapter furnished with this telephone may be equipped with a polarized line plug (one blade is wider than the other). This plug fits in the power outlet only one way. Refer to [Figure 6-10 Polarized Plug](#).

When you cannot plug the AC adapter in the outlet, you may need to replace it.



**Figure 6-10 Polarized Plug**

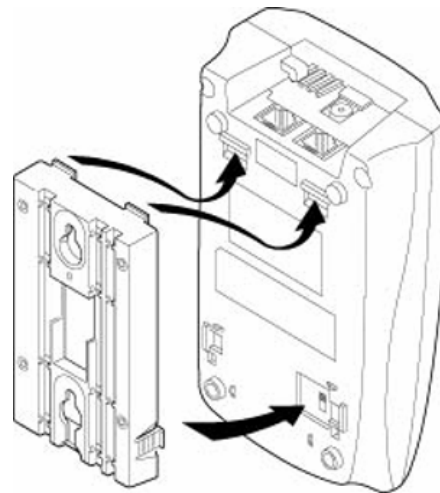


*Route the power cord where it cannot create a trip hazard, or where it could become chafed and create a fire or other electrical hazards.*

#### **4.6 Standard Wall Plate Mounting**

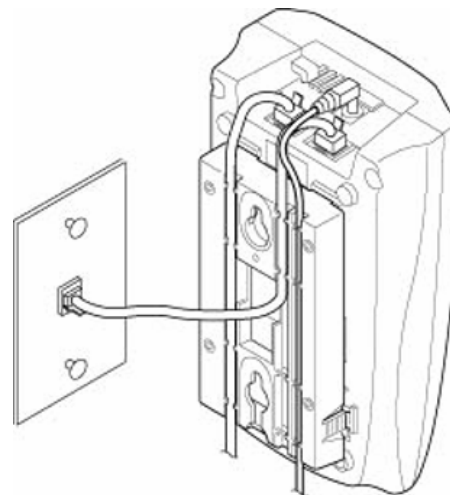
The base unit can be mounted on standard wall plate. To attach the wall mount stand to the base unit:

1. Slide the wall mount stand in the notches at the top of the base unit. Rotate the wall mount stand down and snap it into place.



**Figure 6-11 Attaching the Wall Mount Stand to the Base Unit**

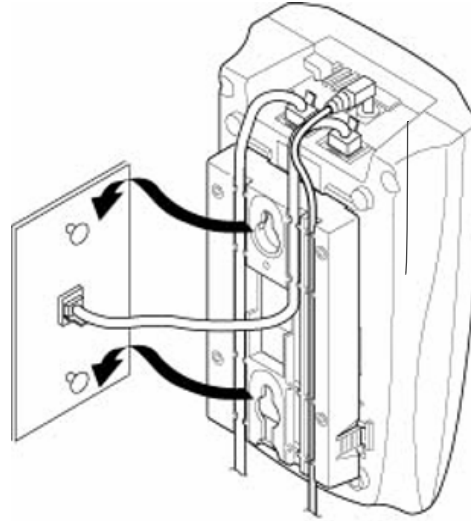
2. Plug the AC adapter in the base unit.
3. Place the AC adapter cord inside the molded channel of the wall mount stand.



**Figure 6-12 Placing the AC Adapter Cord In the Wall Mount Stand**

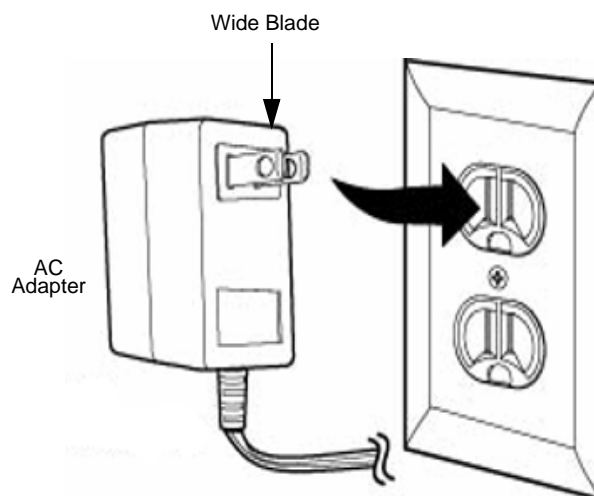
4. Plug one end of the short telephone cord (locally supplied) in the **LINE IN** jack on the base unit. Plug one end of the NEC digital multiline terminal in the **LINE OUT** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.

5. Plug the other end of the short telephone cord in the modular wall jack in the center of the wall plate.
6. Place the base unit on the posts of the wall plate and push down until it is firmly seated.



**Figure 6-13 Placing the Base Unit on the Posts of the Wall Plate**

7. Plug the AC adapter into a standard 120 Vac wall outlet.
  - ✎ *Do not use an outlet controlled by a wall switch.*



**Figure 6-14 Plugging the AC Adapter into the Wall Outlet**

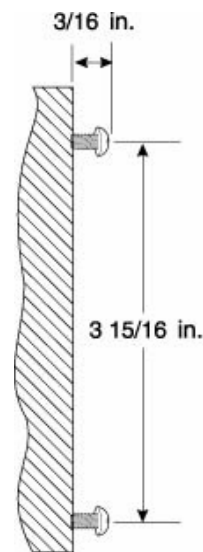
## 4.7 Direct Wall Mounting

When a standard wall plate is not available, mount the telephone directly on the wall. Before mounting the telephone, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material can support the weight of the base unit.
- Use #10 screws with anchoring devices suitable for the wall material.

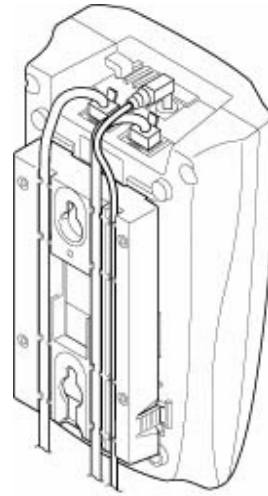
To mount the telephone:

1. Insert two mounting screws  $3\text{-}15/16$  inches apart. Allow about  $3/16$  of an inch between the wall and screw heads for mounting the telephone.



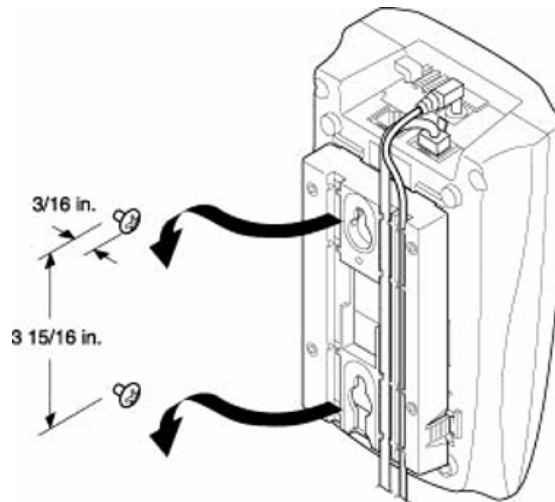
**Figure 6-15 Inserting Screws into the Wall for Wall Mounting the Telephone**

2. Plug in and secure the AC adapter.
3. Plug the AC adapter into the base unit.
4. Plug one end of the short telephone cord in the **LINE In** JACK on the base unit. Then plug a multiline terminal line in the **LINE OUT** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.




**Figure 6-16 Placing the Telephone Cords in the Wall Mount Stand**

5. Place the base unit on the posts of the wall screws and push down until it is firmly seated.



**Figure 6-17 Attaching the Wall Mount Unit to the Wall**

6. Plug the other end of the short telephone cord in a telephone wall jack.
7. Plug the AC adapter in a standard 120 Vac wall outlet. Refer to [Figure 6-14 Plugging the AC Adapter into the Wall Outlet on page 6-14](#).

 *Do not use an outlet controlled by a wall switch.*



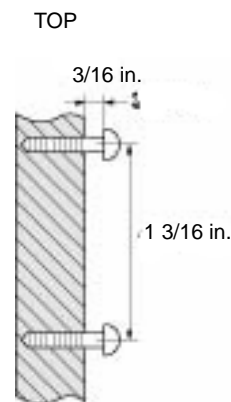
## 4.8 Charging Unit Wall Mounting

The charging unit can be wall mounted. Before installing, consider the following:

- Select a location away from electrical cables, pipes, or items behind the mounting location that could cause a hazard when inserting screws.
- Make sure the wall material can support the weight of the charging unit.
- Use #10 screws with anchoring devices suitable for the wall material.

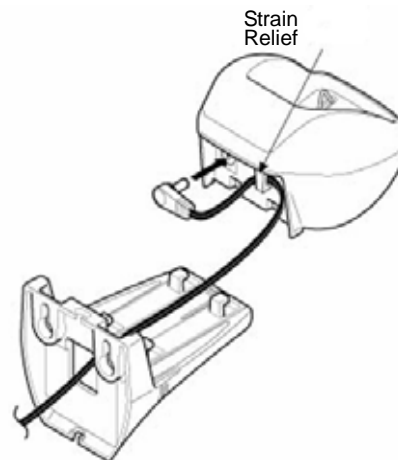
To mount the charging unit:

1. Insert two mounting screws one inch apart. Allow about  $\frac{3}{16}$  of an inch between the wall and screw heads for mounting the telephone.



**Figure 6-18 Inserting Screws for Wall Mounting**

2. Plug the AC adapter in the charging unit. Wrap the AC adapter cord around the strain relief.



**Figure 6-19 Wrapping AC Adapter Cord Around the Strain Relief Clip**

3. Plug the AC adapter in a standard 120V AC wall outlet.

#### 4.9 Attaching and Removing the Belt Clip

A belt clip can be used to attach the handset to a belt or pocket for convenient portability.

1. Slide the clip in the tab slots. Press firmly until it snaps into place. The belt clip fits snugly on the handset.

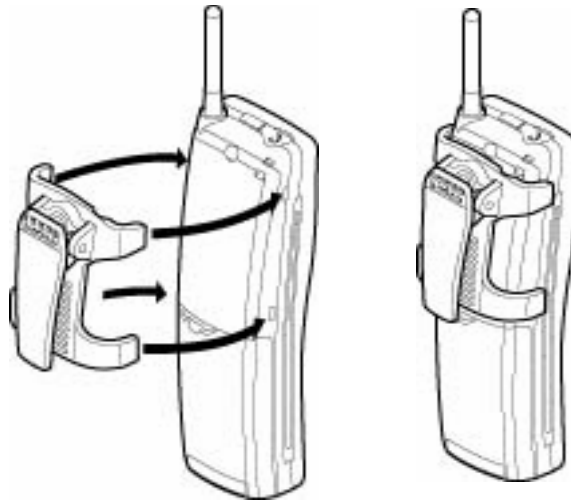


Figure 6-20 Attaching the Belt Clip to the Handset

2. To remove the clip, press the retaining clip in toward the belt clip blade and slide the clip up at the same time.

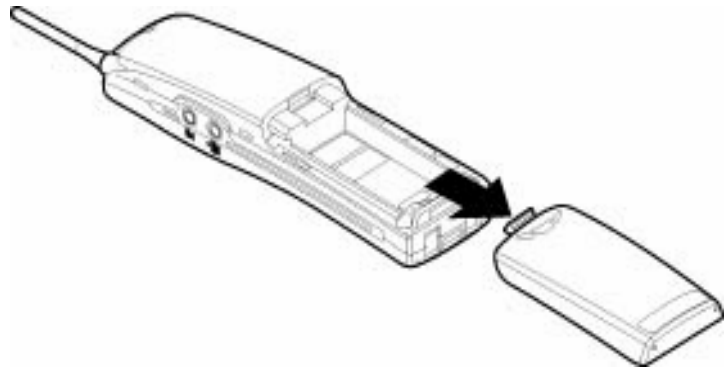


Figure 6-21 Removing the Belt Clip

## 4.10 Installing the Handset Battery Pack


Before installing batteries, refer to [Regulatory on page R-1](#). Follow safety regulations when handling batteries.

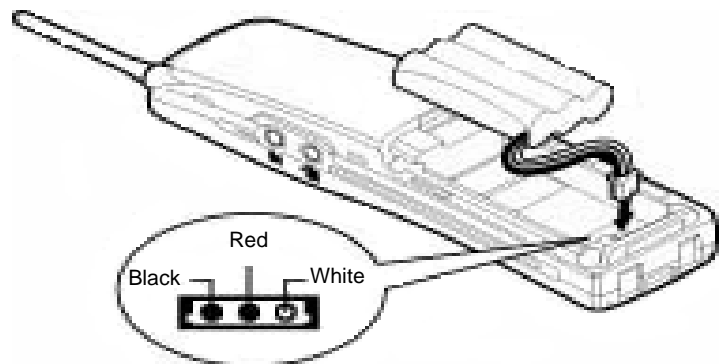
1. To remove the battery cover, press the latch and slide the cover down and off the handset.



**Figure 6-22 Removing the Battery Cover**

2. Slide the battery pack down into the handset.

 *It may be necessary to remove the old battery at this time.*



**Figure 6-23 Replacing the Battery Pack**

3. Replace the cover and slide it forward until it latches.

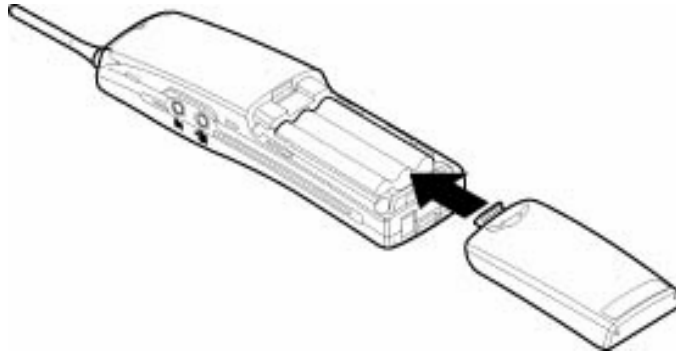



Figure 6-24 Replacing the Battery Cover

#### 4.11 Charging the Handset Battery Pack

The rechargeable battery pack must be fully charged before using the  $D^{term}$  Cordless Lite II handset for the first time.

 *Charge the battery pack without interruption for five to eight hours.*

1. Place the handset in the slot of the charging unit.
2. Make sure the **CHARGE** indicator lights. If the **CHARGE** LED does not come on, check to see if the AC adapter is plugged in and that the handset is making good contact with the charging contacts on the charging unit.
3. The **CHARGE** LED lights red during and after charging the handset with the battery.

#### 4.12 Battery Hot Swap

The battery can be hot swapped while a conversation is taking place. The battery must be changed within 20 seconds or connection is lost.

#### 4.13 Low Battery Indications

The handset has visual and audible indicators to warn of a low battery condition. The indicators are different for standby mode and talk mode.

#### 4.14 Standby Mode

The handset display turns on the battery low icon. All LEDs are turned off and LCD messages are cleared. A battery low alert tone is emitted every 15 seconds and lasts for three minutes.



#### 4.15 Talk Mode

The handset display turns on the battery low icon. All keys and functions are available. The battery low alert tone is emitted every three seconds as long as conversation continues. After conversation is completed, the handset returns to the battery low condition in standby mode.



When you receive the low battery indication, return the handset to the base unit for charging or replace the handset battery pack with another charged battery pack.

The following table indicates what occurs and the action to be taken during a call or in standby mode when low battery indication is displayed.

**Table 6-1 Low Battery**

On a Call	In Standby Mode
When <b>batt low</b> is displayed:	
Only the <b>TALK</b> key operates.	None of the keys operate.
Handset beeps every three seconds.	Handset beeps every 15 seconds for 15 minutes.
Action:	
Complete the call as quickly as possible.	Cannot make a call.
Replace the battery pack within 20 seconds to continue a call.	Replace the battery pack before making another call.

#### 4.16 Cleaning the Battery Charge Contacts

To maintain a good charge, clean all charging contacts on the handset and charging unit about once a month. Use a pencil eraser or other contact cleaner. *Do not use liquids or solvents.*

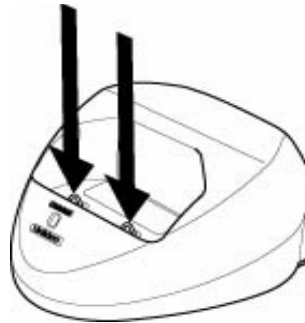


Figure 6-25 Cleaning Battery Charge Contacts

#### 4.17 Antenna

Before using the Cordless II telephone place the antenna vertical as shown in [Figure 6-26 Raising the Base Unit Antenna](#).

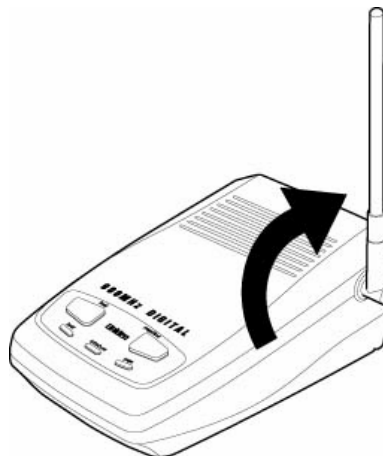


Figure 6-26 Raising the Base Unit Antenna

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## SECTION 5 **D<sup>term</sup>® ANALOG CORDLESS II (DTR-1R-2)**

The UNIVERGE SV8100 supports the *D<sup>term</sup>* Analog Cordless II telephone. The DTR-1R-2 is a 5.8Ghz digitally expandable cordless telephone that places a fully featured cordless handset anywhere in your home or office where AC power is available to connect the handset chargers. The cordless telephone features:

- Handsfree duplex speakerphone in the handset
- Caller ID
- 100 programmable memory locations
- Trilingual Display Options (English, French and Spanish)
- Intercom/Call transfer between handsets
- 20 distinctive ring options (10 ringer tones, 10 melody ringers)
- Mute and Hold features
- Battery level indicator
- Clock display
- Animation displays

### 5.1 **Selecting an Installation Location**

Select a location for the *D<sup>term</sup>* Analog Cordless II telephone avoiding excessive heat or humidity. The base can be placed on a desk or tabletop or mounted on a standard telephone wall plate near a telephone jack and continuous AC power supply. The base unit can be mounted also on a standard wall plate using the wall mount adapter. Be sure there is sufficient space for the antenna to be extended. Keep the base unit and handset away from sources of electrical noise (motors, fluorescent lighting, computers, PC monitor). A new phone should be charged 15~20 hours prior to use.

#### *For maximum range:*

- Keep the antenna free of obstruction.*
- When not in use, place the handset upright.*
- Do not hold the handset where you block the signal.*
- Metal and reinforced concrete may affect cordless telephone performance.*





Figure 6-27 Opening the DTR-1R-2 Battery Cover

## 5.2 Installing the Rechargeable Battery Pack into the Handset

The handset is powered by a rechargeable battery pack. The battery recharges automatically when the handset is placed in the base unit. To maximize the charge capacity of your battery pack, **DO NOT** plug the telephone cord into the base unit and wall jack until the battery is fully charged.

1. Press down on the handset battery case cover (use the finger indentation for a better grip) and slide the cover downward to remove.

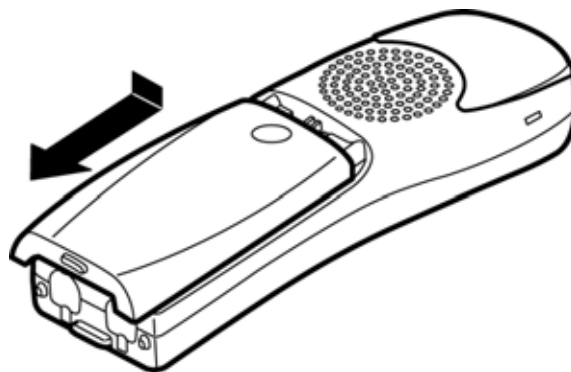


Figure 6-28 Remove the Battery Case Cover



2. Turn the battery pack so the connector with the red and black wires is near the jack inside the battery compartment. Match the connector wire colors to the polarity label in the battery compartment (the connector notches fit in the grooves of the jack only one way). Push the battery pack connector into the jack until it clicks into place.

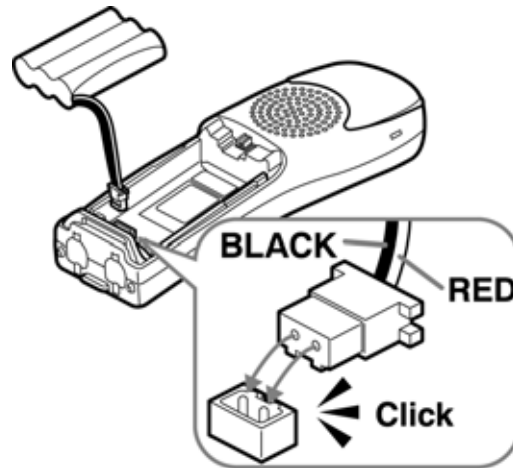


Figure 6-29 Install the Battery

3. Make sure you have a good connection by gently pulling on the battery wires. If the connection is secure, the battery jack remains in place.
4. Place the battery case cover back on the handset and slide it upwards until it clicks into place.

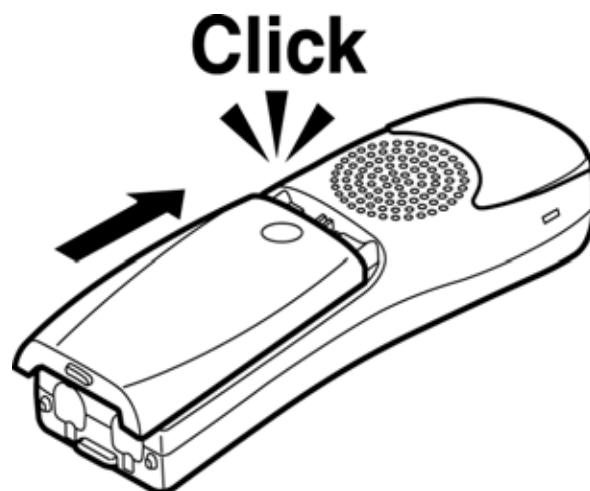


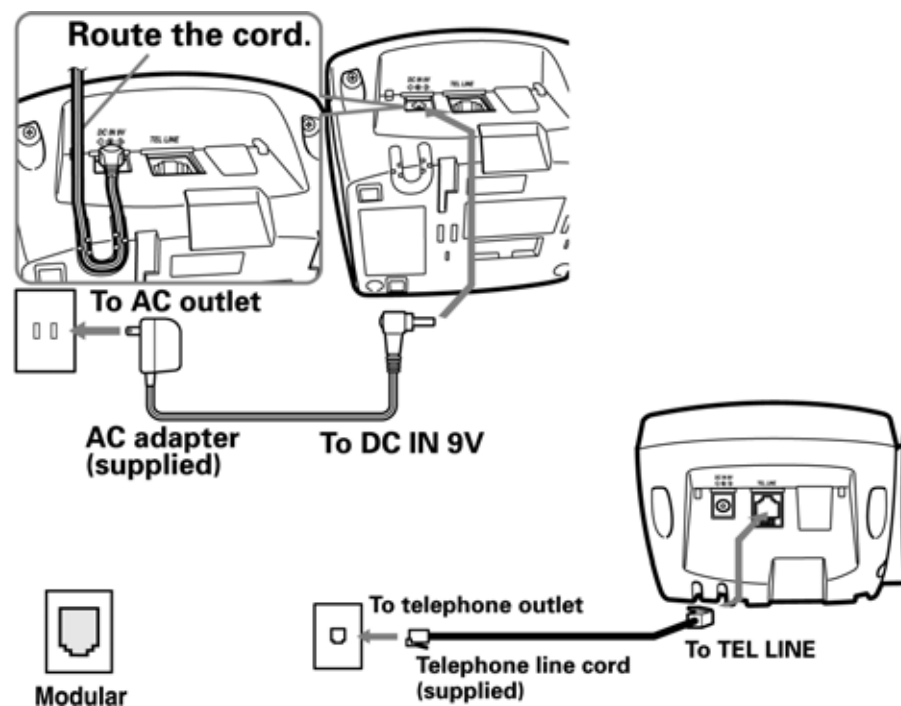
Figure 6-30 Install the Battery Case Cover



- *Use only the NEC rechargeable battery pack supplied with your cordless telephone.*
- *Replacement battery packs are available also. Contact your NEC Representative.*

### 5.3 Connecting the Base Unit

1. Connect the AC adapter to the **DC IN 9V** jack and to a standard 120V AC wall outlet.



**Figure 6-31 Connect the Base Unit**

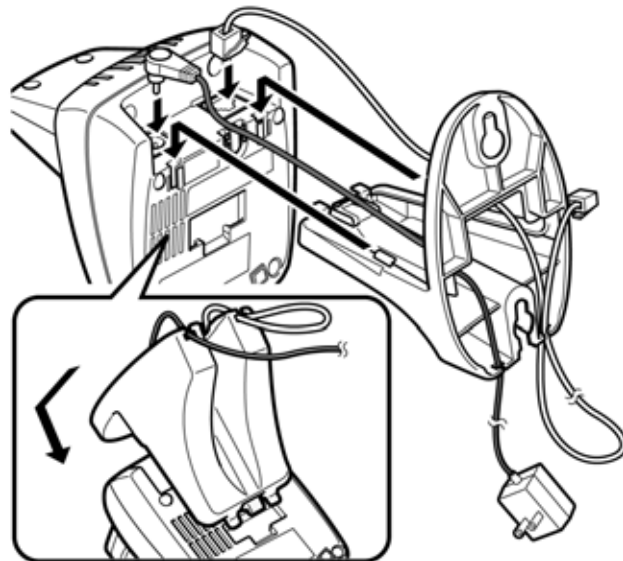
2. Connect the AC adapter to a continuous power supply (i.e., an outlet that is not controlled by a switch).
3. Set the base on a desk or tabletop, and place the handset in the base unit. Refer to [Figure 6-31 Connect the Base Unit](#).
4. Place the base unit close to the AC outlet so you can unplug the AC adapter easily.

5. Make sure that the **charge** LED illuminates.
  - ✎ *If the LED does not illuminate, check to see that the AC adapter is plugged in and the handset makes good contact with the base charging contacts. Refer to [Figure 6-31 Connect the Base Unit on page 6-26](#).*
6. After you install the battery pack in the handset, charge it for at least 15~20 hours before plugging it into the phone line.
7. After the handset battery pack is fully charged, connect the telephone line cord to the **TEL LINE** jack and to a telephone outlet. Refer to [Figure 6-31 Connect the Base Unit on page 6-26](#).
  - ✎ *If your telephone outlet is not modular, contact your NEC Representative for assistance.*

#### 5.4 Mount the Base Unit on a Standard Wall Plate

This telephone can be installed on any standard wall plate.

1. Make the AC adapter and the telephone line cord through the hole on the wall mount adapter.



**Figure 6-32 Install the Wall Mount Adapter**

2. Plug the AC adapter in the **DC IN 9V** jack. Refer to [Figure 6-32 Install the Wall Mount Adapter](#).
3. Plug the telephone line cord in the **TEL LINE** jack. Refer to [Figure 6-32 Install the Wall Mount Adapter](#).

4. Slide the wall mount adapter into the notches on the base. Refer to [Figure 6-32 Install the Wall Mount Adapter on page 6-27](#).
5. Plug the AC adapter into a standard 120V AC wall outlet. Hook the cord on the notch of the wall mount adapter. Refer to [Figure 6-32 Install the Wall Mount Adapter on page 6-27](#).
6. Plug the telephone line cord into the telephone outlet. Hook the cord on the notch of the wall mount adapter.

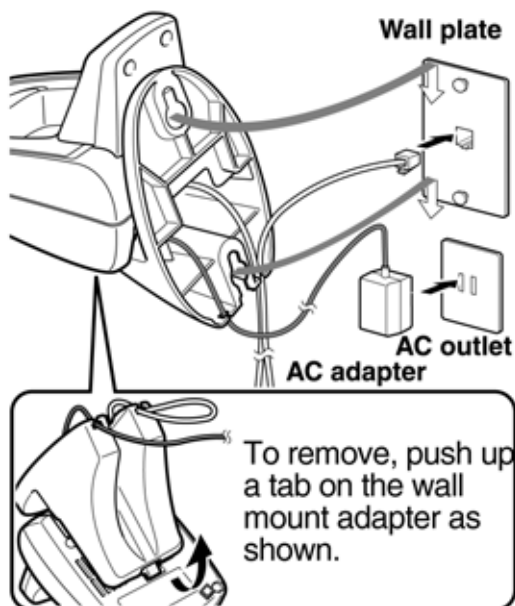


Figure 6-33 Standard Wall Plate Mounting

7. Align the mounting slots on the base with the mounting posts on the wall. Then push in and down until the telephone is firmly seated. Refer to [Figure 6-33 Standard Wall Plate Mounting](#).



***DO NOT use an AC outlet controlled by a wall switch.***

## 5.5 Mount the Base Unit on a Direct Wall Mounting

If you do not have a standard wall plate, you can mount your phone directly to the wall. Before doing this, consider the following:

- Avoid electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Try to mount your telephone within five feet of a working phone jack to avoid excessive lengths.

- Make sure the wall material can support the weight of the base and handset.
  - Use #10 screws (minimum length of 1 & 3/8 inches) with anchoring devices suitable for the wall material where the base unit will be placed.
1. Insert two mounting screws into the wall (with their appropriate anchoring device), 3 & 15/16 inches apart. Allow about 1/8 of an inch between the wall and screw heads for mounting the telephone.

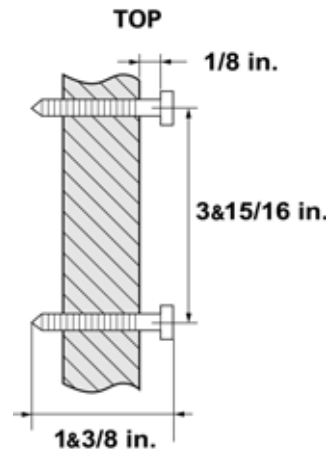


Figure 6-34 Install the Mounting Screws

2. Refer to [5.4 Mount the Base Unit on a Standard Wall Plate](#) for mounting the telephone.

## 5.6 Connecting the Charger

1. Connect the AC adapter to the **DC IN 9V** jack and to a standard 120V AC wall outlet.

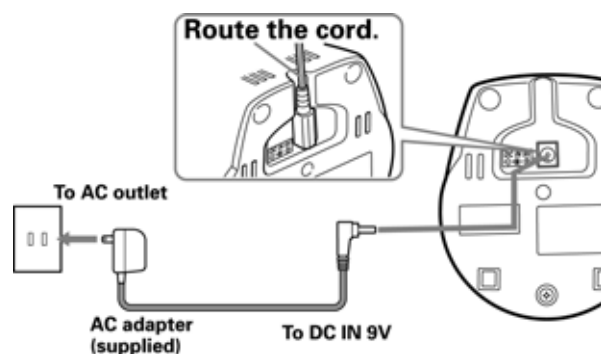



Figure 6-35 Connecting the Charger

2. Set the charger on a desk or tabletop, and place the handset in the charger with the keypad facing forward. Refer to [5.2 Installing the Rechargeable Battery Pack into the Handset on page 6-24](#)

 *Charge the handset battery pack for at least 15~20 hours before using your new cordless telephone for the first time.*

## SECTION 6 **D<sup>term</sup>® CORDLESS DECT (DTL-8R-1)**

DTL-8R-1 is a cordless telephone that is adapted for digital NEC PBX (Private Branch Exchange). It is designed for use in the office environment.



Figure 6-36 **D<sup>term</sup>® Cordless DECT (DTL-8R-1)**



- *A Handset and wired phone cannot be used at the same time.*
- *The Handset and Base Station must have the original ID that is written on each unit at the factory.*

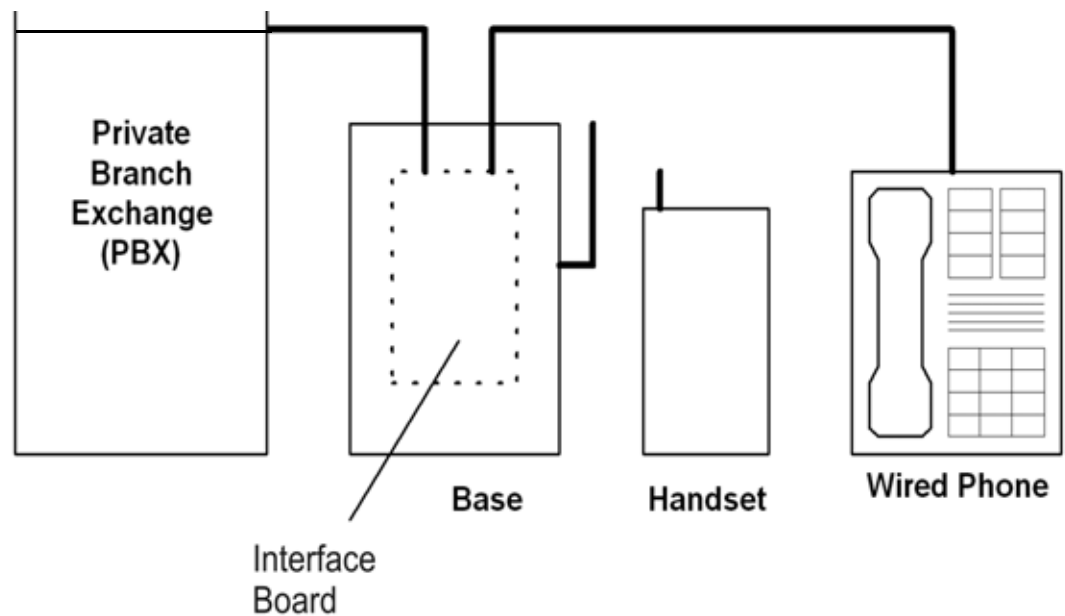


Figure 6-37 System Overview

## 6.1 Selecting a Location

Select a location for the *D<sup>term</sup>* Cordless DECT to avoid excessive heat or humidity. The base unit of the *D<sup>term</sup>* Cordless DECT can be placed on a desk or tabletop near a standard 120V AC outlet and telephone line jack. The base unit can also be mounted on a standard wall plate using the wall mount adapter. Keep the base unit and handset away from sources of electrical noise (motors, fluorescent lighting, computers, PC monitor).

## 6.2 Installation Precautions

To ensure optimum performance follow these guidelines.

- Base units must be placed at least 20 feet apart.
- Always place the base unit on top of a desk or on higher shelves. Avoid locations surrounded by metal surfaces.
- Place the base away from any electrical component such as a PC, monitor and other telephone.

### 6.3 Connecting the Telephone Cords

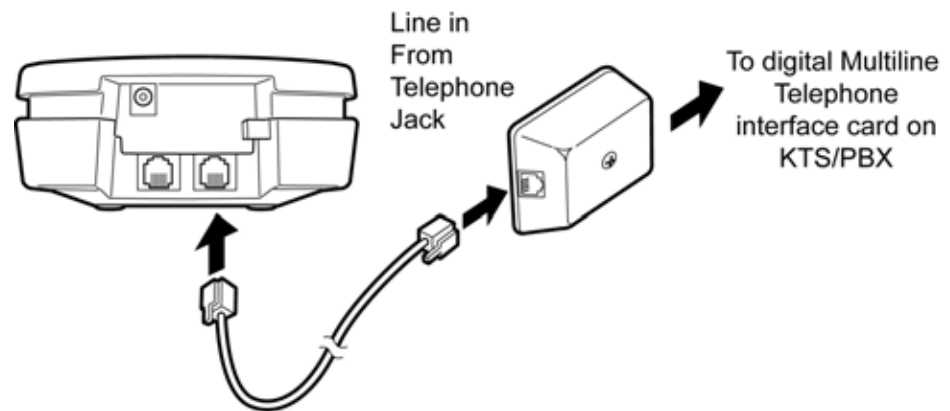
When connecting the telephone cords, observe the following precautions.



- *Never install telephone wiring during a lightning storm.*
- *Never touch bare telephone wires or terminals unless the telephone line is disconnected at the network interface.*
- *Use caution when installing or modifying telephone lines.*

To connect the telephone cords:

1. Connect the cord from the telephone jack to the Line In on the  $D^{term}$  Cordless DECT.



**Figure 6-38 Connecting Telephone Cords to the Telephone Jack**

2. Connect a qualified NEC digital multiline terminal to the  $D^{term}$  Cordless DECT.



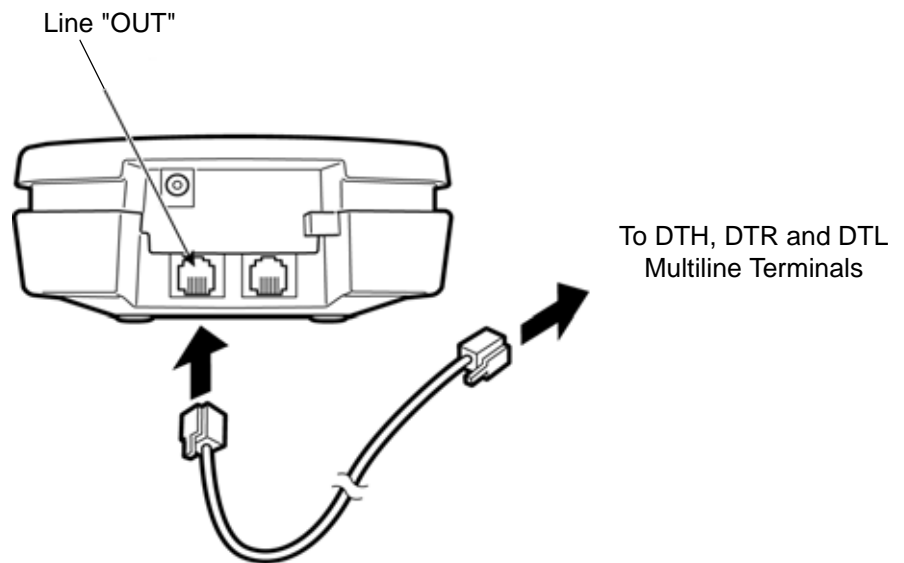


Figure 6-39 Connecting the  $D^{term}$  Cordless DECT to the Multiline Terminal

#### 6.4 Applying Power to the Charging Unit

The unique design of the telephone allows the user to place the handset in the charging unit with or without the belt clip attached. The charging unit can charge a second battery with or without the handset being charged. The battery packs can be recharged automatically either in or out of the handset.

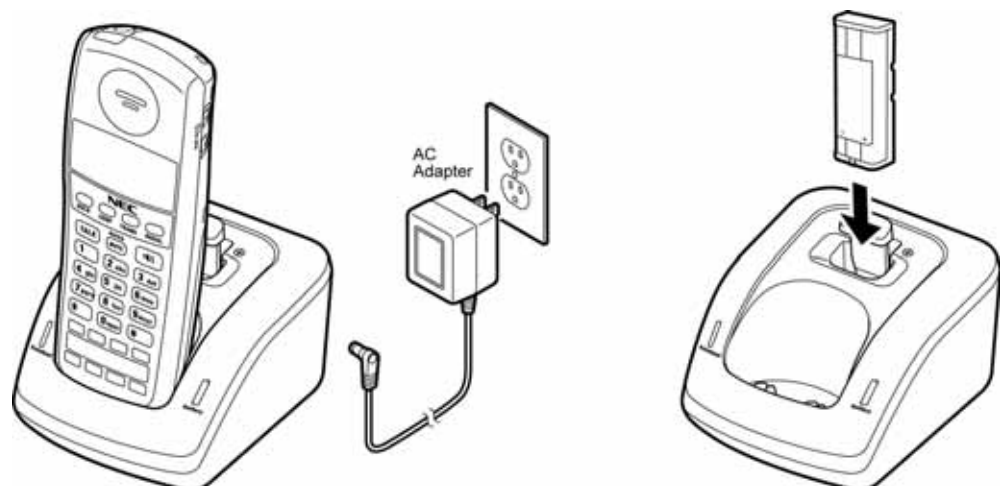


Figure 6-40 Applying Power to the Charging Unit



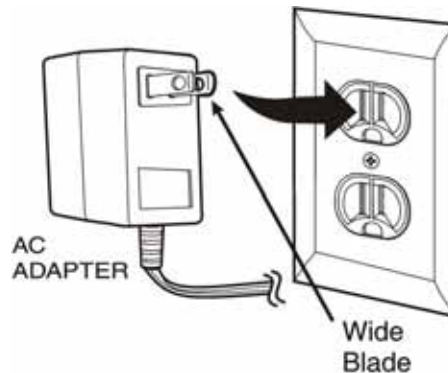
*Use only the supplied AC adapter for the charging unit.*

The AC adapter furnished with this telephone usually has a polarized line plug with one blade wider than the other. This plug fits in the power outlet only one way. If you cannot insert the plug fully in the outlet, try reversing the plug. Refer to [Figure 6-41 Polarized Plug](#).

If you cannot plug the AC adapter in the outlet, you may need to replace it.



*Route the power cord where it can not create a trip hazard, or where it could become chafed and create a fire or other electrical hazards.*

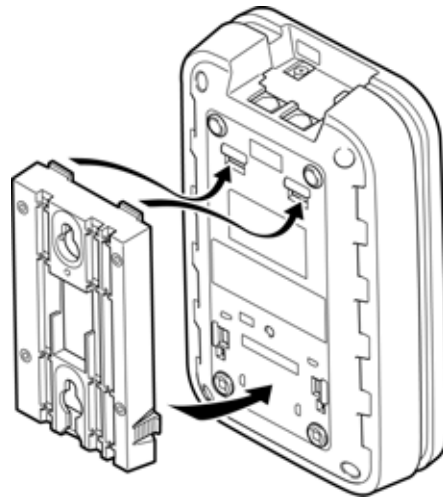


**Figure 6-41 Polarized Plug**

## 6.5 Mounting the Base to a Standard Wall Plate

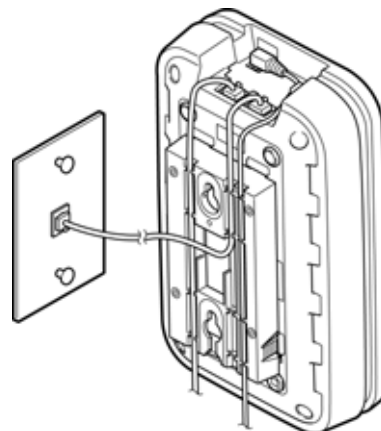
The base unit can be mounted on a standard wall plate. To attach the wall mount stand to the base unit:

1. Slide the wall mount stand in the notches at the top of the base unit. Rotate the wall mount stand down and snap it into place.



**Figure 6-42 Attaching the Wall Mount Stand to the Base Unit**

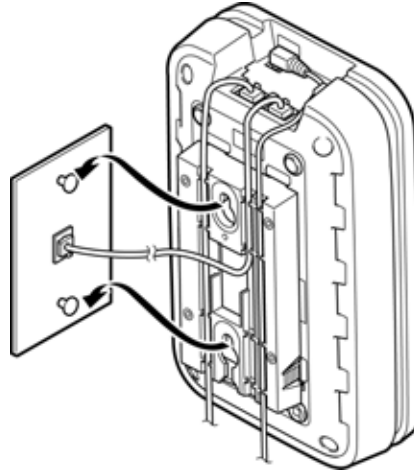
2. Plug the AC adapter into the base unit.
3. Place the AC adapter cord inside the molded channel of the wall mount stand.



**Figure 6-43 Placing the AC Adapter Cord Inside the Wall Mount Stand**

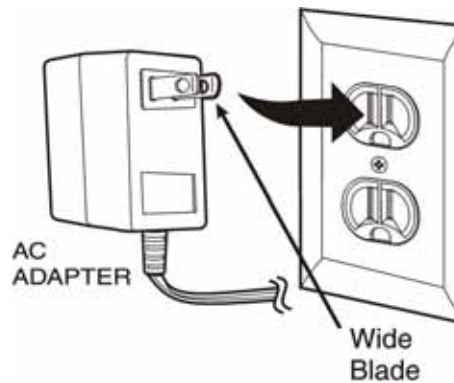
4. Plug one end of the short telephone cord (locally supplied) in the **LINE** jack on the base unit. Plug one end of the NEC digital multiline terminal into the **PHONE** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.

5. Plug the other end of the short telephone cord into the modular wall jack in the center of the wall plate.
6. Place the base unit on the posts of the wall plate and push down until it is firmly seated.



**Figure 6-44 Placing the Base Unit on the Posts of the Wall Plate**

7. Plug the AC adapter into a standard 120 Vac wall outlet.
  - ⓘ *Because of variation in wall plates, this method is not recommended.*
  - ⓘ *Do not use an outlet controlled by a wall switch.*



**Figure 6-45 Plugging the AC Adapter into the AC Wall Outlet**

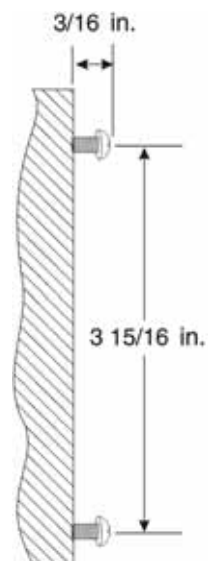
## 6.6 Mounting the Base Directly to the Wall

If a standard wall plate is not available, mount the telephone directly on the wall. Before mounting the telephone, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material can support the weight of the base unit.
- Use #10 screws with anchoring devices suitable for the wall material where the base unit will be placed.

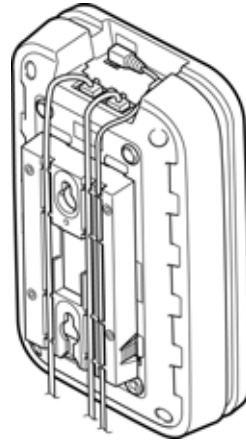
To mount the telephone:

1. Insert two mounting screws  $3\text{-}15/16$  inches apart. Allow about  $3/16$  of an inch between the wall and screw heads for mounting the telephone.



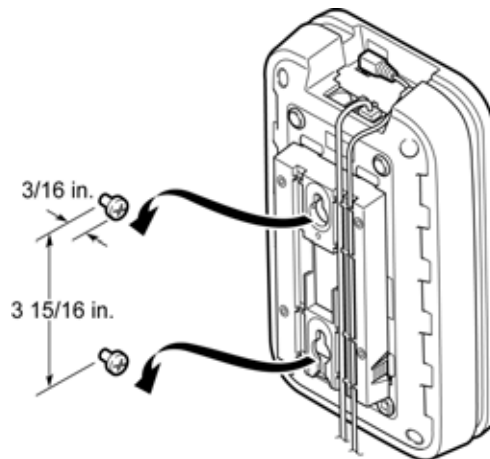
**Figure 6-46** Inserting Screws into the Wall for Wall Mounting the Telephone

2. Plug in and secure the AC adapter.
3. Plug the AC adapter into the base unit.
4. Plug one end of the short telephone cord into the **LINE** jack on the base unit. Then plug one end of an NEC multiline terminal into the **PHONE** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.




**Figure 6-47 Placing the Telephone Cords Inside the Wall Mount Stand**

5. Place the base unit on the posts of the wall screws and push down until it is firmly seated.



**Figure 6-48 Attaching the Wall Mount Unit to the Wall**

6. Plug the other end of the short telephone cord into a telephone wall jack.
7. Plug the AC adapter into a standard 120 Vac wall outlet. Refer to [Figure 6-45 Plugging the AC Adapter into the AC Wall Outlet](#) on page 6-36.

 Do not use an outlet controlled by a wall switch.

## 6.7 Wall Mounting the Charging Unit

The charging unit can be wall mounted as well. Before mounting the charging unit, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material can support the weight of the charging unit.
- Use #10 screws with anchoring devices suitable for the wall material where the charging unit will be placed.

To mount the charging unit:

1. Insert two mounting screws as shown below. Allow about  $\frac{3}{16}$  of an inch between the wall and screw heads for mounting the telephone.

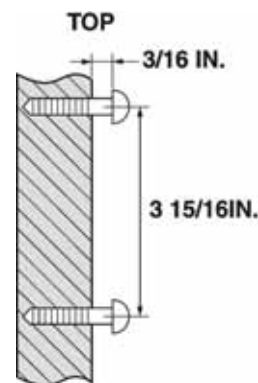


Figure 6-49 Inserting Screws for Wall Mounting

2. Plug the AC adapter in the charging unit. Wrap the AC adapter cord around the strain relief.

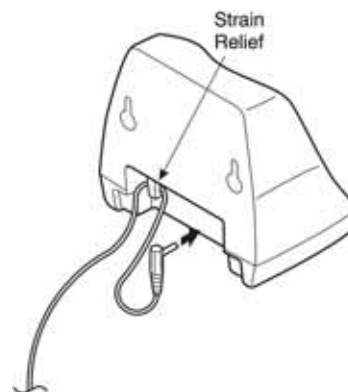
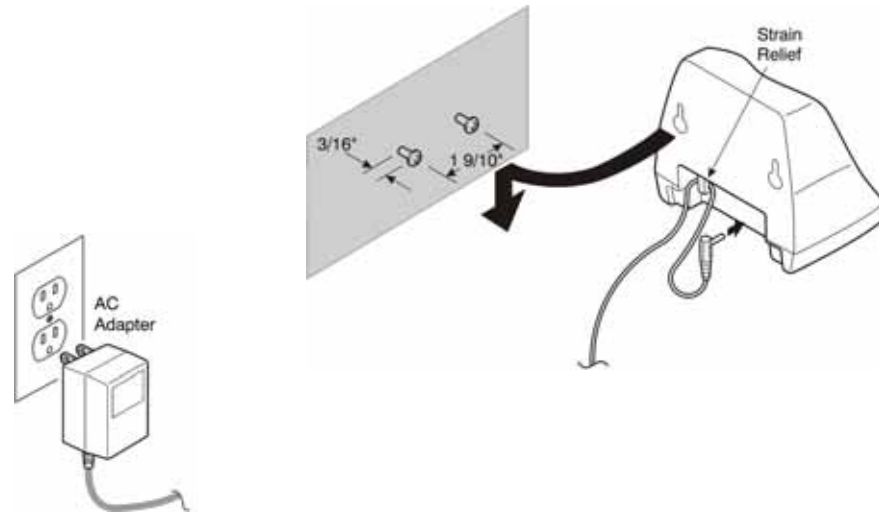


Figure 6-50 Wrapping the AC Adapter Cord Around the Strain Relief

3. Place the charging unit on the posts of the wall screws and push down until it is firmly seated.



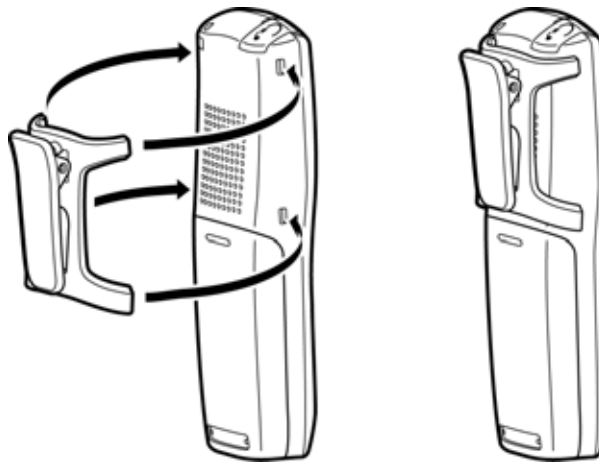
**Figure 6-51 Placing the Charging Unit on the Wall**

4. Plug the AC adapter into a standard 120 Vac wall outlet. Refer to [Figure 6-51 Placing the Charging Unit on the Wall](#).

## 6.8 Attaching and Removing the Belt Clip

A belt clip can be used to attach the handset to a belt or pocket for convenient portability.

1. Slide the clip into the tab slots. Press firmly until it snaps into place. The belt clip fits snugly onto the handset.



**Figure 6-52 Attaching the Belt Clip to the Handset**



2. To remove the clip, press the retaining clip in toward the belt clip blade and slide the clip up at the same time.

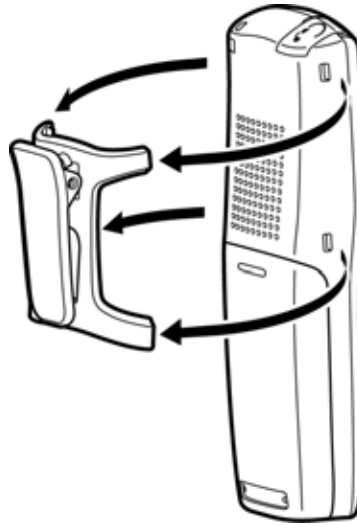


Figure 6-53 Removing the Belt Clip

## 6.9 Installing the Handset Battery Pack

Before installing batteries, refer to *D<sup>term</sup>*® Cordless DECT Owner's Manual Specifications and Battery Safety. It is important to follow safety regulations when handling batteries.

1. Remove the battery cover by pressing the latch and sliding the cover down and off of the handset.

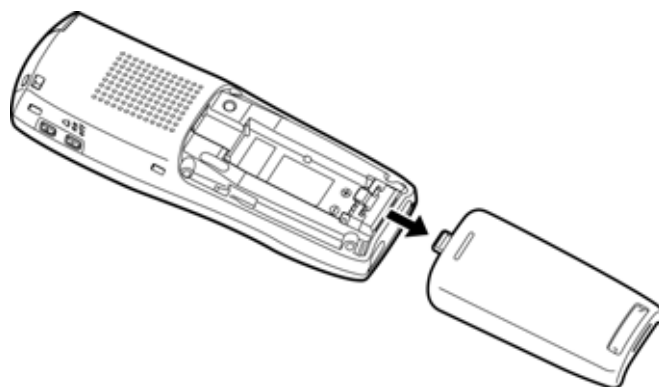

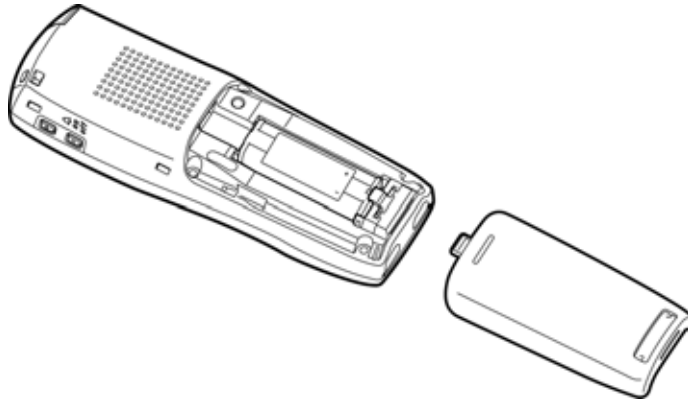


Figure 6-54 Removing the Battery Cover

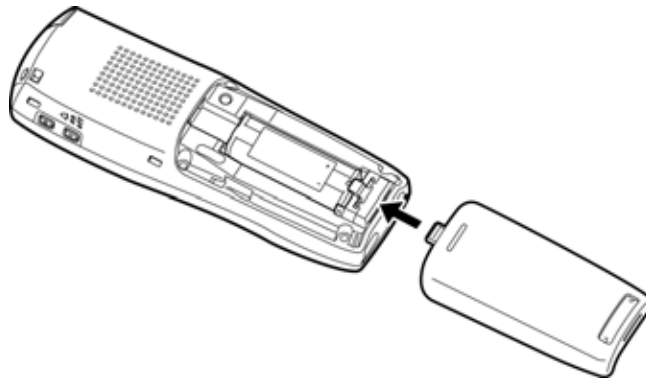
2. Slide the battery pack down into the handset.

 *It may be necessary to remove the old battery at this time.*



**Figure 6-55 Replacing the Battery Pack**


3. Replace the cover and slide it up until it latches onto the handset.



**Figure 6-56 Replacing the Battery Cover**

## 6.10 Charging Batteries

The rechargeable battery pack must be fully charged before using the *D<sup>term</sup>* Cordless DECT for the first time.

 *Charge the battery pack without interruption for five to eight hours.*

## 6.11 Charging Spare Battery Packs

The *D<sup>term</sup>* Cordless DECT is equipped with a battery charger for charging the spare battery pack.

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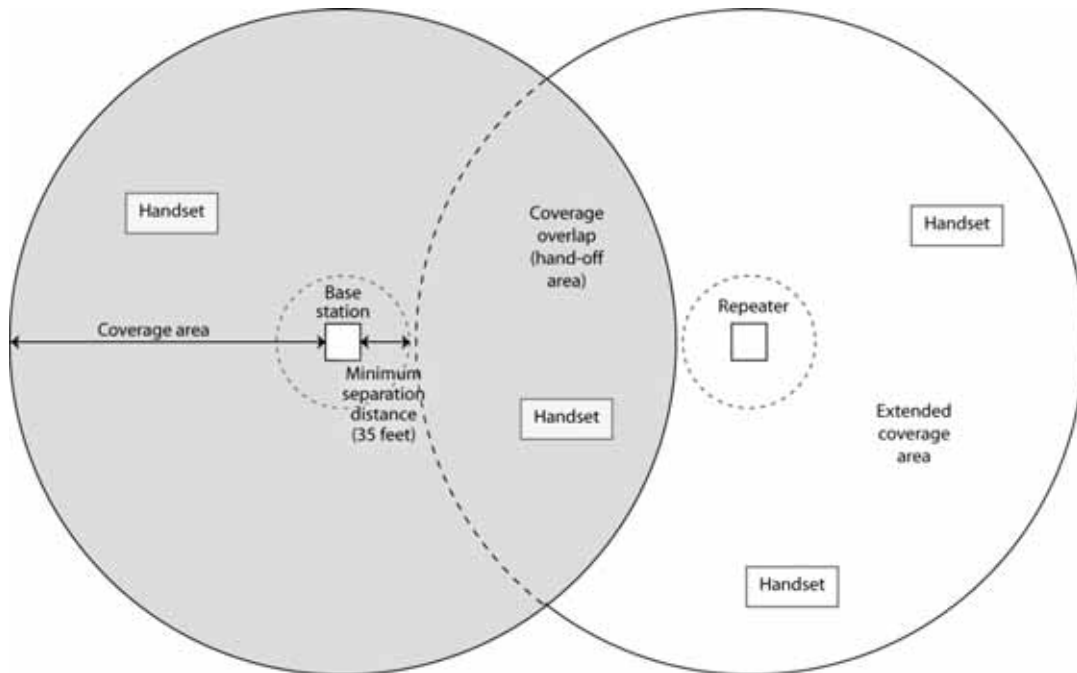
**SECTION 7**     ***D*term® CORDLESS REPEATER DTL-RPT-1**

The UDR100 repeater lets you extend the coverage area of your cordless DECT telephone system in all directions.



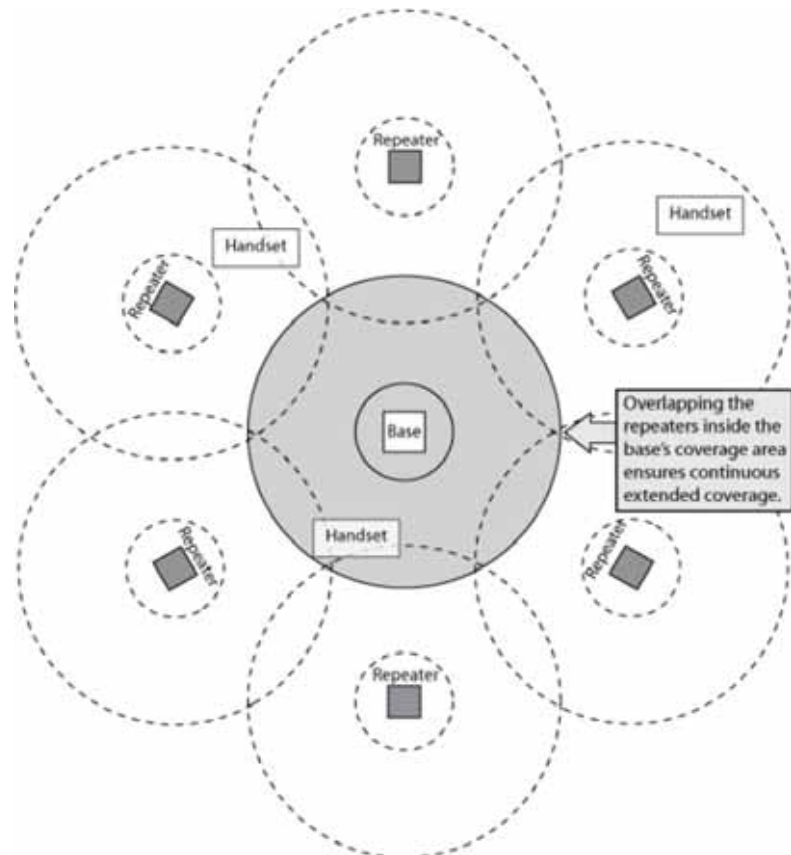
**Figure 6-57** *D*term® Cordless Repeater DTL-RPT-1

If the repeaters are installed so their coverage area overlaps the coverage area of the base, the base can hand-off calls to the repeaters as the user moves from one coverage area to another. When connected to the repeater, the mobile handset operates the exact same way as it does when connected to the base, and the hand-off from the base to the repeater can be completely invisible to the end user, even during an active call.



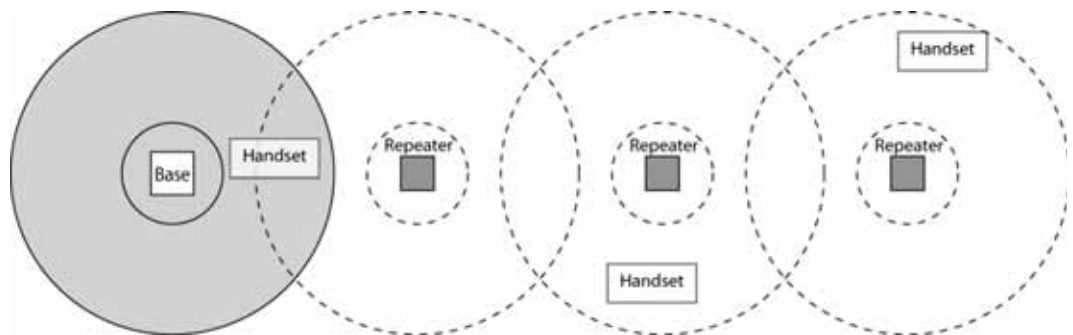
**Figure 6-58 Single Repeater Attached to Base**

Each base supports up to six repeaters, so you can extend coverage in all directions, including through floors and ceilings:




**Figure 6-59 Six Repeaters Attached to Base**

In addition, the UDR100 supports a sequential or "daisy-chain" layout to extend coverage in a single direction. Up to three repeaters can be installed in sequence:




**Figure 6-60 Daisy-Chain Layout**

 For detailed information on daisy-chain layout and configuration, contact your installer or refer to the UDR100 Administrator's Guide.

## 7.1 Setting Up Your Repeater

Before installing the repeater, you must activate the repeater mode on your base and then register the repeater to the base and any handsets. Before you start the registration process, be sure you have:

- A working base
  - A working handset registered to that base
  - Any repeaters you want to register to this base (you must complete the registration process separately for each repeater)
  - At least one of the AC adapters supplied with the repeaters
-  *Use ONLY the power adapter that came with your repeater. A different power adapter may cause an electrical hazard or damage the repeater.*

### 7.1.1 Changing the Telephone System PIN

Before you start the registration process, you must reset the system PIN of your telephone to *0000* (consult the manual that came with your base for more information). After you reset the PIN, make sure to register the handset you used back to the base station.

### 7.1.2 Automatic Registration

The repeater seeks out the base with strongest DECT/GAP signal and automatically registers to that base.

1. Make sure the repeater is powered off (i.e., the AC power adapter is not connected).
2. Set the base in registration mode. (Consult the owner's manual that came with your base station for more information.
3. Use the AC adapter to connect the repeater to a standard 120 V AC outlet. (Do not use a power outlet controlled by a wall switch.) The LED on the repeater flashes briefly, then remains on and steady.



 *If the LED continues to flash, register the repeater again.*

The repeater is now registered to this base and is ready to use.


You can safely disconnect the power and move the repeater to the selected location; the repeater stays registered to the base.

### 7.1.3 Manual Registration

If you are registering more than one repeater to the same base, you must use the manual registration procedure.

1. Connect the repeater to power for 1~5 seconds and then disconnect it.
2. Reconnect the power to the repeater. The LED on the repeater flashes slowly, indicating the repeater is in registration mode.
  -  *The repeater stays in registration mode for five minutes. If you cannot complete the registration in five minutes, repeat the procedure starting with step 1.*
3. Set the base in registration mode. (Consult the owner's manual that came with your base station for more information.)
4. The LED on the front of the repeater flashes quickly, with no interruptions.
  -  *If the LED has brief interruptions in the flash, you need to reset your telephone system PIN to 0000. (Refer to [7.1.1 Changing the Telephone System PIN on page 6-46.](#))*
5. Press the handset TALK? key to go off-hook. The LED stops flashing.
6. Use the number pad on the handset to assign a repeater number. Press a number between 2 and 7. Each repeater number can be used only once per base. (These numbers are independent of any handset extension number.)
7. When the repeater accepts the assignment, the LED flashes a corresponding number of times.
8. Press the STAR? key to confirm the registration, and then the END? key. The LED goes off for two seconds, flashes for a brief moment, and then remains on steady.

The repeater is now registered to this base station. You can repeat the procedure with each repeater that you want to register to this base, or you can disconnect the power and move the repeater to the selected location.

-  *The repeater remains registered even if you disconnect the AC adapter or there is a power failure. If you want to clear the registration (for example, so you can register to a different base), you must reset the repeater.*

#### 7.1.4 Registration for a Daisy-Chain Layout

Registering the repeaters to operate in a daisy-chain or sequential layout requires network administrator access and configuration software. Contact your installer or refer to the DTL-RPT-1 Administrator's Guide (provided with the configuration software) for more information.

#### 7.1.5 Registering to a Different Base

After the repeater is registered, you must reset it before you can change the registration to a different base. If you want to reset the repeater and clear its registration, follow the steps below:

1. Disconnect the power.
2. Connect the power for one to five seconds, and disconnect it again.
3. Connect the power for 25~35 seconds.
4. Disconnect the power, and perform the registration procedure with the new base.

## 7.2 Installing the Repeater

### 7.2.1 Finding the Right Location

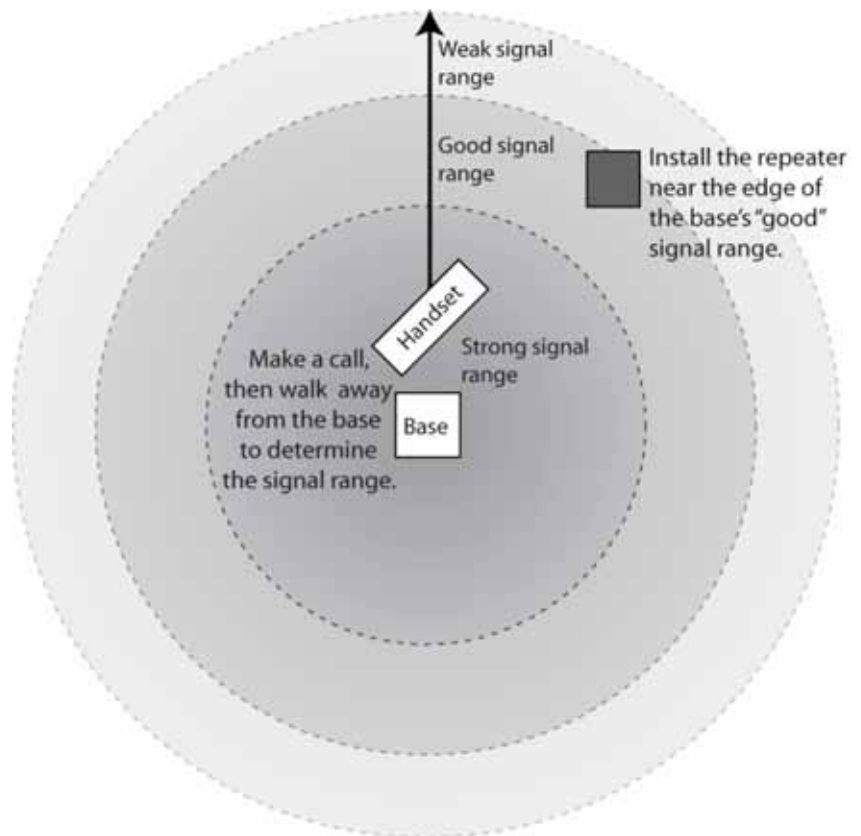
To get the best operating conditions for the repeater, it is important to place it correctly. Here are a few tips for placing repeaters:

- Place the repeater as high as possible, but **at least six feet above** the floor.
- Make sure you have good reception from the base.
- Make sure the location is close to a standard 120 V AC power outlet. Never install electrical cords across a traffic area: they can create a trip hazard or become damaged and create a fire or electrical hazard.
- Allow **at least 30 feet** between repeaters (if you are installing repeaters across multiple floors, remember to allow 30 feet **vertically**, also).
- Avoid sources of electrical interference, such as hi-fi systems, office equipment or microwave ovens.
- Avoid heat sources and direct sunlight.
- Avoid things that can interfere with radio signals, such as metal doors, thick walls, niches and cupboards.



### 7.2.2 Map the Base Coverage Area

To find the best location for the repeater, you need to determine the base coverage area. Stand near the base and make a call. Walk away from the base with the handset, and make a note where the signal becomes weaker. The optimum location for the repeater is as far from the base as possible while still maintaining a good signal, or just inside the location where the signal became weaker.



**Figure 6-61 Base Coverage Area**

### 7.2.3 Test the Location

To test the location, plug the AC adapter into the repeater, then hold the repeater in the place where you plan to mount it. The LED should remain on and steady, indicating that the repeater has a good signal from the base.

If the LED flashes, the repeater is not getting a good signal. The repeater may be too far away from the base, there may be interference from electronic devices, or the signal might be blocked by thick walls or metal objects. Try moving the repeater to another location.

#### 7.2.4 Installing the Repeater



*Be sure the wall material can hold the weight of the repeater. Never install a repeater in damaged or decaying wall material.*

1. Hold the repeater in its final location, and mark the center of the top edge.
2. From the edge mark, measure down approximately 1-1/2 inches, and mark the screw location.
3. At the screw location, use a 3/16ths drill bit to make a pilot hole approximately one inch deep.
4. Place the wall anchor into the pilot hole and tap it gently with a hammer until the anchor is flush with the wall.
5. Insert the mounting screw into the anchor, leaving approximately 1/4 inch space between the screw head and the wall.
6. Put the repeater over the screw head and slide it down into place.
7. Connect the repeater to the 120V AC power outlet.

#### 7.2.5 Multiple Repeater Systems

You can register up to six repeaters to one base as long as the repeaters are a minimum of 30 feet apart. **Remember** that the signal can cross through walls and floors.

##### 7.2.5.1 Incorrect Installation

[Figure 6-62 Incorrect Installation on page 6-51](#) illustrates repeaters that are incorrectly installed.

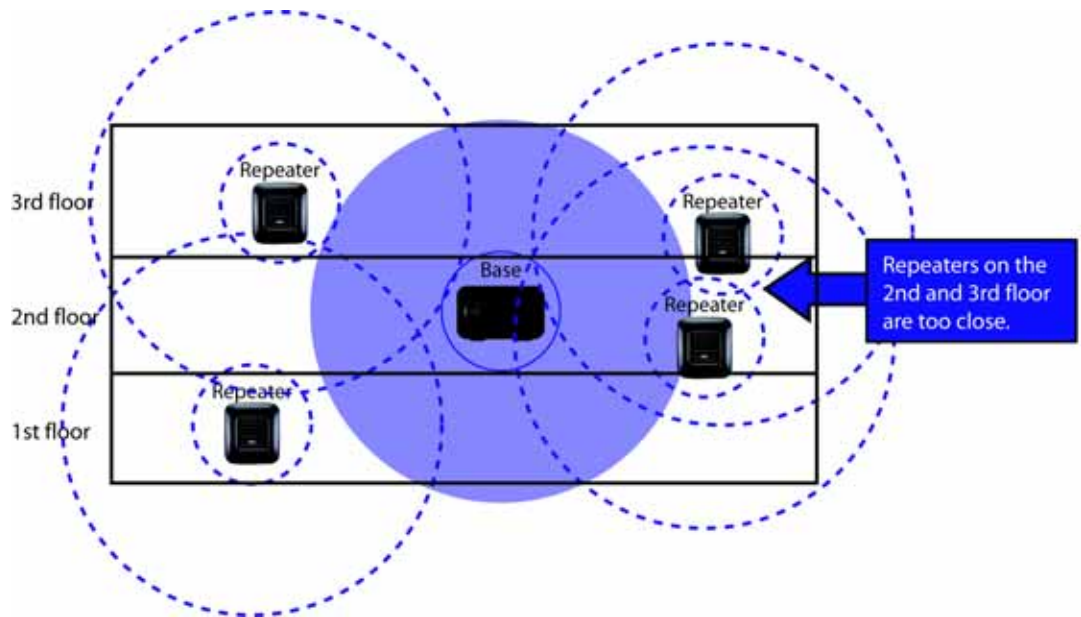


Figure 6-62 Incorrect Installation

7.2.5.2 Correct Installation

Figure 6-63 Base Coverage Area illustrates repeaters that are correctly installed.

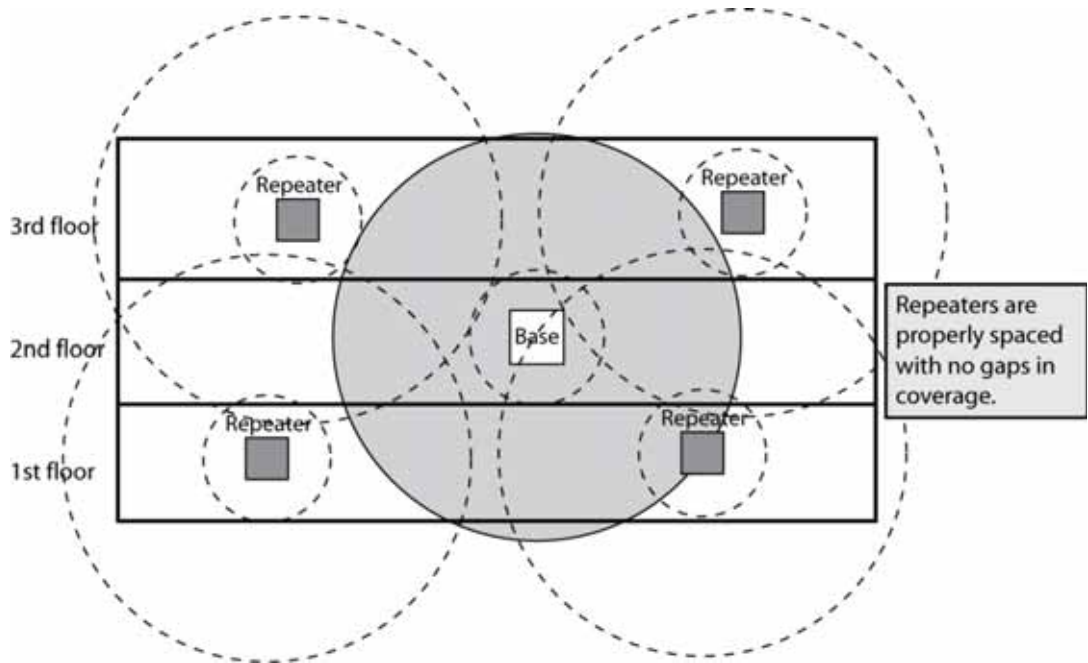


Figure 6-63 Base Coverage Area

### 7.2.5.3 Daisy-Chain Installation

You can combine normal and daisy-chain connections to create a wide variety of coverage configurations, as long as you have no more than six repeaters per base unit.

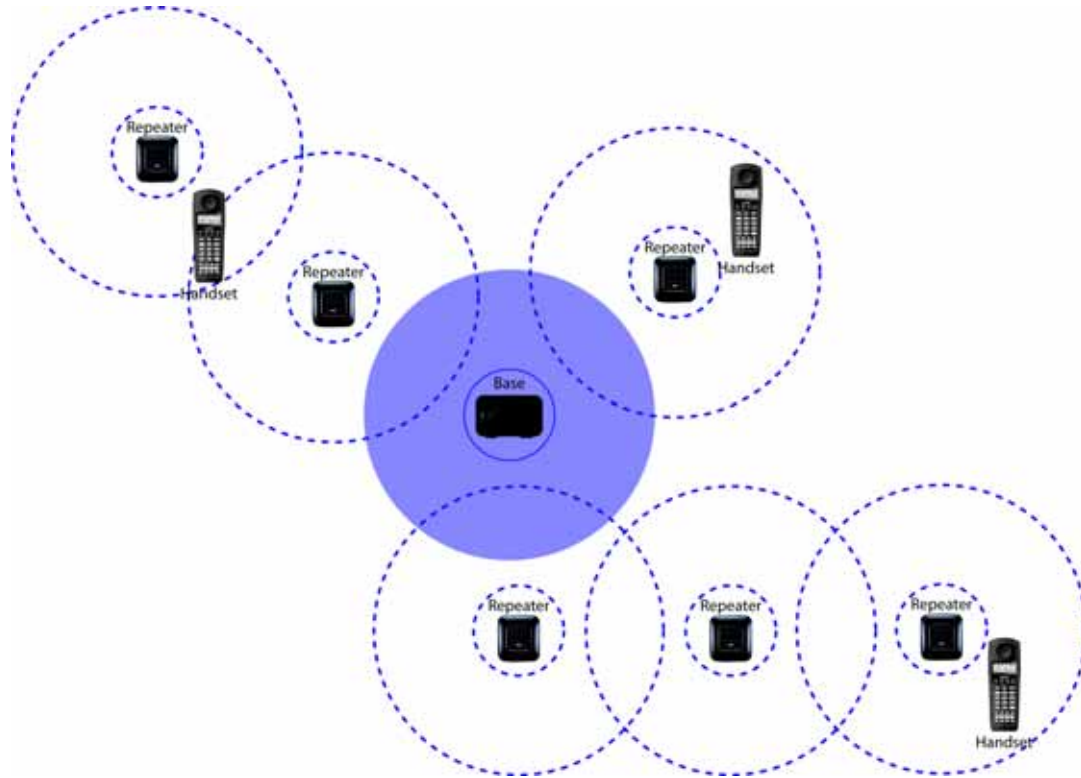


Figure 6-64 Daisy-Chain Layout

## 7.3 Troubleshooting Chart

To review common problems and possible solutions, refer to the *D<sup>term</sup>*® Cordless DECT Repeater Guide DTL-RPT-1.

## 7.4 Turning on the Verification Tone

To activate the verification tone to aid in troubleshooting installation problems, refer to the *D<sup>term</sup>*® Cordless DECT Repeater Guide DTL-RPT-1.

## 7.5 Maintenance

For user maintenance of the repeater, refer to the *D<sup>term</sup>*® Cordless DECT Repeater Guide DTL-RPT-1.

## SECTION 8 BLUETOOTH CORDLESS HANDSET

### 8.1 Bluetooth Cordless Handset (BCH) Interface

This optional interface allows the multiline terminal user to use Bluetooth technology to provide a cordless handset. This handset provides:


- Keypad-like Handset
- Eight Line Buttons
- Function Button
- Dial Button
- Display
- All Multiline Terminal Functions with Main Unit
- Cradle Charges Handset
- Base Side RF Block (50 meters, Class 1)
- Bluetooth Distance: 50 Meters

Up to 16 devices can be installed within a 100m (open area, ex: outdoors) or 50m (confined/blocked area, ex: indoors) radius and each device is located with 1 meter between each device simultaneously. This maximum can be affected by the installation environment.

The BCH and a Bluetooth headset (BTH) cannot be used at the same time. When using a Bluetooth headset in place of the handset, the Plantronics Voyager 510 headset is recommended.

**Table 6-2 Firmware Compatibility Matrix**

		BCH-L Unit Lot Number	
		xxxDxx or lower	xxxExx or higher
<b>Terminal Lot Number DT-330</b>	xxx l xx or lower (Version 8.10 and 1, E0 or lower)	Supported	Supported
	xxxJxx or higher (Version 2.20 or higher)	Not supported	Supported

 *BCH Support may differ based on terminal firmware. To verify both DT-330 terminal and BCH-L Unit firmware, hold down keypad buttons 1, 2 and 3 while plugging the line cord into the terminal.*

When charging the BCH, the following LEDs provide indications of the status:

**Table 6-3 BCH Charging LEDs**

On-Hook Charging:	Red = Charging	Green = Charging Complete
Off-Hook (Idle):	No LED = Idle	Flashing Red = Incoming Call

The BCH retains call histories for up to 10 outgoing and 10 incoming calls. For outgoing calls, this includes completed and uncompleted calls. For incoming calls, this includes both answered and unanswered calls. The call history provides the date, time and telephone number for each call. When the limit is exceeded, the oldest call is deleted and replaced with the newest call.

## 8.2 Selecting a Location

Before choosing a location for your new telephone, consider these important guidelines:

- If multiple cordless terminals are installed, keep their Bluetooth cradles at least 3.3 feet (1 meter) apart.
- If the Bluetooth cradle is installed near a metal, concrete wall or any other structure that could affect radio transmission, a communication failure might occur.
- Keep the Bluetooth cradle at least 9.8 feet (3 meters) away from any device listed below. Also be careful not to get within 9.8 feet (3 meters) of these devices when using the Bluetooth handset.
  - Microwave ovens
  - Wireless LAN access points (AP)
  - Medical apparatus
  - RFID (apparatus operating in the 2.4GHz band)
  - Manufacturing equipment, such as plasma strippers (LSI manufacturing)
  - Speedway electronic toll gates
  - Bluetooth devices

### 8.3 Controls and Indicators

Controls and indicators can be found in [Figure 6-65 Bluetooth Cradle Controls and Indicators](#) or [Figure 6-66 Bluetooth Handset Controls and Indicators](#) on page 6-56.

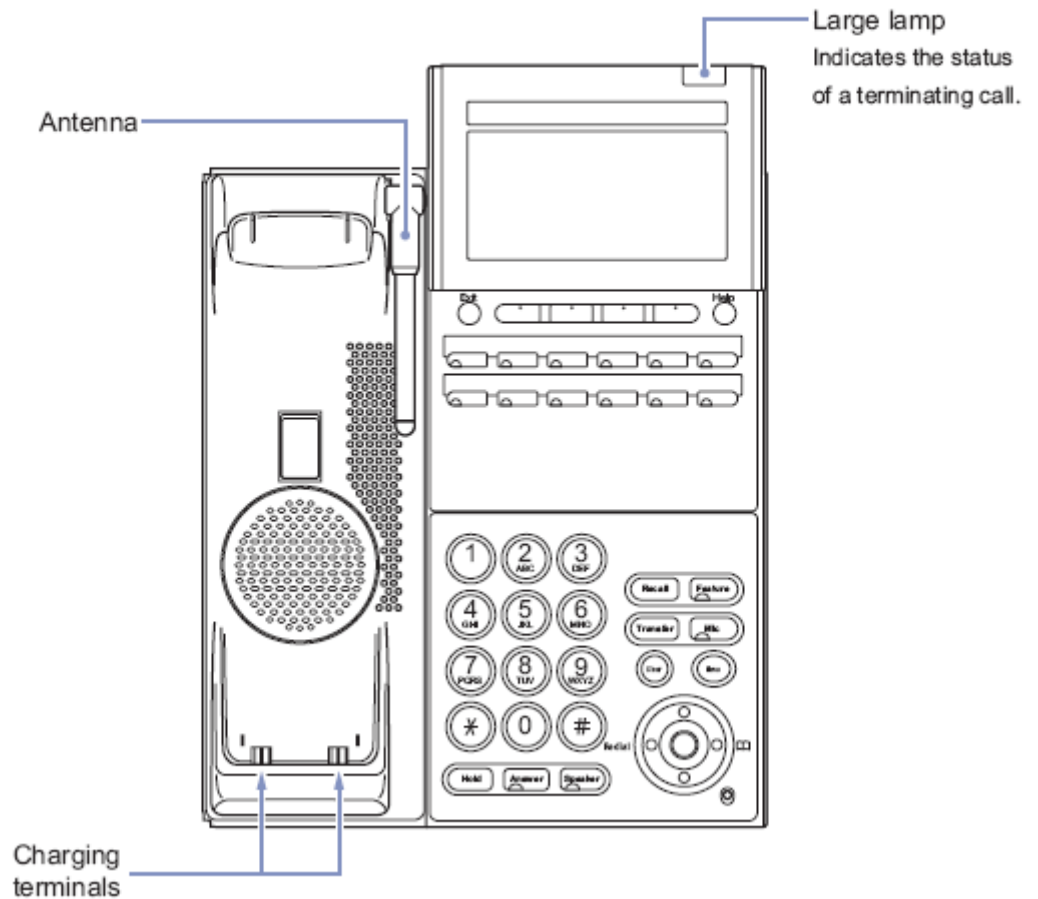


Figure 6-65 Bluetooth Cradle Controls and Indicators

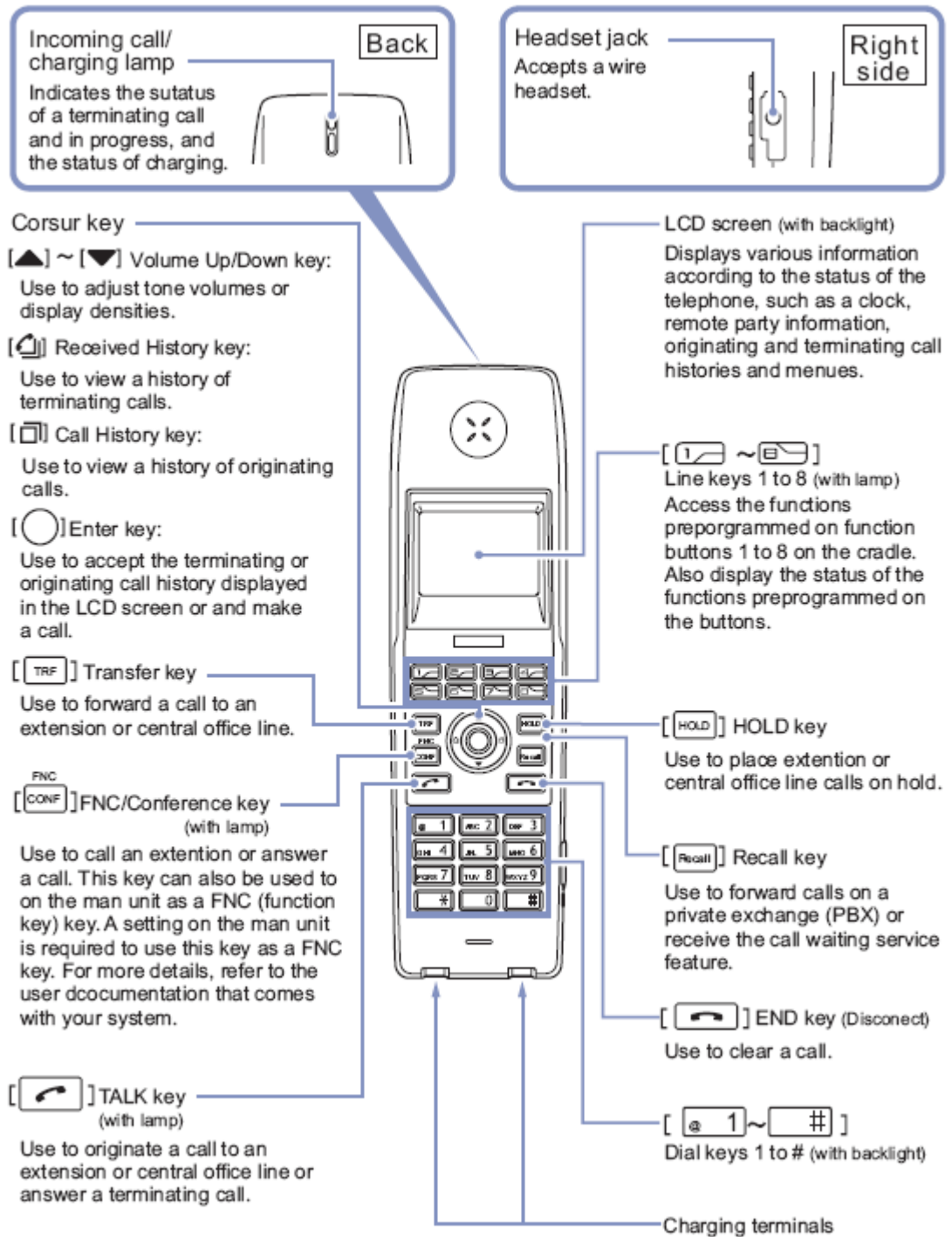


Figure 6-66 Bluetooth Handset Controls and Indicators



## 8.4 Installing the Bluetooth Cordless Handset

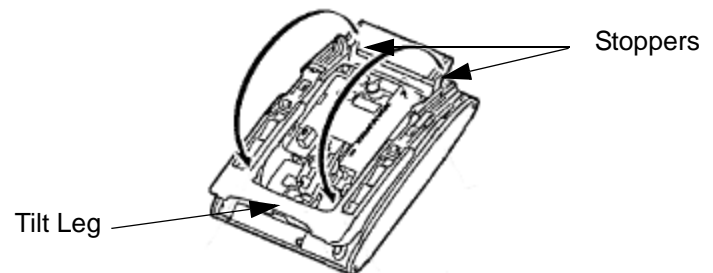
The BCH-L (BK) UNIT is an optional device that transforms the standard multifunctional telephone into a cordless terminal. This section explains how to transform the standard hand-set into a BCH-L (BK) UNIT. The BCH-L (BK) UNIT cannot be connected to the DTL-2E-1 or DTL-6DE-1 telephones.

### 8.4.1 Installing the Bluetooth Handset Cradle



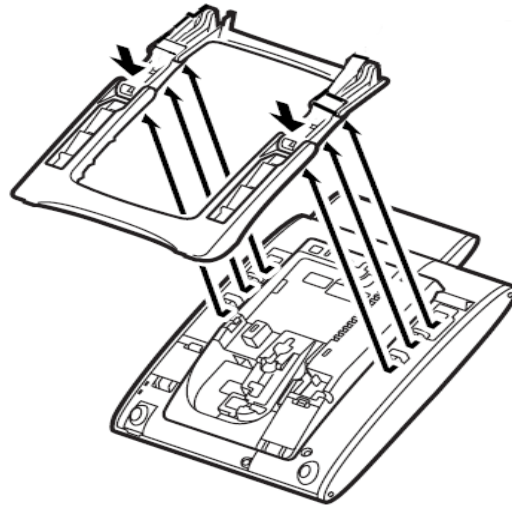
***Before installing or removing the BCH-L (BK) UNIT, remove the line cord and the AC adapter from the outlet.***

1. Turn multiline terminal upside down.
2. Unplug the line cord and handset cord from the multiline terminal.
  - ☞ *Only one BCH-L (BK) UNIT can be attached to the DTL multiline terminal.*
3. Lower the tilt leg to the first position (refer to [Figure 6-67 Separate Tilt Leg from Leg Support](#)).



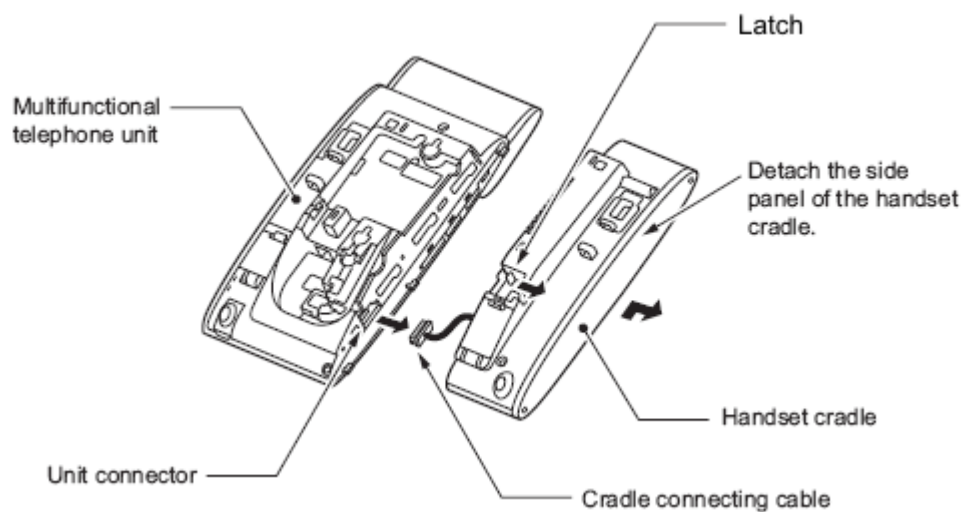
**Figure 6-67 Separate Tilt Leg from Leg Support**

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat.
6. Press the two tabs locking the legs to the multiline terminal and pull the legs toward you, lifting to remove (refer to [Figure 6-68 Remove Legs From Multiline Terminal on page 6-58](#)).



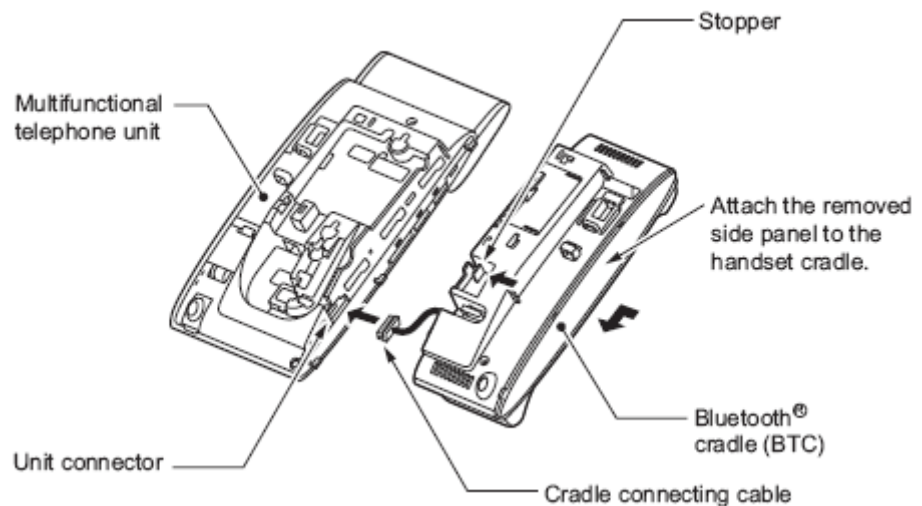
**Figure 6-68 Remove Legs From Multiline Terminal**

7. Remove the side panel.
8. Disconnect serial connection cord from terminal body. Leave cord connected to the cradle unit.
9. Push the latch to the right to unlock the cradle unit. Then push the cradle unit forward to separate it from the terminal body (see [Figure 6-69 Detach Cradle from Multiline Terminal](#)).



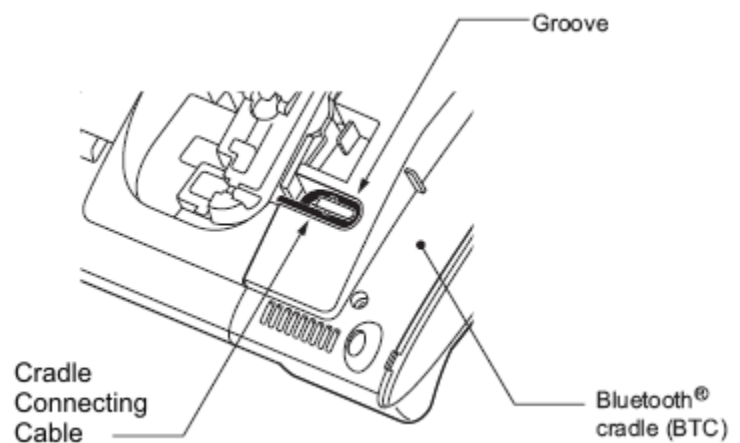
**Figure 6-69 Detach Cradle from Multiline Terminal**

10. Insert the cradle connecting cable of the Bluetooth Cradle (BTC) into the unit connector.



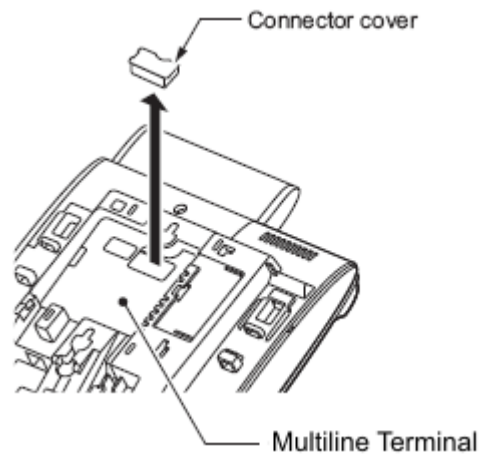
**Figure 6-70 Attach Bluetooth Cradle to the Multiline Terminal**

11. Fit the projections on the side of the Bluetooth Cradle into the guide holes on the side of the terminal and pull toward you ([Figure 6-70 Attach Bluetooth Cradle to the Multiline Terminal](#)) until the unit snaps into place.
12. Attach the side panel to the Bluetooth Cradle.
13. Press the connecting cable into the grooved cutout.



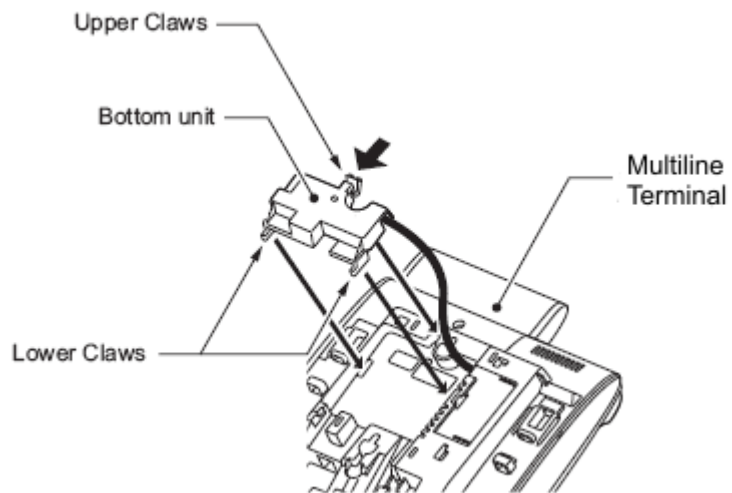
**Figure 6-71 Grooved Cutout for Connecting Cable**

14. Remove the connector cover (rubber) from the bottom of the multiline terminal.



**Figure 6-72 Removing the Connector Cover**

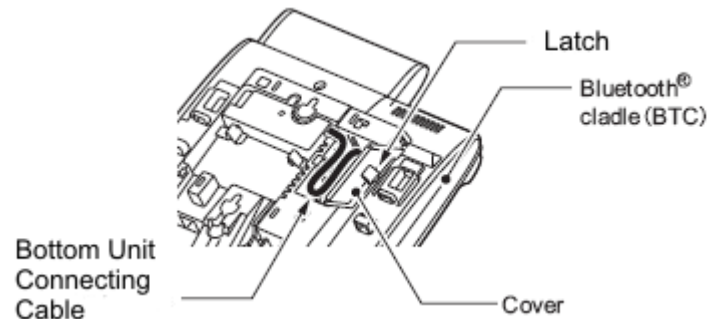
15. Insert the lower claws of the Bottom Unit (see [Figure 6-73 Installing the Bottom Unit](#)) into precut holes on the multiline terminal.



**Figure 6-73 Installing the Bottom Unit**

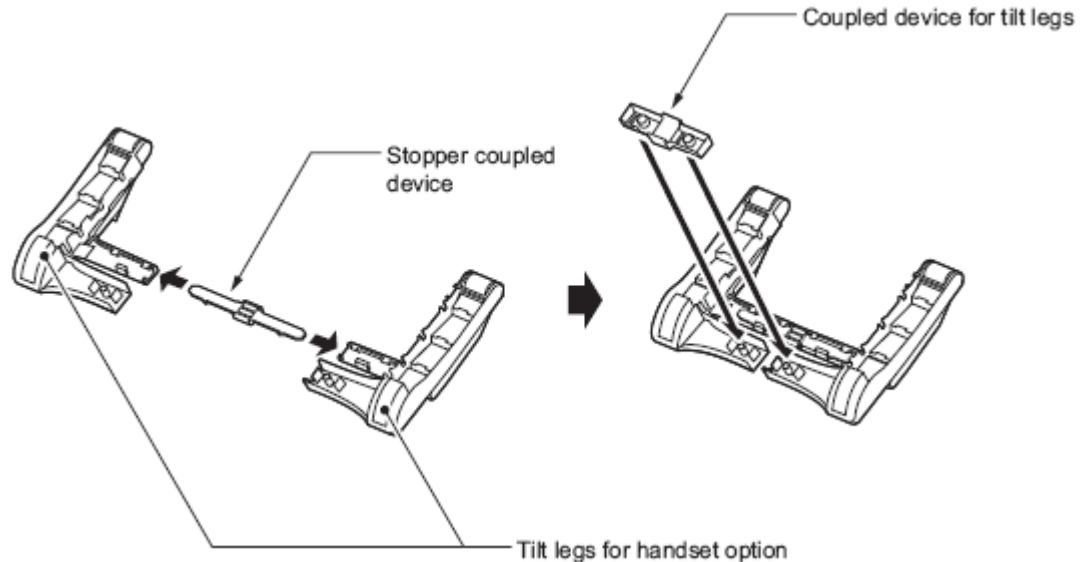
16. Align connector on inside of bottom unit and push down until unit snaps into place.

17. Push the latch to release the cover (see [Figure 6-74 Stowing the Bottom Unit Cable](#)). Stow the extra bottom unit connecting cable and close the cover.



**Figure 6-74 Stowing the Bottom Unit Cable**

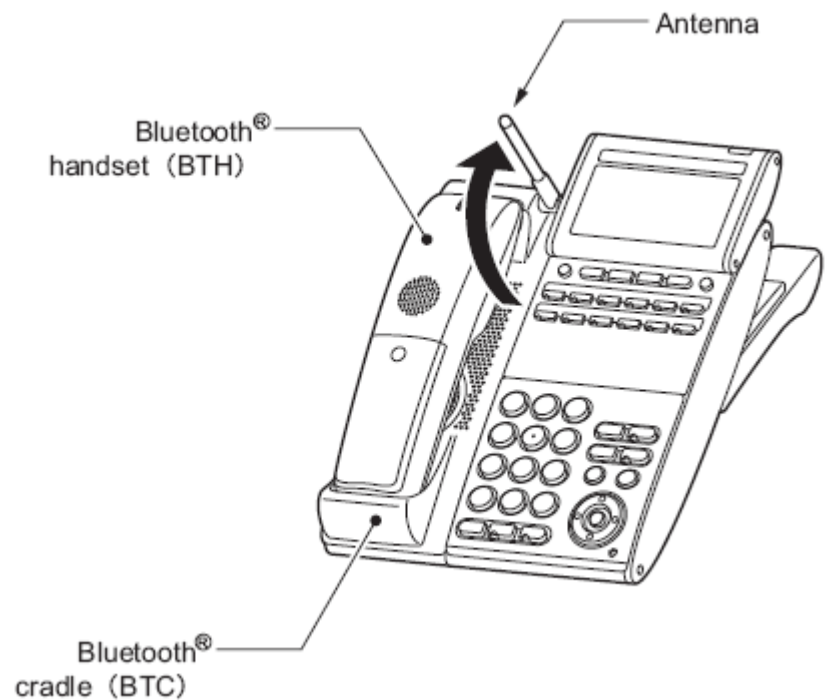
18. Cut or trim the supplied coupled device for the tilt legs handset option.
19. Insert the stopper coupled device into the right and left tilt legs (see [Figure 6-75 Insert Stopper for Handset Use](#)).



**Figure 6-75 Insert Stopper for Handset Use**

20. Set the coupled device for tilt legs into position.

21. Reinstall the legs, pushing upwards until both locks snap into place.
22. Set tilt legs to desired position.
23. Place the multiline terminal with the numbered keypad up.
24. Connect the Line cord and the AC adapter.
25. Place the Bluetooth handset in the cradle.
  - ✎ *Before you use the handset for the first time or reuse the handset after it has been left out of service for a long time, charge it for at least five hours. A full charge takes approximately 16 hours.*
26. Erect the antenna (refer to [Figure 6-76 Bluetooth Handset Installed](#)).



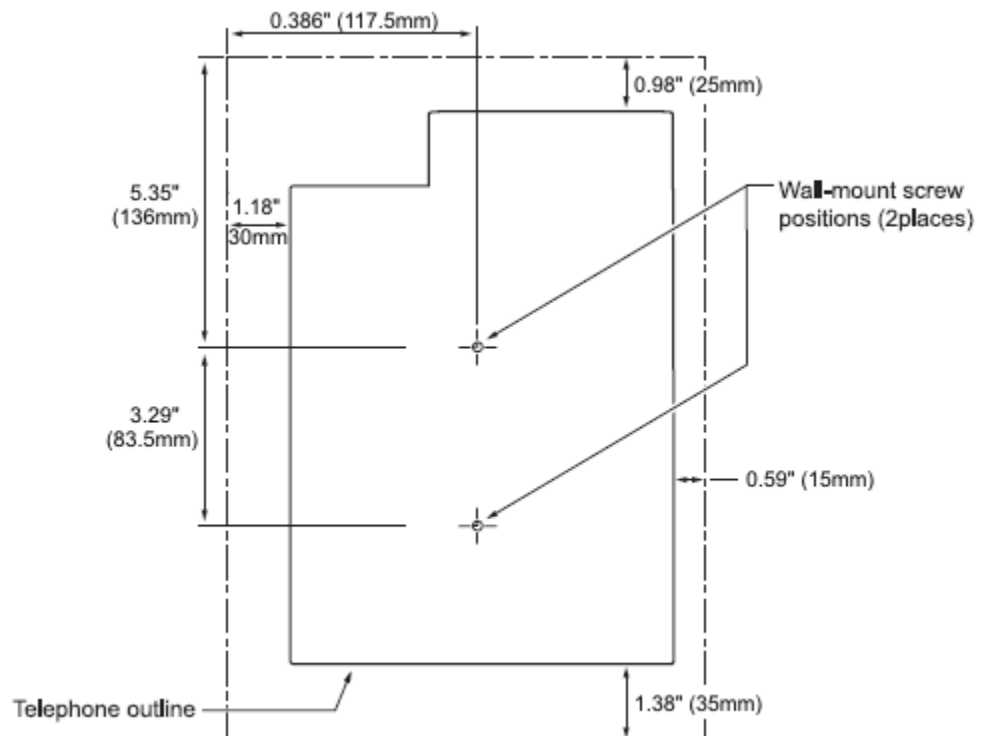
**Figure 6-76 Bluetooth Handset Installed**

## 8.4.2 Wall Mounting the Bluetooth Cradle



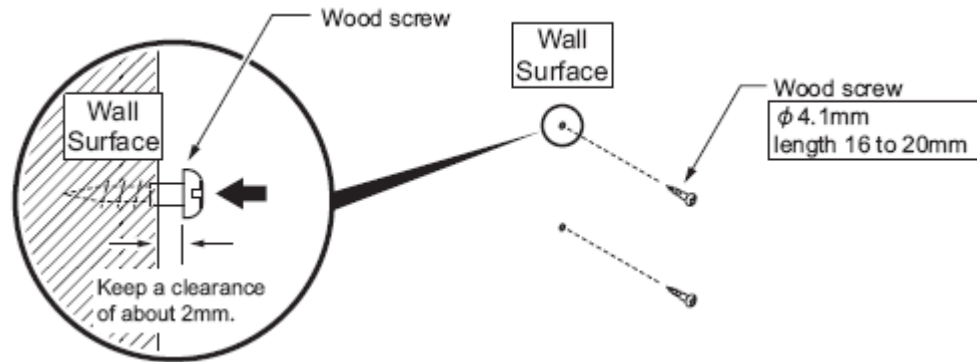
***To prevent possible damage to the BCH-L (BK) UNIT due to falling, NEC recommends installing the unit in a firm position so it cannot fall because of its own weight.***

Clearances required for installing the Bluetooth cradle are shown below. Avoid mounting the cradle on a plaster-board wall, but before mounting the cradle on a wall, check that the wall can support the weight of the telephone and withstand the load from pulling the telephone during operation.



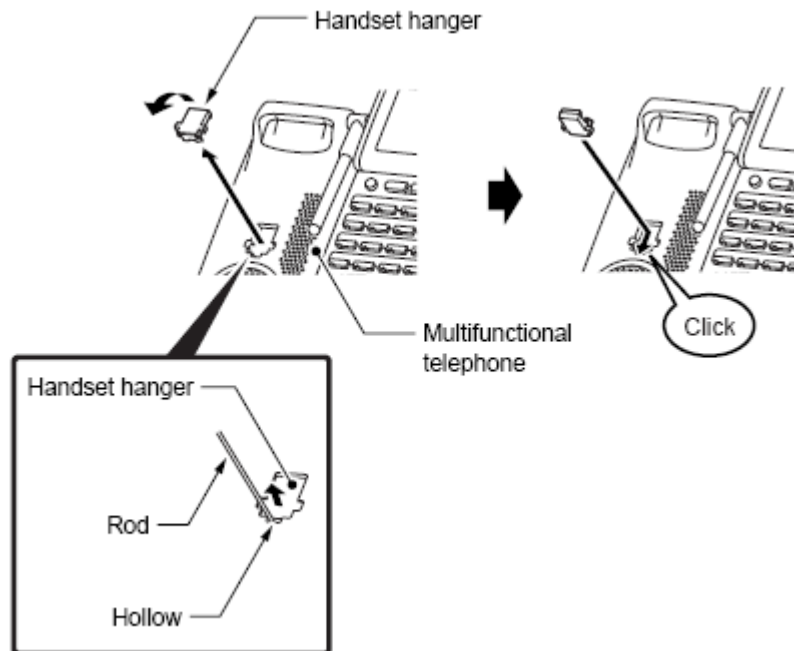
**Figure 6-77 Wall Mount Spacing Guide BCH-L (BK) UNIT**

1. Attach two wood screws to the wall.
  - ✎ Keep a clearance of about 0.08" (2mm) between each wood screw and the wall (refer to [Figure 6-78 Installing Wood Screws on page 6-64](#)).



**Figure 6-78 Installing Wood Screws**

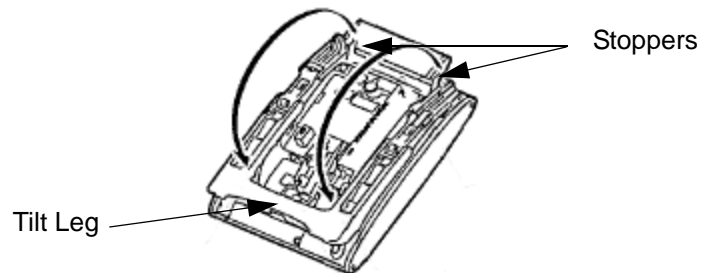
2. Remove the Bluetooth hanger from the cradle.
  - ✎ *With a screwdriver, pry from the bottom, and lift the handset hanger from the cradle.*
3. Rotate the hanger top to bottom. Slide it downward in the hollow until it clicks into position.



**Figure 6-79 Change Handset Hanger**

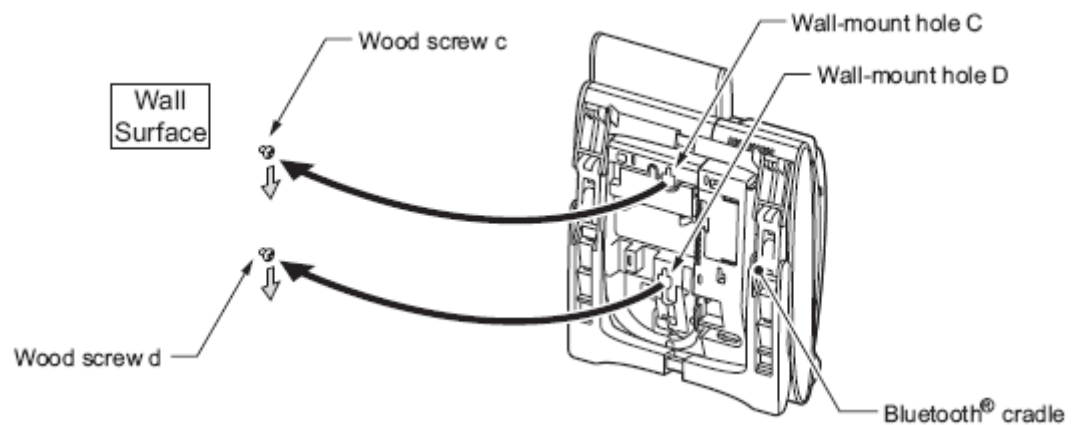


4. Turn multiline terminal upside down.
5. Lower the tilt leg to the first position (refer to [Figure 6-67 Separate Tilt Leg from Leg Support](#)).



**Figure 6-80 Separate Tilt Leg from Leg Support**

6. Hook the wall mount holes (C and D) on the back of the terminal on wood screws (c and d) installed.

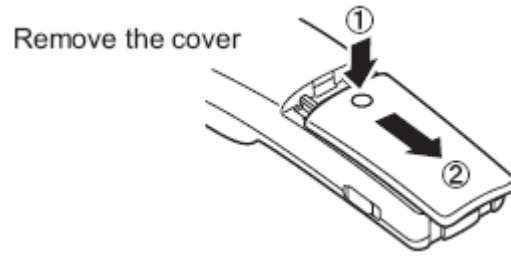


**Figure 6-81 Wall Mounting the Terminal**

### 8.4.3 Remove and Replace Handset Battery

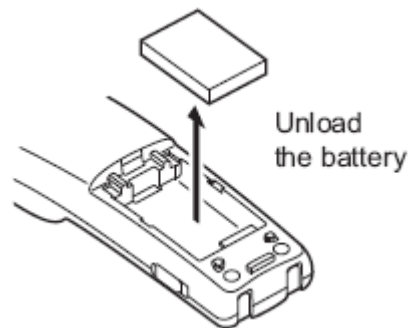
The battery loaded in the Bluetooth handset has a useful life of about two years, depending on how the handset is used. If the battery voltage diminishes quickly after the battery has been charged for a long time, replace with a new Li-ion battery.

1. Remove cover from back of handset.



**Figure 6-82 Removing Battery Cover from Handset**

2. Remove existing battery and dispose of properly.



**Figure 6-83 Removing Battery from Handset**

3. Install new Li-ion battery.
  - *Full charge takes approximately 16 hours.*
4. Reinstall battery cover.

---

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## SECTION 9 BLUETOOTH HUB ADAPTER

### 9.1 Bluetooth Hub Adapter (BHA) Features


The BHA-L UNIT adapter connects a Bluetooth device to a multiline terminal. The BHA-L UNIT cannot be connected to the DTL-2E-1 or DTL-6DE-1 telephone.

#### 9.1.1 Installing the BHA-L UNIT

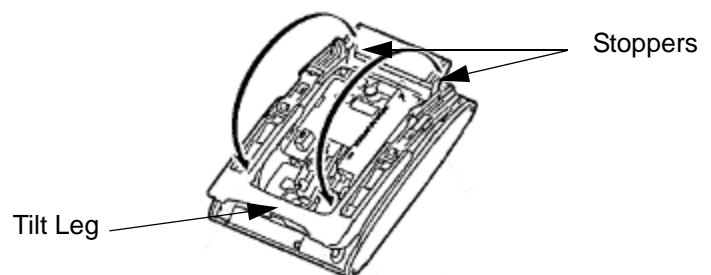


***Before installing or removing the BHA-L UNIT, remove the line cord and the AC adapter from the outlet.***

1. Turn multiline terminal upside down.
2. Unplug the line cord and handset cord from the multiline terminal.

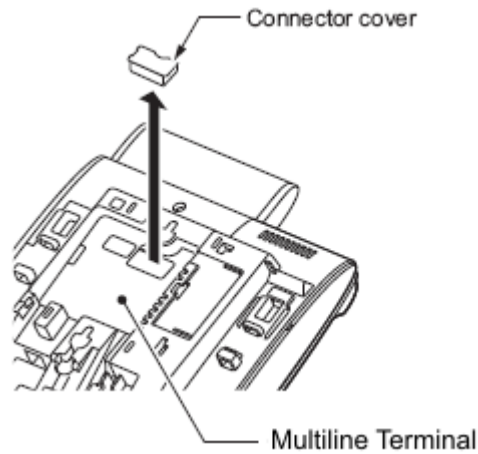
 *Only one BHA-L UNIT can be attached to the DTL multiline terminal.*

3. Lower the tilt leg to the first position (refer to [Figure 6-84 Separate Tilt Leg from Leg Support](#)).



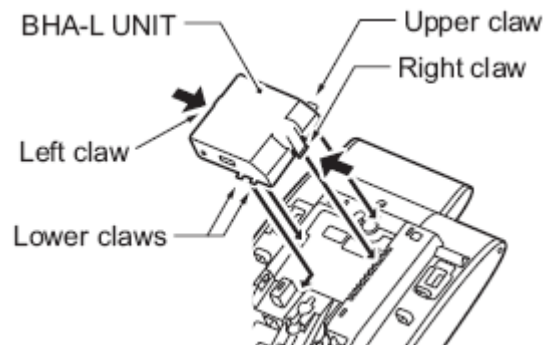
**Figure 6-84 Separate Tilt Leg from Leg Support**

4. Remove the connector cover (rubber) from the bottom of the multiline terminal (see [Figure 6-85 Removing the Connector Cover on page 6-68](#)).



**Figure 6-85 Removing the Connector Cover**

5. Insert the lower claws of the Bottom Unit (see [Figure 6-86 Installing the BHA-L UNIT](#)) into precut holes on the multiline terminal.



**Figure 6-86 Installing the BHA-L UNIT**

6. Align connector on inside of BHA-L UNIT and push down until unit snaps into place.
7. Set tilt legs to desired position.
8. Place the numbered keypad up.
9. Connect the Line cord and the AC adapter.

### 9.1.2 Pairing a Bluetooth Device and Multiline Terminal (Bluetooth Installed)

Access the Bluetooth screen from a multiline terminal menu and register the Bluetooth headset with the BHA-L UNIT.

#### 9.1.2.1 Accessing the Bluetooth Device Setup Screen

From the multiline terminal, access the setup screen using one of the following:

- If the BHA-L UNIT is connected to an SV8100:  
Press menu keys > [5. Optional Devices] > [1. Bluetooth].
- If the BHA-L UNIT is connected to a PBX (other than SV8100):  
Press menu keys > [3. Setup] > [5. Optional Devices] > [1. Bluetooth].

#### 9.1.2.2 Entering a PIN Code

In pairing a Bluetooth device having a PIN Code other than 0000, enter a string of four to 16 digits to suit that device.

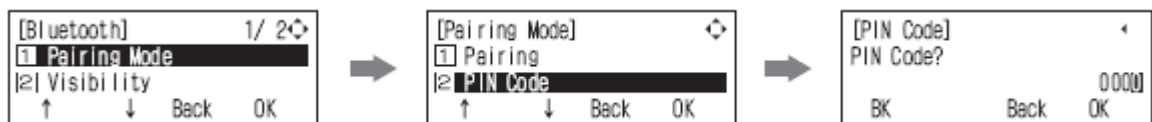
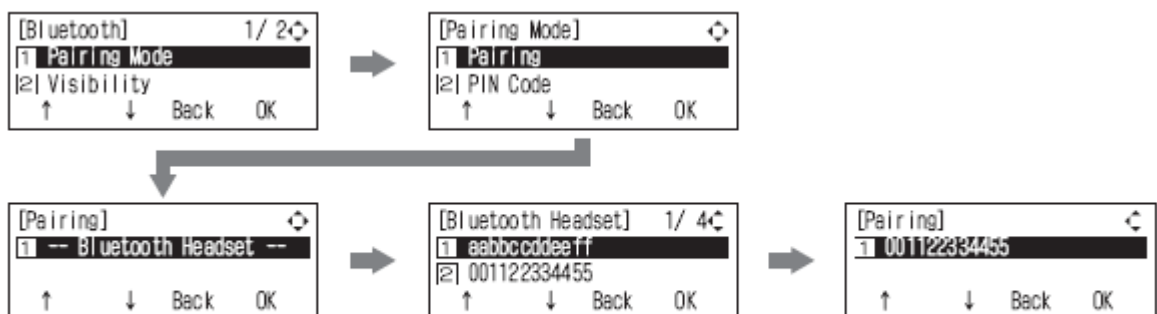


Figure 6-87 Entering a PIN Code

#### 9.1.2.3 Pairing

Up to eight Bluetooth devices can be located around the BHA-L UNIT, select which can be paired with the device (refer to [Figure 6-88 Pairing a Device](#)).



It takes approximately one minute for locating.

Figure 6-88 Pairing a Device

### 9.1.2.4 Connecting the Paired Device

Enable the Bluetooth device. Select [2 Enable] in the Connect screen.



*After pairing a Bluetooth device, be sure to configure its connection to enable it. If settings are not completed, the Bluetooth device that does the pairing cannot be used.*

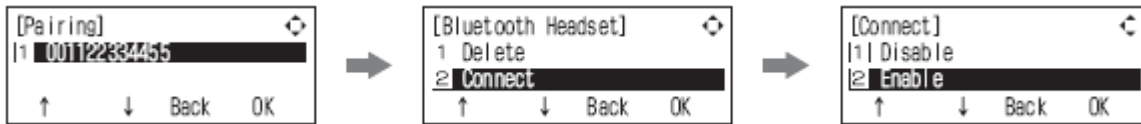


Figure 6-89 Connecting the Paired Device

### 9.1.2.5 Unpairing

To unpair a paired the Bluetooth device, select the device in the [Delete] screen.

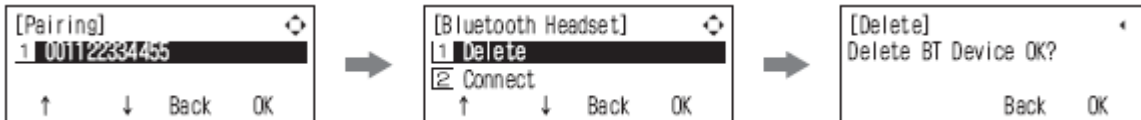


Figure 6-90 Unpairing a Device

### 9.1.2.6 Visibility Setting

Set to Disable (default: [1. Disable]).



Figure 6-91 Setting Visibility Option

### 9.1.2.7 BT Information

You can view the following information about the BHA-L UNIT:

- Firmware and hardware versions.
- Bluetooth module information and standard.
- Installed profile versions.
- Device address and name.



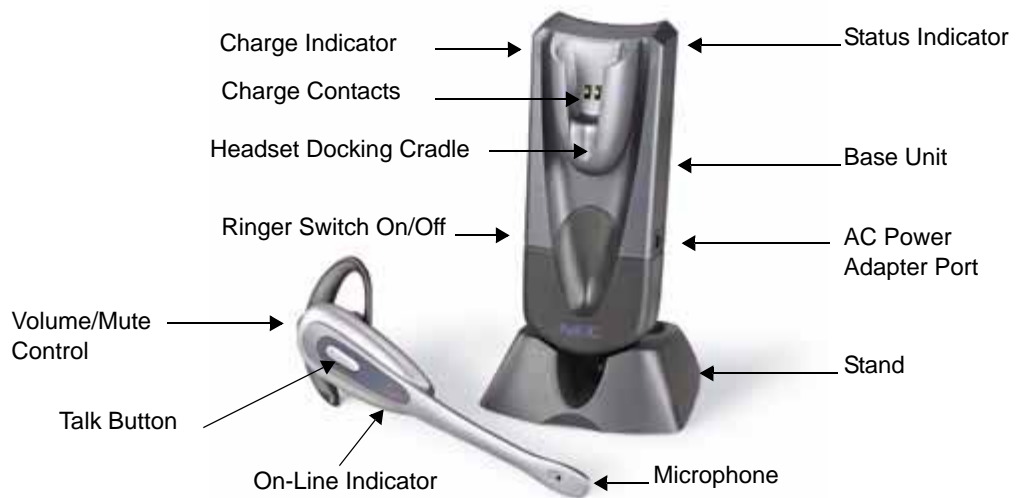
**Figure 6-92 Setting Bluetooth Information**

## SECTION 10 OPTIONAL HEADSETS

### 10.1 *D<sup>term</sup>*® USB Wireless Headset

This headset supports WebDial 2.1.4.0 or higher, Softphone 310 and SP30 Softphone version 9 or higher with digital encryption, TIA810a compliance, and a noise-canceling microphone for secure, clear, and quiet conversations. It has a 200-foot range and includes nine hours talk time.

The headset can be converted to accommodate over-the-head or over-the-ear styles.



**Figure 6-93** *D<sup>term</sup>* USB Wireless Headset (CS50-USB)

#### 10.1.1 Installing the Base Unit

Attach the Base Unit to the stand pegs, and connect the USB connector to a free USB port on your computer. A USB hub can be used, if you are certain that it can supply the required 250mA to charge the headset. An optional AC power adapter can be installed in the AC Power Adapter Port.

#### 10.1.2 Installing the PerSonoCall Software

To install the software, insert the CD supplied with the unit. If the CD does not autoplay, use Windows Explorer to find the file called `install.bat`, double click on it, and follow the instructions on the screen.



### 10.1.3 Charging the Headset Battery

To charge the headset battery, place it in the docking cradle. During charging, the charge indicator is On. When charging is complete the indicator goes Off. The headset must be charged for a minimum of one hour before use – three hours to fully charge.

### 10.1.4 Initial Setup

The Unit includes a base ringer to provide notification of an incoming call when not wearing your headset. This feature is enabled when the Ringer switch is down and is disabled when the switch is up.

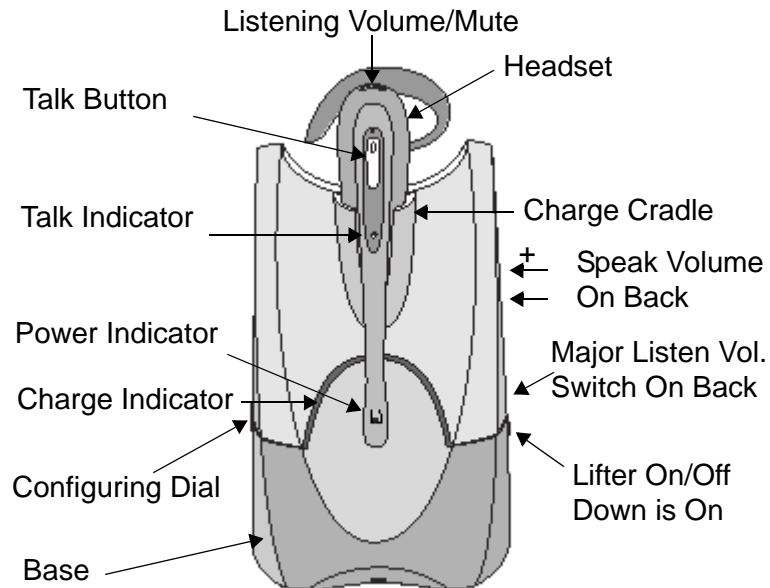
When the headset is installed, it sets itself as the default device in your computer. You can set your preferences manually in Windows through the Sounds and Audio Devices option in the control panel. A softphone may require choosing the audio device and carries out a short test to match this device to the softphone. It may also enable you to choose which device indicates an incoming call. Refer to the softphone documentation for more information.

### 10.1.5 Using the Headset

Refer to the User Guide for operating procedures.

## 10.2 *D<sup>term</sup>*® Headset Cordless II Terminal

The DTR-1C-2 (CS50 Wireless Office Headset System) combines ultimate mobility with excellent sound quality for hands-free conversation. Refer to [Figure 6-94 \*D<sup>term</sup>\* Headset Cordless II](#).



**Figure 6-94 *D<sup>term</sup>* Headset Cordless II**

This headset gives you up to eight hours talk time with the convenience of roaming up to 300 feet with secure conversations. It continually charges in the cradle, and when in use, taking or ending a call requires pressing the talk button.

An included automatic handset lifter fits on the associated telephone to lift the handset or return it to the cradle to let you answer calls remotely with the touch of a button by automatically taking your handset off-hook.

An amplifier boosts the signal to the wireless headset and connects to the existing telephone using 64-bit digitally encrypted signals to provide secure communication.

The headset is powered by a LITHIUM ION Polymer (Li-ion) Battery.

### 10.2.1 Connecting the Switch

Connection requires installing an AP(R)-L analog adapter (not supplied with this unit) on the multiline terminal.

1. Connect the AC power adapter to the AC Power Adapter Jack (indicated by a 9V icon) on the bottom of the Base, and plug the adapter into a power source.
2. The DTR-1C-2 switch is a small rectangular unit with a line cable on one end and a line cable and fixed cable on the other. Connect the fixed cable to the Lifter jack (located left of the AC Power adapter jack) on the bottom of the Base.
3. Connect the Line cord next to the fixed cable on the switch to the Base connector on the bottom of the Base unit indicated by a telephone icon.
4. Connect the single line on the other end of the DTR-1C-2 switch to the AP(R)-L analog adapter and connect the AP(R)-L adapter to the telephone.

### 10.2.2 Charging the Headset

Slide the Headset into the charging cradle on the Base. The Amber charging indicator blinks. When the Headset is charged, the indicator remains on continuously. A complete charge takes three hours.

### 10.2.3 Configuring the Headset to Your Telephone


When any of the following situations occurs, the Headset must be configured to be compatible with your telephone:

- Dial tone is not present.
- The caller is not heard.
- The caller does not hear you.
- Hissing or buzzing is heard in the Headset.

To configure the Headset:

1. Lift the telephone handset.
2. Press the Talk Button.


3. Locate the configuration Dial, and rotate it to another of the four positions until a dial tone is heard.

 *Align the number with the seam line on the right side.*

#### 10.2.4 Adjusting the Volume

##### **Listening Volume**

1. Adjust listening volume using Listening Volume/Mute control on the headset speaker end.

 *Rock the control up or down for volume changes.*

2. When the volume is still too loud or too soft, locate the Listening Volume Major Switch on back of the Base, and move it to another of the four positions.


##### **Speaking Volume**

1. Adjust speaking volume using the plus or minus button on back of the Base.

2. When the volume is still too loud or too soft, locate the 4-position switch on the bottom of the Base, and move it to another of the four positions.

##### **Using the Mute Feature**

1. Push in the Listening Volume/Mute Control to mute the headset.

 *A light beep indicates mute is being used.*

2. Push the control again to turn off the mute feature.

#### 10.2.5 Operation Using the *D<sup>term</sup>*® Headset Cordless II

##### **Switch from Headset to Handset**

When you are using the headset during a call and want to switch to the handset:

1. Remove the handset from the Base.
2. Press the headset Talk Button, and the handset can be used.

### Switch from Handset to Headset

When you are using the handset during a call and want to switch to the headset:

1. Press the headset Talk Button, and the headset can be used.
2. Place the telephone handset on the multiline terminal.
3. When finished, press the Headset Talk Button to end the call.

#### 10.2.6 System Reset

To recover from some faults, system reset may be necessary. To perform system reset:

1. Press both the Talk Button and Mute Control Button on the headset for five seconds.
2. When the Talk Indicator blinks release both buttons.
3. Press the Talk Button again.
4. Disconnect the AC Power Adapter from the jack for five seconds and then plug it back in.

### 10.3 Headsets Used with *D<sup>term</sup>*® Telephones

A multiline terminal user can use a customer-provided headset in place of the handset. Like using Handsfree, using the headset frees up the user's hands for other work. However, Headset Operation provides privacy not available from handsfree.

The headset plugs into a separate jack on the bottom of the phone. This allows the use of the handset or headset – whichever is more convenient at the time.

Connect the headset in the headset jack located on the bottom of the multiline terminal. (This jack is located next to the handset jack, so make sure to connect to the proper jack.)

### 10.3.1 NEC *D<sup>term</sup>*® Headset (MX250)

The M Series Pin Jack Style headset MX250 allows maximum versatility for wireless or cordless phones. The MX250 is easy to put on and can be worn in either ear. This headset includes an EarBudeez™ stabilizer for best possible fit to prevent the headset from becoming dislodged during important conversations. Over-the-ear styling provides a comfortable fit.



**Figure 6-95 Cordless Headset (MX250)**

### 10.3.2 NEC *D<sup>term</sup>*® Cordless Phone Headset (M175)

The NEC M175 mobile headset offers hands-free convenience anywhere you go. Its convertible design can be worn with a headband or earloop on either ear, depending on whether you want greater stability or convenient small size. The pivoting noise-canceling microphone keeps your voice crystal clear, even in noisy environments. Comfortable, durable, and lightweight, it also works with headset-ready cordless phones and features a one-touch volume and mute control so you can be heard clearly.



**Figure 6-96 Cordless Headset (M175)**

### 10.3.3 NEC *D<sup>term</sup>*® NEC Polaris SupraPlus™

Supra Series Monaural or Binaural headsets are super stable and perfect for phone-intensive jobs. They have an adjustable headband so they can be worn all day. The Binaural model allows you to hear conversations in extra noisy environments.



**Figure 6-97 NEC Polaris Supraplus**

### 10.3.4 NEC *D<sup>term</sup>*® NEC POLARIS MIRAGE ®

With no headband, no eartip, no hands, no hassle, these headsets are lightweight and have concert hall acoustics. With its over-the-ear fit and receiver that rests gently against the ear it is easy to forget that it is being worn.



**Figure 6-98 NEC Polaris Mirage**

### 10.3.5 NEC *D<sup>term</sup>*® NEC POLARIS TRISTAR®

For business professionals who require comfort and stability in an over-the-ear design that does not mess up their hair, the TriStar headset is the best solution. The three point design ensures that it is comfortable and stable on the ear. It is very lightweight and can also fit most eyeglass wearers.



**Figure 6-99 NEC Polaris TriStar**



### 10.3.6 NEC *D<sup>term</sup>*® NEC Polaris Encore®

Monaural or Binaural Encore headsets are comfortable and practical for almost everyone. Human factors engineering for near universal fit, light weight all day comfort, and the SES® (Sound Enhancement System) tone control switch that allows bass and treble settings brings a new generation of headset technology.



**Figure 6-100 NEC Polaris Encore**



-  *Headsets that have open style receivers (i.e., Mirage, DuoSet and DuoPro) can cause echo problems on DT700 Series telephones. The echo suppression and receiver gain of the telephone determines the severity of the echo when using any headset.*
-  *Due to the environment where the telephones or headsets are located, ambient noise may affect performance. Please contact NEC for the recommended headset to use with VoIP applications.*

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# *Installing SV8100 Wireless Telephones*

## **SECTION 1      GENERAL DESCRIPTION**

The wireless telephones provide wireless freedom that also allows access to features provided by the UNIVERGE SV8100 system.

## **SECTION 2      NEC SIP DECT SOLUTIONS**

The SIP Digital Enhanced Cordless Telecommunication (DECT) is a stand-alone system that is connected to the NEC Telephone System via a TCP/IP connection using Session Initiation Protocol (SIP). This means that in the NEC Telephone System, the DECT extensions must be assigned as SIP extensions. From the NEC Telephone System perspective, there is no difference between an SIP extension and an SIP DECT extension.

Figure 7-1 SIP DECT System Configuration shows the SIP DECT System Configuration. All connections are IP connections over Ethernet.

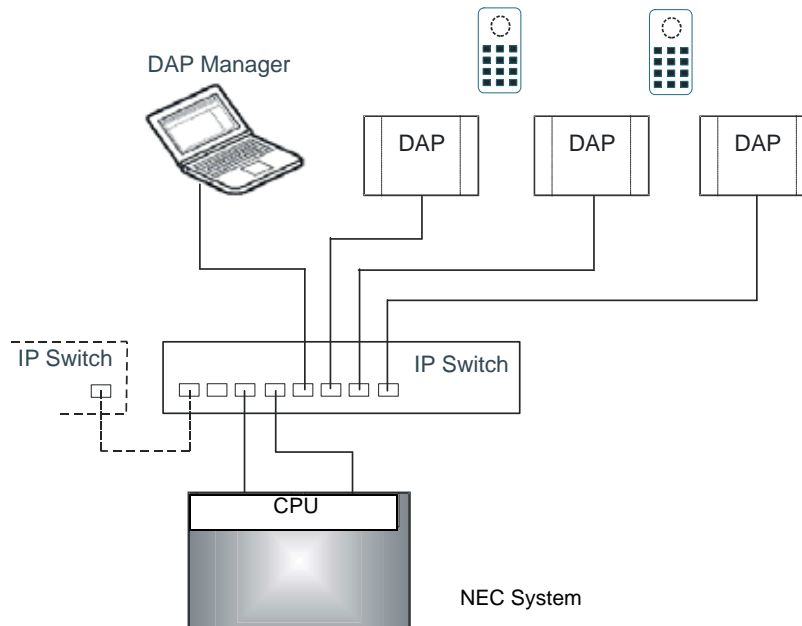



Figure 7-1 SIP DECT System Configuration

## 2.1 Installation

The hardware installation consists of the following steps:

1. Determine the number of DAPs that need to be installed and where they should be located. Refer to NEC SIP DECT Solutions Technician's Guide, [DAP Planning](#) as a guideline.
2. Read the sections [DAP Cabling](#) and [DAP Power Provision in the NEC SIP DECT Solutions Technician Guide](#) carefully to determine how the DAPs should be powered and how the cable must be run.
3. Make sure that you have an IP Switch available to connect the IP DECT equipment. Power up the IP Switch.
4. Setup and connect the power provision for the DAPs. The LEDs on the DAPs should show some activity.
5. Connect the DAP cables to the IP Switch.

 **Do not** connect the Ethernet cables or the IP Switch to the local IP network. The DECT configuration should be installed in a closed network.

6. Make sure that you have a computer available that can be used for management. Connect this PC to the IP Switch using an ethernet cable. Check that the lamp on the IP Switch indicates that the connection is established.
7. (For UNIVERGE SV8100 only) Connect a network cable between the CD-(X)ILPA and the IP Switch.
8. The next step is setting up your IP Addressing structure. Refer to the NEC SIP DECT Solutions Technician's Guide, IP Addressing.

## 2.2 Handsets

The following are available to the SIP DECT system:

### 2.2.1 SIP DECT C124

The C124 DECT is a compact, ergonomically designed wireless business handset that works with the IP DECT terminal. It provides numerous features and optimal comfort. Its illuminated graphic LCD display enables use in poorly lit environments, while its internal loudspeaker provides hands-free operation with excellent sound quality. Powerful encryption techniques ensure secure communication, and advanced call-logging features make call management easy.



Figure 7-2 C124 Wireless Handset

2.2.1.1 Display Arrangement










Extra display line for dialed digits, calling number, etc.

Figure 7-3 C124 Display Screen

Symbol	Indication
	Received signal strength. If the handset is out of range the display shows: SEARCHING...
	Keypad lock is activated
	On: handset is off hook. Flashing: incoming call.
	The handset speakerphone mode is activated.
	The handset microphone is muted.
	Battery capacity. During charging, it is an animated icon.
	A voice message is waiting.
<b>STANDBY</b>	The handset is in standby mode. The handset name will be displayed if it is programmed.

## 2.2.1.2 Keypad Arrangement

Table 7-1 C124 Handset Keypad Buttons

Button	In Standby	In Conversation	In Menu Mode
	Make or answer a call. When switched off: switch on the handset.	Enquiry / Call transfer.	Start dialing from phone book, redial list, or caller ID list.
	Press and hold this button to switch off the handset.	End a call.	Return to standby mode.
<b>0 - 9</b>	Enter digit 0-9.	Send DTMF signal 0-9.	To enter digit 0-9.+
	Enter call log.	Increase receiver volume.	Scroll through menu items.
	Enter telephone book.	Decrease receiver volume.	Scroll through menu items.
<b>OK</b> 	Enter menu mode.	Not used.	Confirm an action or selection.
	Enter redial list.	Toggle speakerphone mode.	Toggle upper/lower case in phone book mode.
	Not used.	Toggle microphone mute.	Go back to previous menu or cancel an action.
<b>#</b>	Press and hold to insert pause.	Enter DTMF #.	Press and hold to insert pause in phonebook entries.

For more detailed information, refer to the NEC SIP DECT, NEC C124 DECT Handset User Guide.

### 2.2.2 SIP DECT G955

The NEC Philips Digital Enhanced Cordless Telecommunications (DECT) G955 Handset is a cordless telephone with enhanced features suitable for office use. The handsets include a single-press SOS key used to make one-touch calls or send messages to a particular contact number. The G955 DECT Handset offers a text-messaging to send and receive messages.



**Figure 7-4 G955 Wireless Handset**



## 2.2.2.1 Display Screen

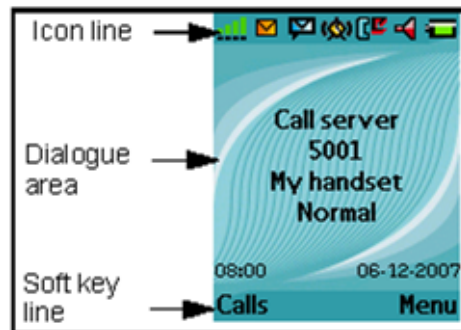












Figure 7-5 G955 Display Screen




Table 7-2 Icon Line Icons

Icon	Description
	Level of radio signal
	Bluetooth connection status (only for G955 DECT Handset) For Bluetooth connection status icons, refer to <a href="#">Table 7-3 Bluetooth Headset Status Icons</a> on page 7-8
	New text message received If active, this icon replaces the Bluetooth connection status icon
	Voice Message waiting indication
	Dialpad locked
	Activated alarm If active, this icon replaces the Dialpad locked icon


**Table 7-2 Icon Line Icons (Continued)**

Icon	Description
	Missed calls
	Ringer deactivated
	Caller filter (only for G955 DECT Handset) If active, this icon replaces the Ringer deactivated icon
	Battery charge status For battery status, refer to <a href="#">Table 7-4 Battery Charge Status Icons on page 7-8</a>




**Table 7-3 Bluetooth Headset Status Icons**

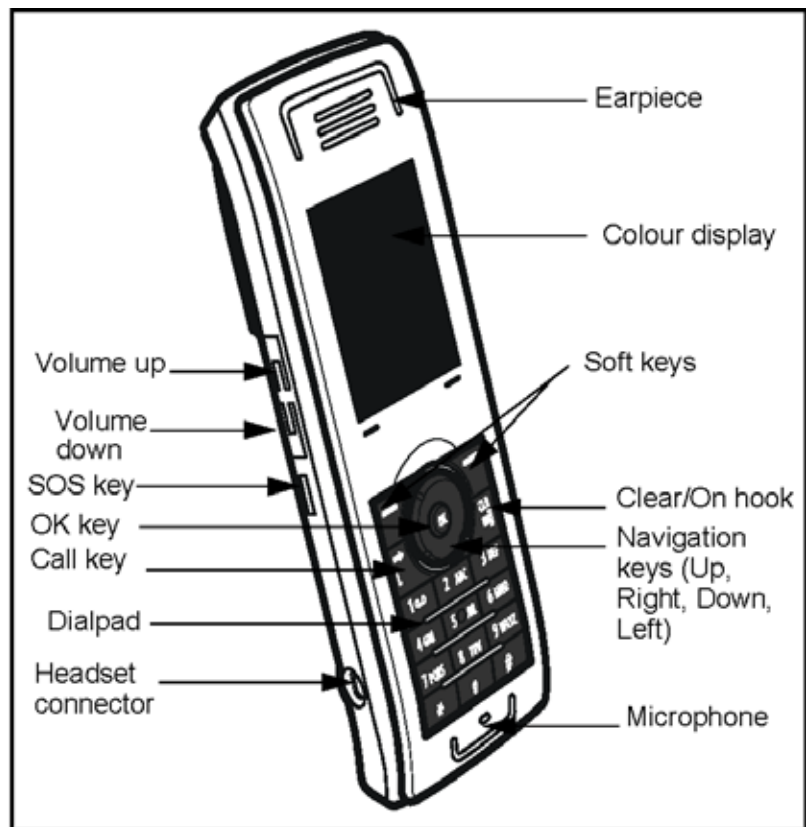
Icon	Description
	Connected
	Disconnected
	In conversation

**Table 7-4 Battery Charge Status Icons**

Icon	Description
	Empty

**Table 7-4 Battery Charge Status Icons (Continued)**

Icon	Description
	Less than 33%
	More than 33% and less than 75%
	More than 75%

**Figure 7-6 G955 Handset Controls**

For more detailed information, refer to the G955 Handset Owner's Manual.

### SECTION 3 MH240 WIRELESS IP TELEPHONE

The MH240 is an 8-multi-function keys wireless VoIP terminal that complies with IEEE 802.11b/g specifications. The MH240 has the following features:

- Call History
- Directory
- Password Lock
- Favorites
- Speed Dial
- Speaker Monitor
- Courtesy Mode



Figure 7-7 MH240 Wireless IP Telephone Layout

### 3.1 Install the Battery

Installation of the battery consists of the following steps:

1. Remove the battery cover from the back of the telephone.

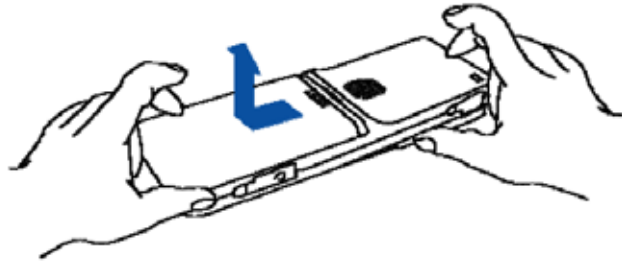


Figure 7-8 Remove MH240 Battery Cover

2. Place the battery into the unit so that the label faces toward you (up).

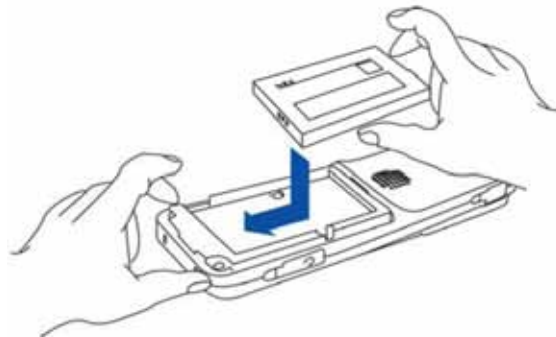


Figure 7-9 Install Battery

3. Reinstall the battery cover.

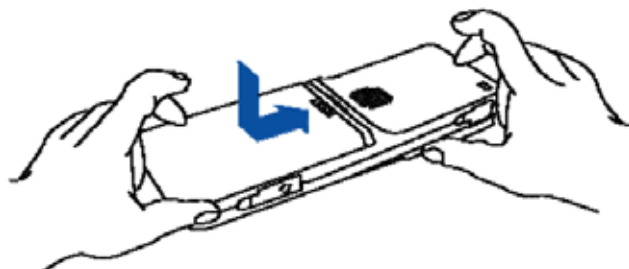


Figure 7-10 Reinstall MH240 Battery Cover

## 3.2 Charge the battery

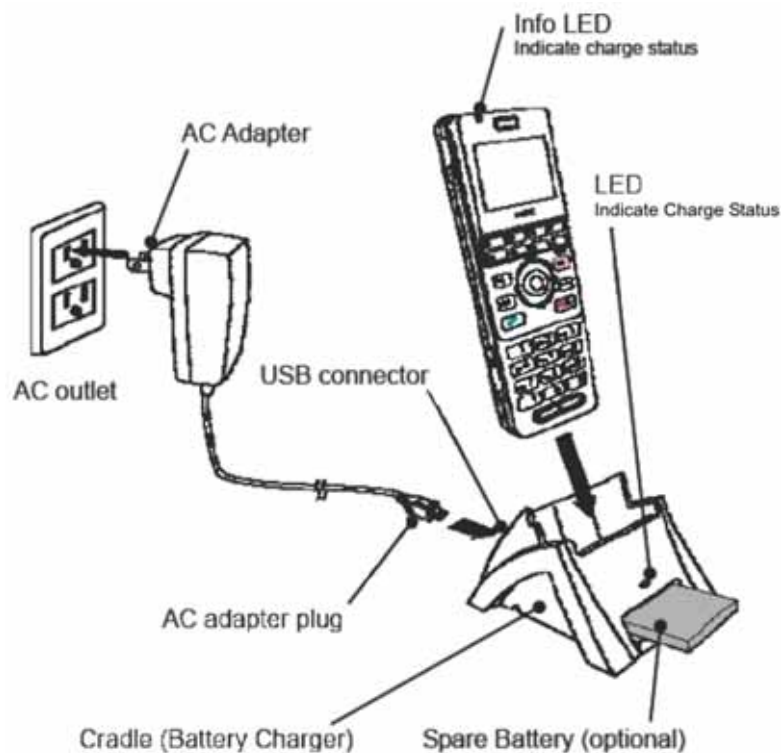
The telephone can be charged by using the supplied cradle or, by connecting the AC adapter directly to the MH240 as noted below.

 *A battery can be fully charged in approximately four hours.*


### 3.2.1 Using the Cradle

The telephone can be charged by using the cradle or, by inserting the battery into the slot near the base of the cradle. This is useful if you have a spare battery.

1. Insert the AC Adapter plug (mini USB) into the USB connector in the back of the cradle.
2. Plug the AC Adapter into an appropriate AC outlet.
3. Stand the MH240 telephone in the cradle and/or insert the spare battery in the slot near the base of the cradle.



**Figure 7-11 MH240 Charging Cradle**

 *When placing a battery in the slot to be charged, the label must face down.*

4. The LED on the cradle lights red to indicate the battery is being charged. When the battery is not being charged the Info LED turns off.
5. The LED on the cradle lights green when the spare battery is fully charged. After this, charging to the telephone battery will start and the Info LED lights red.
  - ✎ *If the telephone is placed in the cradle and the spare battery inserted into the slot at the same time, the spare battery will be charged first.*
6. The Info LED lights green to indicate the telephone is fully charged.

### 3.2.2 Using the AC Adapter

1. Plug the AC Adapter into an appropriate AC outlet.
2. Insert the AC Adapter plug (mini USB) into the USB connector of the telephone.

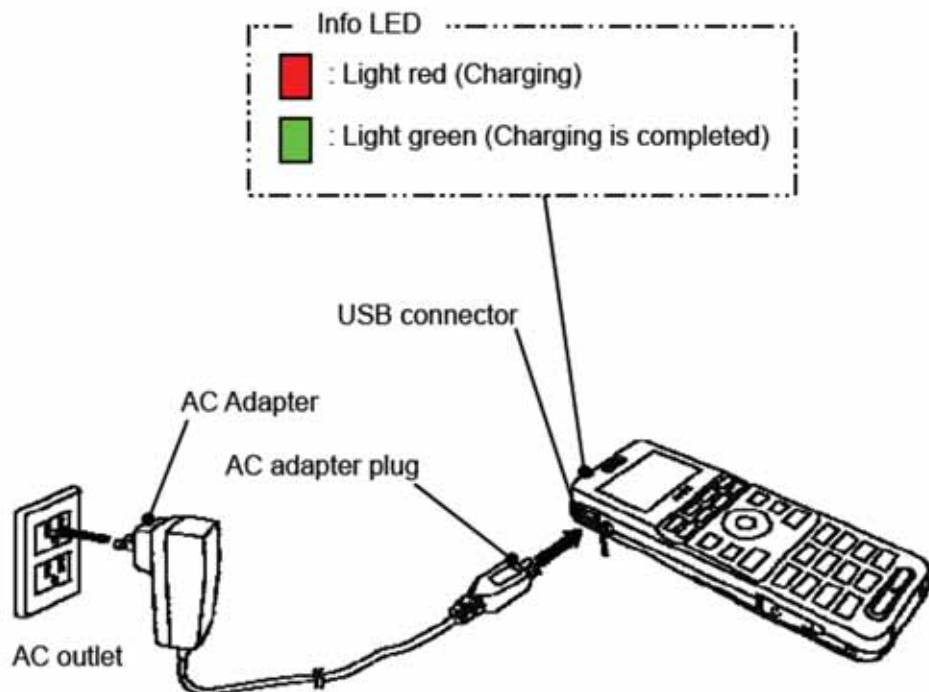


Figure 7-12 Charging the MH240 Using an AC Adapter

### 3.3 Operation

Refer to [Figure 7-13 MH240 Button Kit](#) and [Table 7-5 MH240 Button Kit Functions](#) for a brief explanation of the functions available.



**Figure 7-13 MH240 Button Kit**

**Table 7-5 MH240 Button Kit Functions**

Button Name	Detail	LED Indication
Talk	OFF-Hook Operation	Green
Disconnect	On-Hook Operation Clear Preset Dial	None
Hold	Hold Operation	None
TRF	Transfer Operation	None
CONF	Conference Operation	Green
Volume Up	Local Volume, Ring and LCD Contrast Operation Local Phonebook and Call History Operation	None
Volume Down	Local Volume, Ring and LCD Contrast Operation Local Phonebook and Call History Operation	None
Directory	Local Phonebook and Call History Operation	None
History	Local Phonebook and Call History Operation	None
Enter	Local Phonebook and Call History Operation (Select button)	None



# *Installing SV8100 Conference Solutions*

## **SECTION 1      GENERAL DESCRIPTION**

Conferencing solutions provide premium, full-duplex audio to small conference rooms as a single unit or to larger rooms when expanded by up to three units that also expand microphone access and loudspeaker coverage.

## **SECTION 2      NEC CONFERENCE MAX™**

### **2.1      Description**

This expandable conferencing telephone provides premium, full-duplex audio to small conference rooms as a single unit or to larger rooms when expanded by up to three units that also expand microphone access and loudspeaker coverage with even distribution of sound.

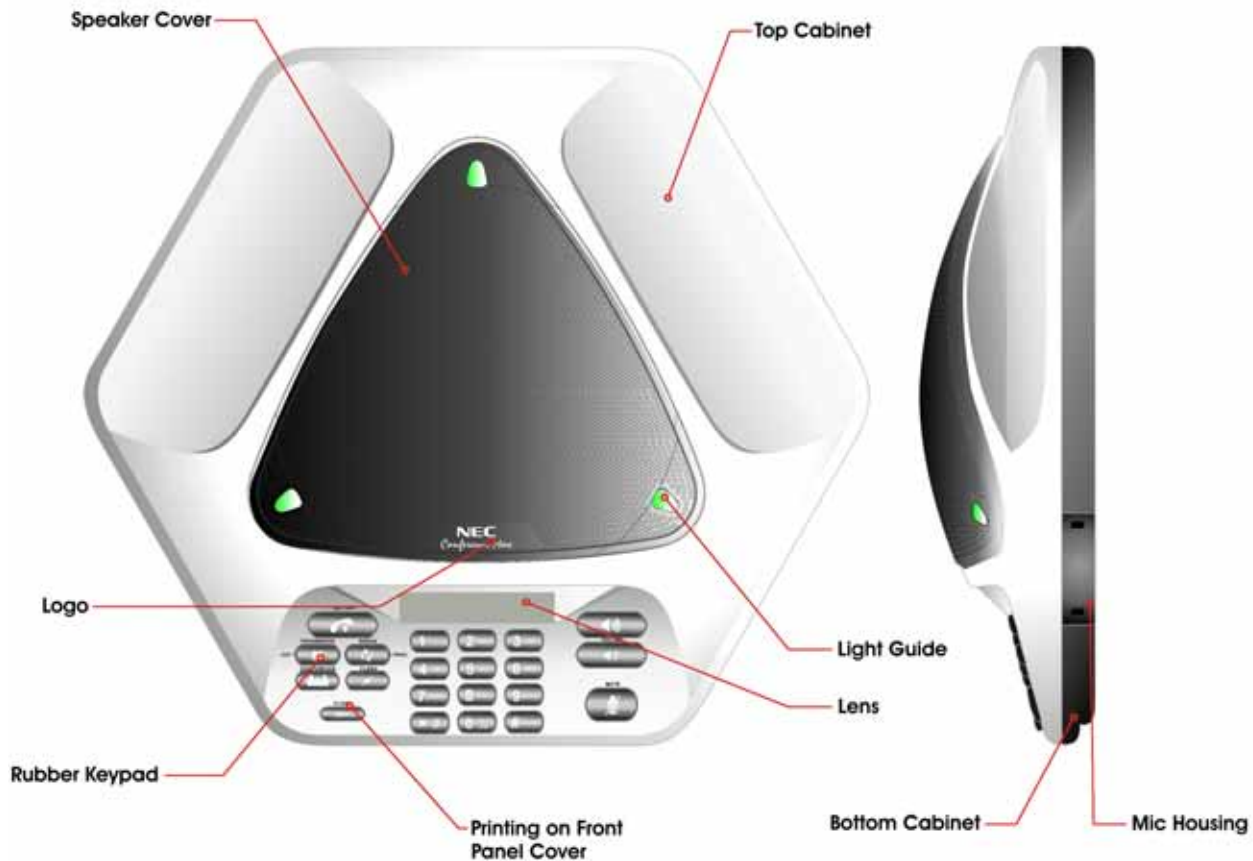


Figure 8-1 NEC Conference Max™

## 2.2 Installation

1. Connect the provided 25 foot Cat. 5 cable between the LINK OUT jack of the base unit and the LINK IN jack of the conferencing pod.
2. Connect the provided RJ-11 cable between the base unit and the telephone jack.
3. Connect the power cord to the base unit and plug it in an electrical outlet.
4. To connect additional units, connect a 12 foot Cat. 5 cable between the LINK OUT jack of the unit connected to the base unit and the LINK IN jack of the second unit and repeat the connection of another 12 foot Cat. 5 cable between the LINK OUT jack of each unit to the LINK IN of the next unit in sequence.

## 2.3 Keypad Functions

Refer to [Table 8-1 Conference Max Keypad Functions](#).

**Table 8-1 Conference Max Keypad Functions**

Key	Function
ON/OFF key (telephone icon)	Press to activate the telephone and access dial tone. Press again to hang up and return to standby mode.
PHONEBOOK (book icon)	Press to dial stored numbers. Press and hold two seconds to enter Phonebook Edit mode.
REDIAL (circular arrow icon)	Press once to dial the last number called. Press and hold two seconds to enter Program mode.
CONFERENCE (three person icon)	Press to dial the conferencing service provider. This feature must be programmed.
FLASH (lightning flash icon)	Press to enable call forwarding, call waiting, or three-way calling when supported by telephone service.
CLEAR (vertical line and left arrow icon)	Press to clear the last digit entered or press and hold to clear all numbers. Press to exit programming mode.
VOLUME (loud and dim speaker icons)	Press during call to adjust call volume or press while telephone is ringing or in standby mode to adjust ringer volume.
MUTE (mic with diagonal line icon)	Press to mute volume.

## 2.4 Programming Options


To enter Programming mode, press and hold REDIAL until a diamond arrow is displayed on the LCD. Then press the applicable key and follow the instruction in [Table 8-2 Conference Max Programming Options](#).

**Table 8-2 Conference Max Programming Options**

Menu Option	Key	Programming
Ringer Melody	1	Press REDIAL. The current melody selection flashes. Press 1~5 to change melody. Press REDIAL to save the selection.
Dialing Mode	2	Press REDIAL. The current dialing selection flashes. Press 1 for tone or 2 for pulse. Press REDIAL to save the selection.

**Table 8-2 Conference Max Programming Options (Continued)**

Menu Option	Key	Programming
Flash Duration	3	Press REDIAL. The current duration flashes. Press 1~5 to select duration as follows: 1 = 600 ms 2 = 300 ms 3 = 150 ms 4 = 100 ms 5 = 80 ms Press REDIAL to save the selection.
Local Number *	4	Press REDIAL. Enter the telephone number that you want displayed on the LCD in standby mode. Press REDIAL to save the number.
Conference *	5	Press REDIAL. Enter the telephone number you want the conference key to dial. Press REDIAL to save the number.
Service *	6	Press REDIAL. Enter the telephone number you want the O key to dial. Press REDIAL to save the number.
Country	7	Press REDIAL. Press number key for country as follows: 1 US/Canada/China/Japan/Mexico/Singapore 2 Europe CTR 21 3 Australia 4 S. Africa 5 Brazil 6 New Zealand 7 South Korea Press REDIAL to save the country setting.

 Press CLEAR to return the previous menu. Press and hold to exit programming without saving changes.

\* Press and hold 1 to enter hyphen or \* to enter a space in the number. Press CLEAR before entering a new number.

## 2.5 Compliance

This product is in compliance with the following regulations and requirements:

- FCC Part 15/ICES-003  
This product has been tested and complies with the limits for a Class A digital device.
- FCC Part 68  
US:FBIMT01B910158015 Ringer Equivalence Number (REN):0.1B(ac)
- Industry of Canada (IC)  
IC: 1970A-158015: REN:0.1B(ac)

- European  
Council Directive 1999/5/EC

### SECTION 3 **NEC CONFERENCE MAX PLUS**

This wireless conferencing system is ideal for small conference rooms with up to eight participants. Max Plus provides wireless One-Touch Conferencing convenience without compromising audio quality or call security.

Each pod contains a rechargeable battery pack with nickel metal hydride batteries (7.2 Volts, 2200mAh) that allows 12 hours of continuous talk time. A Base Unit that is connected to a power source and analog telephone service is required for operation of the conferencing pods.

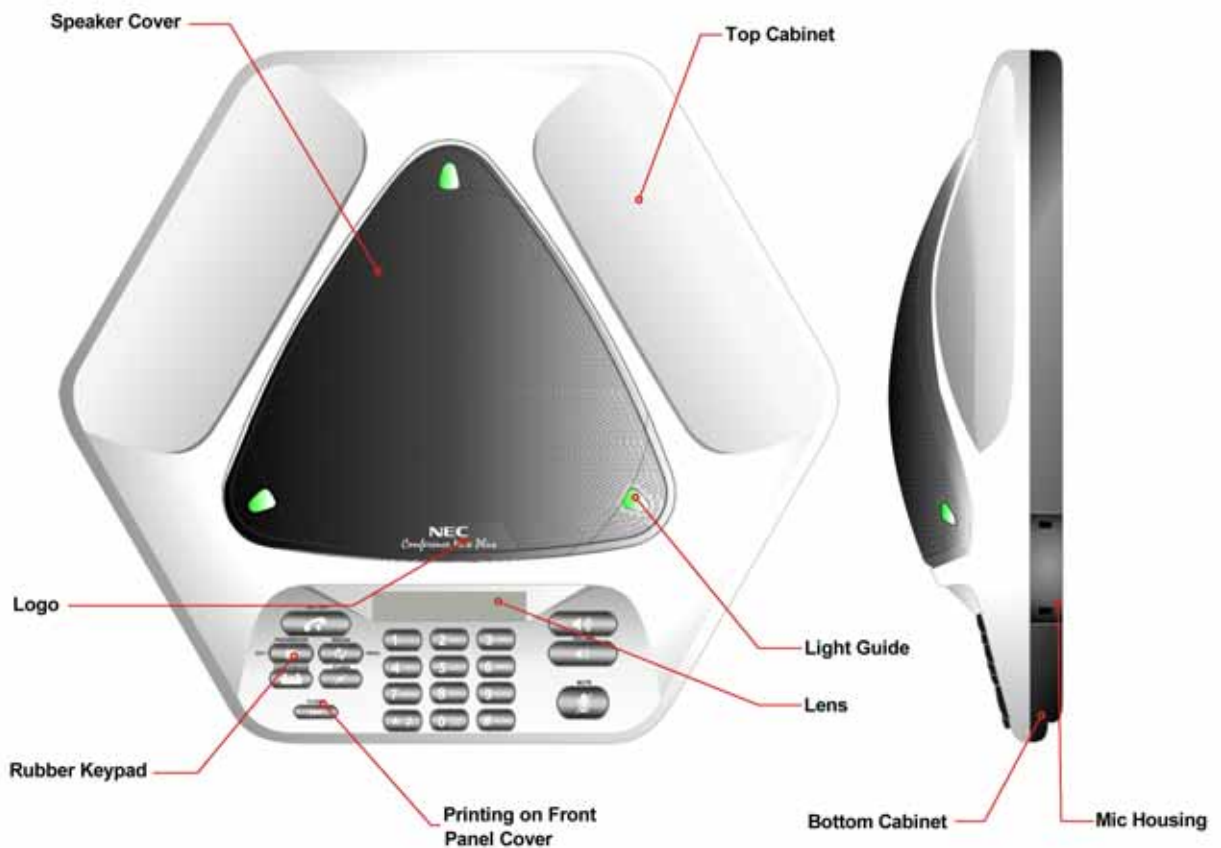


Figure 8-2 NEC Conference Max Plus

### 3.1 Installing the Base Unit


To install the base unit:

1. Connect the provided RJ-11 cable between the Base Unit and the telephone jack.
2. Connect the power cord to the Base Unit and plug it in an electrical outlet.
3. If desired, connect a recording device to the 2.5mm audio jack.

### 3.2 Connecting and Charging the Batteries

To connect and charge the batteries:

1. Slide the cover off the battery compartment on the bottom of one pod.
2. Connect the battery pack plug in the port in the compartment and install the battery pack.
3. Slide the cover back in place.
4. Connect the power supply/charger to the conferencing pod and plug it in an electrical outlet.

 *Charge batteries for 15 hours prior to first use.*

5. Repeat steps 1~4 for the other pod.

### 3.3 Keypad Functions

Refer to [Table 8-3 Conference Max Plus Keypad Functions](#).

**Table 8-3 Conference Max Plus Keypad Functions**

Key	Function
ON/OFF key (telephone icon)	Press to activate the telephone and access dial tone. Press again to hang up and return to standby mode.
PHONEBOOK (book icon)	Press to dial stored numbers. Press and hold two seconds to enter Phonebook Edit mode.
REDIAL (circular arrow icon)	Press once to dial the last number called. Press and hold two seconds to enter Program mode.
CONFERENCE (three person icon)	Press to dial the conferencing service provider. This feature must be programmed.
FLASH (lightning flash icon)	Press to enable call forwarding, call waiting, or three-way calling when supported by telephone service.

**Table 8-3 Conference Max Plus Keypad Functions (Continued)**

Key	Function
CLEAR (vertical line and left arrow icon)	Press to clear the last digit entered or press and hold to clear all numbers. Press to exit programming mode.
VOLUME (loud and dim speaker icons)	Press during call to adjust call volume or press while telephone is ringing or in standby mode to adjust ringer volume.
MUTE (mic with diagonal line icon)	Press to mute sound.

### 3.4 Programming Options


To enter Programming mode, press and hold REDIAL until a diamond arrow is displayed on the LCD. Then press the applicable key and follow the instruction in [Table 8-4 Conference Max Plus Programming Options](#).

**Table 8-4 Conference Max Plus Programming Options**

Menu Option	Key	Programming
Ringer Melody	1	Press REDIAL. The current melody selection flashes. Press 1~5 to change melody. Press REDIAL to save the selection.
Dialing Mode	2	Press REDIAL. The current dialing selection flashes. Press 1 for tone or 2 for pulse. Press REDIAL to save the selection.
Flash Duration	3	Press REDIAL. The current duration flashes. Press 1~5 to select duration as follows: 1 = 600ms 2 = 300ms 3 = 150ms 4 = 100ms 5 = 80ms Press REDIAL to save the selection.
Local Number *	4	Press REDIAL. Enter the telephone number that you want displayed on the LCD in standby mode. Press REDIAL to save the number.
Conference *	5	Press REDIAL. Enter the telephone number you want the conference key to dial. Press REDIAL to save the number.

**Table 8-4 Conference Max Plus Programming Options (Continued)**

Menu Option	Key	Programming
Service*	6	Press REDIAL. Enter the telephone number you want the O key to dial. Press REDIAL to save the number.

 Press CLEAR to return the previous menu. Press and hold to exit programming without saving changes.

\* Press and hold 1 to enter hyphen or \* to enter a space in the number. Press CLEAR before entering a new number.

### 3.5 Compliance

This product is in compliance with the following regulations and requirements:

- FCC Part 15/ICES-003  
This product has been tested and complies with the limits for a Class A digital device.
- FCC Part 68  
US:FBIMT01B910158015 Ringer Equivalence Number (REN):0.1B(ac)
- Industry of Canada (IC)  
IC: 1970A-158015: REN:0.1B(ac)
- European  
Council Directive 1999/5/EC

## SECTION 4 NEC SIP CONFERENCE MAX

The NEC SIP Conference Max expandable conferencing telephone provides premium, full-duplex audio to small conference rooms as a single unit and to larger rooms as an expanded system. Up to four SIP Conference Max units can be linked, expanding not only microphone coverage but loudspeaker coverage and control access as well. This creates even distribution of sound for a more natural communications experience.

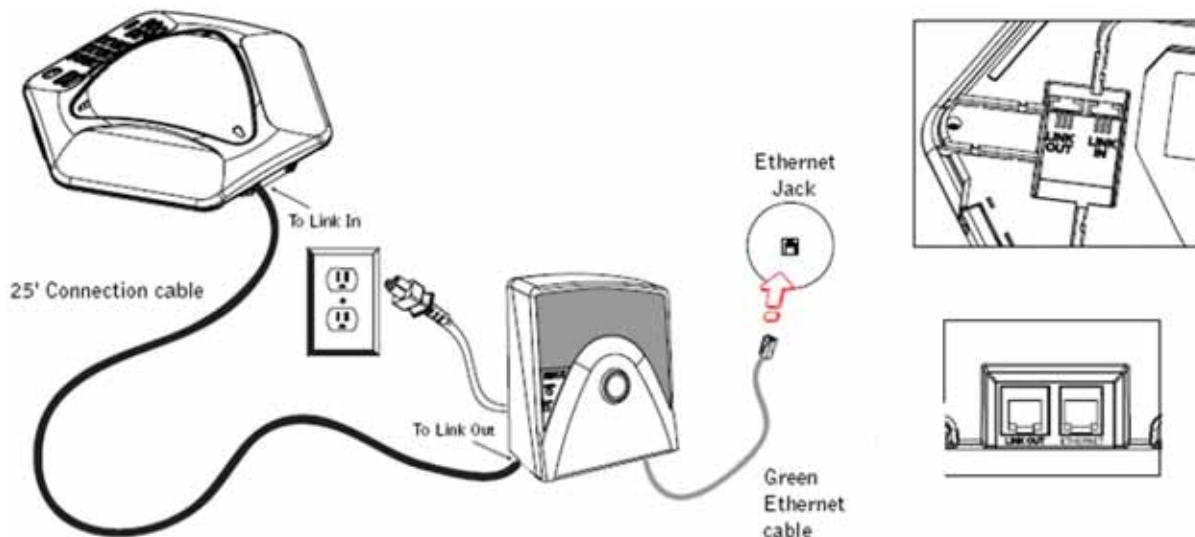
### 4.1 Installation

1. Connect the cable from the Link Out on the base unit to the Link In jack on the conferencing pod.



***Do Not plug a laptop or PC into the Link Out jack on the base unit or conferencing pod, severe electrical damage could occur.***

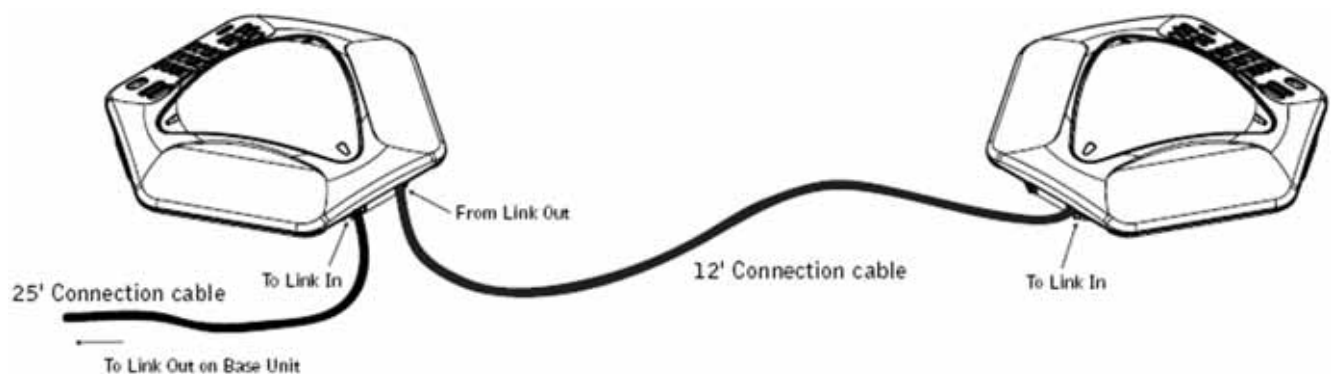




**Figure 8-3 NEC SIP Conference Installation**

2. Connect the base unit to the Ethernet jack using the Ethernet cable.
3. Connect the power cord to the base unit and plug it directly into an electrical outlet.
4. To connect additional units, connect the 12 foot Connection cable to the Link Out jack on the first phone and to the Link In jack on the second phone.

*Up to three additional SIP Conference Max phones for a total of four may be connected.*




**Figure 8-4 Install Additional NEC SIP Conference Units**

## 4.2 Connecting and Charging the Batteries

To connect and charge the batteries:

1. Slide the cover off the battery compartment on the bottom of one pod.
2. Connect the battery pack plug in the port in the compartment and install the battery pack.
3. Slide the cover back in place.
4. Connect the power supply/charger to the conferencing pod and plug it in an electrical outlet.

 Charge batteries for 15 hours prior to first use.

5. Repeat steps 1~4 for the other pod.

## 4.3 Keypad Functions

Refer to [Table 8-3 Conference Max Plus Keypad Functions](#).

**Table 8-5 SIP Conference Max Keypad Functions**


Key	Function
ON/OFF key (telephone icon)	Press to activate the telephone and access dial tone. Press again to hang up and return to standby mode.
PHONEBOOK (book icon)	Press to dial stored numbers. Press and hold two seconds to enter Phonebook Edit mode.
REDIAL (circular arrow icon)	Press once to dial the last number called. Press and hold two seconds to enter Program mode.
CONFERENCE (three person icon)	Press to dial the conferencing service provider. This feature must be programmed.
FLASH (lightning flash icon)	Press to enable call forwarding, call waiting, or three-way calling when supported by telephone service.
CLEAR (vertical line and left arrow icon)	Press to clear the last digit entered or press and hold to clear all numbers. Press to exit programming mode.
VOLUME (loud and dim speaker icons)	Press during call to adjust call volume or press while telephone is ringing or in standby mode to adjust ringer volume.
MUTE (mic with diagonal line icon)	Press to mute sound.

## 4.4 Programming Options

To enter Programming mode, press and hold REDIAL until a diamond arrow is displayed on the LCD. Then press the applicable key and follow the instruction in [Table 8-4 Conference Max Plus Programming Options](#).

**Table 8-6 SIP Conference Max Programming Options**

Menu Option	Key	Programming
Ringer Melody	1	Press REDIAL. The current melody selection flashes. Press 1~5 to change melody. Press REDIAL to save the selection.
Dialing Mode	2	Press REDIAL. The current dialing selection flashes. Press 1 for tone or 2 for pulse. Press REDIAL to save the selection.
Flash Duration	3	Press REDIAL. The current duration flashes. Press 1~5 to select duration as follows: 1 = 600ms 2 = 300ms 3 = 150ms 4 = 100ms 5 = 80ms Press REDIAL to save the selection.
Local Number *	4	Press REDIAL. Enter the telephone number that you want displayed on the LCD in standby mode. Press REDIAL to save the number.
Conference*	5	Press REDIAL. Enter the telephone number you want the conference key to dial. Press REDIAL to save the number.
Service*	6	Press REDIAL. Enter the telephone number you want the O key to dial. Press REDIAL to save the number.

 Press CLEAR to return the previous menu. Press and hold to exit programming without saving changes.

\* Press and hold 1 to enter hyphen or \* to enter a space in the number. Press CLEAR before entering a new number.

## 4.5 Compliance

This product is in compliance with the following regulations and requirements:

- FCC Part 15/ICES-003  
This product has been tested and complies with the limits for a Class A digital device.
- FCC Part 68  
US:FBIMT01B910158015 Ringer Equivalence Number (REN):0.1B(ac)
- Industry of Canada (IC)  
IC: 1970A-158015: REN:0.1B(ac)
- European  
Council Directive 1999/5/EC

# Installing SV8100 Optional Equipment

## SECTION 1 GENERAL INFORMATION

This chapter provides information for installing optional equipment, such as PGD(2)-U10 ADPs, background music, door boxes, DSS consoles,  $D^{term}$  VSR, external paging as well as other handsets, recording devices and adapters on the SV8100 digital and IP telephones.

## SECTION 2 PGD(2)-U10 ADP

### 2.1 Using a PGD(2)-U10 ADP

The PGD(2)-U10 ADP provides two circuits which allow connection to external terminals such as:

- Door Box (eight maximum per system)
- External Speaker (eight maximum with PGD(2)-U10 ADPs [with amplifier], one on the CD-CP00-US [no amplifier])
- External Music Source (external MOH) (96 maximum per system)
- External Recording System (96 maximum per system)
- External Ringing

The system allows a maximum of 56 PGD(2)-U10 ADPs to be installed (48 for ACI ports [external MOH or external recording system], four for Door Boxes, and four for Paging). The PGD(2)-U10 ADPs also provides multi-purpose controls. These control relays can be used for controlling the external amplifier, external music source and door lock control with the use of a Door Box. The system allows up eight general purpose relays with the PGD(2)-U10 ADPs (four relays on each PGD(2)-U10 ADP) and one on the CD-CP00-US for a maximum of nine.

The PGD(2)-U10 ADP connects to any available digital extension port. The terminal connections made in the PGD(2)-U10 ADP and the jumper settings determine what features are used for each circuit.



Figure 9-1 PGD(2)-U10 ADP

## 2.2 LED Indications

Table 9-1 PGD(2)-U10 ADP LED Indications

LED	Indication	Note
LED 1	Green LED when CH1 in use.	Flashing green LED indicates DIP Switch setting and programming for CH1 are conflicting.
LED 2	Green LED when CH2 in use.	Flashing green LED indicates DIP Switch setting and programming for CH2 are conflicting.

## 2.3 Setting up PGD(2)-U10 ADP Connections

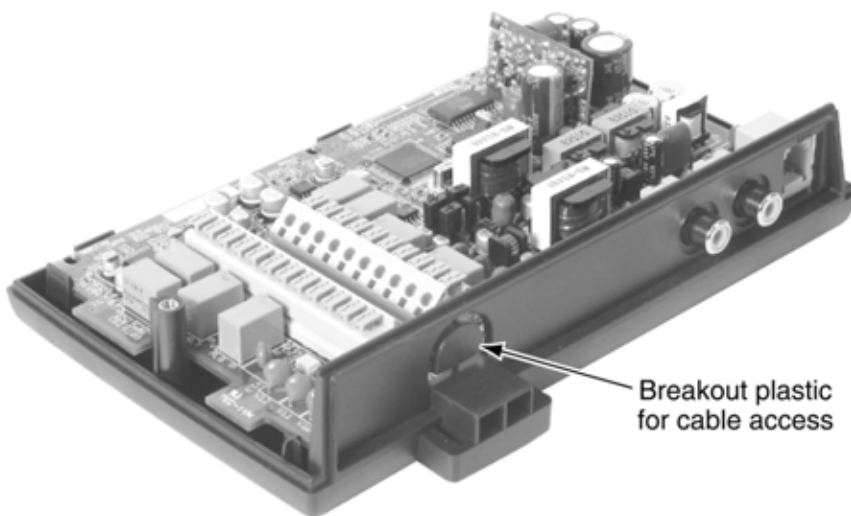
- If the PGD(2)-U10 ADP is to be wall mounted, all the cable connections should be made first.
- For the module to ID correctly after setting the jumpers, set the circuit type to 0 for the module port in Program 10-03-01 prior to connecting the line cord to the PGD(2)-U10 ADP.

1. Remove the screw from the front of the PGD(2)-U10 ADP.



**Figure 9-2 Remove Cover from PGD(2)-U10 ADP**

2. Using a screwdriver, break out the plastic piece covering the cable hole.

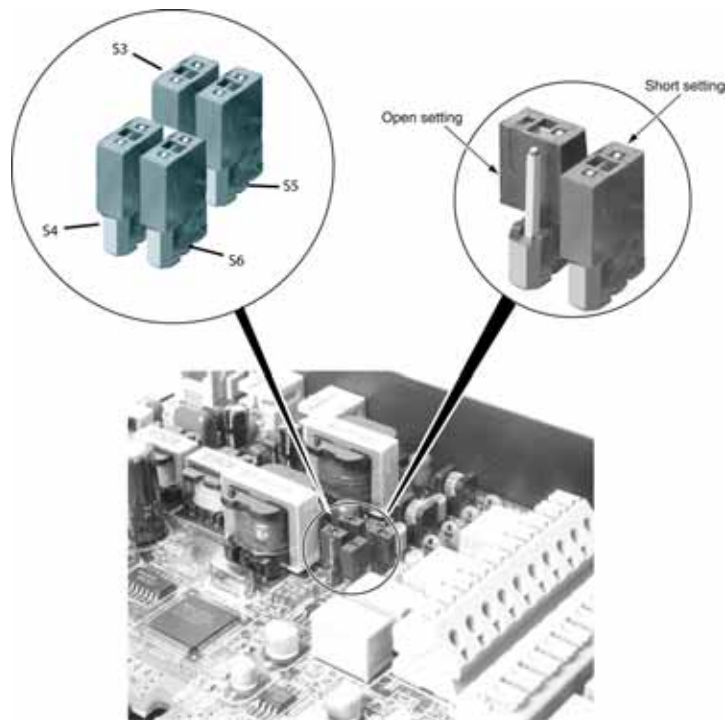


**Figure 9-3 Remove Plastic Cover from Cable Hole**

3. Set the S3 – S6 jumpers to the proper settings for the function to be used (refer to [Table 9-2 PGD\(2\)-U10 ADP S3 – S6 Jumper Settings on page 9-4](#)).

**Table 9-2 PGD(2)-U10 ADP S3 – S6 Jumper Settings**

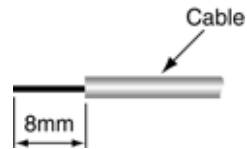
	<b>S3</b>	<b>S4</b>	<b>Function</b>	<b>LED Indication</b>
<b>Channel 1</b>	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.
	<b>S5</b>	<b>S6</b>	<b>Function</b>	<b>LED Indication</b>
<b>Channel 2</b>	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.




**Figure 9-4 PGD(2)-U10 ADP Jumper Settings**



- Strip one end of the cable to be connected to the control relay or door box so that approximately 1/4" (8mm) of bare wire is exposed.



- Insert the cable into the proper CN4 or CN5 location while holding down the lock button (holding down this lock button is easiest with a flat-head screwdriver). Once the cable is in place, release the lock button.

 Refer to the specific function being connected for more detail on PGD(2)-U10 ADP connections.

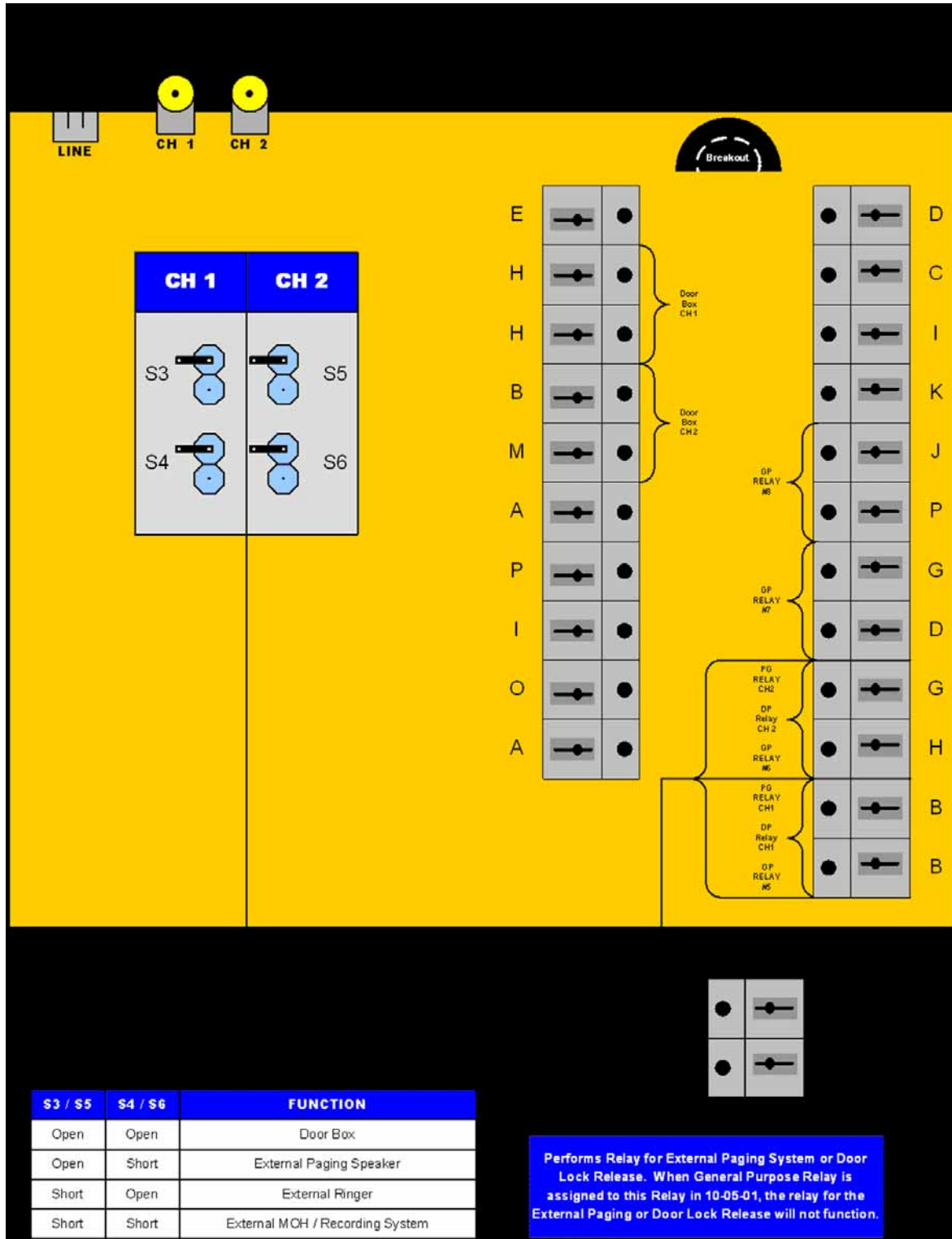
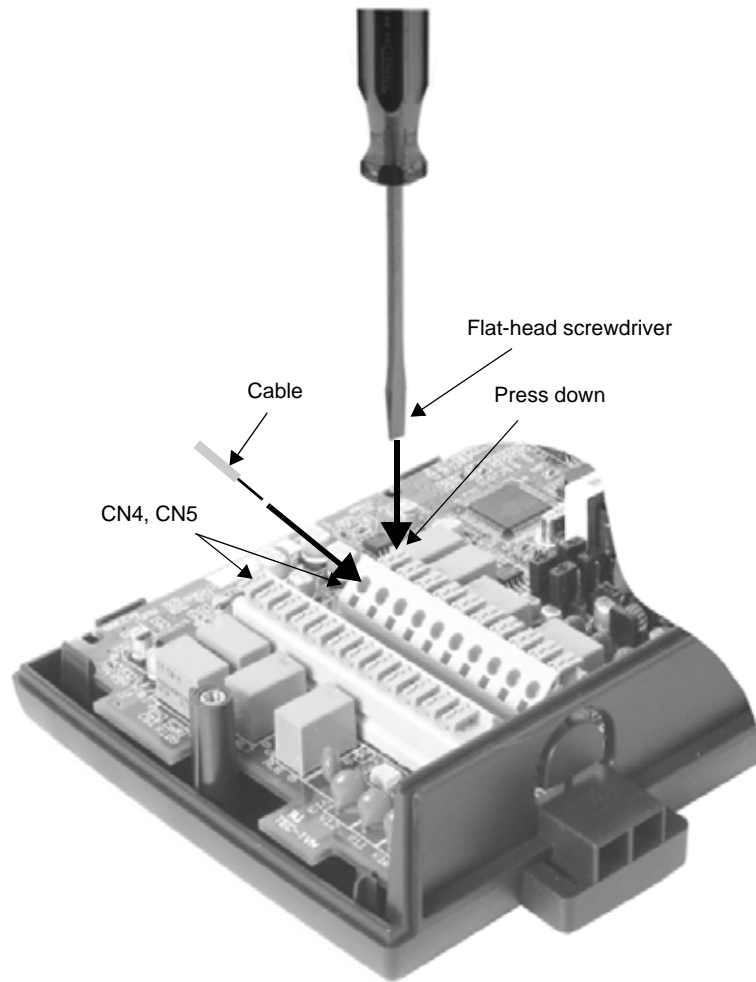
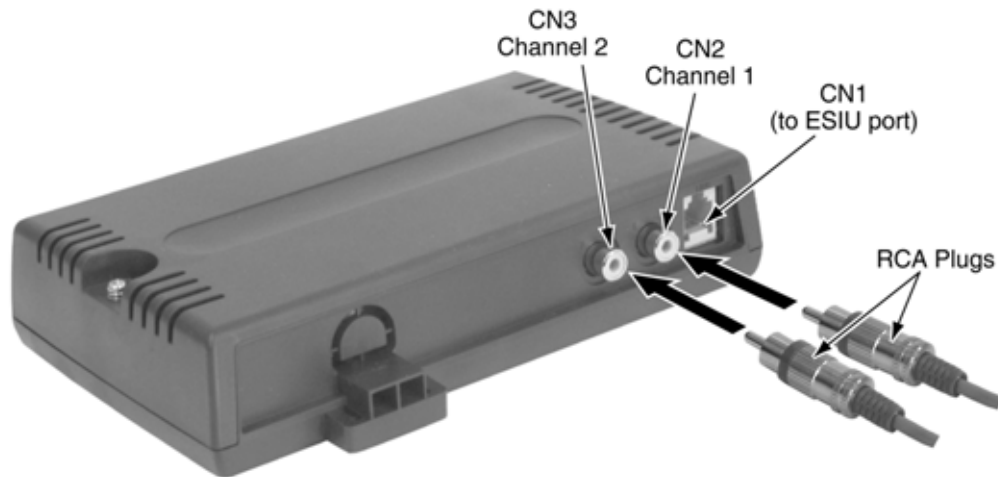


Figure 9-5 PGD(2)-U10 ADP Connection Diagram



**Figure 9-6 Connecting Cable to the PGD(2)-U10 ADP**

6. Repeat Steps 4 and 5 for any additional connection required.
7. Replace the cover and tighten the screw to hold the cover in place.
8. If required for the function being used, insert the RCA connectors into the CN2 (Channel 1) and CN3 (Channel 2) connectors on the back of the PGD(2)-U10 ADP.



**Figure 9-7 PGD(2)-U10 ADP Connections**

9. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
10. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
11. Install bridging clips as required.
  - ✎ *For the module to ID correctly, set the circuit type to 0 for the port in Program 10-03-01 prior to connecting the line cord.*
12. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.

*In some cases, when testing the operation of an extension port when connecting to a Cordless II, Cordless Lite II, or PGD(2)-U10 ADP, a technician may connect a line cord directly from an extension port on the CD-8DLCA/CD-16DLCA Blade. Though this is not the recommended connection, it can be used to test these devices.*

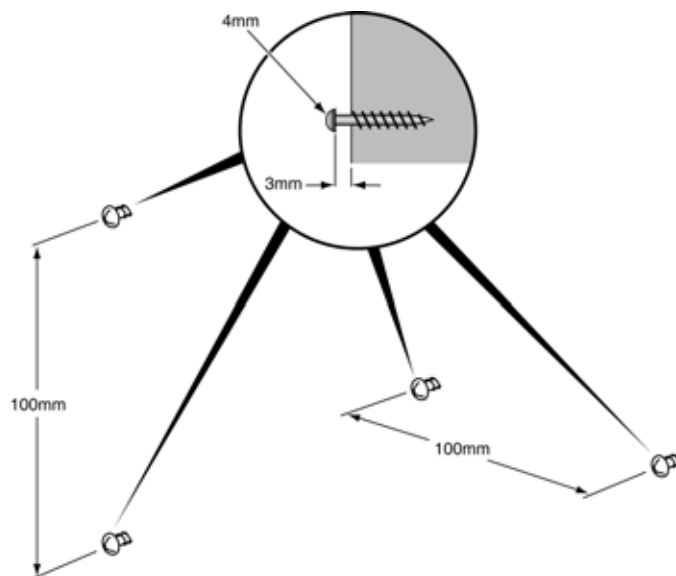


*Should a direct connection of this type be made to the base station of the Cordless II or Cordless Lite II, or to a PGD(2)-U10 ADP, the line cord must be 2-wire (1-pair). If a 2-pair wire is used, the system provides power to the unused pair. This can prevent the cordless telephone from acquiring a link with the base station or it can damage the PGD(2)-U10 ADP or the SV8100 station card.*

*The recommended connection is to punch down 2 wires to the cross-connect block, then connect the extension block to the RJ-61 connector on the blade.*

**13. Optional:**

To wall mount the PGD(2)-U10 ADP, insert two wood screws 100mm apart (3 15/16"). Leave 3mm (1/8") of the screw exposed. The screws can be installed either vertical or horizontal, depending on which position fits best for your location.



**Figure 9-8** Installing the Screws

14. The back of the PGD(2)-U10 ADP has two key-hole type openings. Place the PGD(2)-U10 ADP over the two screws and slide it down or over (depending on the positioning) to lock it in place.

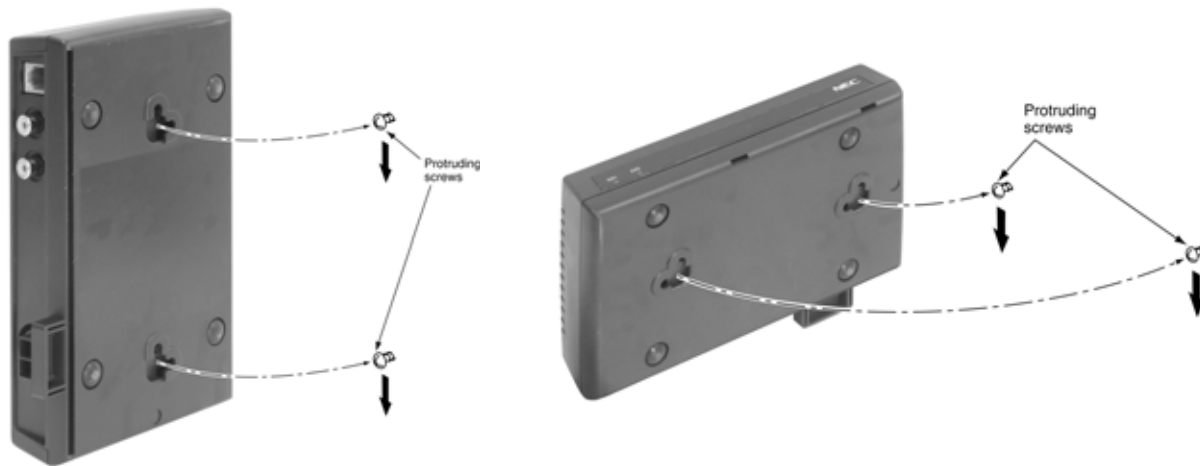


Figure 9-9 Wall Mounting the PGD(2)-U10 ADP

## SECTION 3 BACKGROUND MUSIC

### 3.1 Installing Background Music

Background Music (BGM) sends music from a customer-provided music source to speakers in multiline terminals. If an extension user activates it, BGM plays when the user's extension is idle.

1. Connecting to the CD-CP00-US:  
Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external music source.

3. Install bridging clips as required.

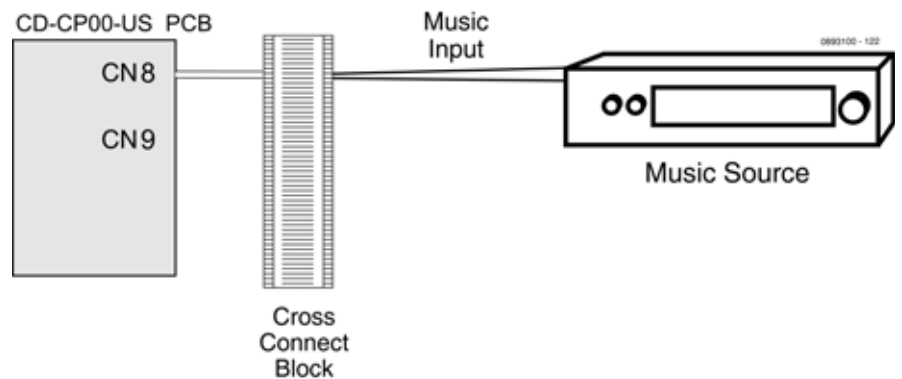


Figure 9-10 CPRU Connections


## SECTION 4 DOOR BOX

### 4.1 Installing a Door Box

A PGD(2)-U10 ADP is required for this option.

The Door Box is a self-contained, water-resistant, Intercom unit typically used to monitor an entrance door. A visitor at the door can press the Door Box call button (like a door bell). The Door Box then sends chime tones to all extensions programmed to receive chimes. The system can have up to eight Door Boxes.


Each PGD(2)-U10 ADP audio output can optionally support two analog Door Boxes. In addition, you can connect each circuit control relay to an electric door strike. This allows an extension user to remotely activate the door strike while talking to a visitor at the Door Box. The control relays are normally open. The CD-CP00-US also provides one general purpose relay. The CD-CP00-US relay 0 is assigned to the door box extension port in Program10-05-01. When the relay on the PGD(2)-U10 ADP is used, there is no need to assign the relay to the Door Box – connect the relay as detailed in the steps below for the Door Box used. The relays on the PGD(2)-U10 ADPs are numbered 5-8.


 *The relay closes when the Door Box/external page zone is called. The maximum applied voltage is 24vDC at .5A for each contact.*



***A PGD(2)-U10 ADP circuit used for an analog Door Box cannot be used for External Paging.***

1. Make sure the jumper in the PGD(2)-U10 ADP for the associated Door Box is set correctly. (Refer to [Figure 9-4 PGD\(2\)-U10 ADP Jumper Settings on page 9-4](#)).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. If wall mounting the Door Box, remove the screw on the front of the Door Box.
8. Remove the back half of the Door Box and attach this mounting bracket to the wall with the two screws provided.
9. Connect the two-conductor station cable from the CN4 connectors in the PGD(2)-U10 ADP to the Door Box terminals. These wires must be routed through the opening in the bottom of the Door Box mounting bracket.

 *Be sure to maintain the proper polarity.*
10. Replace the front half of the Door Box and reattach the screw to secure it in place.
11. To connect a Door Box to an external relay for an unlock device, for example, connect one-pair 24 AWG station cable from the Relay 5 (for Door Box 1) or Relay 6 (for Door Box 2) connectors (CN5) in the PGD(2)-U10 ADP. Connect the opposite end to the unlock device.

 *Refer to External Page and Door Box/Page Relays on page 9-18 for additional information when using the CD-CP00-US relay.*



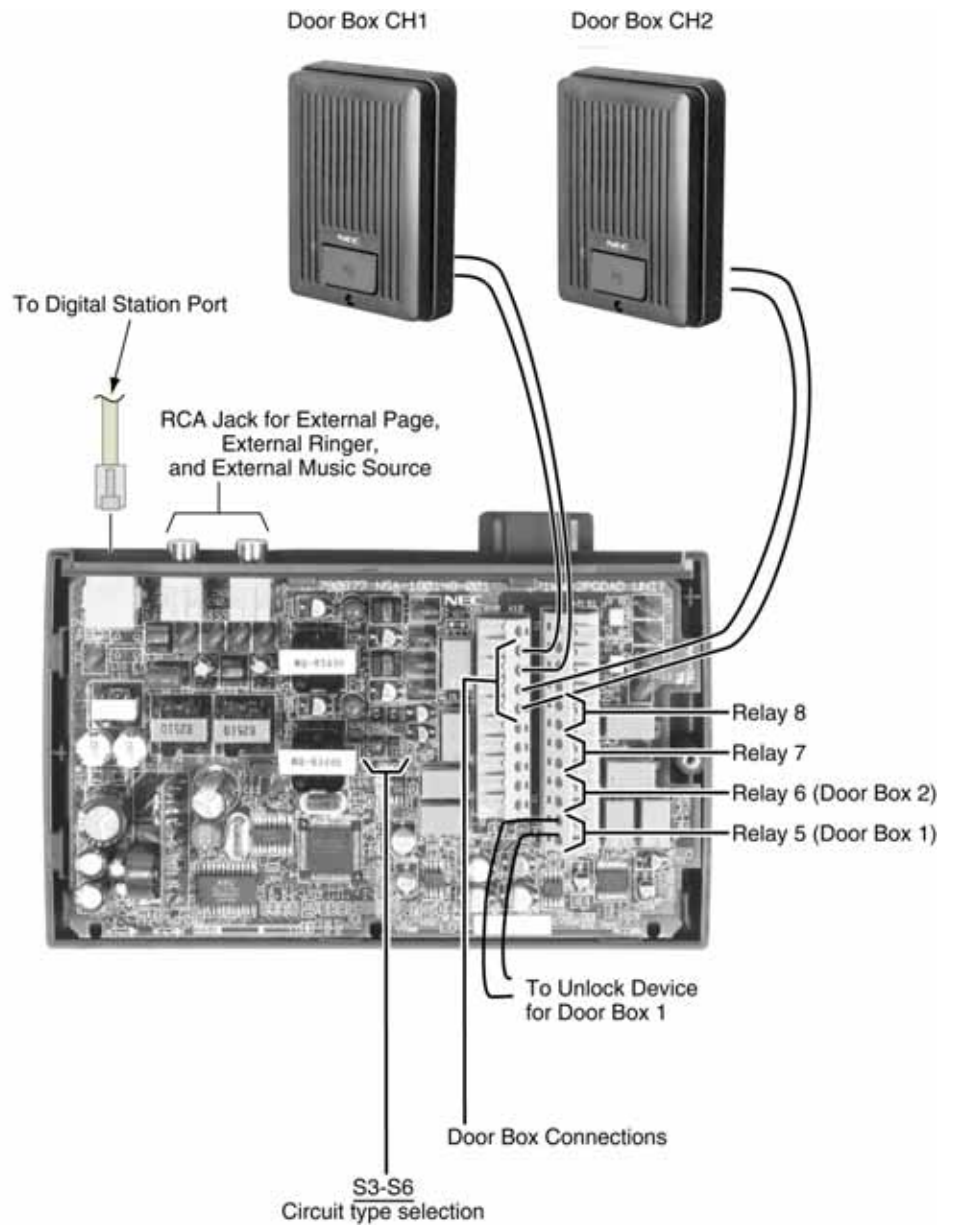


Figure 9-11 Setting the PGD(2)-U10 ADP for a Door Box

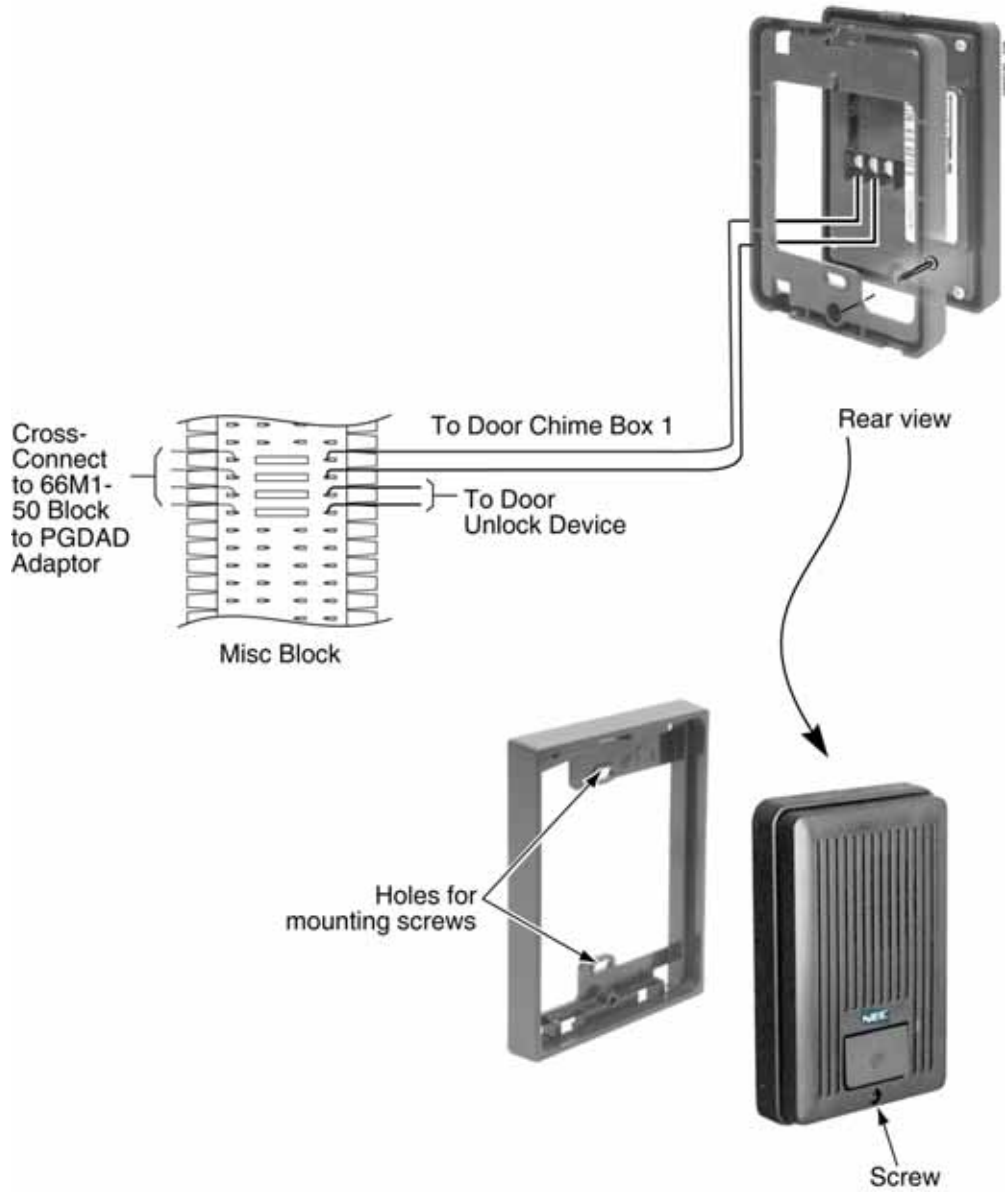


Figure 9-12 Installing a Door Box

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## SECTION 5      EXTERNAL PAGING

### 5.1      External Page

Two external page zone/door box circuits are provided by each PGD(2)-U10 ADP installed. Each Door Box/external page circuit provides a dry relay contact. The CD-CP00-US also provides a connection for external paging and a relay. The external page on the CD-CP00-US is speaker number 9 – the relay is number 0. The external page speakers provided by the PGD(2)-U10 ADPs are 1~8 – the relays on the PGD(2)-U10 ADPs are numbered 1~8.

The PGD(2)-U10 ADP can be used for talkback with External Page, as can a CO trunk port with the proper external page equipment (ex: Valcom) – set Program 31-06-03 to 0 for talkback. However, the external page circuit on the CD-CP00-US cannot be used for talkback.



*A PGD(2)-U10 ADP circuit used for External Paging cannot be used for an analog Door Box.*

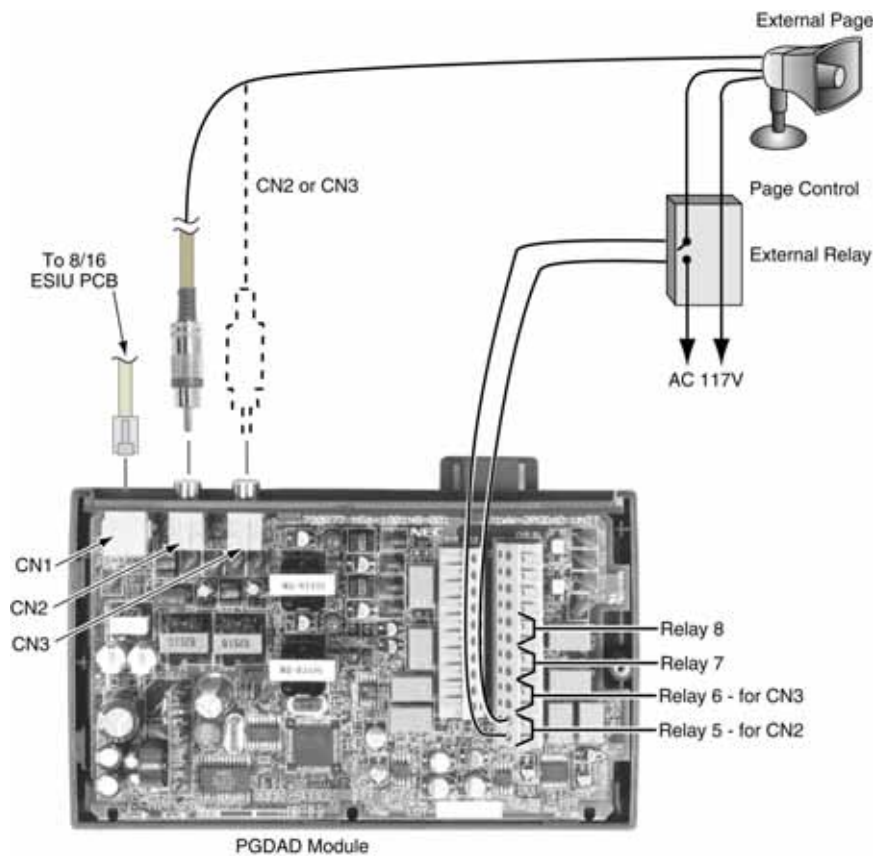
### 5.2      Installing an External Page System

1.    Connecting to the CD-CP00-US:  
Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2.    Connect the two-conductor station cable from the cross-connect block to the external relay/external page.
3.    Install bridging clips as required.

**OR**

1.    Connecting to the PGD(2)-U10 ADP:  
Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to [Figure 9-4 PGD\(2\)-U10 ADP Jumper Settings on page 9-4](#)).
2.    If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3.    Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.

4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect the two-conductor station cable from the CN5 connectors in the PGD(2)-U10 ADP to the external relay/external page.



**Figure 9-13 PGD(2)-U10 ADP Cable Connection**

*The PGD(2)-U10 ADP provides amplifiers for each page output port (for a maximum of +8 dBm, 600 ohms at 1KHz). No additional page amplification is provided by the PGD(2)-U10 ADP but, if required, an external page amplifier can be used for additional amplification.*



*The page output of the CD-CP00-US does not provide amplification (for a maximum output of -3 dBm, 600 ohms at 1KHz). If the paging volume is not satisfactory using the CN8 or CN9 connector on the CD-CP00-US, the PGD(2)-U10 ADP should be used instead.*

## SECTION 6 EXTERNAL PAGING AND DOOR BOX/PAGE RELAYS

### 6.1 External Page Relays

Two external dry contact relays are available when a PGD(2)-U10 ADP is installed which can be used to activate ancillary devices (i.e. door unlock devices). The CD-CP00-US also provides one page relay. When the relay on the PGD(2)-U10 ADP is used, there is no need to assign the relay to the Door Box – connect the relay as detailed in the steps below for the Door Box used. The relays on the PGD(2)-U10 ADPs are numbered 5–8. Each Door Box/external page circuit provides a dry relay contact.

- *If Relays 5 and 6 of a PGD(2)-U10 are set as General Purpose Relays, they cannot be used for Door Box/Page Relays.*



- *Program 10-21-05 sets the relay switch on the CD-CP00-US.*
- *If General Purpose Relay is set to 1 (Relay 1), the page relay cannot function on the CD-CP00-US. General Purpose Relays override Paging Relays and the Paging Relay is associated with Relay 1 on CN10.*
- The service codes indicated are the default codes. Refer to Program 11-12-20 and 11-12-50 to redefine these codes as needed.

## 6.2 Door Box /External Page Relay Contacts

### 6.2.1 Connecting a Contact Relay Device to a Door Box/External Page Relay

To connect a dry contact relay device to a Door Box/External Page Relay:

To connect to the CD-CP00-US:

1. Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external relay.
3. Install bridging clips as required.

**OR**

To connect to the PGD(2)-U10 ADP:

1. Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to [Figure 9-4 PGD\(2\)-U10 ADP Jumper Settings on page 9-4](#)).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3~6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect the two-conductor station cable from the CN5 connectors in the PGD(2)-U10 ADP to the external relay.



*The relay closes when the Door Box/external page zone is called. The maximum applied voltage is 24vDC at .5A for each contact.*

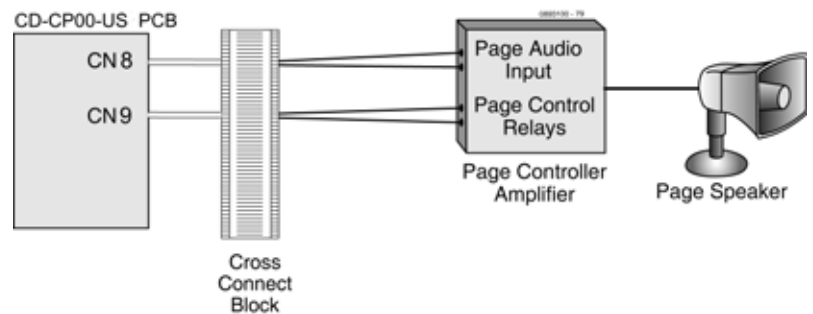


Figure 9-14 CD-CP00-US Page Connections

## SECTION 7 EXTERNAL RECORDING SYSTEM/EXTERNAL RINGER

### 7.1 External Recording System or External Ringer

The PGD(2)-U10 ADP allows the connection of an external recording system or external ringer. With a customer-provided tape recorder, when an extension user dials the ACI analog port extension number, they can automatically start the recorder and activate the record function. When the user hangs up, the recording stops and the tape recorder turns off. For tape recording, connect the tape recorder AUX input jack to the PGD(2)-U10 ADP jack. Connect the recorder control leads (if available) to the CTL (control relay) jack. By using Department Calling, you can arrange multiple tape recorders into a pool. When an extension user dials the Department Group pilot number, they reach the first available tape recorder in the pool.

The relays in the PGD(2)-U10 ADP can optionally control customer-provided external ringers (loud bells) and buzzers. When an extension user dials the ACI analog port extension number, the associated PGD(2)-U10 ADP relay closes and activates the ringer. You could use this ability to control an emergency buzzer for a noisy machine shop floor, for example. In addition, if programmed for ringing, an incoming trunk call can activate the ringer/buzzer.

## 7.2 Installing an External Recording System or External Ringer

To connect to the PGD(2)-U10 ADP:

1. Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to [Figure 9-4 PGD\(2\)-U10 ADP Jumper Settings on page 9-4](#)).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3–6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect an RCA jack to the audio output(s) on the back of the PGD(2)-U10 ADP.
8. The opposite end of this cable is connected to the external recording system or external ringer either directly or by connecting to the cross-connect block where the item is connected. Refer to [Figure 9-15 PGD\(2\)-U10 ADP Cable Connection on page 9-21](#).



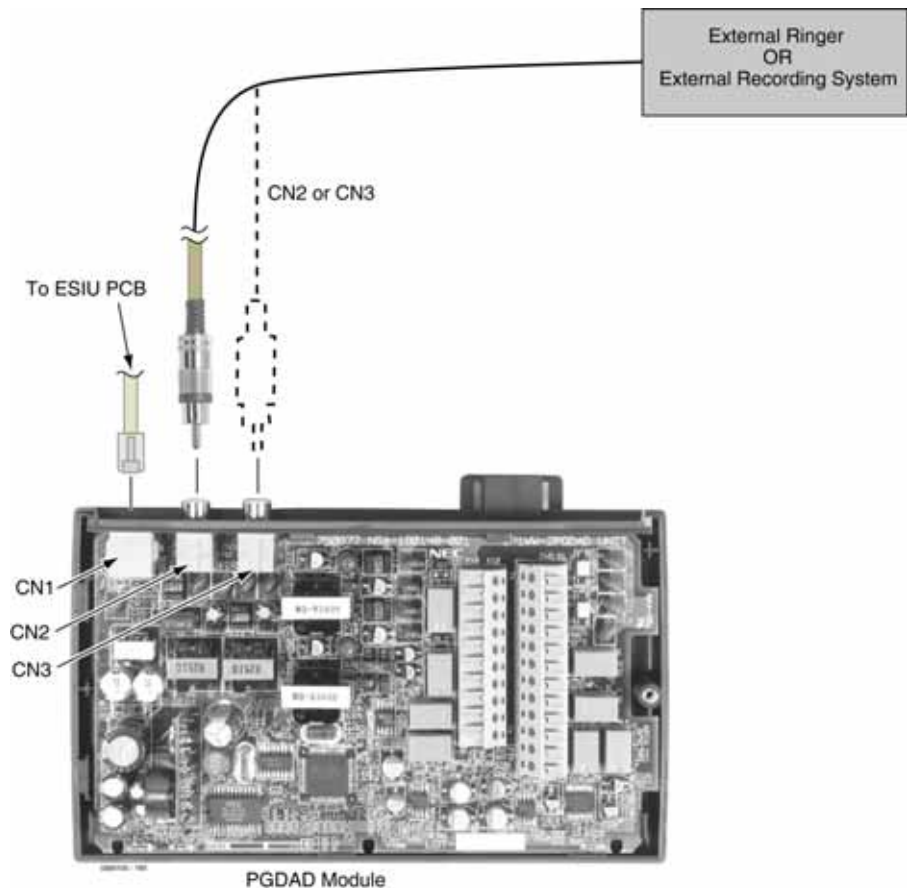


Figure 9-15 PGD(2)-U10 ADP Cable Connection

### 7.3 Programming

- **10-03-01 : ETU Setup – Terminal Type (Circuit 1)**  
**10-03-06 : ETU Setup – Terminal Type (Circuit 2)**  
 Confirm that the PGD(2)-U10 ADP has defined the circuit as either type 7 for External Ringer or 9 for ACIs. (If the PGD(2)-U10 ADP circuit was previously defined for another type of circuit, unplug the PGD(2)-U10 ADP and plug it back in to reset the circuit type.)
- **10-05-01 : General Purpose Relay Setup**  
 Define which relay circuits (5~8) on the PGD(2)-U10 ADP are used for General Purpose Relays.
- **11-06-01 : ACI Extension Numbering**  
 Assign extension numbers to ACI software ports. Select a number outside of the normal extension number range.  
 ACI Ports 1~96

- **11-08-01 : ACI Group Pilot Number**  
Assign pilot numbers to ACI groups. When a user dials the pilot number, they reach an available ACI software port in the group.  
ACI Groups 1~16
- **11-12-50 : Service Code Setup (For Service Access)**  
Specify the service code to toggle the relay open and closed (Default: 780).
- **33-01-01 : ACI Port Type Setup**  
Set each ACI software port for input (1) or input/output (2). Use input ports for Music on Hold sources. Use output ports for External Paging/ringer control.  
ACI Ports 1~96
- **33-02-01 : ACI Department Calling Group**  
Assign ACI software ports to ACI Department Groups. This lets ACI callers connect to ACI software ports by dialing the group pilot number (set in Program 11-08).  
ACI Ports 1~8, ACI Groups 1-16

### **ACI Recording**

- **14-09-01 : ACI Conversation Recording Destination for Trunks – ACI Recording Destination Extension Number**  
Use this option to assign the ACI Call Recording destination per trunk. The destination can be an ACI port extension number (assigned in Program 11-06-01) or an ACI Department Group pilot number (assigned in Program 11-08-01). If destinations are assigned in Programs 14-09 and 15-12, the destination in Program 15-12 is followed.
- **14-09-02 : ACI Conversation Recording Destination for Trunks – ACI Automatic Recording for Incoming Call**  
Determine whether a trunk should be automatically recorded when an incoming call is received (0=Off, 1=On).
- **15-07 : Programmable Function Keys**  
If required, program an ACI Conversation Record Key (SC 751 + 78). This key allows an extension user to press the key to manually record a call to the ACI.
- **15-12-01 : Conversation Recording Destination for Extensions – ACI Recording Destination Extension Number**  
Assign the ACI Call Recording destination per extension. The destination can be an ACI port extension number (assigned in Program 11-06) or an ACI Department Group pilot number (assigned in Program 11-08). If destinations are assigned in Programs 14-09 and 15-12, the destination in Program 15-12 is followed.

- **15-12-02 : Conversation Recording Destination for Extensions – ACI Automatic Recording for Incoming Call**  
Determine whether an extension should be automatically recorded when an incoming call is received (0=Off, 1=On).

#### **External Ringer**

- **31-05-01 : Universal Night Answer/Ring Over Paging**  
For each trunk port which should ring the external ringer, enter 1.

## **SECTION 8 MUSIC SOURCES**

### **8.1 Music on Hold**

The system can provide Music on Hold from either an internally synthesized source on the CD-CP00-US or from an external source. The external MOH can be a tuner, tape deck, CD player, etc. The settings in Program 10-04-01 and 14-08-01 determine whether the source for MOH is internal or external.

In addition to a connector on the CD-CP00-US, the PGD(2)-U10 ADPs also provide connections for external MOH sources. When using external music sources for external MOH, programming determines the MOH source for each trunk.

The CD-CP00-US provides a dry relay that activates when a call is placed on Hold. When an external MOH source is connected to the MOH relay and a call is placed on Hold, the MOH relay is activated. This allows an external relay sensor/power supply to turn on the MOH source.

This arrangement allows the MOH source (e.g., a tape deck) to run only when a call is placed on Hold. The *maximum* applied voltage for the relay is 24vDC at .5A (the relays are normally open and close when a call is put on hold).

### **8.2 Installing External Music on Hold**

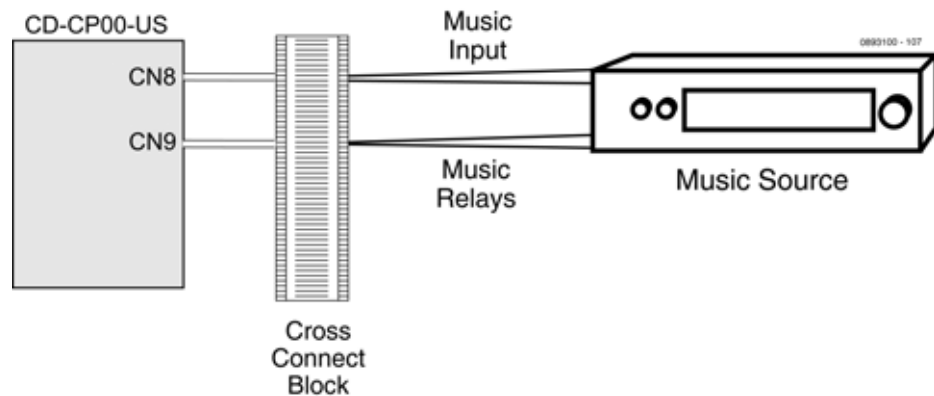
To connect to the CD-CP00-US

1. Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external music source.
3. Install bridging clips as required.

**OR**

**Connecting to the PGD(2)-U10 ADP:**

1. Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to [Figure 9-4 PGD\(2\)-U10 ADP Jumper Settings on page 9-4](#)).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3~6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect an RCA jack to the audio output(s) on the back of the PGD(2)-U10 ADP.
8. The opposite end of this cable is connected to the external music source either directly or by connecting to the cross-connect block where the music source is connected.

**Figure 9-16 CPRU Connections**

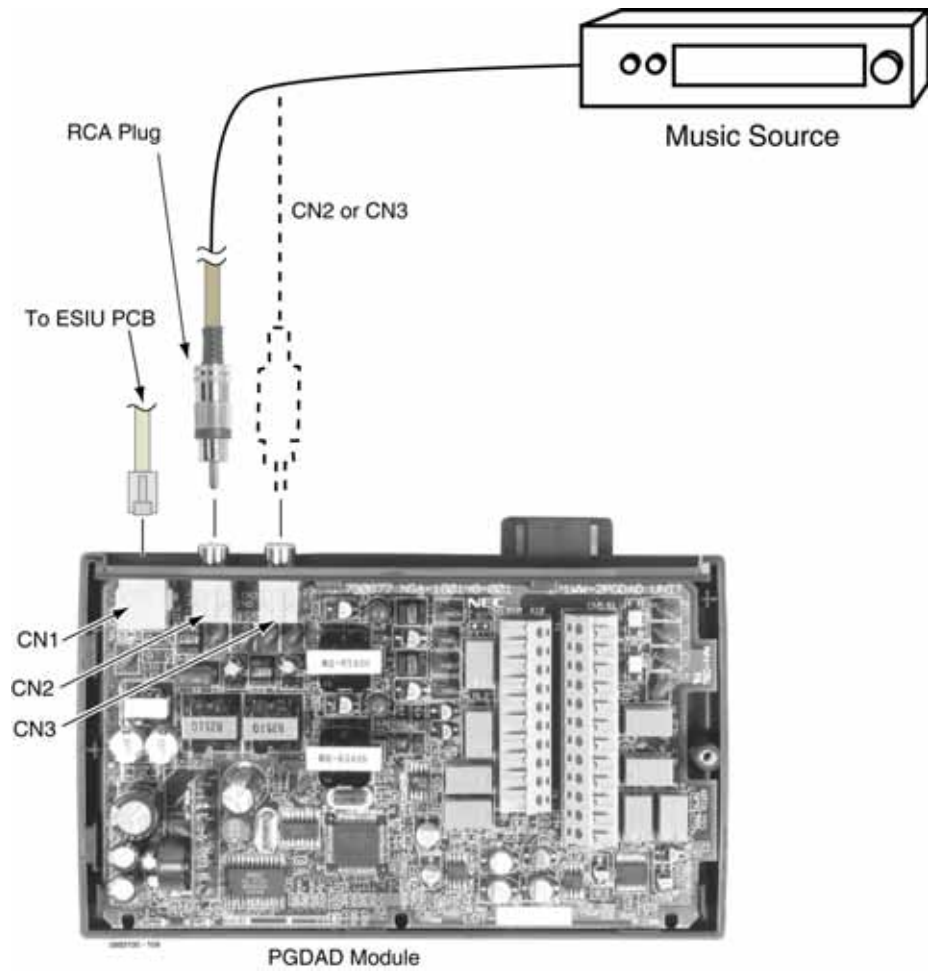


Figure 9-17 PGD(2)-U10 ADP Connections

## **SECTION 9 NIGHT MODE SELECTION**

### **9.1 Night Mode Selector Switch**

The Night Mode Switch relay closes when the system detects either an open or closure on the MISC block NIGHT SW terminals. Maximum 48v DC is output to the switch when open, and 7mA DC when shorted.

### **9.2 Connecting a Night Mode Selector Switch**

1. Connect an RJ-61 modular line cord from the CN10 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the night switch mechanism output leads.
3. Install bridging clips as required.

## **SECTION 10 TELEPHONE LABELING**

### **10.1 DESI Printer Sheets**

Telephones can be easily labeled by removing the plastic faceplate. These labels can be printed by hand, typewriter, or printing DESI labels. Labels for this are on 8 1/2 x 11" paper, which allows for easy printing by any printer – dot matrix, laser, etc.

DESI Printer Sheets are available for the following:

- Economy 2E – DESI ITL/DTL-2E (25 PKG)
- Economy 6DE – DESI ITL/DTL-6DE (25 PKG)
- All Value Telephones – DESI ITL/DTL-12D/24D (25 PKG)
- 8LK – DESI ITL/DTL 8LK (25 PKG)
- 60 DSS – DESI DCL-60 (25 PKG)
- Clear Side Panel – DESI ITL/DTL-SIDE (25 PKG)
- LCD Value, Clear Side – DESI ITL/DTL-SIDE-LCDV (25 PKG)

### 10.1.1 Removing the Faceplate

1. Use the small notch at the lower right corner of the telephone, to lift the faceplate up.
  - Each corner has a plastic locking pin which releases as the faceplate is lifted up.



**Figure 9-18 Removing the Faceplate**

### 10.1.2 Replacing the Faceplate

1. Place the faceplate back on the telephone.
2. At each corner, press the locking pin back into place.

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## SECTION 11 **D<sup>term</sup>® VOICE SECURITY RECORDER (VSR)**

### 11.1 **D<sup>term</sup> Voice Security Recorder (VSR)**

The *D<sup>term</sup>* Voice Security Recorder is a USB device that taps across the digital extension pair of the NEC telephone system allowing digital recording of the telephone user's conversation. The file created is saved either to the local PC or to a network location, depending on the application blade. This adapter is for use with digital multiline terminals. It cannot be used with analog or VoIP.

This device meets all applicable FCC and UL requirements for this type of communication device.



Figure 9-19 *D<sup>term</sup>* Voice Security Recorder

### 11.2 **PC Compatibility**

The *D<sup>term</sup>* Voice Security Recorder application supports Microsoft operating systems which support USB devices such as Windows 98SE, Windows® ME, Windows 2000, and Windows XP. Windows 95 and below, Windows NT and Macintosh operating systems are not supported.

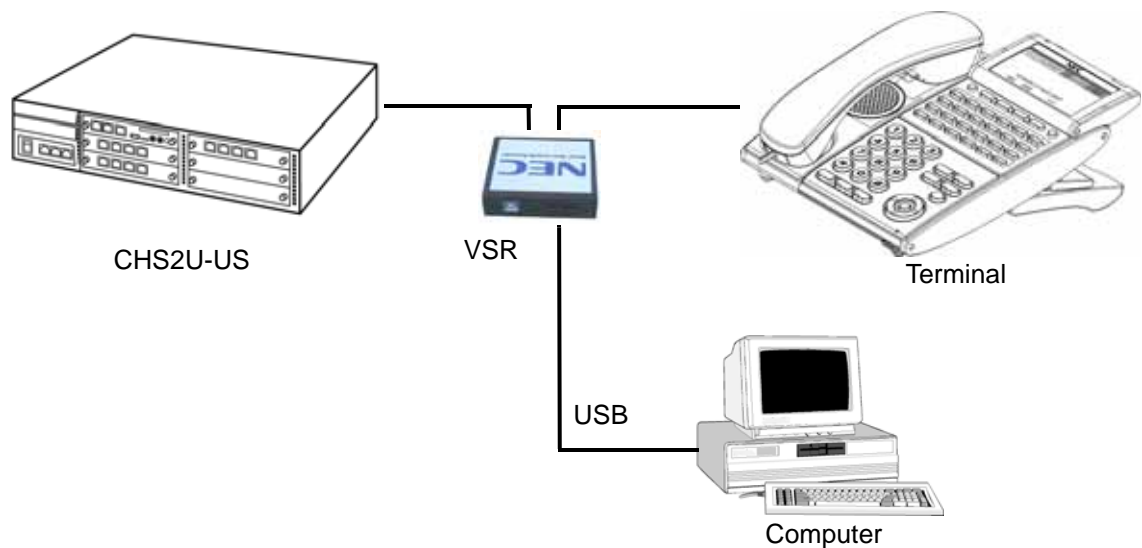
#### 11.2.1 Connection Configuration

The configuration connection is shown in [Figure 9-20 VSR Connection Configuration](#).



### 11.2.2 Connectors

- ❑ One PC USB connector that provides power and streams all speech and control channel information to the host PC and desktop software.
- ❑ Two digital telephone line connections that passively tap across the  $D^{term}$  digital connection and listen in high impedance mode to the signaling on the line.



**Figure 9-20 VSR Connection Configuration**

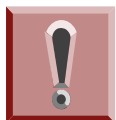
### 11.3 Installation

The VSR is packaged with everything necessary for installation including:

- ❑ Software CD
- ❑ USB Cable
- ❑ Telephone connection lead
- ❑ Quick-start installation manual

#### ***For Windows 98 or ME***

1. Run the Setup.exe program file from the NEC installation CD **BEFORE** connecting the telephone interface unit to the PC.
2. Using the USB cable provided, connect the USB interface of the NEC VSR unit to an available USB port on the PC.



### CAUTION

*The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversation or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to a telephone conversation, such as using a beep tone or other notification methods or requiring the consent of all parties to the telephone conversation, prior to monitoring or recording the telephone conversation. Some of these laws incorporate strict penalties.*

3. Unplug the line cord from your telephone and connect it to either port on the  $D^{term}$  VSR unit.
4. Connect the NEC telephone system to the remaining port on the  $D^{term}$  VSR unit. You are now ready to record.

#### **For Windows 2000 or XP**

1. Using the USB cable provided, connect the USB interface on the  $D^{term}$  VSR unit to your PC. Windows automatically detects the new hardware and starts the New Hardware Wizard. This displays a dialog box similar to the one shown below. Select the second option, **Install from a list or specific location**, and press **Next>**.



Figure 9-21 Voice Security Recorder Installation-1

2. Insert the NEC Installation CD in your CD drive and press **Next>**.



Figure 9-22 Voice Security Recorder Installation-2

3. If you downloaded the files from the internet, uncheck the **Search removable media box**, select the **Include this location...** box and enter the location where you stored the downloaded files (e.g. C:\My Documents). Press **Next>** (refer to [Figure 9-23 Voice Security Recorder Installation-3 on page 9-33](#)).



Figure 9-23 Voice Security Recorder Installation-3

4. The software is fully tested, but has not yet been submitted to Microsoft for approval. Press **Continue Anyway**.
5. Press **Finish** to close the dialog box.
6. Run **SBladep.exe** on your NEC Installation CD to install the *D<sup>term</sup>*<sup>®</sup> Voice Security Recorder application software on your PC.
7. Using the USB cable provided, connect the USB interface of the NEC VSR unit to an available USB port on your PC.
8. Unplug the line cord from your telephone and connect the phone to either port on the *D<sup>term</sup>* VSR unit.
9. Connect the NEC telephone system to the remaining port on the *D<sup>term</sup>* VSR unit (refer to [Figure 9-34 Voice Security Recorder Connection on page 9-44](#)).


#### 11.3.1 VSR Application Software

The VSR software is delivered on a Compact Disk using a self-starting install shield. The CD contains all applicable files and installation procedures to operate to this specification, including USB device drivers, software application, and Help files.

A quick-start instruction sheet and a recorded user guide that steps the user through the various options are provided.

The VSR application supports Microsoft Operating Systems that support USB devices. The following systems meet this requirement:

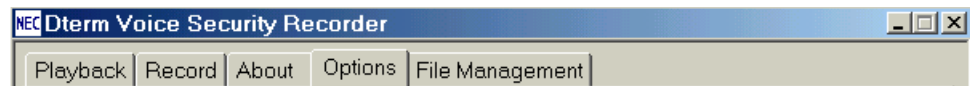
- WIN 98SE
- WIN Millennium Edition (ME)
- WIN 2000
- WIN XP (all variants)

 *VSR does not support WIN 95 and below, or WIN NT.*

### 11.3.2 VSR User Interface Tab Options

VSR has the following tabs to allow the user to select features and options:

- Playback allows various playback features of recorded conversations.
- Record allows control of recording.
- About provides software version information.
- Options to set-up controls such as recording format.
- File Management allows the user to manage disk space used by the VSR.



**Figure 9-24 VSR User Interface Tab Options**

### 11.3.3 VSR Playback Tab

This tab allows the user to list and play recorded conversations. A graphical presentation of the volume level of the call with a cursor to indicate the current playback position is displayed. The cursor can be dragged forward or backward to allow rapid selection of the applicable section.

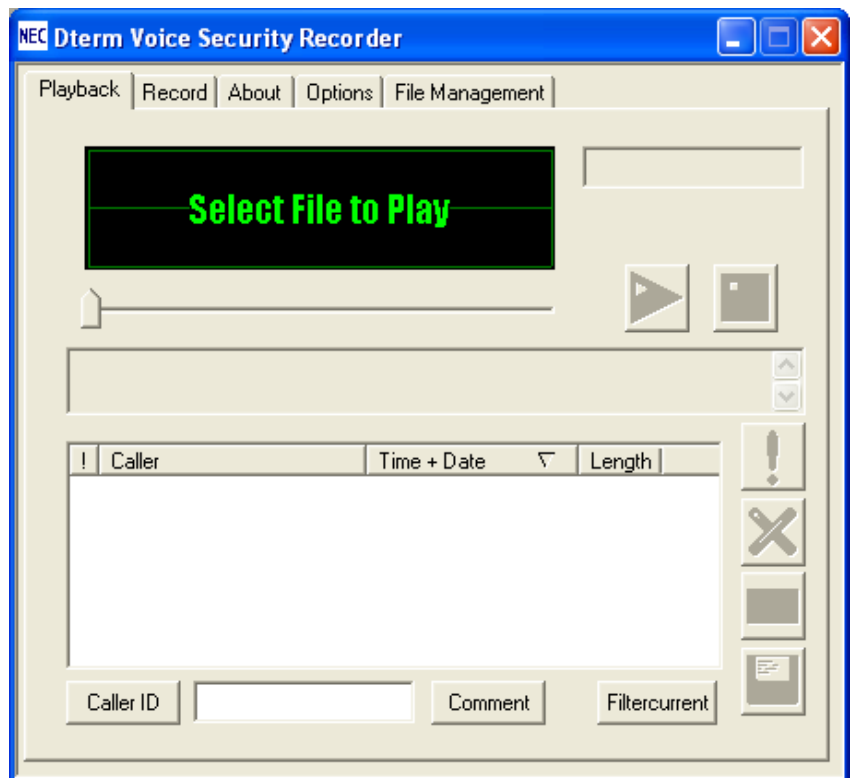


Figure 9-25 VSR Playback Tab

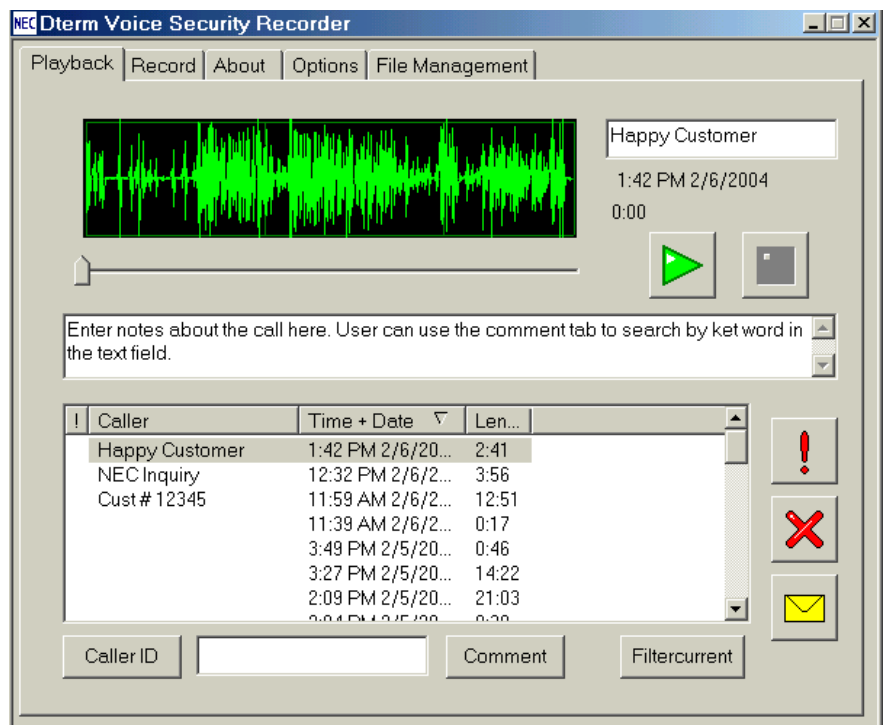


Figure 9-26 Caller ID or Comment Editor

The user can edit the Caller ID or the Comments field when viewing an existing recording.

✉ *Caller ID and number dialed are not available on the first release. Check with NEC for release date.*

The user can list recordings in order of importance (using exclamation mark) with Caller ID, Time + Date, or duration.

The Caller ID and Comment buttons allow the user to filter out all recordings with the required Caller ID or text in the Comments field.

Playback, pause and stop buttons allow the user to control the Playback.

The Red exclamation mark allows recording to be identified as important for future listing or ensures that the recording cannot be overwritten.

The Red X allows recordings to be manually deleted.

The envelope button generates an e-mail with the recording inserted for mailing to a colleague.



### 11.3.4 VSR Record Tab

This tab allows the user to view recording levels and control the recording.



Figure 9-27 View Levels and Control Recording

The Oscilloscope shows the local and remote levels on the line separately (Microphone is the user level, and speaker is the distant party level).

The Caller ID field is for future versions, but information can be entered or overwritten by the user.

Manual Start, Stop, and Pause buttons control the recording status.

The user can add notes and mark important recordings with an exclamation point to avoid deleting the conversation.

The camera button allows a user to snapshot record conversation to the current point while continuing to record the entire conversation. This feature is important for emergency centers to allow an operator to quickly reply to an important part while continuing to record.

### 11.3.5 About Tab

This tab provides version and manufacturer information.

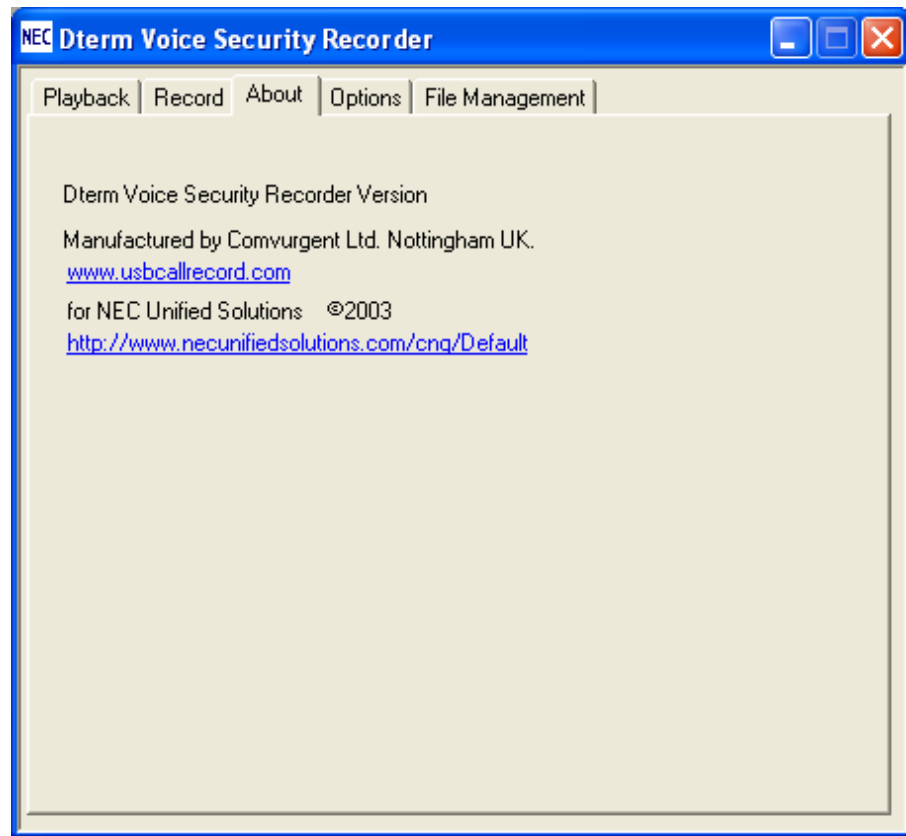
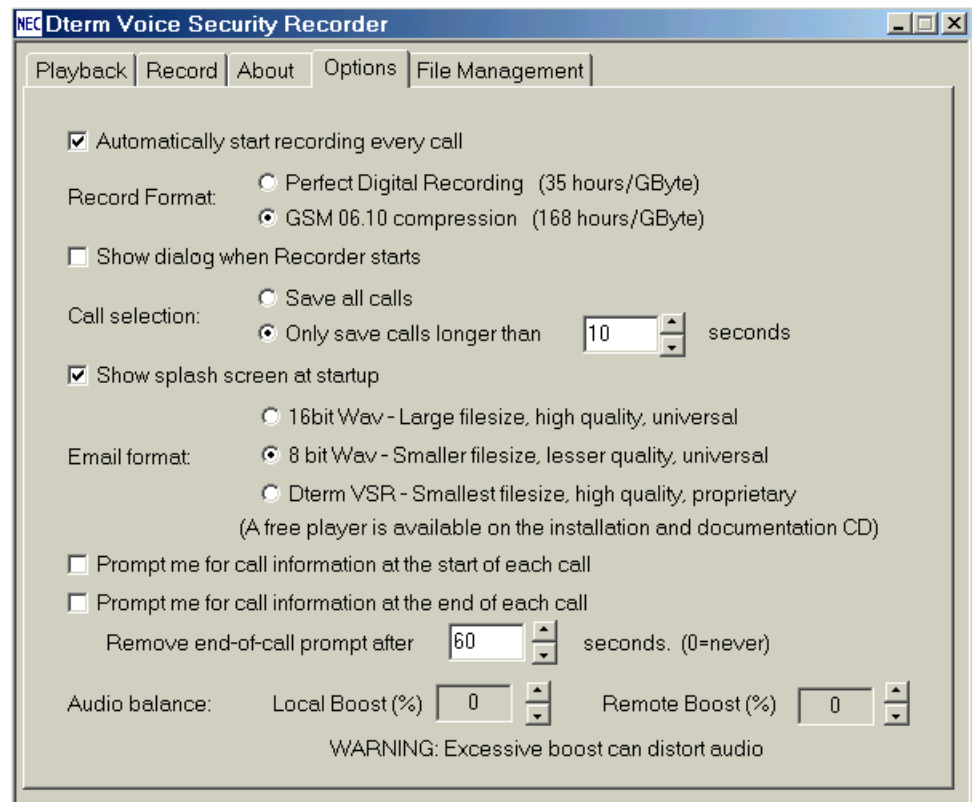


Figure 9-28 VSR About Tab

### 11.3.6 Options Tab

This tab allows the user to select various setup options of the VSR.



**Figure 9-29 Select VSR Setup Options**

- Automatically start recording every call  
Starts the recording when a call, including an internal extension call, is made.
- Recorded format  
Perfect Digital Recording stores the recording in PCM format taken directly from the digital line. But the highest quality requires significant space (35 hours per Gbyte) on the PC disk.  
GSM 06.10 uses a compression technique to store 168 Hours per Gbyte. The quality difference is negligible so this becomes the default selection.
- Show dialog when recorder starts  
Selecting this default option brings the Record tab to the front of the user screen when record is activated.

- Call Selection  
Saves all calls or only those that exceed an established limit.
- Show splash screen at startup  
When selected, the VSR logo is shown for five seconds when the application is started.
- Email format  
Allows the user to select the type of file inserted in an e-mail when the user selects the e-mail button on the Playback Tab to send the VSR format to other users that have this application or to convert it to a .wav format for replay by any PC.  
*D<sup>term</sup>* VSR selection automatically adds the Caller ID, time, date and comments fields to any e-mail.
- Prompt for call information at the start of each call  
When selected, the Record screen is displayed when a call is made to allow the user to enter information.
- Prompt for call information at the end of each call  
When selected, the screen shown below is displayed to allow the user to manage calls at the point of completion. The user can save or erase the call, add notes, or mark important calls using the red key shown below.



The screenshot shows a window titled "Dterm Voice Security Recorder". It contains a "Call from" field with the placeholder text "caller ID or key info here" and a timestamp "8:26 AM 2/10/2004". To the right of the timestamp is a red key icon with a white exclamation mark. Below this is a "Comments" section with a text area containing the placeholder text "Notes about the call can be entered here". At the bottom of the window are two buttons: "Save this Call" and "Erase this call".

**Figure 9-30 Manage Calls at Completion**

### 11.3.7 File Management Tab

File management is necessary when the user makes many telephone calls and stores each conversation. The selections are self-explanatory.

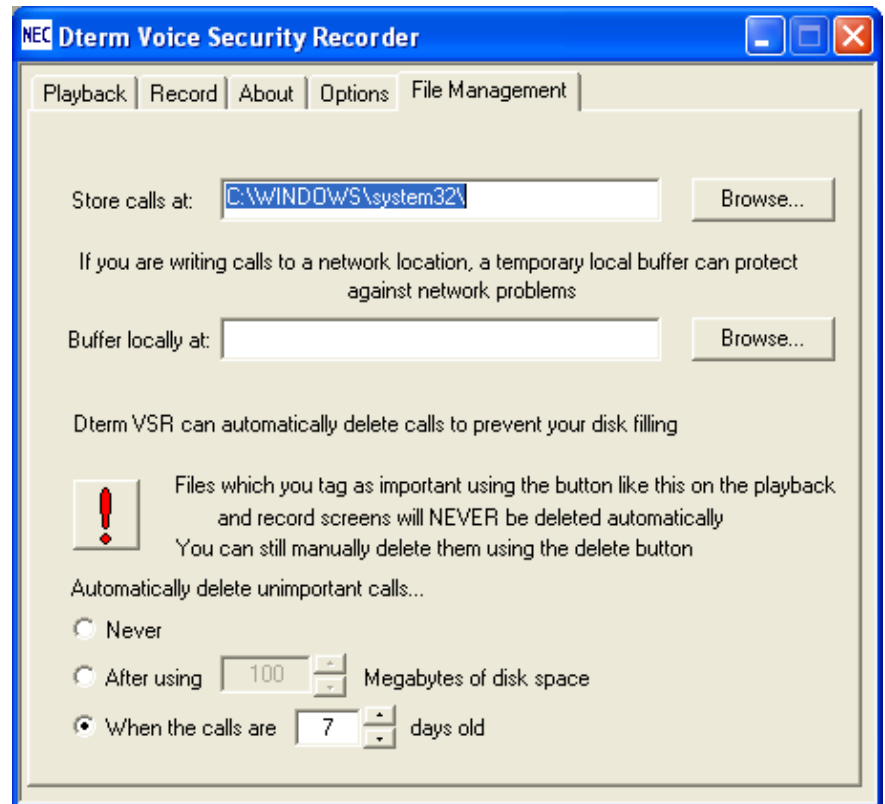
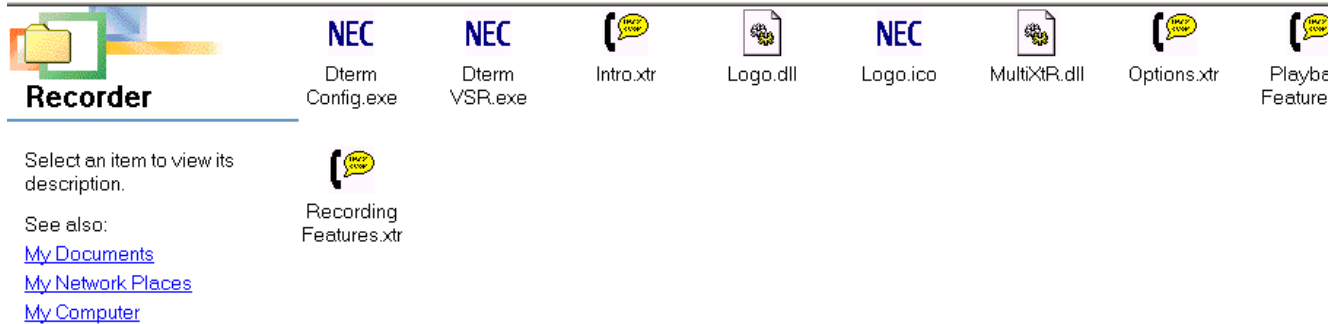


Figure 9-31 File Management Tab

### 11.3.8 Custom Program Settings

Comvurgent provides the dealer or user the option of making additional adjustments.

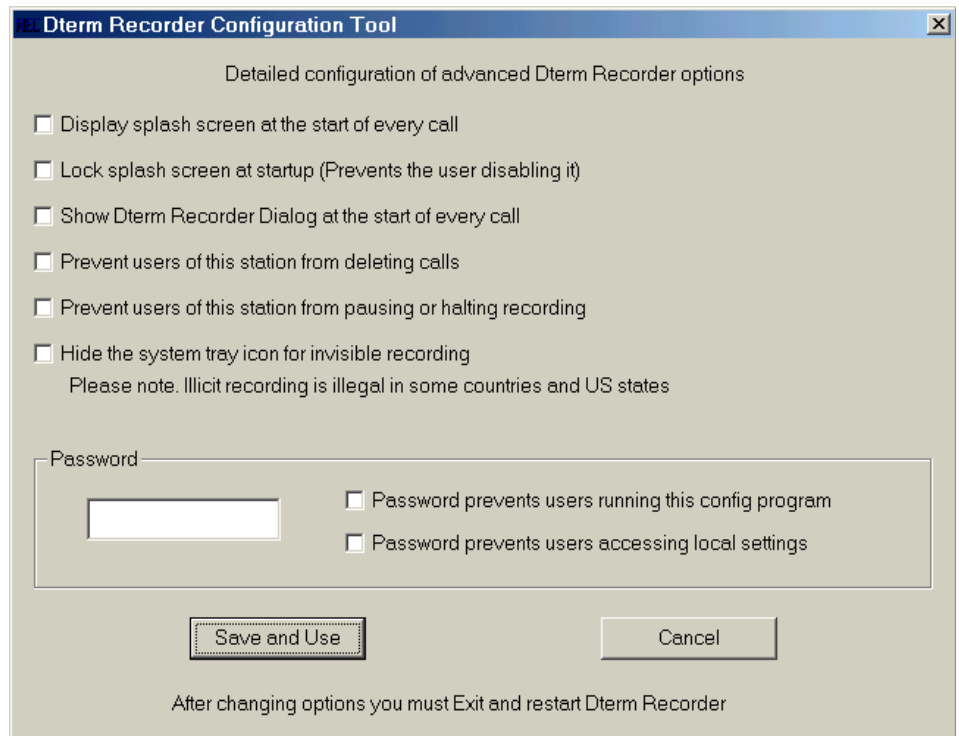


**Figure 9-32 Comvurgent Options for Additional Adjustments**

This special configuration program can only be accessed by browsing to the installation location (default C:\Program Files\Comvurgent\XtRecorder), and then click on the NEC  $D^{term}$  Config.exe.

*The customer takes all responsibility to ensure they meet legal requirements. Comvurgent provides the user option settings to meet customer demands and cannot be responsible for misapplication of the product.*

Several settings can be customized to meet requirements of the application as shown in [Figure 9-33 Customizing Application to Meet Requirements on page 9-43](#).



**Figure 9-33 Customizing Application to Meet Requirements**

- Display splash screen at the start of each call  
Reminds user that recording is taking place by splashing a screen with every call.
- Show *D<sup>term</sup>* Recorder dialog at the start of each call  
Displays application record screen anytime a call is being recorded.
- Prevent users of this station from deleting calls  
Disables the delete key.
- Prevent users of this station from pausing or halting recording  
Disables pause and stop controls.
- Hide the system tray icon for invisible recording  
Hides the small icon that appears in the system tray and flashes red when recording.

□ Password

Locks access to these settings and those at the user level.

✎ *When changes are made, the application must be closed and started again to become effective.*

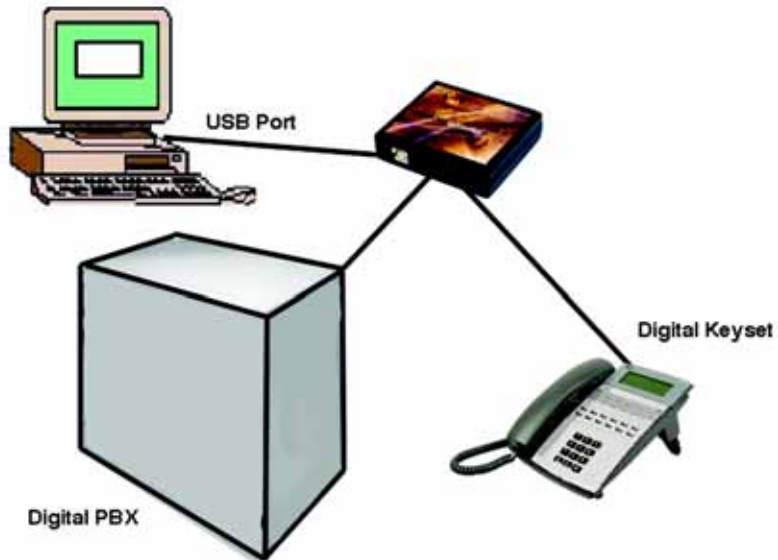


Figure 9-34 Voice Security Recorder Connection

## 11.4 Operation Note

Use the Options and File Management tabs in the *D<sup>term</sup>*® Voice Security Recorder application to adjust the program settings as required (directory for storing messages, message deletion, file format, etc.).

It is recommended, after the initial installation of the *D<sup>term</sup>* Voice Security Recorder application, that the audio balance of the remote side be changed to approximately 100%.

1. Open the *D<sup>term</sup>* Voice Security Recorder application.
2. Click the **Options** tab.
3. Using the up arrow button, change the **Remote Boost (%)** setting to 100%.

✎ *Excessive boost can distort audio.*



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## 11.5 4- or 16-Port Digital Call Logging Unit

### 11.5.1 Description

The 4- and 16-Port Digital Call Logging Units are Universal Serial Bus (USB) devices installed in the BackOffice next to the telephone system.

Up to 12 of the 4-Port Digital Call Logging Units can be connected to a single PC (providing 48 ports).

Up to three of the 16-Port Digital Call Logging Units can be connected to a single PC (providing 48 ports).

If larger installations are required, multiple PCs can be used with calls being stored on one central drive. Connectivity is accomplished via parallel wiring tapped across the same pair that feeds the *D<sup>term</sup>* telephone. BackOffice Recorder software allows naming and mapping of each port independently.

The device does not interfere with communications between the PBX and the digital telephone. It does not require USB power or a connection to the PC to maintain normal telephone use.

The device meets the appropriate FCC and UL requirements for this type of communications device.

The device is soft up-loadable: the firmware and FPGA low-level protocol decryption is uploaded from the PC driver and the 4- or 16-Port Digital Call Logging Unit application at runtime. This allows easy upgrade and enhancement of the product in the field as required.

### 11.5.2 Connection Configuration

The configuration connection is shown in [Figure 9-35 Digital Call Logging Unit Connection Configuration](#).



**Figure 9-35 Digital Call Logging Unit Connection Configuration**

### 11.5.3 Connectors

The NEC 4-Port Digital Call Logging Unit USB recording device has four connectors and four LED indicators:

- One PC USB connector, from which the device derives its power and streams all speech and control channel information up to the host PC and NEC BackOffice application.
- Four Digital Phone line connectors that passively tap across the NEC  $D^{term}$  digital port and listen in high impedance mode to the signaling on the line. The NEC 4-Port Digital Call Logging Unit does not affect the telephone operation in any way with or without connection of the host PC.

The NEC 16-Port Digital Call Logging Unit USB recording device has 16 connectors and 16 LED indicators:

- One PC USB connector, from which the device derives its power and streams all speech and control channel information up to the host PC and NEC BackOffice application.
- 16 Digital Phone line connectors that passively tap across the NEC  $D^{term}$  digital port and listen in high impedance mode to the signaling on the line. The NEC 16-Port Digital Call Logging Unit does not affect the telephone operation in any way with or without connection of the host PC.
- A five volt DC power connector for external power.



#### 11.5.4 Package Contents

The 4-Port Digital Call Logging Unit is packaged with everything necessary for installation including:



- Software CD
- USB Cable
- Quick-start installation manual

#### 11.5.5 Hardware and Software Requirements

##### **4-Port Digital Call Logging Unit:**

- A Pentium® 4 equipped with:
  - 512 Mb RAM.
  - Windows XP, Windows 2000 Professional SP4, or 2003.
  - One USB Controller Card for each four devices – powered USB hubs can be used however, no more than four devices should be connected to a USB Controller Card.
  - An available PCI slot for each USB Controller Card.
- LAN connection for remote access to stored calls.
- NEC BackOffice Recorder software.
  -  *Calls should be stored on the same host PC.*
  -  *Using the GSM 6.10 Compression option, each 1Gb of Hard Disk storage allows recording of about 168 hours of calls.*

##### **16-Port Digital Call Logging Unit:**

- A Pentium® 4, 2.5 GHz equipped with:
  - 1 Gb RAM.
  - Windows XP/PRO, Windows 2000 Professional SP4, or 2003.
  - One USB Controller Card for each two devices – powered USB hubs can be used however, no more than two devices should be connected to a USB Controller Card.
  - An available PCI slot for each USB Controller Card.
- LAN connection for remote access to stored calls.
- NEC BackOffice Recorder software.
  -  *Calls should be stored on the same host PC.*
  -  *Using the GSM 6.10 Compression option, each 1Gb of Hard Disk storage allows recording of about 168 hours of calls.*

## 11.5.6 Installation



***DO NOT install the NEC BackOffice Software until instructed! It is critical that you follow the steps in the installation procedure in the order listed below. Failure to do so results in an unsuccessful installation.***

### 11.5.6.1 Location Preparation

The wiring for the extensions should be within six feet of the PC location. For this reason, the PC for the NEC BackOffice Recorder should be located near the MDF for extension wiring.

The installer must prepare the wiring to tap off the digital pair with a T-Connect type setup.


It may be desirable to fasten the devices to a PC or rack. Since the devices are lightweight, this can be done quite easily with Velcro tape.

### 11.5.6.2 Set Up PC



- ***DO NOT connect more than four of the 4-Port Digital Call Logging Unit devices to each USB Controller Card.***
- ***DO NOT connect more than two of the 16-Port Digital Call Logging Unit devices to each USB Controller Card.***

1. Set up the PC with the appropriate number of USB Controller Cards and/or USB hubs. Follow the installation instructions for the Controller Card carefully. The PC should be connected to the LAN for supervisor access and to facilitate Windows and software updates as needed. It may be desirable also to load PC Anywhere on the PC for remote administration of the application.

2. After USB cards are installed, go to [www.windowsupdate.com](http://www.windowsupdate.com). Download and install any updated device driver that may be available for WIN2000 or XP and your USB Controller Cards. This is very important, as WIN2000 does not always have the required device drivers loaded in default for USB 2.0 devices. If your card came with a driver CD this step may have been taken care of during installation of the card.
3. Update Windows 2000 to Service Pack 4; this is available as a free upgrade from the Windows update web site.
4. When all USB Controller Cards are installed and the PC updated, restart the PC.
5. Connect any USB hubs if applicable.
  -  *The brand or type of USB hub must match that of the USB Controller Card.*
6. After USB hubs are installed, restart the PC again.

#### 11.5.6.3 Install the 4- or 16-Port Digital Call Logging Unit

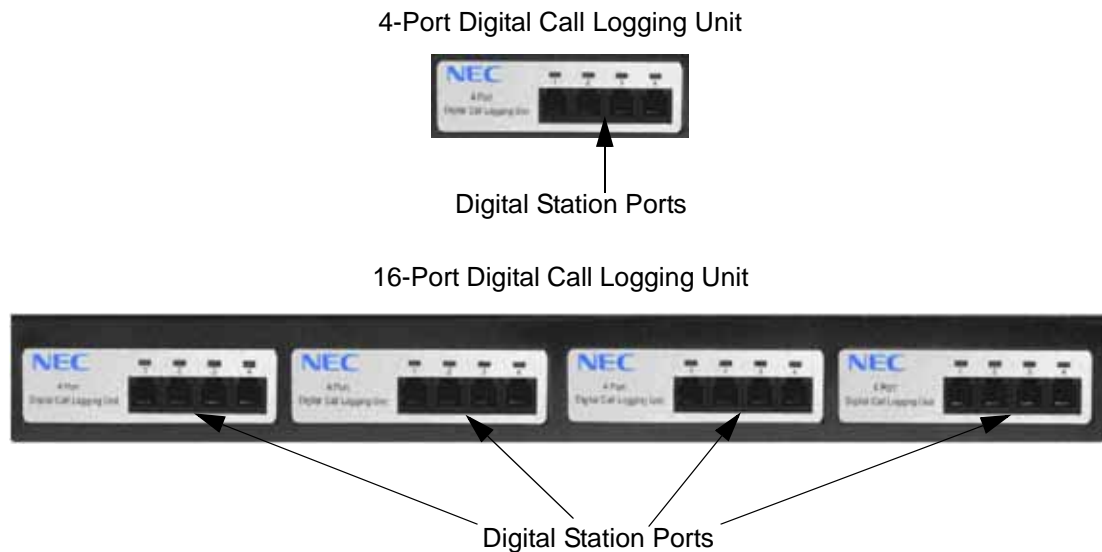
1. Connect the 4- or 16- Port Digital Call Logging Unit device to the USB cable and plug the USB cable in the PC. Windows responds with the Found New Hardware wizard.
2. Insert the provided NEC BackOffice CD in the CD drive of the PC.

Direct the installation of the driver to **Specific Location** and specify the **Driver** folder on the CD. Windows should find and load the device driver.
3. **Before inserting the next USB cable**, restart the PC. If Windows responds with Found New Hardware again, direct to the CD a second time and restart the PC. After you get a clean restart and Windows recognizes the device on restart, install the next device.

4. Leave the CD in the CD drive and connect the next device, you may need to direct windows to the CD with each device you connect. Also, you may need to restart the PC with each device connection (this may require two restarts per device).
5. After all devices are connected, restart the PC and view the devices in Device Manager to ensure proper installation.
6. Connect the telephone wiring to the 4- or 16-Port Digital Call Logging Unit. Be sure to note which extension is connected to which port of the devices (each device has a unique serial number). In the Recorder window you see the serial number followed by a trailing digit (1~4), this identifies the port on the device.


*Before the telephone wiring is connected, the devices may temporarily show Failed and then reinitialize. This is normal operation.*

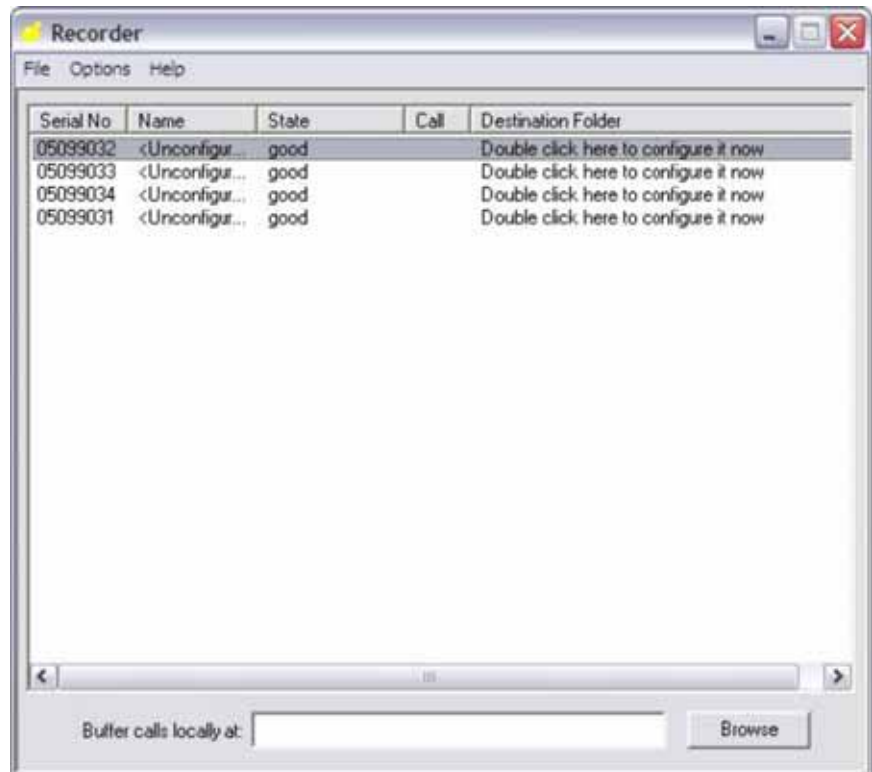
Label each Digital Station Port with the extension it records. Refer to [Figure 9-36 Digital Station Ports](#).



**Figure 9-36 Digital Station Ports**

#### 11.5.6.4 Install the 4- or 16-Port Digital Call Logging Unit BackOffice Software

1. Insert the **NEC BackOffice** CD in the CD drive of the PC.
2. Locate the **Recorder** folder.
3. Click on the **Setup.exe** file in the Recorder folder.
4. Select Telephone System-Type.
  -  Choose **European** if in a territory that uses A-Law or **US** for the US and territories that use  $\mu$ -Law.
5. Select **Install Location** or **Next** to choose default (recommended) location.
6. Select **Finish**.
7. A NEC BackOffice Recorder shortcut is now displayed on the desktop.
8. Click on the NEC BackOffice Recorder shortcut.
9. The Recorder screen is displayed. Refer to [Figure 9-37 Recorder Screen](#).



**Figure 9-37 Recorder Screen**

10. Double click on the first line in the sequence to configure. The Enter Line Details dialog box is displayed (each device is identified with a unique serial number – followed by a 1, 2, 3 or 4 which identifies the port from left to right on the device).



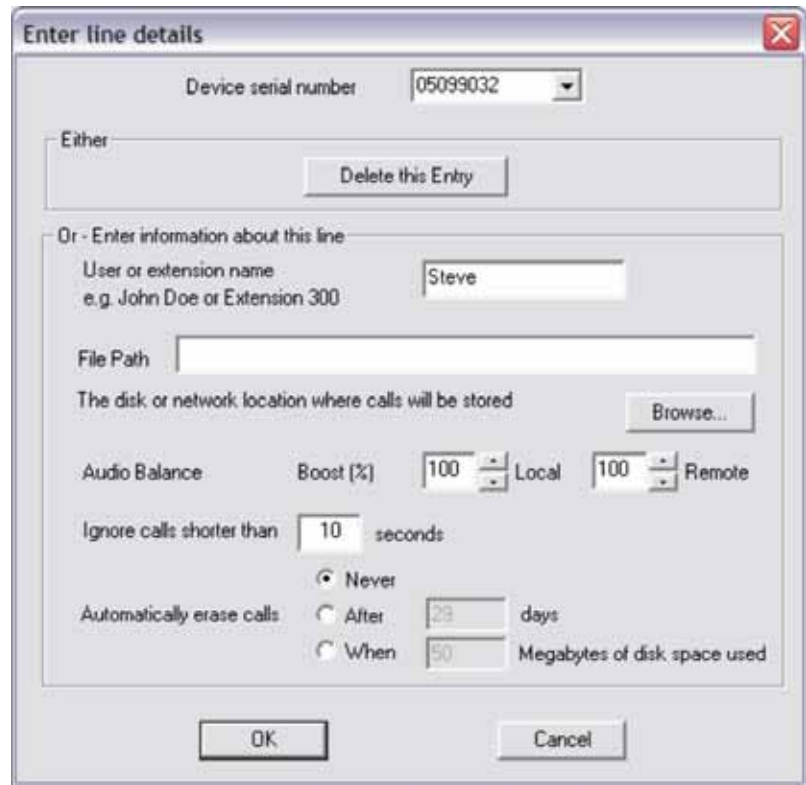


Figure 9-38 Enter Line Details Dialog Box

11. Name the device (user or extension name).
12. Click on the **Browse** button to identify the storage location for the device.
13. It is recommended that you create a Master Calls folder with a subfolder for each device. This makes it easier to search for archived calls. You should also boost the remote signal and check for quality with a test call.
14. **Audio Balance** – allows you to increase or decrease the audio balance of the recording. Leaving Local and Remote at 100% leaves the recording as-is. Perhaps boosting the remote side on most installs to 150% is suggested, but test it prior to leaving this setting as-is.

15. **Ignore Calls** – although the Recorder **Starts** recording automatically, this setting tells the system only to **Save** calls longer than this preset threshold.
16. **Automatically Erase Calls** – this can be set to delete calls after x number of days or after a defined disk space is used.
  - ✎ *Calls marked **Important** during playback are not automatically deleted.*
17. Press **OK** to save the settings.
18. Repeat this procedure for each listed device, entering a name and identifying the folder for storing recorded calls.
  - ✎ *Calls should be stored on the same PC. However, if a network drive is used, you should choose a folder location on the local PC to buffer calls. This allows the application to run and store calls even if the network is temporarily down.*
19. **When all the devices** are named and mapped to a storage folder location, select **File** then **Exit** from the Recorder screen menu to save your configuration.

The NEC Recorder now records every call to and from the telephones. It is important to use proper procedure to shut down the application and PC when necessary.

- ✎ *The Recorder PC should be left on at all times (with battery backup) and the application always running.*

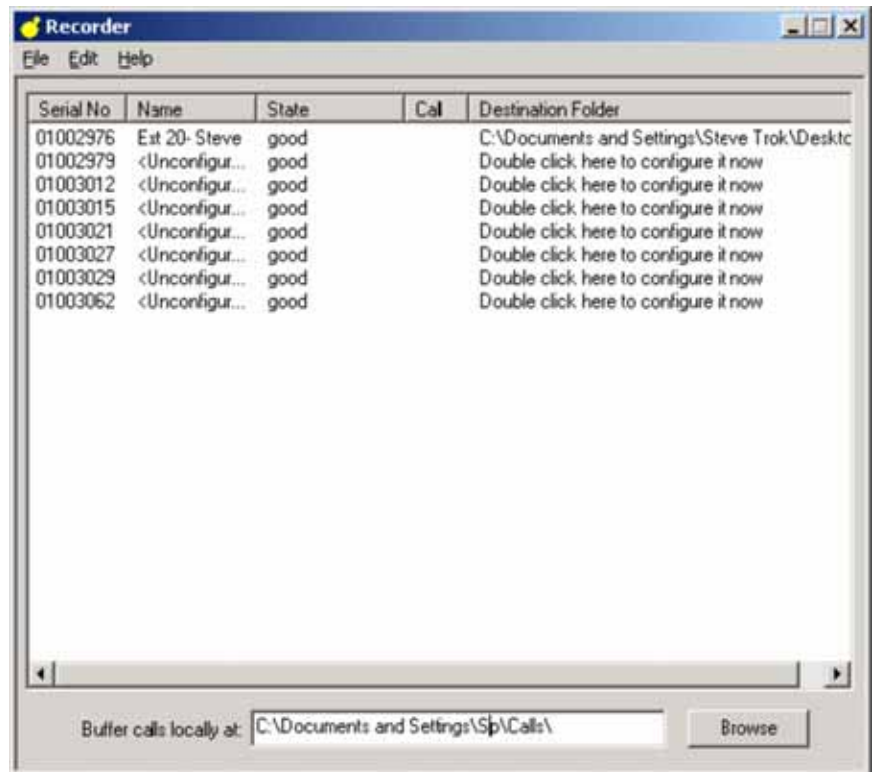


Figure 9-39 Recorder Screen

#### 11.5.6.5 Choose and Install Player Options

Several player options are available with the NEC BackOffice Recording solution.

- Desktop Player** – can be loaded on an individual user's PC, giving the user complete access (although restrictions can be applied) to call management; deleting calls, emailing conversations, exporting to wav file, etc. This software can be downloaded from [www.usbcallrecord.com](http://www.usbcallrecord.com) free.
- VSR Manager 2.0** – enables a supervisor(s) to search for calls, playback calls, associate notes about calls, mark them important, and delete or email conversations. Refer to the VSR Manager Installation Manual for instructions.

- ❑ **VSR Reporter Pro** – same advanced functionality as VSR Reporter with the addition of the Agent Evaluation module Call Scoring. It provides customized scoring forms and criteria along with detailed support to quickly identify strengths and weaknesses within your Call Center.

These packages can be applied in any number of configurations within the organization providing control and management where needed and simple playback in other locations.

## 11.6 VSR Manager Version 2.0 Installation

Two options are available for playing back calls recorded by your VSR(s). The first is the Desktop Player which is used by an individual user to play back their own archive of calls or to play back NEC *D<sup>term</sup>* VSR calls stored on their PC or network. It easily manages calls from one storage location. It does not offer many of the advanced functions of the VSR Manager, such as establishing preset shortcuts to any number of storage folders for quick and easy access.

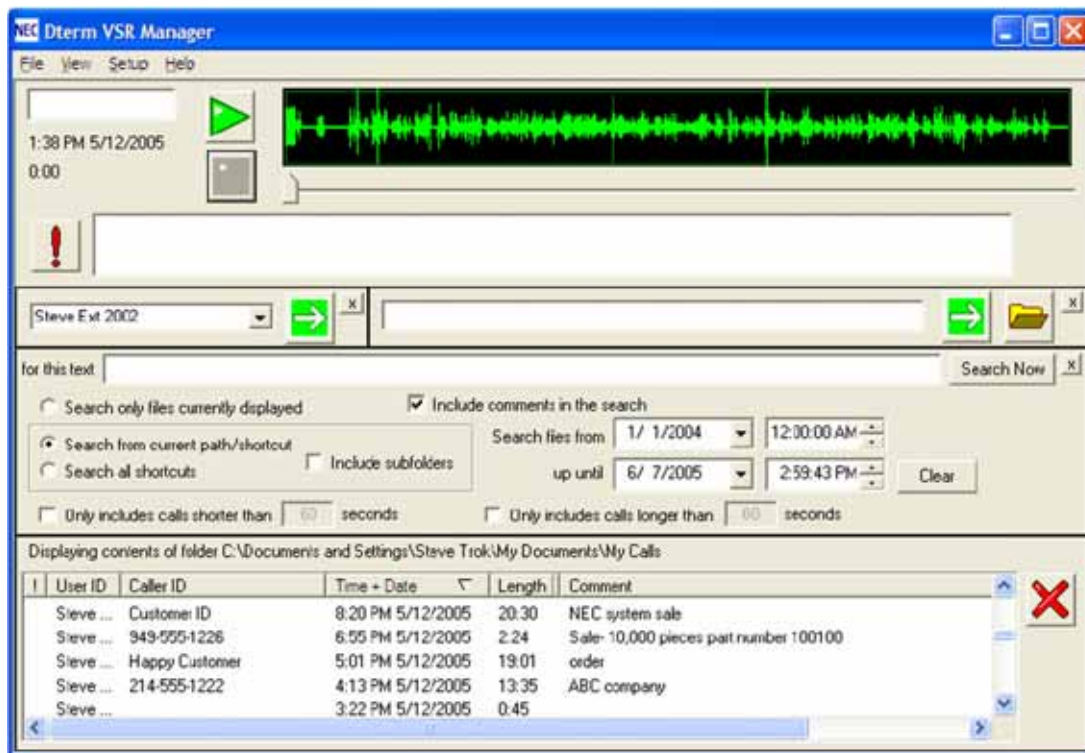


Figure 9-40 *D<sup>term</sup>* VSR Manager Screen

The second player option is the **VSR Manager**. Take your call recording environment to the next level with NEC VSR application software. **VSR Manager** provides advanced visibility, access, retrieval, and playback tools for the VSR Recorder administrators. It provides an intuitive interface for establishing shortcuts to any number of storage folders and allows the supervisor to search across all storage folders for specific call information such as User, Time/Date, Length of Call, etc. The application can be used to access and manage VSR recordings whether created by the single port VSR or the 4-Port Digital Call Logging Unit. **VSR Manager** is built on the robust Microsoft.net frame-work and manipulates large volumes of recordings. It is a workhorse that delivers truly feature rich productivity tools in a familiar, ergonomic and easy to use MS Office style interface.

**VSR Manager** allows the manager or supervisor to quickly and easily gain access to important calls.

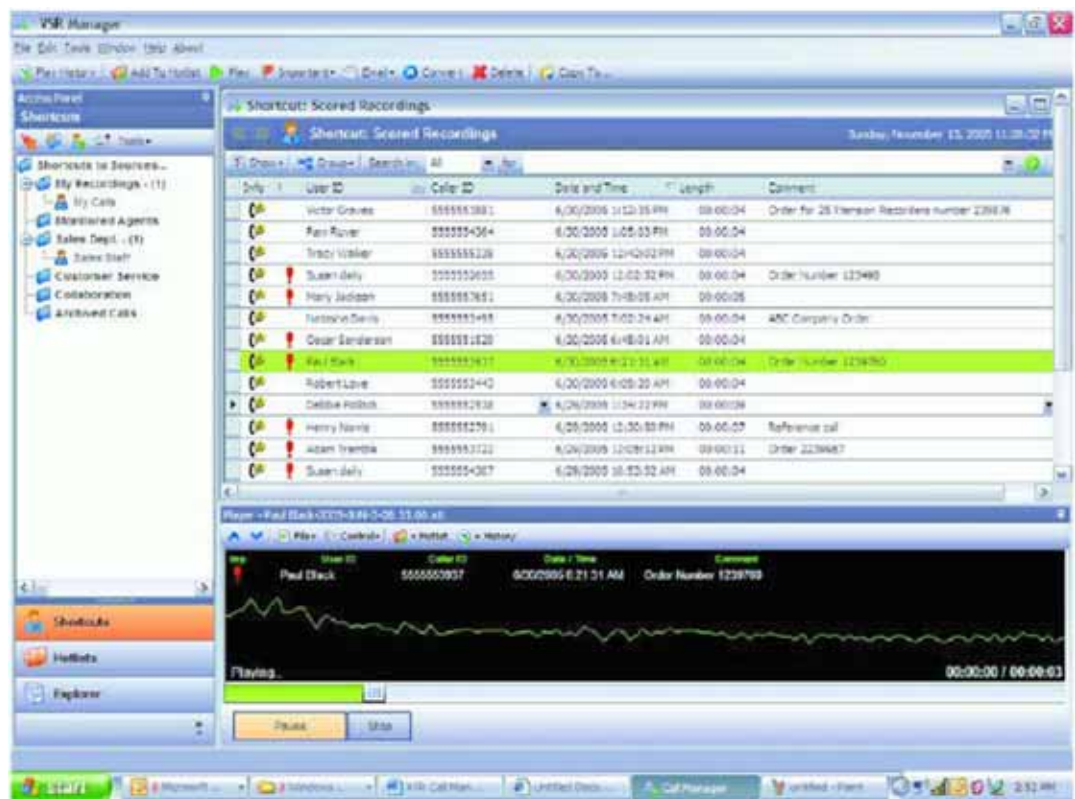


Figure 9-41 VSR Manager Screen

These two players can be combined in any number of configurations in the company, providing control and management where needed and simple playback in other locations.

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Refer to the documentation included with the  $D^{term}$  VSR (P/N 780275) for details on setting up and using the Desktop Player.

This section assists you with the installation of the software and helps you start using the VSR Manager. For detailed assistance with the software, please refer to the Help Files located in the VSR Manager program.

### 11.6.1 Hardware and Software Check for VSR Manager 2.0

#### 11.6.1.1 Minimum Hardware Requirements

- Processor: Pentium III-class (K7) 1.0GHz or equivalent (recommend Pentium 4 or equivalent)
- Memory: 128MB (recommend 256MB+)
- Disk Space: 30MB (recommend 60MB+)

#### 11.6.1.2 Minimum Software Requirements

- Operating Systems:
  - Windows XP (recommended latest service pack)
  - Windows 2000 (recommended latest service pack)
  - Windows 2003
- Microsoft .Net Framework 1.1+



*If your PC does not meet the above requirements, please contact NEC. VSR Manager 2.0 can be provided if upgrading to the minimum requirements is not possible or desirable.*

#### 11.6.1.3 Screen Resolution


VSR Manager is a visual application environment featuring dynamic graphical elements which may function at lower resolutions. However, for best performance and to view these items correctly, you should set the screen resolution to a minimum of 1024x768. You can do this from the **Control Panel → Display Settings → Advanced Settings** tab.

#### 11.6.1.4 Is the Microsoft.Net Framework 1.1 Installed?

VSR Manager 2.0 requires the Microsoft .Net Framework, which should be installed on your PC prior to installing VSR Manager. If your Windows operating system has been kept updated with Windows Service Packs, the Microsoft .Net Framework 1.1 likely has already been installed.

To check if you have the Microsoft.Net Framework installed:

1. Navigate to **Control Panel → Add and Remove Programs**.
2. Look for an entry referencing the Microsoft .Net Framework 1.1 or later.
3. If the Microsoft .Net Framework 1.1 is not installed, you can download it from the Microsoft web site.

 *The link to Microsoft .Net Framework download at time of this writing: <http://www.microsoft.com/downloads/details.aspx?FamilyID=262d25e3-f589-4842-8157-034d1e7cf3a3&displaylang=en>*

Not sure if .Net is installed:

If you have any doubt, try to install VSR Manager 2.0. The installation halts and informs you if the Microsoft .Net Framework 1.1 is not found. If this occurs, you can download the Microsoft .Net Framework 1.1, install it, restart your computer and then proceed to install VSR Manager.

#### 11.6.2 Install Your Application Security Key

VSR Manager requires an Application Security Key (a USB dongle which is shipped with the application) to be inserted when the VSR Manager is running. This unlocks the application and prevents unauthorized use. The VSR Manager displays messages and halts its processes if the Application Security Key is not found or if the wrong key is inserted.



- *The Application Security Key is associated with your Software license.*
- *The Application Security Key is non-transferable and cannot be replaced if lost.*
- *If the key becomes damaged within the warranty period, you must return your key to support for verification and replacement if the nature of the damage qualifies.*

1. Insert USB key into an available USB port on PC.
2. Windows should respond with **Found New Hardware** and identify the device as a Matrix USB Key.
3. If Windows does not find the needed driver, browse to the CD. The driver is loaded on the CD in the **Drivers** folder.

### 11.6.3 Install and Register VSR Manager 2.0

In a multi-user operating systems, such as Windows 2000 or Windows XP, applications are generally installed in a folder from which it can be run by all users, such as C:\Program Files. You can only install or uninstall applications if you have administrative privileges on your computer. If you encounter any installation problems, check to make sure you have administrative privileges or ask your administrator to install VSR Manager for you.

#### 11.6.3.1 Install VSR Manager

1. Insert the VSR Manager CD in the computer CD-ROM drive or navigate to the location where you have saved your application download.
2. Double-click the VSR Manager Set-up icon.
3. Follow the on-screen instructions.
4. If prompted, restart your computer.



### 11.6.3.2 Register VSR Manager

To get additional support, it's a good idea to register your copy of VSR Manager. When you register, you can sign up for timely EMail notices about product updates so you can keep VSR Manager running at peak performance and benefit from any new features and enhancements. You can also sign up to receive up-to-the-minute notices about upgrades and new VSR products.

1. Select **Help → Online registration** (your internet connection needs to be active to connect to the web site).
2. Fill out the online electronic form.
3. You automatically receive a confirmation EMail and information as soon as it is available based on your notification preferences.

## 11.7 VSR Reporter Pro 2.0 Installation

Two options are available for playing back calls recorded by your VSR(s). The first is the Desktop Player which is used by an individual user to play back their own archive of calls or to play back NEC *D<sup>term</sup>* VSR calls stored on their PC or network. It easily manages calls from one storage location. It does not offer many of the advanced functions of the VSR Reporter Pro, such as establishing preset shortcuts to any number of storage folders for quick and easy access.

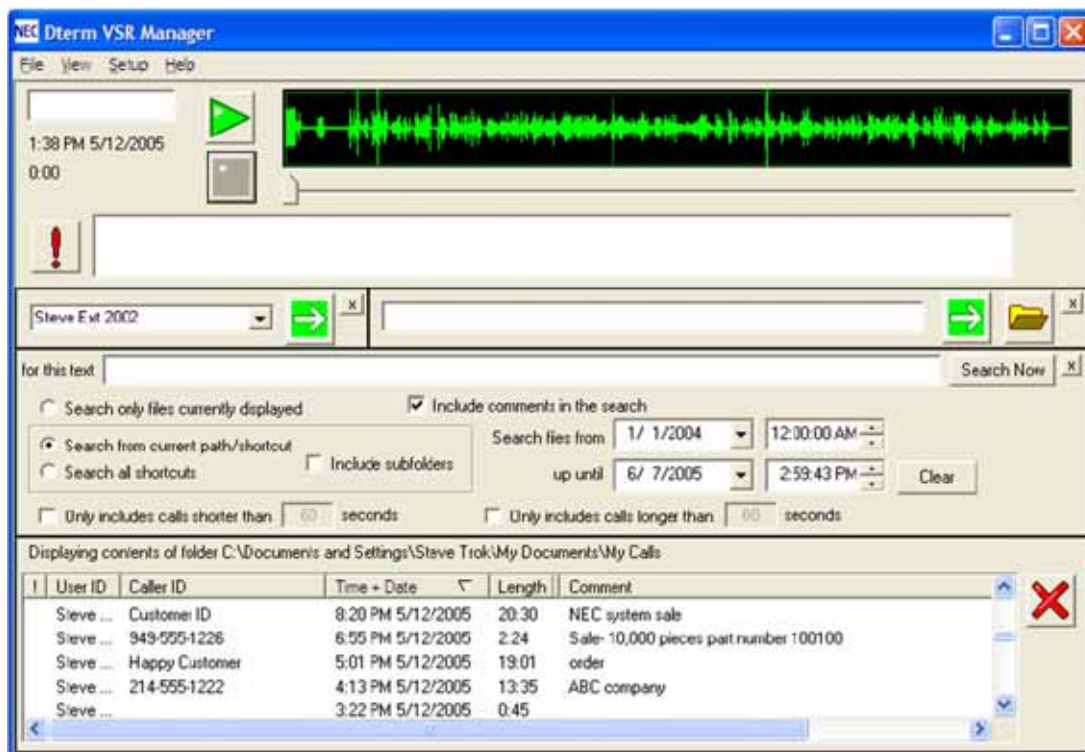


Figure 9-42 *D<sup>term</sup>* VSR Reporter Pro Screen

The second player option is the **VSR Reporter Pro**. Take your call recording environment to the next level with NEC VSR application software. **VSR Reporter Pro** provides advanced visibility, access, retrieval, and playback tools for the VSR Recorder administrators. It provides an intuitive interface for establishing shortcuts to any number of storage folders and allows the supervisor to search across all storage folders for specific call information such as User, Time/Date, Length of Call, etc. The application can be used to access and manage VSR recordings whether created by the single port VSR or the 4-Port Digital Call Logging Unit. **VSR Reporter Pro** is built on the robust Microsoft.Net frame-work and manipulates large volumes of recordings. It is a workhorse that delivers truly feature rich productivity tools in a familiar, ergonomic and easy to use MS Office style interface.

**VSR Reporter Pro** allows the manager or supervisor to quickly and easily gain access to important calls.

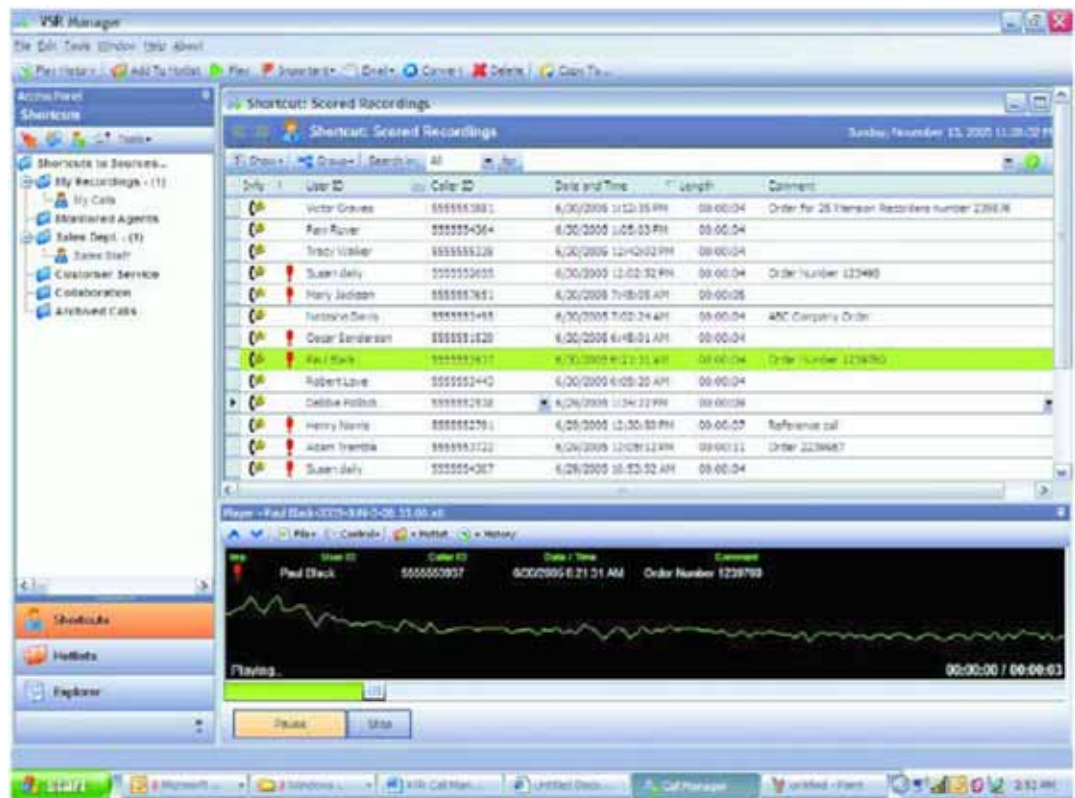


Figure 9-43 VSR Reporter Pro Screen

These two players can be combined in any number of configurations within the company, providing control and management where needed and simple playback in other locations.

Refer to the documentation included with the *D<sup>term</sup>* VSR (P/N 780275) for details on setting up and using the Desktop Player.

This section assists you with the installation of the software and helps you to start using the VSR Reporter Pro. For detailed assistance with the software, please refer to the Help Files located in the VSR Reporter Pro program.

### 11.7.1 Hardware and Software Check for VSR Reporter Pro 2.0

#### 11.7.1.1 Minimum Hardware Requirements

- Processor: Pentium III-class (K7) 1.0GHz or equivalent (recommend Pentium 4 or equivalent)
- Memory: 128MB (recommend 256MB+)

- Disk Space: 30MB (recommend 60MB+)

#### 11.7.1.2 Minimum Software Requirements

- Operating Systems:
  - Windows XP (recommended latest service pack)
  - Windows 2000 (recommended latest service pack)
  - Windows 2003
- Microsoft .Net Framework 1.1+



*If your PC does not meet the above requirements, please contact NEC. VSR Reporter Pro 2.0 can be provided if upgrading to the minimum requirements is not possible or desirable.*

#### 11.7.1.3 Screen Resolution

VSR Reporter Pro is a visual application environment featuring dynamic graphical elements which may function at lower resolutions. However, for best performance and to view these items correctly, it's recommended that you set the screen resolution to a minimum of 1024x768. You can do this from the **Control Panel → Display Settings → Advanced Settings** tab.


#### 11.7.1.4 Microsoft.Net Framework 1.1 Installation

VSR Reporter Pro 2.0 requires the Microsoft .Net Framework, which should be installed on your PC prior to installing VSR Reporter Pro. If your Windows operating system has been kept updated with Windows Service Packs, the Microsoft .Net Framework 1.1 likely is already installed.

To check if you have the Microsoft.Net Framework installed:

1. Navigate to **Control Panel → Add and Remove Programs**.
2. Look for an entry referencing the Microsoft .Net Framework 1.1 or later.

3. If the Microsoft.Net Framework 1.1 is not installed, you can download it from the Microsoft web site.

 *The link to Microsoft .Net Framework download at time of this writing: <http://www.microsoft.com/downloads/details.aspx?FamilyID=262d25e3-f589-4842-8157-034d1e7cf3a3&displaylang=en>*

Not sure if .Net is installed:

If you have any doubt, try to install VSR Reporter Pro 2.0. The installation halts and informs you if the Microsoft.Net Framework 1.1 is not found. If this occurs, you can download the Microsoft.Net Framework 1.1, install it, restart your computer and then proceed to install VSR Reporter Pro.

### 11.7.2 Install Your Application Security Key

VSR Reporter Pro requires an Application Security Key (a USB dongle which is shipped with the application) to be inserted when the VSR Reporter Pro is running. This unlocks the application and prevents unauthorized use. The VSR Reporter Pro displays messages and halts its processes if the Application Security Key is not found or if the wrong key is inserted.



- *The Application Security Key is associated with your Software license.*
- *The Application Security Key is non-transferable and cannot be replaced if lost.*
- *If the key becomes damaged within the warranty period, you must return your key to support for verification and replacement if the nature of the damage qualifies.*

1. Insert USB key into an available USB port on PC.
2. Windows should respond with **Found New Hardware** and identify the device as a Matrix USB Key.
3. If Windows does not find the needed driver, browse to the CD. The driver is loaded on the CD in the **Drivers** folder.

### 11.7.3 Install and Register VSR Reporter Pro 2.0

In a multi-user operating systems, such as Windows 2000 or Windows XP, applications are generally installed in a folder from which it can be run by all users, such as C:\Program Files. You can install or uninstall applications only if you have administrative privileges on your computer. If you encounter any installation problems, check to make sure you have administrative privileges or ask your administrator to install VSR Reporter Pro for you.

#### 11.7.3.1 Install VSR Reporter Pro

1. Insert the VSR Reporter Pro CD in the computer CD-ROM drive or navigate to the location where you have saved your application download.
2. Double-click the VSR Reporter Pro Set-up icon.
3. Follow the on-screen instructions.
4. If prompted, restart your computer.

#### 11.7.3.2 Register VSR Reporter Pro

To get additional support, it is a good idea to register your copy of VSR Reporter Pro. When you register, you can sign up for timely EMail notices about product updates so you can keep VSR Reporter Pro running at peak performance and benefit from any new features and enhancements. You can also sign up to receive up-to-the-minute notices about upgrades and new VSR products.

1. Select **Help → Online registration** (your internet connection needs to be active to connect to the web site).
2. Fill out the online electronic form.
3. You automatically receive a confirmation EMail and information when it is available based on your notification preferences.

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## SECTION 12 TELEPHONE ADAPTERS

### 12.1 Using Adapters

The modular terminals can support installing one additional adapter underneath the terminal. These adapters provide the multiline terminal different abilities, depending on the adapter installed.



**Figure 9-44 Installing Adapters**

- These optional adapters are not installed on non-modular telephones.
- Only the ILPA, ADA and PSA Adapters can be used on the IP phones.
- ADA – Conversation Recording
- APR – Analog Port Adapter with Ringer
- PSA – Multiline Terminal/IP Phone Power Failure

Before installing or removing the adapter, *the multiline terminal should be unplugged from the system*. External power is not required for the adapter.

Telephones with any adapter installed require an optional wall mount unit (WM-L) to be wall mounted. The bracket does not accommodate the adapter(s).

### 12.2 In-line Power Adapter (ILPA-R)

The In-Line Power Adapter (ILPA-R), which is IEEE 802.3af compliant, detects power from a PoE-compatible ethernet switch and passes it to the IP terminal. The ILPA does the negotiation and detection with the switch and then relays the power to the IP terminal device. This provides an additional way to power the NEC IP terminals. With this adapter, the IP terminals on the UNIVERGE SV8100 system can be powered using:

- Local power connecting the IP terminal to a local AC wall outlet using the AC-R Adapter

- NEC power supply PoE-managed switch (BlueFire 200/24) (in-line and spare pair detection)
- Router Blade (spare pair detection)
- Cisco Data Switch – CDP supported (in-line and spare pair detection)
- In-Line Power Adapter



**Figure 9-45 In-Line Power Adapter**

#### 12.2.1 Conditions

- Only IP telephones supported by center feed can be used.
- This adapter cannot be used with the H.323 telephones.
- When center feed is used, unplug the adapter from the ethernet switch before changing the SW1 setting on the back of the adapter.
- The ILPA-R adapter is intended for use with IP phones and IP Adapters. Installing any other device into the telephone port of the ILPA-R may result in damage to the device.
- When powering an IP phone using an ILPA-R adapter, the phone should **not** be connected to a port on the Router Blade.



When using center feed, set the SW1 switch located on the back of the adapter as follows:



**Figure 9-46 In-Line Power Adapter Switch Settings**

Center Feed Hub System	SW1 Setting
IEEE802.3af STD System	1
Cisco Discovery Protocol System	1
NEC BlueFire 200/24 Switch	2

### 12.2.2 Installation

1. Set the SW1 switch on the ILPA-R adapter to the correct setting for the ethernet switch to which it is to be connected.

Center Feed Hub System	SW1 Setting
IEEE802.3af STD System	1
Cisco Discovery Protocol System	1
NEC BlueFire 200/24 Switch	2

2. Set the switch setting on the NEC iPhone or IP adapter to the correct position.

iPhone (SW2) or IP Adapter (SW1)	SW Setting
NEC Power Patch Panel (12-port NEC SN1604 PWRMS, 24-port NEC BlueFire 200/24) 8SHUBU Blade	1
Cisco Catalyst Power Patch Panel Cisco Catalyst PRW Series	2

3. Connect the NEC VoIP telephone to the TEL connector on the ILPA-R adapter with the LAN cable provided with the adapter.
  - If a customer-provided cable is used, the total length from the switch to the telephone should be less than 328 feet.
  - The adapter can be positioned either closer to the multiline terminal or switch – it does not matter.
4. Connect a crossover LAN cable to the LAN connector on the ILPA-R adapter. Plug the opposite end into the switch which is to provide power to the telephone. Refer to [Figure 9-47 NEC Terminal Connection to an IEEE 802.3af PoE Switch](#).
  - If a straight-through cable is used, NIC Auto Detection must be enabled in Programs 10-12-05 (CD-CP00-US), 84-05-02 (VOIPU) or 85-01-03 (SHUBU).



**Figure 9-47 NEC Terminal Connection to an IEEE 802.3af PoE Switch**

## 12.3 ADA-L UNIT

Using the ADA-L UNIT (Ancillary Device Adapter) provides a recording jack connection from a telephone to an external tape recorder, speaker or PC. Both sides of the conversation are recorded. The adapter output is a 1/8" audio (stereo) jack which you can connect directly to an AUX level input on a recorder or page amplifier.

Recording a conversation (Handset/Headset/Hands-free), or sending recorded calls to a telephone are possible by connecting a cassette recorder to the ADA-L UNIT (voice recording and the playback of a recorded sound from a cassette recorder cannot occur at the same time).

Before installing or removing the adapters, ***the multiline terminal should be unplugged from the system.***

***Be sure the connected audio device provides a standard AUX level input.***



***The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversation or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to a telephone conversation, such as using a beep tone or other notification methods or requiring the consent of all parties to the telephone conversation, prior to monitoring or recording the telephone conversation. Some of these laws incorporate strict penalties.***

***The handset records only when a call is placed or answered.***

### 12.3.1 ADA-L UNIT Switch Settings

Figure 9-48 ADA-L UNIT shows the location of the switches. The dip switches (DSW) allow a technician to configure the unit for specific settings.



***Due to location, set switches prior to installation of ADA-L UNIT on DTL/ITL multiline terminal.***

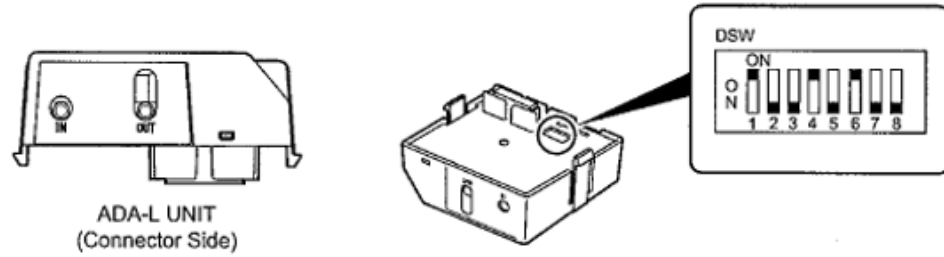


Figure 9-48 ADA-L UNIT

To provide control to the recorder or to enable/disable the record start warning tones, refer to [Table 9-3 ADA-L UNIT Switch Settings](#).

Table 9-3 ADA-L UNIT Switch Settings

Switch		Description/Settings
Dip Switches (DSW)	DSW 1	Record Confirmation Tone On = Tone On (Default) Off = Tone Off
	DSW 2 and DSW 3	Connection for the Record Confirmation Tone Source On = Connect Off = No Connection (Default)
	DSW 4	Output the Hook Signal to External Recording Device (Requires cable from T1/T2) On = Output (Default) Off = No Output
	DSW 5	Termination Impedance for OUT Jack On = 30ohms (Recording level is lower) Off = 600ohms (Recording level is higher) (Default = Off)
	DSW 6	Upgrade F/W Version (Not normally used) On = (Default)
	DSW 7 and DSW 8	Not Used Off = (Default)


Do not connect T1 and T2 when DSW switches 3 and 4 are On.

Table 9-4 DT330 Compatibility Settings

ADA-L Unit Switch Settings	Terminal Lot Number DT-330		
	xxx I Lx or lower (Version 1.E0 or lower)	xxx I Mx (Version 8.10)	xxxJSx or higher (Version 2.20 or higher)
ADA Connection for Recording Only.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.
ADA Connection for Sending Recorded Calls to the Telephone.	Dip switches 2, 3, 5, 7 and 8 are OFF. Switches 1, 4 and 6 are ON.	Dip switches 2, 3, 5, 7 and 8 are OFF. Switches 1, 4 and 6 are ON.	Dip switches 2, 3, 5, 7 and 8 are OFF. Switches 1, 4 and 6 are ON.
To Send and Receive to the Terminal	Not supported	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.	Dip switches 1, 2, 3, 5, 7 and 8 are OFF. Switches 4 and 6 are ON.

Lot Numbers: I, J – Hardware Revision

Lot Numbers: L, M, S – Software Revision

 To verify DT-330 terminal firmware, hold down keypad buttons 1, 2 and 3 while plugging the line cord into the terminal.

### 12.3.2 Installing the ADA-L UNIT

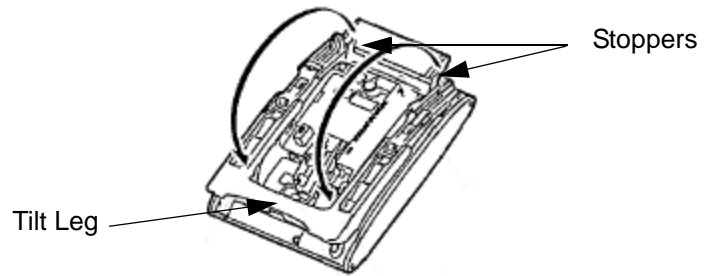
Perform the following steps to connect the ADA-L UNIT to the Bottom Option Interface located underneath the DTL/ITL multiline terminal.

 Only one ADA-L UNIT can be installed at a time.



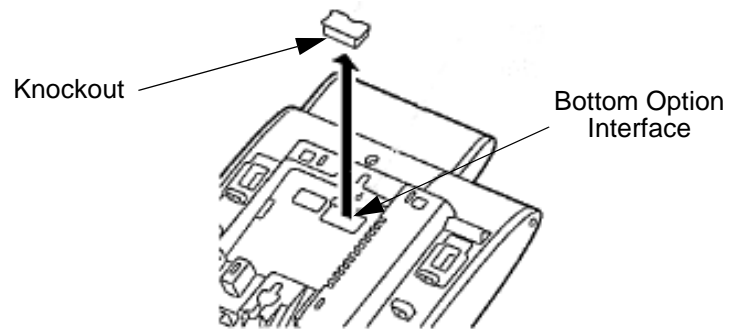
***To prevent possible damage to the ADA-L UNIT or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.***

1. Unplug the line cord from the multiline terminal.
2. Turn the DTL/ITL multiline terminal upside down.
3. Lower the tilt leg to the first position (refer to [Figure 9-49 Separate Tilt Leg from Leg Support](#) on page 9-74).



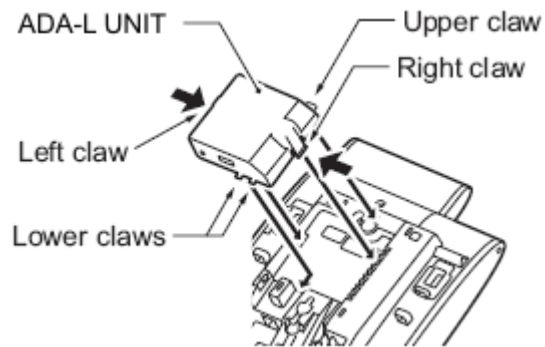
**Figure 9-49 Separate Tilt Leg from Leg Support**

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat to expose ADA-L UNIT compartment.
6. Carefully pry loose the knockout covering the bottom option interface (refer to [Figure 9-50 Bottom Option Interface Knockout](#)).



**Figure 9-50 Bottom Option Interface Knockout**

7. Using the exposed Bottom Option Interface as a guide, install the ADA-L UNIT in the bottom of the DTL/ITL multiline terminal. Push down until left and right tabs are seated (Refer to [Figure 9-51 Install ADA-L UNIT on page 9-75](#)).



**Figure 9-51 Install ADA-L UNIT**

8. Return tilt leg to original position.
9. Reconnect all cables previously disconnected.

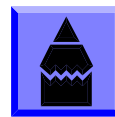
### 12.3.3 ADA-L UNIT Connection

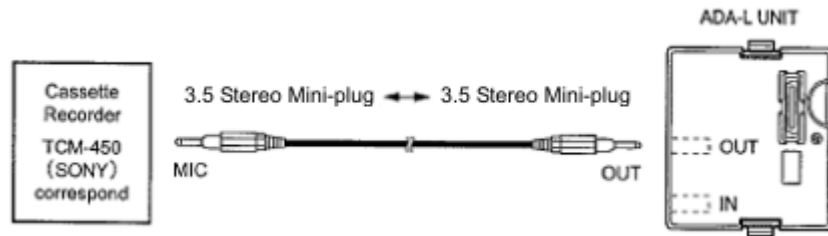


***The mini-plug connection cord should not use an attenuator and have a monaural (single ring) mini-plug connection for normal recording.***

#### 12.3.3.1 ADA-L UNIT Connection for Recording Only

1. Set the ADA-L UNIT DSW switches (Refer to [Figure 9-48 ADA-L UNIT](#) on page 9-72).
  - ***Set DSW 6 to ON.***
  - ***DSW switch 5 is used to change the output level from the OUT jack of the ADA-L UNIT (On = Low, Off = High).***
2. Using the mini-plug connection cord, connect the the ADA-L UNIT Out jack to the cassette recorder MIC jack (Refer to [Figure 9-52 ADA-L OUT Jack Connection](#) on page 9-76).





**Figure 9-52 ADA-L OUT Jack Connection**

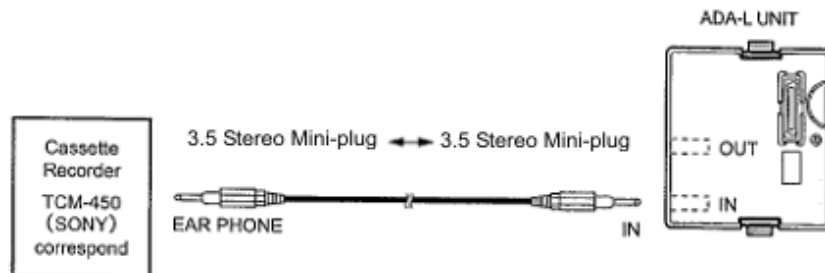
12.3.3.2 ADA-L UNIT Connection for Sending Recorded Calls to the Telephone

1. Set the ADA-L UNIT DSW switches (see [Figure 9-48 ADA-L UNIT](#) on page 9-72).



- *Set DSW 6 to ON.*
- *When sending recorded calls to the telephone, set DSW switch 1 to ON.*

2. Using the mini-plug connection cord, connect the the ADA-L Unit IN jack to the cassette recorder EAR PHONE jack (Refer to [Figure 9-53 ADA-L IN Jack Connection](#)).



**Figure 9-53 ADA-L IN Jack Connection**



## 12.4 APR-L UNIT

The APR-L UNIT (Analog Port Ringer) provides an analog interface for the terminal. The APR-L UNIT adapter provides ringing which allows the connected device to be used for incoming and outgoing calls. This adapter also provides a separate extension number for the analog device, which allows both devices to be used at the same time (this can be removed in system programming if you wish). One terminal can have an APR-L UNIT adapter.

The maximum distance between the APR-L UNIT and the analog terminal is 49 feet.

With the APR-L UNIT adapter installed, and the analog device attached to the adapter is in use, the telephone cannot be used – Only one physical port number is assigned to the telephone. If both the analog device and telephone are picked up at the same time, the analog device takes priority. If the terminal user is on a call and the single line telephone is picked up, the single line telephone takes the call from the terminal user.

When installing or removing the adapters, ***the telephone should be unplugged from the system.***

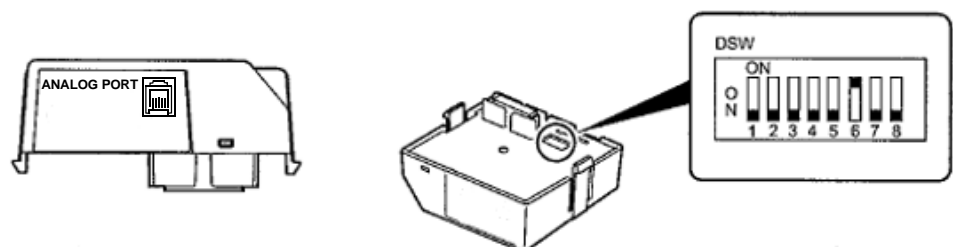
The APR-L UNIT does not support reverse-polarity, message waiting, or Caller ID.

### 12.4.1 APR-L UNIT Switch Settings

[Figure 9-54 APR-L UNIT](#) shows the location of the switches. The DIP switches (DSW) allow a technician to configure the unit for specific settings.



***Due to location, set the switches prior to installation of APR-L UNIT on DTL multiline terminal.***



**Figure 9-54 APR-L UNIT**

Set the DIP switches on the APR adapter to the required position.

#### 12.4.2 Installing the APR-L UNIT

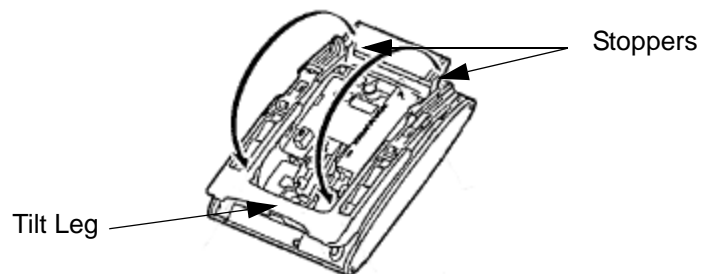
Perform the following to connect the APR-L UNIT to the Bottom Option Interface located underneath the DTL multiline terminal.

 Only one APR-L UNIT can be installed.



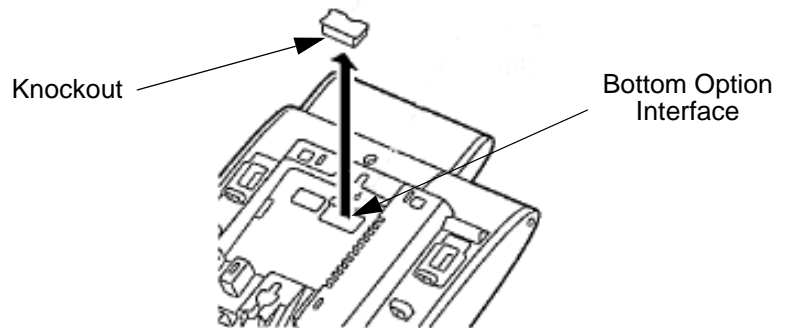
***To prevent possible damage to the APR-L UNIT or the DTL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL multiline terminal.***

1. Unplug the line cord from the multiline terminal.
2. Turn the DTL multiline terminal upside down.
3. Lower the tilt leg to the first position (refer to [Figure 9-55 Separate Tilt Leg from Leg Support](#)).



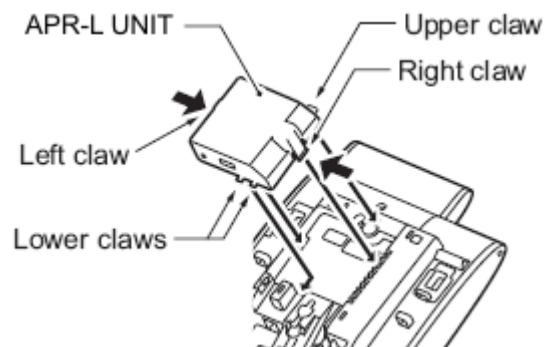
**Figure 9-55 Separate Tilt Leg from Leg Support**

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat to expose APR-L UNIT compartment.
6. Carefully pry loose the knockout covering the bottom option interface (refer to [Figure 9-56 Bottom Option Interface Knockout on page 9-79](#)).



**Figure 9-56 Bottom Option Interface Knockout**

7. Using the exposed Bottom Option Interface as a guide, install the APR-L UNIT in the bottom of the DTL multiline terminal. Push down until left and right tabs are seated (Refer to [Figure 9-57 Install APR-L UNIT](#)).



**Figure 9-57 Install APR-L UNIT**

8. Return tilt leg to original position.
9. For the APR adapter to be recognized correctly, before plugging in the multiline terminal, make sure the extension number to be used for the adapter is undefined in Program 10-03-01.
10. Plug the line cord back into the multiline terminal.



*Before removing the adapter, to avoid any hardware problems, unplug the line cord, then any other adapter cables.*

11. **To determine the APR analog extension number**

**10-03-04 : Optional Installed Unit 1**

Display the type of terminal installed. This can be used to verify that the system recognizes the adapter.

**10-03-06 : Terminal Type (B2)**

Assign the terminal type (12) for the telephone channel, which has the APR Adapter installed.

When you want the APR to use the same extension number as the telephone to which it is attached, remove the terminal type in this option. With this setup, when the analog device is in use, it busies out the terminal as there is no separate port number assigned for the adapter. To reverse this, and allow the APR to have its own extension number, reassign the terminal type (12) in this option.

**10-03-07 : Logical Port Number (B2) Read Only**

The port number of the APR Adapter is displayed for the extension (APR ports = 193~512 with all software through 3.07). The ports are assigned from the highest available port down.

## 12.5 PSA-L (BK) UNIT / PSA-L (WH) UNIT

The PSA-L UNIT (Power Save Adapter), an optional adapter for the ITL/DTL Terminals, is used with IP telephones to make or receive a call using the Public Switched Telephone Network (PSTN) when a call cannot be made or received using the Local Area Network (LAN). When a power failure occurs, the IP telephone is automatically switched to the PSTN. When power is restored, the IP telephone restarts and connects to the network unless a conversation is in progress on PSTN. The PSTN call must be completed by going on-hook before the connection to the LAN is restored. The unit features:

- Survivability in case of power failure or network congestion
- Support on modular terminals (ITL/DTL)
- PSTN Type = analog PSTN
- Dial method – MF/DF (10pps)

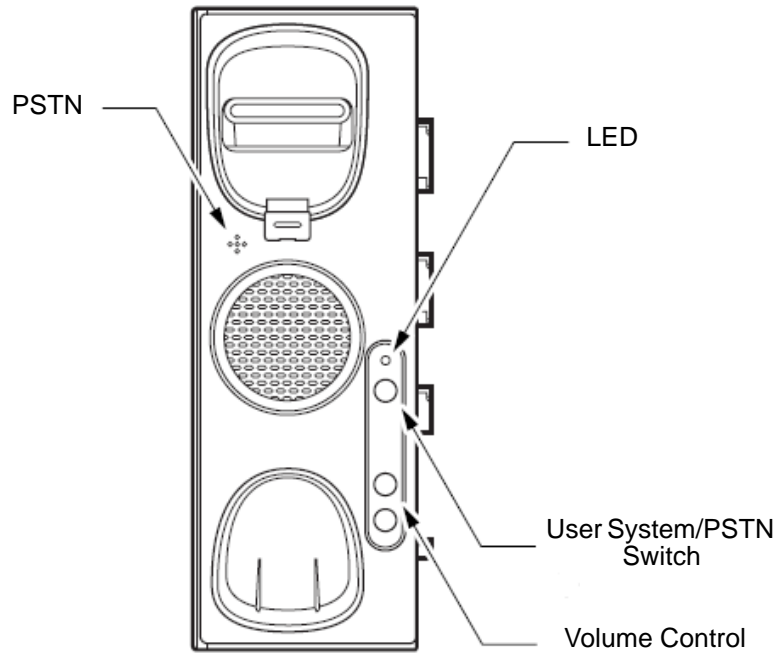


Figure 9-58 PSA-L UNIT

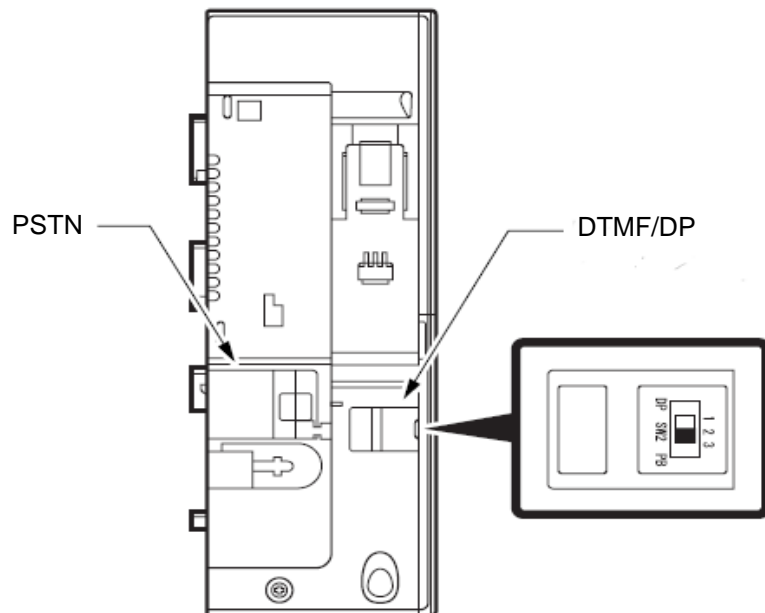


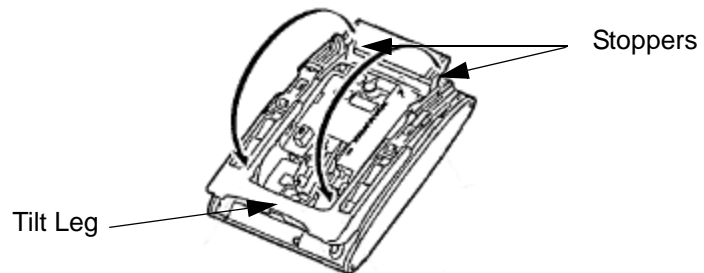
Figure 9-59 PSA-L UNIT Connections

## 12.5.1 Installing the PSA-L Adapter



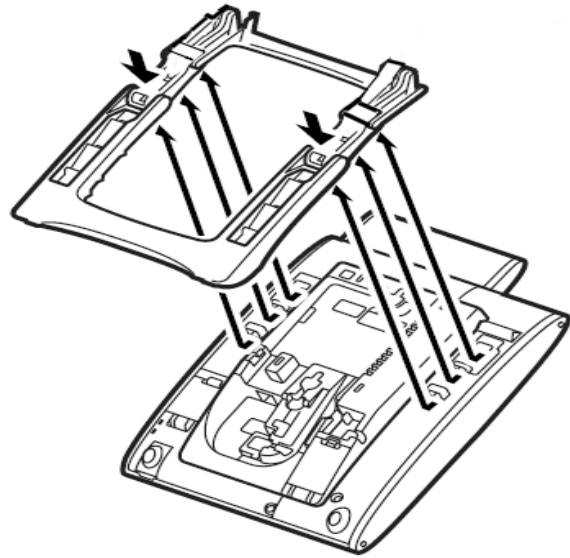
*Before installing or removing the PSA-L adapter, remove the line cord, LAN cable, and then AC adapter from the outlet.*

1. Turn multiline terminal upside down.
2. Unplug the line cord and handset cord from the multiline terminal.
  - ✎ *Only one PSA-L UNIT can be attached to the DTL/ITL multiline terminal.*
3. Lower the tilt leg to the first position (refer to [Figure 9-60 Separate Tilt Leg from Leg Support](#)).



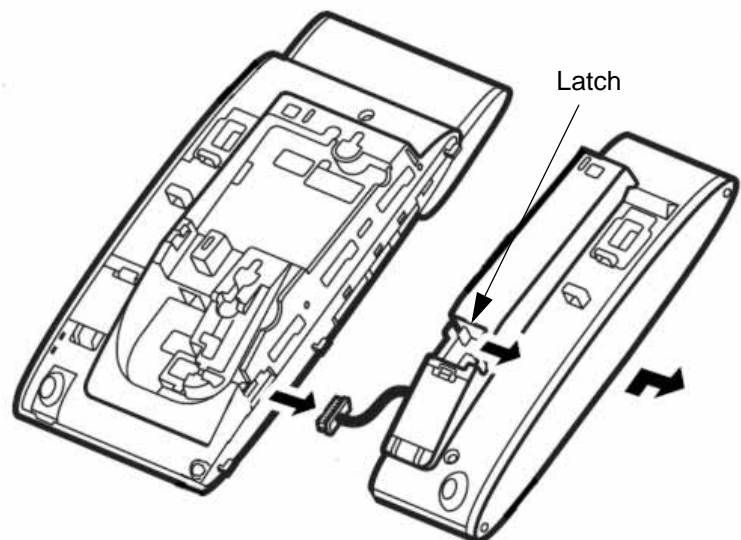
**Figure 9-60 Separate Tilt Leg from Leg Support**

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat.
6. Press the two tabs locking the legs to the multiline terminal and pull the legs toward you, lifting to remove (refer to [Figure 9-61 Remove Legs From Multiline Terminal on page 9-83](#)).



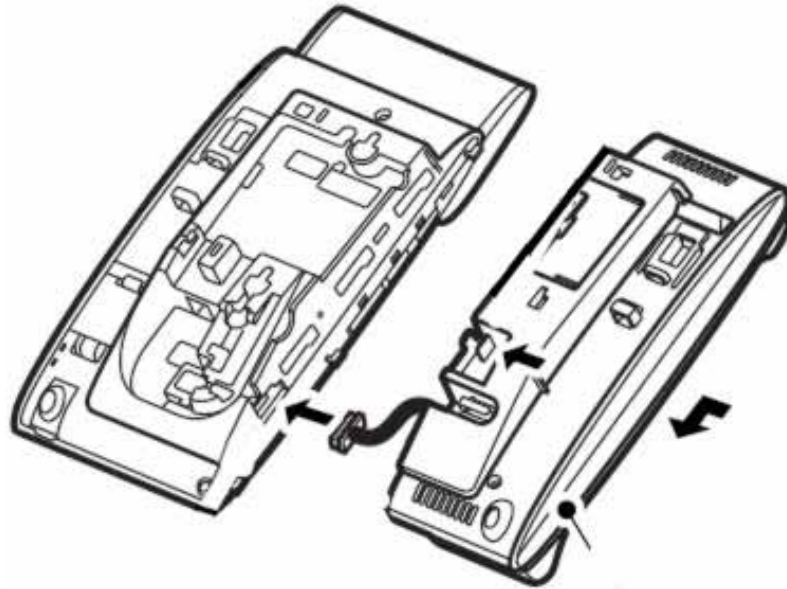
**Figure 9-61 Remove Legs From Multiline Terminal**

7. Disconnect serial connection cord from terminal body. Leave cord connected to the cradle unit.
8. Push latch to right to unlock the cradle unit. Then push the cradle unit forward to separate from the terminal body.



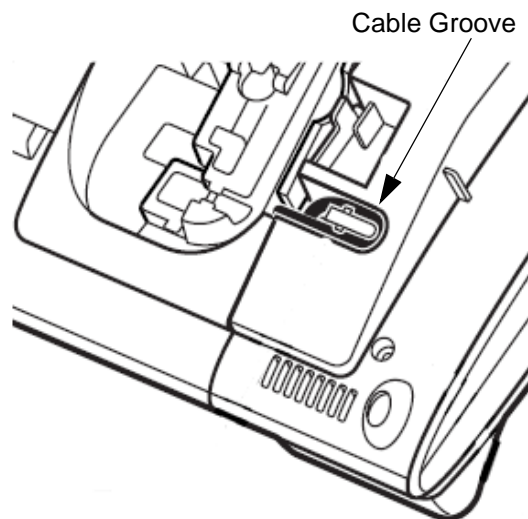
**Figure 9-62 Bottom of Multiline Terminal (Legs Removed)**

9. Fit the projections on the side of the PSA-L UNIT into the guide holes on the side of the terminal and pull toward you until the PSA-L UNIT snaps into place.



**Figure 9-63 Attach PSA-L UNIT to the Multiline Terminal**

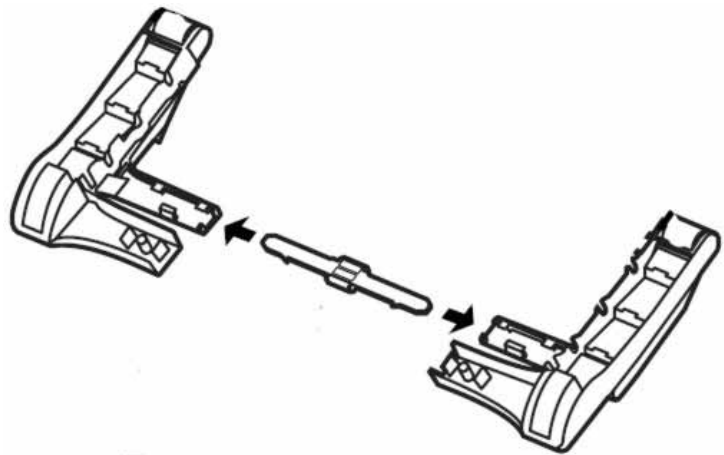
10. Gently press the serial cable into the grooved cutout for the cable.



**Figure 9-64 Grooved Cutout for Serial Cable**

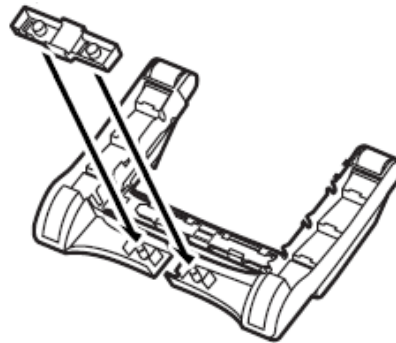


11. Connect the serial connection cord (refer to [Figure 9-63 Attach PSA-L UNIT to the Multiline Terminal on page 9-84](#)) from the PSA-L UNIT to the terminal body.
12. Open the Dip Switch Cover (refer to [Figure 9-59 PSA-L UNIT Connections on page 9-81](#)). Set the dip switch on the PSA-L adapter to the required position. Close the cover.
13. If using the handset, place the stopper in the tilt leg.



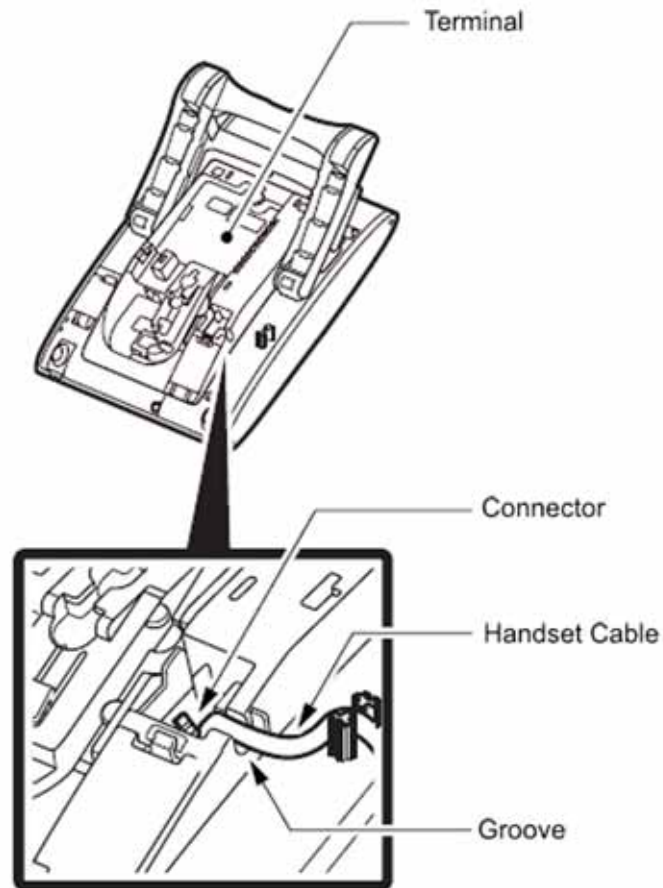
**Figure 9-65 Insert Stopper for Handset Use**

14. For the Handset, set the connector in place.



**Figure 9-66 Insert Connector for Handset Use**

15. If using the handset, install the handset cable (refer to [Figure 9-67 Insert Handset Cable](#)).



**Figure 9-67 Insert Handset Cable**

16. Attach the analog trunk cable and the handset cable. Refer to [Figure 9-59 PSA-L UNIT Connections on page 9-81](#).
17. Install the legs, pushing upwards until both locks snap into place.
18. Return tilt leg to desired position.
19. Place the multiline terminal numbered keypad up.
20. Connect the Line cord, the PSTN cable and the Handset cord (if used).

21. Remove both plastic panels from the front of the multiline terminal.



**Figure 9-68 Remove Plastic Panels**

22. Pull tab down and lift out the numbered keypad panel.



**Figure 9-69 Remove Numbered Keypad**

23. Install the new keypad panel supplied with the PSA-L UNIT.



**Figure 9-70 Install Numbered Keypad**

24. Install both plastic panels to the front of the multiline terminal (refer to [Figure 9-71 Install Plastic Panels](#)).



**Figure 9-71 Install Plastic Panels**

25. Connect the line cord to the adapter.
26. Connect the user system (KTS or PBX) cable.
27. If required, remove the side panel from the original cradle unit.

## 12.5.2 Using the PSA-L Adapter



***CAUTION: Before installing or removing the PSA-L adapter, remove the line cord, LAN cable, and then AC adapter from the outlet.***

### 1. **Placing Calls:**

When the PSTN line is activated either manually by the switch or due to a power failure, use the dial pad buttons (0-9, \*, #) to place an outside call. Use the Vol  $\uparrow$  or  $\downarrow$  to increase or decrease audio levels.

- Other than receiving calls, no other multiline terminal function is available.

### 2. **Answering Calls:**

- If you receive a call via PSTN during a conversation via LAN, answer the call by completing the LAN call and placing the handset back into the cradle. Change the LAN/PSTN Change Switch to PSTN and then lift the handset to answer the call. If you change the LAN/PSTN Change Switch to the PSTN position while talking via LAN, the LAN call is disconnected.

- Other than receiving calls, no other terminal function is available.

### 3. **Adjusting the Ring Volume**

Use the Volume Control Switch located on the PSA-L adapter to adjust through the three available volume levels.

- Other than receiving calls, no other terminal function is available.

### 4. **When Power is Restored**

The IP multiline terminal restarts and reconnects to the network LAN. However, if you are on a PSTN call when the power is restored, your conversation continues until the handset is placed in the cradle. Once this occurs, the IP terminal restarts and reconnects to the LAN.

- Other than receiving calls, no other terminal function is available.

## 12.6 Gigabit Adapter (GBA-L UNIT)

The GBA-L UNIT enables IP telephones (DT730/DT750) to operate in a Gigabit Ethernet environment. A single Gigabit Ethernet desktop drop provides a 10/100Mbps to the IP telephone and a gigabit connection to a personal computer. The Gigabit Adapter is installed on the bottom of the IP telephone and offers a gigabit interface to the LAN side and PC port. The Gigabit Adapter is powered by PoE or can operate off of local power.



Figure 9-72 GBA-L UNIT

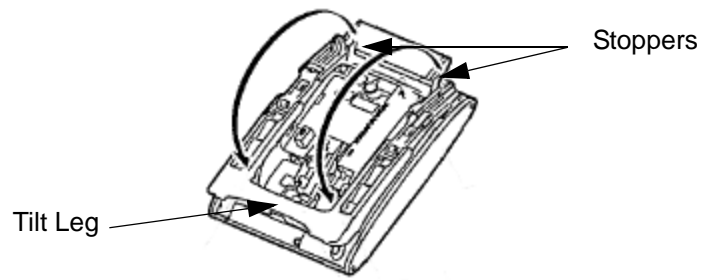
### 12.6.1 Installing the GBA-L UNIT



***Before installing or removing the GBA-L UNIT, remove the line cord, LAN cable, and then AC adapter from the outlet.***

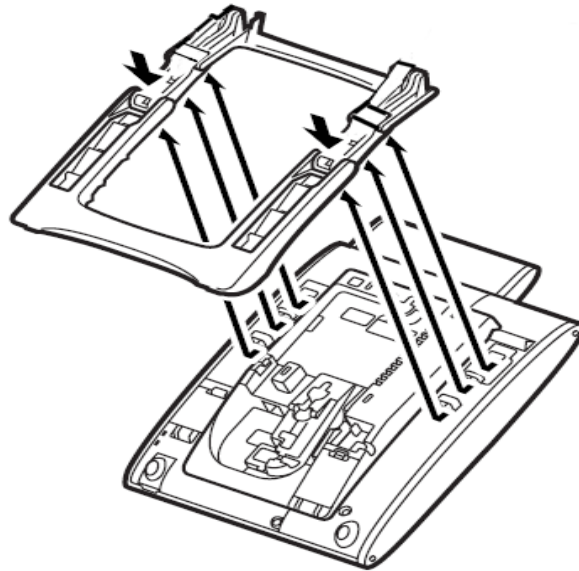
1. Turn multiline terminal upside down.

2. Unplug the line cord and handset cord from the multiline terminal.
  - ✎ *Only one GBA-L UNIT can be attached to the DTL/ITL multiline terminal.*
3. Lower the tilt leg to the first position (refer to [Figure 9-73 Separate Tilt Leg from Leg Support](#)).



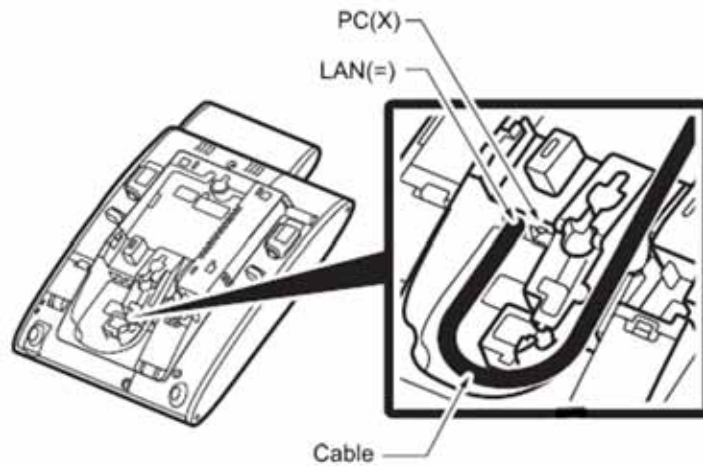
**Figure 9-73 Separate Tilt Leg from Leg Support**

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat.
6. Press the two tabs locking the legs to the multiline terminal and pull the legs toward you, lifting to remove (refer to [Figure 9-74 Remove Legs From Multiline Terminal on page 9-92](#)).



**Figure 9-74 Remove Legs From Multiline Terminal**

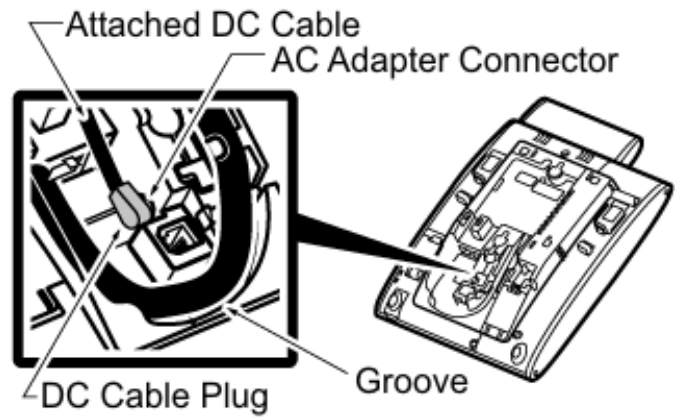
7. Plug in the LAN cable and gently press the cable into the grooved cutout (refer to [Figure 9-75 Attach the LAN Cable](#)).



**Figure 9-75 Attach the LAN Cable**

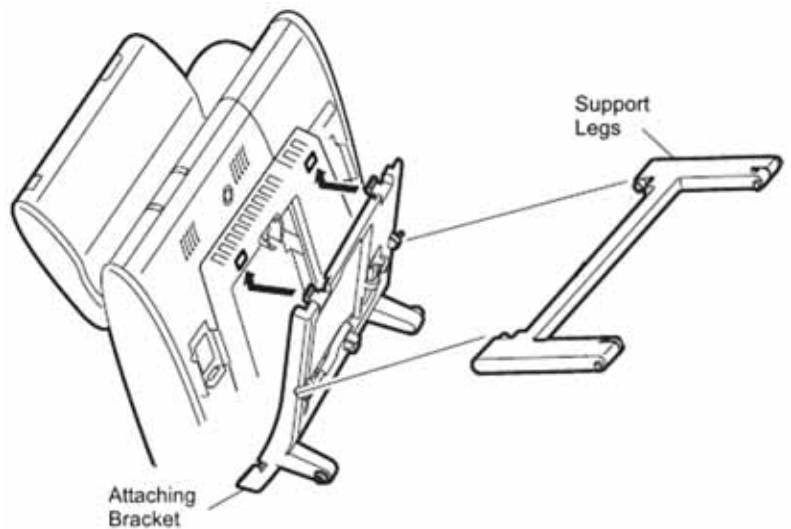


8. Plug in the DC power cable and gently press the cable into the grooved cutout (refer to [Figure 9-76 Attach the DC Power Cable](#)).



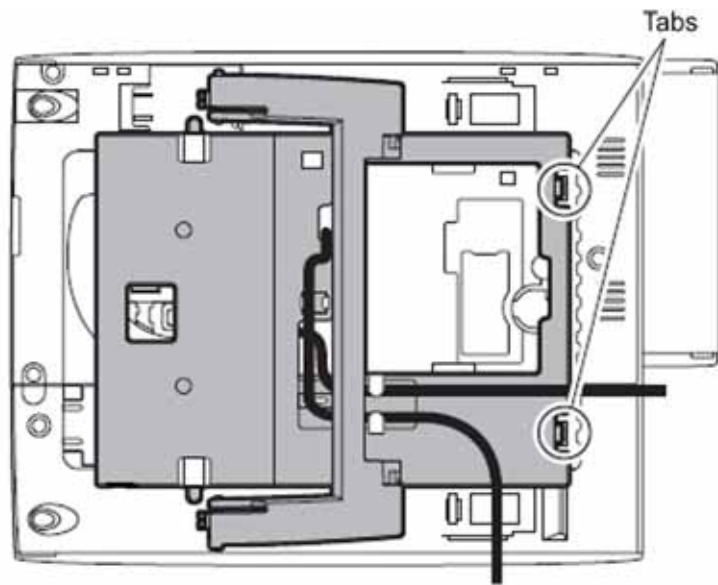
**Figure 9-76 Attach the DC Power Cable**

9. Assemble the legs and bracket then align with tab holes (refer to [Figure 9-77 Align Bracket with Terminal](#)).



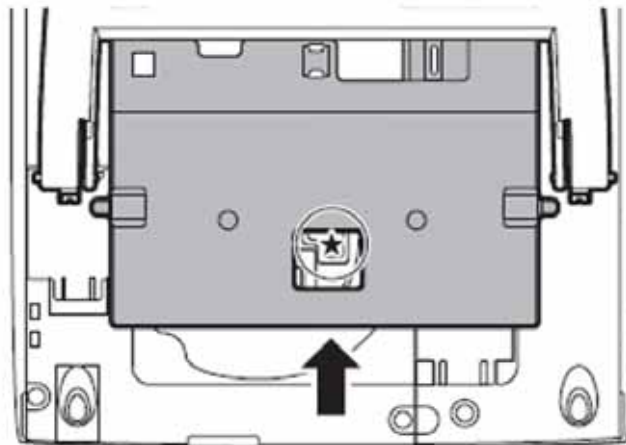
**Figure 9-77 Align Bracket with Terminal**

10. Pass the LAN and DC power cables through the bracket (refer to [Figure 9-78 Pass Cabling Through Bracket](#)).



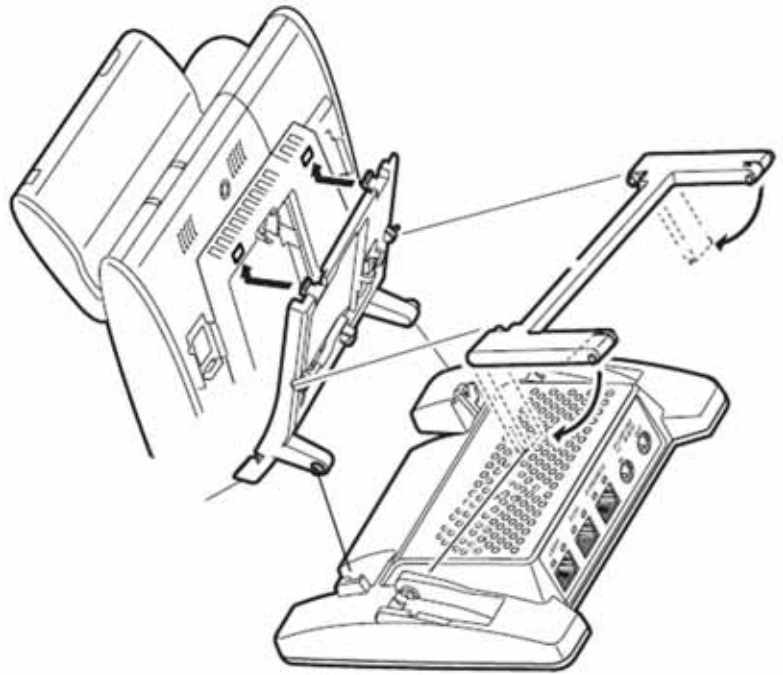
**Figure 9-78 Pass Cabling Through Bracket**

11. Slide the supporting bracket forward until a click is heard (refer to [Figure 9-79 Secure Bracket to Terminal](#)).



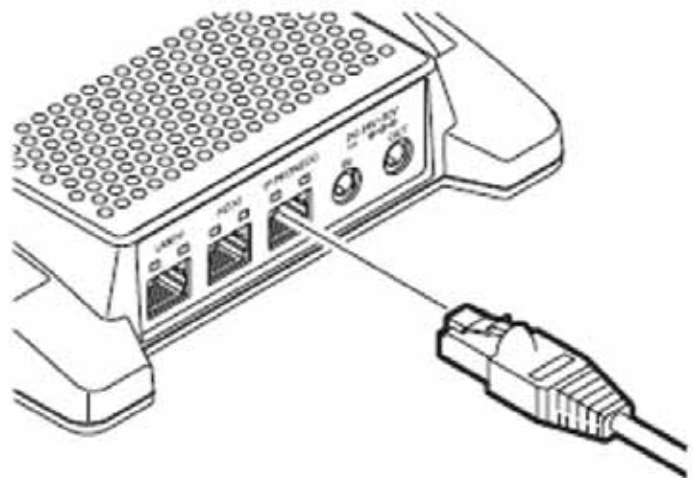
**Figure 9-79 Secure Bracket to Terminal**

- Secure base of GBA-L UNIT to bracket assembly (refer to [Figure 9-80 Secure GBA-L UNIT Base to Bracket Assembly](#)).



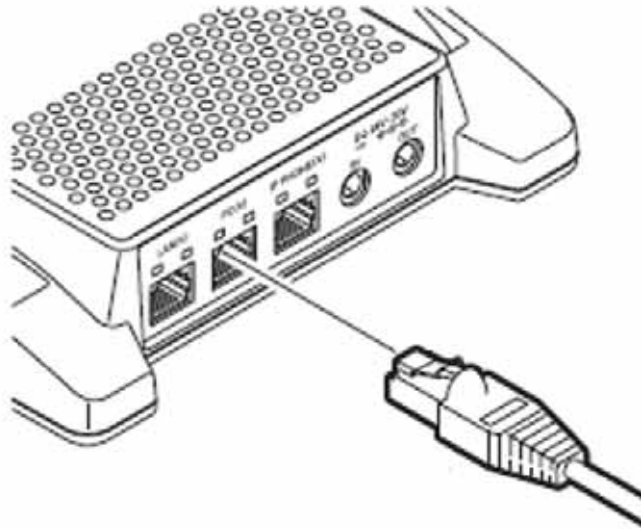
**Figure 9-80 Secure GBA-L UNIT Base to Bracket Assembly**

- Install the NEC provided Cat 5 Ethernet cable (refer to [Figure 9-81 IP Phone\(X\) Connection](#)).



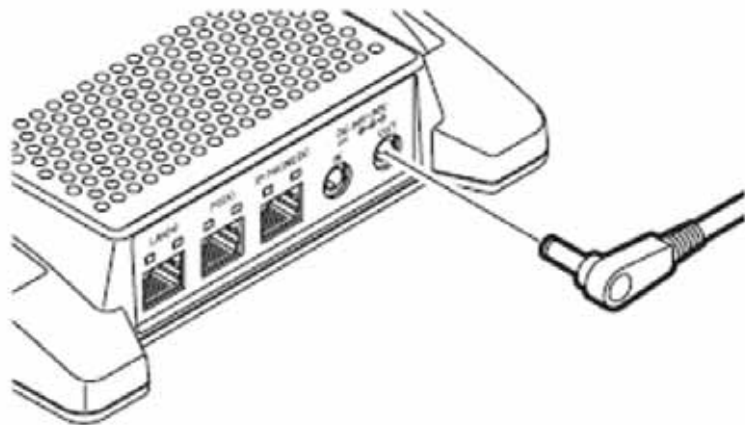
**Figure 9-81 IP Phone(X) Connection**

14. Install the NEC provided Cat 5 Ethernet cable (refer to [Figure 9-82 PC\(X\) Connection](#)).



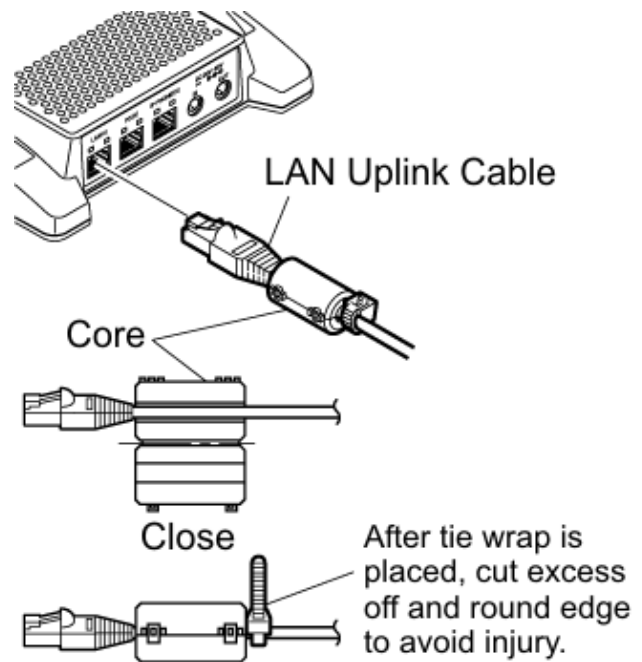
**Figure 9-82 PC(X) Connection**

15. Install the NEC provided power cable (refer to [Figure 9-83 DC Power Connection](#)).



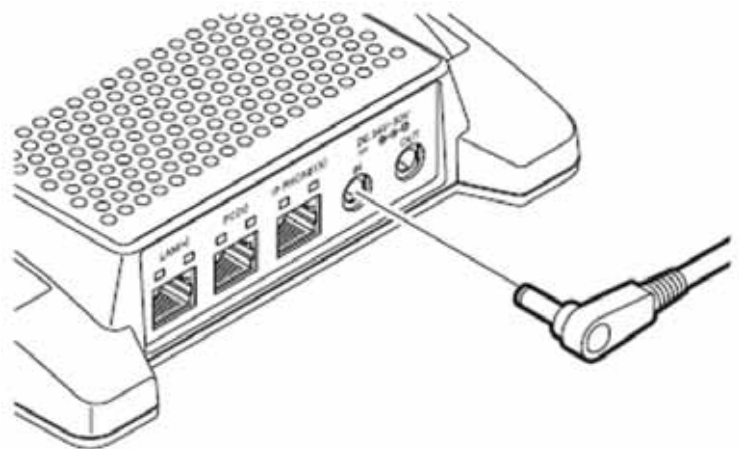
**Figure 9-83 DC Power Connection**

16. Connect the Core then plug in the Network connection cable (refer to [Figure 9-84 LAN\(=\) Connection](#)).



**Figure 9-84 LAN(=) Connection**

17. Install the cable from the optional external AC adapter (refer to [Figure 9-85 AC to DC In Connection](#)).



**Figure 9-85 AC to DC In Connection**

 The AC Adapter (AC-L UNIT) must be ordered separately.

18. Cable installation for the GBA-L UNIT complete (refer to [Figure 9-86 GBA-L UNIT Installed](#)).



**Figure 9-86 GBA-L UNIT Installed**

### 12.6.2 GBA-L UNIT Connection

The following chart outlines the connectivity available to the GBA-L UNIT:

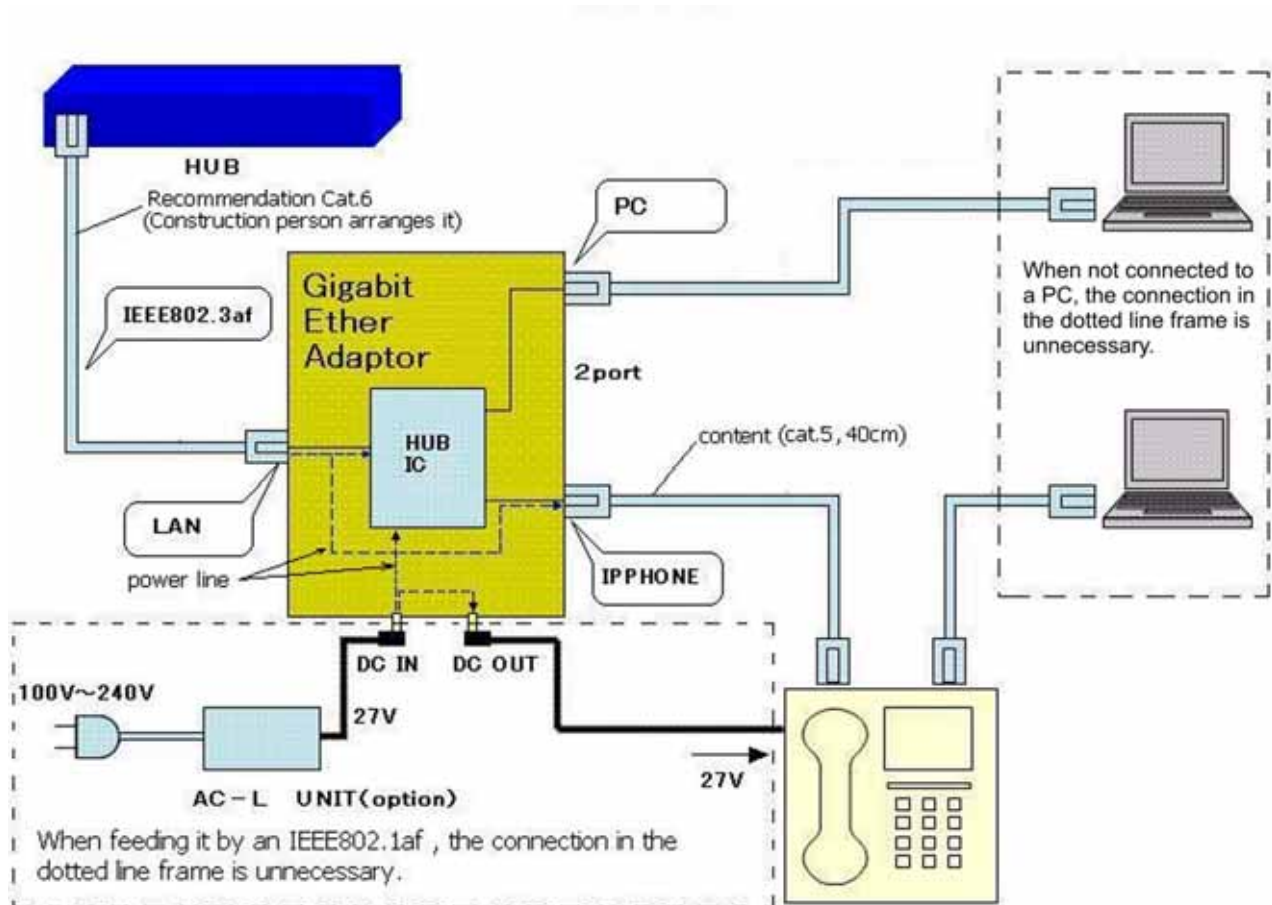


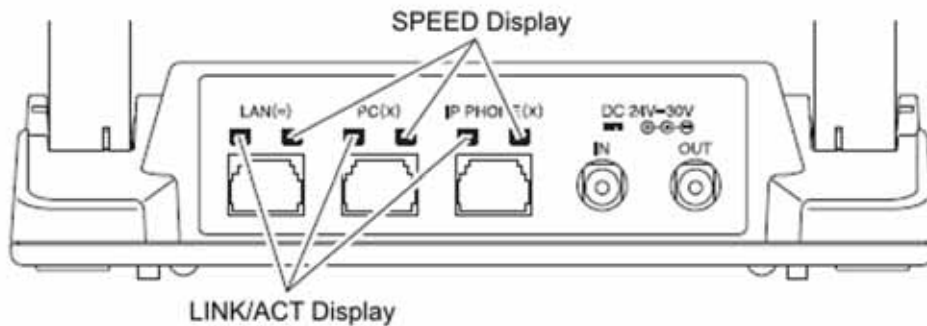
Figure 9-87 GBA-L UNIT Connectivity Chart

### 12.6.3 LED Display

The following provides a list of each LED and associated operation and status indications. Refer to [Figure 9-88 GBA-L UNIT LED Display on page 9-100](#) for the location of the LEDs on the GBA-L UNIT.



LED Name	When 1000Mbps is Connected	When 100Mbps is Connected	When 10Mbps is Connected
SPEED Display	Green Lighting	Red Lighting	Turning Off



LED Name	At LINK	ACT (At the Data Communication)
LINK/ACT Display	Green Lighting	Green Blinking

Figure 9-88 GBA-L UNIT LED Display

## SECTION 13 POWER FAILURE TELEPHONES

### 13.1 Power Failure

The system allows connection for basic telephone service during a power failure. The power failure operation occurs during a commercial power failure, and is not affected by blade failure. Power Failure Transfer is provided by connecting to the CD-4COTB blade.

The CD-4COTB Blade provides 2 Power Failure Transfer circuits.

The CN3 and CN5 connectors each provide connection to four analog trunk ports, **which are polarity sensitive (tip to tip, ring to ring)**. The power failure circuits, however, are not polarity sensitive. A maximum of 15 CD-4COTB blades per system is allowed.

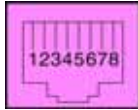




*When connecting the RJ-61 cables to the COIU Blade, note the position of the Power Failure connector. Do not confuse connector CN3 as the CN2 trunk connector.*

## 13.2 Connector Pin-Outs on COIU Blade for Power Failure Circuits

Table 9-5 RJ-61 Cable Connector

RJ-61 Cable Connector - CN13, SLT Interface for Power Failure		
	Pin No.	Connection
	1	–
	2	–
	3	Circuit 2 - Tip
	4	Circuit 1 - Ring
	5	Circuit 1 - Tip
	6	Circuit 2 - Ring
	7	–
	8	–

## 13.3 Installing the Power Failure Telephones

1. Connect an RJ-61 connector to the COIU Blade installed in the system.
2. Install a modular jack for each single line telephone supporting PF operation. The modular jack should be within six feet of the phone.
3. For each extension, run one-pair 24 AWG station cable from the cross-connect block to a modular jack.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack. Refer to [Figure 9-89 Power Failure Connector \(CN3\) Shown on CD-4COTB Blade on page 9-102](#).

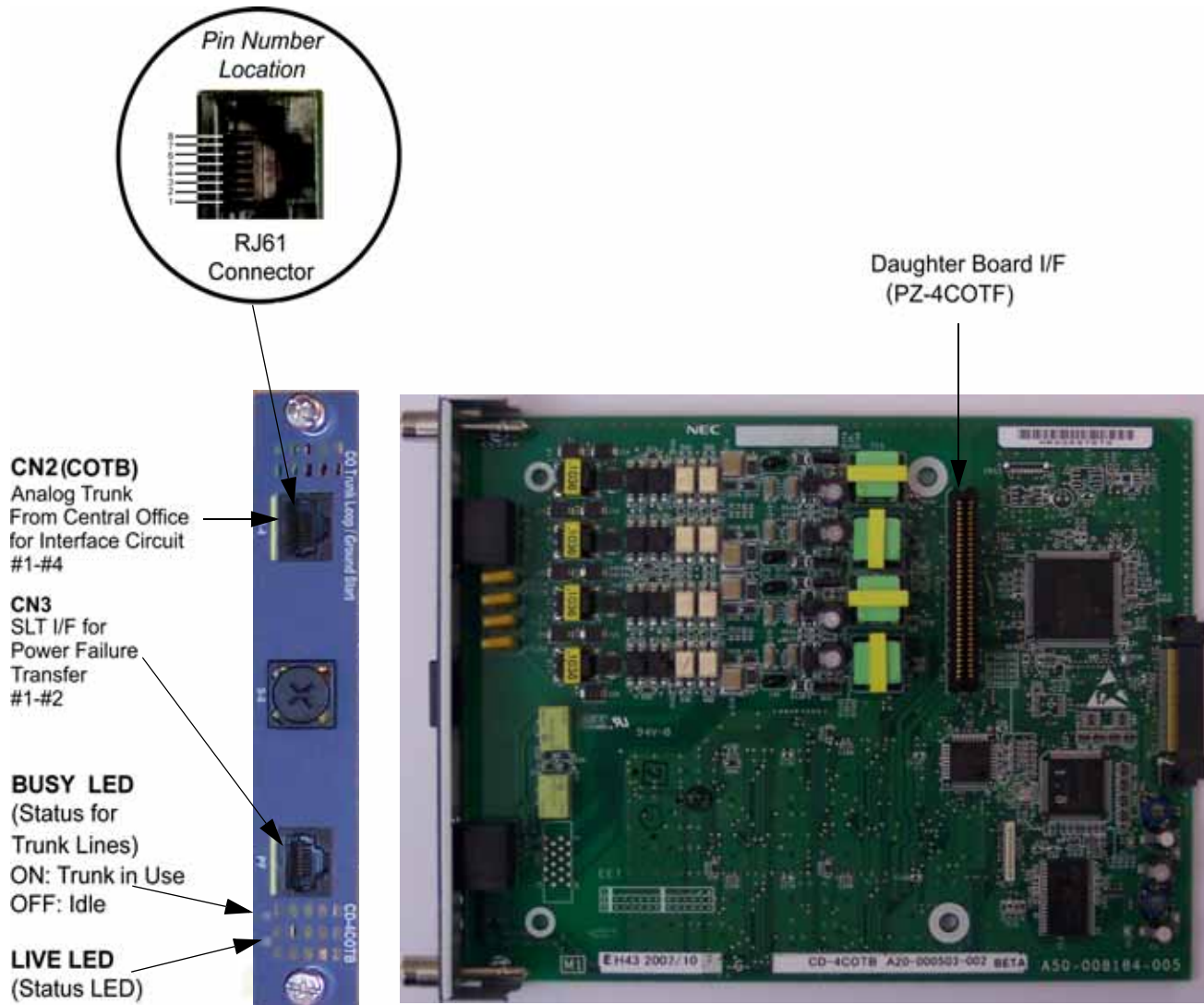


Figure 9-89 Power Failure Connector (CN3) Shown on CD-4COTB Blade

# Installing *D<sup>term</sup>* Series i Telephones

## SECTION 1 GENERAL INFORMATION

The SV8100 system supports several different Electra Elite IPK II *D<sup>term</sup>* Series i multiline terminals and an Attendant Console. This chapter describes each terminal and the console and provides instructions for attaching the terminals to the system and for wall mounting.

The new compact 19" chassis provides 104 total ports (80 digital terminals) and can be expanded, using three additional 19" chassis, for a maximum of 416 ports (320 digital terminals).

Only the DT300/DT700, *D<sup>term</sup>* Series i telephones, single line telephones, cordless telephones and wireless telephones discussed in the document can be installed on the SV8100 system.



*To avoid damage to equipment, do not install the *D<sup>term</sup>*70 on the SV8100 system. The *D<sup>term</sup>*70 (DTU/DTP) terminal uses -24V and has no protection from the -48V power supply used by the SV8100 system.*

## SECTION 2 MULTILINE TERMINALS

### 2.1 DTR-2DT-1 TEL

This digital nondisplay multiline terminal has two programmable line keys (each with a 2-color LED), nine function keys, a built-in speakerphone, and a large LED to indicate incoming calls and messages. This terminal is available in black or white.

This terminal has a built-in data port that is available for analog devices. Each terminal requires a digital port.

 *The DTR-2DT-1 TEL does not support adapters.*



Figure 10-1 DTR-2DT-1 TEL

## 2.2 DTR-4D-1 TEL

This digital display multiline terminal has four multifunction keys, four programmable line keys (each with a 2-color LED), nine function keys, two volume keys, four Softkeys, a built-in speakerphone, and a large LED to indicate incoming calls and messages. This terminal is available in black only.

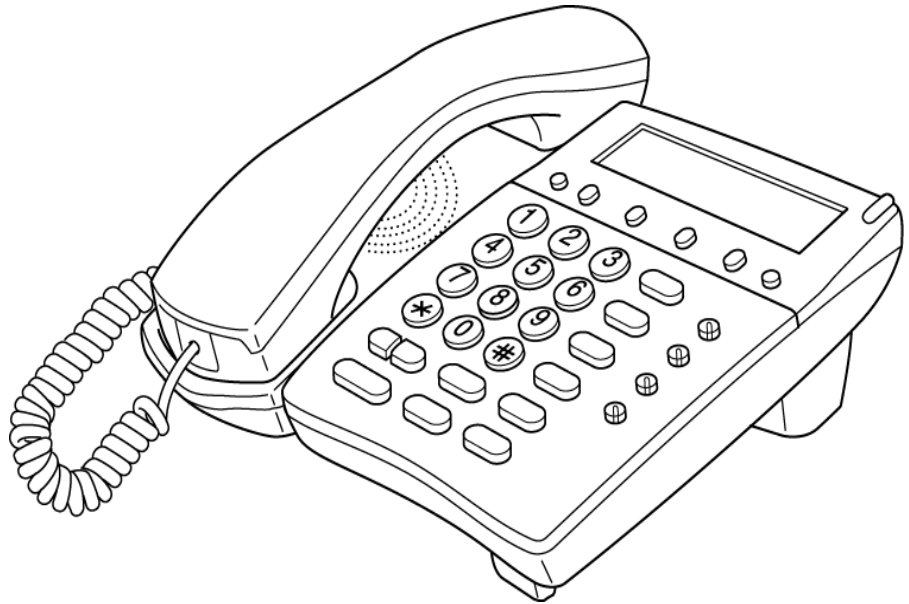


Figure 10-2 DTR-4D-1 TEL

### 2.3 DTH-8-1/2 TEL

This digital nondisplay multiline terminal has eight programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, or HF-R, Unit. This terminal is available in black or white.

The DTR-8-1/2 TEL is similar to the DTH-8-1/2 TEL and can be used also with the SV8100 system.



Figure 10-3 DTH-8-1 TEL Multiline Terminal

## 2.4 DTH-8D-1/2 TEL

This digital multiline terminal has eight programmable line keys (each with the 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four Softkeys.

The DTR-8D-1/2 TEL is similar to the DTH-8D-1/2 TEL and can be used also with the SV8100 system.



Figure 10-4 DTH-8D-1 TEL Multiline Terminal

## 2.5 DTH-16-1/2 TEL

This digital nondisplay multiline terminal has 16 programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, or HF-R, Unit. This terminal is available in black or white.

The DTR-16-1/2 TEL is similar to the DTH-16-1/2 TEL and can be used also with the SV8100 system.



Figure 10-5 DTH-16-1 TEL Multiline Terminal



## 2.6 DTH-16D-1/2 TEL

This digital multiline terminal has 16 programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four Softkeys.

The DTR-16D-1/2 TEL is similar to the DTH-16D-1/2 TEL and can be used also with the SV8100 system.



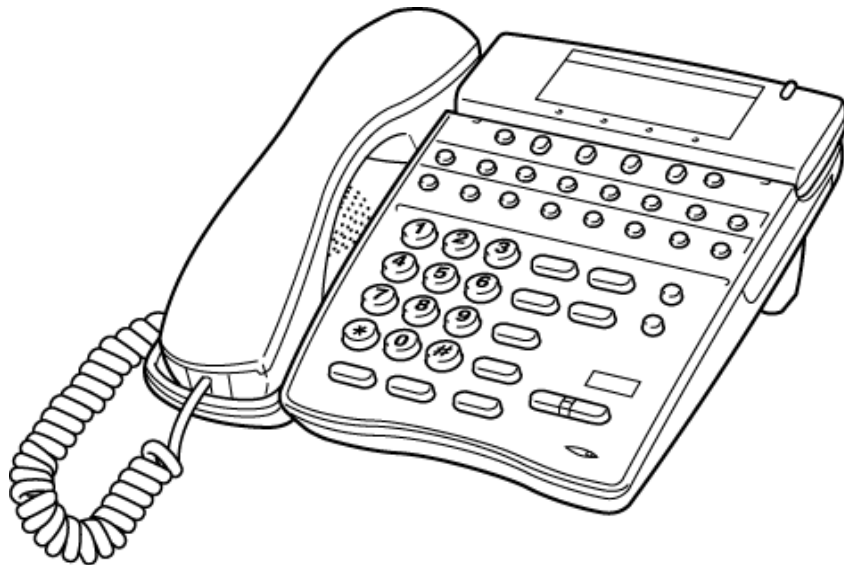
Figure 10-6 DTH-16D-1 TEL Multiline Terminal

## 2.7 DTH-16(BL)-1/2 TEL

This digital multiline terminal has 16 programmable line keys (each with a 2-color LED), a built-in half-duplex speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Back-Lighted (BL) Liquid Crystal Display (LCD) and four Softkeys.

The DTR-16(BL)-1/2 TEL is similar to the DTH-16(BL)-1/2 TEL and can be also used with the SV8100 system.



**Figure 10-7 DTH-16(BL)-1 TEL Multiline Terminal**

## 2.8 DTH-16LD-1/2 TEL

This digital multiline terminal has 16 programmable line keys, a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four Softkeys.

This terminal is equipped with two additional 8-character LCDs. These can be programmed to identify the line key designations.

The DTR-16LD-1/2 TEL is similar to the DTH-16LD-1/2 TEL and can be used also with the SV8100 system.



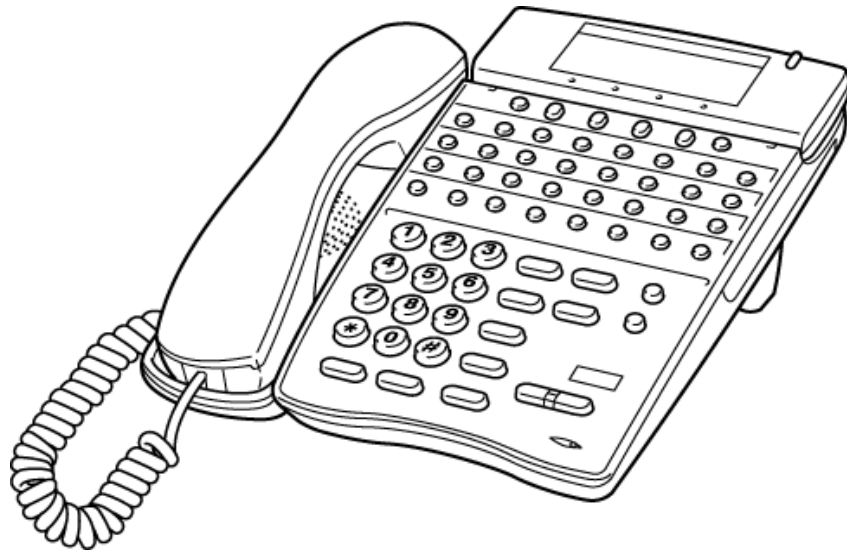
Figure 10-8 DTH-16LD-1 TEL Multiline Terminal

## 2.9 DTH-32D-1 TEL

This digital multiline terminal has 32 programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four Softkeys.

The DTR-32D-1 TEL is similar to the DTH-32D-1 TEL and can be used also with the SV8100 system.



**Figure 10-9 DTH-32D-1 TEL Multiline Terminal**

## 2.10 DCR-60-1( ) Console

The Attendant Console has 115 programmable line keys (each with a 2-color LED). An AC adapter is required and provided with the Attendant Console.

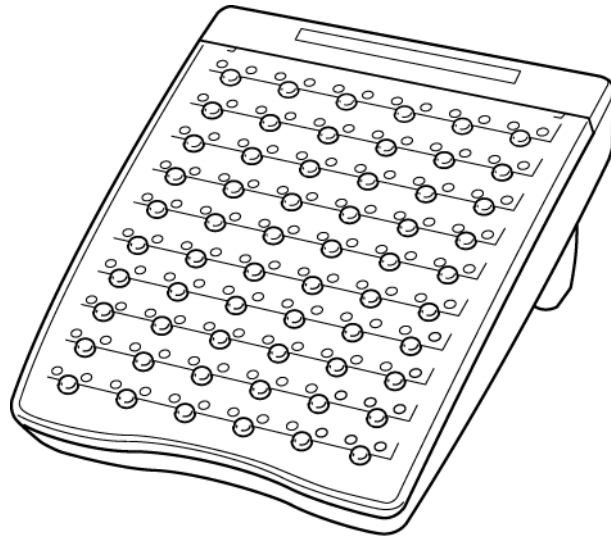
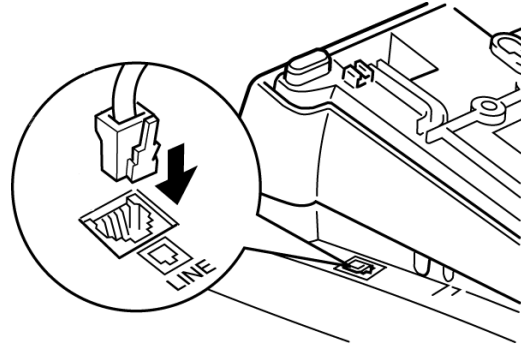


Figure 10-10 DCR-60-1( ) Console

### SECTION 3 CONNECTING A MULTILINE TERMINAL TO THE SYSTEM

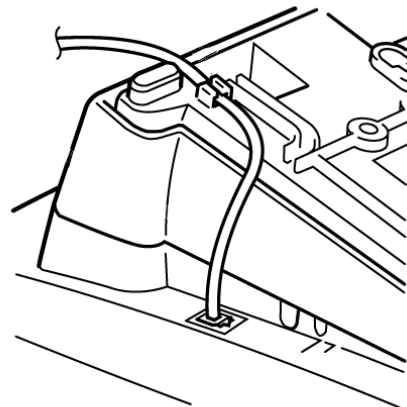
This instruction applies to all DTH/DTR/IP Electra Elite IPK multiline terminals except DTR-2DT-1 TEL.

1. Plug the telephone cord into the modular jack on the bottom side of the multiline terminal. The handset is also attached to the bottom side of the multiline terminal.



**Figure 10-11 Connecting a Multiline Terminal to the System**

2. Lead the telephone and handset cords through the applicable grooves.

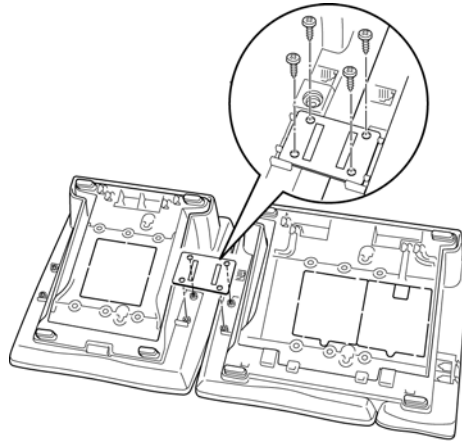


**Figure 10-12 Leading Line Cords on a Multiline Terminal**

## SECTION 4 CONNECTING THE ATTENDANT CONSOLE TO A MULTILINE TERMINAL

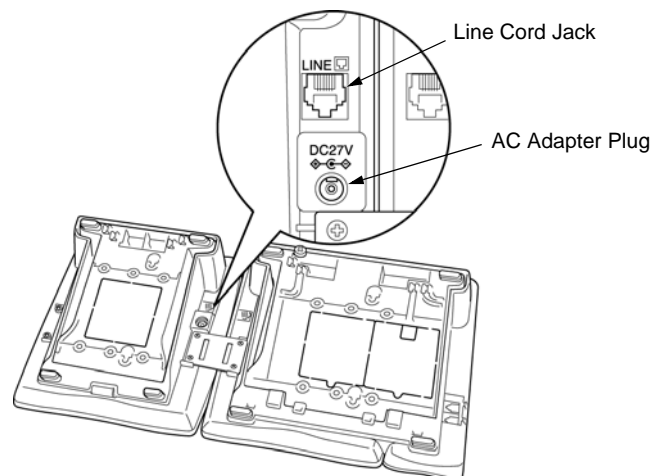
An Attendant DCR-60-1 Console can be attached to a multiline terminal using the following procedure.

1. Place the multiline terminal and the Attendant Console face down.
2. Using the joining plate provided with the Attendant Console, attach the plate to the multiline terminal and the Attendant Console.




**Figure 10-13 Connecting the DCR Console to a Multiline Terminal**

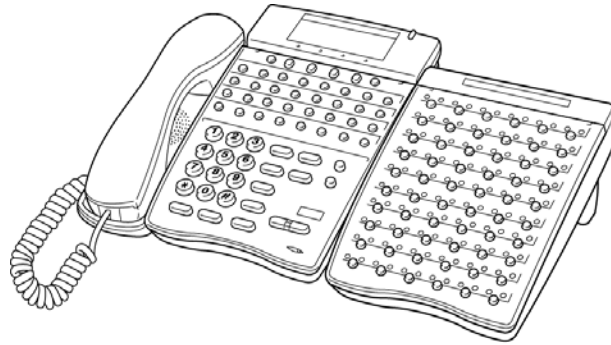
3. Connect the line cord and the AC adapter to the indicated locations on the bottom of the Attendant Console.



**Figure 10-14 Connecting the Line Cord and AC Adapter when Installing a DCR Attendant Console**

4. When the Attendant Console and the multiline terminal are properly connected, they sit side-by-side as shown in [Figure 10-15 Attendant Console and Multiline Terminal](#).

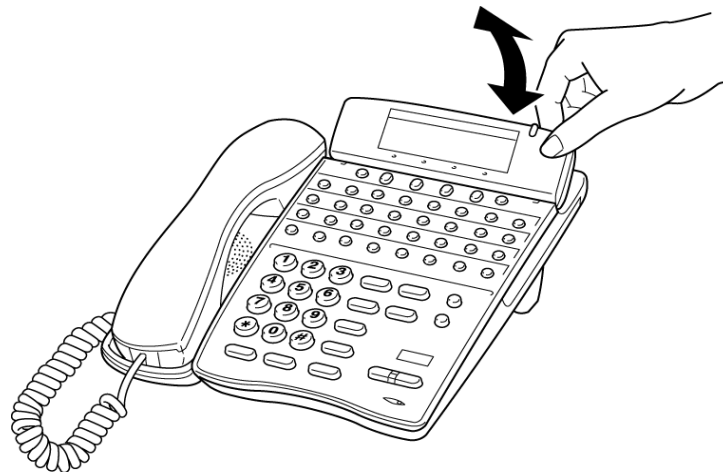
 Use only the AC adapter, provided with the Attendant Console. Using a different AC adapter may cause problems. Check that the supplied voltage matches that specified for the adapter and plug it in an outlet.



**Figure 10-15 Attendant Console and Multiline Terminal**

## SECTION 5 ADJUSTING THE LCD ON A MULTILINE TERMINAL

The SV8100 display multiline terminals have an adjustable Liquid Crystal Display (LCD). The LCD can be adjusted by pulling up or pushing down as desired.



**Figure 10-16 Adjusting the LCD on a Multiline Terminal**




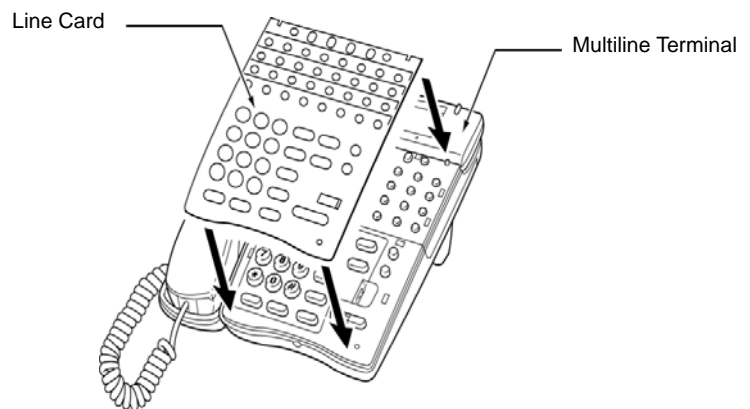
## SECTION 6 INSTALLING LINE CARDS AND PLASTIC PANELS

### 6.1 Installing the Line Card and Plastic Panel

Line key designations are entered on the line card that is then placed on the telephone to provide a quick reference of key designations. The line cards can be changed as necessary. The plastic panel is placed on top of the line card to hold it in place.

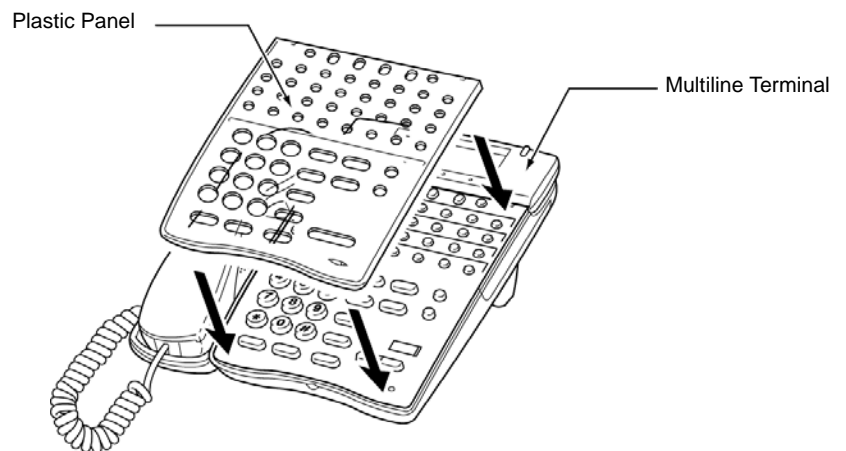
1. Place the line card over the keys on the multiline terminal.

 When replacing an existing plastic panel or line card refer to [6.2 Removing the Plastic Panel on page 10-16](#).



**Figure 10-17 Installing Line Card and Plastic Panel on a Multiline Terminal**

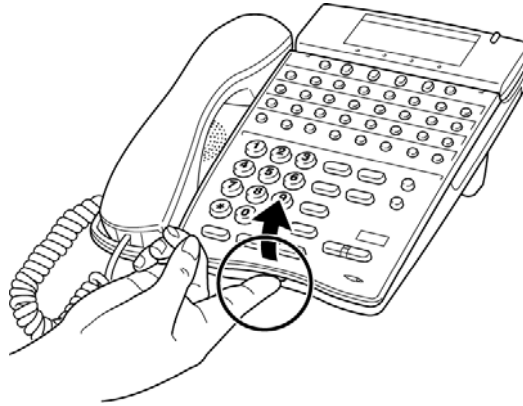
2. Place the plastic panel over the line card and push the corners of the plastic panel until they click into place.



**Figure 10-18 Installing Plastic Panel on a DTH/DTR Multiline Terminal**

## 6.2 Removing the Plastic Panel

Lift up on the plastic panel as illustrated in [Figure 10-19 Removing the Plastic Panel from the Multiline Terminal](#) and remove it from the telephone.

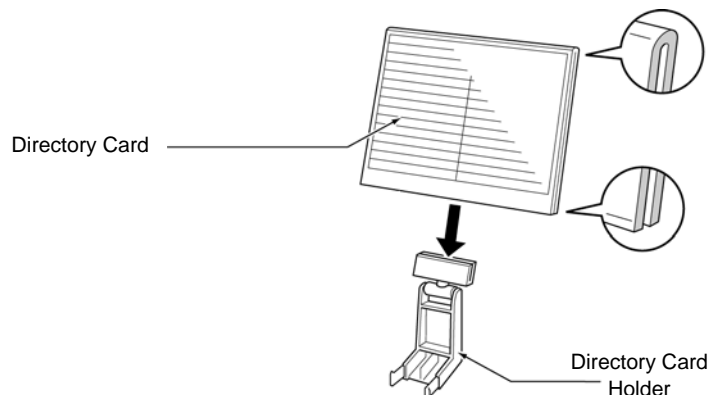


**Figure 10-19 Removing the Plastic Panel from the Multiline Terminal**

## SECTION 7 INSTALLING A DIRECTORY CARD ON A MULTILINE TERMINAL


A directory card can be attached to DTH/DTR/ITH multiline terminals. The directory card can be used to record often dialed numbers or other important information.

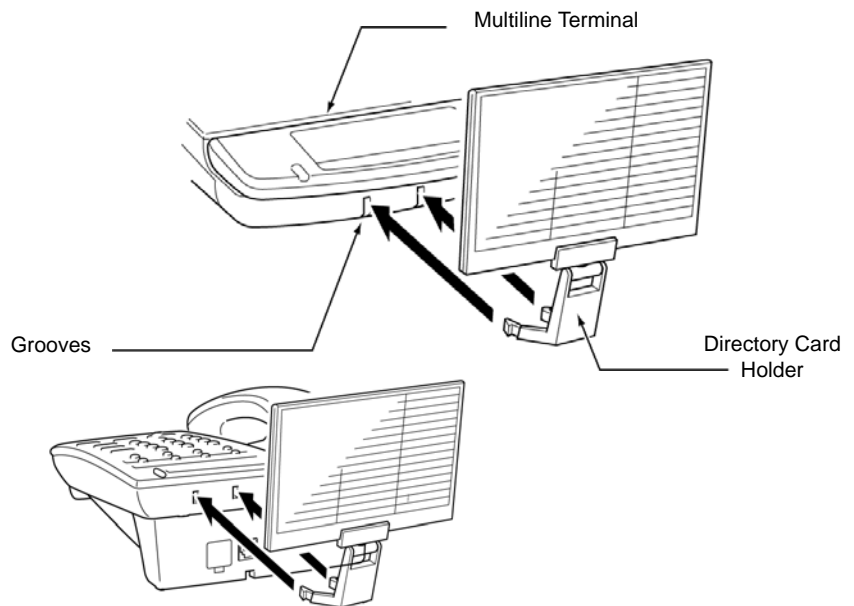
1. After recording the information on the lined insert, reinsert it between the plastic panels of the directory card. Attach the directory card to the directory card holder as illustrated in [Figure 10-20 Attaching Directory Card to Directory Card Holder](#). Note that the open end slides into the directory card holder.



**Figure 10-20 Attaching Directory Card to Directory Card Holder**

2. Locate the two grooves on the top of the multiline terminal as illustrated in [Figure 10-21 Attaching Directory Card Holder to the Multiline Terminal](#). Push the directory card holder into the grooves on the multiline terminal until they snap into place.

 *To remove the directory card, press the two sides of the directory card holder inward until the tabs release and pull the holder out of the grooves.*

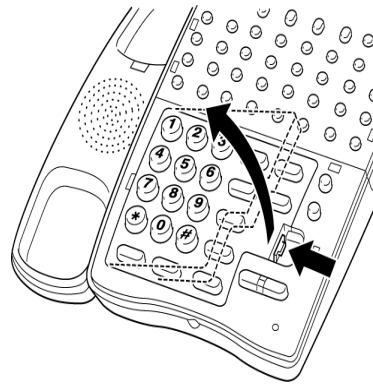


**Figure 10-21 Attaching Directory Card Holder to the Multiline Terminal**

## SECTION 8 INSTALLING A BUTTON SET ON A MULTILINE TERMINAL

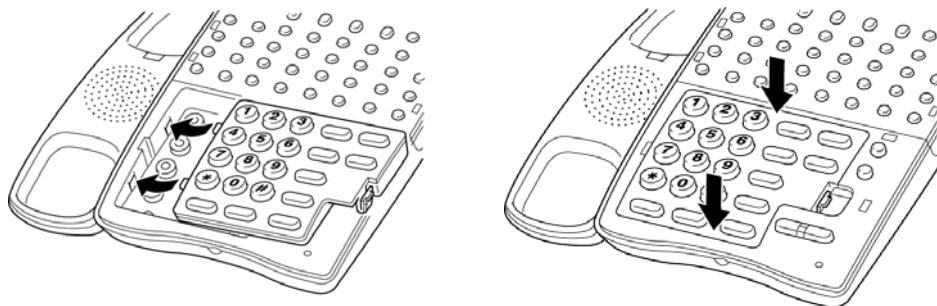
The BS( )-R Unit button set can be installed on a multiline terminal to accommodate French and Spanish languages. The keypad provides the appropriate language designations.

1. Remove the plastic cover. (Refer to paragraph [6.2 Removing the Plastic Panel on page 10-16.](#))
2. Pull up on the tab and lift the button pad away from the telephone to remove the existing button.



**Figure 10-22 Removing the Button Set from a Multiline Terminal**

3. Slide the new button set into the grooves located on the inside of the telephone, then press down on the button set to snap it into place.



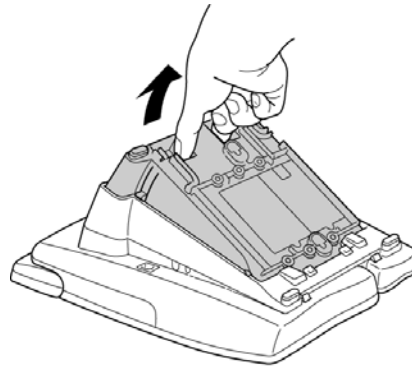
**Figure 10-23 Inserting a New Button Set into a Multiline Terminal**

4. Insert the line card and plastic panel on the multiline terminal.

## SECTION 9 ADJUSTING THE HEIGHT ON A MULTILINE TERMINAL

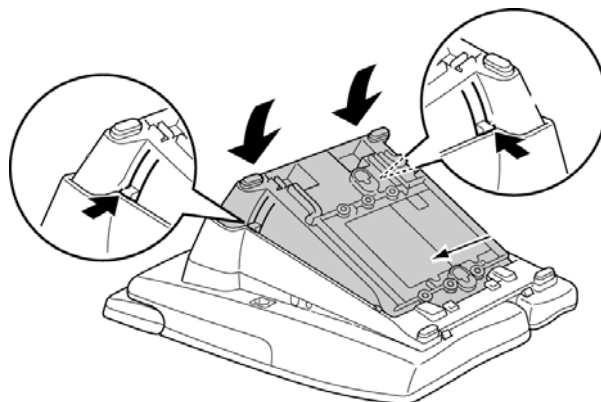
The base plate on the multiline terminal is hinged to allow the height of the terminal to be raised or lowered.

1. Grasp in the middle of the hollow spaces at the top and pull up until the retaining tabs click to raise the base plate. Refer to [Figure 10-24 Raising the Height on the DTH/DTR Multiline Terminal](#).



**Figure 10-24 Raising the Height on the DTH/DTR Multiline Terminal**

2. After the height is adjusted, pull the line cord through the groove in the bottom of the multiline terminal and adjust it.
3. Push on the adjustment tabs on the side of the stand and push down to lower the base plate. Refer to [Figure 10-25 Lowering the Base Plate on the Multiline Terminal](#).



**Figure 10-25 Lowering the Base Plate on the Multiline Terminal**

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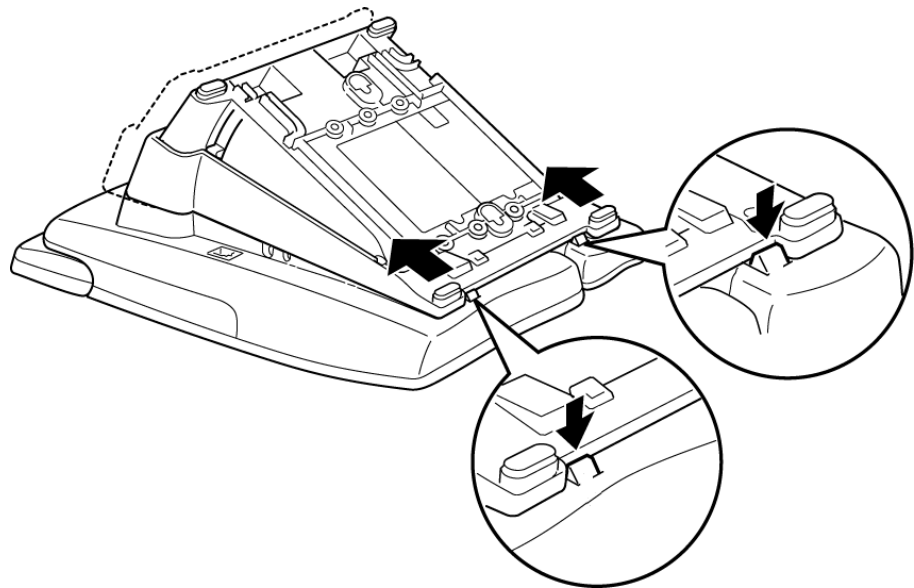
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## SECTION 10 REMOVING OR INSTALLING THE BASE PLATE ON A MULTILINE TERMINAL

DTH/DTR multiline terminals come equipped with a base cover.

### 10.1 Removing the Base Plate

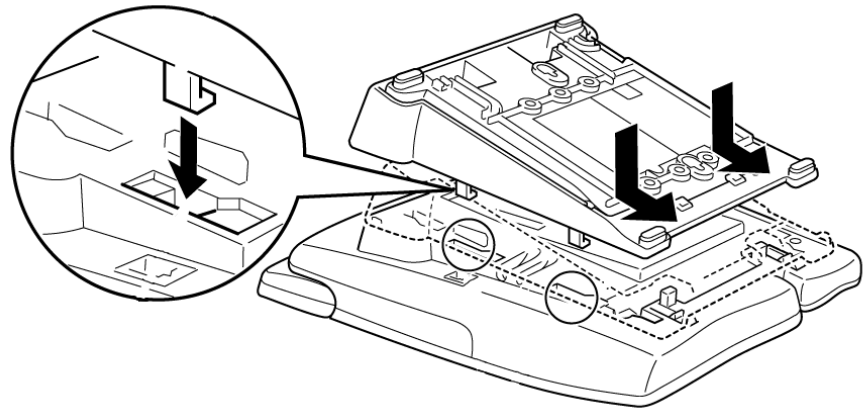
1. Extend the base plate to maximum height.
2. Press the tabs as illustrated in [Figure 10-26 Removing Base Plate](#), and slide the base cover in the direction of the arrows until it clicks.



**Figure 10-26 Removing Base Plate**

## 10.2 Installing the Base Plate

1. Line up the four tabs on the extended base cover with corresponding slots on the multiline terminal as illustrated in [Figure 10-27 Installing Base Plate](#).
2. Slide the cover in the direction of the arrows until it clicks in place.



**Figure 10-27 Installing Base Plate**

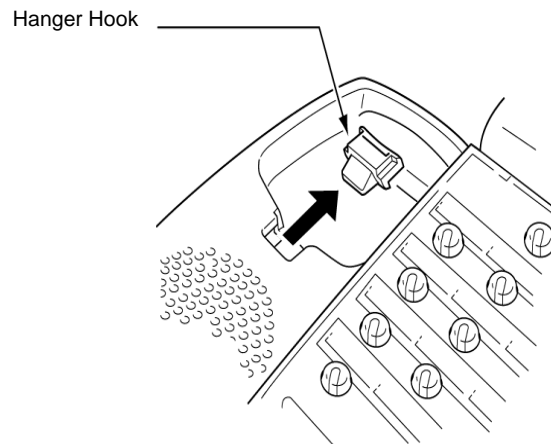
## SECTION 11 WALL MOUNTING MULTILINE TERMINALS

You can wall mount a DTH/DTR connection multiline terminal (except for DTR-2D-1 TEL) using the base cover or an optional wall mount unit. A wall mount unit must be used if adapters are installed on the multiline terminal.

### 11.1 Wall Mounting a Multiline Terminal using the Base Plate

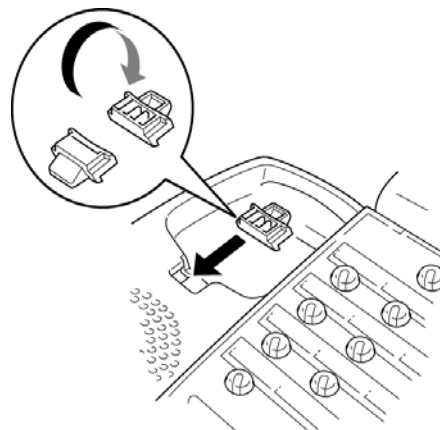
#### 11.1.1 Adjusting the Hanger Hook

1. Remove the hook from the unit.



**Figure 10-28 Removing the Hanger Hook on a Multiline Terminal**

2. Turn the hook with the tab toward the top.
3. Slide the hook until it glides into position forming the hanger hook for the handset.

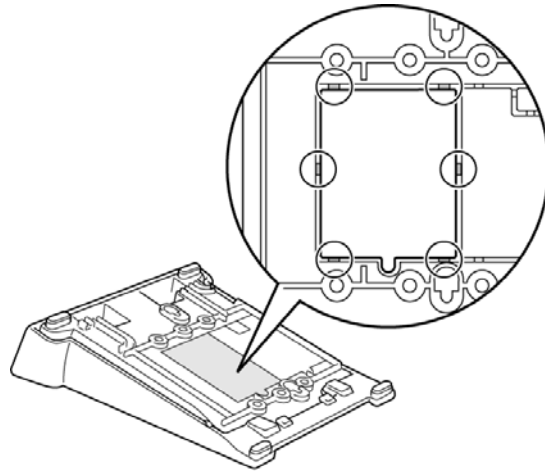


**Figure 10-29 Sliding the Hanger Hook into Position**



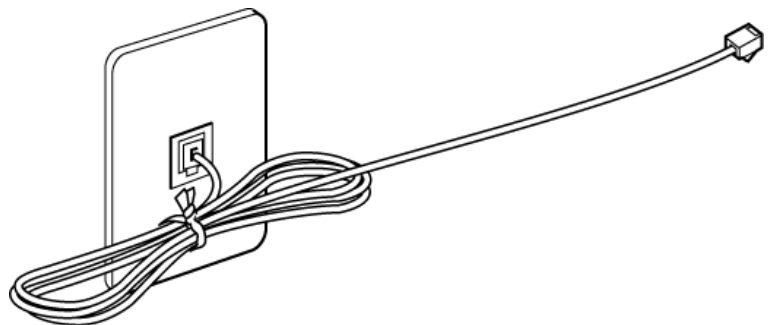
### 11.1.2 Wall Mounting the Multiline Terminal

1. Extend and remove the base cover from the telephone. Refer to [Section 10 Removing or Installing the Base Plate on a Multiline Terminal](#).
2. Remove cutout shown in [Figure 10-30 Removing the Cutout](#).



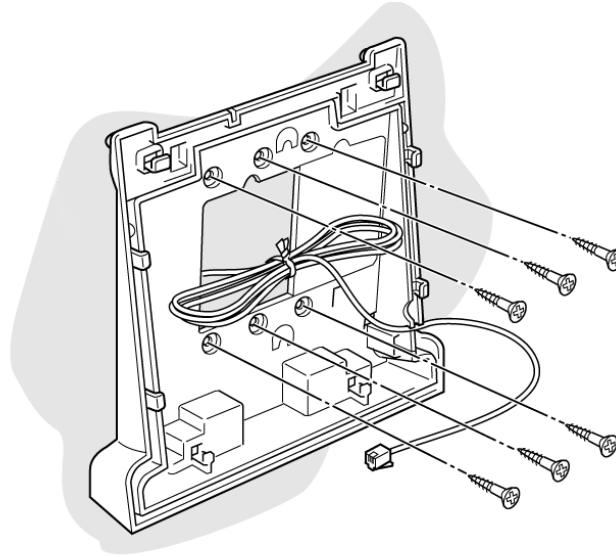
**Figure 10-30 Removing the Cutout**

3. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest as shown in [Figure 10-31 Bundling the Line Cord](#).



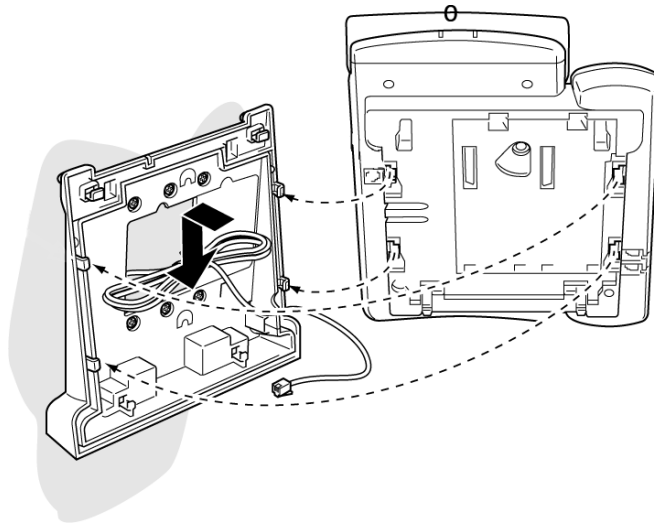
**Figure 10-31 Bundling the Line Cord**

4. Turn the base cover upside down, feed the line cord through the cutout and attach the cover to the wall using six screws as shown in [Figure 10-32 Wall Mounting the Base Plate](#).



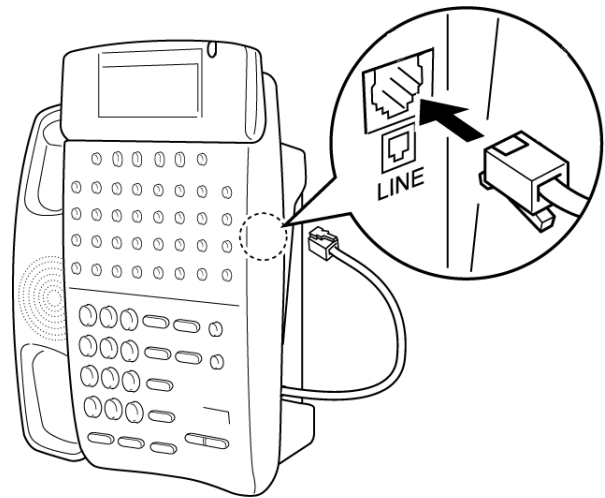
**Figure 10-32 Wall Mounting the Base Plate**

5. Install the multiline terminal over the four tabs on the base cover, and push down until it clicks in place.



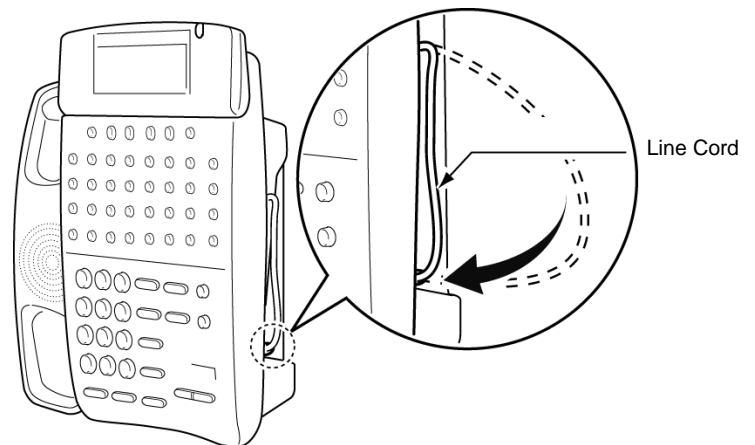
**Figure 10-33 Installing the Multiline Terminal**

6. Plug the line cord into the multiline terminal as illustrated in [Figure 10-34 Plugging Line Cord into Multiline Terminal](#).



**Figure 10-34 Plugging Line Cord into Multiline Terminal**

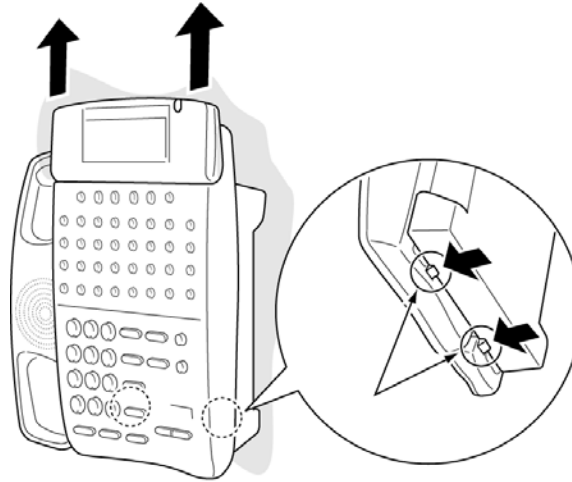
7. Push spare line cord behind the multiline terminal as shown in [Figure 10-35 Hiding Excess Cord](#).



**Figure 10-35 Hiding Excess Cord**

### 11.1.3 Removing the Wall Mounted Multiline Terminal from the Base Plate

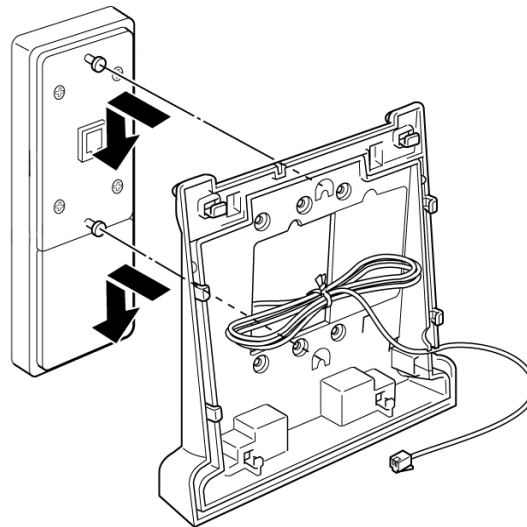
To remove the multiline terminal, press the tabs at the bottom as shown in [Figure 10-36 Removing the Multiline Terminal](#), and push up on the Telephone until it comes loose.



**Figure 10-36 Removing the Multiline Terminal**

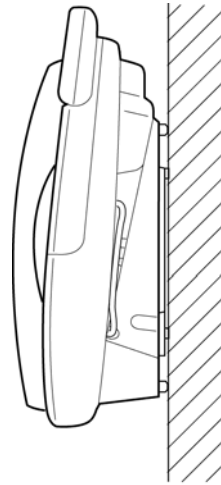
### 11.1.4 Wall Mounting the Base Plate on a Wall Plate

1. Locate the screw holes on the base cover and hang the cover over the screws on the wall plate as illustrated in [Figure 10-37 Wall Mounting Base Plate on a Wall Plate](#).




**Figure 10-37 Wall Mounting Base Plate on a Wall Plate**

2. Hang the multiline terminal on the base cover.



**Figure 10-38 Wall Mounted Multiline Terminal**

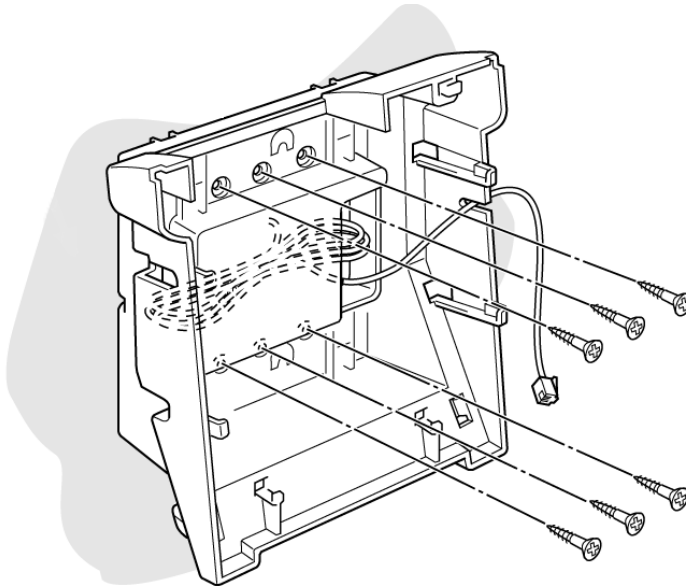
 *Because of variation in wall plates, this method is not recommended.*

## SECTION 12 WALL MOUNTING A MULTILINE TERMINAL USING THE WALL MOUNT UNIT (WM-R UNIT)

The Wall Mount Unit is used to attach any DTH/DTR connection multiline terminal (except the DTR-2DT-1 TEL) to the wall. This unit connects to the back side of the telephone.

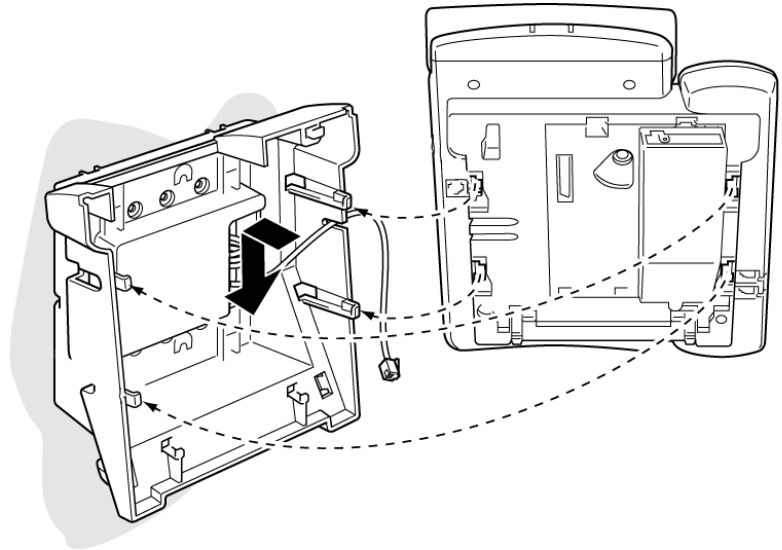
When adapters are used, the multiline terminal must be installed on the wall using the WM-R Unit.

1. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest.
2. Feed the line cord through the opening in the wall mount unit as illustrated in [Figure 10-39 Attaching the Wall Mount Unit to the Wall](#).
3. Attach the WM-R Unit using six screws.



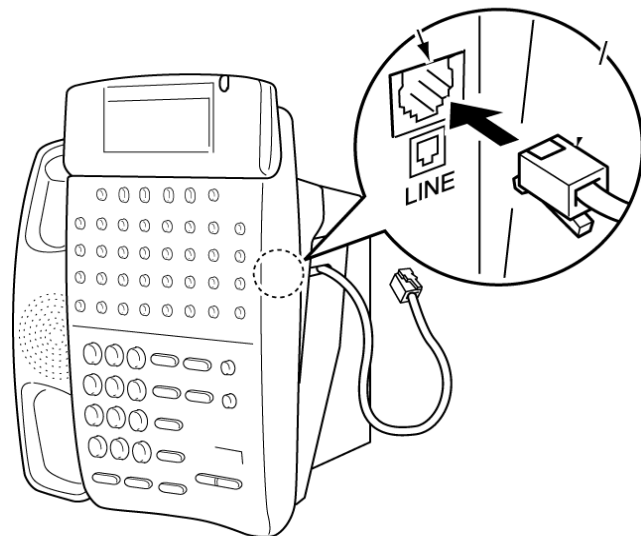
**Figure 10-39 Attaching the Wall Mount Unit to the Wall**

4. Install the multiline terminal over the four tabs on the base cover, and push down until it clicks in place as illustrated in [Figure 10-40 Attaching the Multiline Terminal to the Wall Mount Unit](#).



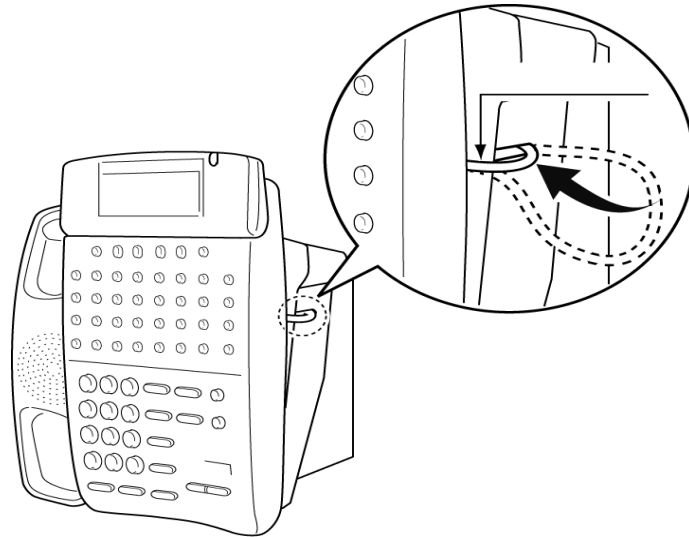
**Figure 10-40 Attaching the Multiline Terminal to the Wall Mount Unit**

5. Plug the line cord into the multiline terminal as illustrated in [Figure 10-41 Plugging in Multiline Terminal Line Cord](#).



**Figure 10-41 Plugging in Multiline Terminal Line Cord**

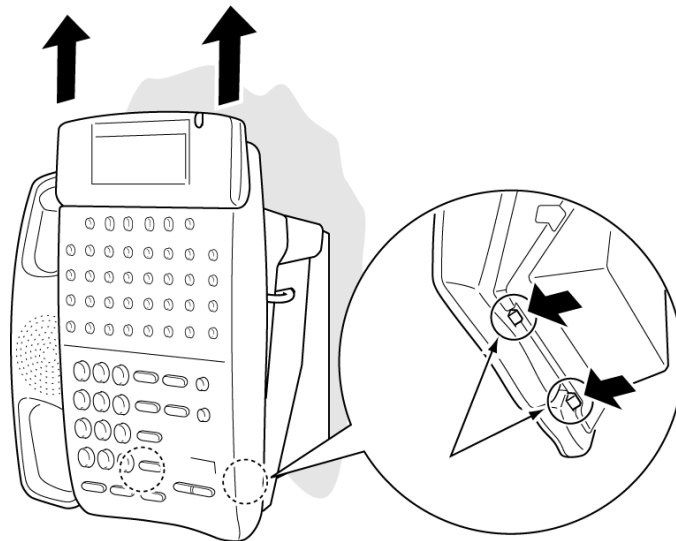
6. Push spare line cord behind the multiline terminal as shown in [Figure 10-42 Hiding Excess Cord Behind the Wall Mount Unit](#).



**Figure 10-42 Hiding Excess Cord Behind the Wall Mount Unit**

## 12.1 Removing the Wall Mounted Multiline Terminal from the Wall Mount Unit

To remove the multiline terminal, press the tabs at the bottom as shown in [Figure 10-43 Removing Multiline Terminal from the Wall Mount Unit](#), and push up on the multiline terminal until it comes loose.




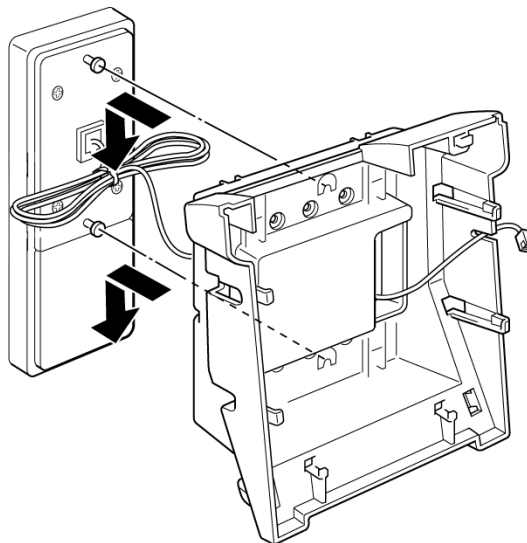
**Figure 10-43 Removing Multiline Terminal from the Wall Mount Unit**



## 12.2 Mounting the Wall Mount Unit on a Wall Plate

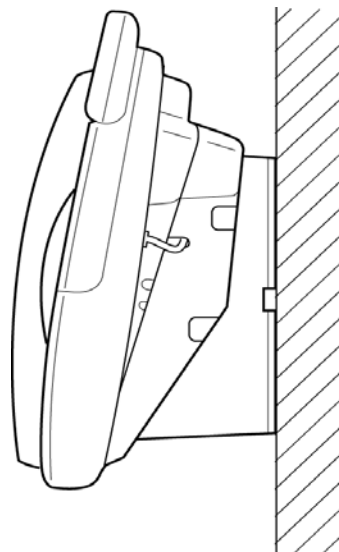
1. Locate the screw holes on the wall mount unit and hang the cover over the screws on the wall plate as illustrated in [Figure 10-44 Mounting Wall Mount Unit on the Wall Plate](#).

 *This method is not recommended because of varied strength of wall plates.*



**Figure 10-44 Mounting Wall Mount Unit on the Wall Plate**

2. Hang the multiline terminal on the base cover.



**Figure 10-45 Wall Mounted Multiline Terminal**

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# Installing *D<sup>term</sup>* Series i Optional Equipment

## SECTION 1 GENERAL INFORMATION

The SV8100 system provides several adapters that allow peripheral equipment to be attached to the IPK II *D<sup>term</sup>* Series i multiline terminals. This optional equipment enhances the SV8100 system and can be purchased separately as a customer business grows. Each multiline terminal (except DTR-2DT-1) can have up to two adapters installed at the same time. This chapter describes each adapter and provides applicable installation instructions.

## SECTION 2 PREPARING MULTILINE TERMINAL FOR ADAPTER INSTALLATION

To prepare the multiline terminal for adapter installation:

1. Unplug the telephone line from the terminal.
2. Grasp in the middle of the hollow spaces at the top and pull up until the retaining tabs click to raise the base plate. Refer to [Figure 11-1 Raising the Base Plate](#).

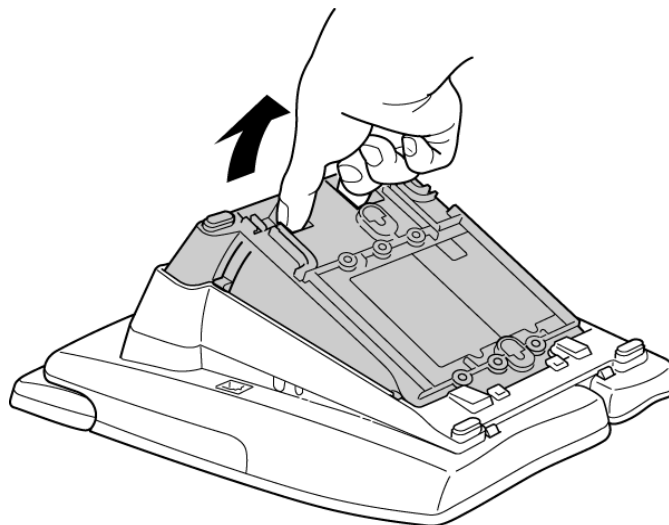
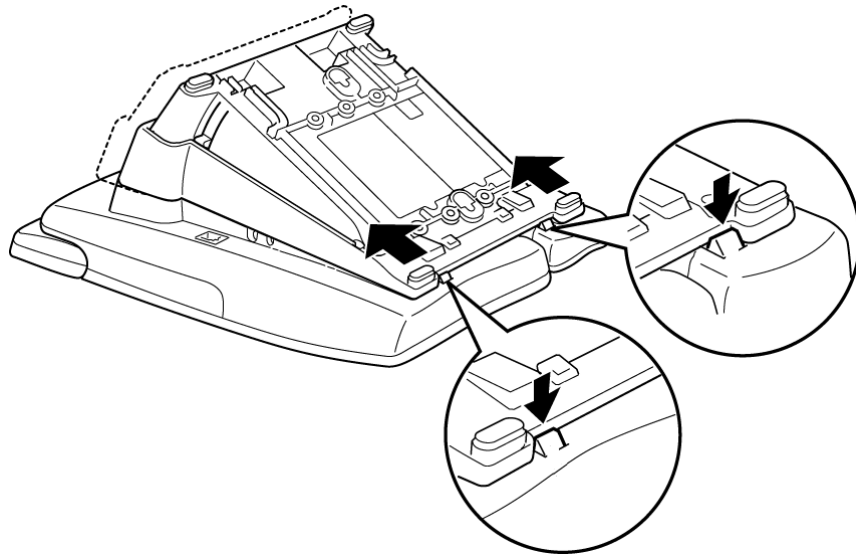


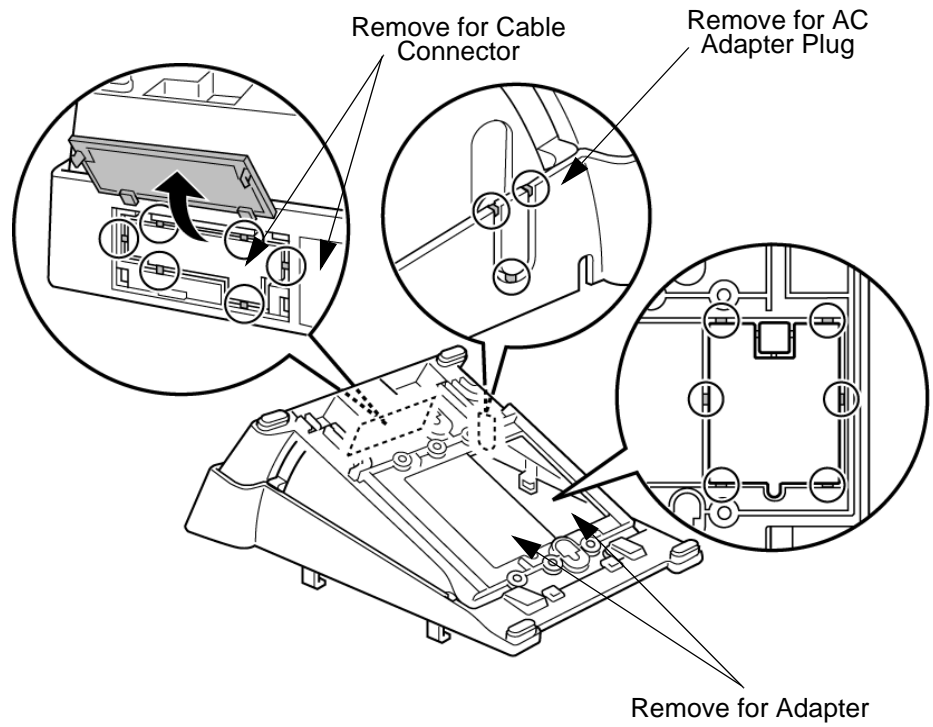
Figure 11-1 Raising the Base Plate

3. Press down on the tabs indicated in [Figure 11-2 Removing the Multiline Terminal Base Plate](#), and push forward on the base plate to remove it.



**Figure 11-2 Removing the Multiline Terminal Base Plate**

4. When an adapter is installed for the first time, the base cover on the multiline terminal must be modified. Two adapters can be installed in the multiline terminal, and two separate cutouts are provided. Remove the applicable cutout/cutouts on the bottom of the base plate. When only one adapter is being installed and it needs an AC-2R/AC-3R Unit for power, remove only the right cutout as shown in [Figure 11-3 Modifying Base Plate for Adapter Installation](#).

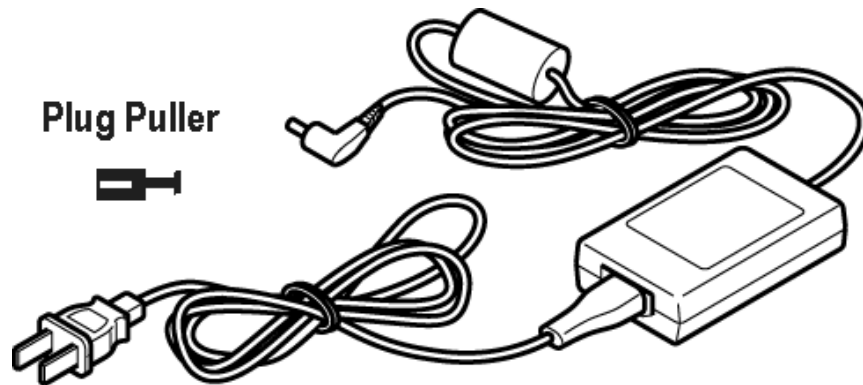


**Figure 11-3 Modifying Base Plate for Adapter Installation**

## SECTION 3 INSTALLING ADAPTERS

### 3.1 AC-2R/AC-3R Unit (AC Adapter)

This unit shown in [Figure 11-4 AC-2R/AC-3R Unit \(AC Adapter\)](#) provides power to ancillary devices or to an Attendant Console. The AC-2R/AC-3R Unit must be connected to some adapters that are installed on a multiline terminal. When more than one adapter is installed on a multiline terminal, only **one** AC-2R/AC-3R Unit is necessary.



**Figure 11-4 AC-2R/AC-3R Unit (AC Adapter)**

The power requirements for the AC-2R/AC-3R Unit are:

- Input: 110~240 Vac, 50/60 Hz, 45 VA
- Output: 27 Vdc, 750mA
- Polarity:  $\ominus$  —————  $\oplus$

#### 3.1.1 Connecting the AC-2R/AC-3R Unit

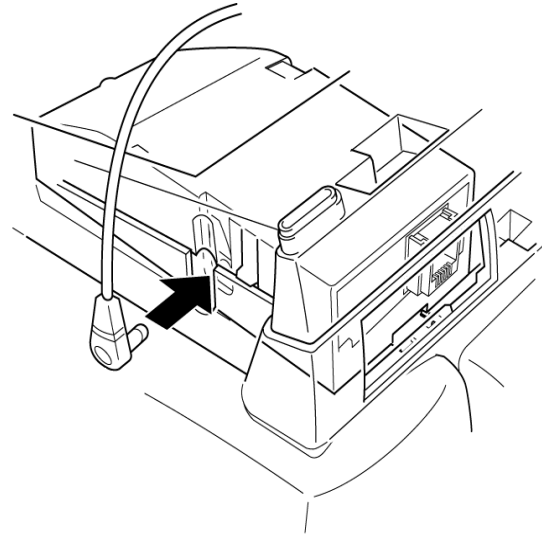
1. Unplug the AC-2R/AC-3R Unit from the AC outlet.



***Failing to do this can damage the unit and/or the multiline terminal.***

2. Prepare the multiline terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation](#) on page 11-1.

3. The Plug Puller shown in [Figure 11-4 AC-2R/AC-3R Unit \(AC Adapter\)](#) is a hollow cylindrical sleeve with a post and a circular rim on the base. The plug of the adapter is inserted in this hole, and the sleeve is pulled over the back of the plug to seat the post that can then be used to unplug the adapter.
4. Locate the plug on the ancillary device that is connected to the bottom of the multiline terminal and plug in the AC Adapter.



**Figure 11-5 Connecting the AC Adapter to an Installed Adapter**

### 3.2 AD(A)-R Unit (Ancillary Device Adapter)

This Ancillary Device Adapter, shown on [Figure 11-6 AD\(A\)-R Unit](#), allows connection of a tape recorder to all multiline terminals except the DTR-2DT-1.

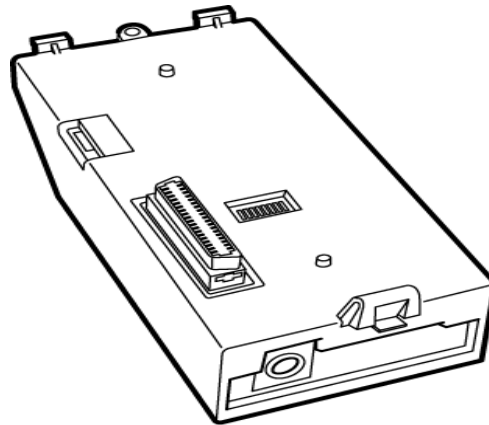


Figure 11-6 AD(A)-R Unit

[Figure 11-7 Connecting a Multiline Terminal to a Recording Device using an AD\(A\)-R Unit \(Example\)](#) illustrates how the AD(A)-R Unit is connected to the ESI(8)-U( ) ETU and to the recording device.

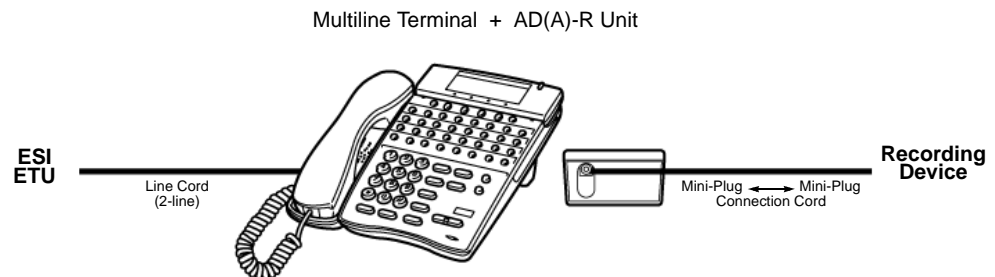


Figure 11-7 Connecting a Multiline Terminal to a Recording Device using an AD(A)-R Unit (Example)

When installing the AD(A)-R Unit, connect the cables to the AD(A)-R Unit, set the dip switches, and install the AD(A)-R Unit on the multiline terminal.

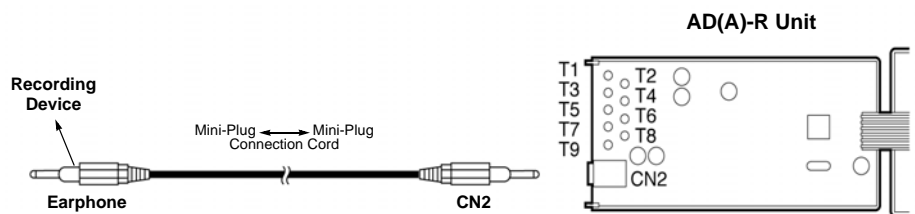


### 3.2.1 Connecting Cables to the AD(A)-R Unit

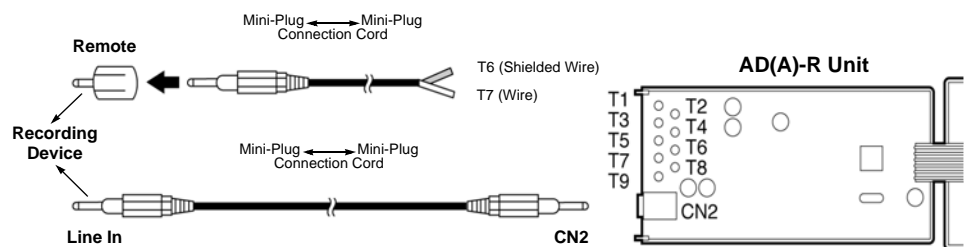
The first step in installing the AD(A)-R Unit is to connect the cables between the recording device and the AD(A)-R Unit.

Cable terminal connectors are located on the side of the AD(A)-R Unit. Cables should be connected on this unit **before** installing the unit on the multiline terminal.

Cables can be connected to determine whether or not pause control is provided for the recording.



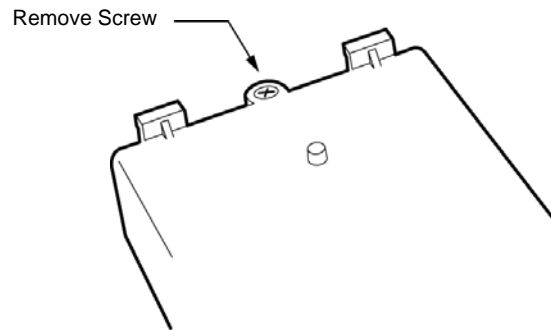
**Figure 11-8 AD(A)-R Unit Connection without Pause Control**



**Figure 11-9 AD(A)-R Unit Connection with Pause Control**

To connect the cables:

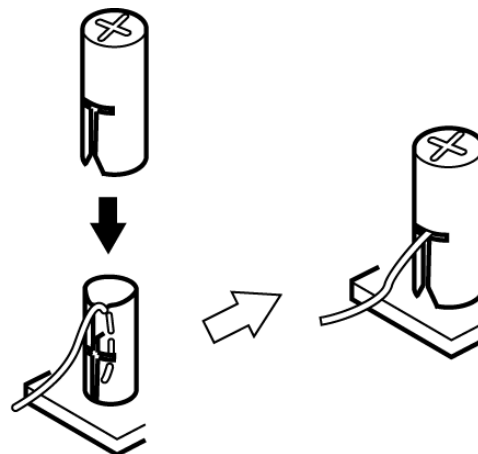
1. Cut off the plug on one end of the cable.
2. Remove the screw as illustrated in [Figure 11-10 Removing AD\(A\)-R Unit Cover on page 11-8](#) and open the unit cover.



**Figure 11-10 Removing AD(A)-R Unit Cover**

3. Locate the adapter terminals on the unit.
4. Remove the cap on the adapter terminal to expose the metal receptacle. Push the cable in the applicable receptacle, and replace the cap. Line up the slot on the cap with the slot on the metal receptacle to ensure proper contact. Refer to [Figure 11-11 Attaching Cables to the AD\(A\)-R Unit](#).

Attach the cables to the AD(A)-R Unit according to [Table 11-1 AD\(A\)-R Unit Cable Connections](#) on page 11-9.



**Figure 11-11 Attaching Cables to the AD(A)-R Unit**

**Table 11-1 AD(A)-R Unit Cable Connections**

<b>Terminal Number</b>	<b>Cables to Connect</b>	<b>Terminal Specifications</b>
T1	When warning tone is not being sent from the recorder, connect wire pair input from tone generator to T1:T2. The warning tones from the generator are sent to T1:T2 on a dedicated wire pair while the speech path is sent from the AD(A)-R on T3:T4 over a separate wire pair to the recorder.	Input Terminal: T1 and T2 are enabled for tone generating device when switches SW1-3 and SW1-4 are OFF. When switches SW1-3 and SW1-4 are ON, a humming sound may be recorded due to impedance mismatch. Input Impedance on T1 and T2: 100K $\Omega$ Input Level on T1 and T2: -15 dB ~ 40 dB
T2		
T3:T4	Connect recorder device wire pair speech input to T3:T4. When the recorder used supplies a warning tone, this tone may also be sent over the T3:T4 wire pair back to the terminal.	Input/Output Terminal: Refer to dip switch settings in <a href="#">Table 11-2 AD(A)-R Unit Switch Settings</a> .
T5	Connect the bare end of the control cable.	When a multiline terminal is idle, this contact is closed. When the multiline terminal goes off-hook (using the handset, headset, or speakerphone), this contact is open. When recording device owner's manual specifies start on open circuit, connect T5 and T6.
T6	Connect the shielded end of the control cable.	Provides common connection for control cable.
T7	Connect the bare end of the control cable.	When the multiline terminal is idle, this contact is open. When the multiline terminal is busy (using the handset, headset, or speakerphone), this contact is closed. When recording device owner's manual specifies start on closed circuit, connect T6 and T7.
T8	Unused	
T9		

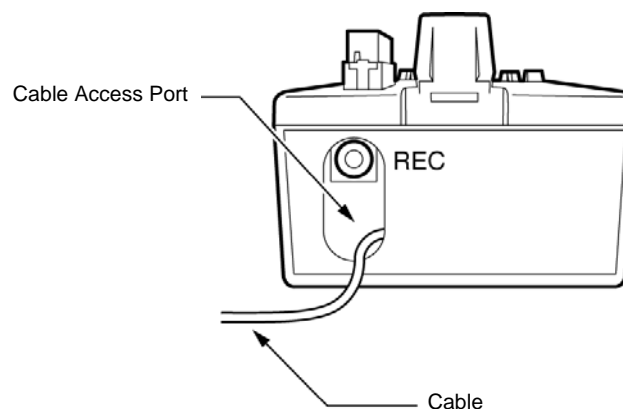
**Table 11-1 AD(A)-R Unit Cable Connections (Continued)**

Terminal Number	Cables to Connect	Terminal Specifications
-----------------	-------------------	-------------------------

**Notes:**

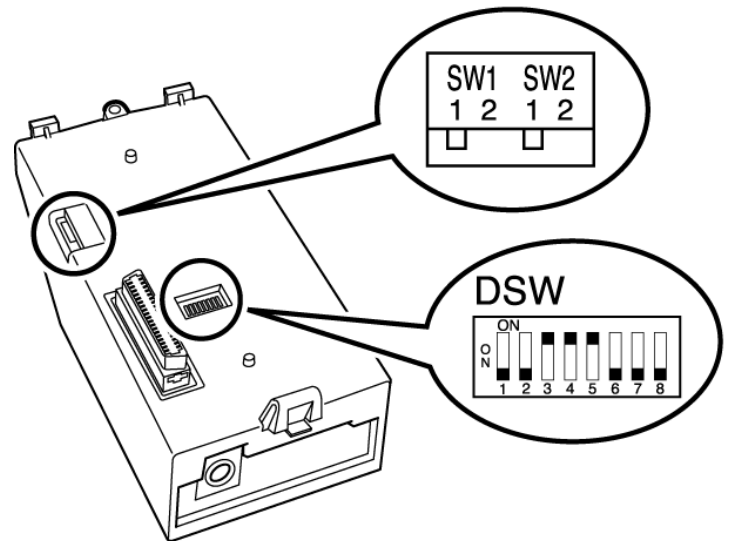
- ✎ When recording in handsfree (half-duplex) mode using the built-in speakerphone, the record warning tone may not be audible to the far-end party.
- ✎ The transmit recording level is lower than the receiving voice level for intercom calls; the transmit recording level for CO calls is normal.
- ✎ Depending on the recording device(s), separate cables may be required for the warning tone and speech path. Then connect the warning tone cables to input terminals T1 and T2 on the AD(A)-R Unit (T3 and T4 are used as the recording device input).
- ✎ When remote control of the recorder is necessary, the record start/stop control is provided by connecting to T5 (or T7) and T6 on the AD(A)-R Unit. (Connecting to T5 or T7 is determined by the specifications of the recording device.)
- ✎ When a warning tone is provided from the recording equipment, it should be input via T3 and T4 on AD(A)-R Unit. Do not use T1 and T2 to input beep tone.
- ✎ Conversations cannot be recorded from terminals connected to an AP(R)/AP(A)-R Unit.
- ✎ Speakerphone calls through the HF-R Unit cannot be recorded.

5. Insulate the end of the cable that needs to be shielded with insulating tape.
6. Feed the installed cable through the cable access port, located on the back of the unit, as illustrated in [Figure 11-12 AD\(A\)-R Unit Cable Access Port](#).

**Figure 11-12 AD(A)-R Unit Cable Access Port**

### 3.2.2 Switch Settings

The AD(A)-R Unit has two switch locations SW1/SW2. The location of the switches on the AD(A)-R Unit is illustrated in [Figure 11-13 AD\(A\)-R Switch Default Settings](#). The dip switches (DSW) allow a technician to configure the unit for specific settings.



**Figure 11-13 AD(A)-R Switch Default Settings**


To provide control to the recorder or to enable/disable the record start warning tones, refer to [Table 11-2 AD\(A\)-R Unit Switch Settings](#).

**Table 11-2 AD(A)-R Unit Switch Settings**

Switch		Description/Settings
SW1	SW1-1	Connects to multiline terminal Connect = Default
	SW1-2	Not Used
SW2	SW2-1	Sets External Equipment Impedance to 600 $\Omega$
	SW2-2	Used for Complex Impedance Devices (< 30 $\Omega$ Input Impedance)


Table 11-2 AD(A)-R Unit Switch Settings (Continued)

Switch		Description/Settings
Dip Switches (DSW)	DSW 1	Output Hook Signal to External Device On = Output Off = No Output (Default)
	DSW 2	Record Confirmation Tone On = Tone On Off = Tone Off (Default)
	DSW 3 and DSW 4	Use T1/T2 On = Disable (Default) Off = Enable
	DSW 5	Reset Signal Upgrade On = Normal (Default) Off = Debugging
	DSW 6-8	Firmware Upgrade On = Firmware Upgrade Off = Disable (Default)

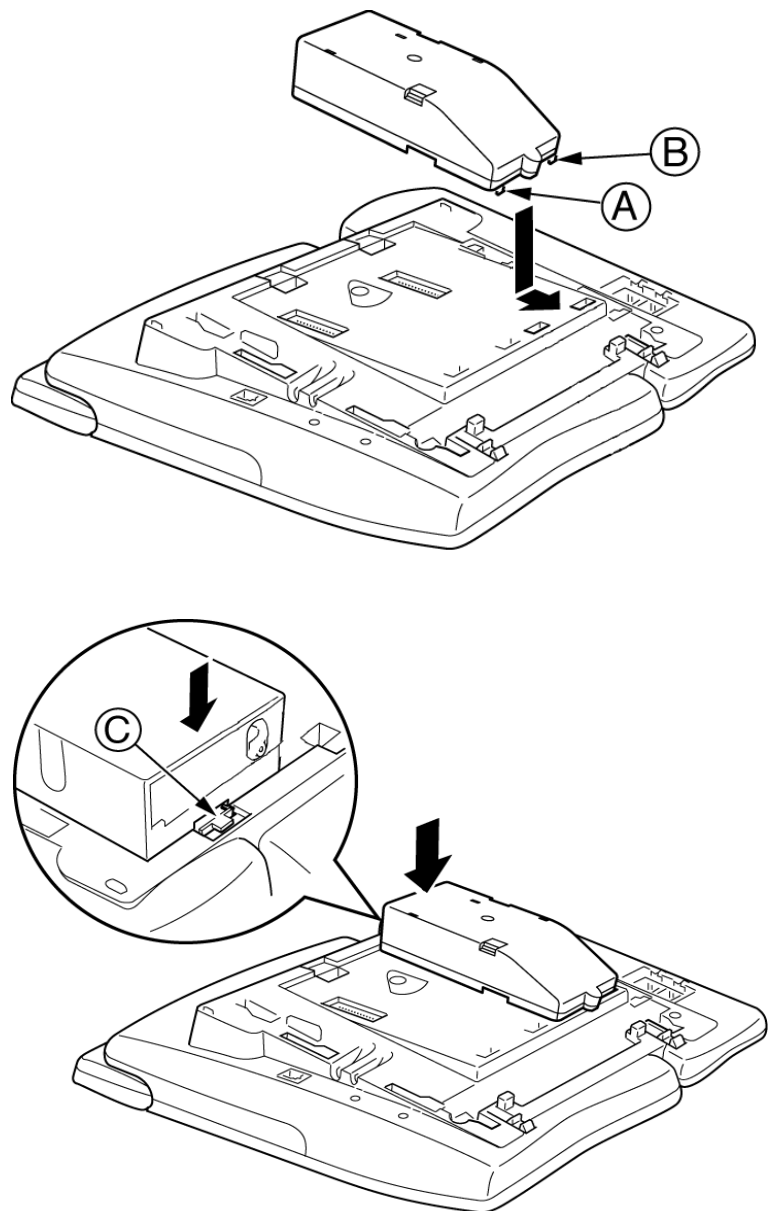
 Do not connect T1 and T2 when DSW switches 3 and 4 are On.

### 3.2.3 Installing the AD(A)-R Unit on a Multiline Terminal

The AD(A)-R Unit should be installed **after** the cables are connected and the switches are set.

 If wall mounting the multiline terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 10-22](#).

1. Unplug the telephone cord (and the AC-2R/AC-3R Unit cord if installed) from the multiline terminal.
2. Plug the tabs marked **A** and **B** into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked **C**. Refer to [Figure 11-14 Attaching the AD\(A\)-R Unit to the Multiline Terminal on page 11-13](#).



**Figure 11-14 Attaching the AD(A)-R Unit to the Multiline Terminal**

3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System](#) on page 10-12.

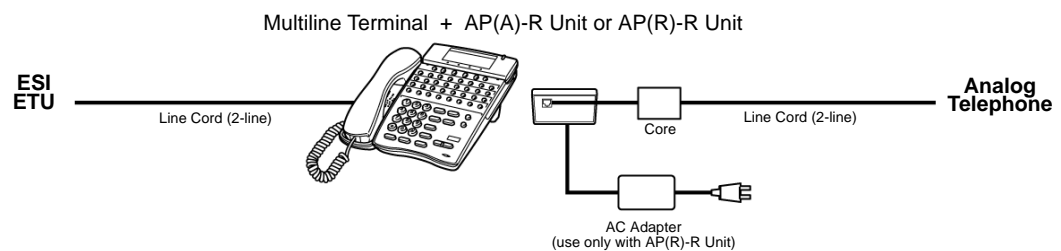
### 3.3 AP(A)-R Unit/AP(R)-R Unit (Port Adapter)

The AP(A)-R Unit Analog Port Adapter without Ringer or the AP(R)-R Unit Analog Port Adapter with Ringer is used to install a single line telephone, modem, credit card reader, wireless headset, or other compatible analog device.

The AP(R)-R Unit generates ringing signals and requires an AC-2R/AC-3R Unit.

The AP(A)-R Unit or the AP(R)-R Unit can be installed on all multiline terminals except the DTR-2DT-1.

Figure 11-15 Connecting a Multiline Terminal to an Analog Telephone using an AP(A)-R Unit/AP(R)-R Unit (Example) illustrates how the AP(A)-R Unit/AP(R)-R Unit is connected to the ESI(8)-U( ) ETU and to an analog telephone.

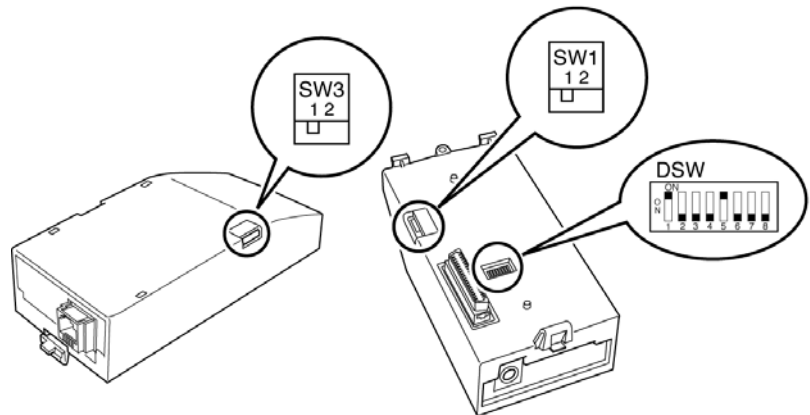


**Figure 11-15 Connecting a Multiline Terminal to an Analog Telephone using an AP(A)-R Unit/AP(R)-R Unit (Example)**



### 3.3.1 Switch Settings

The AP(A)-R Unit and AP(R)-R Unit have three switch locations. Refer to [Table 11-3 AP\(A\)-R/AP\(R\)-R Unit Switch Settings](#) for a description of each switch and an explanation of the settings.




**Figure 11-16 AP(A)-R Unit/AP(R)-R Unit Switches**

**Table 11-3 AP(A)-R/AP(R)-R Unit Switch Settings**

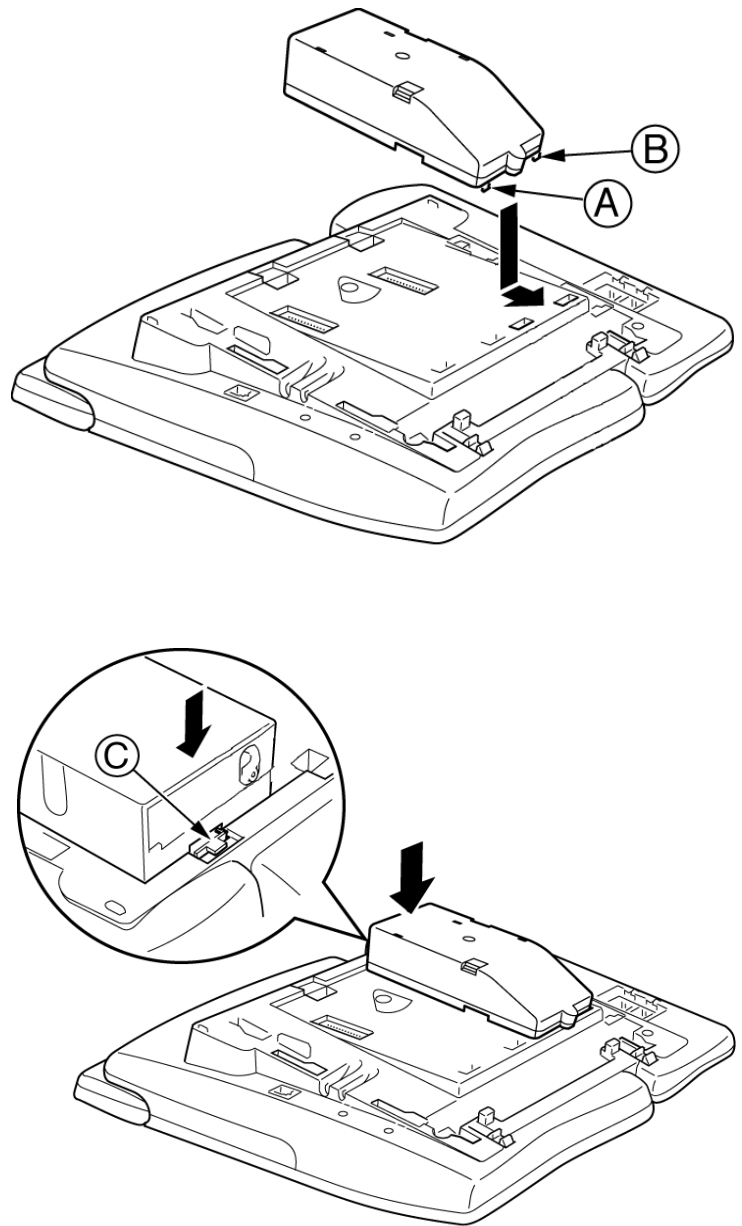
Switch		Description/Settings
SW1	SW1-1	Connects to multiline terminal (default).
	SW1-2	Not Used
SW3	SW3-1	Sets impedance to 600 $\Omega$ for devices such as modems or facsimile machines.
	SW3-2	Used for complex impedance devices such as single line telephones.
Dip Switches (DSW)	DSW 1~8	Leave switches at default.

### 3.3.2 Installing AP(A)-R or AP(R)-R Unit on a Multiline Terminal

The AP(A)-R or AP(R)-R Unit should be installed *after* the switches are set.

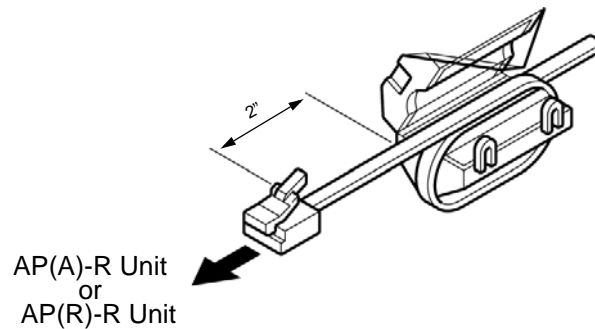
 *When wall mounting the multiline terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 10-22](#).*

1. Prepare multiline terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation on page 11-1](#).
2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 11-17 Attaching the AP\(A\)-R/AP\(R\)-R Unit to the Multiline Terminal on page 11-17](#).



**Figure 11-17 Attaching the AP(A)-R/AP(R)-R Unit to the Multiline Terminal**

3. Install the ferrite core (provided with the unit) about two inches from the line cord plug.



**Figure 11-18 Installing the Ferrite Core on the AP(A)-R/AP(R)-R Unit**

4. Connect the line cord to the unit, limiting the cable length from the AP(A)/AP(R)-R Unit to the single line telephone to a maximum of 50 feet.  
  
*When only installing the AP(R)-R Unit, plug the AC Adapter (AC-2R/AC-3R Unit) power cord into the indicated AP(R)-R Unit receptacle and connect it to a power source. Refer to [Figure 11-5 Connecting the AC Adapter to an Installed Adapter on page 11-5](#).*
5. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System on page 10-12](#).

### 3.4 CT(A)-R Unit (Computer Telephony Adapter)

The Computer Telephony Adapter, CT(A)-R Unit allows a multiline terminal to be connected to a PC. The PC can perform all multiline terminal functions using a TAPI-compatible application software (Microsoft Telephony Application Programming Interface).

The multiline terminal must be located within five feet (1.5m) of the PC. An AC-2R/AC-3R Unit is necessary.

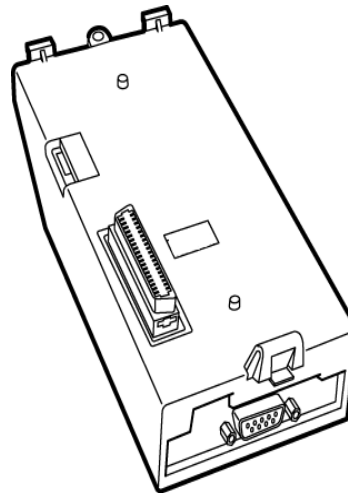


Figure 11-19 CT(A)-R Unit

Figure 11-20 Connecting a Multiline Terminal to a PC using a CT(A)-R Unit (Example) shows how the CT(A)-R Unit is connected to the ESI(8)-U( ) ETU and to the PC. The required AC-2R/AC-3R Unit adapter is not shown.

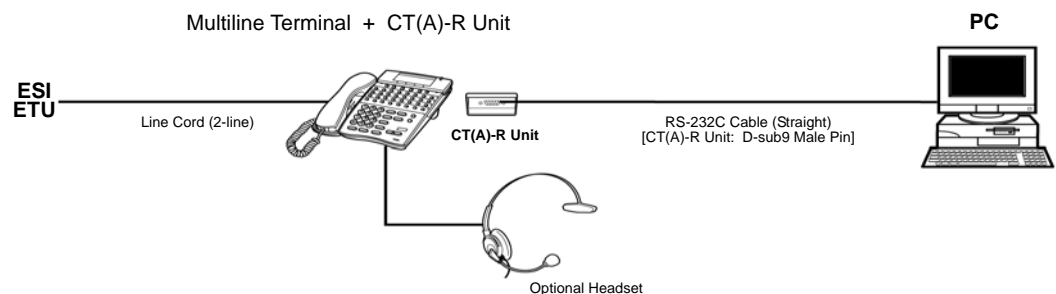



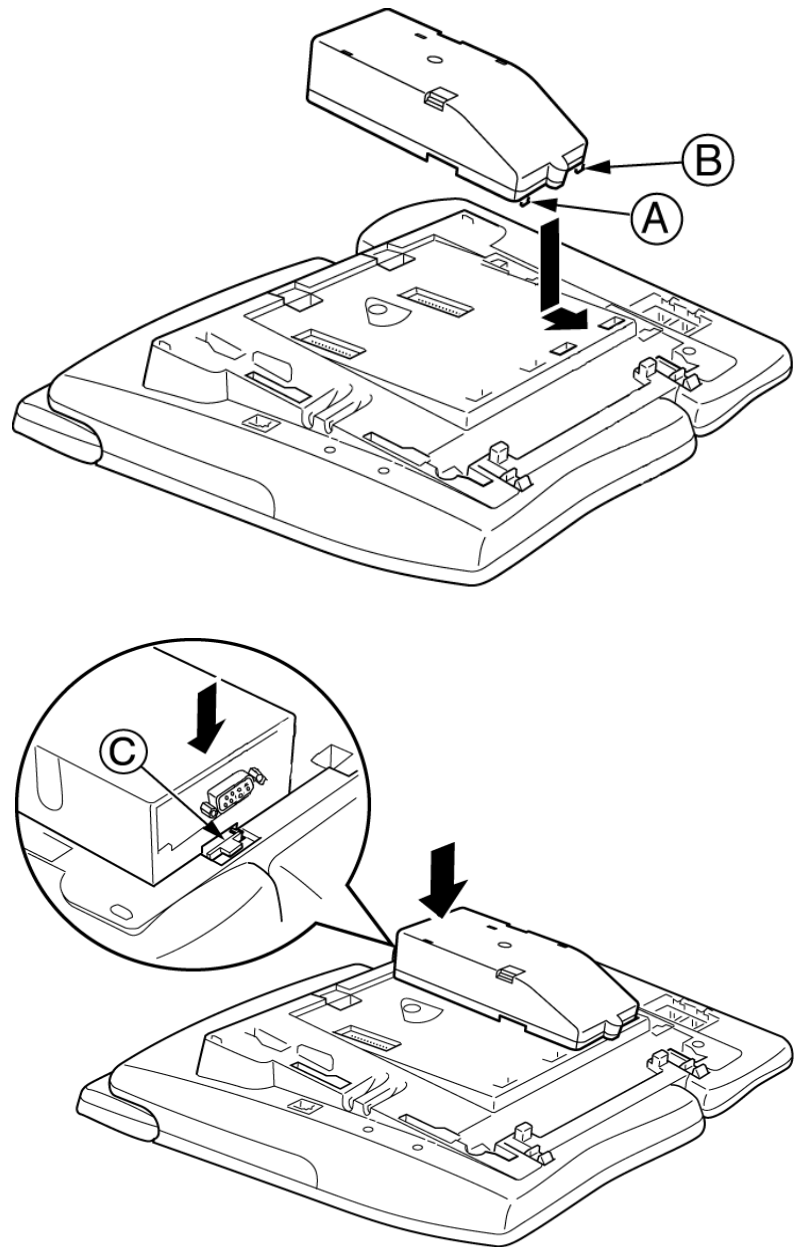
Figure 11-20 Connecting a Multiline Terminal to a PC using a CT(A)-R Unit (Example)

### 3.4.1 Installing the CT(A)-R Unit

The CT(A)-R Unit should be installed *before* connecting the PC and *before* connecting the ESI port to the multiline terminal.

 *When wall mounting the multiline terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 10-22](#).*

1. Prepare multiline terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation on page 11-1](#).
2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 11-21 Attaching the CT\(A\)-R Unit to the Terminal on page 11-21](#).

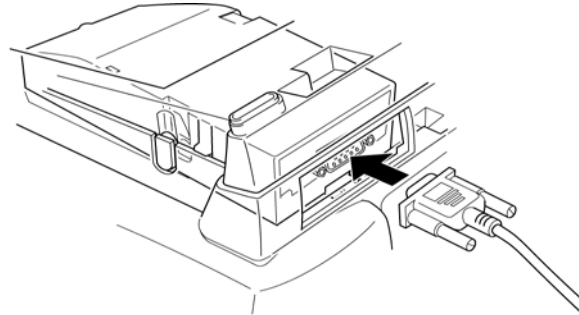


**Figure 11-21 Attaching the CT(A)-R Unit to the Terminal**

3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System](#) on page 10-12.

### 3.4.2 Connecting the CT(A)-R Unit to the PC

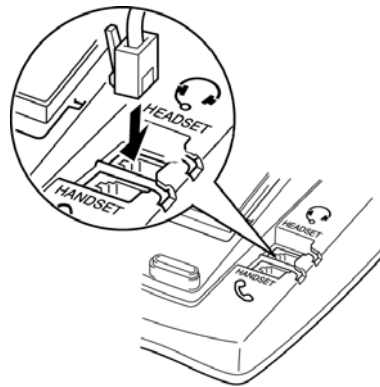
Connect RS-232C cable from the PC to the CT(A)-R Unit as shown in [Figure 11-22 Connecting the RS-232C Cable to the CT\(A\)-R Unit](#).



**Figure 11-22 Connecting the RS-232C Cable to the CT(A)-R Unit**

### 3.4.3 Installing the Optional Headset

Install the headset and anchor it in the cord slot on the multiline terminal as shown in [Figure 11-23 Attaching the Headset to the Multiline Terminal](#).



**Figure 11-23 Attaching the Headset to the Multiline Terminal**

### 3.4.4 Installing the Driver on the PC

Using the download from Web provided with the CT(A)-R Unit install the driver onto your PC. Refer to the CT(A)-R Unit installation instructions for installing the driver.



### 3.5 CT(U)-R Unit (Computer Telephony Adapter)

The CT(U)-R Unit Computer Telephony Adapter allows a multiline terminal to be connected to a PC using the PC USB port.

Connecting using the USB port provides telephony and sound device control. The general functions of the CT(U)-R Unit include:

- Telephony Control

The application is based on the Microsoft Telephony Application Programming Interface (TAPI) and provides call handling on the PC (e.g., call, answer, hold, transfer, conference, or caller ID).

- User Interface to Support  $D^{term}$  Emulation

This interface provides the functions of the  $D^{term}$  such as normal telephone indications, LCD, line keys or hookswitch.

- Sound Support

Allows voice recording or recording playing on an audio device assigned to a PC. Voice Mail and Live Record are supported on the PC.

- Plug and Play

An AC-2R/AC-3R Unit is necessary when using this unit.

This adapter can be installed on any multiline terminal except the DTR-2DT-1 TEL.

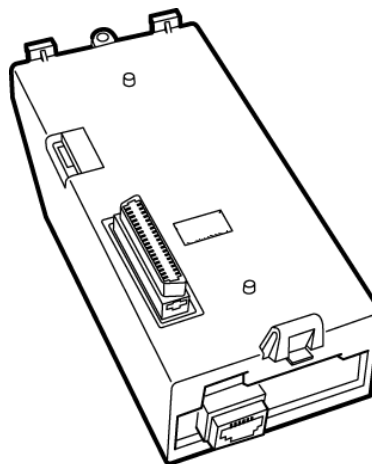


Figure 11-24 CT(U)-R Unit

Figure 11-25 Connecting a Multiline Terminal to a PC using a CT(U)-R Unit (Example) shows how the CT(U)-R Unit is connected to the ESI(8)-U( ) ETU and to the PC. The required AC-2R/AC-3R Unit is not shown.

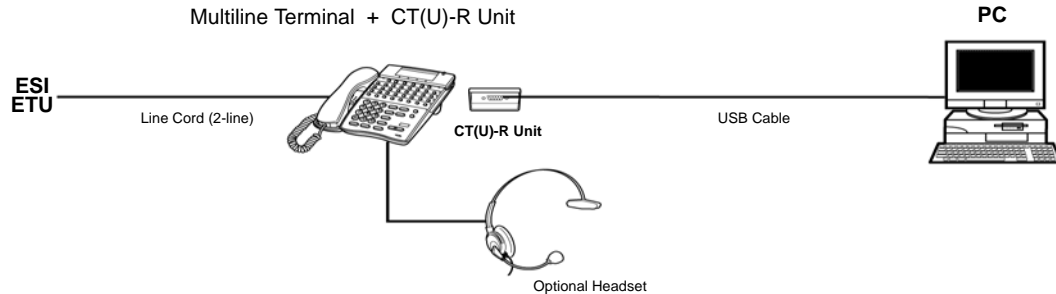


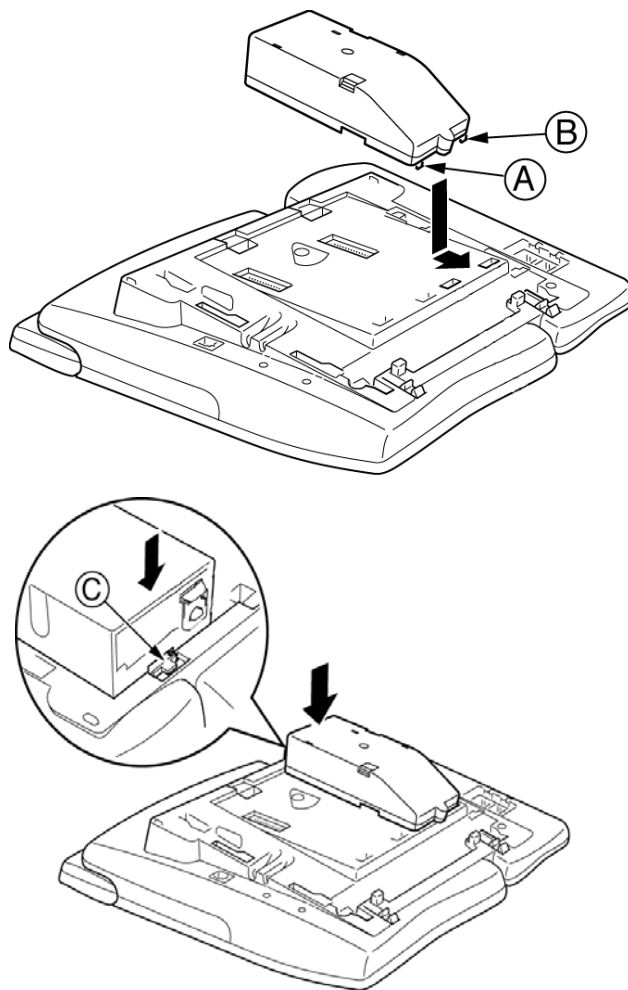
Figure 11-25 Connecting a Multiline Terminal to a PC using a CT(U)-R Unit (Example)

### 3.5.1 Installing the CT(U)-R Unit

The CT(U)-R Unit should be installed *after* the switches are set.

✎ When wall mounting the multiline terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 10-22](#).

1. Prepare the multiline terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation on page 11-1](#).
2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 11-26 Attaching the CT\(U\)-R Unit to the Multiline Terminal on page 11-25](#).

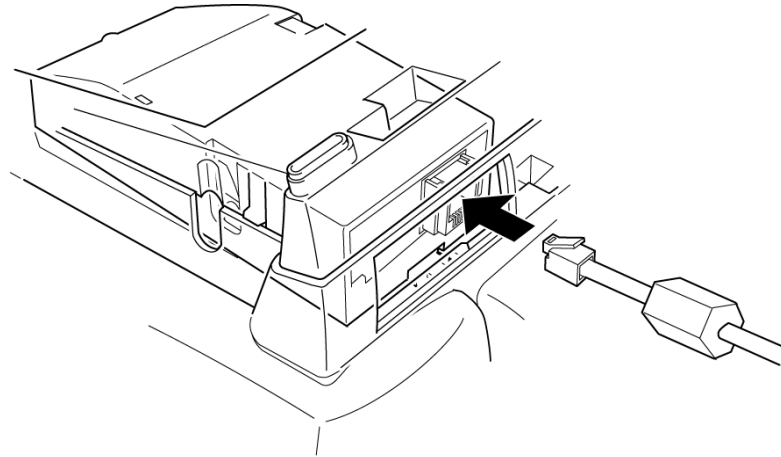


**Figure 11-26 Attaching the CT(U)-R Unit to the Multiline Terminal**

3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System on page 10-12](#).
4. Attach the AC-2R/AC-3R to the CT(U)-R Unit. Refer to [Figure 11-5 Connecting the AC Adapter to an Installed Adapter on page 11-5](#).

### 3.5.2 Connecting the CT(U)-R Unit to the PC

Connect USB cable from the PC to the CT(U)-R Unit as shown in [Figure 11-27 Connecting the USB Cable to the CT\(U\)-R Unit](#).



**Figure 11-27 Connecting the USB Cable to the CT(U)-R Unit**

### 3.5.3 Installing the Optional Headset

Install the headset and anchor it in the cord slot on the multiline terminal as shown in [Figure 11-23 Attaching the Headset to the Multiline Terminal on page 11-22](#).

### 3.5.4 Installing the Driver on the PC

Using the download from Web with the CT(U)-R Unit install the driver on your PC. Refer to the CT(U)-R Unit installation instructions for installing the driver.

## SECTION 4 INSTALLING UNITS AND OTHER DEVICES

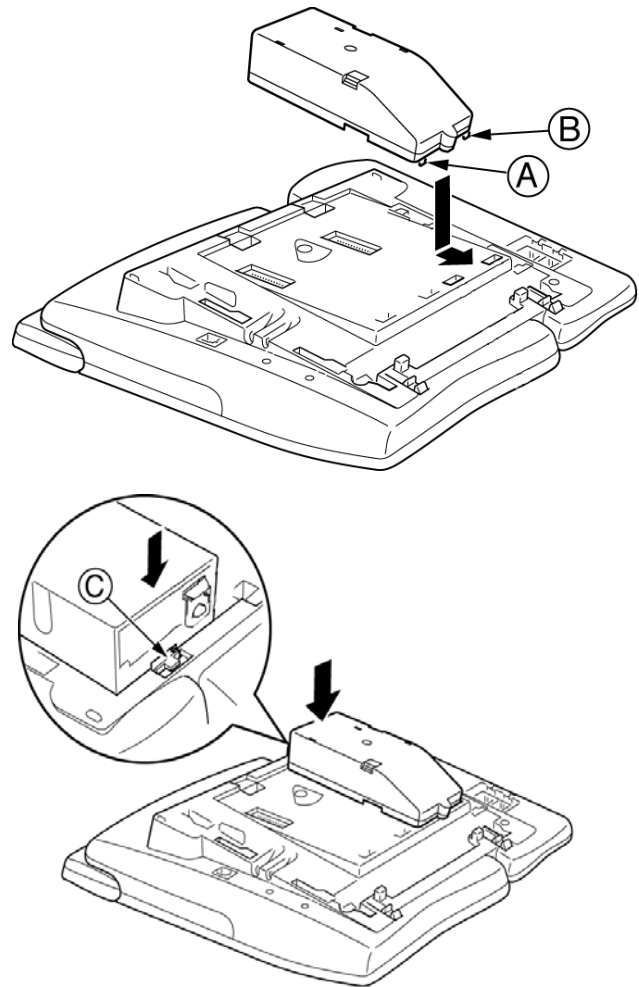
### 4.1 HF-R Unit (Handsfree Unit)

The Handsfree Unit provides full-duplex handsfree communication for a desktop user. Large or enclosed areas may cause poor full-duplex operation. This unit comes with the handsfree adapter and an external microphone unit.

This adapter can be installed on any DTR/DTH multiline terminal except DTR-2DT-1.

#### 4.1.1 Installing an HF-R Unit on any DTR/DTH Multiline Terminal (except DTR-2DT-1)

1. With the terminal upside down, facing from the bottom of the open cover, install this unit in terminal adapter Slot 1.

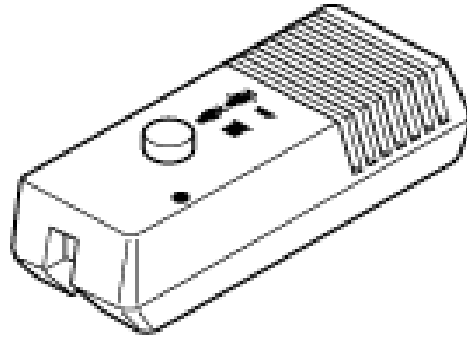


**Figure 11-28 Attaching the HF-R Unit to the Multiline Terminal**

2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 11-28 Attaching the HF-R Unit to the Multiline Terminal](#).
3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System on page 10-12](#).


#### 4.1.2 Installing the External Microphone

An external microphone can be installed on the HFU-U Unit. These instructions apply to the external microphone obtained from NEC. The microphone has a locking mute button and a red LED indicator that is off when the microphone is in mute.



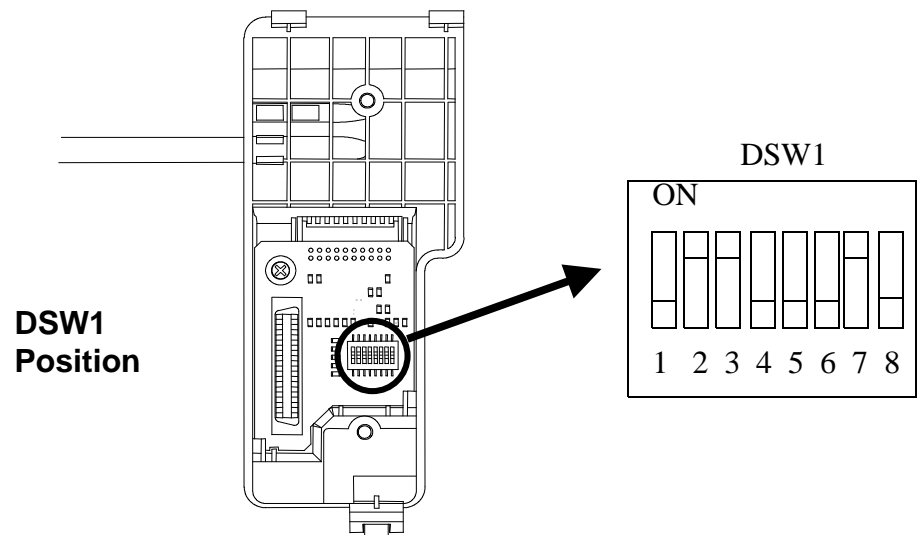
**Figure 11-29 Microphone with Mute**

1. Plug the microphone cord into the jack on the HF-R Unit.

 *The microphone should be one to three feet away from the multiline terminal with the mic grate facing the user.*

## 4.2 Add on Module (ADM)

The D16(LD)-R ADM creates a 16-button Phonebook directory. The interface for this unit shown in [Figure 11-30 ADM Interface Unit](#) is connected in the right adapter connector for the applicable multiline terminal. When another adapter needs to be added, this interface must be moved to the left adapter connector to preserve the cable integrity.

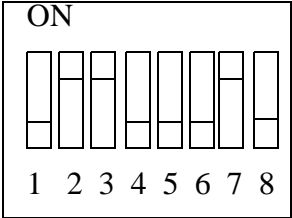


**Figure 11-30 ADM Interface Unit**

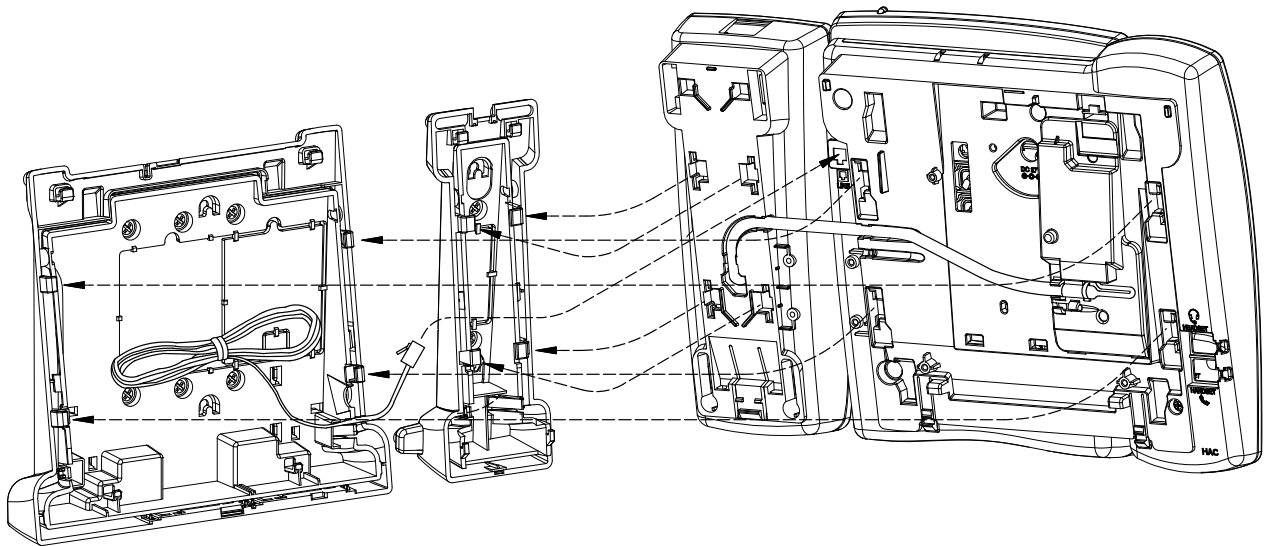
### 4.2.1 Connecting the Interface Unit

1. Set DSW1 to the pattern for the applicable multiline terminal as shown in [Table 11-4 DSW1 Switch Positions](#) on the next page.
2. Place the ADM and multiline terminal upside down and remove the Base Units.

**Table 11-4 DSW1 Switch Positions**

Series	Multiline Terminal	DSW1 Switch Positions
<i>D<sup>term</sup></i> Series i	DTR/H-(8)/(16)D-2( ) TEL DTR/H -16LD-2( ) TEL DTR/H-16D(BL)-2( ) TEL	<div style="border: 1px solid black; padding: 5px; text-align: center;">                         ON   </div>

3. Plug the interface unit into the right adapter connection as shown on [Figure 11-31 ADM and Multiline Terminal with Base Covers Removed](#) on the next page.




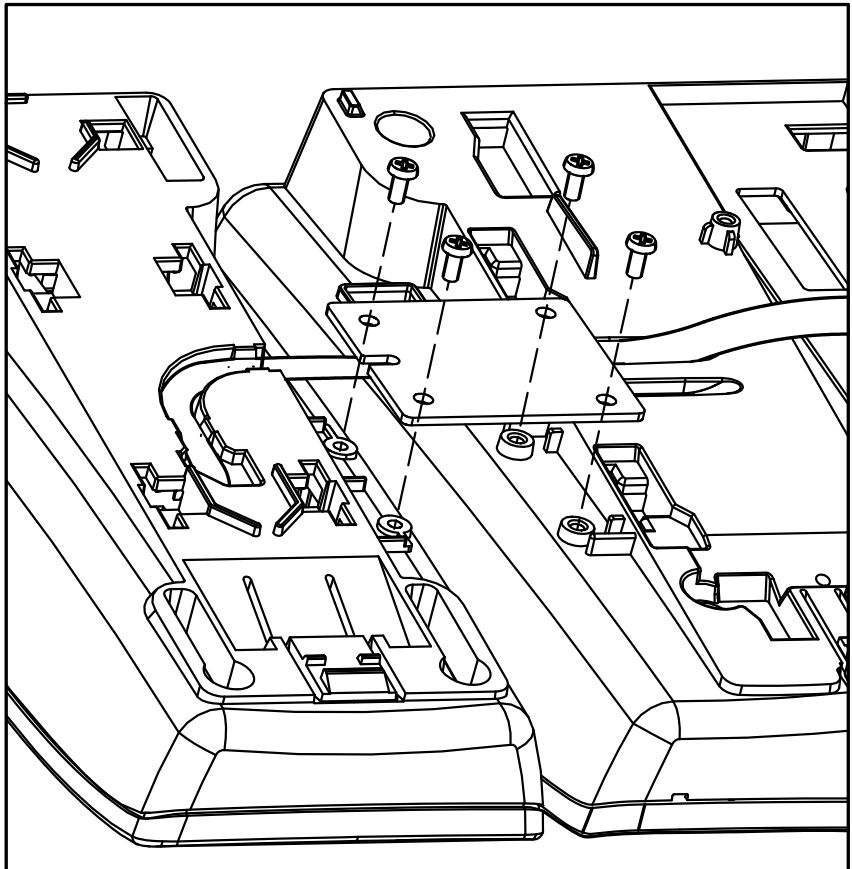
**Figure 11-31 ADM and Multiline Terminal with Base Covers Removed**

4. Place the interface unit cable in the cable channels on the ADM and multiline terminal.



5. Install the connector plate provided with the ADM as shown in [Figure 11-32 Installing the Connector Plate](#) on the next page.

 *The connector plate cannot be used with InMail terminals.*



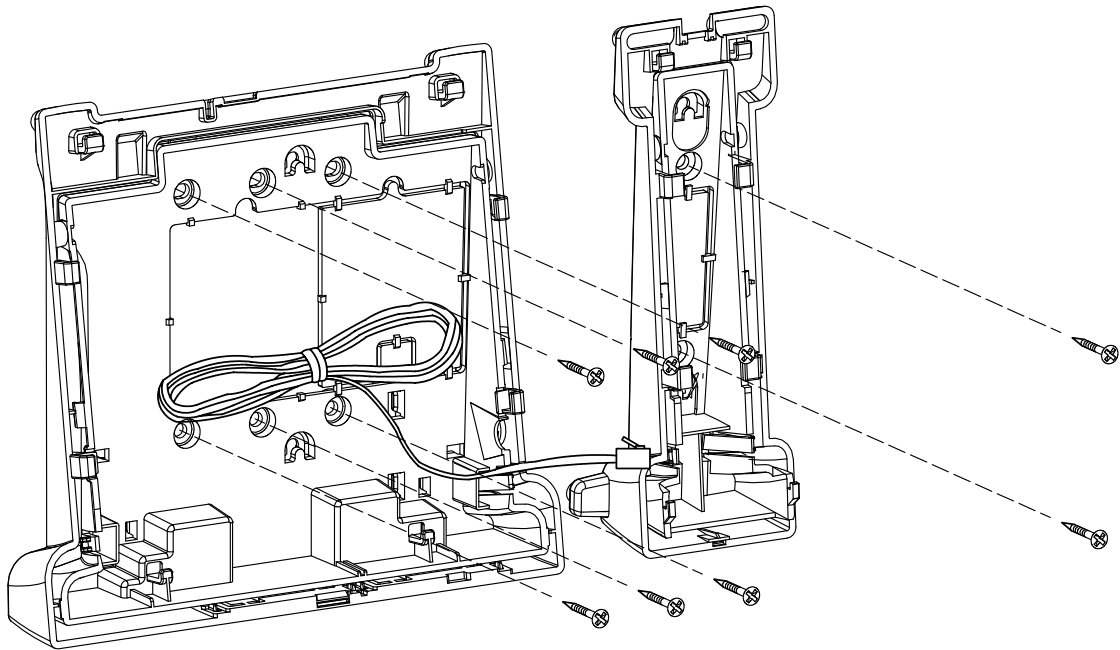
**Figure 11-32 Installing the Connector Plate**

6. Replace the base units as shown in [Figure 11-31 ADM and Multiline Terminal with Base Covers Removed](#).

#### 4.2.2 Wall Mounting ADM and Multiline Terminal

1. Remove both base units.
2. Remove the multiline terminal base Unit cutout shown in [Figure 11-33 Installing Base Units on the Wall on page 11-32](#).
3. Install the base units on the wall using the eight screws.

4. Install the ADM and multiline terminal as shown on [Figure 11-31 ADM and Multiline Terminal with Base Covers Removed](#) on page 11-30.



**Figure 11-33** Installing Base Units on the Wall

### 4.3 NEC Push-to-Mute (PTM) or Push-to-Talk (PTT) Handset

#### 4.3.1 Description

The PTM (780503) or PTT (780504) handset has a single-pole, single throw switch that must be continuously held down to provide the feature.



**Figure 11-34 NEC PTM or PTT Handset**

These replacement handsets for DTH terminals help to ensure a secure telephony environment by keeping unwanted audio from being transmitted over the corporate telephone network.

Using the PTM or PTT handset on an NEC digital terminal prevents eavesdropping and eliminates the worry that privileged information could be transmitted without user authority. These handsets are also an ideal solution to filter unwanted audio transmissions from environments with ambient background noise.

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# ***UNIVERGE<sup>®</sup> SV8100*** **System Hardware Manual**

NEC Corporation of America

Issue 2.0

(Version 4000)