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UNIVERGE SV8100/SV8300

System Hardware Manual

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Preface

GENERAL INFORMATION

Congratulations! You have purchased the NEC SV8100 System.

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

The 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 SV8100 chassis, Blades, Multiline Terminals, and optional equipment in the following chapters.

Regulatory

This chapter provides important regulatory information.

Chapter 1 – Introduction to SV8100/SV8300

This chapter provides an overview of the UNIVERGE SV8100/SV8300 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 – SV8300 System Specifications

This chapter contains detailed specifications for the SV8300 system and should be carefully reviewed by the technician ***before*** installing the system.

Chapter 4 – 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 5 – Installing the SV8300 Chassis

This chapter contains the information necessary for installing the SV8300 chassis. The technician should become familiar with this section ***before*** starting installation.

Chapter 6 – Installing the SV8100/SV8300 Blades

This chapter contains instructions for installing the blades in the UNIVERGE SV8100/SV8300 chassis.

Chapter 7 – Installing DT300/DT700 Series (DTL/ITL) Digital and IP Multiline Terminals

This chapter provides information about the UNIVERGE SV8100/SV8300 system digital and IP terminals in addition to the single line telephones, cordless telephones and wireless telephones.

Chapter 8 – Installing SV8100/SV8300 Cordless Telephones

This chapter provides information regarding cordless telephones that can be used in conjunction with the UNIVERGE SV8100/SV8300 system.

Chapter 9 – Installing SV8100/SV8300 Wireless Telephones

The wireless telephones provide wireless freedom that also allows access to features provided by the UNIVERGE SV8100/SV8300 system.

Chapter 10 – Installing SV8100/SV8300 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 11 – Installing SV8100/SV8300 Optional Equipment

This chapter provides information for installing optional equipment, such as PGD(2)-U( ) ADPs, background music, door boxes, DSS consoles, *D*^{term} VSR, external paging as well as other handsets, recording devices and adapters on the UNIVERGE SV8100/SV8300 digital and IP telephones.

Chapter 12 – Installing D^{term} Series i Telephones

The UNIVERGE SV8100/SV8300 system supports several different IPK II *D*^{term} 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 13 – Installing D^{term} Series i Optional Equipment

The UNIVERGE SV8100/SV8300 system provides several adapters that allow peripheral equipment to be attached to the IPK II *D*^{term} 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.

Documents supporting the SV8300 system include:

UNIVERGE SV8300 System Manual

Contains the system description, hardware installation procedure and the programming procedure of the SV8300 system.

UNIVERGE SV8300 Command Manual

Contains the Customer Administration Terminal (CAT) operation, command functions and data required for programming the system and the Resident System Program.

UNIVERGE SV8300 Programming Manual

Contains procedure for programming each business, hotel, ISDN, OAI, WCS and WLAN feature.

UNIVERGE SV8300 PC Programming Manual

Contains the functional description and the installation procedure for the PCPro.

UNIVERGE SV8300 System Data Programming Manual

Contains the Customer Specification Sheets and the System Data Programming Sheets.

UNIVERGE SV8300 Networking Manual

Contains the system description and the programming procedure for the CCIS, Q-SIG and Remote Unit System.

UNIVERGE SV8300 Maintenance Manual

Contains the system maintenance services and the recommended troubleshooting procedure.

UNIVERGE SV8300 SMDR/MCI/PMS Interface Specifications

Contains the interface specifications for Station Message Detail Recording (SMDR), Message Center Interface (MCI), Property Management System (PMS) and the PMS operation.

Regulatory

SECTION 1 ELECTROMAGNETIC INTERFERENCE (EMI)

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.

SECTION 2 INCIDENCE OF HARM

If the System is malfunctioning, it may also be causing harm to the telephone network. The Telephone system should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the Network Provider may temporarily disconnect the service.

SECTION 3 HEARING AID COMPATIBILITY

The NEC Multiline Terminals that are provided for this system are hearing aid compatible. The manufacturer of Single Line Telephones for use with the system must provide notice of hearing aid compatibility to comply with ACA Technical Standards.

SECTION 4 SERVICE REQUIREMENTS

WARNING

This equipment must only be installed and maintained by service personnel.

In the event of equipment malfunction, all repairs must be performed by an authorised dealer of NEC Australia Pty Ltd or by NEC Australia Pty Ltd. It is the responsibility of users requiring service to report the need for service to one of NEC Australia Pty Ltd authorised agents or to NEC Australia Pty Ltd.

SECTION 5 COMPLIANCE INFORMATION

This equipment has been tested to comply with all relevant ACA Technical Standards.

To be compliant to Australian Standard ACIF S004:2001, Warning: Small metal objects such as staples and pins may be caught and held in the earpiece and that the user should be aware and careful to prevent any accident from such an event.

The UNIVERGE SV8100 KSU must be permanently connected to protective earth.

SECTION 6 VOICE ANNOUNCEMENT/MONITORING

CAUTION

The use of monitoring, recording or listening devices to eavesdrop, monitor, retrieve or record telephone conversations or other sounds activities, whether or not contemporaneous with its transmission may be illegal in certain circumstances under federal or state laws. Legal advise 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 the telephone conversation, such as using a beep tone or other notification methods, or require the consent of all parties to the telephone conversation, prior to monitoring or recording a telephone conversation. Some of these laws incorporate strict penalties.

SECTION 7 MUSIC ON HOLD

IMPORTANT NOTE

In accordance with Australian Copyright Law, a license may be required from The Australian Performing Right Association Limited (APRA), or other similar organisation, when radio or TV broadcasts are transmitted through the Music On Hold feature of this telecommunication system. NEC Australia Pty Ltd hereby disclaims any liability arising out of the failure to obtain such a license.

SECTION 8 UL REGULATORY INFORMATION

This equipment has been listed by Underwriters Laboratories and complies with all applicable requirements of the standard for telephone equipment UL 1459.

SECTION 9 BATTERY DISPOSAL AND SAFETY

The UNIVERGE SV8100 system includes the batteries listed below. When disposing of these batteries from system chassis, blades or external battery boxes, the maintenance personnel must comply with applicable Federal and State regulations regarding proper disposal procedures.

Unit Name	Type of Battery	Quantity
CD-CP00-XX	Lithium	1
CD-VM00	Lithium	1
CHS2U INT BATT (Optional)	Sealed Lead Acid	2
CHS LARGE BATT BOX (Optional)	Sealed Lead Acid	1 BAT Box = 3 sets of [2 x 12V-7AH] 1 BAT Box = 6 sets of [2 x 12V-7AH] 1 BAT Box = 9 sets of [2 x 12V-7AH] 1 BAT Box = 12 sets of [2 x 12V-7AH]

IMPORTANT SAFEGUARDS FOR BATTERY DISPOSAL

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

The incineration, landfilling or mixing of disposable batteries with the municipal solid waste stream may be 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.

CAUTION

Danger of explosion if batteries are incorrectly installed. Replace only with the same or equivalent type of battery as indicated throughout this manual.

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Chapter 8 Installing SV8100/SV8300 Bluetooth

Chapter 9 Installing SV8100/SV8300 Wireless Telephones

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Introduction to SV8100/SV8300

SECTION 1 GENERAL INFORMATION

The SV8100/SV8300 is a full-featured IP based communications system providing a rich feature set of existing system, 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 or Remote Unit over IP.

✎ *Remote Unit over IP is available only for the SV8300.*

The SV8100/SV8300 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 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). Through IP connection and four additional 19” chassis, the system can be expanded to a maximum of 512 ports for SV8100 and a maximum of 1024 for SV8300 (refer to Table 2-2 SV8100 Maximum System Capacities – Trunks/Ports/Channels on page 2-4 or Table 3-2 SV8300 Maximum System Capacity on page 3-5).

Communications between legacy stations/trunks and DT700 series telephones/IP networks are made using a VoIP blade, 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 is a simplified view of SV8100 system connectivity and Figure 1-2 is a simplified view of SV8300 system connectivity.

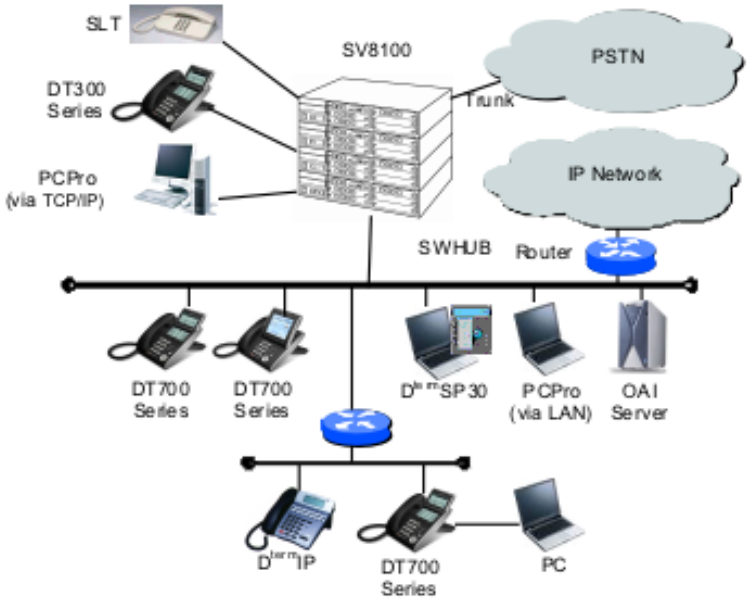


Figure 1-1 Simplified SV8100 System Connectivity

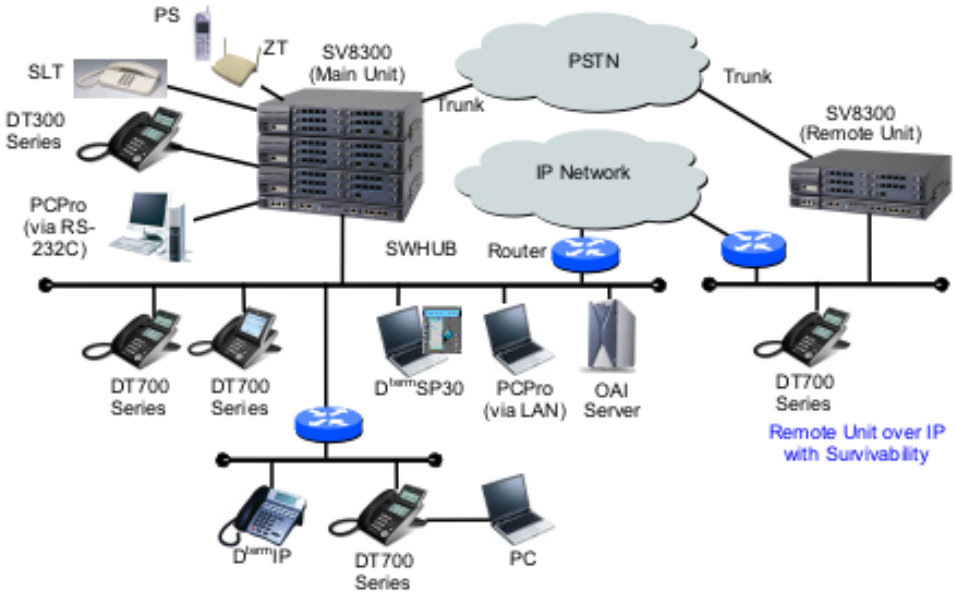


Figure 1-2 Simplified SV8300 System Connectivity

Highlights of the UNIVERGE SV8100/SV8300 are as follows:

❑ Pure IP System Capable TDM Configuration

The SV8100/SV8300 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 blade on the CPU blade, which converts packet-based voice data to TDM-based voice data, and vice versa.

✎ *Remote Unit over IP is available only for the SV8300.*

❑ Powerful CPU Blade with Built-in Functionalities

The CPU blade of SV8100/SV8300 is a heart of 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
- ❍ In-Mail (VMDB)
- ❍ VoIP

✎ *In-Mail 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, etc.

❑ High Density Legacy Line/Trunk Blades

Major legacy line/trunk blades used in SV8100/SV8300 are provided with main blade + daughter board architecture. When the main 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 (19” Chassis)

  A 19” 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. This makes easy quotation and installation.

- 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. It 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.

- Remote Unit over IP with Survivability (SV8300 only)

  The SV8300 can provide Remote Unit configuration, main site and remote unit(s) through IP network. The main unit controls call processing and service features access for station users located in both main unit and remote unit(s). When the remote unit cannot be connected with main unit due to IP network failure or main unit failure, the remote unit initializes the system and re-starts operation by its own CPU (survival mode). In the survival mode, almost service features are provided to the station users accommodated in the remote unit. When IP network/ main unit is recovered, the remote unit can be restored to normal mode with system reset by automatic or manual operation (Selectable by system data setting).

SECTION 2 EQUIPMENT LIST

The following tables list all equipment for the SV8100/SV8300 systems. The product code column indicates whether the equipment is available for the SV8100 product line only (**SV8100**), for SV8300 product line only (**SV8300**) or is common for both SV8100/ SV8300 product lines (SV8100/SV8300).

Table 1-1 Chassis Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
4422000	CHS2U-AU	19” Chassis (6-slot)	**SV8100/SV8300**
4420027	CHS1U-AU	19” Chassis (1-slot)	**SV8300**
4422008	MPS7101	Power Supply Unit for 19” Chassis (2U)	**SV8100/SV8300**
4420004	PZ-PW146(1U)	Power Supply Unit for 19” Chassis (1U)	**SV8300**

Table 1-2 Chassis Installation Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
4422002	CHS BASE UNIT	Floor Mount Set for all chassis (CHS1U-AU and CHS2U-AU)	SV8100/SV8300
4422006	CHS2U BLANK SLOT COVER KIT	Blank Slot Cover Set	SV8100/SV8300
4422005	CHS2U JOINT BRACKET KIT	Upper Joint Bracket for 6-slot Chassis	SV8100/SV8300
4420028	CHS1U RACK MOUNT KIT	Rack Mount Set for CHS1U-AU Chassis	SV8300
4422001	CHS2U RACK MOUNT KIT	Rack Mount for CHS2U-AU Chassis	SV8100/SV8300
4422003	CHS1U/2U WALL MOUNT KIT	Wall Mount Set for CHS2U-AU Chassis	SV8100/SV8300
4421000	CHS Stand Kit (K)	Stand Mount Kit for 2U Chassis	SV8100/SV8300
4422004	CHS2U STAND KIT (EXT)	Expansion Plate for Stand Mount Kit for 6-blade Chassis, 2 sets	SV8100/SV8300
4422020	CHS1U BLANK SLOT COVER KIT(BUS)	Blank Bus Cover	SV8100/SV8300

Table 1-3 Battery Mount Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
4422009	CHS1U BATT MTG KIT	CHS1U-AU Battery mounting kit Backup Time – 10 minutes	SV8300
4421001	CHS LARGE BATT BOX	Long Term Battery Box for CHS1U-AU and CHS2U-AU Chassis Cable between batteries – 9.06in/230mm Fuse Unit to Batteries – 18.11In/460mm Cable from chassis to battery box – 81.1in/2060mm	SV8100/SV8300
4422010	CHS2U BATT MTG KIT	Battery Mount for CHS2U-AU Chassis Backup time – 10 minutes	SV8100/SV8300
4421002	CHS LARGE BATT	Long term battery, 12V 7Ah SLA Batteries with Faston 187 terminals	SV8100/SV8300
4422050	CHS1U BATT	Internal battery set for CHS1U-AU chassis 12V 0.8Ah SLA battery with Tyco/Amp	SV8300
4422049	CHS2U INT BATT	Internal battery set for CHS2U-AU chassis 12V 2.3Ah SLA Battery with Faston 187	SV8100/SV8300

Table 1-4 Blade Equipment List

Stock Number	Equipment Name	Abbreviations	Equipment Description	Product Code
4421004	CD-CP00-AU	CPU	Main Processor Blade for SV8100	SV8100
4420005	CC-CP00	CPU	Main Processor Blade for SV8300	SV8300
4422014	PZ-BS10	BUS0	Expansion Chassis Interface Unit, 3-jack	SV8100/SV8300
4422015	PZ-BS11	BUS1	Expansion Chassis Interface Unit, 1-jack	SV8100/SV8300
4422011	PZ-VM21	VMDB	16 Channels for Voice Mail with a Single Channel V34 Modem	SV8100/SV8300
4421007	PZ-32IPLA	VoIPDB	32-channel VOIP on CCPU	SV8100
4422012	PZ-64IPLA	VoIPDB	64-channel VOIP on CCPU	SV8100/SV8300
4422013	PZ-128IPLA	VoIPDB	128-channel VOIP on CCPU	SV8100/SV8300
4422016	CD-8DLCA	DLC	8-port Digital Station Interface	SV8100/SV8300
4422017	PZ-8DLCB	DLCDB	8-port Digital Station Interface on CD-8DLCA	SV8100/SV8300
4422018	CD-16DLCA	DLC	16-port Digital Station Interface	SV8100/SV8300
4422023	CD-4COTC	COT	4-port Loop/ground Start Trunks	SV8100/SV8300
4422024	PZ-4COTG	COTDB	4-port Loop Start Trunks on CD-4COTC, CD-LTA	SV8100/SV8300
4422019	CD-4LCA	LC	4-port Single Line Telephone Interface	SV8100/SV8300
4422020	PZ-4LCA	LCDB	4-port Single Line Telephone Interface on CD-4LCA and CD-8LCA	SV8100/SV8300
4422021	CD-8LCA	LC	8-port Single Line Telephone Interface	SV8100/SV8300
4422022	PZ-8LCE	LCDB	8-port Single Line Telephone Interface on CD-4LCA and CD-8LCA	SV8100/SV8300
4422025	CD-2BRIA	BRT	2 Basic Rate Interface	SV8100/SV8300
4422026	PZ-2BRIA	BRTDB	2 Basic Rate Interface on CD-2BRIA, for SV8100 can also be mounted on the CD-LTA blade.	SV8100/SV8300
4422027	CD-PRTA	PRT	1 Primary Rate Interface	SV8100/SV8300
4422028	CD-CCTA	CCT	Common Channel Interoffice Signalling Trunk Interface/Common Channel Handler	SV8300
4422029	CD-4DIOPB	DIOP	4 DID/OPX	SV8100/SV8300
4422030	CD-4ODTB	ODT	4-port Tie Line Interface (E&M)	SV8100/SV8300
4422031	CD-RTB	RTB	Router	SV8100/SV8300
4422034	CD-VM00	VM00	Voice Mail and Server	SV8100/SV8300
4422032	CD-ETIA	GSWU	PoE Gigabit Switch Unit	SV8100/SV8300
4421005	PZ-ME50-AU	MEM	Memory Expansion on CD-CP00-AU	SV8100
4421008	CD-LTA	LTA	8 Digital Station/2SLT for CD-CP00-AU only	SV8100

Table 1-5 Cable Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
4420007	CHS1U BATT CA INT BATT	CHS1U-AU Battery cable for internal battery Cable – 10.63ln/270mm	SV8300
4420008	RS CONSOLE CA-A	MAT (PCPro) Cable 6.6 ft. (2.0m)	SV8300
4420021	RS NORM-4S CA-F	RS-232C Cable (normal) 13.1 ft (4m)	SV8300
4420022	RS RVS-15S CA-F	RS-232C Cable (reverse) 49.2 ft (15.0m)	SV8300
4420023	RS RVS-4S CA-F	RS 232C Cable (reverse) 13.1 ft (4.0m)	SV8300
4420024	RS RVS-4S CA-G	RS 232C Cable (reverse) 13.1 ft (4.0m)	SV8300
4420025	RS PRT-15S CA-F	RS-232C Cable (printer) 49.2 ft (15.0m)	SV8300
TBA	BUS CABLE	Bus Cable	SV8300
4422037	AC CORD	AC Power Cable for US	SV8300
4422038	CHS2U BATT CA INT	CHS2U-AU Battery Cable for Internal Battery 2U Chassis Cable A – 18.9in/480mm Cable B – 3.15in/80mm	SV8300
4422039	CHS2U BATT CA EXT-A	Battery Cable for External Battery 6-slot Chassis	SV8300

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

Stock Number	Equipment Name	Equipment Description	Product Code
4424009	DTL-2E-1( ) (BK) TEL	Economy Digital 2-button Telephone (No-Display)	SV8100/SV8300
4424010	DTL-6DE-1( ) (BK) TEL	Economy Digital 6-button Display Telephone	SV8100/SV8300
4424012	DTL-24D-1( ) (BK) TEL	Value Digital 24-button Display Telephone	SV8100/SV8300
4424022	DCL-60-1( ) (BK) CONSOLE	60-button Direct Station Selection (DSS) Console	SV8100/SV8300
4424023	8LK-L( ) (BK) UNIT	8-button Line Key Unit	SV8100/SV8300
4424030	8LKD (LD)-L( ) (BK) UNIT	DESI-less 8-button Line Key Unit/LCD Unit for Digital Telephone	SV8100/SV8300

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

Stock Number	Equipment Name	Equipment Description	Product Code
4424000	ITL-2E-1( ) (BK) TEL	Economy IP 2-button Telephone (No Display)	SV8100/SV8300
4424001	ITL-6DE-1( ) (BK) TEL	Economy IP 6-button Display Telephone	SV8100/SV8300
4424003	ITL-24D-1( ) (BK) TEL	Value IP 24-button Display Telephone	SV8100/SV8300
4424008	ITL-320C-1( ) (BK) TEL	Sophisticated Telephone	SV8100/SV8300
4424031	8LKI (LD)-L( ) (BK) UNIT	DESI-less LK/LCD Unit for IP	SV8100/SV8300

Table 1-8 DT300/DT700 Series Optional Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
4424017	APR-L( ) UNIT	Analog Port Ringer	SV8100
4424018	ADA-L( ) UNIT	Ancillary Device Adapter	SV8100
4424019	BHA-L UNIT	Bluetooth® Hub Adapter	SV8100/SV8300
4424020	PSA-L( ) (BK) UNIT	Power Save Adapter	SV8100/SV8300
4424021	BCH-L (BK) UNIT	Bluetooth® Cordless Handset	SV8100/SV8300
4424029	12LK-L( ) (BK) KIT	12-button Line Key Kit	SV8100/SV8300
4424032	LCD (BL)-L( ) (BK) UNIT	LCD Unit (No Backlight)	SV8100/SV8300
4424033	WM-L( ) UNIT	Wall Mount Unit	SV8100/SV8300
4424036	Panel (Red-Base)-L( ) UNIT	Color Side Panel for Base (Red)	SV8100/SV8300
4424037	Panel (Red-VLCD)-L( ) UNIT	Color Side Panel for Value Telephone LCD (Red)	SV8100/SV8300
4424038	Panel (Red-SLCD)-L( ) UNIT	Color Side Panel for Sophisticated Telephone LCD (Red)	SV8100/SV8300
4424039	Panel (Blue-Base)-L( ) UNIT	Color Side Panel for Base (Blue)	SV8100/SV8300
4424040	Panel (Blue-VLCD)-L( ) UNIT	Color Side Panel for Value Telephone LCD (Blue)	SV8100/SV8300
4424041	Panel (Blue-SLCD)-L( ) UNIT	Color Side Panel for Sophisticated Telephone LCD (Blue)	SV8100/SV8300
4424042	Panel (Silver-Base)-L( ) UNIT	Color Side Panel for Base (Silver)	SV8100/SV8300
4424043	Panel (Silver-VLCD)-L( ) UNIT	Color Side Panel for Value Telephone LCD (Silver)	SV8100/SV8300
4424044	Panel (Silver-SLCD)-L( ) UNIT	Color Side Panel for Sophisticated Telephone LCD (Silver)	SV8100/SV8300
4424045	Panel (Wood-Base)-L( ) UNIT	Color Side Panel for Base (Wood)	SV8100/SV8300
4424046	Panel (Wood-VLCD)-L( ) UNIT	Color Side Panel for Value Telephone LCD (Wood)	SV8100/SV8300
4424047	Panel (Wood-SLCD)-L( ) UNIT	Color Side Panel for Sophisticated Telephone LCD (Wood)	SV8100/SV8300
4424048	Panel(Logo-Base)-L( ) UNIT	Color Side Panel for Base (Wood with Logo)	SV8100/SV8300
4424049	Panel (Clear-Base)-L( ) UNIT	Color Side Panel for Base (Clear)	SV8100/SV8300
4424050	Panel (Clear-VLCD)-L( ) UNIT	Color Side Panel for Value Telephone LCD (Clear)	SV8100/SV8300
4424051	Panel (Clear-SLCD)-L( ) UNIT	Color Side Panel for Sophisticated Telephone LCD (Clear)	SV8100/SV8300
4424024	BS (F)-L( ) (BK) KIT	French Keypad	SV8100/SV8300

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

Stock Number	Equipment Name	Equipment Description	Product Code
4424025	BS (S)-L( ) (BK) KIT	Spanish Keypad	**SV8100/SV8300**
4424026	BS (ACD)-L( ) (BK) KIT	ACD Support Keypad	**SV8100/SV8300**
TBA	BS (ICON)-L( ) (BK) KIT	ICON Support Keypad	**SV8100/SV8300**
4424028	BS (Retro)-L( ) (BK) KIT	Retrofit Support Keypad	**SV8100/SV8300**
TBA	BS (RetroCON)-L( ) (BK) KIT	Retrofit ICON Support Keypad	**SV8100/SV8300**
4424027	BS (Braille)-L( ) (BK) KIT	Braille Support Keypad	**SV8100/SV8300**

- - NOTES - -

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	Analog Recording Adapter
APR	Analog Port Adapter (with ringer)
AUX IN/OUT	BGM/MOH Port (on CPU)
BRI	Basic Rate Interface
BRIDB	Expansion Basic Rate Interface Blade 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)
CF	Compact Flash
CFT	Conference Trunk (on CPU)
COT	Central Office Trunk (Loop and Ground Start Interface)
COTDB	Expansion Loop and Ground Start Interface Blade on COT
CNF	Conference Bridge Blade (PVA)
CPU	Central Processing Unit
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)
GSWU	Power over Ethernet Gigabit Switch

Table 2-1 List of Abbreviations (Continued)

Abbreviation	Description
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	Expansion Single Line Telephone Interface Blade 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
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)
PX-VM21	VM21 Daughter Board with V34 Modem (SV8100 only)
VMS	Voice Mail System
VoIP	Voice over Internet Protocol
VoIPDB	IPLA Daughter Board (on CPU)
VRS	Voice Response System
WAN	Wide Area Network
WebPro	Web-Based PC Programming

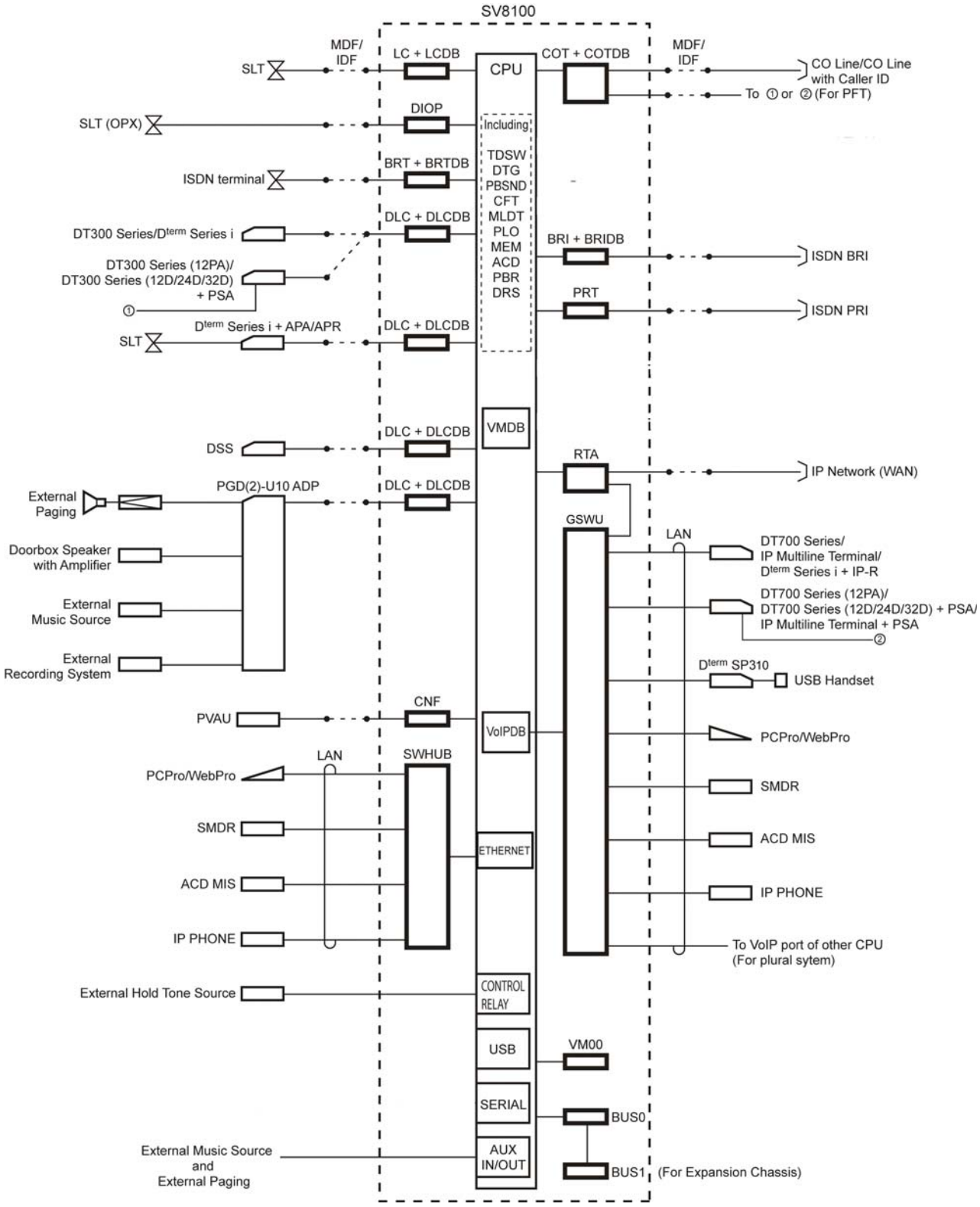


Figure 2-1 SV8100 System Block Diagram

SECTION 3 MAXIMUM SYSTEM CAPACITIES

The CHS2U-AU/EU/OT/US is a compact 19” chassis that has six universal slots, one expansion slot and one MPS7101 (power supply unit). When the CD-CP00-AU/EU/OT/US is installed in the first CHS2U-AU/EU/OT/US, it is referred to as the *Controlling Chassis*. Additional chassis, referred to as *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 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 320 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 Maximum System Capacities – Trunks/Ports/Channels.

Table 2-2 SV8100 Maximum System Capacities – Trunks/Ports/Channels

Number of:		19” Chassis				System Maximum
		x 1 (6 Slots)	x 2 (12 Slots)	x 3 (18 Slots)	X4 (24 Slots)	
Number of Timeslots *1	PCM	104	208	312	416	416
	Data	7	14	21	28	28
D^{term} (-48V) *2		80	160	240	320	Total 512
SLT (-24V)		80	176	272	368	
SLT (-48V)		20	44	68	92	
D^{term}IP		512				
SIP/WLAN		512				
Analog Trunks (COT)		40	88	136	184	Total 200
BRI		40	88	136	184	
PRI (2M)		90	200	200	200	
IP Trunk (SIP)		200				
VoIP Channels		128				
Voice Mail Channels on CPU		16 channels				
V34 Modem		1 channel				

*1 = For U-law countries 104 timeslots per chassis are assigned the G711 PCM communications (e.g., voice communications) and seven 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 = Maximum 80 *Digital Terminals* per 19” chassis due to power consumption

3.1 System Configuration – SV8100

The SV8100 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). Through IP connection and use of additional 19” chassis, the system can be expanded to a maximum of 512 ports.

The 19” chassis consists of a controlling chassis (chassis with CPU blade), and the ability to expand the system using expansion blades depending on system configuration.

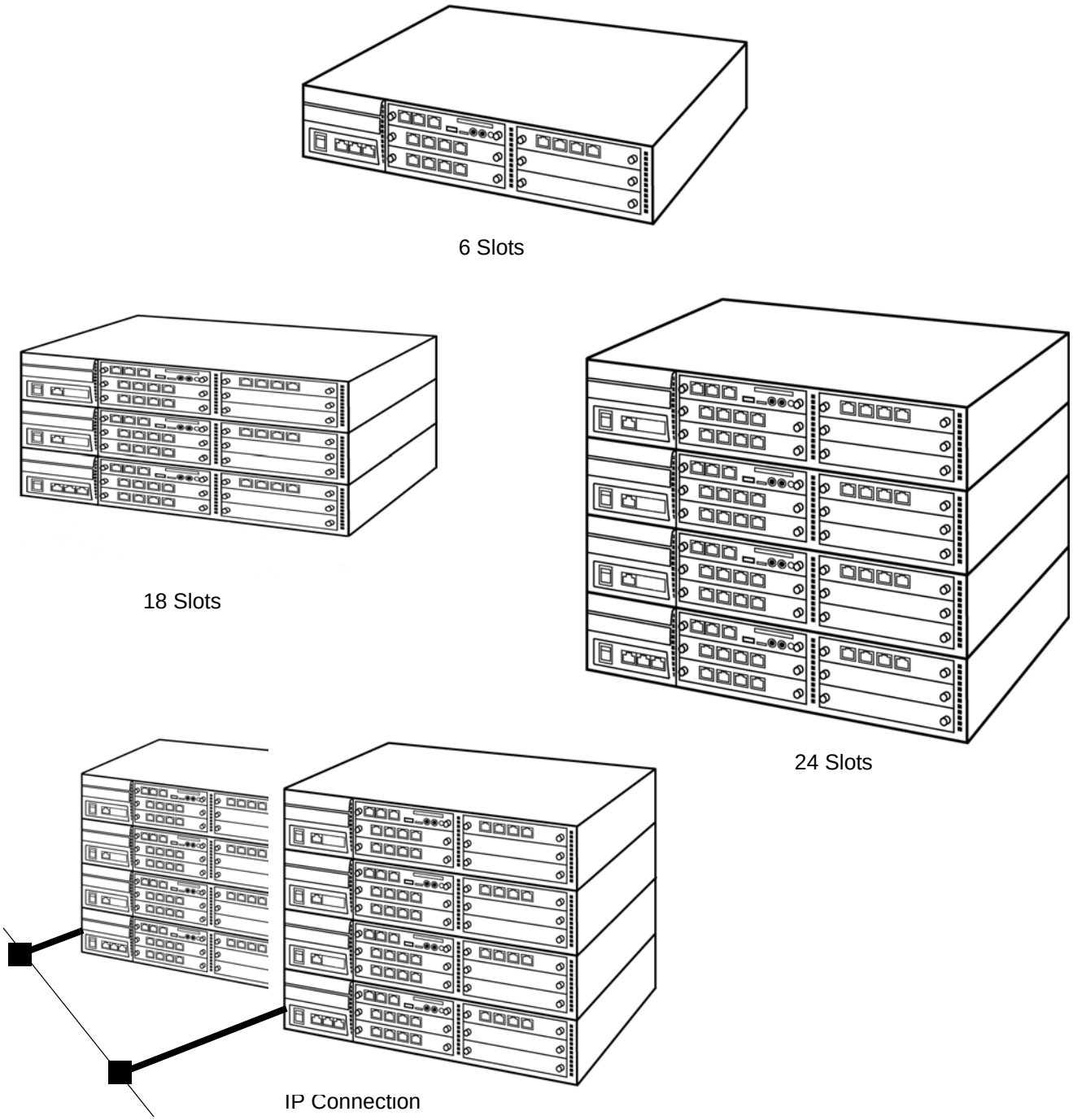


Figure 2-2 19” Controlling and Expansion Chassis

Table 2-3 SV8100 Maximum System Capacities – Chassis shows the maximum number of chassis and related equipment that can be installed in a system.

Table 2-3 SV8100 Maximum System Capacities – Chassis

Hardware	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis	Comments
Number of Slot(s) for Interface Package	**5 Slots**	**6 Slots**	**23 Slots**		
Chassis:					
CHS2U-AU/EU/OT/US (19" Chassis)	1	13	4	16 x (1+3)	Virtual slot in NetLink is limited to maximum of 240
Expansion:					
PZ-BS10 3-jack Expansion Board for Controlling Chassis	1	0	1	*	–
PZ-BS11 1-jack Expansion Board for Expansion Chassis	0	1	3	*	–
Battery:					
CHS LARGE BATT BOX (External Battery Box)	1	1	4	16 x (1+3)	–
Fan Box:					
CHS2U FAN BOX SET	1	1	4	–	1 is factory installed with each chassis
Power Supply:					
MPS7101	1	1	4	–	1 is factory installed with each chassis

* Dependent on size of system.

Table 2-4 SV8100 Maximum System Capacities – Blades shows the maximum number for each blade that can be installed in a system.

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 2-4 SV8100 Maximum System Capacities – Blades

Hardware	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis	Comments
Number of Slot(s) for Interface Package	**5 Slots**	**6 Slots**	**23 Slots**		
Common Control Blades:					
CD-CP00-AU/EU/OT/US	1	0	1	16	–
PZ-32IPLA (32-port VoIP Daughter Board)	1	0	1	16	This unit provides 32 VOIP Gateway channels
PZ-64IPLA (64-port VoIP Daughter Board)	1	0	1	16	This unit provides 64 VOIP Gateway channels
PZ-128IPLA (128-port VoIP Daughter Board)	1	0	1	16	This unit provides 128 VOIP Gateway channels
PZ-ME50-AU/EU/OT/US (Memory Expansion Board)	1	0	1	16	–
PZ-VM21 (Voice Mail Daughter)	1	0	1	1	Does include modem
Station Blades:					
CD-4DIOPA (4 DID/OPX)	5	6	23	128	DID not supported on SV8100. When installed as an OPX blade
CD-4LCA (4 Single Line Telephone Interface)	5	6	23	32	–
CD-8LCA (8 Single Line Telephone Interface)	5	6	23	32	Maximum of 80 Analog Terminals per chassis
CD-8DLCA (8 Digital Station Interface)	5	6	23	32	Maximum of 80 Digital Terminals per chassis
CD-16DLCA (16 Digital Station Interface)	5	5	20	32	Maximum of 80 Digital Terminals per chassis
PZ-8DLCB (8 Digital Station Interface Daughter Board)	5	5	20	32	Maximum of 80 Digital Terminals per chassis
PZ-4LCA (4 Single Line Telephone Interface Daughter Board)	5	6	23	32	–
PZ-8LCE (8 Single Line Telephone Interface Daughter Board)	5	5	20	32	Maximum of 80 Analog Terminals per chassis
CD-LTA (8 Digital/2 Single Line)	1	1	4	5	An optional PZ-4COTG or PZ-2BRIA can be installed

Table 2-4 SV8100 Maximum System Capacities – Blades (Continued)

Hardware	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis	Comments
Number of Slot(s) for Interface Package	**5 Slots**	**6 Slots**	**23 Slots**		
Trunk Blades:					
CD-2BRIA (2 Basic Rate Interface)	5	6	23	25	–
PZ-2BRIA (2 Basic Rate Interface Daughter Board)	5	6	23	25	–
CD-4COTB (4 Loop/Ground Start Trunk)	5	6	23	25	–
PZ-4COTG (4 Loop/Ground Start Trunk Daughter Board)	5	6	23	25	–
CD-4ODTA (4 E&M)	5	6	23	50	–
CD-PRTA (1 Primary Rate Interface)	4	4	16	8	Blade is used for Primary Rate Interface or T-1 Interface.
Optional Blades:					
CD-PVAA (Conference Bridge)	5	6	23	32	–
CD-ETIA (Switching Hub with Power over Ethernet)	3	3	12	64	–
CD-RTB (Router)	1	2	7	50	–
CD-VM00 (Voice Mail and Server)	1	1	1	1	Maximum of One per system
EXIFU-B (for Controlling Chassis)	1	1	3	16 x 1	–
EXIFU-E (for Expansion Chassis)	1	1	3	16 x 3	–

Table 2-5 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-2BRIA or the PZ-4COTG daughter board mounted.

Table 2-5 Daughter Board Combinations

	Daughter Board				
	PZ-2BRIA	**PZ-4COTG**	**PZ-4LCA**	**PZ-8LCE**	**PZ-8DLCB**
Blades					
CD-LTA (8 Digital/2 Single Line)	✔	✔	–	–	–
CD-4COTB (4 Loop Ground Start)	–	✔	–	–	–
CD-4LCA (4 Single Line Interface)	–	–	✔	✔	–
CD-8LCA (8 Single Line Interface)	–	–	✔	✔	–
CD-8DLCA (8 Digital Station Interface)	–	–	–	–	✔
CD-16DLCA (16 Digital Station Interface)	–	–	–	–	–
CD-2BRIA (2 Basic Rate Interface)	✔	–	–	–	–

– = Does not apply
✔ = Does apply

SECTION 4 LICENSING

Table 2-6 System Licenses provides a list of the licensing available with the system.

Table 2-6 System Licenses

License	Function	Description
System:		
LK-SYS-UPG FM 65 TO 256 PORT-LIC	System Ports - 256 Port License	This System License supports a maximum of 256 System Port Licenses. Supports flexible port configuration with the onboard memory daughter board (PZ-ME50-AU/EU/OT/US) and System License.
LK-SYS-UPG FM 257 TO 712 PORT-LIC	System Port - upgrade from 257 to 712 Port License	This System License supports a maximum of 712 System Port Licenses. Supports flexible port configuration with the onboard memory daughter board (PZ-ME50-AU/EU/OT/US) and System License.
LK-SYS-HM-LIC	Hotel/Motel (PMS) License	Enables system Hotel/Motel and PMS features.
LK-SYS-SMDR-LIC	SMDR License	Enables system SMDR feature which provides a record of system trunk calls.

Table 2-6 System Licenses (Continued)

License	Function	Description
LK-SYS-ACD-LIC	InACD Activation License	System wide activation key supporting InACD.
LK-SYS-IP-TRUNK1-LIC	IP Trunk (SIP and/or H.323) - One Trunk License	One IP Trunk License Supports one system SIP or H.323 Trunk. This License is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TRUNK4-LIC	IP Trunk (SIP and/or H.323) - Four Trunk License	Four IP Trunk License Supports four system SIP or H.323 Trunks. This License is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TRUNK8-LIC	IP Trunk (SIP and/or H.323) - Eight Trunk License	Eight IP Trunk License Supports Eight system SIP or H.323 Trunks. This License is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TRUNK16-LIC	IP Trunk (SIP and/or H.323) - 16 Trunk License	16 IP Trunk License Supports 16 system SIP or H.323 Trunks. This License is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TERMINAL-1-LIC	NEC SIP Client - One license	One NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-4-LIC	NEC SIP Client - Four license	Four NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-8-LIC	NEC SIP Client - Eight license	Eight NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-16-LIC	NEC SIP Client - 16 license	16 NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-32-LIC	NEC SIP Client - 32 license	32 NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP1-LIC	SIP Client - One license	One SIP Client - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP4-LIC	SIP Client - Four license	Four SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP8-LIC	SIP Client - Eight license	Eight SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP16-LIC	SIP Client - 16 license	16 SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP32-LIC	SIP Client - 32 license	32 SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-1ST-CTI1-LIC	1st Party CTI (Ethernet) - One License	One 1st party CTI (Ethernet) Client License supports CTI over Ethernet and may support maximum of 128 Clients.
LK-SYS-3RD-CTI-LIC	3rd Party CTI license	3rd Party CTI License Enables 3rd Party CTI (System Wide)

Table 2-6 System Licenses (Continued)

License	Function	Description
Voice Mail and Unified Messaging:		
LKS-VM-VRS2-LIC	VRS Port - Two license	Two Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-VRS4-LIC	VRS Port - Four license	Four Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-VRS8-LIC	VRS Port - Eight license	Eight Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-VRS16-LIC	VRS Port - 16 license	16 Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-INMAIL2-LIC	VM8000 InMail Port - Two license	Two Port License (VM8000 InMail) - Approximately 33 hours of storage and requires stock no. 670831 AKS InMail-512M - APP CF Supports a maximum of 16 Dynamic VRS ports and/or eight Dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-INMAIL4-LIC	VM8000 InMail Port - Four license	Four Port License (VM8000 InMail) - Approximately 33 hours of storage and requires stock no. 670831 AKS InMail-512M - APP CF Supports a maximum of 16 Dynamic VRS ports and/or eight Dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-INMAIL8-LIC	VVM8000 InMail Port - Eight license	Eight Port License (VM8000 InMail) - Approximately 33 hours of storage and requires stock no. 670831 AKS InMail-512M - APP CF Supports a maximum of 16 Dynamic VRS ports and/or eight Dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-LANGUAGE-LIC	VM8000 InMail Multi language support - One license	One Language activation license. Supports a maximum of 20 languages.
LKS-UMS-CLIENT1-LIC	UM8000 Mail View App Session - One license	One Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-CLIENT4-LIC	UM8000 Mail View App Session - Four license	Four Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-CLIENT8-LIC	UM8000 Mail View App Session - Eight license	Eight Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.

Table 2-6 System Licenses (Continued)

License	Function	Description
LKS-UMS-CLIENT16-LIC	UM8000 Mail View App Session - 16 license	16 Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-CLIENT32-LIC	UM8000 Mail View App Session - 32 license	32 Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-PORT4-LIC	UM8000 Mail Port - Four license	Four UMS Port License
LKS-UMS-PORT8-LIC	UM8000 Mail Port - Eight license	Eight UMS Port License
LKS-UMS-PORT16-LIC	UM8000 Mail Port - 16 license	16 UMS Port License
LKS-UMS-PORT 2 LITE-LIC	UM8000 Mail Lite Port (Two license)	Two UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax. UPGRADES - The 2 UMS Lite requires stock number: 670851 LKS-UMS2 PORT LITE UPG KIT
LKS-UMS-PORT 4 LITE-LIC	UM8000 Mail Lite Port (Four license)	Four UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax.
LKS-UMS-PORT 8 LITE-LIC	UM8000 Mail Lite Port (Eight license)	Eight UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax.
LKS-UMS-PORT 16 LITE-LIC	UM8000 Mail Lite Port (16 license)	16 UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax.
LKS-UMS UPG FM LITE TO FULL-LIC	UM8000 Mail Upgrade from LITE to FULL license	Upgrade from UMS LITE to FULL License
LKS-UMS-PORT2 LITE UPG KIT-LIC	UM8000 Mail Two Port Lite Upgrade Kit license	Two-port LITE Upgrade Kit - License
LKS-UMS PORT 4 UPG-LIC	UM8000 Mail Four Port (FULL) Upgrade license	Four-port Upgrade Kit - License
LKS-UMS VIDEO MAIL CLIENT1-LIC	UM8000 Mail Video Mail Client - One license	One Video Mail Client - One License
LKS-UMS VIDEO MAIL CLIENT5-LIC	UM8000 Mail Video Mail Client - Five license	Five Video Mail Client - One License
LKS-UMS-LANGUAGE-LIC	UM8000 Mail Multi language Support - One license	One language activation license. Supports a maximum of 24 languages.
LKS-UMS-FAX-LIC	UMS000 Mail FAX Port - One license	One port FAX
LKS-UMS-HOTEL-PMS-LIC	UM8000 Mail Hospitality/ PMS license	Hospitality and PMS Activation lLcense
LKS-UMS-HOTEL-LANGUAGE-LIC	UM8000 Mail Hospitality Language - One license	One Hospitality Language Activation License
LKS-UMS-AMIS-PLUS-LIC	UM8000 Mail AMIS/Plus Net	

Table 2-6 System Licenses (Continued)

License	Function	Description
ACD/MIS:		
LKS-ACDMIS-BASIC-LIC	ACD-MIS Basic License	
LKS-ACDMIS-ADDMON-LIC	ACD-MIS Add. Monitor	ACD MIS Additional Monitor Report License
LKS-ACDMIS-AGENT-LIC	ACD-MIS Agent Client - One license	ACD MIS Agent Client License
Desktop Suite:		
LKS-DESKTOP SUITE-SOFTPHONE1-LIC	Desktop Suite Soft Phone (SP310) Client - One license	One Desktop Suite - Soft Phone (SP310) Client License fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD. The NEC Softphone SP310 requires a NEC SIP Client License stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE4-LIC	Desktop Suite Soft Phone (SP310) Client - Four license	Four Desktop Suite - Soft Phone (SP310) Client License fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD. The NEC Softphone SP310 requires a NEC SIP Client License stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE16-LIC	Desktop Suite Soft Phone (SP310) Client - 16 license	16 Desktop Suite - Soft Phone (SP310) Client License fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD. The NEC Softphone SP310 requires a NEC SIP Client License stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE32-LIC	Desktop Suite Soft Phone (SP310) Client - 32 license	32 Desktop Suite - Soft Phone (SP310) Client License fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD. The NEC Softphone SP310 requires a NEC SIP Client License stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE64-LIC	Desktop Suite Soft Phone (SP310) Client - 64 license	64 Desktop Suite - Soft Phone (SP310) Client License fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD. The NEC Softphone SP310 requires a NEC SIP Client License stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LK-DESKTOP SUITE-ENHANCE PKG1-LIC	Desktop Suite Enhancement Pkg Client - One license	One Desktop Suite - Enhancement Pkg Client License used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).
LK-DESKTOP SUITE-ENHANCE PKG4-LIC	Desktop Suite Enhancement Pkg Client - Four license	Four Desktop Suite - Enhancement Pkg Client License used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) PStock No. 4421015 SV8100 Application CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).
LK-DESKTOP SUITE-ENHANCE PKG16-LIC	Desktop Suite Enhancement Pkg Client - 16 license	16 Desktop Suite - Enhancement Pkg Client License used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).

Table 2-6 System Licenses (Continued)

License	Function	Description
LK-DESKTOP SUITE-ENHANCE PKG32-LIC	Desktop Suite Enhancement Pkg Client - 32 license	32 Desktop Suite - Enhancement Pkg Client License used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Stock No. 4421015 SV8100 Application CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).
LK-DESKTOP SUITE-ENHANCE PKG64-LIC	Desktop Suite Enhancement Pkg Client - 64 license	64 Desktop Suite - Enhancement Pkg Client License used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) PStock No. 4421015 SV8100 Application CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).

SECTION 5 POWER-BASED CALCULATOR CHART

The UNIVERGE SV8100 system uses two types of power factors. For a single chassis chart refer to Table 2-7 Board Power Factor. For the maximum number of specific blades per package, see Table 2-8 Maximum Number of Package Installed. Refer to Table 2-9 Terminal Power Factor below, for the Terminal/ Adapter power chart.

Table 2-7 Board Power Factor

Board Power Factor	
Total	**=<7**
Item	**Power Factor**
CD-CP00-AU/EU/OT/US	1
CD-VM00	2
CD-ETIA	2
PZ-32IPLA	1
PZ-64IPLA	2
PZ-128IPLA	2

Table 2-8 Maximum Number of Package Installed

Board (Power Factor)	Maximum Number of Package Installed		
	19 inch with CCPU	19 inch without CCPU	4 x 19 inch
CD-ETIA (2)	3	3	12

Table 2-9 Terminal Power Factor

Terminal Power Factor	
19 inch Chassis	**=<80**
Item	**Power Factor**
DTL-24D-1( ) TEL	1
DTL-8LD-1( ) TEL	1.5
BHA-L( ) UNIT	2
ADA-L( ) UNIT	2
APR-L( ) UNIT	2
BCH-L( ) (BK) UNIT	2
PSA-L( )	1
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	1
PGD(2)-U( ) ADP	2

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

Table 2-10 IP Terminal Power Chart

IP Terminal	IEEE802.3 af 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-24PA-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 2-11 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 2-3 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).

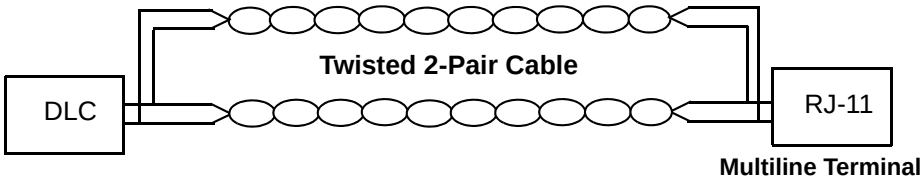


Figure 2-3 Connecting the DLC Using Twisted 2-Pair Cable

Refer to the following tables for cabling requirements and specifications.

- Table 2-12 DT300 Series Loop Resistance and Cable Length
- Table 2-13 DT700 Series Loop Resistance and Cable Length
- Table 2-14 D^{term} Series i or D^{term} IP Terminal Loop Resistance and Cable Length
- Table 2-15 Cable Connection Between the Analog Port and the Single Line Equipment
- Table 2-16 Cabling Requirements

Table 2-12 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	1,969 ft (600m)
DTL-24BT-1( ) (BK) TEL	1,969 ft (600m)
DTL-24PA-1( ) (BK) TEL	1,969 ft (600m)
DTL-24D-1( ) (BK) TEL	1,969 ft (600m)
DTL-32D-1( ) (BK) TEL	1,969 ft (600m)
DCL-60-1( ) Console✱	1,969 ft (600m)

✱ An AC Adapter is required.

Table 2-13 DT700 Series Loop Resistance and Cable Length

Terminal or Adapter	Ethernet Cable
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	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-24D-1( ) (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-24PA-1( ) (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-24D-1( ) (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100 m)
ITL-32D-1( ) (BK) 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 2-14 *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
DTR-8D-1( ) TEL	37	210 m	420 m	107	600 m	600 m
DTR-32D-1( ) TEL	26	200 m	400 m	107	600 m	600 m
DTR-16LD-1( ) TEL	37	210 m	420 m	107	600 m	600 m
DCR-60-1( ) Console✱	—	—	—	107	600 m	600 m

✱ An AC Adapter is required.

Table 2-15 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	10 ft (3.048m)
APR-L( ) UNIT	Twisted Pair	50 ft (15.24m)
BCH-L( ) (BK) UNIT	NEC Provided	4 in (101.6 mm)
PSA-L( ) (BK) UNIT	Twisted Pair	1,700 ohms

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

Table 2-16 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 240VAC 50 Hz 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: 240VAC @ 15A Controlling/Base Chassis
- ❒ Power Consumption: Base Chassis=276VA, Expansion Chassis=276VA, total 1104VA
- ❒ Input Voltage: 90VAC to 264VAC
  (Rated Voltage: 100VAC/120VAC/220VAC - 240VAC)
- ❒ Frequency: 45Hz - 66Hz (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 240VAC and with full load conditions:

Output Power: Base chassis=136W, Expansion chassis=136W, total 544W

AC Input I: Base chassis=1.15A, Expansion chassis=1.15A, total 4.6A

VA @ 240V: Base chassis=276VA, Expansion chassis=276VA, total 1104VA

KWh @ AC Input I x 240V/1000: Base chassis=0.276 KWh, Expansion chassis=0.276 KWh, total 1.104 KWh

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

- ❒ Dedicated 240VAC
- ❒ 50/60 Hz circuit located within seven feet of the chassis
- ❒ Dedicated 15A circuit
- ❒ Single Phase

- 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 2-17 Power Consumption

Chassis	Maximum RMS Current	Watts Used (Idle)	Watts Used (Maximum)
Basic Chassis – CD-CP00-AU/EU/OT/US Chassis	1.15 A	120	180
Basic Chassis + Expansion Chassis	2.3 A	240	360
Basic Chassis + 2 Expansion Chassis	3.45 A	360	540
Basic Chassis + 3 Expansion Chassis	4.5 A	480	720

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**,** PZ-ME50-AU/EU/OT/US**,** CD-8DLCA**,** CD-16DLCA**,** PZ-8DLCB

- 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**,** PZ-4LCA**,** CD-8LCA**,** PZ-8LCE**,** CD-4COTB**,** PZ-4COTG**,** 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/SV8300 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 Trunk (Internet Protocol)

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: 32 ms.

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/SV8300 system uses for switching, clock, data bus, and timeframe are shown below.

- TDM Switching: PCM (µ Law/A-Law)
- TDM Clock: 2.048 MHz
- TDM Data Bus: 8 bit
- TDM Timeframe: 125 µs.

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

6.5.4 *D^term^*series i Terminals and Equipment

The voltage, current, and ring signal for the *D^term^*series i 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

  Nominal Current: 25 mA

  Ring Signal: 56 Vac RMS @ 20 Hz

- AP(A)-R( ) Unit

  Nominal Current: 30 mA

- AP(R)-R( ) Unit

  Nominal Current: 30 mA

  Ring Signal: 56 Vac RMS @ 20 Hz

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/SV8300 system.

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

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/SV8300 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 ±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 5 ms.

- ❒ Duration of Dual Frequency Signal:
  110 ms. default/60 ms. minimum
  Interdigital Time: 140 ms. default/45 ms. minimum

Nominal **Low** Group Frequencies (Hz)	Nominal **High** Group Frequencies (Hz)		
	1209	**1336**	**1477**
697	1	2	3
770	4	5	6
852	7	8	9
941	*	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)-U( ) ADP
- ❒ Door Lock/Release or General Purpose Relay via PGD(2)-U( ) ADP
- ❒ Printer for SMDR by RS
- ❒ PC by LAN

6.6.4 Music Source for Music on Hold via Chassis

- ❒ Auxiliary Input: 0.6V PPS Signal Level
- ❒ Input Impedance: 600 Ω

6.6.5 External Paging (Audio)

- ❒ Output Power: –10 dBm Signal Level
- ❒ Output Impedance: 600 Ω
- ❒ Relay Contact Rating: 500 mA, 24 Vdc

6.6.6 External Tone Ringer/Night Chime Output

- ❒ Output Level: –10 dBm
- ❒ Output Impedance: 600 Ω
- ❒ Relay Contact Rating: 100 mA, 48 Vdc

6.6.7 SMDR Output

- ❒ Female Connector (LAN) Standard DB-9 (straight)

6.6.8 PC Connection

- ❒ Female Connector (LAN) Standard DB-9 (straight)

6.6.9 Relay Contact

- ❒ All Relay Contact Ratings: 500 mA, 24Vdc

6.7 Battery Backup

The UNIVERGE SV8100/SV8300 system has battery backup functions for system backup and for memory backup.

6.7.1 System Backup (Optional)

During a power failure, the system can be backed up using the CHS2U BATT MTG KIT for a backup time of 10 minutes or one of the CHS LARGE BATTs for a backup time ranging from 45~180 minutes.

6.7.2 Memory Backup

The CD-CP00-AU/EU/OT/US Blade battery retains the Clock/ Calender and Last Number redial (LNR) buffers for each station when the CD-CP00-AU/EU/OT/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 2-18 SV8100 Weights and Dimensions on page 2-25 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 2-18 SV8100 Weights and Dimensions

Unit	Shipping Weight [1]	Height	Width	Depth
SV8100				
CHS2U-AU/EU/OT/US	278.7 oz (7.9 kg)	3.47 in (88 mm)	16.9 in (430 mm)	14.17 in (360 mm)
CD-CP00-AU/EU/OT/US	7.06 oz (0.2 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
PZ-ME50-AU/EU/OT/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)
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	194 oz (5.5 kg)	6.69 in (170 mm)	5.91 in (150 mm)	4.33 in (110 mm)
Common				
MPS7101	31.75 oz (0.9 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)
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-4COTG	3.53 oz (0.10 kg)	1.89 in (48 mm)	9.45 in (240 mm)	5.12 in (130 mm)

Table 2-18 SV8100 Weights and Dimensions (Continued)

Unit	Shipping Weight [1]	Height	Width	Depth
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-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)
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	21.87 oz (0.62 kg)	23.23 in (590 mm)	17.72 in (450 mm)	10.43 in (265 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	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)

Table 2-18 SV8100 Weights and Dimensions (Continued)

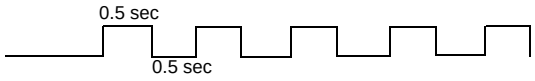
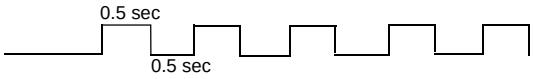
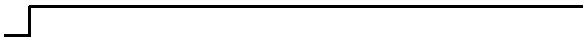
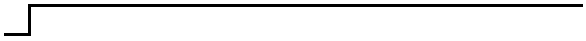
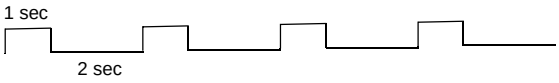
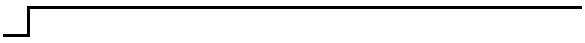
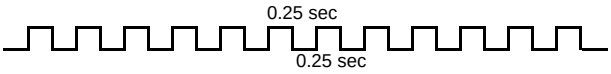
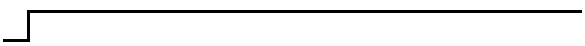
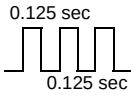
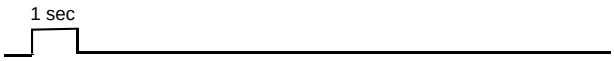
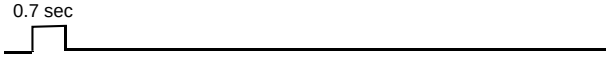
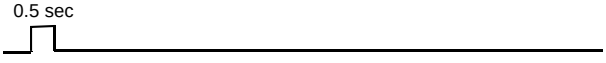
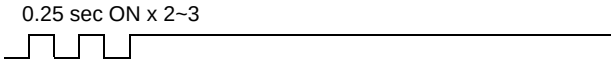
Unit	Shipping Weight [1]	Height	Width	Depth
Digital Multiline Terminal				
DTL-2E-1( ) (BK) TEL	35.27 oz (1.0 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
DTL-6DE-1( ) (BK) TEL	38.8 oz (1.1 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
DTL-24D-1( ) (BK) TEL	42.33 oz (1.2 kg)	4.39 in (111.7 mm)	7.05 in (179 mm)	10.16 in (258 mm)
IP Multiline Terminal				
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-24D-1( ) (BK) TEL	42.33 oz (1.2 kg)	4.41 in (112 mm)	7.05 in (179 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)
Optional				
8LK-L( ) (BK) 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)	.98 in (25 mm)	2.56 in (65 mm)	3.23 in (82 mm)
APR-L( ) UNIT	5.29 oz (0.15 kg)	0.98 in (25 mm)	2.56 in (65 mm)	3.23 in (82 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)
BHA-L( ) UNIT (Not in Release 1)	3.53 oz (0.1 kg)	0.98 in (25 mm)	2.56 in (65 mm)	3.23 in (82 mm)
PGD(2)-U( ) 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	21.16 oz (.6 kg)	3.23 in (82 mm)	5.39 in (137 mm)	8.82 in (224 mm)
PSA-L( ) (BK) UNIT	10.58 oz (0.3 kg)	3.15 in (80 mm)	2.91 in (74 mm)	8.8 in (223 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)

1 Shipping weight includes the shipping carton.

6.8.1 Tone Patterns

Table 2-19 Tone Patterns lists the frequency and the pattern for the tones. Tones are used to inform UNIVERGE SV8100/SV8300 station users of system functions such as dial tone, busy tone, or ringback tone.

Table 2-19 Tone Patterns

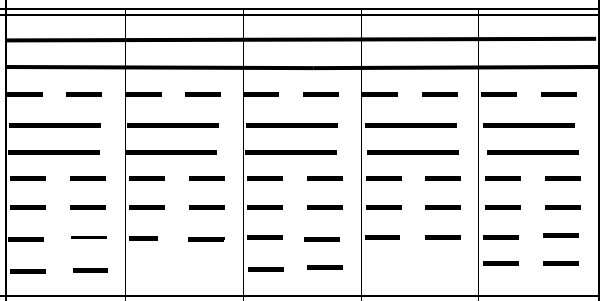
System Tone (Fixed)	Frequency (Hz) (Fixed)	Intermit (Default)	Cycle
Busy Tone	480/620	60 IPM	
Call Waiting Tone	440	60 IPM	
Second Dial Tone	350/440	120 IPM	
Howler Tone	2400 Modulation (16 Hz)	Continuous	
Internal Dial Tone	350/440	Continuous	
Internal Ringback Tone	440/480	1 sec On 2 sec Off	
LCR Dial 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	

6.8.2 Multiline Terminal LED Flash Patterns

The UNIVERGE SV8100/SV8300 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 2-20 Multiline Terminal LED Flash Pattern.

Table 2-20 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 [1]	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	

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

SECTION 7 TRAFFIC CAPACITY

Table 2-21 Traffic Capacity provides information about the traffic capacity for the basic system package and expanded system package.

Table 2-21 Traffic Capacity

Traffic Capacity	Basic System Package	Expanded System Package
Traffic Capacity (CD-CP00-AU/EU/OT/US)	4800 BHCA	4800 BHCA

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

The CD-CP00-AU/EU/OT/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 (PZ-ME50-AU/EU/OT/US)
- Supports TAPI 1.x
- 1 Green Status LED
- 4 Red Status LEDs
- 5 diagnostic LEDs which indicate the status of various system functions
- During normal operation, the “RUN” LED will be flashing and the remaining LEDs will be off.
- 700x700 Time Division Multiplex Switch (TDM Switch)
- Digital Phase Locked Loop (DPL)

SV8300 System Specifications

SECTION 1 GENERAL INFORMATION

This chapter provides detailed specifications for the SV8300 system technician. The technician should review this information carefully ***before*** installing the system.

SECTION 2 SYSTEM BLOCK DIAGRAM

Figure 3-1 SV8300 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 3-1 List of Abbreviations lists abbreviations used in the diagram.

Table 3-1 List of Abbreviations

Abbreviation	Description
ACD	Automatic Call Distribution
APA	Analog Port Adapter (without ringer)
APR	Analog Port Adapter (with ringer)
BRI	Basic Rate Interface
BRIDB	Expansion Basic Rate Interface Blade on BRI
BRT	Basic Rate Interface Blade/ISDN Terminal Interface Blade
BUS0	BUS Interface Blade (for Controlling chassis)
BUS1	BUS Interface Blade (for Expansion chassis)
CCT	CCIS Interface Blade
CFT	Conference Trunk (on CPU)
COT	Central Office Trunk (Loop and Ground Start Interface)
COTDB	Expansion Loop and Ground Start Interface Blade on COT
CPU	Central Processing Unit
CSI	Interface Blade (U-Interface)
CS	Cell Station
DID	Direct Inward Dialing
DIOP	DID/OPX Blade
DK	External Relay Interface (on CPU)
DLC	Digital Multiline Terminal Interface Blade
DLCB	Expansion Digital Multiline Terminal Interface Blade on DLC

Table 3-1 List of Abbreviations (Continued)

Abbreviation	Description
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)
EX IN/EX OUT	Unit Synchronization Port (IN/OUT) (on CPU)
FT1	Fractional T1
IDF	Intermediate Distribution Frame
IP-R	IP Converter/Adapter
IPT	IP Trunk (P2P CCIS) (on CPU)
ISDN	Integrated Service Digital Network
LAN	Local Area Network
LC	Single Line Telephone Interface Blade
LCDB	Expansion Single Line Telephone Interface Blade on LC
MCI	Message Center Interface
MDF	Main Distribution Frame
MEM	Main Memory (on CPU)
MLDT	Melody Trunk (on CPU)
MOH	Music On Hold (on CPU)
OAI	Open Application Interface (on CPU)
ODT	Tie Line Interface Blade (2W/4W E&M)
OPX	Off-Premise Extension
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)
RTA	In-Skin Router Blade

Table 3-1 List of Abbreviations (Continued)

Abbreviation	Description
RS1/RS2	Serial Port (on CPU)
SLT	Single Line Telephone
SMDR	Station Message Detail Recording
SWHUB	Power over Ethernet Hub
TDSW	Time Division Switch (on CPU)
VM00	In-Skin UMS Blade
VMDB	Built-In Modem Blade
VMS	Voice Mail System
VoIP	Voice over Internet Protocol
VoIPDB	VoIP Blade (on CPU)
VRS	Voice Response System
WAN	Wide Area Network
ZT	Zone Transceiver

✎ *The SV8300 has a USB port. However, the USB port cannot be used.*

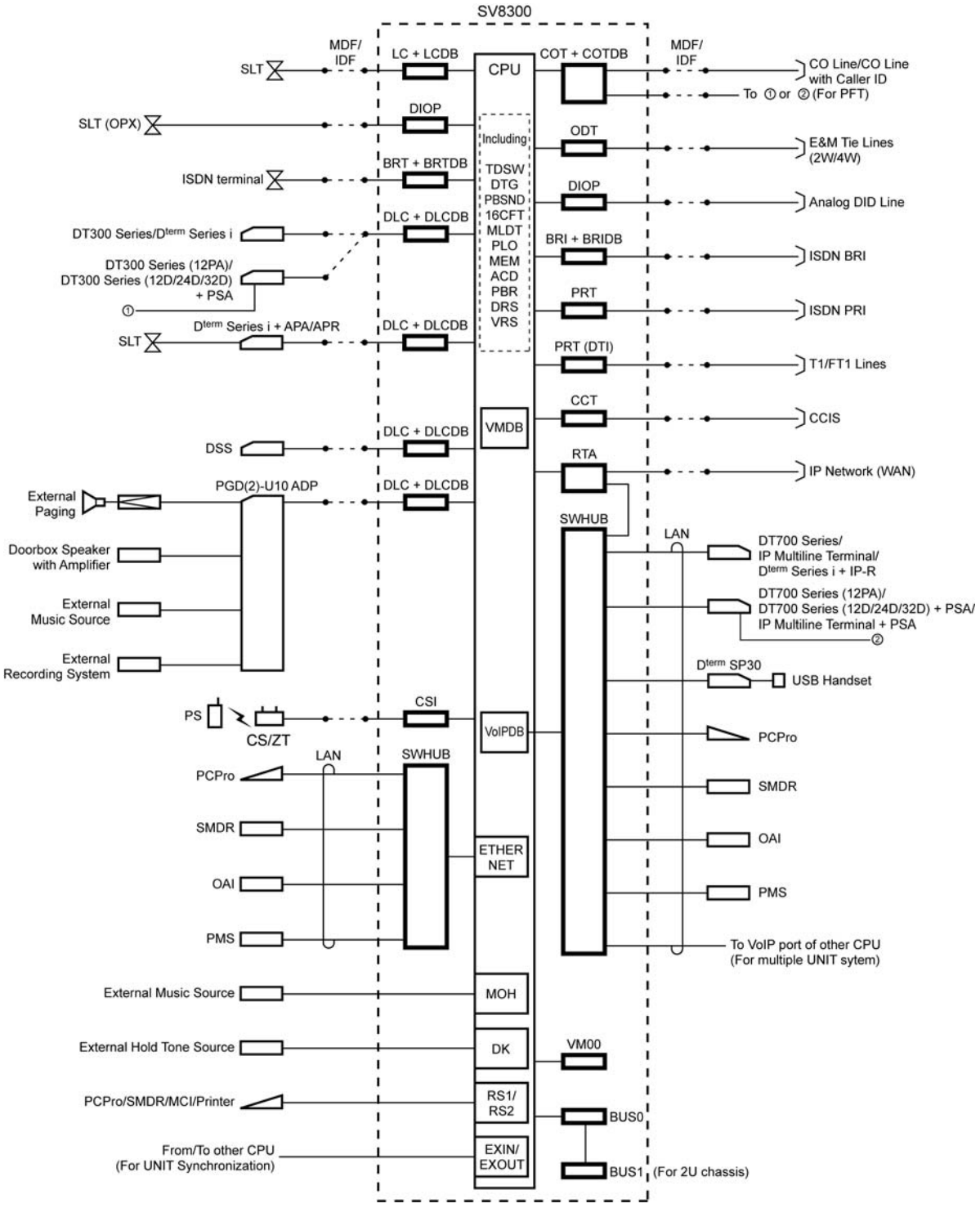


Figure 3-1 SV8300 System Block Diagram

SECTION 3 MAXIMUM SYSTEM CAPACITIES

The CD-CP00-AU/EU/OT/US is a single slot, 19” chassis holding the CC-CP00 blade and one PSU. The CD-CP00-AU/EU/OT/US can be expanded by adding a maximum of three additional CHS2U-AU/EU/OT/US chassis (referred to as a Unit), increasing the capacity of the system to meet the customer’s business needs.

As Table 3-2 SV8300 Maximum System Capacity illustrate, the system can be expanded from 108 ports to 324 ports by vertically stacking a maximum of tree additional chassis onto the controlling chassis. This provides a maximum of 18 slots and 324 ports. To obtain a maximum port capacity of 1296 ports in standalone system, 4 UNITs can be linked together via an IP connection in. And also, to obtain a maximum port capacity of 2048 ports in Remote Unit system, the system can be also linked together via an IP connection.

The maximum slot, port and channel capacities are listed in Table 3-2 SV8300 Maximum System Capacity.

Table 3-2 SV8300 Maximum System Capacity

Item		1 Unit			2 Units	3 Units	4 Units	System Maximum			
		2Ux1	2Ux2	2Ux3	2Ux6	2Ux9	2Ux12	Standalone		Remote Unit	
Blade Slots		6	12	18	36	54	72	72		900	
Ports	Physical Port	108	216	324	648	972	1296	1296	1296	1500	2048
	Virtual Port	1024						1024		1500	
Physical Port	SLT (-24V)	96	192	288	576	864	1152	1152	1296	1500	1500
	SLT (-48V)	24	48	72	144	216	288	288		1500	
	Digital Multiline Terminal (-48V) (*D*^{term} Series i/ DT300)	96	192	288	576	864	1152	1152		1500	
	Digital Multiline Terminal (-48V) (*D*^{term} Series i with APR [Dual Port Mode])*	54 (54)	108 (108)	162 (162)	324 (324)	486 (486)	648 (648)	648 (648)		750 (750)	
	DSS console** (for DT300 Series/*D*^{term} Series i)	32						32		32	
Physical Port	ISDN Terminal (BRI)	48	96	144	256			256	1296	256	1500
	ZT interface (CSI)	48	96	144	288			384		384	
	In-Skin UMS	48	96	128				128		128	
Virtual Port	IP Multiline Terminal	1024						1024		1500	
	SIP Multiline Terminal	1024						1024		1500	
	Softphone	1024						1024		1500	
	PS	512						512		512	
	DSS Console** (for DT700 Series)	32						32		32	

Table 3-2 SV8300 Maximum System Capacity (Continued)

Item			1 Unit			2 Units	3 Units	4 Units	System Maximum			
			2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone		Remote Unit	
Physical Port	Central Office Trunk	COT	48	96	144	288	432	512	512	512	512	512
		DID	24	48	72	144	216	288	288		512	
	Tie Line Trunk	E&M	24	48	72	144	216	288	288		512	
	BRI Trunk		48	96	144	256			256		256	
	PRI (23B+D) Trunk		96	192	288	504			504		504	
	PRI (30B+D) Trunk		93	186	279	496			496		496	
	DTI (T1) Trunk		96	192	288	504			504		504	
	CCIS (24ch) Trunk		96	192	288	384			384		384	
	CCIS (30ch) Trunk		93	186	279	496			496		496	
Virtual Port	IP Trunk (P2P CCIS)		512						512		512	
	SIP Trunk***		96						96		96	
VoIP Channel		w/RTP	128			256	384	512	512		512+	
Modem channel***			1						1		1	
VRS Message***			8						8		8	
DTMF Receiver			64						64		64	
MF Sender***			64						64	64	64	64
Caller ID Receiver****			52			64			64		64	
MF Receiver****			52			64			64		64	
DTMF Receiver****			32						32		32	
Caller ID Sender****			16						16		16	
3/4-Party Conference			16			32			32		32	

2U = Expansion Chassis

***** = When using *D*^{term} Series i with APR (Dual Port Mode), the physical ports for analog station shown in parenthesis are required in addition to the physical ports for Multiline Terminal.

****** = The total number of following DSS consoles is maximum 32 per system.

- DSS console (for DT300 Series *D*^{term} Series i)

******* = accommodated at main unit (UNIT#1) only

******** = The total number of following functions is maximum 52 per Unit.

- Caller ID Receiver
- MF Receiver
- DTMF Receiver
- Caller ID Sender

3.1 System Configuration – SV8300

The SV8300 consists of a CD-CP00-AU/EU/OT/US chassis and CHS2U-AU/EU/OT/US chassis depending on the system configuration. The CC-CP00 blade in the CD-CP00-AU/EU/OT/US chassis can control a maximum of three CHS2U-AU/EU/OT/US Chassis, collectively called a UNIT. The SV8300 can be configured for a maximum of four UNITs.

Figure 3-2 System Configuration Example (IP-Oriented System) shows a system configuration IP-oriented example, Figure 3-3 System Configuration Example (TDM-Oriented System on page 3-7 shows a TDM-oriented system and Figure 3-4 System Configuration Example (Remote Unit Over IP System) on page 3-8 gives a Remote Unit over IP configuration example.

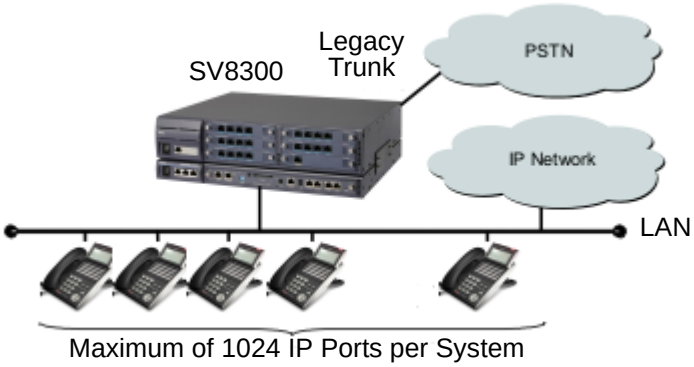


Figure 3-2 System Configuration Example (IP-Oriented System)

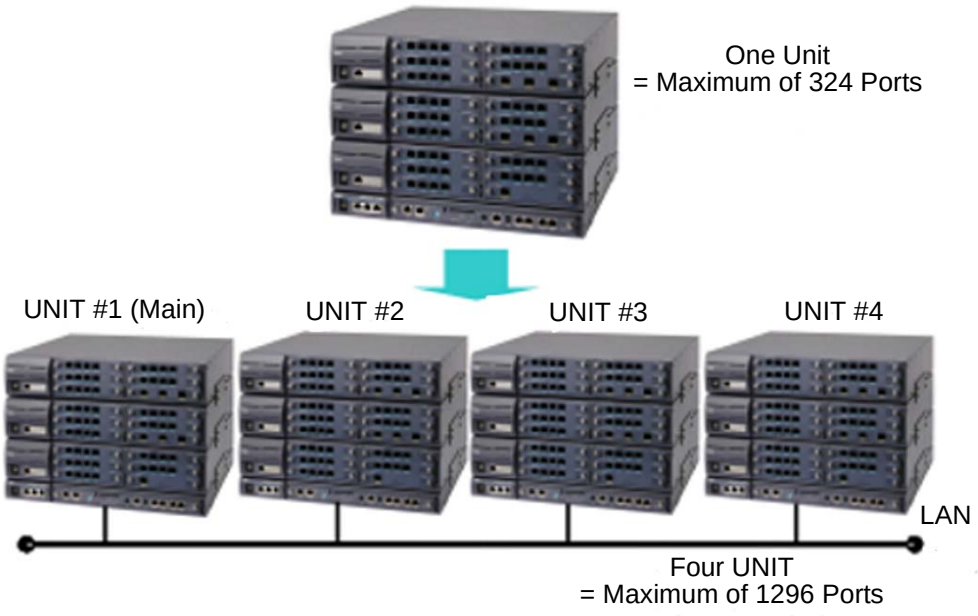
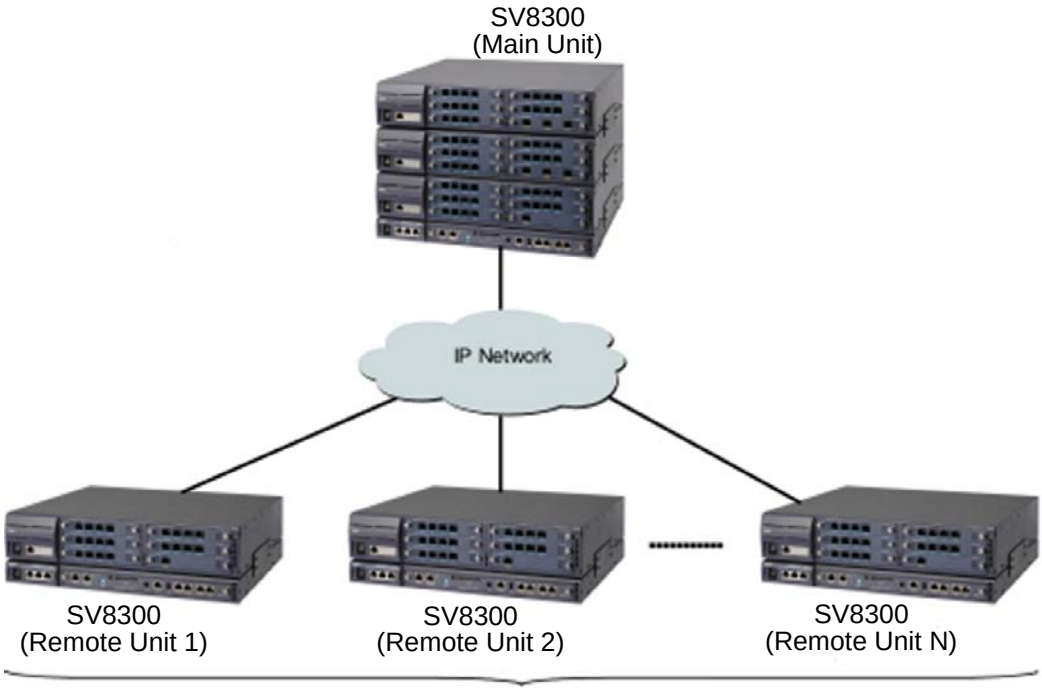


Figure 3-3 System Configuration Example (TDM-Oriented System



Maximum of 46 Remote Unit per System
Maximum of 2048 ports per System (Maximum of 324 ports per Remote Unit)

Figure 3-4 System Configuration Example (Remote Unit Over IP System)

Table 3-3 Maximum System Capacity – Chassis shows the maximum number of chassis and related equipment that can be installed in a system.

Table 3-3 Maximum System Capacity – Chassis

Equipment	1 Unit			2 Units	3 Units	4 Units	System Maximum	
	2Ux1	2Ux2	2Ux3	2Ux6	2Ux9	2Ux12	Standalone	Remote Unit
Chassis:								
CD-CP00-AU/EU/OT/US	1			2	3	4	4	50
CHS2U-AU/EU/OT/US	1	2	3	6	9	12	12	50
Expansion:								
PZ-BS10	1			2	3	4	4	50
PZ-BS11	1	2	3	6	9	12	12	50
Battery:								
CHS1U BATT MTG KIT	1			2	3	4	4	50
CHS2U BATT MTG KIT	1	2	3	6	9	12	12	50

Table 3-3 Maximum System Capacity – Chassis (Continued)

Equipment		1 Unit			2 Units	3 Units	4 Units	System Maximum	
		2Ux1	2Ux2	2Ux3	2Ux6	2Ux9	2Ux12	Standalone	Remote Unit
CHS LARGE BATT BOX	45 minutes backup	1			2	3	4	4	50
	3 hours backup	2	3	4	8	12	16	16	*
Fan Box:									
CHS1U FAN BOX SET		1			2	3	4	4	50
CHS2U FAN BOX SET		1	2	3	6	9	12	12	*
Power Supply:									
PZ-PW146(1U)		1			2	3	4	4	50
MPS7101		1	2	3	6	9	12	12	*
Mounting Equipment:									
CHS1U RACK MOUNT KIT		1			2	3	4	4	50
CHS2U RACK MOUNT KIT		1	2	3	6	9	12	12	50
CHS BASE UNIT		1			2	3	4	4	50
CHS1U/2U WALL MOUNT KIT		1	N/A		2	3	4	4	50
CHS STAND KIT (S)		1			2	3	4	4	50
CHS2U STAND KIT (EXT)		–	1		2	3	4	4	50
CHS2U JOINT BRACKET KIT		1	2	3	6	9	12	12	50
CHS2U BLANK SLOT COVER KIT		5	10	15	30	45	60	60	250
CHS1U BLANK SLOT COVER KIT(BUS)		1	2	3	6	9	12	12	50

2U = Expansion Chassis

* = Depends on the system configuration.

Table 3-4 SV8300 Maximum System Capacities – Blades on page 3-10 shows the maximum number for each blade that can be installed in a system. These are 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 3-4 SV8300 Maximum System Capacities – Blades

Equipment		1 Unit			2 Units	3 Units	4 Units	System Maximum	
		2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
Common Control Blades:									
CC-CP00		1			2	3	4	4	50
PZ-64IPLA		1			2	3	4	4	50
PZ-128IPLA		1			2	3	4	4	50
PZ-VM21*		1			N/A			1	1
Station Blades:									
CD-4LCA		6	12	18	36	54	72	72	375
CD-8LCA		6	12	18	36	54	72	72	187
PZ-4LCA		6	12	18	36	54	72	72	375
PZ-8LCE		6	12	18	36	54	72	72	93
CD-8DLCA		6	12	18	36	54	72	72	187
CD-16DLCA		6	12	18	36	54	72	72	93
PZ-8DLCB		6	12	18	36	54	72	72	93
Trunk Blades:									
CD-2BRIA		6	12	18	32			32	32
PZ-2BRIA		6	12	18	32			32	32
CD-4COTA/4COTB/4COTC		6	12	18	36	54	72	72	128
PZ-4COTE/4COTF/4COTG		6	12	18	36	54	64	64	64
CD-4DIOPA		6	12	18	36	54	72	72	128
CD-4ODTA		6	12	18	36	54	72	72	128
CD-PRTA	(23B+D)	4	8	12	21			21	21
CD-PRTA	(30B+D)	3	6	9	16			16	16
CD-CCTA		4	8	12	16			16	16
Option Blades:									
CD-ETIA		3	6	9	12			12	12
CD-RTB		1						1	1
CD-VM00		3	6	8				8	8

2U = Expansion Chassis
N/A = Not Available
* = accommodated at CPU blade of main unit (UNIT#1) only.

Table 3-5 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-4COTB can have a PZ-4COTF daughter board mounted.

Table 3-5 Daughter Board Combinations

Blades	Daughter Boards						
	PZ-2BRIA	PZ-4COTE	PZ-4COTF	PZ-4COTG	PZ-4LCA	PZ-8DLCE	PZ-8DLCB
CD-4COTA	–	✔	–	–	–	–	–
CD-4COTB	–	–	✔	–	–	–	–
CD-4COTC	–	–	–	✔	–	–	–
CD-4LCA	–	–	–	–	✔	✔	–
CD-8LCA	–	–	–	–	✔	✔	–
CD-8DLCA	–	–	–	–	–	–	✔
CD-16DLCA	–	–	–	–	–	–	–
CD-2BRIA	✔	–	–	–	–	–	–

– = Does not apply
✔ = Does apply

Table 3-6 Maximum System Capacity – Terminals shows the maximum number of terminals that can be installed in a system.

Table 3-6 Maximum System Capacity – Terminals

Equipment		1 Unit			2 Units	3 Units	4 Units	System Max.			
		2Ux1	2Ux2	2Ux3	2Ux 6	2Ux 9	2Ux 12	Standalone		Remote Unit	
SLT (-24V)		96	192	288	576	804	1152	1152	1296	1500	1500
SLT (-48V)		24	48	72	144	216	288	288		1500	
Digital Multiline Terminal		96	192	288	576	864	1152	1152		1500	
Digital Multiline Terminal (D^{term} Series i) with APR (Dual Port Mode)		54	108	162	324	486	648	648		750	
DSS Console		32						32		32	
ISDN Terminal	P-P	24	48	72	128			128		128	
	P-MP	192	384	576	1024			1024		1024	
IP Multiline Terminal		1024						1024	1296	1500	1500
Softphone		1024						1024		1500	
SIP Multiline Terminal		1024						1024		1500	
PS		512						512		512	
CS/ZT		16	32	48	96	128		128		128	

2U=Expansion Chassis

Table 3-7 Maximum System Capacity – Optional Equipment shows the maximum number of optional equipment that can be installed in a system.

Table 3-7 Maximum System Capacity – Optional Equipment

Equipment	1 Unit			2 Units	3 Units	4 Units	System Maximum	
	2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
PCPro	4			N/A			4	4
SMDR (RS-232C)*	1			N/A			1	1
Voice Mail (MCI Interface)*	1			N/A			1	1
SMDR (LAN Interface)*	1			N/A			1	1
Hotel Server (LAN Interface)*	1			N/A			1	1
Printer*	1			N/A			1	1

2U = Expansion Chassis
N/A = Not Available
* accommodated at CPU blade of main unit (UNIT#1) only.

✎ *Up to four PCPro can be connected to the CPU blade with main unit. The number of connections allowed per connection mode is as follows. But, when the remote unit is in survival mode, the PCPro can be connected to each unit.*
IP connection: Up to 2
RS-232C connection (direct connection): Up to 2 (on a modem connection, 1)

✎ *Modem connection (using VMDB):1*

Table 3-8 Maximum System Capacity – Cables shows the maximum number of cables that can be installed in a system.

Table 3-8 Maximum System Capacity – Cables

Equipment	1 Unit			2 Units	3 Units	4 Units	System Max.	
	2Ux1	2Ux2	2Ux3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
CHS1U BATT CA INT BATT	1			2	3	4	4	50
CHS2U BATT CA INT	1	2	3	6	9	12	12	50
CHS BATT CA EXT-A	2	3	4	8	12	16	16	100
RS CONSOLE CA-A	2			N/A			2	2
RS NORM-4S CA-F	1			N/A			1	1
RS RVS-15S CA-F	1			N/A			1	1
RS RVS-4S CA-F	1			N/A			1	1
RS RVS-4S CA-G	1			N/A			1	1
RS PRT-15S CA-F	1			N/A			1	1
BUS CABLE	1	2	3	6	9	12	12	*
AC CORD	2	3	4	8	12	16	16	*

2U = Expansion Chassis
N/A = Not Available
* Depends on the system configuration.

SECTION 4 LICENSING

Table 3-9 System Licenses provides a list of the licensing available with the system.

Table 3-9 System Licenses

Category	License	Description
System	LS-SYS-PORT CAPACITY-LIC	Port Capacity
	LS-SYS-IPPAD16-LIC	VoIP Channels (VoIPDB)
	LS-SYS-R1-LIC	System Version License R1
Extension	LS-EXT-PHS-LIC	PS
	LS-EXT-IPPHONE-LIC	IP Multiline Terminal, SIP Multiline Terminal
	LS-EXT-SP30-LIC	*D*^{term}SP30
	LS-EXT-SP3-ACD-LIC	*D*^{term}SP30 ACD
	LS-EXT-ISDN-Term-LIC	ISDN Terminal
Trunks	LS-TRK-SIP-LIC	SIP Trunk Channels
	LS-TRK-P2PCCIS-LIC	P2P CCIS Channels
Network	LS-NW-REMOTE-UNIT-LIC	Number of Remote Unit
	LS-NW-MA-LIC	MA Licenses
Feature	LS-NW-CCIS-LIC	CCIS
	LS-FEA-PMS-LIC	PMS
	LS-FEA-SMDR-LIC	SMDR
	LS-FEA-OAI-LIC	OAI
	LS-FEA-SIP-T-LIC	SIP Trunk
	LS-FEA-ISDN-LIC	ISDN
UM8000	LKS-UMS-CLIENT1-LIC	UMS800 Mail View App Sessions 1 clients
	LKS-UMS-CLIENT4-LIC	UMS800 Mail View App Sessions 4 clients
	LKS-UMS-CLIENT8-LIC	UMS800 Mail View App Sessions 8 clients
	LKS-UMS-CLIENT16-LIC	UMS800 Mail View App Sessions 16 clients
	LKS-UMS-CLIENT32-LIC	UMS800 Mail View App Sessions 32 clients
	LKS-UMS-PORT4-LIC	UMS800 Mail Port license 4 ports
	LKS-UMS-PORT8-LIC	UMS800 Mail Port license 8 ports
	LKS-UMS-PORT16-LIC	UMS800 Mail Port license 16 ports
	LKS-UMS-LANGUAGE-LIC	UMS800 Mail System Language (1 Language)
	LKS-UMS-FAX-LIC	UMS800 Mail FAX port (1port)
	LKS-UMS-HOTEL-PMS-LIC	UMS800 Mail Hospitality and PMS
	LKS-UMS-HOTEL-LANGUAGE-LIC	UMS800 Mail Hospitality Language (1 Language)
	LKS-UMS-AMIS-PLUS-LIC	UMS800 Mail Amis/Plus Net

SECTION 5 POWER-BASED CALCULATOR CHART

The SV8300 system used two types of power factors. For a single chassis chart refer to Table 3-10 Blade Power Factor. Refer to Table 3-11 Terminal Power Factor below, for the Terminal/Adapter power chart.

Table 3-10 Blade Power Factor

Blade Power Factor	
Total = < 7 per 19 inch Chassis	
Item	**Power Factor**
In-Skin Router (CD-RTB)	2
In-Skin UMS (CD-VM00)	2
In-Skin Hub (CD-ETIA)	2

Table 3-11 Terminal Power Factor

Terminal Power Factor		
Total = < 80 per 19 inch Chassis		
Item		**Power Factor**
SLT	Standard)-27V)	0.8
	Lon g Line (-48V)	2
DT300 Series	Economy (2/6-Button)	0.8
	Value (12/24/32-Button)	0.8
	Value (DESI-less)	0.8
	Value (12-Button) w/PSA	2
DT300 Series Option	DSS Console	2
	Power Save Adapter (PSA)	1.2
	Line Key Unit (8/16-Button)	0
DT700 Series (PoE from CD-ETIA)	Economy (2/6-Button)	4
	Value (12/24/32-Button)	4
	Value (DESI-less)	4
	Value (12-Button) w/PSA	4
	Sophi (32-Button)	6
D^{term} Series i	2/4/8 16/32-Button	0.8

Table 3-11 Terminal Power Factor (Continued)

Terminal Power Factor		
Total = < 80 per 19 inch Chassis		
Item		**Power Factor**
D^{term} Series i Option	DSS Console	1
	Analog Port Adapter without Ringer (APA)	1
	Analog Port Adapter with Ringer (APR)	3
CS/ZT		4.5
Paging Adapter (PGD(2)-U1( ) ADP)		2

SECTION 6 SYSTEM REQUIREMENTS AND SPECIFICATIONS

6.1 Cabling

This section provides cabling requirements and specifications for various equipment used in the SV8300 system.

Figure 3-5 Connecting the DLC Using Twisted 2-Pair Cable provides 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).

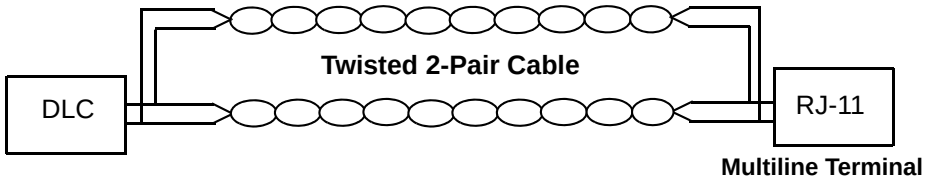


Figure 3-5 Connecting the DLC Using Twisted 2-Pair Cable

Refer to the following tables for cabling requirements and specifications.

- Table 3-12 Cable Length of Terminals
- Table 3-13 Cable Length of Optional Equipment

Table 3-12 Cable Length of Terminals

Terminal	Cable		Cable Length between SV8300 and Terminal	Remarks
	Kind of Cable	Pair		
DT300 Series/*D*^{term} Series i	Twisted Pair Cable	1-pair	1312 ft (400m) with 22 AWG	–
			1968 ft (600m) with 24 AWG	–
			2625 ft (800m) with 26 AWG	–
DT700 Series	LAN Cable (UTP cable10BASE-T/ 100BASE-TX)	2-pair	328 ft (100m) or less	–
Analog Telephone (SLT, G3FAX, etc.)	Twisted Pair Cable	1-pair	3281 ft (1000m) with 22 AWG	Loop Resistance: Maximum 600ohms (including telephone set)
			4920 ft (1500m) with 24 AWG	
			8202 ft (2500m) with 26 AWG	
Long Line Telephone	Twisted Pair Cable	1-pair	13123 ft (4000m) with 22 AWG	Loop Resistance: Maximum 1500ohms (including telephone set)
			20997 ft (6400m) with 24 AWG	
			14777 ft (10600m) with 26 AWG	
ISDN Terminal/ G4 FAX	Twisted Pair Cable	2-pair	328 ft (100m) with 24 AWG	P-MP Connection (Short Passive Bus)
			984 ft (300m) with 24 AWG	P-MP Connection (Extended Passive Bus)
			1640 ft (500m) with 24 AWG	P-P Connection
ZT	Twisted Pair Cable	1-pair	853 ft (260m) with 22 AWG	PBX Power Supply (-48V)
			1345 ft (410m) with 24 AWG	
			2231 ft (680m) with 26 AWG	
		2-pair	1706 ft (520m) with 22 AWG	PBX Power Supply (-48V)
			2690 ft (820m) with 24 AWG	
			4462 ft (1360m) with 26 AWG	
			19842 ft (3000m)	Local Power Supply

Table 3-13 Cable Length of Optional Equipment

Terminal	Cable		Cable Length between SV8300 and Terminal	Remarks
	Kind of Cable	Pair		
DSS Console	Twisted Pair Cable	1-pair	1312 ft (400m) with 22 AWG	–
			1968 ft (600m) with 24 AWG	
			2625 ft (800m) with 26 AWG	
PSA	Twisted Pair Cable	1-pair	Depending on Loop Resistance	Loop Resistance: Maximum 1700ohms (Including the PSA [350 ohms])

Table 3-13 Cable Length of Optional Equipment (Continued)

Terminal	Cable		Cable Length between SV8300 and Terminal	Remarks
	Kind of Cable	Pair		
PGD(2)-U( ) ADP	Twisted Pair Cable	1-pair	1968 ft (600m) with 22 AWG	–
			2625 ft (800m) with 24 AWG	
			2625 ft (800m) with 26 AWG	
SMDR (RS-232C)	RS-232C Cable (RS RVS-15S CA-F)	–	50 ft (15m)	–
SMDR (LAN)	LAN Cable (UTP cable10BASE-T/ 100BASE-TX)	2-pair	328 ft (100m) or less	–
Hotel Server	LAN Cable (UTP cable10BASE-T/ 100BASE-TX)	2-pair	328 ft (100m) or less	–
Printer	RS-232C Cable (RS PRT-15S CA-F)	–	50 ft (15m)	–

6.2 Power Requirements

A dedicated 110 VAC →120 VAC/220 VAC →240 VAC 50 Hz/ 60 Hz 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 100 V Power Supply:

- ❒ Dedicated 15 Amp circuit
- ❒ Power Requirements: 120 VAC @ 15A Controlling Chassis
- ❒ Power Consumption: Controlling Chassis=263 VA, Expansion Chassis=263 VA, total 526 VA
- ❒ Input Voltage: 90 VAC to 264 VAC (Rated Voltage: 100 VAC/120 VAC/220 VAC/230 VA /240 VAC)
- ❒ Frequency: 45 Hz – 66 Hz (Rated frequency: 50/60 Hz)
- ❒ Phase and Wire: Single Phase 2 Line Type + PE Type
- ❒ Grounding Requirements: No.14 AWG copper wire
- ❒ Feeding Voltage: Digital Multiline Terminal/OPX/DID: -48V SLT: 25mA / -28V

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

- AC Input I: Controlling Chassis=2.19A, Expansion Chassis=2.19A, total 4.38A
- VA @ 120V: Controlling Chassis=263 VA, Expansion Chassis= 263 VA, total 526 VA KWh @ AC Input I x 120V/1000: Controlling Chassis=0.263 KWh, Expansion Chassis=0.263 KWh, total 0.526 KWh
- BTU (KWh x 3413): Controlling Chassis=1795 BTU, Expansion Chassis=1795 BTU, total 3590 BTU

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

AC 200 V Power Supply:

- Dedicated 15 Amp circuit
- Power Requirements: 240 VAC @ 15A Controlling Chassis Power Consumption: Controlling Chassis=101 VA, Expansion Chassis=257 VA, total 358 VA
- Input Voltage: 90 VAC to 264 VAC (Rated Voltage: 100 VAC/120 VAC/220 VAC/230 VA /240 VAC)
- Frequency: 47 Hz – 63 Hz (Rated frequency: 50/60 Hz)
- Phase and Wire: Single Phase 2 Line Type + PE Type
- Grounding Requirements: No.14 AWG copper wire
- Feeding Voltage: Digital Multiline Terminal/OPX/DID: -48V SLT: 25mA / -28V

With input voltage of 240 VAC and with full load conditions:

- AC Input I: Controlling Chassis=0.42A, Expansion Chassis=1.07A, total 1.49A
- VA @ 240V: Controlling Chassis=101 VA, Expansion Chassis= 257 VA, total 358 VA KWh @ AC Input I x 240V/1000: Controlling Chassis=0.101 KWh, Expansion Chassis=0.257 KWh, total 0.358 KWh
- BTU (KWh x 3413): Controlling Chassis=1795 BTU, Expansion Chassis=1795 BTU, total 3590 BTU

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

6.2.2 Power Supply Consumption

AC 100 V power supply:

Table 3-14 Power Consumption

Chassis	Maximum RMS Current	Watts Used (Idle)	Watts Used (Maximum)
Controlling Chassis	0.7A	40W	45W
Controlling Chassis + Expansion Chassis	2.89A	136W	175W
Controlling Chassis + 2 Expansion Chassis	5.08A	232W	305W
Controlling Chassis + 3 Expansion Chassis	7.2A	328W	435W

AC 200 V power supply:

Table 3-15 Power Consumption

Chassis	Maximum RMS Current	Watts Used (Idle)	Watts Used (Maximum)
Controlling Chassis	0.42A	37W	42W
Controlling Chassis + Expansion Chassis	1.49A	133W	172W
Controlling Chassis + 2 Expansion Chassis	2.56A	229W	302W
Controlling Chassis + 3 Expansion Chassis	3.63A	325W	432W

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, CD-8DLCA, CD-16DLCA, PZ-8DLCB

- ❒ 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, PZ-4LCA, CD-8LCA, PZ-8LCE, CD-4COTA, CD-4COTB, D-4COTC, D-4COTE, PZ-4COTF, PZ-4COTG, CD-PRTA, CD-CCTA

- ❒ 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)

SV8300 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 SV8300 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 European and Australian markets.*
- ❍ 2-wire/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 Trunk (Internet Protocol)

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: 32 ms.

6.5.2 Network

Time Division Multiplexing (TDM) allows transmission of data and voice simultaneously over one communications medium. The specifications that the SV8300 system uses for switching, clock, data bus, and timeframe are shown below.

- TDM Switching: PCM (μ Law/A Law)
- TDM Clock: 2.048 MHz
- TDM Data Bus: 8 bit
- TDM Timeframe: 125 μs.

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

6.5.4 Multiline Terminals and Equipment

The voltage, current, and ring signal for the 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

  Nominal Current: 25 mA

  Ring Signal: 56 Vac RMS @ 20 Hz

- ❒ AP(A)-R Unit

  Nominal Current: 30 mA

- ❒ AP(R)-R Unit

  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 a 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 SV8300 system.

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

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 SV8300 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 ±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 5 ms.
- ❒ Duration of Dual Frequency Signal:

  110 ms. default/60 ms. minimum

  Interdigital Time: 140 ms. default/45 ms. minimum

Nominal **High** Group Frequencies (Hz)

Nominal **Low** Group Frequencies (Hz)

	1209	**1336**	**1477**
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 PGD(2)-U( ) ADP
- ❒ External music source for MOH via PGD(2)-U( ) ADP
- ❒ Tape recorder for voice recording via PGD(2)-U( ) ADP
- ❒ Door Lock/Release or General Purpose Relay via PGD(2)-U( ) ADP
- ❒ Printer for SMDR by RS
- ❒ PC by LAN

6.6.4 Music Source for Music on Hold via Chassis

- ❒ Auxiliary Input: 0.6V PPS Signal Level
- ❒ Input Impedance: 600 Ω

6.6.5 External Paging (Audio)

- ❒ Output Power: –10 dBm Signal Level
- ❒ Output Impedance: 600 Ω
- ❒ Relay Contact Rating: 500 mA, 24 Vdc

6.6.6 External Tone Ringer/Night Chime Output

- ❒ Output Level: –10 dBm
- ❒ Output Impedance: 600 Ω
- ❒ Relay Contact Rating: 500 mA, 24 Vdc

6.6.7 SMDR Output

- ❒ Female Connector (LAN) Standard DB-9 (straight)

6.6.8 PC Connection

- ❒ Female Connector (LAN) Standard DB-9 (straight)

6.6.9 Relay Contact

- ❒ All Relay Contact Ratings: 100 mA, 48Vdc

6.7 Battery Backup

The SV8300 system has battery backup functions for system backup and for memory backup.

6.7.1 System Backup (Optional)

During a power failure, the system is backed up using a rechargeable battery. This battery backup supports all system operations for approximately 30 minutes.

6.7.2 Memory Backup

The CPU Blade battery retains the Clock/Calender and Last Number redial (LNR) buffers for each station when the CPU 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 3-16 SV8300 Weights shows the weight of main equipment for SV8300. And Figure 3-6 SV8300 Chassis Dimensions shows the dimension of main equipment for SV8300.

6.8.1 Weights

Table 3-16 SV8300 Weights

Equipment	Weight	Remarks
Chassis:		
CD-CP00-AU/EU/OT/US	176.4 oz (5.0 kg)	With all slots occupied, but no built-in battery included
CHS2U-AU/EU/OT/US	289.2 oz (8.2 kg)	With all slots occupied, but no built-in battery included
UNIT (CD-CP00-AU/EU/OT/ US+CHS2U-AU/EU/OT/USx3)	1086.4 oz (30.8 kg)	Including JOINT BRACKET
Battery:		
CHS1U BATT MTG KIT	7.05 oz (0.2 kg)	CD-CP00-AU/EU/OT/US Battery mounting kit
CHS2U BATT MTG KIT	14.1 oz (0.4 kg)	Battery Mount for CHS2U-AU/EU/OT/US Chassis
CHS LARGE BATT BOX	352.7 oz (10 kg)	Long Term Battery Box for CD-CP00-AU/ EU/OT/US and CHS2U-AU/EU/OT/US Chassis
Mounting Equipment:		
CHS1U RACK MOUNT KIT	7.05 oz (0.2 kg)	Rack Mount Set for CD-CP00-AU/EU/OT/US Chassis
CHS2U RACK MOUNT KIT	14.1 oz (0.4 kg)	Rack Mount for CHS2U-AU/EU/OT/US Chassis
CHS BASE UNIT	218.7 oz (6.2 kg)	Floor Mount Set for all chassis (CD-CP00-AU/EU/OT/US and CHS2U-AU/ EU/OT/US)
CHS1U/2U WALL MOUNT KIT	24.7 oz (0.7 kg)	Wall Mount Set for CHS2U-AU/EU/OT/US Chassis
CHS STAND KIT (S)	38.8 oz (1.1 kg)	Stand Mount Kit for 2U Chassis
CHS2U STAND KIT (EXT)	17.6 oz (0.5kg)	Expansion Plate for Stand Mount Kit for CHS2U-AU/EU/OT/US Chassis, 2 sets
CHS2U JOINT BRACKET KIT	7.05 oz (0.2 kg)	Upper Joint Bracket for 2U Chassis

6.8.2 Dimensions

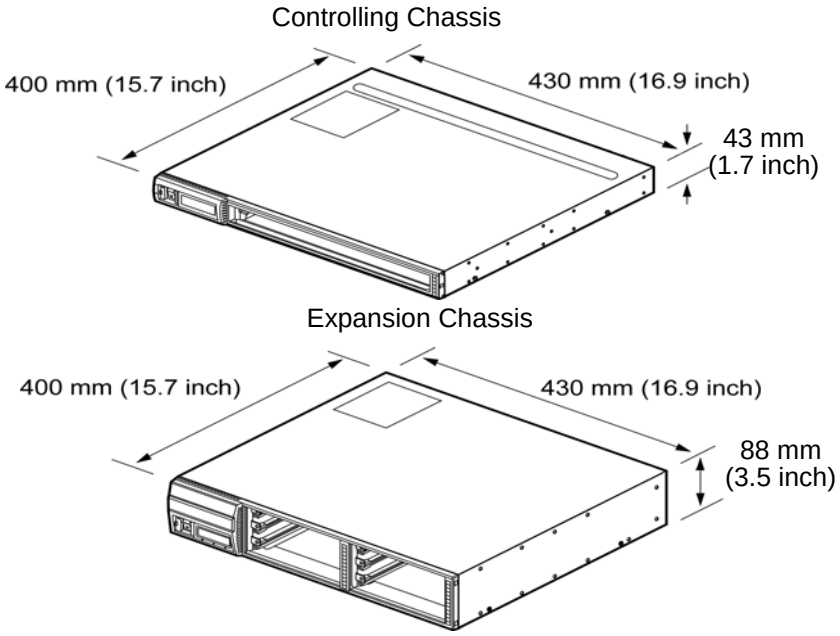


Figure 3-6 SV8300 Chassis Dimensions

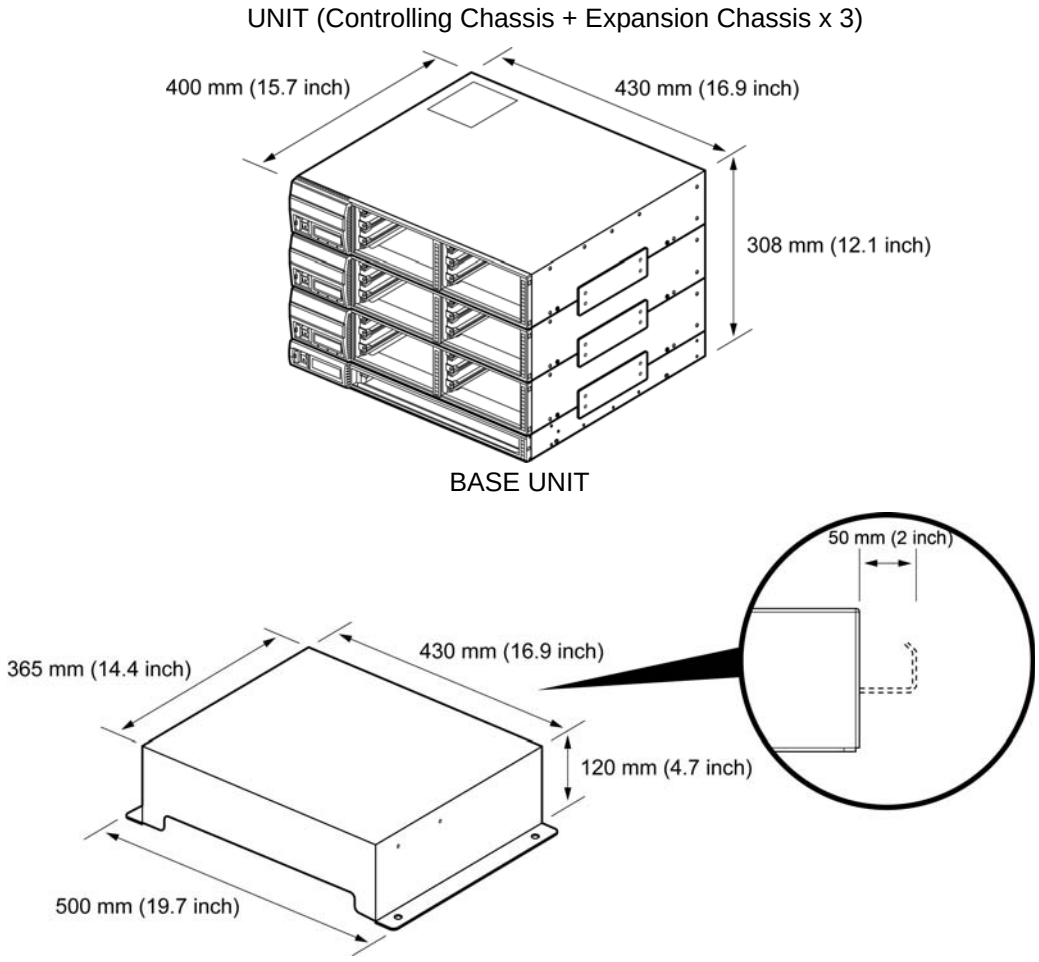


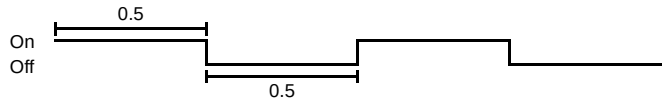
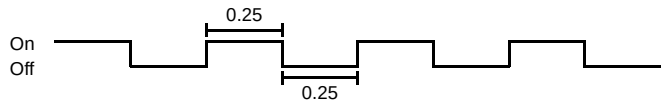
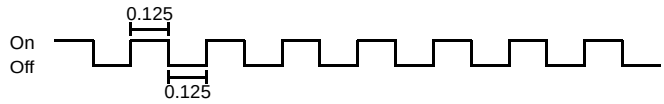
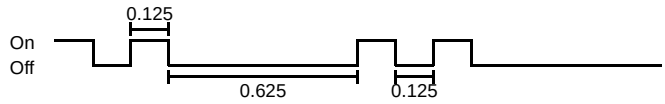
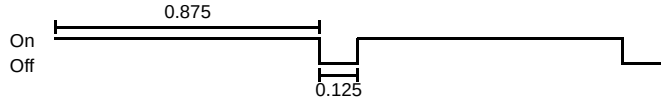
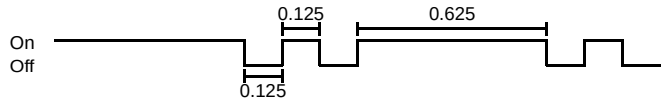
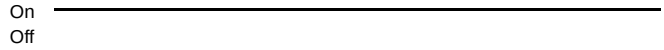
Figure 3-7 SV8300 Chassis Dimensions (Controlling and Three Expansion)

6.9 Audible and Visual Indication

6.9.1 Lamp Display

Table 3-17 Lamp Display on page 3-27 shows the state of the multiline terminal.

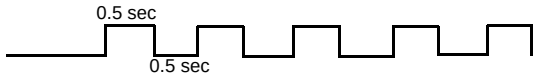
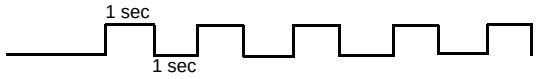
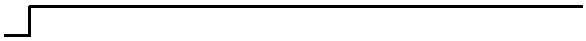
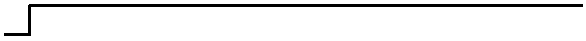
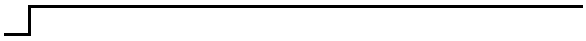
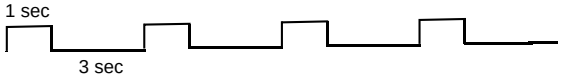
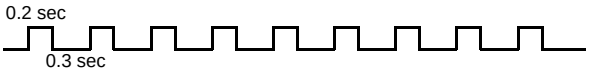
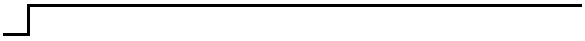
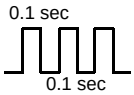
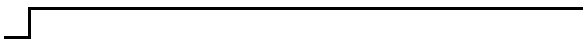
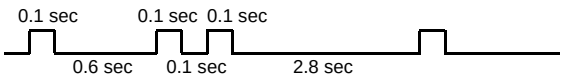
Table 3-17 Lamp Display

No.	Display	State	Cycle (second)
0	○	Turning off	
1	◑	Slow blinking	
2	◔	Blinking	
3	✣	Fast blinking	
4	◔	Intermittent blinking	
5	◕	Intermittent turning off	
6	✣	Intermittent lit	
7	●	Lit	

6.9.2 Tone Patterns

lists the frequency and the pattern for the tones. Tones are used to inform SV8300 station users of system functions such as dial tone, busy tone, or ringback tone. on page 3-28 lists the frequency and the pattern for the tones. Tones are used to inform SV8300 station users of system functions such as dial tone, busy tone, or ringback tone.

Table 3-18 Tone Patterns

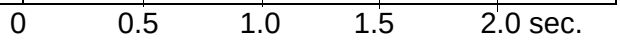
System Tone (Fixed)	Frequency (Hz) (Fixed)	Intermit (Default)	Cycle
Busy Tone	480/620	0.5 sec On 0.5 sec Off	
Call Waiting Tone	440/480	1 sec On 1 sec Off	
Second Dial Tone	350/440	Continuous	
Howler Tone	2500 Modulation (16 Hz)	Continuous	
Internal Dial Tone	350/440	Continuous	
Internal Ringback Tone	440/480	1 sec On 3 sec Off	
LCR Dial Tone	440/480	0.2 sec On 0.2 sec Off 0.2 sec On 1.2 sec Off	
Reorder Tone	480/620	0.2 sec On 0.3 sec Off	
Service Set Tone	440	Continuous	
Special Dial Tone	350/440	0.1 sec On 0.1 sec Off	
Camp-On Tone Call Alert Notification Attendant Tone Override	440	Continuous	
Hold Tone	480/620	0.1 sec On 0.6 sec Off 0.1 sec On 0.1 sec Off 0.1 sec On 2.8 sec Off	

6.9.3 Multiline Terminal LED Flash Patterns

The SV8300 system has 2-color LEDs. Green is used primarily for I-Use conditions and for outside calls. Red is used primarily for Other Use conditions and internal calls. Refer to Table 3-19 Multiline Terminal LED Flash Pattern.

Table 3-19 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	
ICM	I-Use	Red	
	ICM Incoming Call	Red	
	Voice Over Broker	Red	
Large LED	Incoming Internal Call	Red	
	Incoming Outside Call	Green	
	Message from Attendant	Green	
	Voice Mail Message	Red	
Speaker	ON	Red	
	System Data Entry	Red	
Conf	Conference in Progress/Barge In	Red	
	All Conference Circuits Used	Red	
	Hold Conference Call	Red	
	ICM Call Hold	Red	
	SPD Confirmation	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	



SECTION 7 TRAFFIC CAPACITY

Table 3-20 Traffic Capacity provides information about the traffic capacity for the basic system package and expanded system package.

Table 3-20 Traffic Capacity

	Traffic Capacity (CC-CP00)
System Max.	12000 BHCA

Traffic Conditions:

1. 2n+m < 12000 BHCA
   n: Call Traffic from DT700 Series
   m: Call Traffic from other terminals

2. Call mix
   Outgoing Call: 30%
   Incoming Call: 30%
   Intra-Office Call: 40%

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-AU
  - PZ-BS10 ***and*** PZ-BS11
  - PZ-ME50-AU
  - PZ-32IPLA, PZ-64IPLA and PZ-128IPLA
  - PZ-VM21

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/SV8300 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 2-19 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 2-14 D^{term} Series i or D^{term} IP Terminal Loop Resistance and Cable Length on page 2-17.
- Select a place where devices that require an external power supply can be easily connected 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 SV8100 system can be floor-mounted, wall-mounted, desk-mounted or rack-mounted. Plywood should first be installed on the wall where the chassis will be positioned, to allow for secure anchoring. It is equipped with 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 240 VAC 50 Hz circuit (NEMA 5-15 receptacle) located within 7 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.

The chassis is shipped fully assembled. The following are shipped with the chassis:

- 1 black 3-prong power cord (packed outside the chassis)
- CHS2U RACK 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 4-1 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 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 4-1 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 4-2 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

The CHS2U-AU 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-AU blade is installed in the first 19" chassis, it is referred to as the controlling chassis. Additional chassis, referred to as 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 a MPS7101 power supply.

The chassis can be wall-mounted, floor-mounted, stand-mounted or rack-mounted. Refer to Section 2 Site Preparation and MDF/IDF Construction on page 4-1 to ensure proper site preparation. The first part of the this chapter describes the differing types of mounting options and the rest of this section describes how to install the chassis.

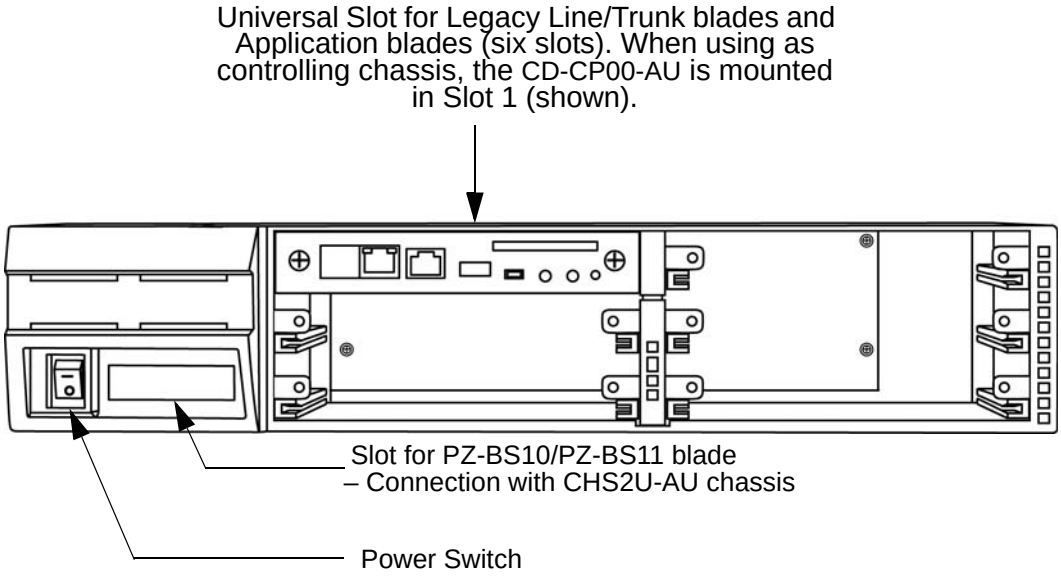


Figure 4-1 CHS2U-AU Chassis (Front View)

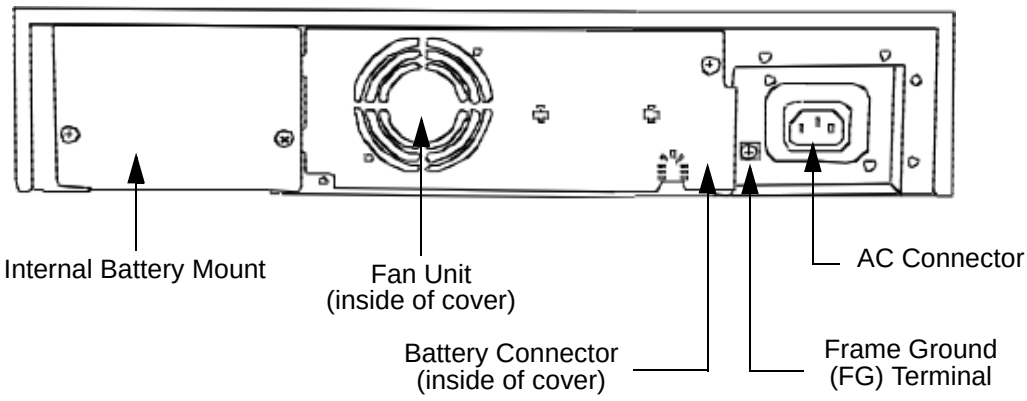


Figure 4-2 CHS2U-AU Chassis (Rear View)

3.1 Wall Mounting the 19” Chassis

When wall mounting the chassis, ensure the wall can support the weight of the chassis (55 lbs per system chssis ---- 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.

3.1.1 CHS2U-AU Chassis Wall Mount Installation

1. Use the template shown in Figure 4-3 Wall Mount Spacing Guide (19” Chassis) on page 4-6 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-AU chassis per wall mount.***

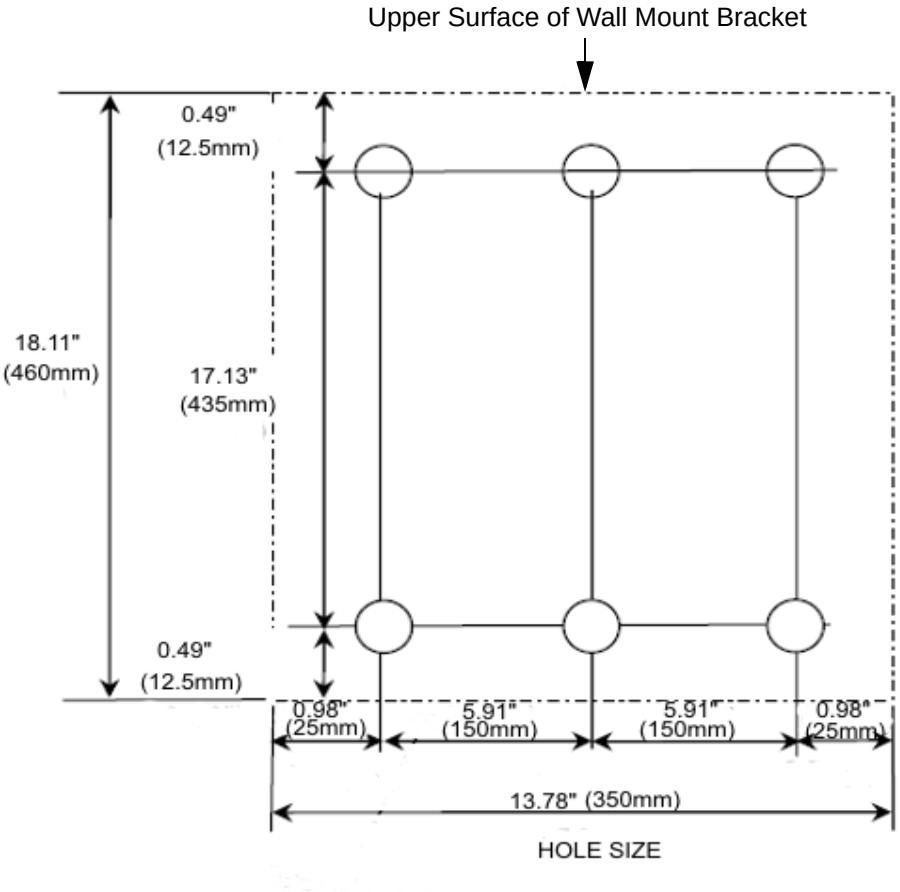


Figure 4-3 Wall Mount Spacing Guide (19” Chassis)

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. Refer to Figure 4-4 Install Wall Mount Brackets with Screws for screw location.

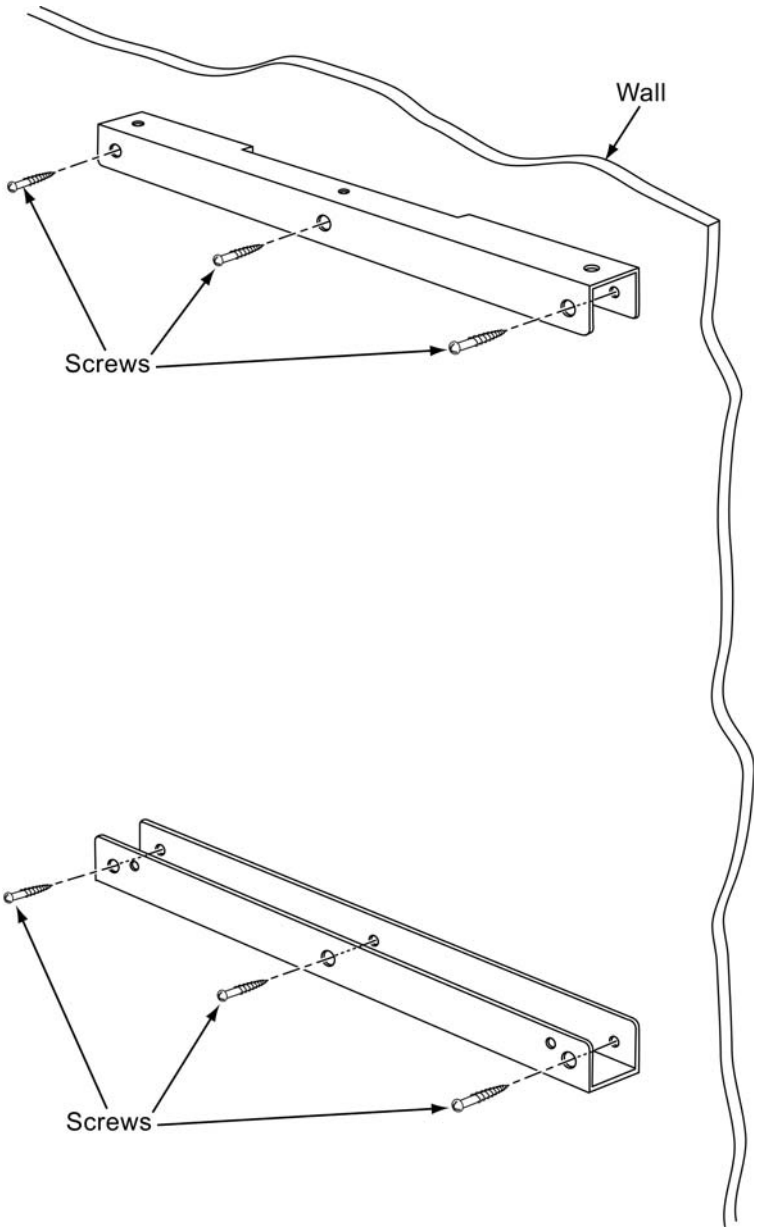


Figure 4-4 Install Wall Mount Brackets with Screws

5. Using four screws, secure the metal fittings on the Left and Right sides of the 19” chassis. Refer to Figure 4-5 Securing Metal Fittings to Chassis with Screws for screw location.

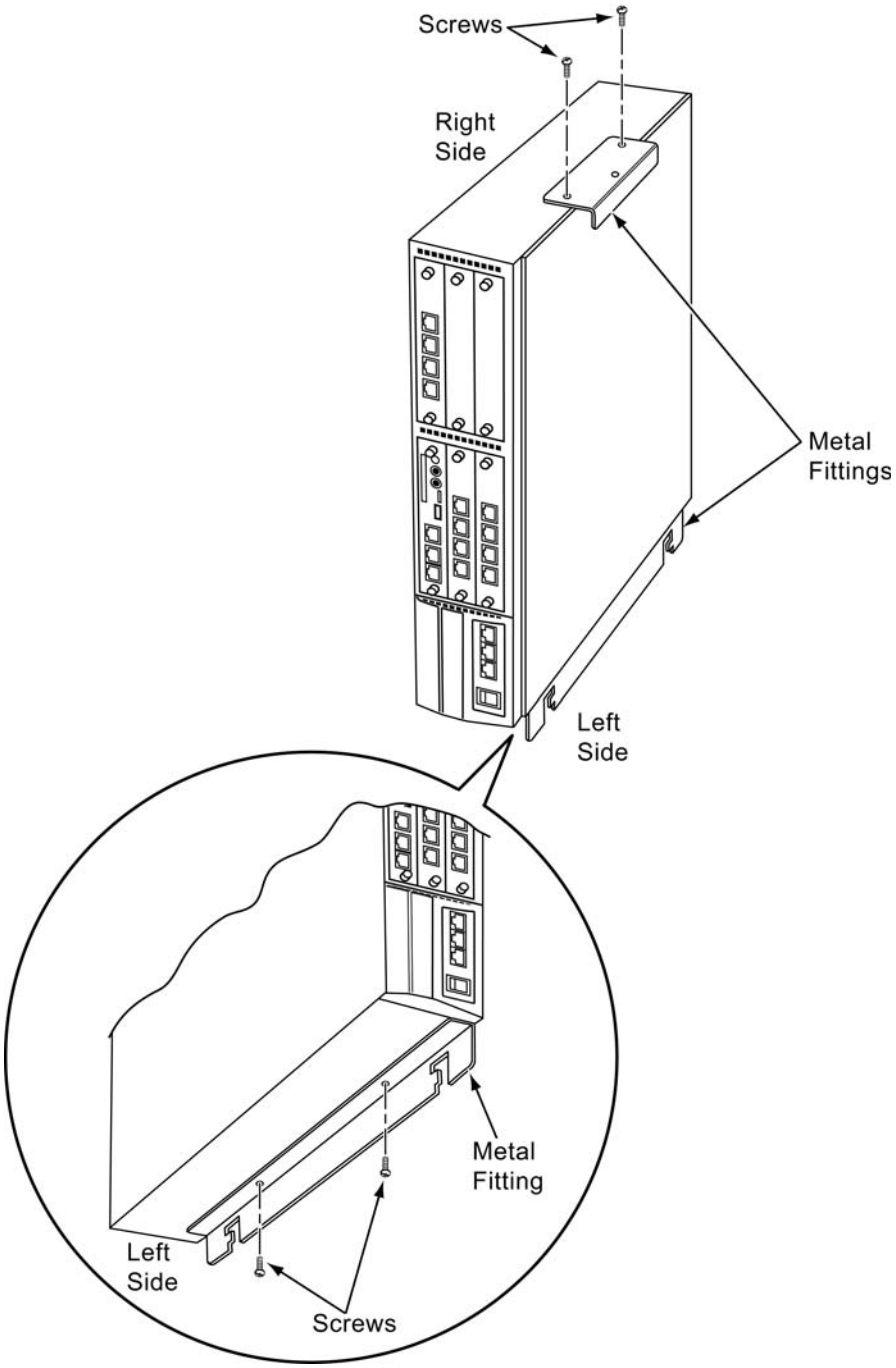


Figure 4-5 Securing Metal Fittings to Chassis with Screws

6. Align the metal fitting with the upper wall mount bracket. The lower metal fitting will rest against the lower wall mount bracket. Secure the metal fitting and upper wall mount bracket with a single screw (see Figure 4-6 Secure Metal Fitting to Upper Wall Mount Bracket with a Screw).

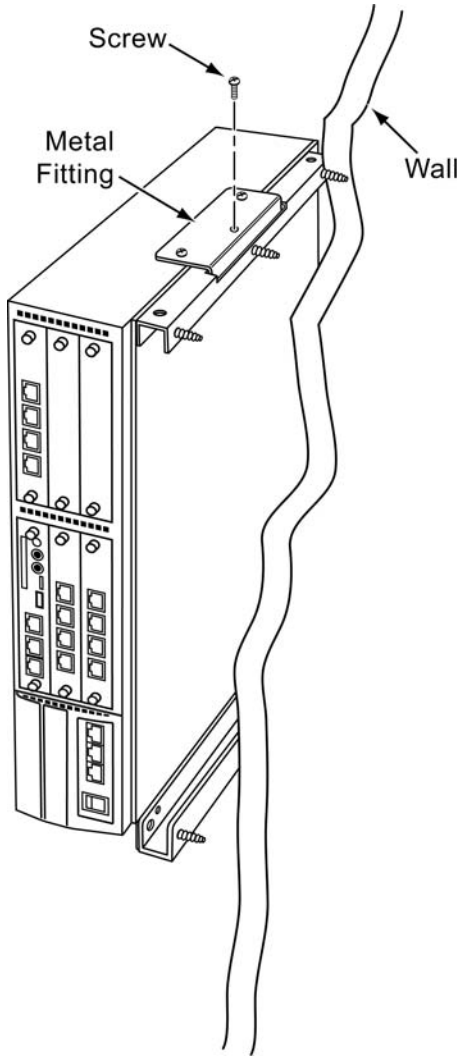


Figure 4-6 Secure Metal Fitting to Upper Wall Mount Bracket with a Screw

7. Using two screws, secure the metal fitting to the lower wall mount bracket. Refer to Figure 4-7 Secure Metal Fitting to Lower Wall Mount Bracket with Screws for screw location.

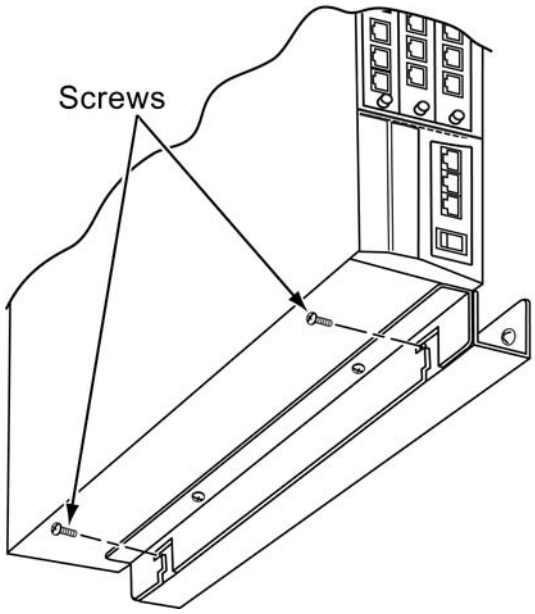


Figure 4-7 Secure Metal Fitting to Lower Wall Mount Bracket with Screws

8. Attach the supplied cable support bracket to either end of the lower wall mount bracket with a single screw (refer to Figure 4-8 Attach Cable Support Bracket to Lower Wall Mount Bracket).

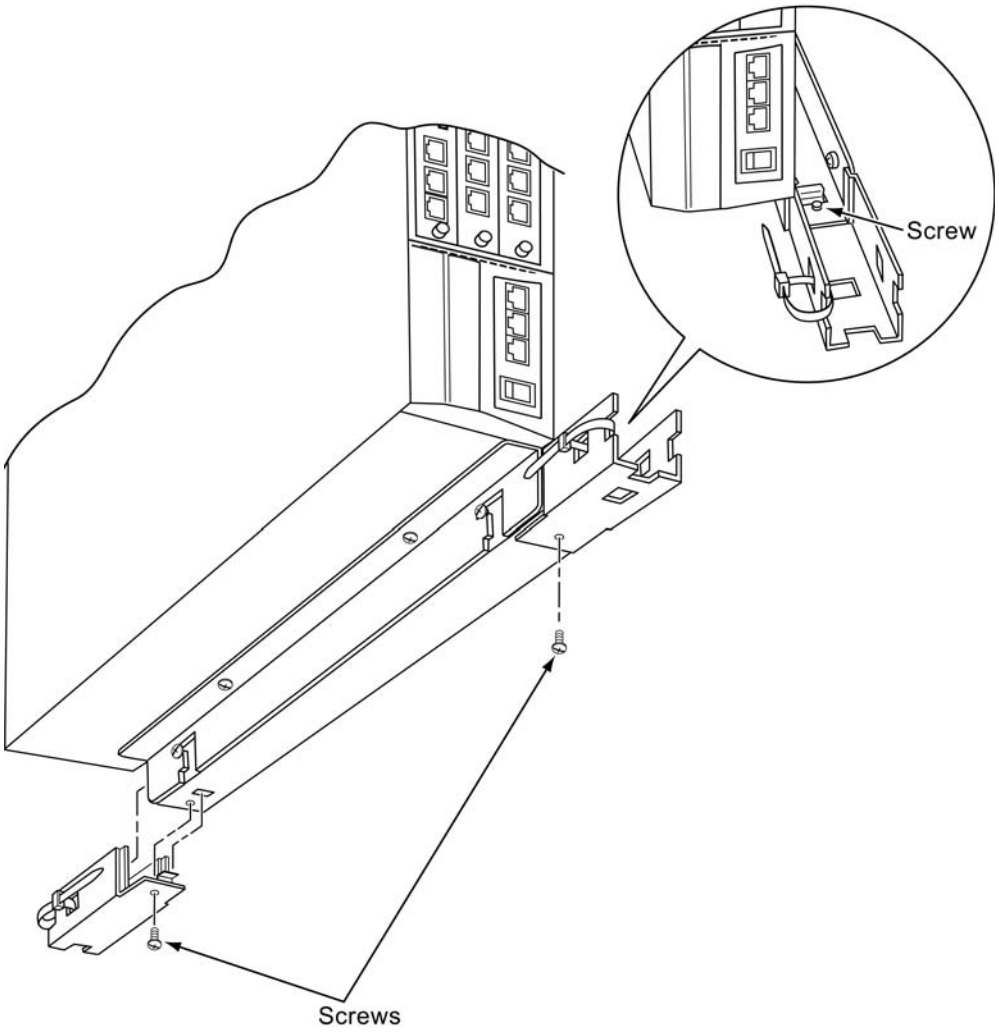


Figure 4-8 Attach Cable Support Bracket to Lower Wall Mount Bracket

9. The cable support bracket can be installed any of the four corners of the 19” chassis (refer to Figure 4-9 Attachment Locations of Cable Support Bracket).

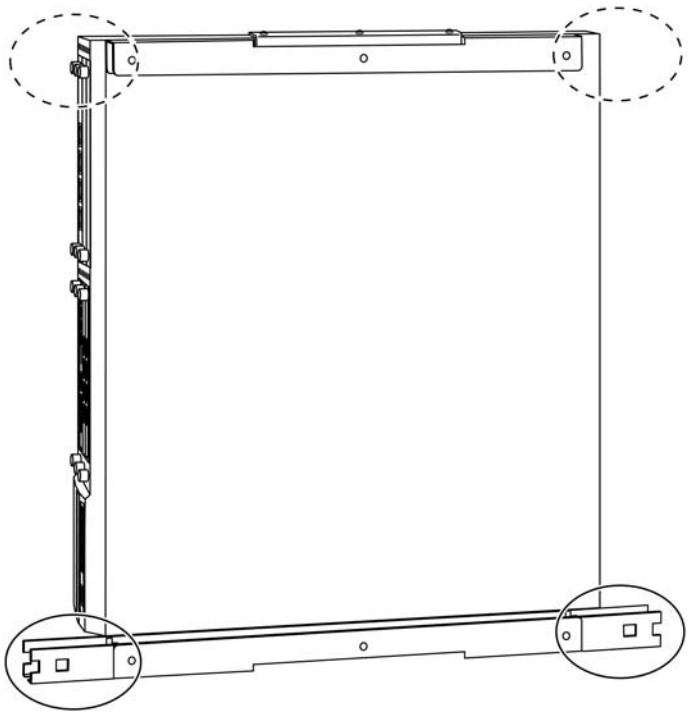


Figure 4-9 Attachment Locations of Cable Support Bracket

10. Connect the ground wire to all chassis. Refer to 3.5.5 Install 19” Chassis Grounding on page 4-34 for complete details on grounding the system.

11. Refer to 3.5 Installing the 19” Chassis on page 4-24 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.2 Floor Mounting the 19” Chassis

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

3.2.1 CHS2U-AU Chassis Installation

1. Use the template shown in Figure 4-10 Floor Mount Spacing Guide for required spacing before drilling holes for 0.39” (10mm) anchor bolts (locally procured).

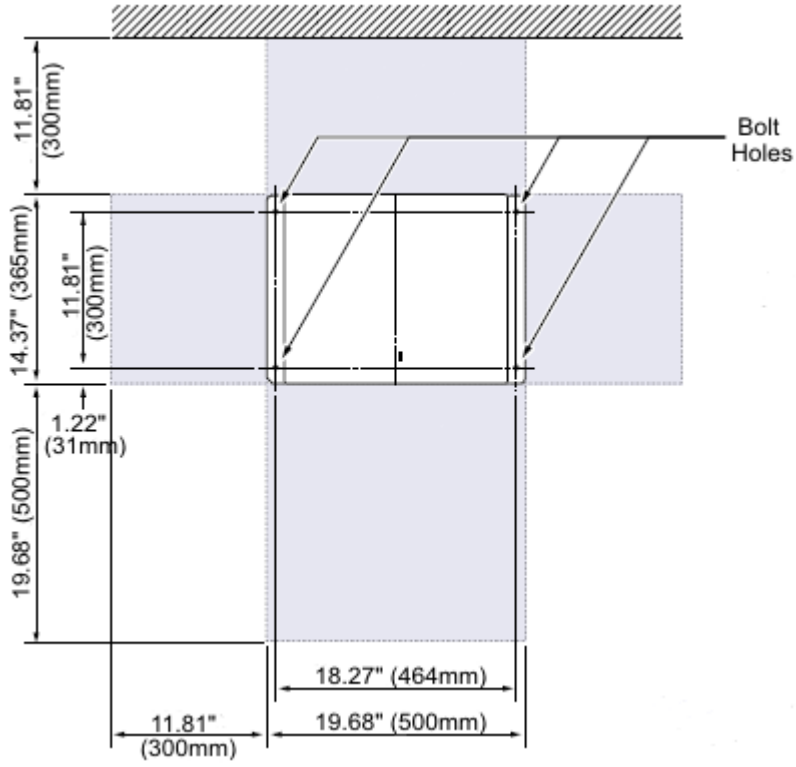


Figure 4-10 Floor Mount Spacing Guide

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 4-11 Secure CHS BASE UNIT with Anchor Bolts on page 4-14 for screw location..

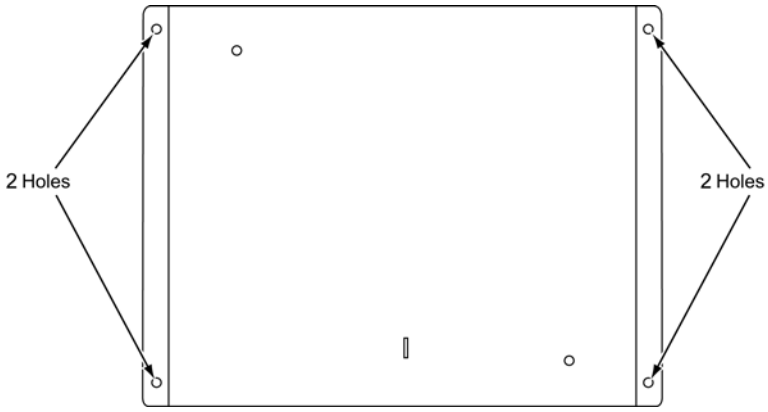


Figure 4-11 Secure CHS BASE UNIT with Anchor Bolts

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

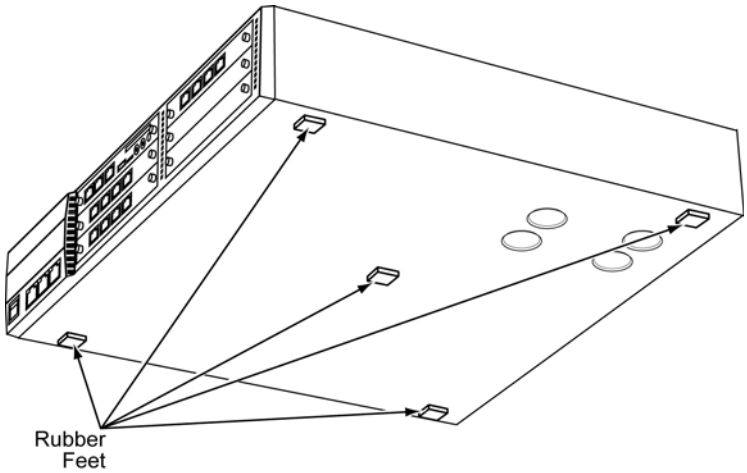


Figure 4-12 Install Rubber Feet

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

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

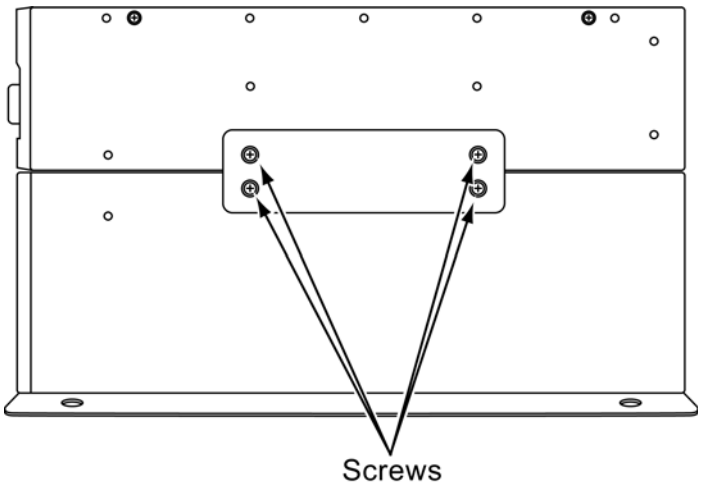


Figure 4-13 Install CHS2U JOINT BRACKET KIT

7. Connect the ground wire to all chassis. Refer to 3.5.5 Install 19" Chassis Grounding on page 4-34 for complete details on grounding the system.

8. Refer to 3.5 Installing the 19" Chassis on page 4-24 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.2.2 Multiple CHS2U-AU Chassis Installation

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

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

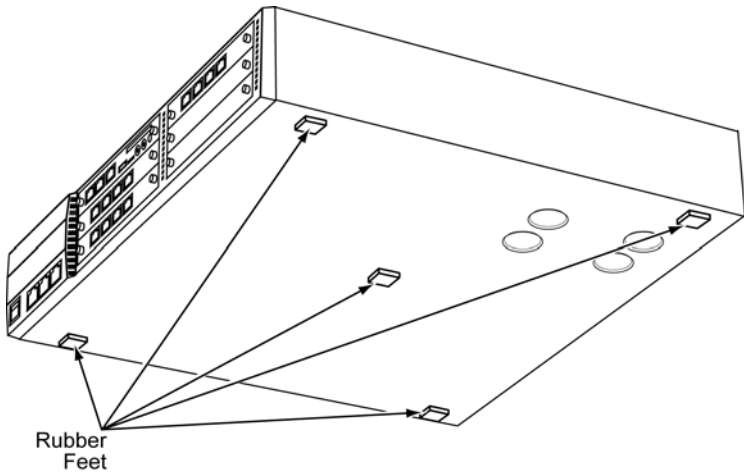


Figure 4-14 Install Rubber Feet

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 4-15 Install Metal Brackets with Screws.

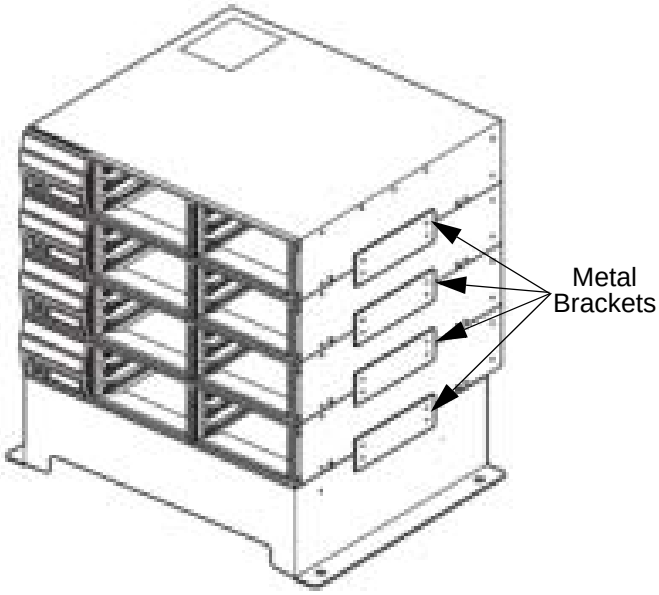


Figure 4-15 Install Metal Brackets with Screws

3. Connect the ground wire to all chassis. Refer to 3.5.5 Install 19” Chassis Grounding on page 4-34 for complete details on grounding the system.

4. Refer to 3.5 Installing the 19” Chassis on page 4-24 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.3 Stand Mounting the 19” 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 JOINT BRACKET KIT.

3.3.1 CHS2U-AU Chassis Installation

1. Using the supplied screws, assemble the CHS2U STAND KIT(K) and CHS2U JOINT BRACKET KIT (refer to Figure 4-16 Assemble Stand Mount with Screws).

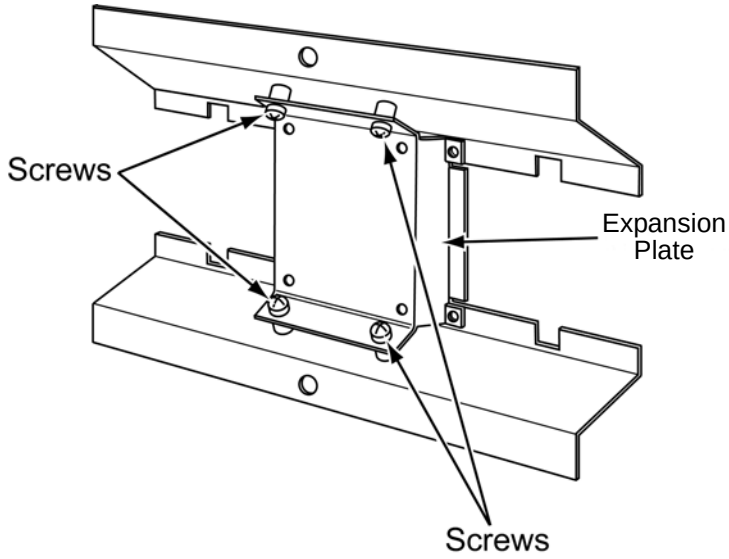


Figure 4-16 Assemble Stand Mount with Screws

2. Secure the CHS2U-AU chassis to the assembled CHS2U STAND KIT, see Figure 4-17 Secure CHS2U-AU Chassis to CHS2U STAND KIT with Screws on page 4-18.

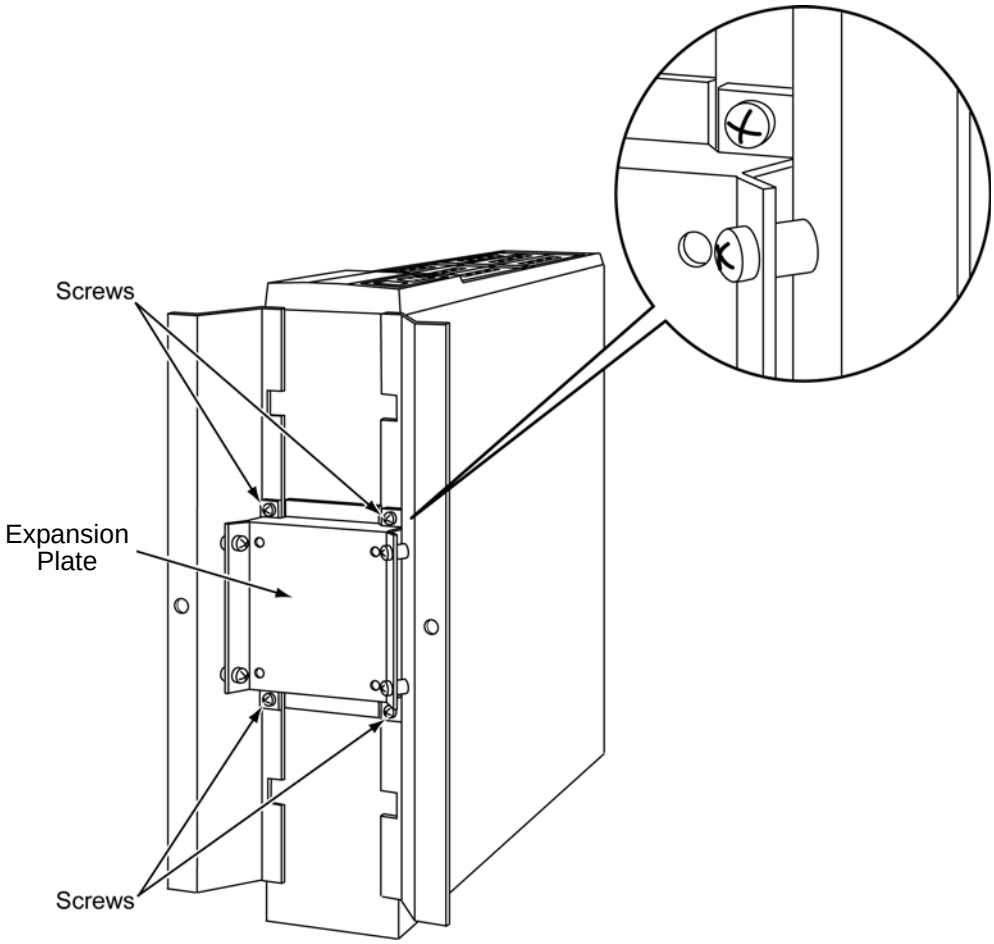


Figure 4-17 Secure CHS2U-AU Chassis to CHS2U STAND KIT with Screws

3. Using supplied screws, secure the CHS2U STAND KIT to the floor (refer to Figure 4-18 Secure Stand Mount to Floor with Screws on page 4-19).

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.

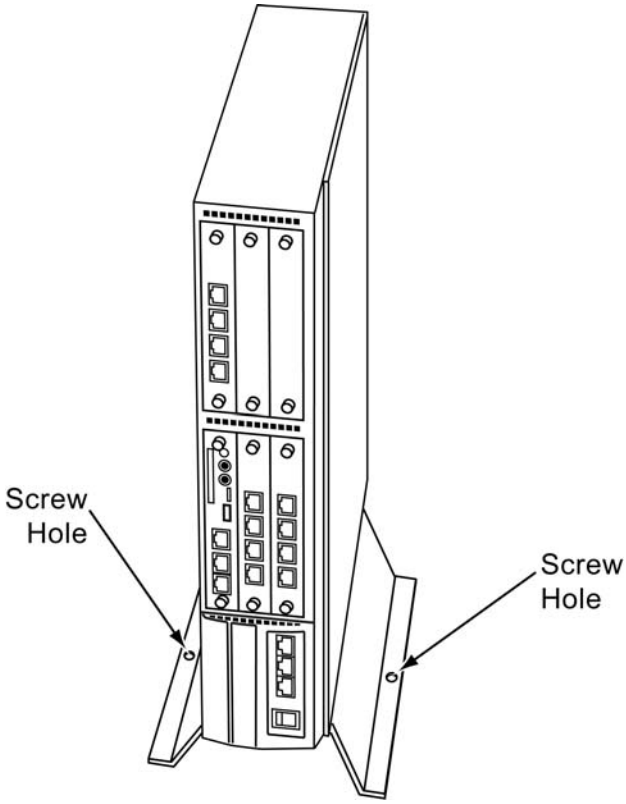


Figure 4-18 Secure Stand Mount to Floor with Screws

4. Connect the ground wire to all chassis. Refer to 3.5.5 Install 19" Chassis Grounding on page 4-34 for complete details on grounding the system.

5. Refer to 3.5 Installing the 19" Chassis on page 4-24 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.3.2 Multiple CHS2U-AU Chassis Installation

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

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

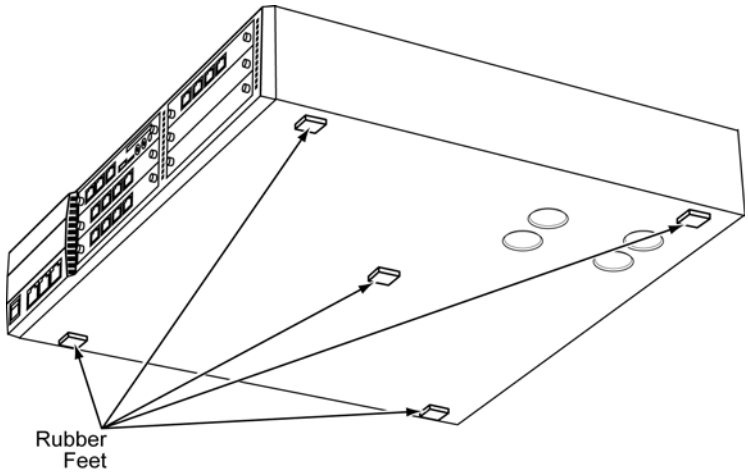


Figure 4-19 Attach Rubber Feet to CHS2U-AU Chassis

2. Each additional chassis will require CHS2U JOINT BRACKET KIT to be installed (refer to Figure 4-20 Install Additional Brackets from CHS2U JOINT BRACKET KIT).

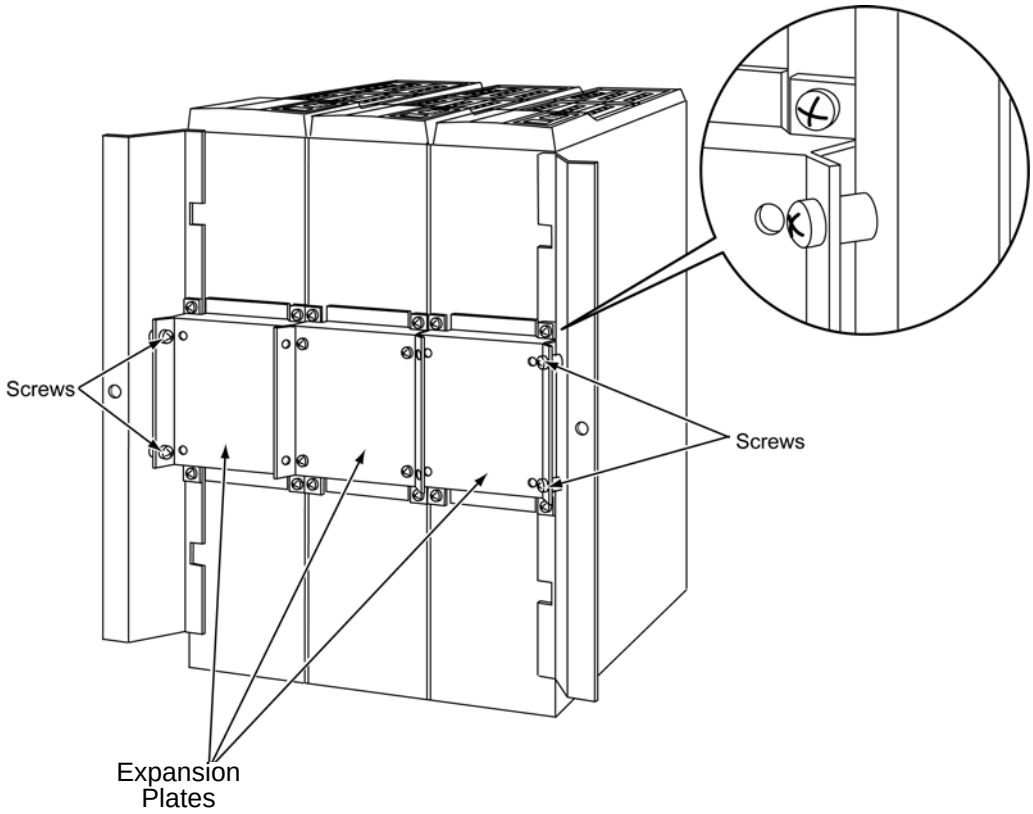


Figure 4-20 Install Additional Brackets from CHS2U JOINT BRACKET KIT

3. Metal brackets from the CHS2U JOINT BRACKET KITs will be required to secure the top end of the chassis with screws. See Figure 4-21 Install Additional CHS2U JOINT BRACKET KIT.

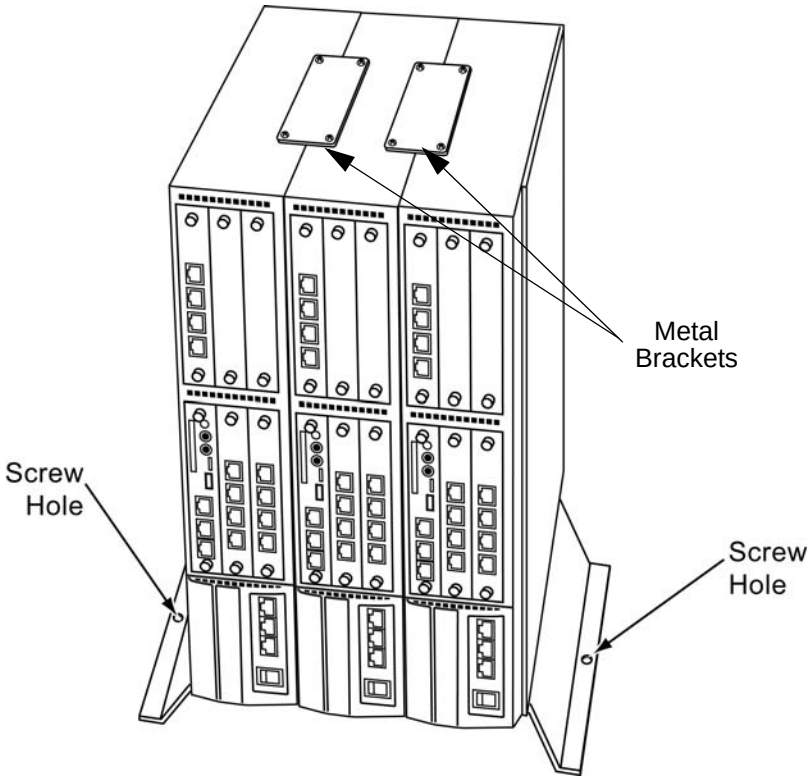


Figure 4-21 Install Additional CHS2U JOINT BRACKET KIT

4. Using supplied screws, secure the CHS2U STAND KIT to the floor (refer to Figure 4-21 Install Additional 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 3.5.5 Install 19" Chassis Grounding on page 4-34 for complete details on grounding the system.

6. Refer to 3.5 Installing the 19" Chassis on page 4-24 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.4 Rack Mounting the 19” 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 4-22 CHS2U-AU Rack Mount Brackets.

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

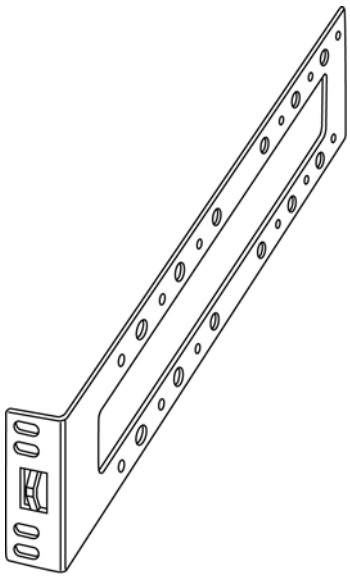


Figure 4-22 CHS2U-AU Rack Mount Brackets

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 4-23 Rack Mount Bracket Installed 19” CHS2U-AU on page 4-23 for the 19” chassis.

Repeat for additional chassis mounting.

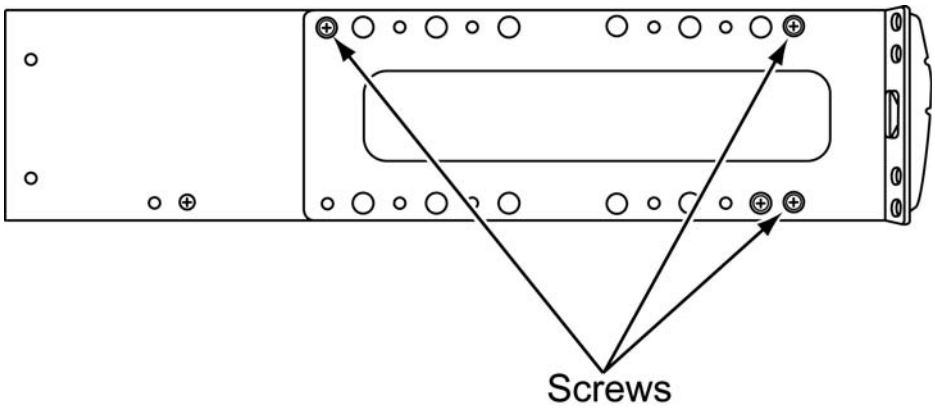


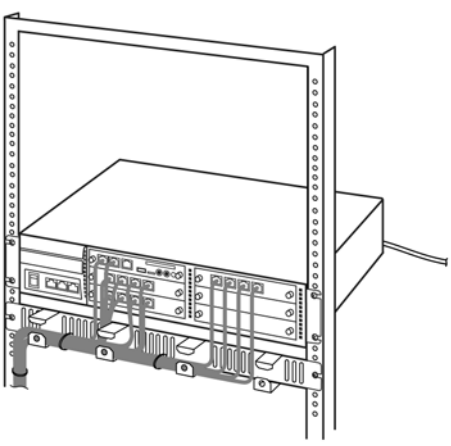
Figure 4-23 Rack Mount Bracket Installed 19” CHS2U-AU

4. Carefully slide the chassis into desired location within 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.

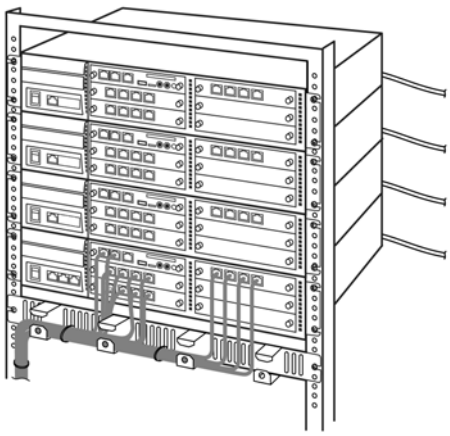
Each CHS2U-AU chassis will require approximately 3.5” of height within the rack.

5. Secure the brackets to the rack using the screws supplied.

   Repeat for additional chassis mounting.



Single CHS2U-AU Rack Mount



Single CHS2U-AU Rack Mount with Three Expansion Chassis

Figure 4-24 Rack Mount 19” CHS2U-AU

6. Connect the ground wire to all chassis. Refer to 3.5.5 Install 19” Chassis Grounding on page 4-34 for complete details on grounding the system.

7. Refer to 3.5 Installing the 19” Chassis on page 4-24 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.5 Installing the 19” Chassis

There are two types of chassis; the controlling (with the CD-CP00-AU installed) and the expansion (that does not have the CCPU blade installed). As discussed in other chapters, multiple chassis can be linked together to expand the port size of the system.

3.5.1 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 4-1.

3.5.2 Before Installation

Before installing the chassis check the following:

- ❒ Ensure that the MPS7101(Power Supply Unit) is **OFF** and that 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 4-1.

3.5.3 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-AU blade with the Slot 1 guides of the Controlling Chassis.

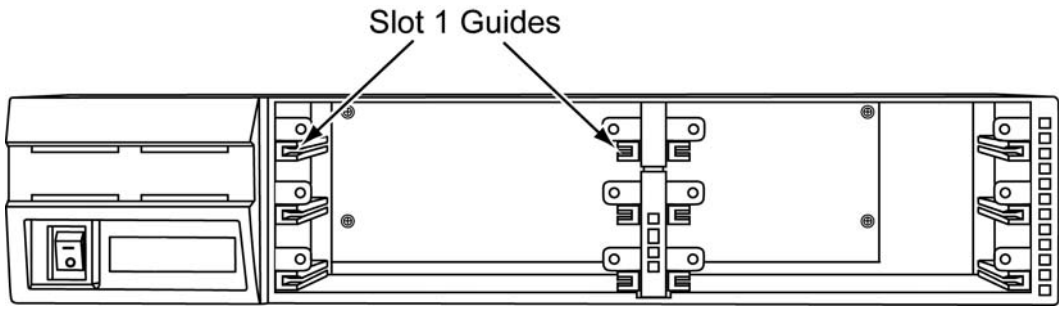


Figure 4-25 19" Controlling Chassis – Guides Slot 1

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

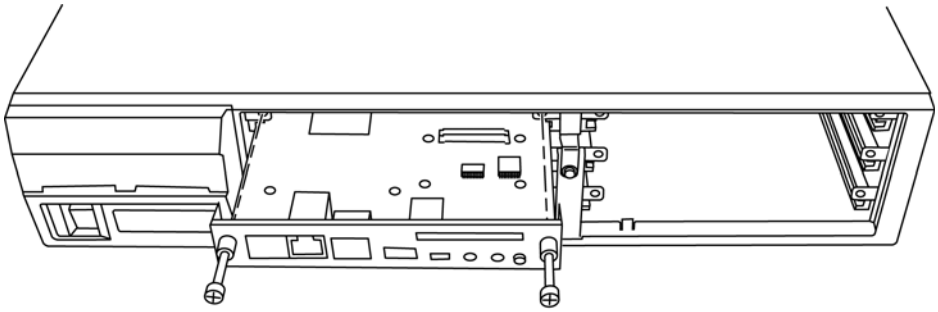


Figure 4-26 Installing the CD-CP00-AU Blade

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

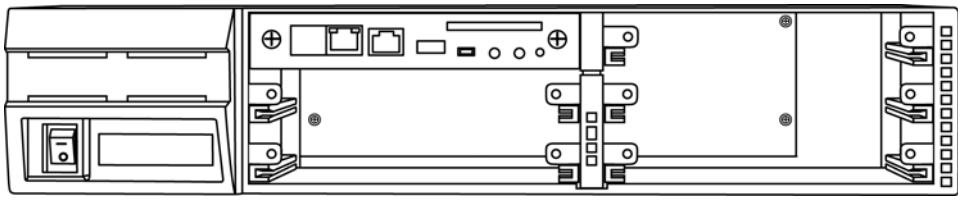


Figure 4-27 CD-CP00-AU Blade Installed

3.5.4 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 EXIFU slot of the Controlling Chassis which is equipped with a CPU card. The PZ-BS11 is installed in the expansion slot of the Expansion Chassis, which does not have a CPU.

The EXIFU cable connects the Controlling Chassis and its EXIFU-**B1** interface to the second, third, and fourth EXIFU-**E1** interface.

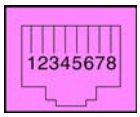
Use only the CAT 5 cables provided by NEC to make the connections between the Controlling and Expansion Chassis.

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

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

Table 4-3 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 (-)

3.5.4.2 Install the PZ-BS10 Expansion Base Blade in the CHS2U-AU 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.

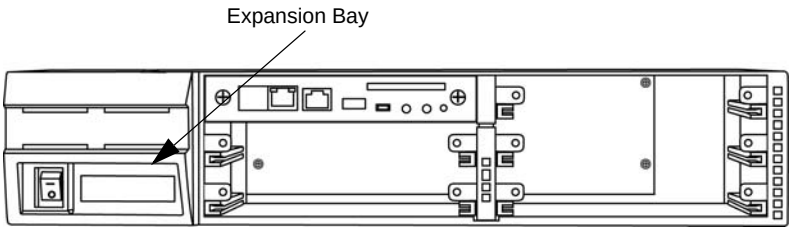


Figure 4-28 PZ-BS10 Expansion Bay in Controlling Chassis

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

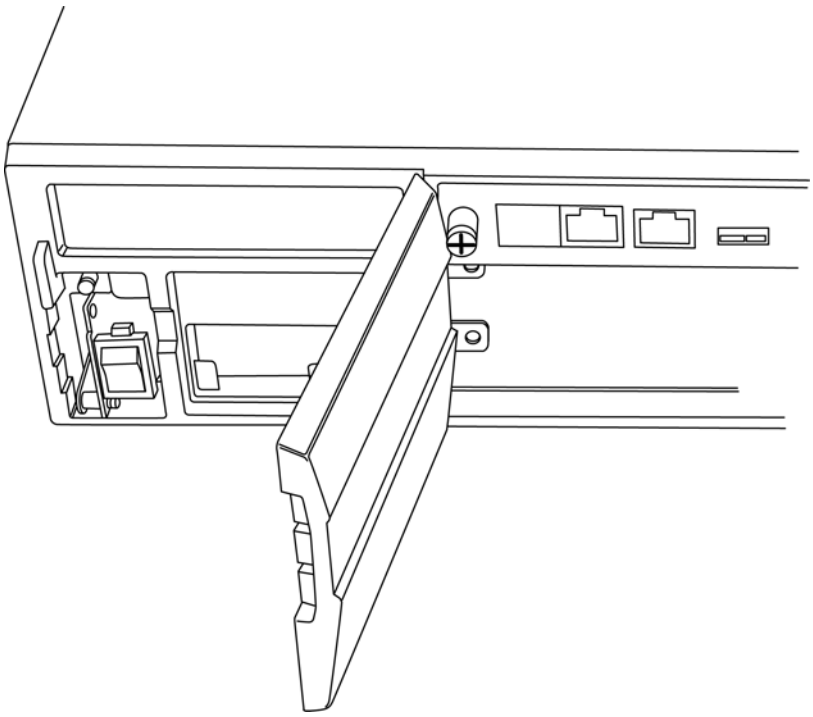


Figure 4-29 Open Base Chassis Cover

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.

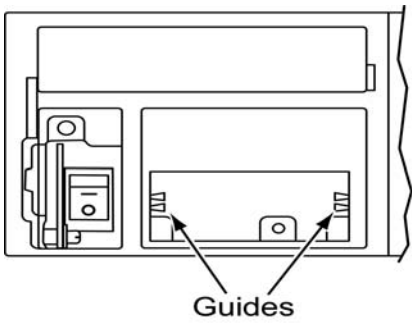


Figure 4-30 PZ-BS10 Blade Guides

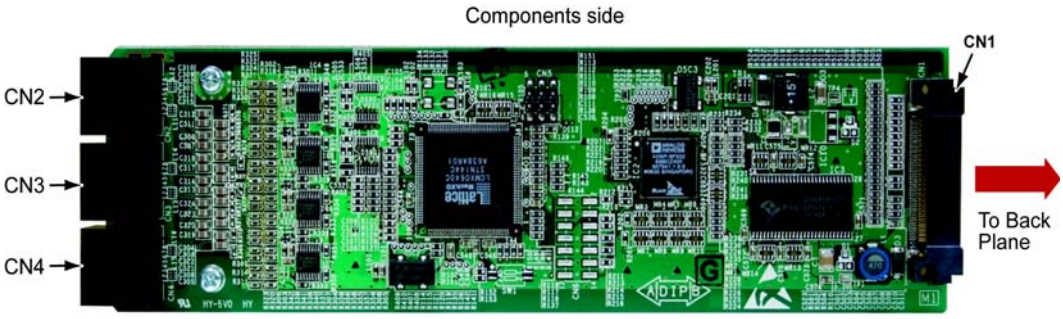


Figure 4-31 PZ-BS10 Components

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

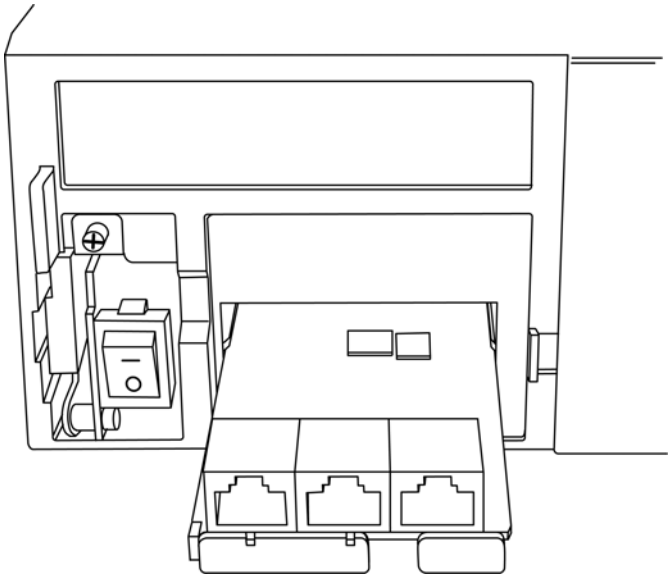


Figure 4-32 Installing PZ-BS10 Blade in Expansion Bay

7. Gently push until the blade seats and install the supplied retaining screw.
8. Align the door tabs with hinges and reattach the cover.

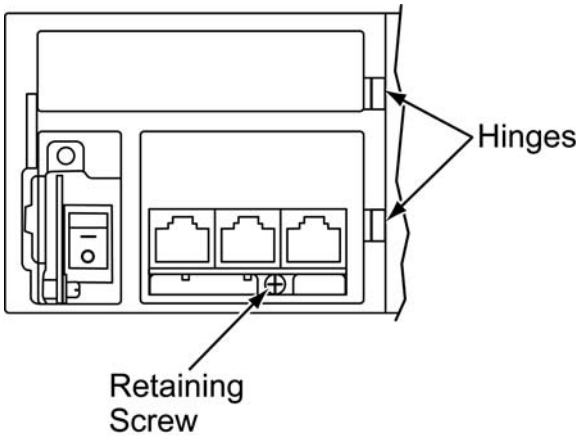


Figure 4-33 PZ-BS10 Blade Installed

9. Close the PZ-BS10 cover.

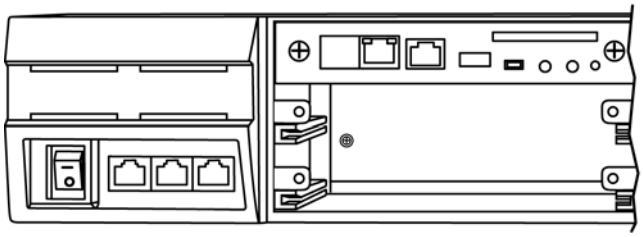


Figure 4-34 PZ-BS10 Installed (Cover Closed)

3.5.4.3 Install the PZ-BS11 Expansion Blade in the CHS2U-AU 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.

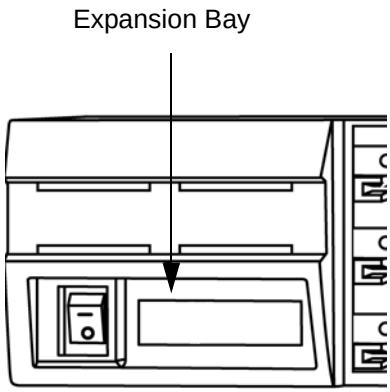


Figure 4-35 PZ-BS11 Expansion Bay in Expansion Chassis

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

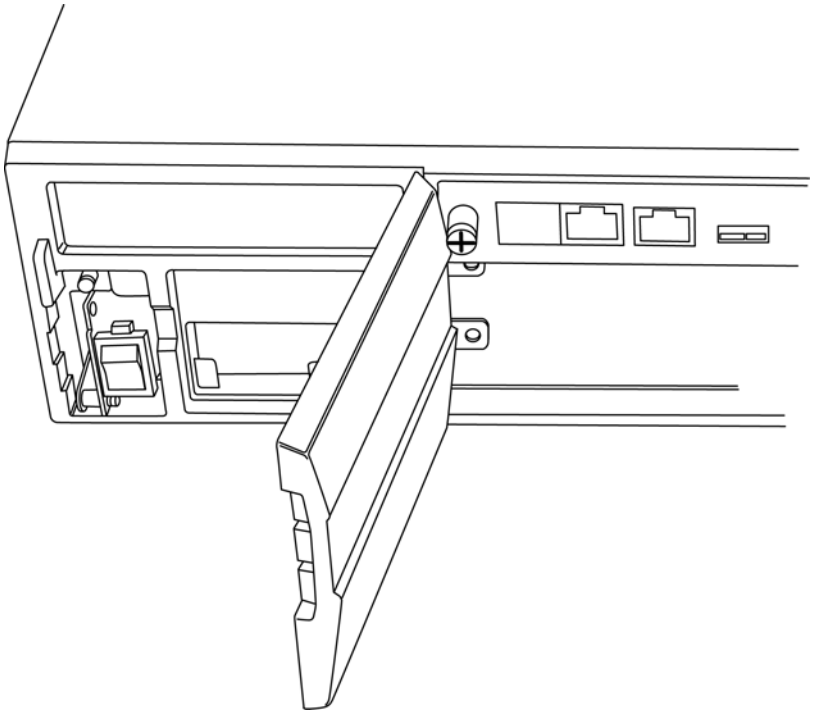


Figure 4-36 Open Expansion Chassis Cover

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.

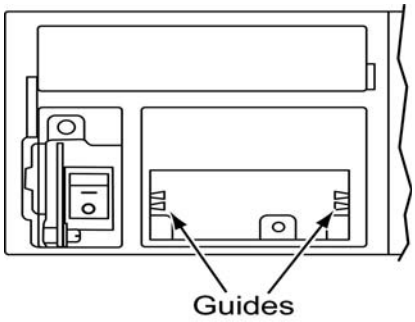


Figure 4-37 PZ-BS11 Blade Guides

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

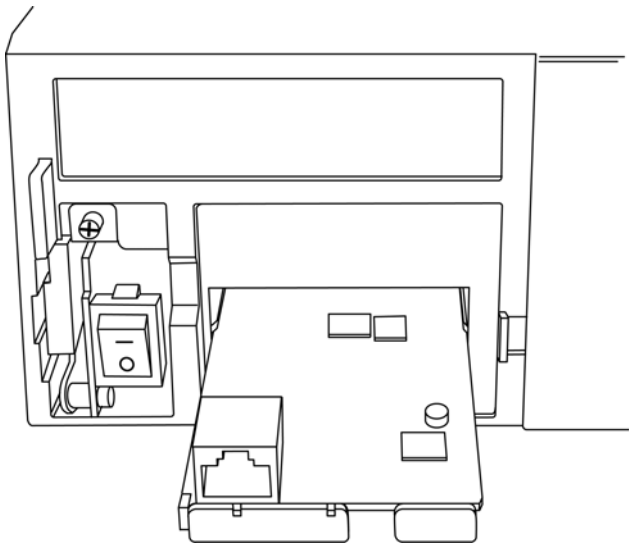


Figure 4-38 Installing PZ-BS11 Blade in Expansion Chassis

7. Gently push until the blade seats and install the supplied retaining screw.
8. Align the door tabs with hinges and reattach the cover.

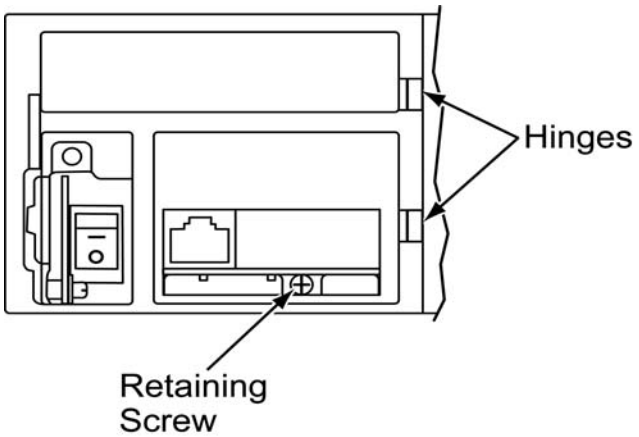


Figure 4-39 PZ-BS11 Blade Installed

9. Close the PZ-BS11 blade cover.

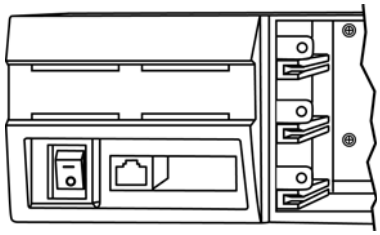


Figure 4-40 PZ-BS11 Installed (Cover Closed)

3.5.4.4 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.*

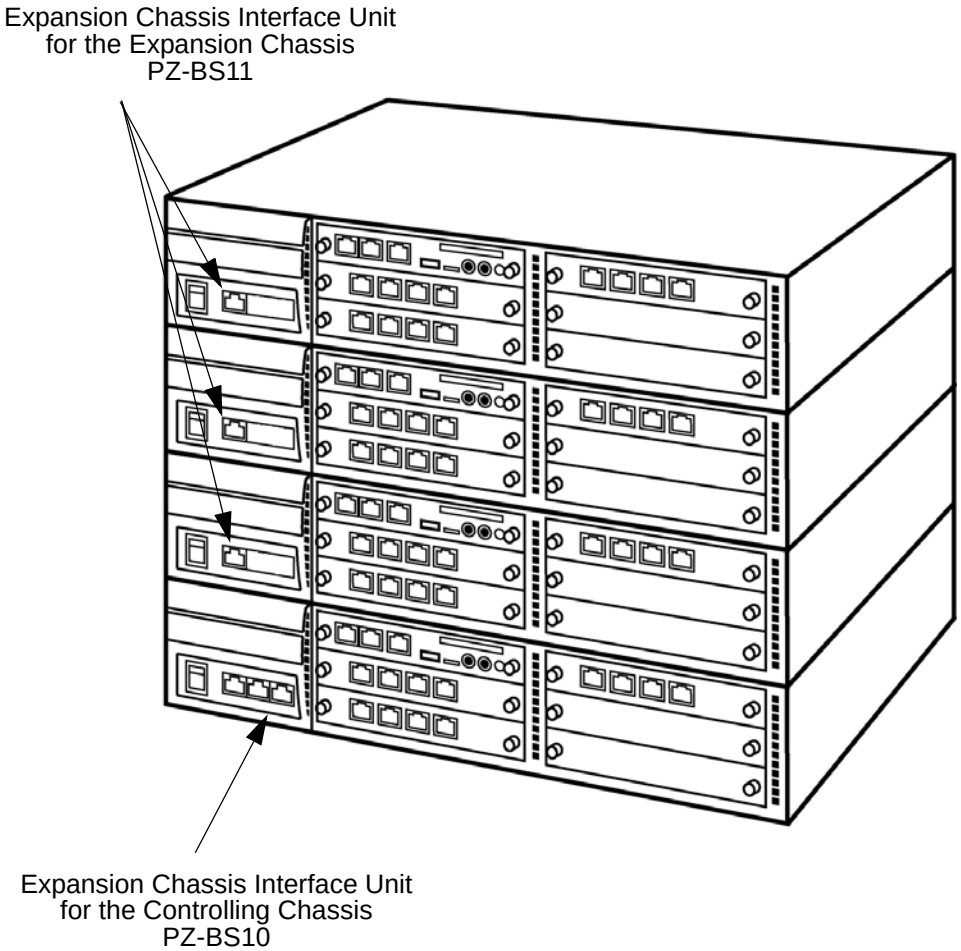


Figure 4-41 19" Expansion Chassis Interface Units

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 4-42 System Expansion Cabling on page 4-34. Attach the opposite end to the CN2, CN3 or CN4 connector on the PZ-BS10 of the Controlling Chassis.

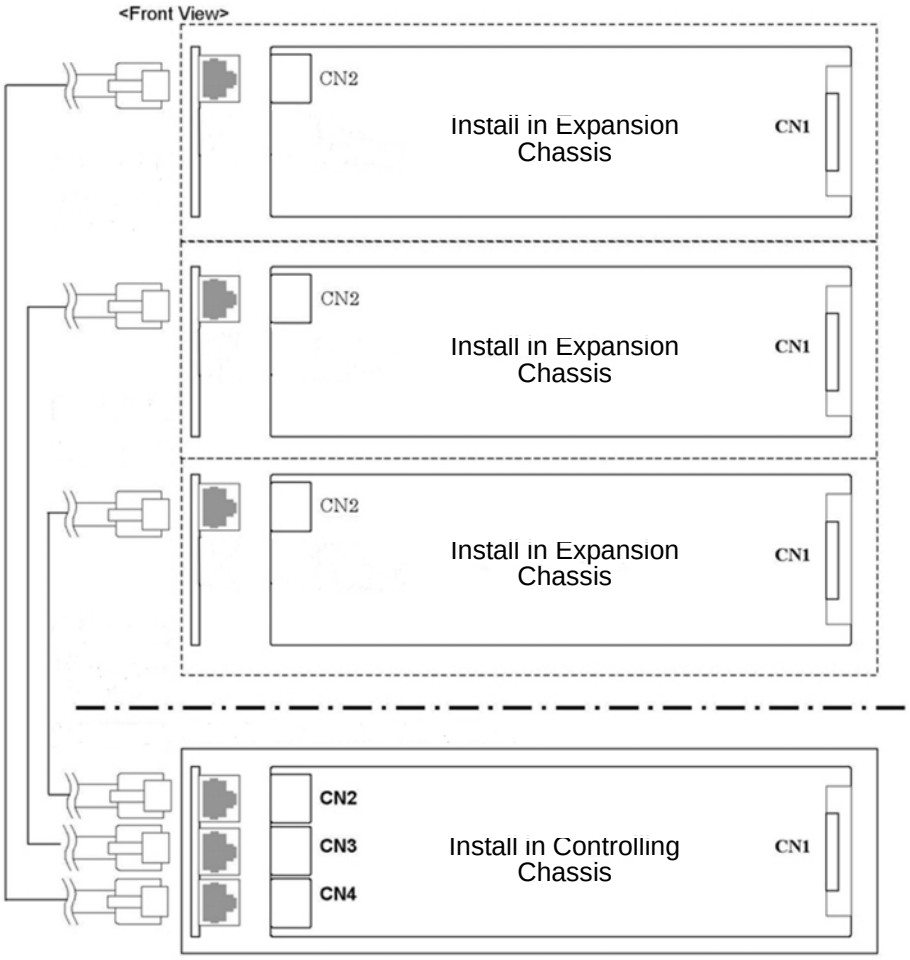


Figure 4-42 System Expansion Cabling

3. Repeat for additional Expansion Chassis.

3.5.5 Install 19” Chassis Grounding

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-AU) 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).

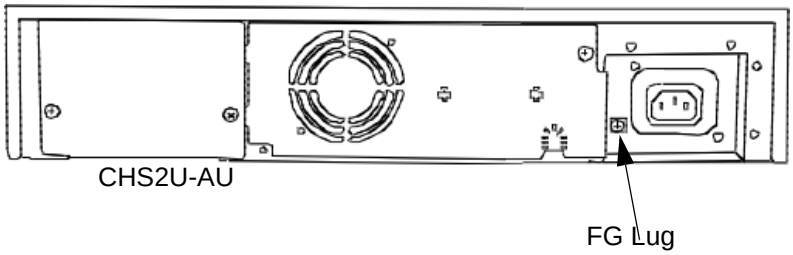


Figure 4-43 Chassis Grounding Lug

3.5.6 Install 19” Grounding on Multiple 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-AU) 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).

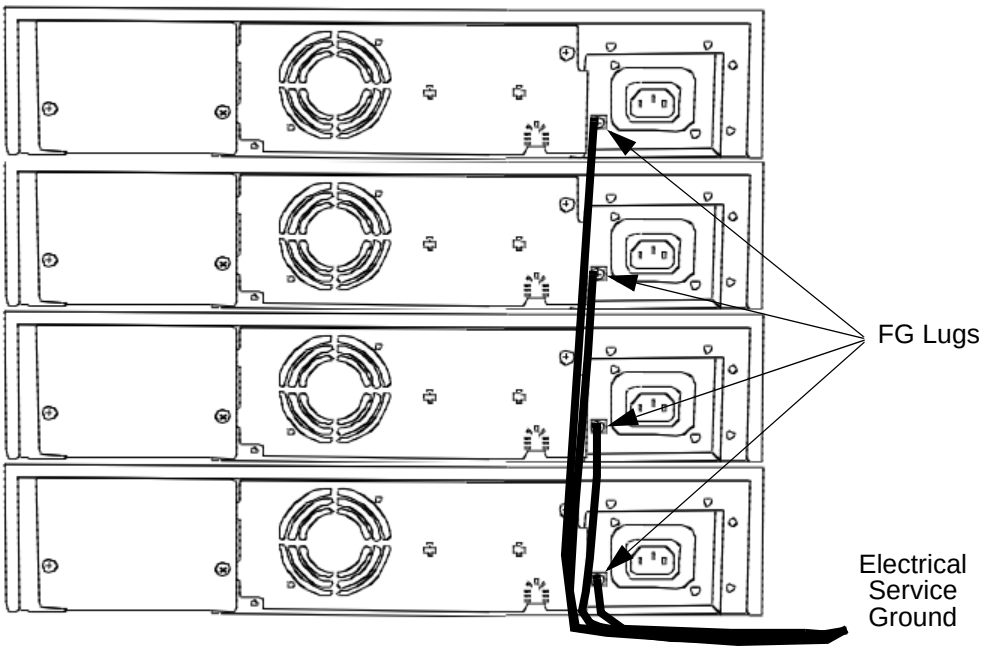


Figure 4-44 19” Chassis Grounding Lug (Multiple-Chassis)

3.5.7 Install AC Power Cords

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

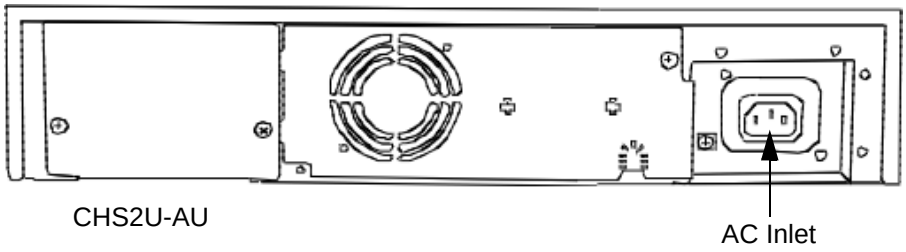


Figure 4-45 Install the AC Power Cord

3.5.8 Install AC Power Cords on Multiple 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.

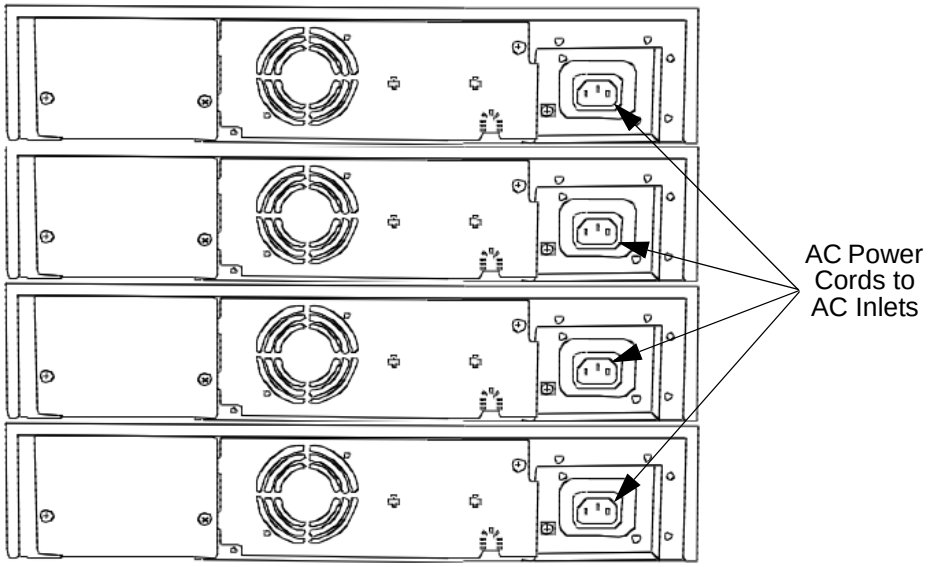


Figure 4-46 Install 19” AC Power Cords (Multiple-Chassis)

3.5.9 Install Additional Blades

Refer to Chapter 5, 2.1 Installation and Safety Precautions on page 6-2.

3.5.10 Apply Power to the 19” Chassis

Refer to Chapter 5, 2.6 Powering Up the SV8100 on page 6-7.

SECTION 4 BATTERY CONNECTION

There are two types of battery connection to provide battery life in the event of a power failure, the internal battery and an external battery with CHS LARGE BATT BOX.

4.1 Installing the Internal Batteries

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

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

1. Power down the CHS2U-AU chassis.

Ensure the CHS2U-AU 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. Refer to Figure 4-47 Removing Battery Access Panel.

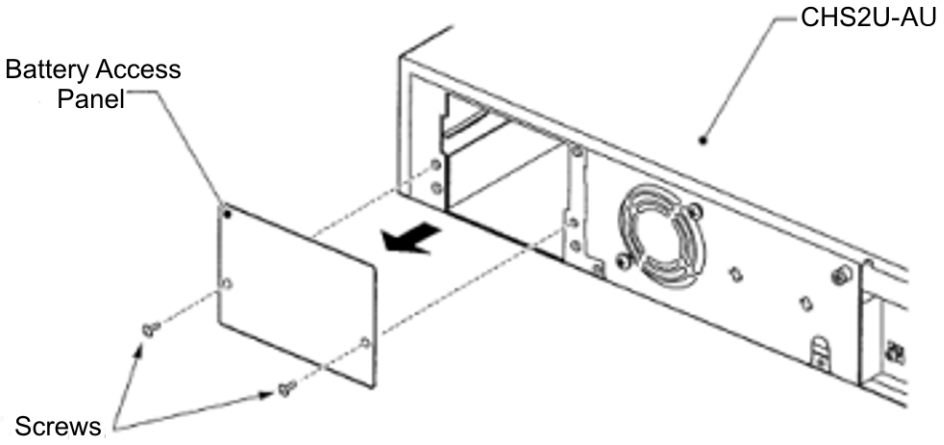


Figure 4-47 Removing Battery Access Panel

4. Remove access panel containing the fan. Refer to Figure 4-48 Removing Access Panel and Figure 4-49 Access Panel Removed.

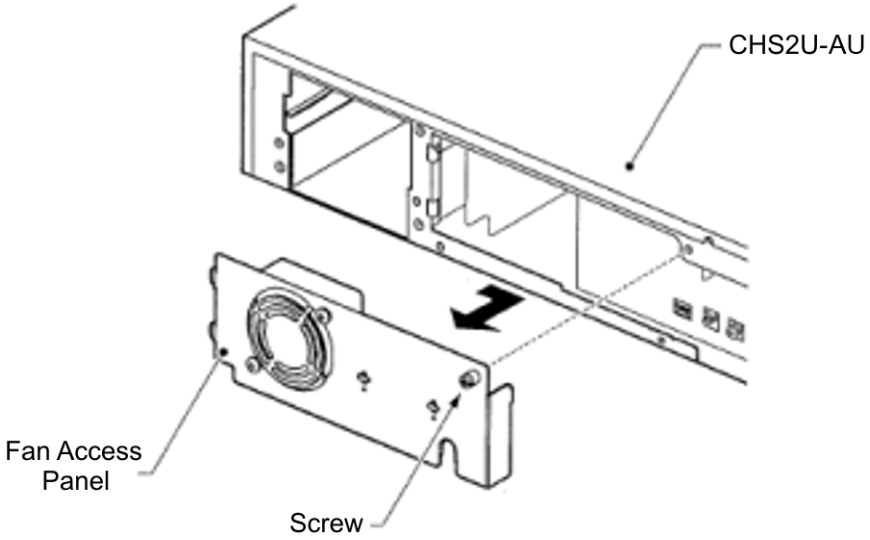


Figure 4-48 Removing Access Panel

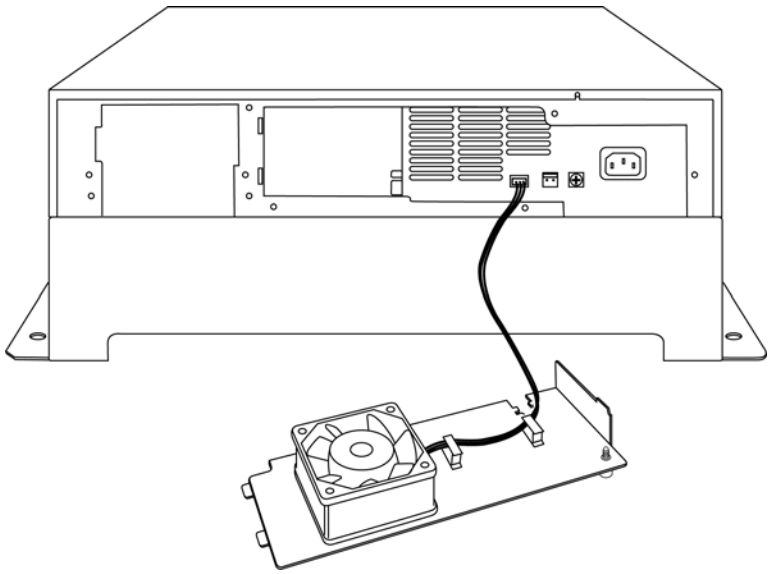


Figure 4-49 Access Panel Removed

5. Using tie wraps, secure CHS2U BATT CA INT in cable guide bracket (refer to Figure 4-50 Secure Cable in Support Bracket).

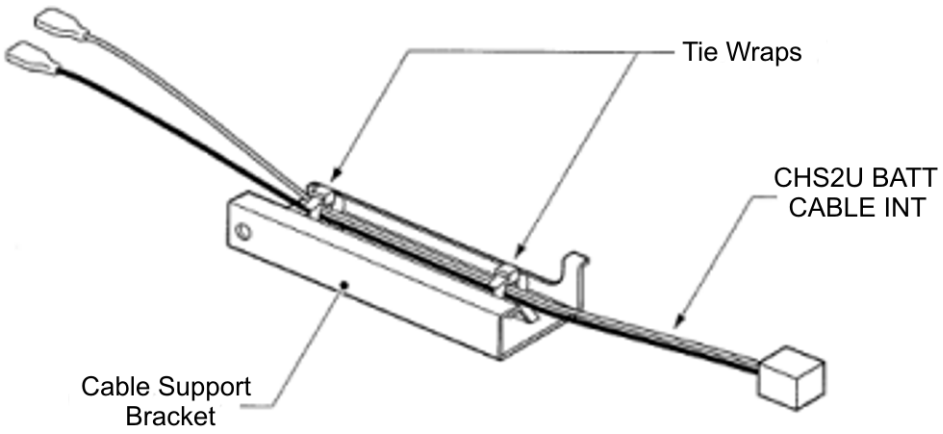


Figure 4-50 Secure Cable in Support Bracket

6. With supplied screw, install cable guide in chassis (refer to Figure 4-51 Installing Cable Guide).

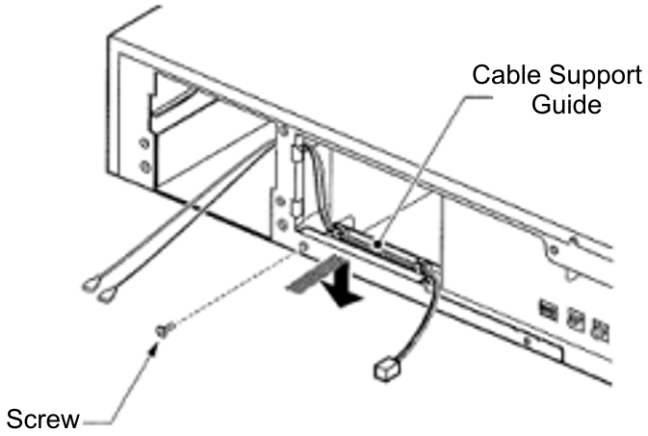


Figure 4-51 Installing Cable Guide

7. Install two 2.3 AH-12V batteries (locally procured) into the CHS2U BATT MTG KIT (refer to Figure 4-52 Installing Two Batteries).

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

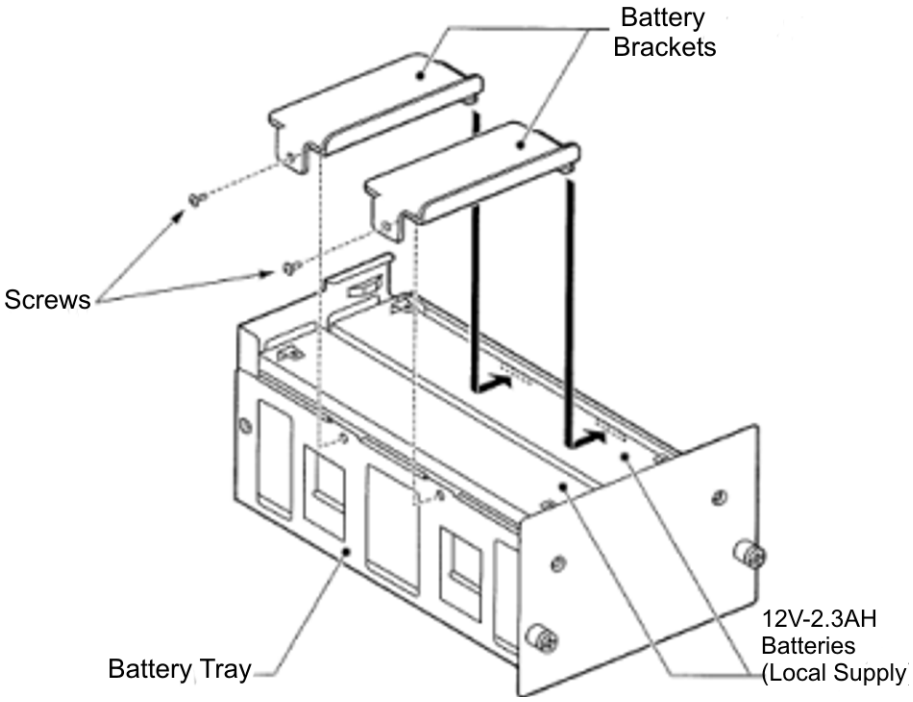


Figure 4-52 Installing Two Batteries

8. Using the supplied screws, secure the brackets to the CHS2U BATT MTG KIT (refer to Figure 4-52 Installing Two Batteries on page 4-40).

9. Connect the provided battery cables to the batteries (refer to Figure 4-53 Installing Battery Cable).

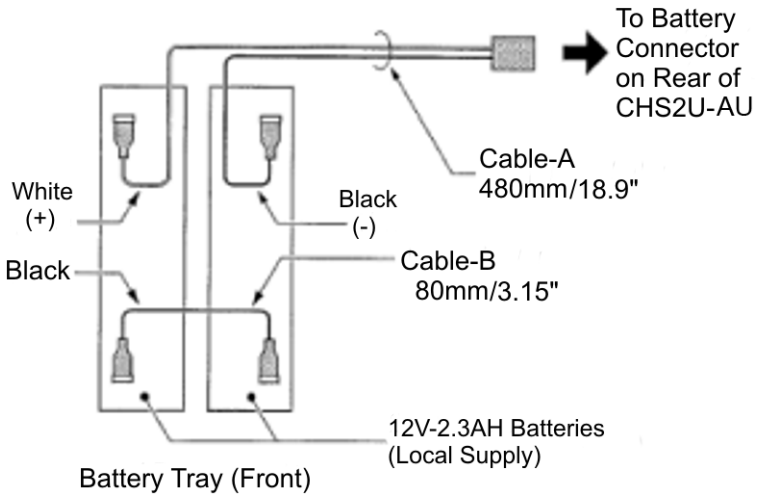


Figure 4-53 Installing Battery Cable

10. Connect CHS2U BATT CA INT to battery connector (refer to Figure 4-54 Connecting CHS2U BATT CA INT).

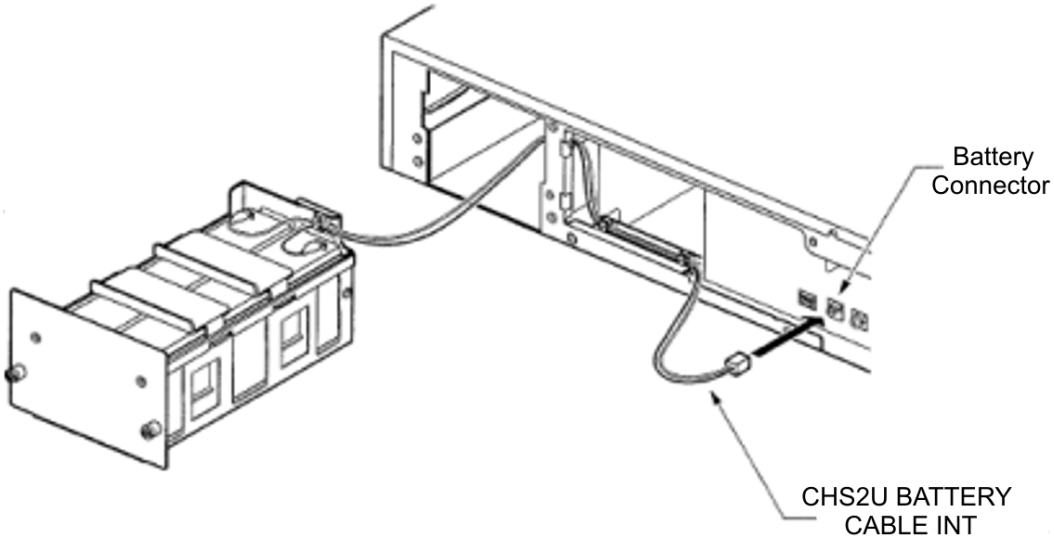


Figure 4-54 Connecting CHS2U BATT CA INT

11. Install CHS2U BATT MTG KIT into CHS2U-AU chassis and tighten the retaining screws (see Figure 4-55 Installing Battery Tray into CHS2U-AU Chassis).

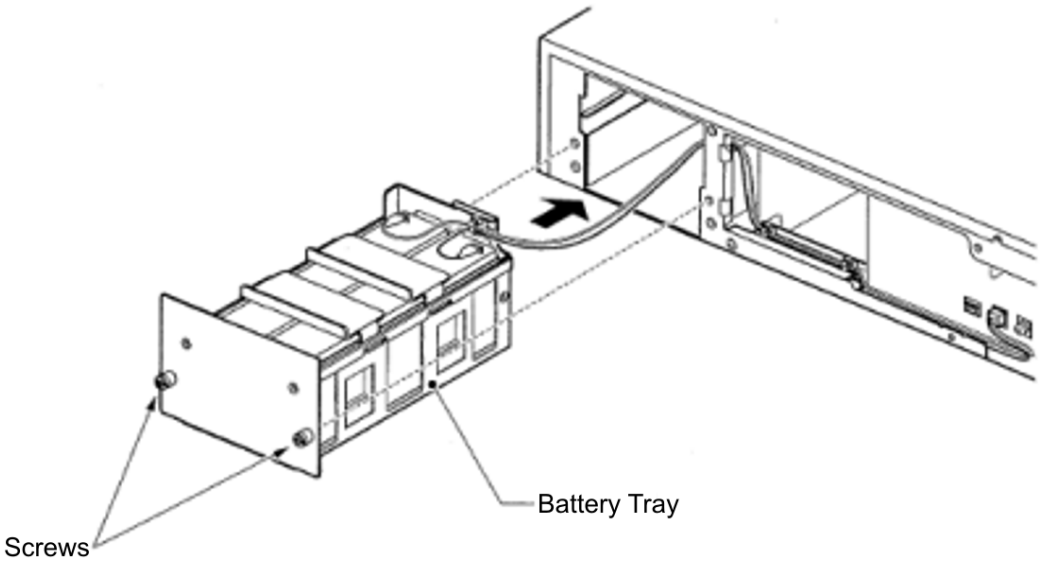


Figure 4-55 Installing Battery Tray into CHS2U-AU Chassis

12. Reinstall access panel containing the fan and secure with supplied screw (refer to Figure 4-56 Installing the Access Panel).

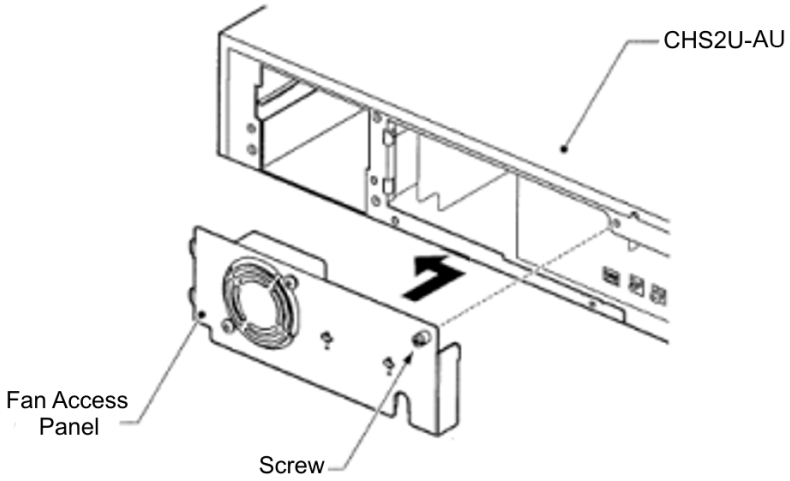


Figure 4-56 Installing the Access Panel

13. Connect grounding and AC power cable.

4.2 Installing the External Batteries

An optional (locally procured), external battery source can be used to provide power in the event of a power failure.

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

Table 4-4 CHS LARGE BATT BOX Capacity

Configuration SV8100	Battery Capacity (Number of Batteries)	Number of CHS LARGE BATT BOX
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.*

4.2.1 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-AU are connected for long term use, the CHS2U JOINT BRACKET KIT is used.***

1. Use the template shown in Figure 4-57 Floor Mount Spacing Guide on page 4-43 for required spacing before drilling holes for 0.39” (10mm) anchor bolts (locally procured).

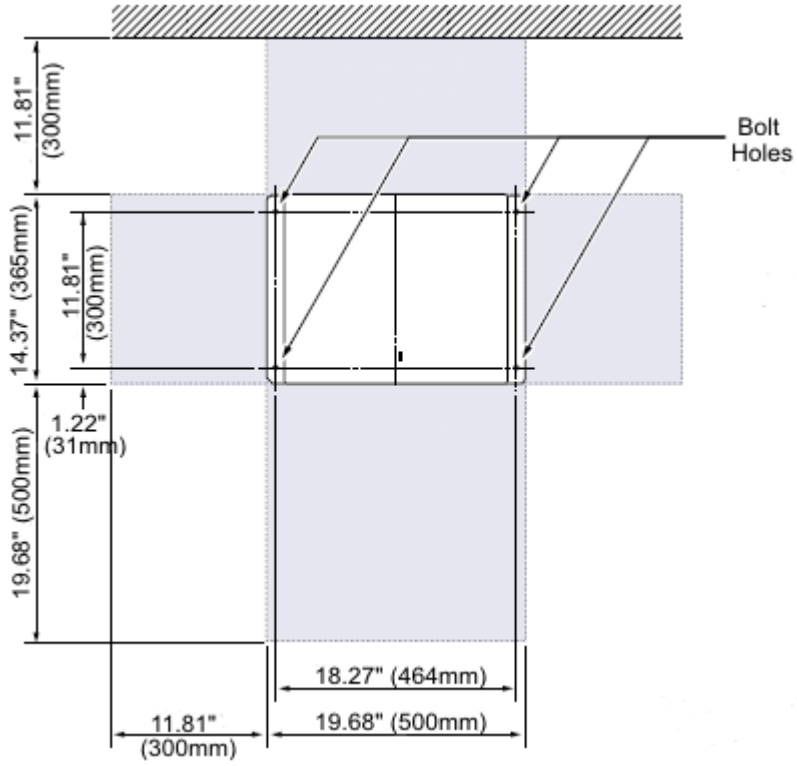


Figure 4-57 Floor Mount Spacing Guide

2. Mark and drill the four holes required to install the CHS BASE UNIT.

3. Align bolt holes in CHS BASE UNIT (see Figure 4-57 Floor Mount Spacing Guide on page 4-43) 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. Refer to Figure 4-58 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT on page 4-44.

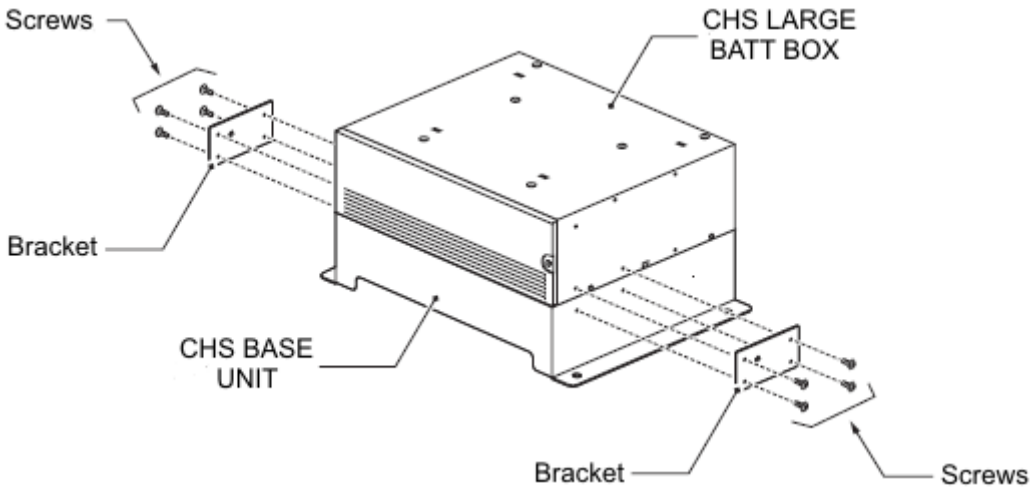


Figure 4-58 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT

5. Secure the CHS LARGE BATT BOX to the CHS BASE UNIT using the CHS2U JOINT BRACKET KIT. Refer to Figure 4-58 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT on page 4-44.

4.2.2 Battery Installation

1. Loosen screw on front of CHS LARGE BATT BOX. Refer to Figure 4-59 Removing CHS LARGE BATT BOX Cover.

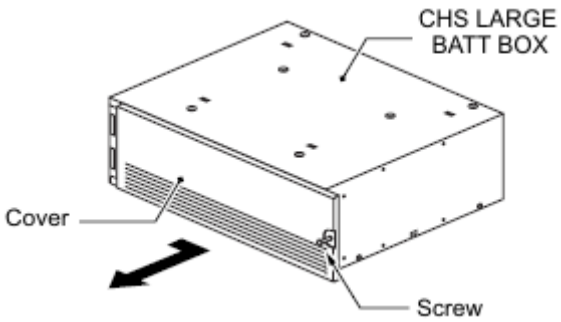


Figure 4-59 Removing CHS LARGE BATT BOX Cover

2. Swing cover outward and detach from CHS LARGE BATT BOX.

3. Remove two screws from front of Battery Tray Suppressor. Refer to Figure 4-60 Removing Battery Tray Suppressor.

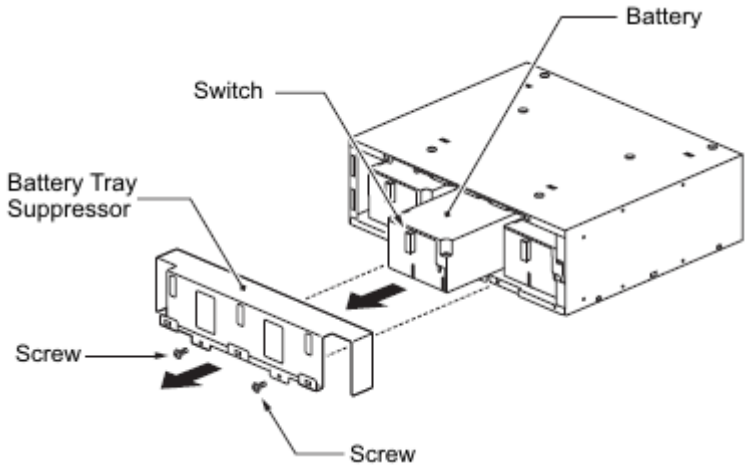


Figure 4-60 Removing Battery Tray Suppressor

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. Refer to Figure 4-61 Removing Battery Tray Cover.

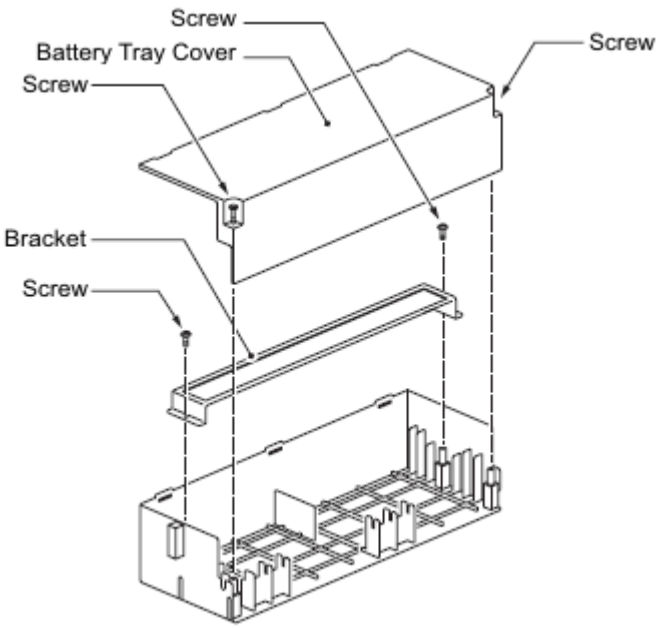


Figure 4-61 Removing Battery Tray Cover

7. Remove two screws and remove the Battery Tray Bracket. Refer to Figure 4-62 Removing Battery Tray Bracket.

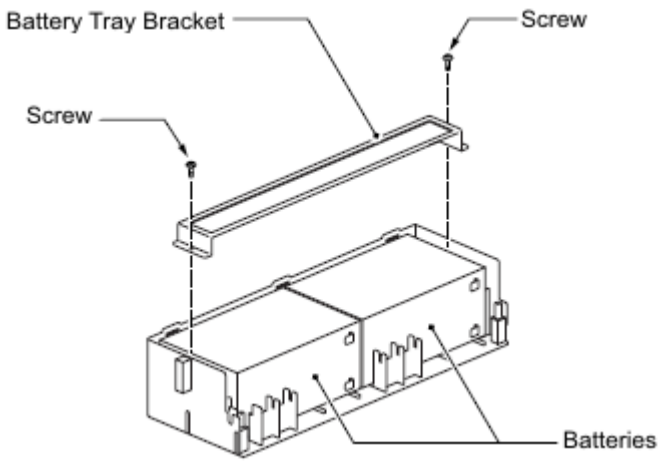


Figure 4-62 Removing Battery Tray Bracket

8. Refer to Figure 4-63 Battery Cable Connection Guide for connection of battery cable to battery terminals. Repeat for additional battery connection.

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

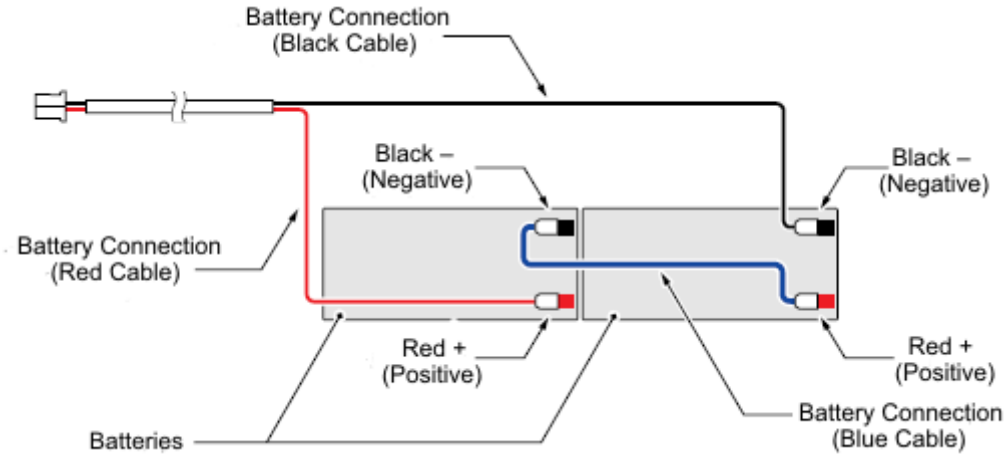


Figure 4-63 Battery Cable Connection Guide

9. Install batteries into Battery Tray. Refer to Figure 4-62 Removing Battery Tray Bracket.

10. Using two screws, install the Battery Tray Bracket. Refer to Figure 4-62 Removing Battery Tray Bracket on page 4-46.

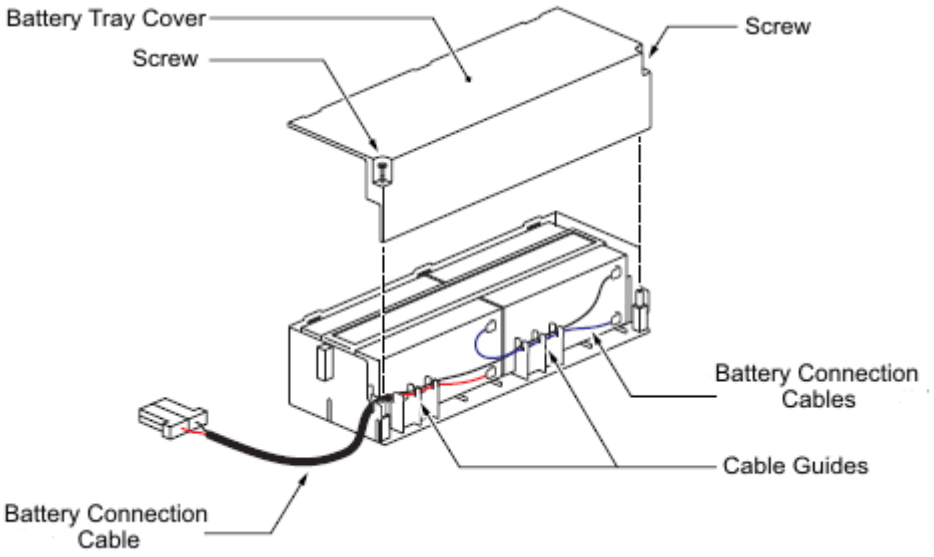


Figure 4-64 Installing Battery Connection Cable

11. Insert Battery Connection Cable into cable guides. Refer to Figure 4-64 Installing Battery Connection Cable on page 4-47.

12. Install the Battery Tray Cover and tighten the two screws. Refer to Figure 4-64 Installing Battery Connection Cable on page 4-47.

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 4-65 Connecting Battery Cables on page 4-48. Secure with two screws.

15. Plug the Battery Connection Cable(s) into the Fuse Unit. Refer to Figure 4-65 Connecting Battery Cables on page 4-48.

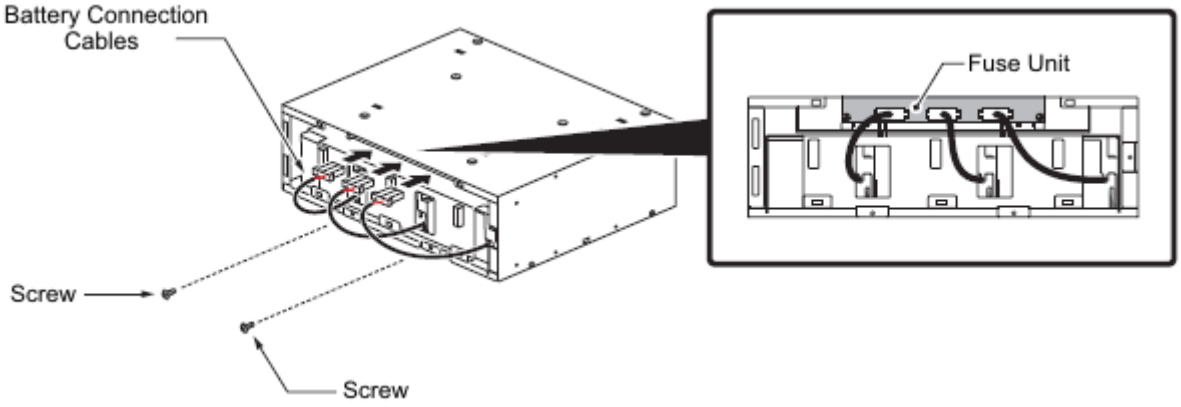


Figure 4-65 Connecting Battery Cables

16. Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw. Refer to Figure 4-66 Installing Cover Battery.

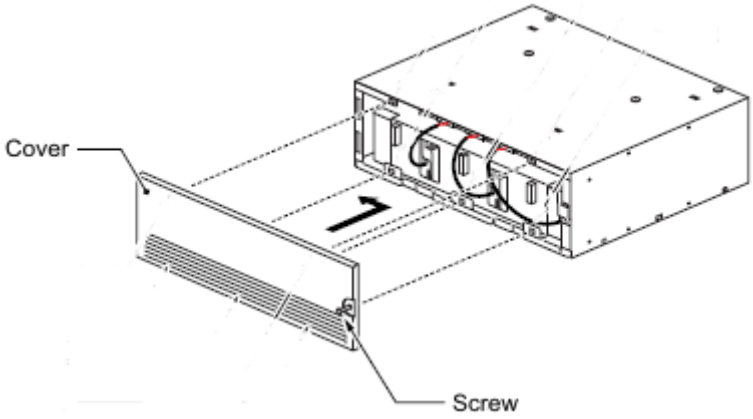


Figure 4-66 Installing Cover Battery

4.2.3 CHS LARGE BATT BOX to CHS2U-AU Connection

1. Power down the CHS2U-AU chassis.

Ensure the CHS2U-AU chassis is powered OFF.

2. Disconnect AC power cable from rear of chassis.

3. Remove fan access panel from rear of CHS2U-AU chassis. Refer to Figure 4-67 Removing Fan Access Panel.

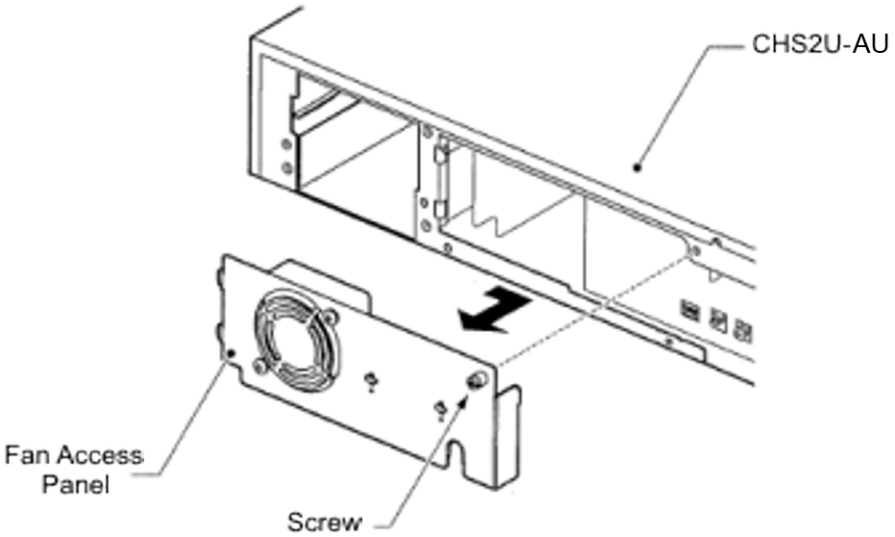


Figure 4-67 Removing Fan Access Panel

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

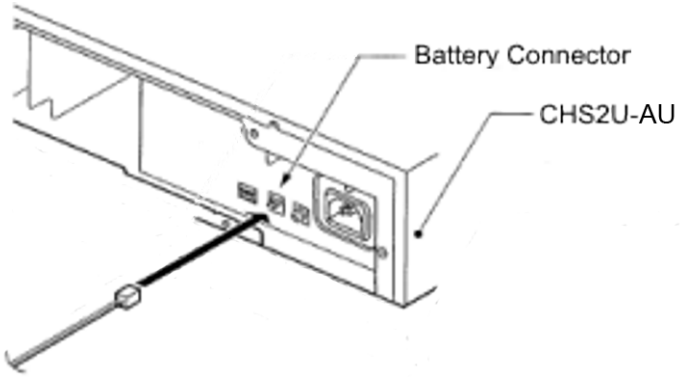


Figure 4-68 Connecting External Battery to CHS2U-AU

5. Connect other end of cable to Battery Connector on rear of CHS LARGE BATT BOX chassis. Refer to Figure 4-69 Single CHS LARGE BATT BOX Connection or Figure 4-70 Dual CHS LARGE BATT BOX Connection.

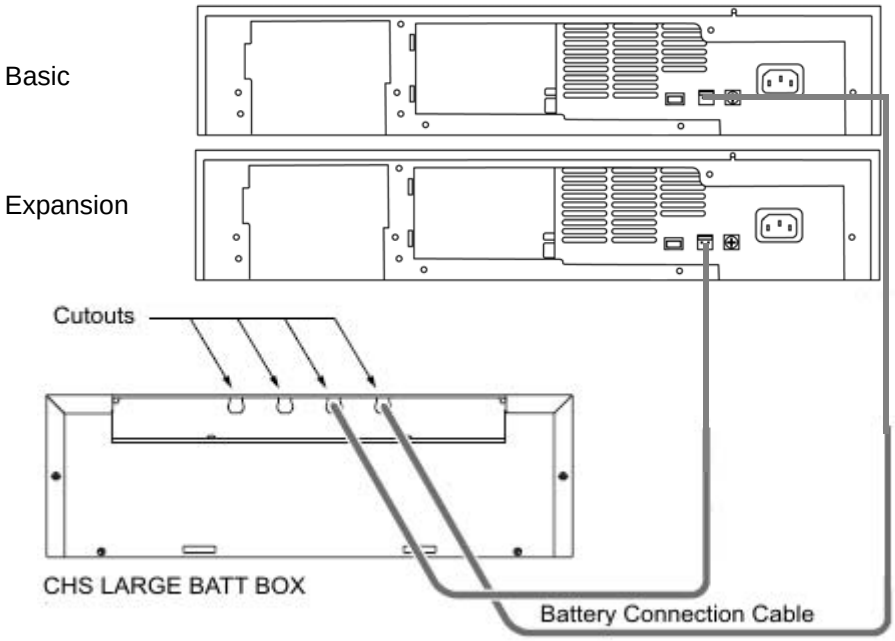


Figure 4-69 Single CHS LARGE BATT BOX Connection

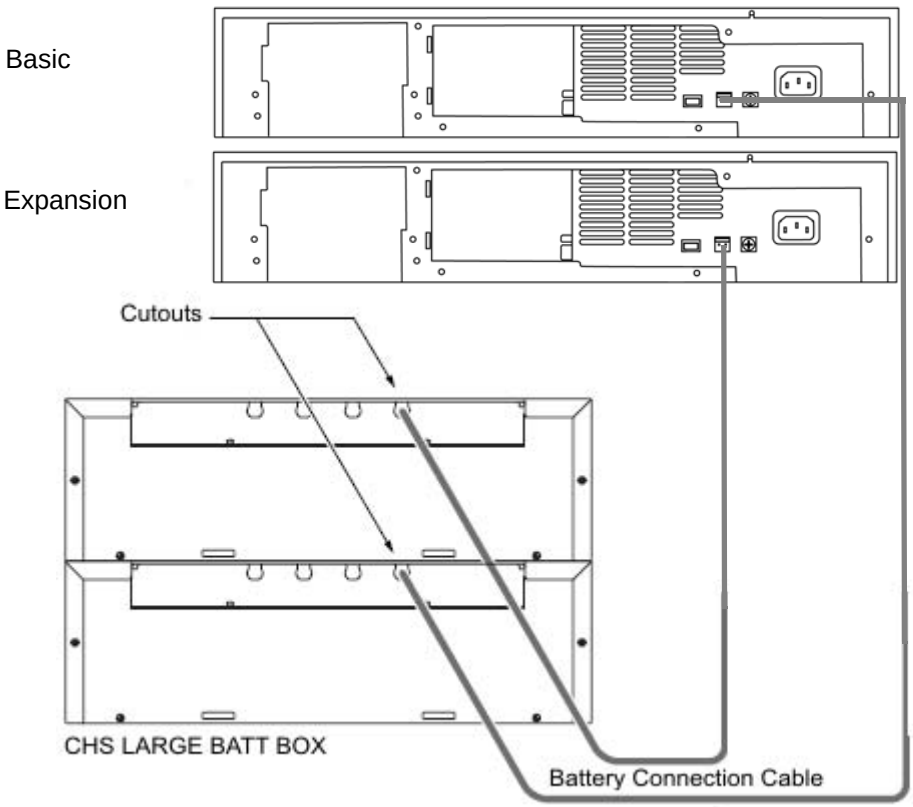


Figure 4-70 Dual CHS LARGE BATT BOX Connection

6. Insert the access panel tab into the rear of the CHS1U-AU chassis running the Battery Connection Cable through the cutout. Secure panel with the retaining screw. Refer to Figure 4-71 Install the Fan Access Panel.

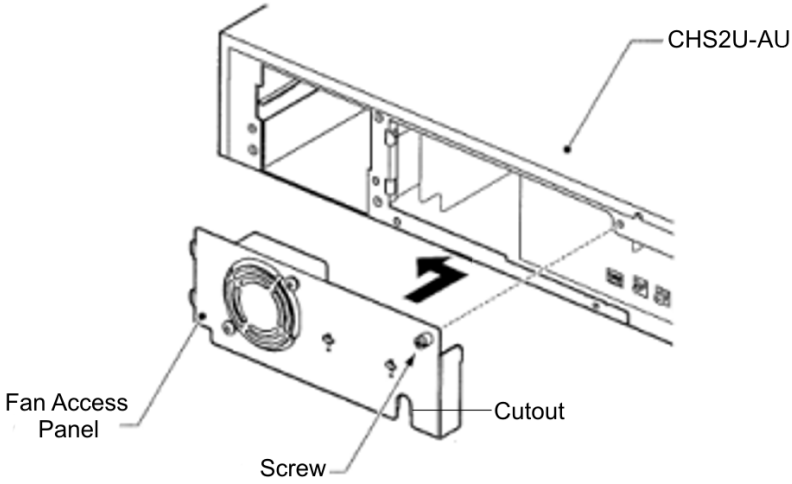


Figure 4-71 Install the Fan Access Panel

7. Connect grounding and AC power cables.

4.2.4 CHS LARGE BATT BOX Fuse Replacement

1. Loosen screw on front of CHS LARGE BATT BOX. Refer to Figure 4-72 Removing CHS LARGE BATT BOX Cover.

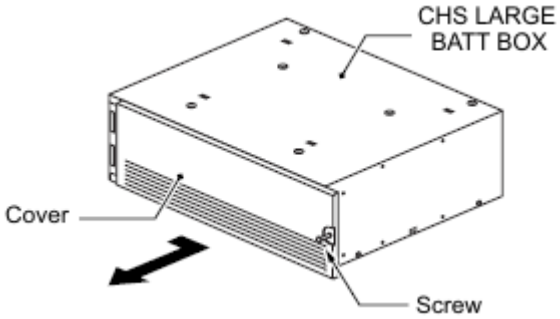


Figure 4-72 Removing CHS LARGE BATT BOX Cover

2. Remove two screws from front of Battery Tray Suppressor. Refer to Figure 4-73 Removing Battery Tray Suppressor.

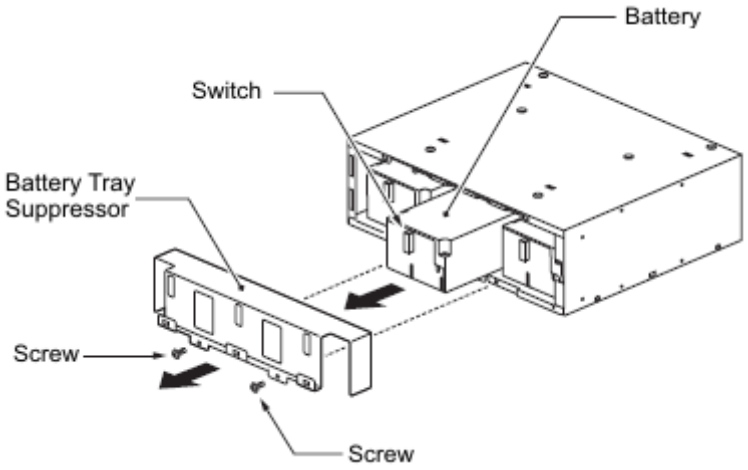


Figure 4-73 Removing Battery Tray Suppressor

3. Slide Battery Tray Suppressor outward to remove.

4. Disconnect the Battery Connection Cables from the Fuse Unit. Refer to Figure 4-74 Disconnecting Battery Cables on page 4-52.

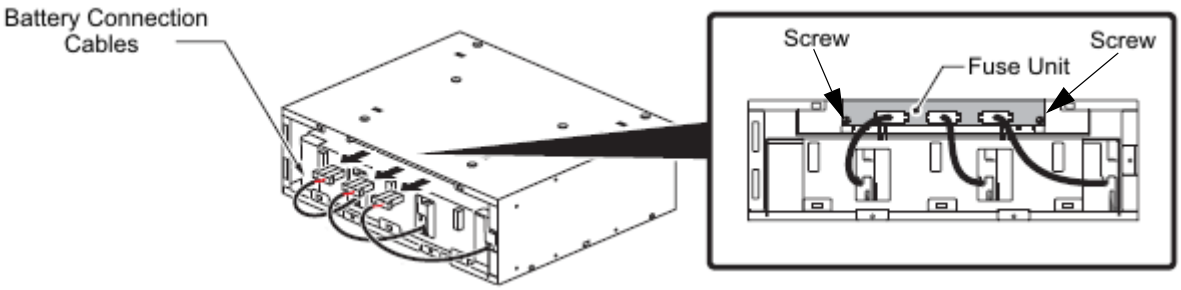


Figure 4-74 Disconnecting Battery Cables

5. Loosen two screws and pull Fuse Unit out of the CHS LARGE BATT BOX.

6. See Figure 4-75 CHS LARGE BATT BOX Fuse Unit for replacement of 8A or 30A fuses.

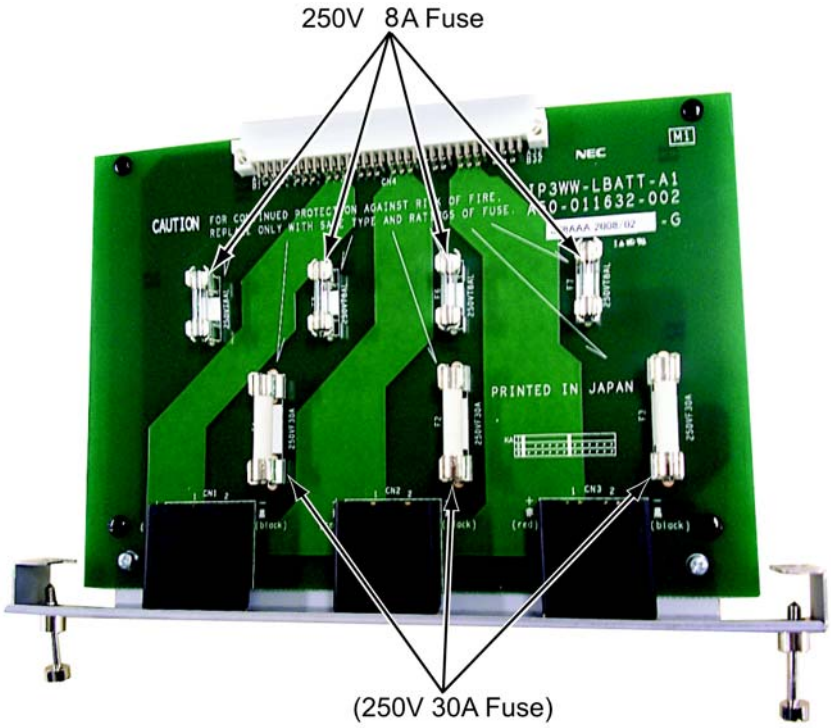


Figure 4-75 CHS LARGE BATT BOX Fuse Unit

7. Slide the Fuse Unit into the and tighten the two screws (refer to Figure 4-74 Disconnecting Battery Cables on page 4-52).

8. Plug the Battery Connection Cables into the Fuse Unit. Refer to Figure 4-76 Connecting Battery Cables on page 4-53.

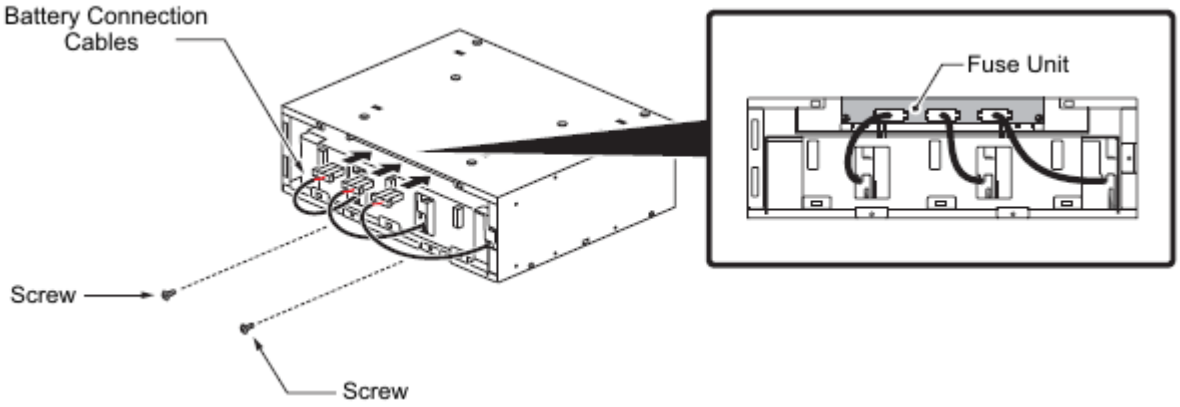


Figure 4-76 Connecting Battery Cables

9. Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw. Refer to Figure 4-77 Installing Cover Battery.

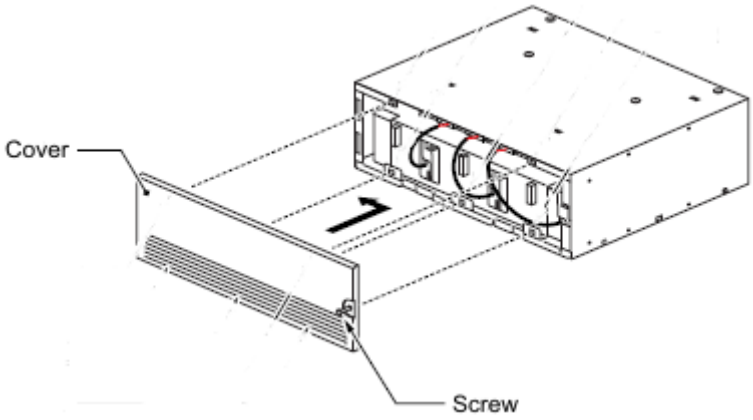


Figure 4-77 Installing Cover Battery

SECTION 5 POWER SUPPLY

Do not attempt to replace the power supply. The MPS7101 is not a field replaceable part. If the power supply fails contact NEC.

SECTION 6 REMOVE AND INSTALL COOLING FAN

If required, the cooling fan installed in the CHS2U-AU chassis can be removed and replaced. The following provides the procedure for the CHS2U-AU chassis.

6.1 CHS2U-AU Chassis

6.1.1 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.

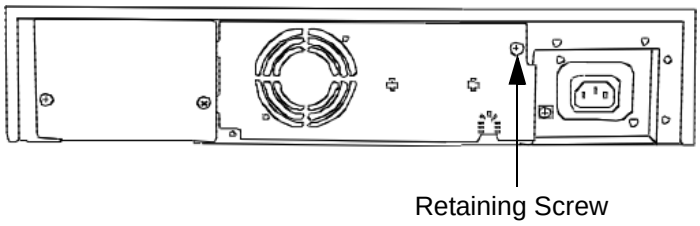


Figure 4-78 19" Chassis Access Panel

3. Swing access panel outward and unplug fan power cable. See Figure 4-79 Opening Chassis Access Panel (19" Chassis).

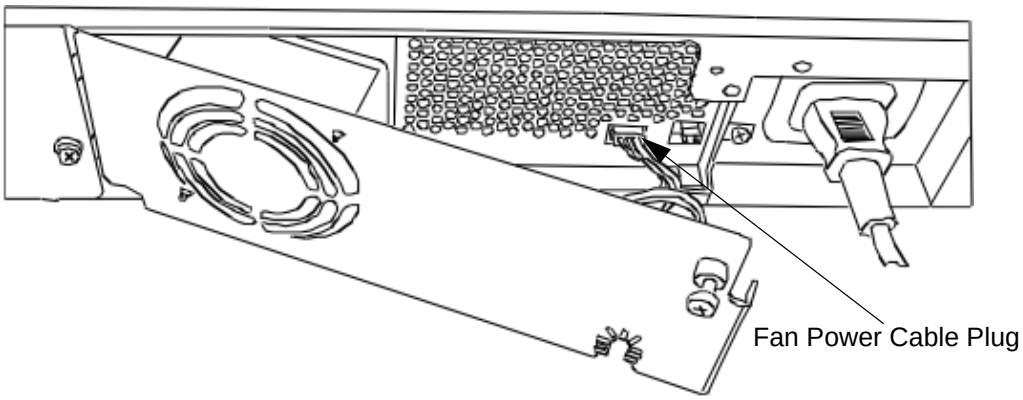


Figure 4-79 Opening Chassis Access Panel (19" Chassis)

4. Remove chassis access panel from rear of chassis.

5. Remove cabling from retention clips. See Figure 4-80 Chassis Access Panel Removed (19" Chassis).

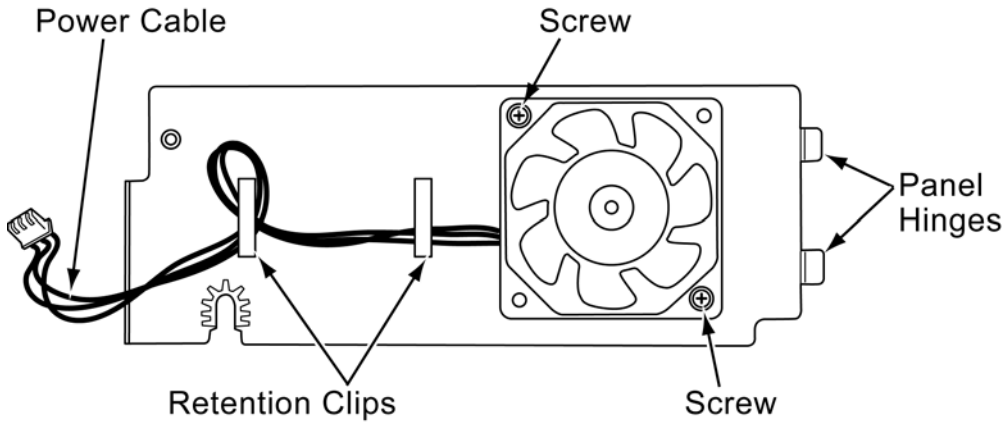


Figure 4-80 Chassis Access Panel Removed (19" Chassis)

6. Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan (refer to Figure 4-80 Chassis Access Panel Removed (19" Chassis)).

6.1.2 Install Cooling Fan

1. Align replacement fan with holes and secure with two screws (refer to Figure 4-80 Chassis Access Panel Removed (19” Chassis) on page 4-55.
2. Install cabling into retention clips (refer to Figure 4-80 Chassis Access Panel Removed (19” Chassis) on page 4-55
3. Insert access panel hinges into slots on rear of chassis.
4. Plug fan power cable into three prong plug (refer to Figure 4-79 Opening Chassis Access Panel (19” Chassis) on page 4-55).
5. Reinstall access cover and secure with retaining screw (refer to Figure 4-78 19” Chassis Access Panel on page 4-55).

- - NOTES - -

- - NOTES - -

Installing the SV8300 Chassis

SECTION 1 GENERAL INFORMATION

This chapter contains information to help the technician install the chassis for the SV8300 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*:
  - CC-CP00
  - PZ-BS10 and PZ-BS11
  - PZ-64IPLA and PZ-128IPLA
  - PZ-VM21

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:

- The chassis should not be located directly beneath pipes. Leaks or condensation could damage the SV8300 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 2-19 in Chapter 3 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*** do 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, between the chassis and telephones, comply with the specifications listed in Table 3-12 Cable Length of Terminals on page 3-16.
- Select a place where devices that require an external power supply can be easily connected 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 SV8300 system can be floor-mounted, wall-mounted, desk-mounted or rack mounted. Plywood should first be installed on the wall where the chassis will be positioned, to allow for secure anchoring. It is equipped with a bracket, which can be used to secure each chassis in any of these installations. 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 7 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.

The chassis is shipped fully assembled. The following are shipped with the chassis:

- 1 black 3-prong power cord (packed outside the chassis)

2.5 Power Failure Transfer

The Power Failure Transfer relays are located on the COT 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 COT Blade supports two power failure transfer connections. During a power failure condition, CO Ports 1 and 2 on the COT Blade are used for Power Failure Transfer relays 1 and 2 consecutively. Table 5-1 Power Failure Transfer Connections is a relay diagram. The relay is shown with the power ON.

Table 5-1 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

SECTION 3 INSTALLING THE CHASSIS

There are two types of chassis, the 19” CHS1U-AU chassis and the 19” CHS2U-AU chassis. The CHS1U-AU chassis mounts the CC-CP00 blade, PZ-BS10 for the CHS2U-AU chassis expansion, PZ-PW146(1U) Power Supply and Cooling FAN.

The CHS2U-AU 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 BUS Interface Blade, Power Supply Unit (PSU) and Cooling FAN.

The chassis can be wall mounted, floor mounted, stand mounted or rack mounted. Refer to Section 2 Site Preparation and MDF/IDF Construction on page 5-1 to ensure proper site preparation. The first part of the this section describes the differing types of mounting options and the rest of this section describes how to install the chassis.

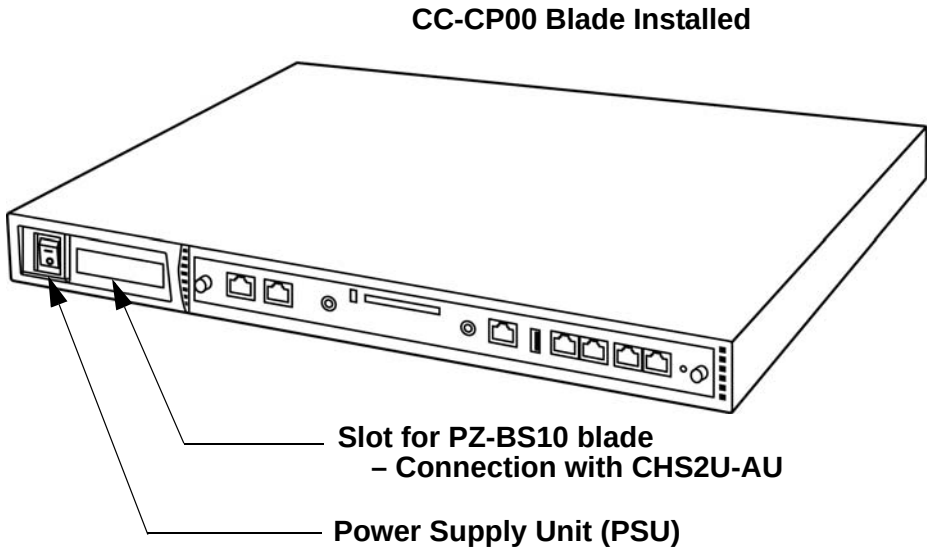


Figure 5-1 CHS1U-AU Chassis (Front View)

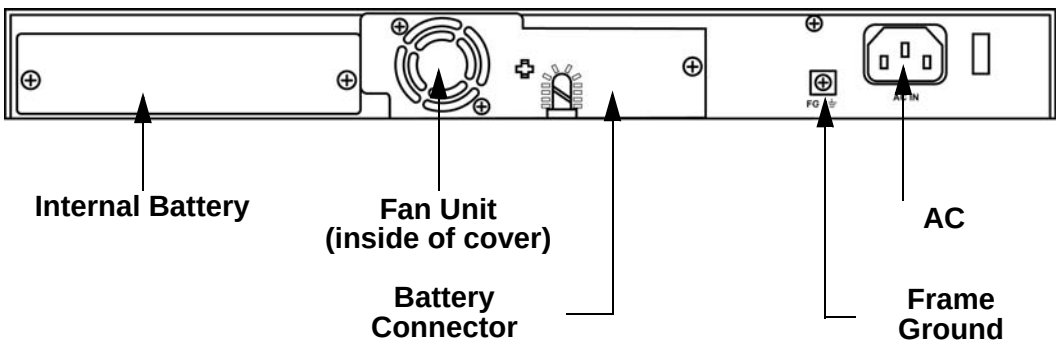


Figure 5-2 CHS1U-US Chassis (Rear View)

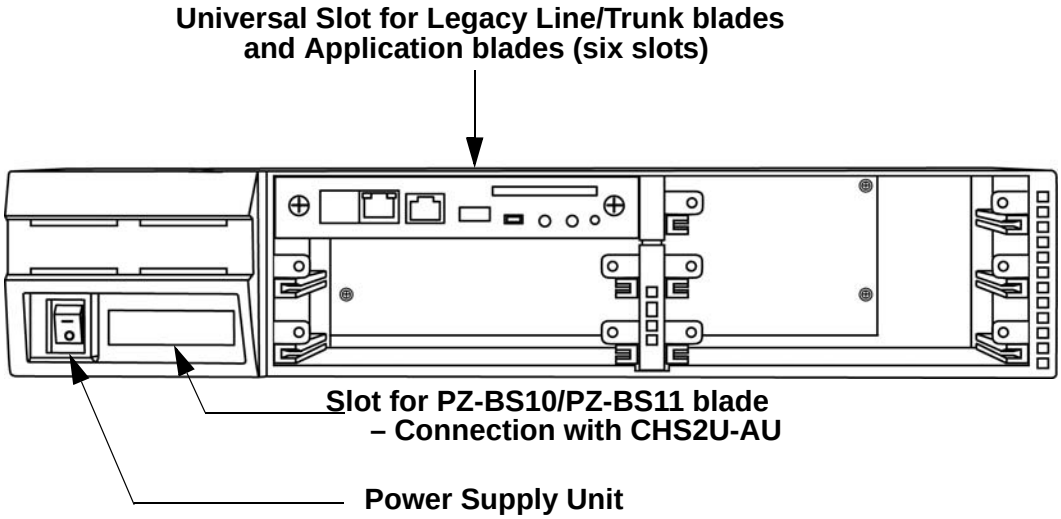


Figure 5-3 CHS2U-US Chassis (Front View)

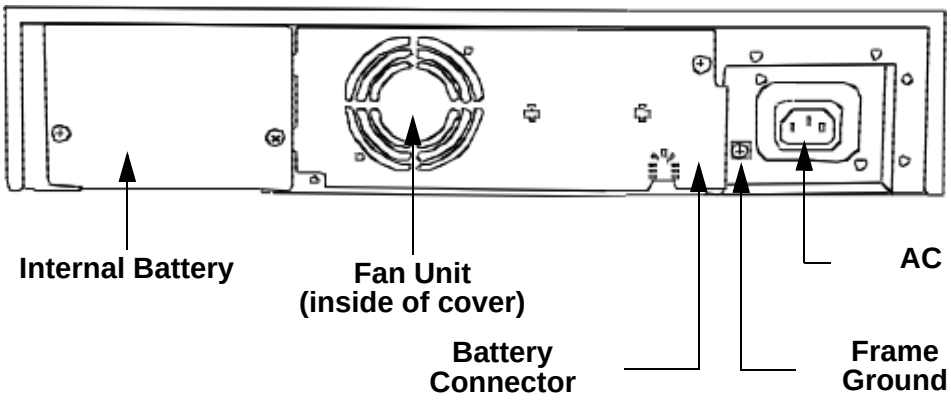


Figure 5-4 CHS2U-US Chassis (Rear View)

3.1 Wall Mounting the 19” Chassis

When wall mounting the chassis, ensure the wall can support the weight of the chassis (31 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.

3.1.1 CHS1U-AU and CHS2U-AU Chassis Installation

1. Using the spacing guide shown below, align two wall mount brackets. Refer to Figure 5-5 Wall Mount Spacing Guide (19” Chassis) on page 5-8 for required spacing before drilling.

- It is suggested that plywood first be installed on the wall where the chassis will be positioned. This allows for secure anchoring of the screws which will be supporting the weight of the chassis.
- **For wall mount, only a single *CHS1U-AU* chassis and single *CHS2U-AU* chassis configuration is available.**

✎ *Select screws to match with the wall type as follows:*
A concrete wall is recommended because it is the most firm to mount the SV8300 of the two. The plaster board is the most firm wall of the two.

Wall Type	Recommended Screw (Anchor Bolt Type)
Concrete	4 mm (0.16 inch) by 25 mm (0.98 inch)
Wood	Maximum 3.5 mm (0.14 inch) DIA or Maximum 4.5 mm (0.17 inch) DIA

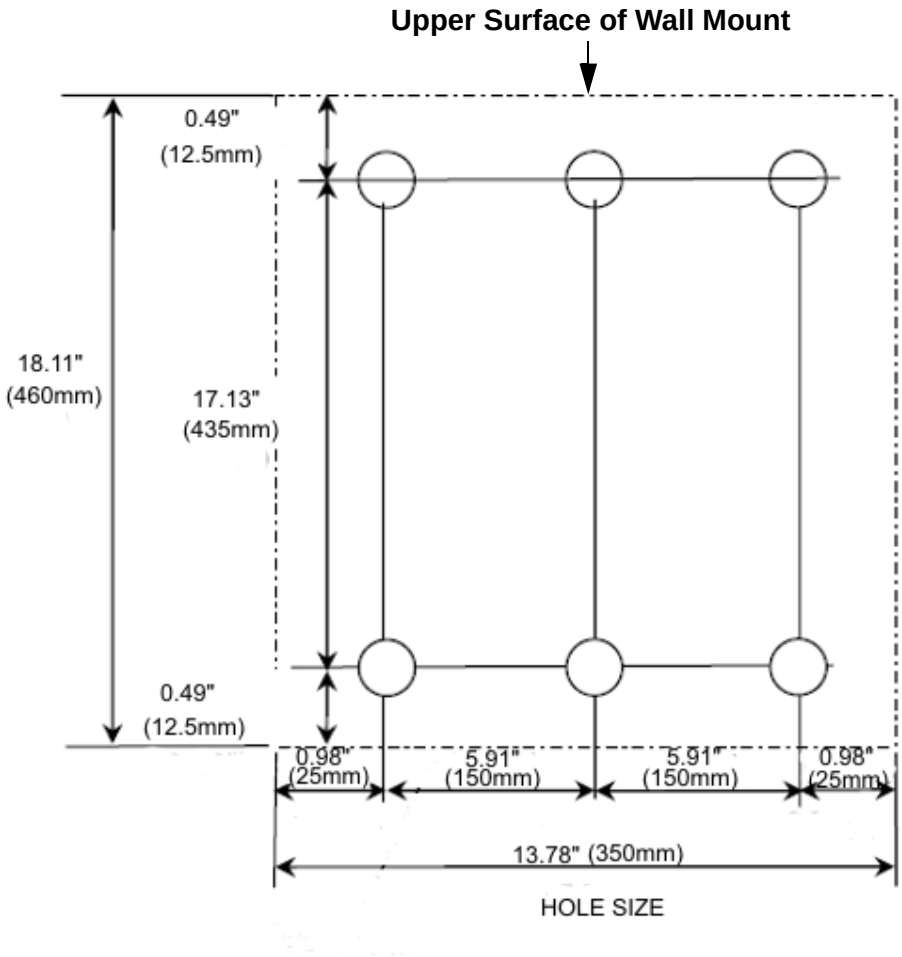


Figure 5-5 Wall Mount Spacing Guide (19" Chassis)

2. Mark and drill the six holes required for a wall installation.

   Drilling:

   a. Make a preliminary hole in the concrete, using a drill bit for small-diameter holes.

   b. Drill a hole in the concrete with a drill suitable for a plug bolt a little deeper than the plug bolt length.
   Anchor Bolt Size:
   0.39” (10mm) DIA for Fixed Equipment
   0.24” (6mm) DIA for Stationary Equipment

   c. Insert the anchor bolt into the hole.

   d. Push anchor bolt unit the bolt stays permanently in place.

   e. Turn bolt counterclockwise and remove.

   f. Insert bolts correctly into the holes for equipment installation, then tighten them properly.

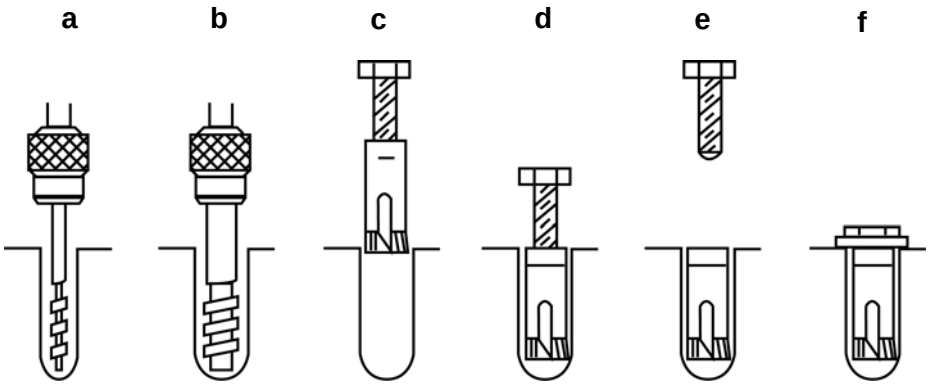


Figure 5-6 Drilling Instructions for Anchor Bolt

3. Align screw holes in wall mount brackets with pre-drilled holes in wall.

4. Using six screws, secure the two wall mount brackets to the wall. Refer to Figure 5-7 Securing Wall Mount Brackets with Screws for screw location.

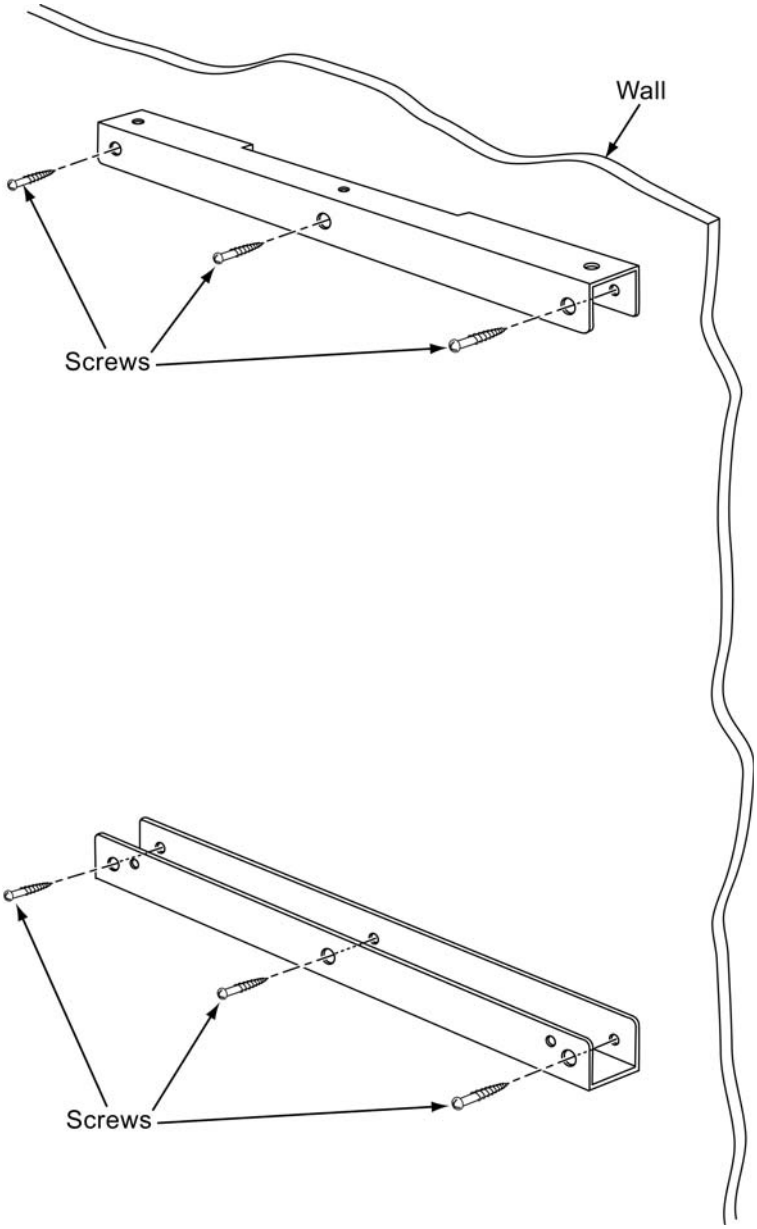


Figure 5-7 Securing Wall Mount Brackets with Screws

5. Using four screws, secure the metal fittings on the Left and Right sides of the 19” chassis. Refer to Figure 5-8 Installing Metal Fittings with Screws for screw location.

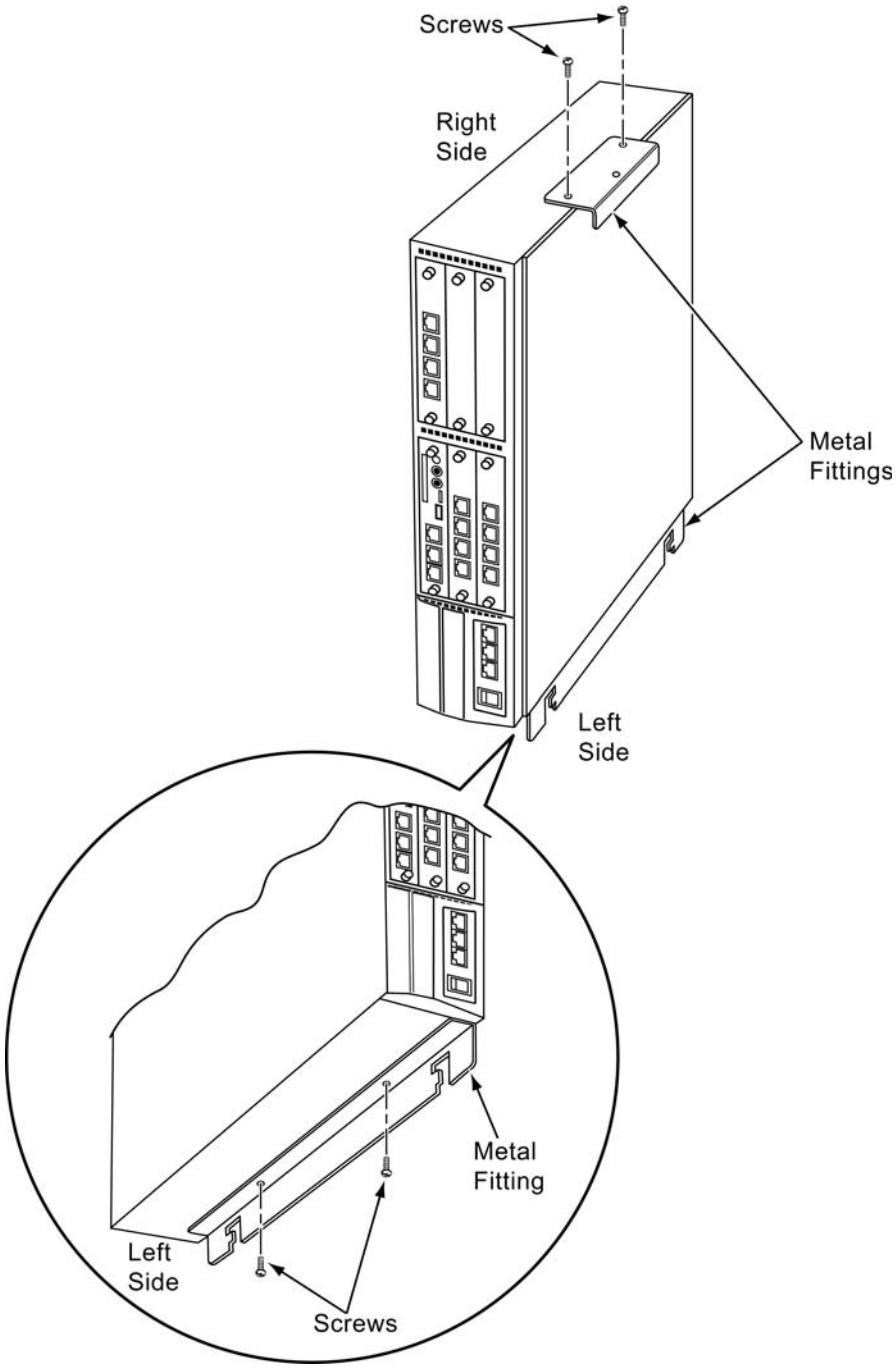


Figure 5-8 Installing Metal Fittings with Screws

6. Install five rubber feet on bottom of CHS1U-AU chassis.

7. Align CHS1U-AU and CHS2U-AU chassis. Secure the two chassis together with a joint bracket and four screws on both sides of the chassis. Refer to Figure 5-9 Install Joint Brackets with Screws for bracket location.

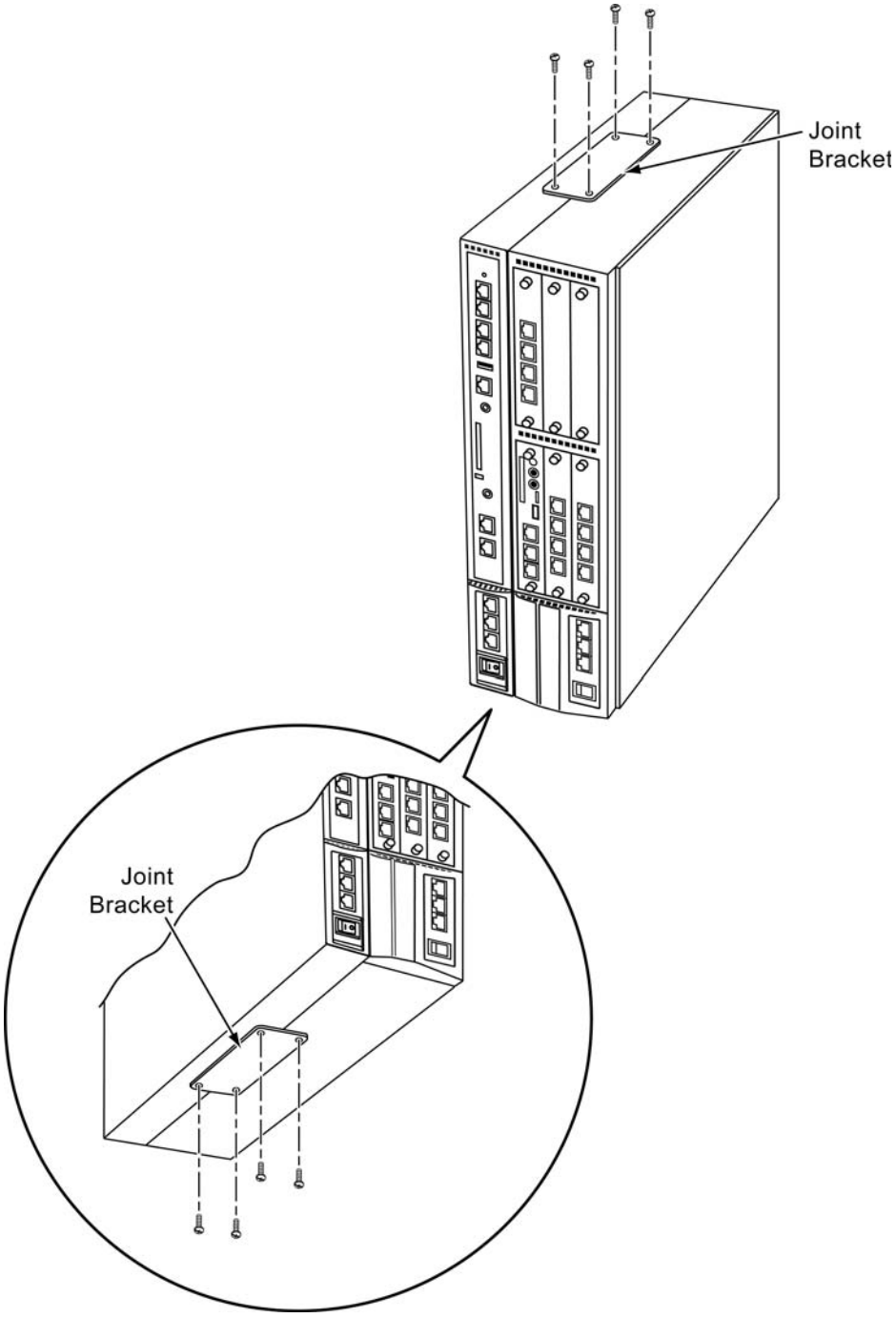


Figure 5-9 Install Joint Brackets with Screws

8. Align the metal fitting with the upper wall mount bracket. The lower metal fitting will rest against the lower wall mount bracket. Secure the metal fitting and upper wall mount bracket with a single screw (see Figure 5-10 Secure Metal Fitting to Upper Wall Mount Bracket with a Screw).

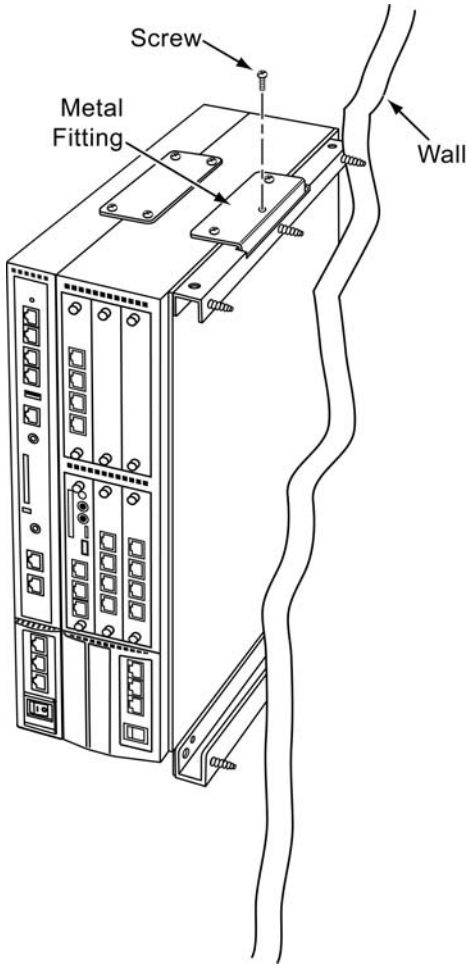


Figure 5-10 Secure Metal Fitting to Upper Wall Mount Bracket with a Screw

9. The cable support bracket can be installed any of the four corners of the 19” chassis (refer to Figure 5-11 Attachment Locations of Cable Support Bracket).

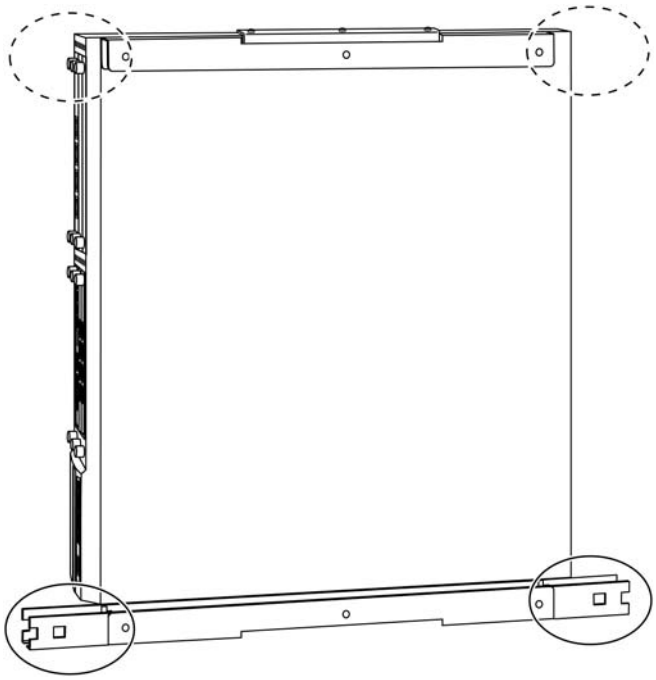


Figure 5-11 Attachment Locations of Cable Support Bracket

10. Attach the supplied cable support bracket to either end of the lower wall mount bracket with a single screw (refer to Figure 5-12 Attach Cable Support Bracket to Lower Wall Mount Bracket).

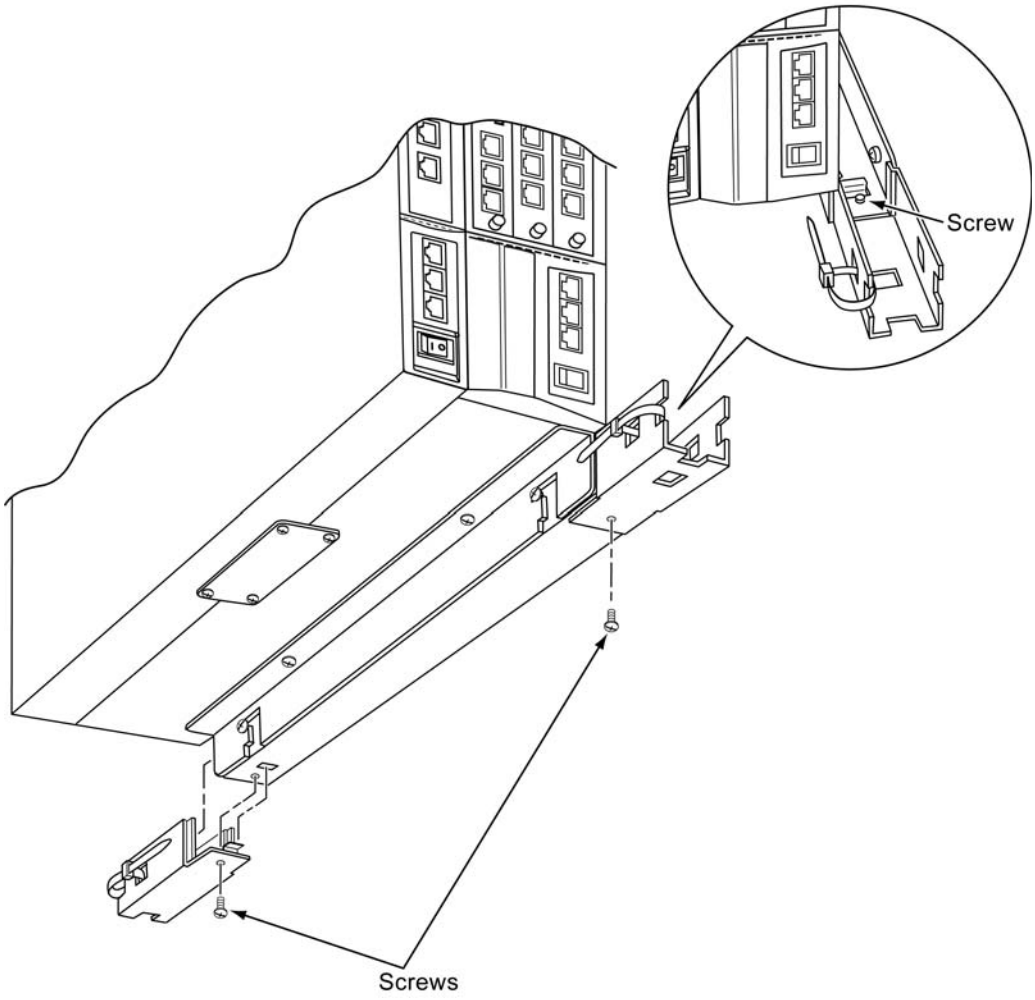


Figure 5-12 Attach Cable Support Bracket to Lower Wall Mount Bracket

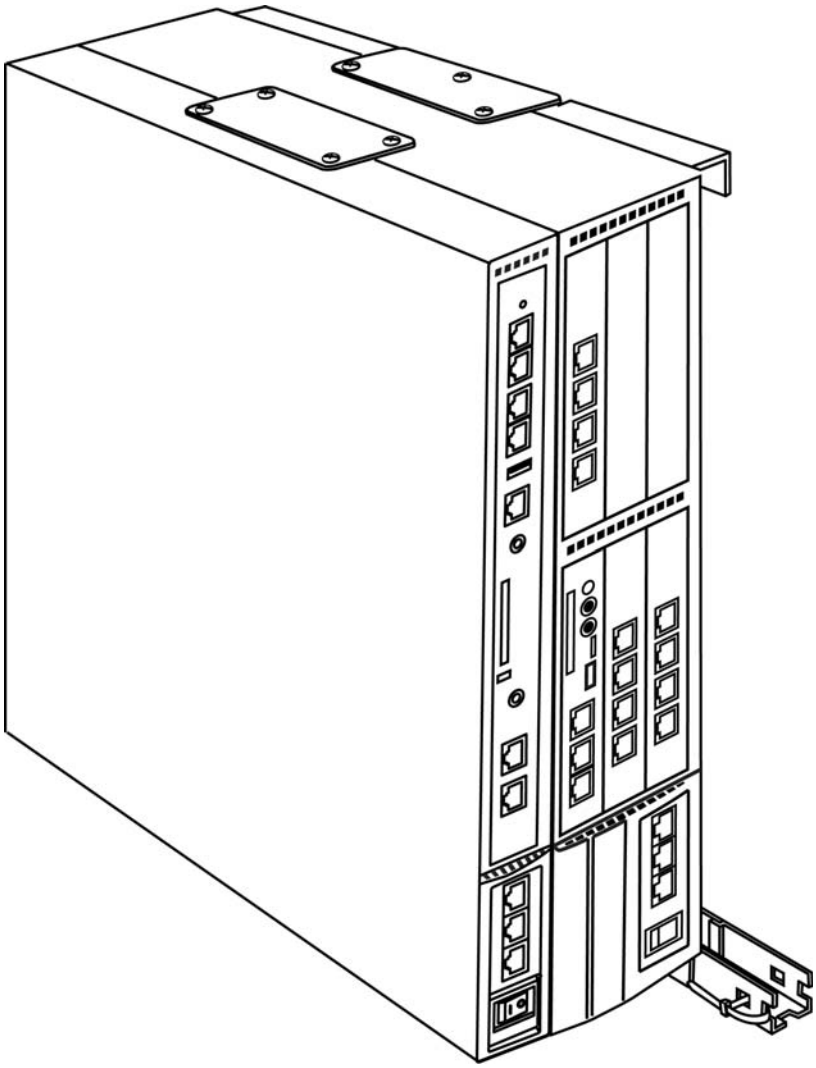


Figure 5-13 CHS1U-AU and CHS2U-AU Chassis Wall Mounted

11. Connect the ground wire to all chassis. Refer to 3.5.7 Install 19" Chassis Grounding on page 5-45 for complete details on grounding the system.

12. Refer to 3.5 Installing the 19" Chassis on page 5-33 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.2 Floor Mounting the 19” Chassis

The CHS1U-AU controlling and the CHS2U-AU expansion chassis can be mounted on the floor using the CHS BASE UNIT and the CHS2U JOINT BRACKET KIT.

3.2.1 CHS1U-AU Chassis Installation

1. Position the CHS BASE UNIT on desired surface and mark four holes to be drilled (refer to Figure 5-14 CHS BASE UNIT.

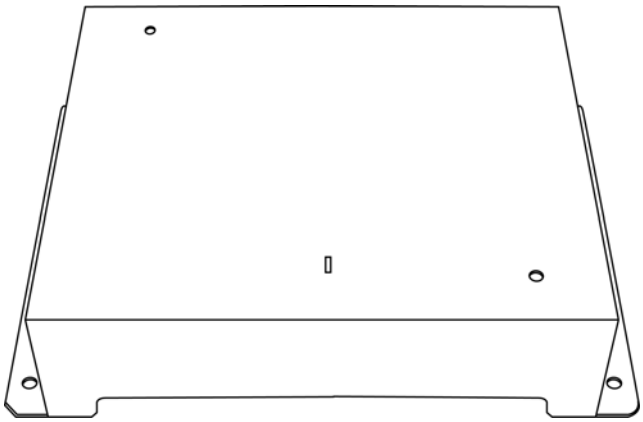


Figure 5-14 CHS BASE UNIT

2. Drill the four holes required for floor installation.

3. Using four screws, secure the CHS BASE UNIT to the floor. Refer to Figure 5-15 Secure CHS BASE UNIT with Screws for screw location.

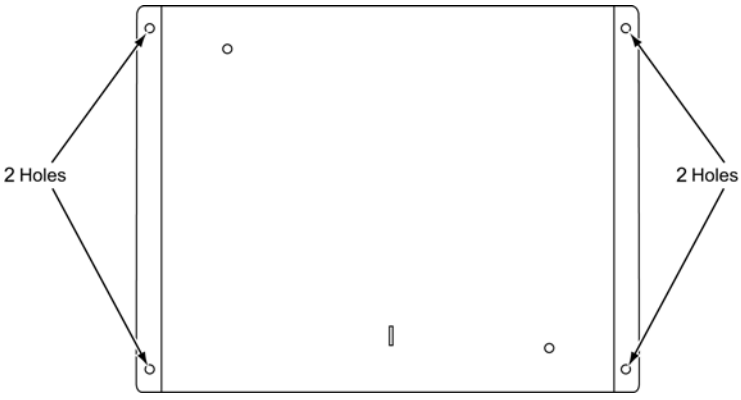


Figure 5-15 Secure CHS BASE UNIT with Screws

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

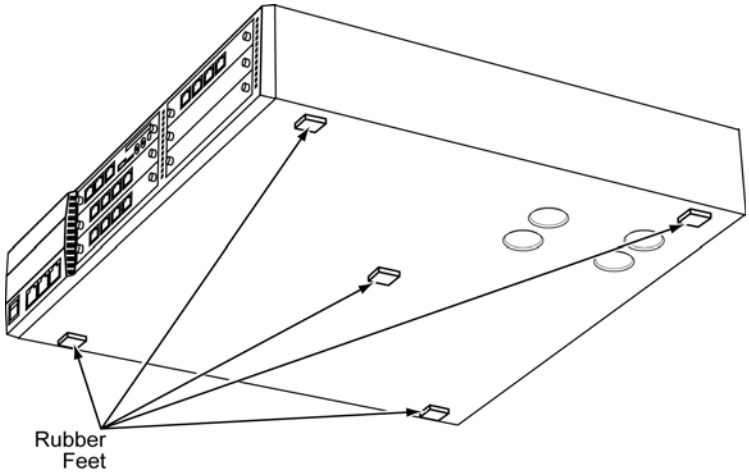


Figure 5-16 Install Rubber Feet (19” Chassis)

5. Position the CHS1U-AU and CHS2U-AU chassis on top of the CHS BASE UNIT.

6. Secure the chassis to the CHS BASE UNIT using screws supplied with the CHS STAND KIT (K).

Figure 5-17 Install CHS2U JOINT BRACKET KIT

7. Connect the ground wire to all chassis. Refer to 3.5.7 Install 19” Chassis Grounding on page 5-45 for complete details on grounding the system.

8. Refer to 3.5 Installing the 19” Chassis on page 5-33 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.2.2 Multiple CHS2U-AU Chassis Installation

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

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

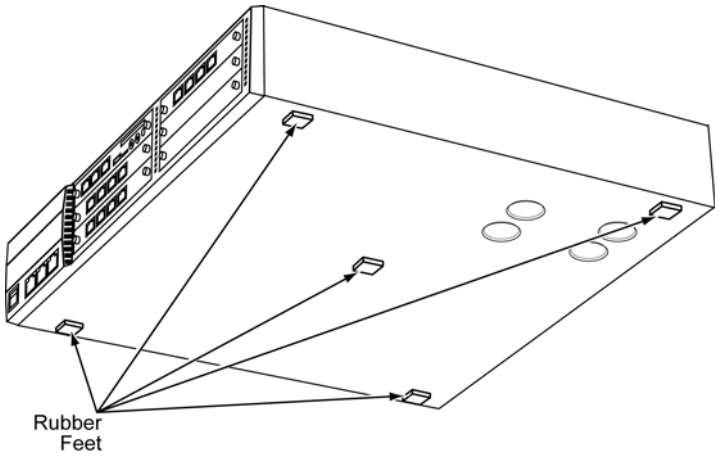


Figure 5-18 Install Rubber Feet (Multiple Chassis)

2. Using supplied screws, attach joint brackets to both ends of the 19” chassis and the CHS BASE UNIT. Refer to Figure 5-19 Install Joint Brackets with Screws on page 5-19.

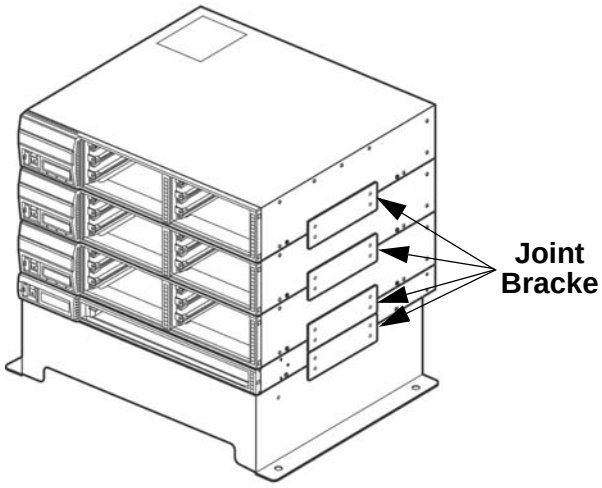


Figure 5-19 Install Joint Brackets with Screws

3. Connect the ground wire to all chassis. Refer to 3.5.7 Install 19” Chassis Grounding on page 5-45 for complete details on grounding the system.

4. Refer to 3.5 Installing the 19” Chassis on page 5-33 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.3 Stand Mounting the 19” Chassis

The SV8300 can be stand mounted. Controlling and Expansion chassis can be stand mounted using the CHS STAND KIT (K), the CHS2U STAND KIT (EXT) and the CHS2U JOINT BRACKET KIT.

3.3.1 CHS1U-AU+CHS2U-AUx1 Chassis Installation

1. Using the spacing guide shown below, mark two holes to be drilled. Refer to Figure 5-20 Stand Mount Spacing Guide (CHS1U-AU+CHS2U-AUx1 Chassis Installation) on page 5-20 for required spacing before drilling.

- It is suggested that plywood first be installed on the floor where the chassis will be positioned. This allows for secure anchoring of the screws which will be supporting the weight of the chassis.
- ***For Stand Mount, up to three CCHS2U-AU chassis can stand with a CHS1U-AU chassis.***

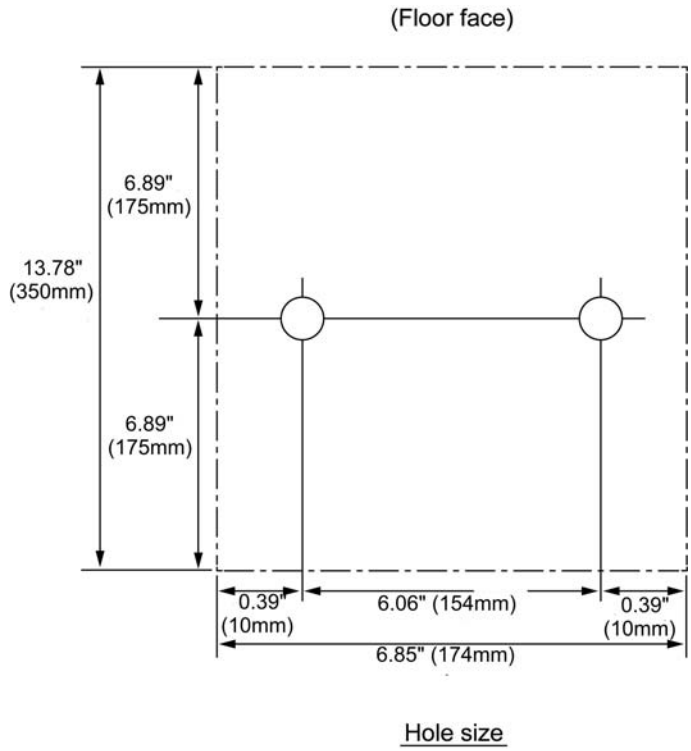


Figure 5-20 Stand Mount Spacing Guide (CHS1U-AU+CHS2U-AUx1 Chassis Installation)

2. Drill the two holes required for a floor installation.

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

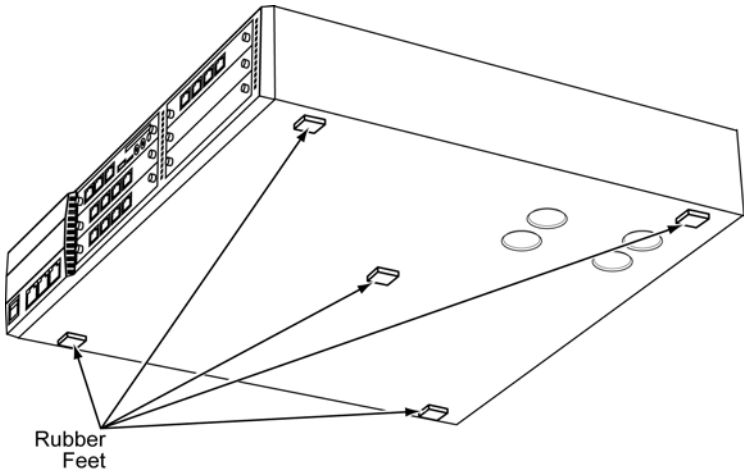


Figure 5-21 Attach Rubber Feet to CHS2U-US Chassis

4. Align CHS1U-AU chassis and CHS2U-AU chassis. Secure the two chassis together with a joint bracket and four screws on top sides of the chassis. Refer to Figure 5-22 Install Joint Brackets with Screws for bracket location.

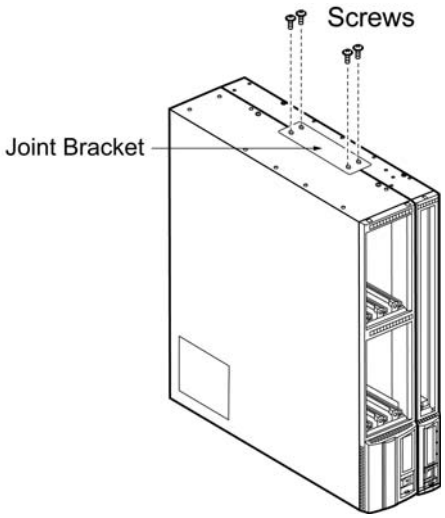


Figure 5-22 Install Joint Brackets with Screws

5. Using supplied screws, assemble the CHS STAND KIT (K). Refer to Figure 5-23 Assemble Stand Mount with Screws.

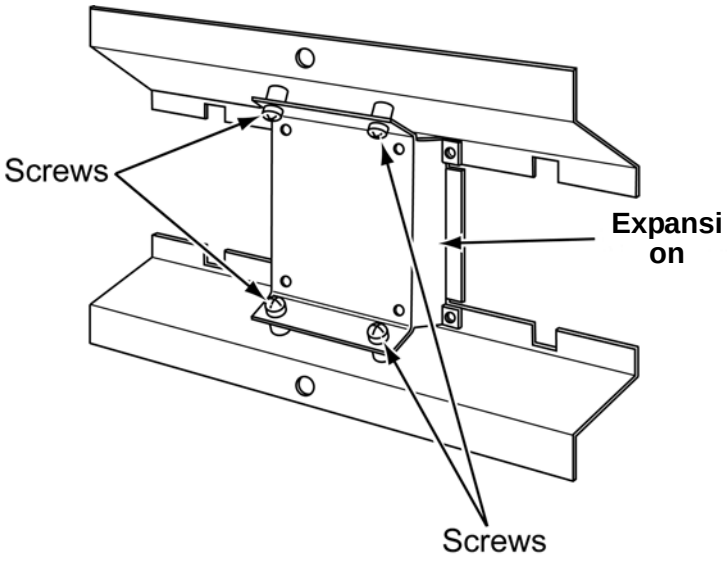


Figure 5-23 Assemble Stand Mount with Screws

6. Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to Figure 5-24 Attach Floor Mount Brackets to Chassis with Screws for screw location.

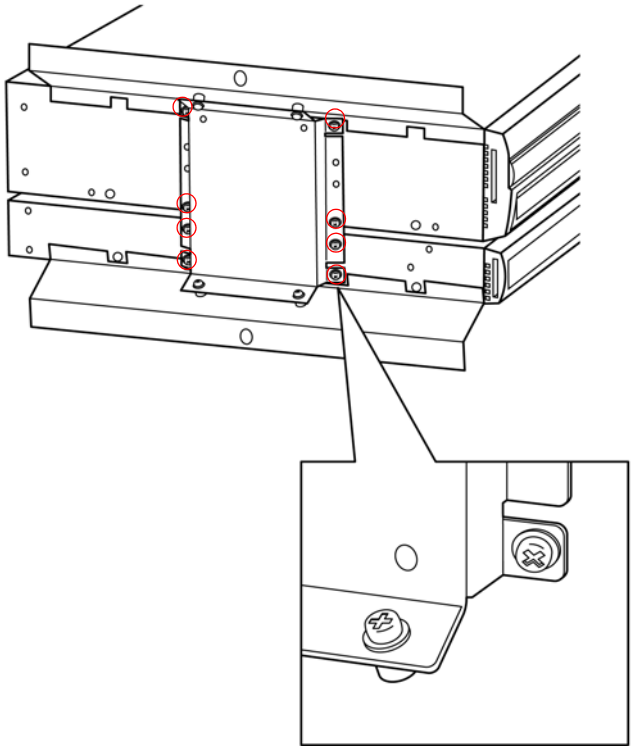


Figure 5-24 Attach Floor Mount Brackets to Chassis with Screws

7. Align screw holes in floor mount bracket with pre-drilled holes in floor.

8. Using supplied screws, secure the CHS STAND KIT (K) to the floor. Refer to Figure 5-25 CHS2U-AU/CHS1U-AU Chassis Stand Mount on page 5-23.

To prevent damage to the 19" chassis due to falling, install the chassis with stand mount brackets.

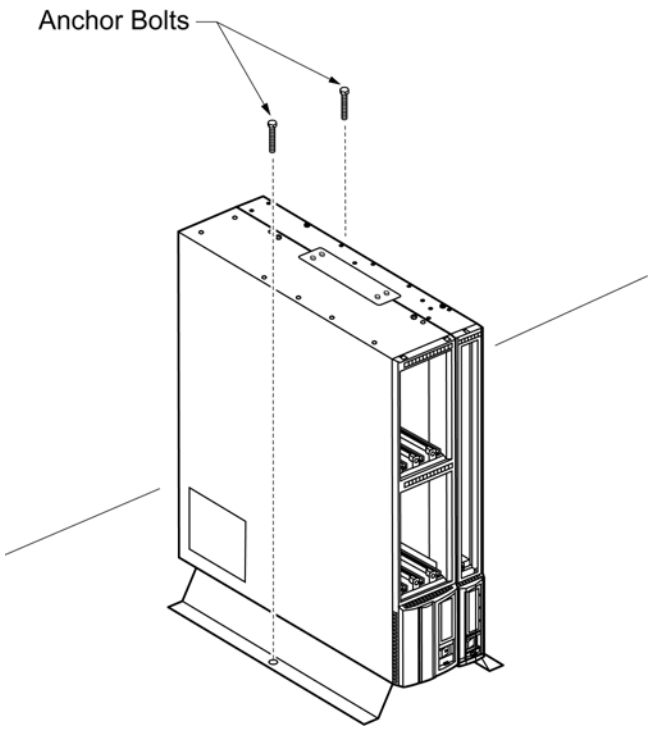


Figure 5-25 CHS2U-AU/CHS1U-AU Chassis Stand Mount

9. Connect the ground wire to all chassis. Refer to 3.5.7 Install 19" Chassis Grounding on page 5-45 for complete details on grounding the system.

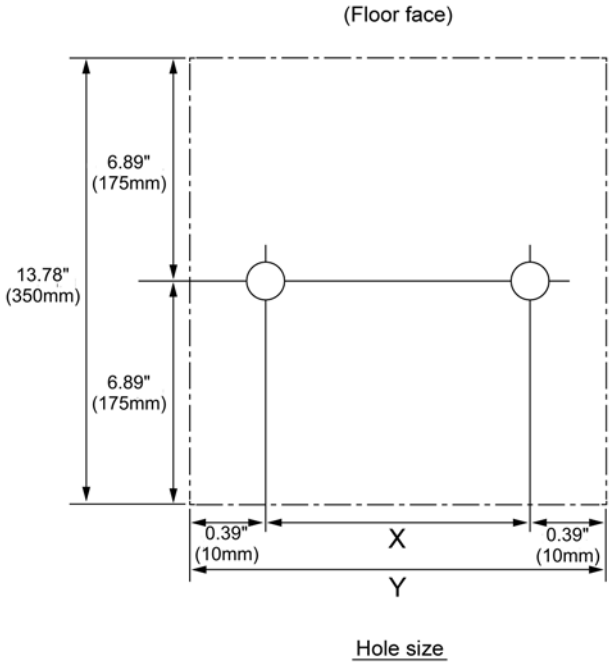
10. Refer to 3.5 Installing the 19" Chassis on page 5-33 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-4 for installation of blades.

3.3.2 CHS1U-AU+CHS2U-AUxN Chassis Installation

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

1. Using the spacing guide shown below, mark two holes to be drilled. Refer to Figure 5-26 Stand Mount Spacing Guide (CHS1U-AU+CHS2U-AUXN Chassis Installation) on page 5-24 for required spacing before drilling.

- ***It is suggested that plywood first be installed on the floor where the chassis will be positioned. This allows for secure anchoring of the screws which will be supporting the weight of the chassis.***
- ***For Stand Mounting, up to three CHS2U-AU chassis can stand with a CHS1U-AU chassis.***



Chassis Configuration	X	Y
Controlling Chassis+Expansion Chassisx2	11.46' (291mm)	12.24" (311mm)
Controlling Chassis+Expansion Chassisx3	15" (381mm)	15.83" (402mm)

Figure 5-26 Stand Mount Spacing Guide (CHS1U-AU+CHS2U-AUXN Chassis Installation)

2. Mark and drill the two holes required for a floor installation.

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

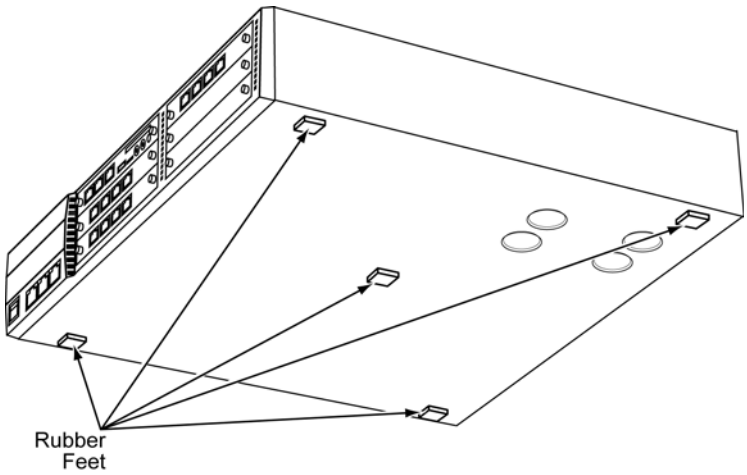


Figure 5-27 Attach Rubber Feet to CHS2U-US Chassis

4. Align CHS1U-AU chassis and CHS2U-AU chassis. Secure the chassis together with a joint bracket on top sides of the chassis.

5. Using supplied screws, assemble the CHS STAND KIT (K) and CHS2U STAND KIT (EXT). Refer to Figure 5-23 Assemble Stand Mount with Screws on page 5-22.

3.3.2.1 CHS1U-AU+CHS2U-AUx2 Stand Mount Assembly

Using supplied screws, assemble the CHS STAND KIT (K) and CHS2U STAND KIT (EXT). Refer to Figure 5-28 Assemble Stand Mount with Screws (CHS1U-AU+CHS2U-AUx2 Configuration) on page 5-26 for screw location.

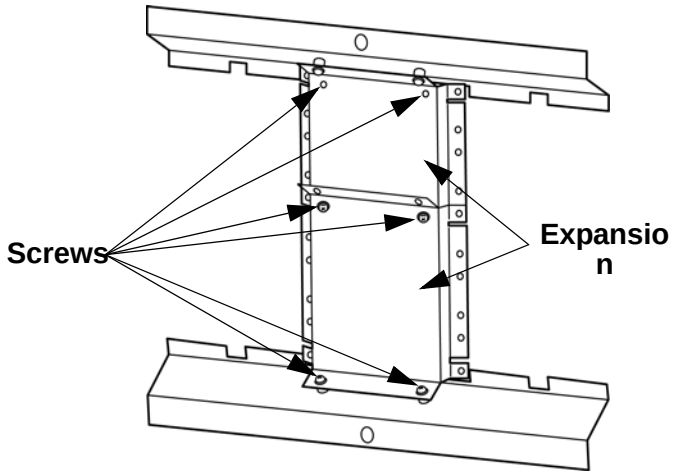


Figure 5-28 Assemble Stand Mount with Screws (CHS1U-AU+CHS2U-AUx2 Configuration)

3.3.2.2 CHS1U-AU+CHS2U-AUx3 Stand Mount Assembly

Using supplied screws, assemble the CHS STAND KIT (K) and CHS2U STAND KIT (EXT). Refer to Figure 5-29 Assemble Stand Mount with Screws (CHS1U-AU+CHS2U-AUx3 Configuration) for screw location.

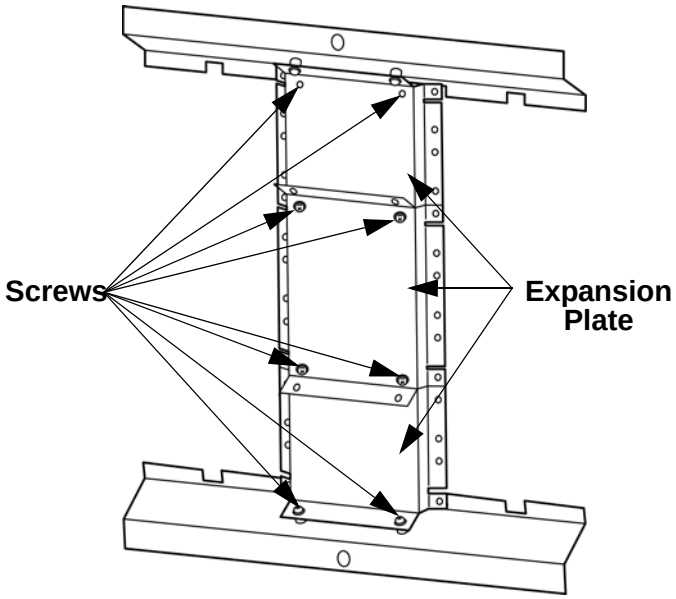


Figure 5-29 Assemble Stand Mount with Screws (CHS1U-AU+CHS2U-AUx3 Configuration)

6. Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to Figure 5-30 Attach Stand Mount Brackets to Chassis with Screws (CHS1U-AU+CHS2U-AUx2 Configuration) for screw location.

3.3.2.3 CHS1U-AU+CHS2U-AUx2 Install Chassis

Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to Figure 5-30 Attach Stand Mount Brackets to Chassis with Screws (CHS1U-AU+CHS2U-AUx2 Configuration) for screw location.

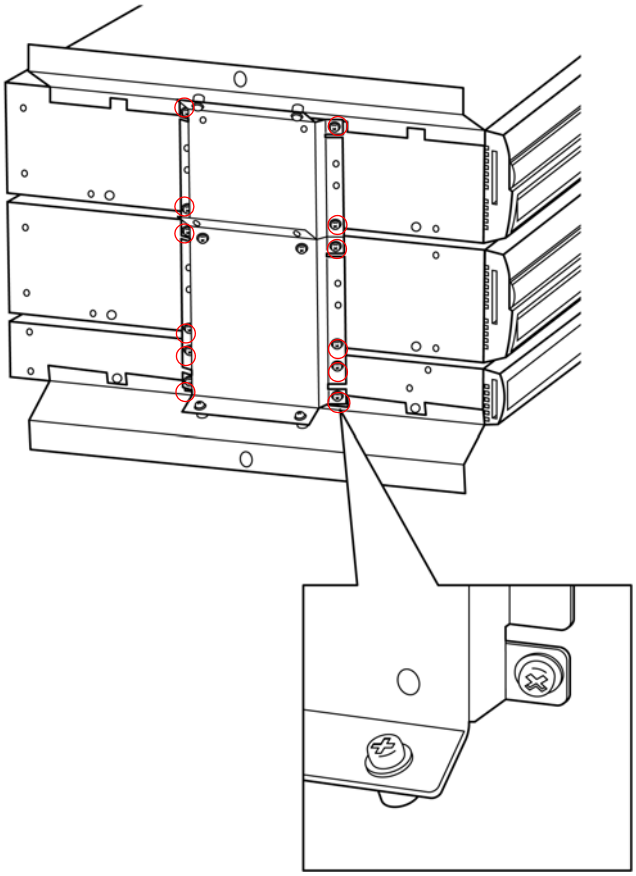


Figure 5-30 Attach Stand Mount Brackets to Chassis with Screws (CHS1U-AU+CHS2U-AUx2 Configuration)

3.3.2.4 CHS1U-AU+CHS2U-AUx3 Install Chassis

Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to Figure 5-31 Attach Stand Mount Brackets to Chassis with Screws (CHS1U-AU+CHS2U-AUx3 Configuration) for screw location.

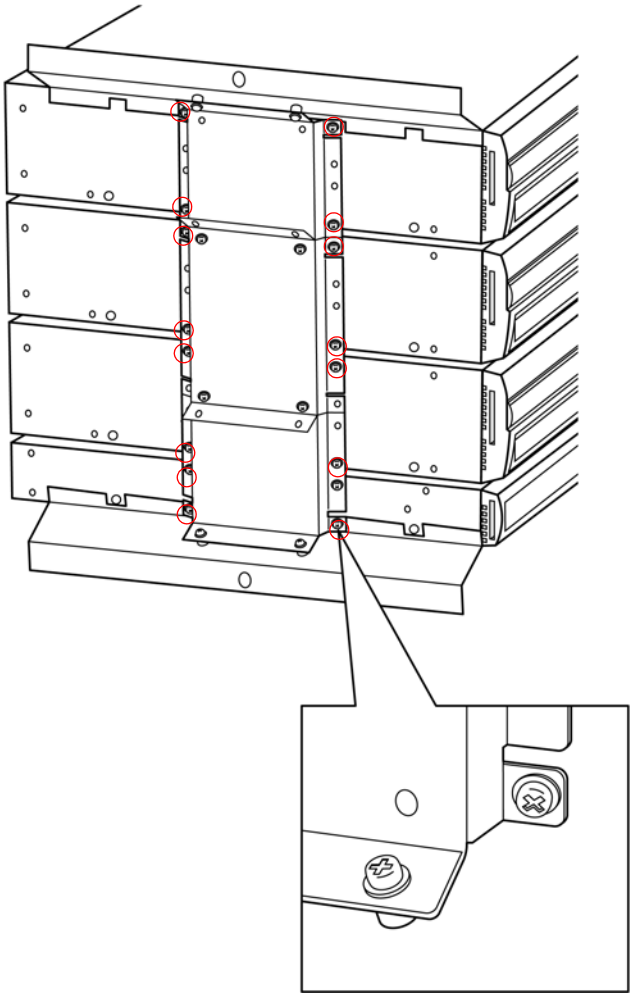


Figure 5-31 Attach Stand Mount Brackets to Chassis with Screws (CHS1U-AU+CHS2U-AUx3 Configuration)

7. Align screw holes in floor mount bracket with pre-drilled holes in floor.

8. Using supplied screws, secure the CHS STAND KIT (K) to the floor. Refer to Figure 5-32 CHS1U-AU+CHS2U-AUx2 Chassis Configuration and Figure 5-33 CHS1U-AU+CHS2U-AUx3 Chassis Configuration on page 5-30.

To prevent damage to the 1U/2U chassis due to falling, NEC recommends screws be installed in the floor mount brackets as soon as possible.

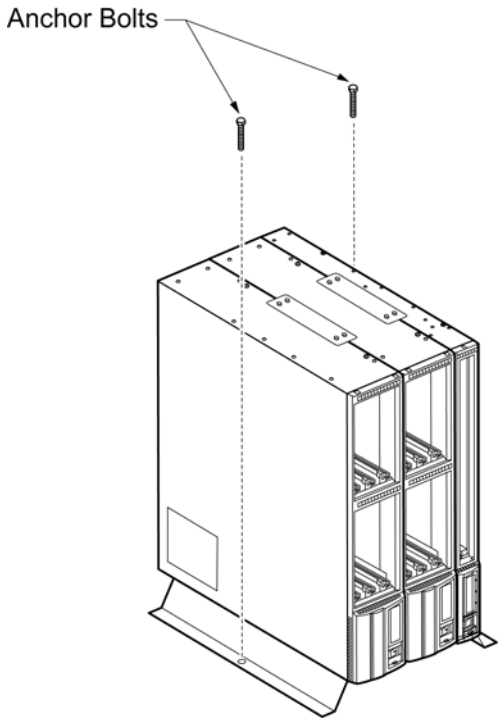


Figure 5-32 CHS1U-AU+CHS2U-AUx2 Chassis Configuration

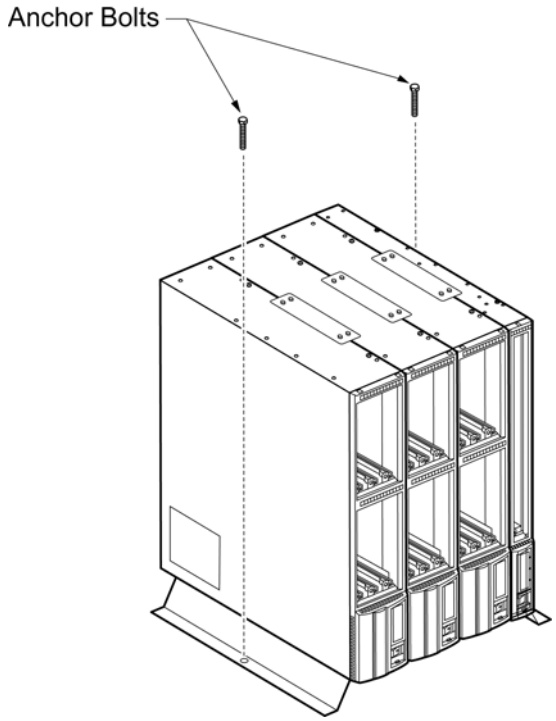


Figure 5-33 CHS1U-AU+CHS2U-AUx3 Chassis Configuration

9. Connect the ground wire to all chassis. Refer to 3.5.7 Install 19” Chassis Grounding on page 5-45 for complete details on grounding the system.

10. Refer to 3.5 Installing the 19” Chassis on page 5-33 to continue installation of the chassis or, Chapter 5 paragraph 2.3 Installing an Extension or Trunk Blade on page 6-5 for installation of blades.

3.4 Rack Mounting the 19” Chassis

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

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 5-34 19” Rack Mount Brackets.

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

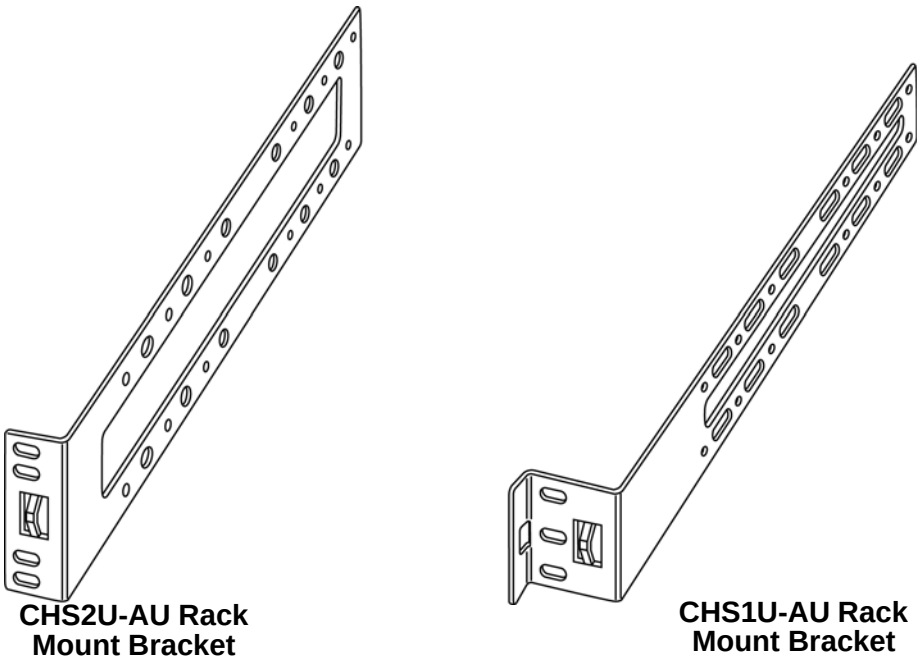


Figure 5-34 19” Rack Mount Brackets

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 5-35 Rack Mount Bracket Installed 19” CHS1U-AU Chassis on page 5-31 or Figure 5-36 Rack Mount Bracket Installed 19” CHS2U-AU Chassis on page 5-32 for the 19” chassis.

   Repeat for additional chassis mounting.

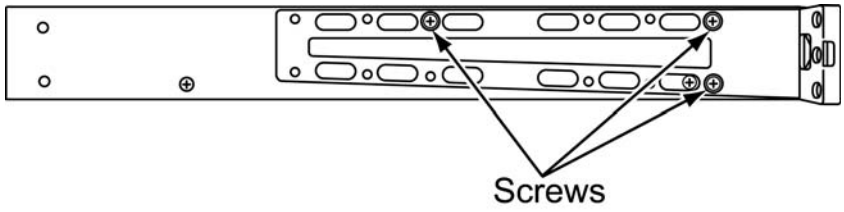


Figure 5-35 Rack Mount Bracket Installed 19” CHS1U-AU Chassis

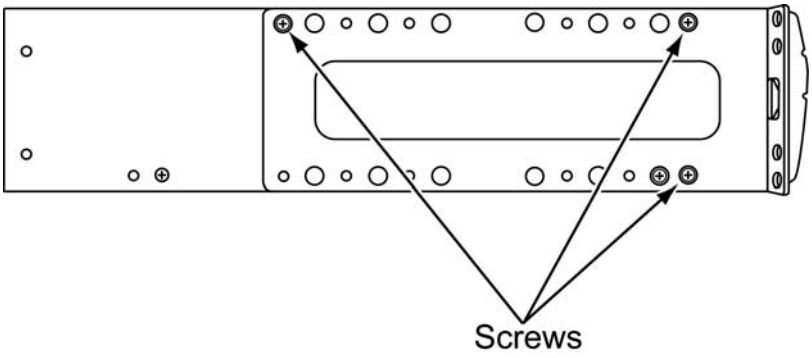


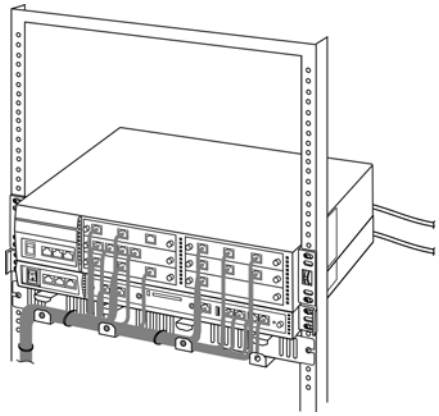
Figure 5-36 Rack Mount Bracket Installed 19" CHS2U-AU Chassis

4. Carefully slide the chassis into desired location within 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 *CHS1U-AU* chassis will require approximately 1.75" of height within the rack.**
- **Each *CHS2U-AU* 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 CHS1U-AU Rack Mount with One CHS2U-AU Expansion

Single CHS1U-AU Rack Mount with Three CHS2U-AU Expansion

Figure 5-37 Rack Mount 19" CHS1U-AU and CHS2U-AU Chassis

6. Connect the ground wire to all chassis. Refer to 3.5.7 Install 19" Chassis Grounding on page 5-45 for complete details on grounding the system.

7. Refer to 3.5 Installing the 19" Chassis on page 5-33 to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-3 for installation of blades.

3.5 Installing the 19” Chassis

There are two types of chassis; the controlling (with the CC-CP00 installed) and the expansion (that does not have the CPU blade installed). As discussed in other chapters, multiple chassis can be linked together to expand the port size of the system.

3.5.1 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 5-1.

3.5.2 Before Installation

Before installing the chassis check the following:

- ❒ Ensure that the PSU 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 5-1.

3.5.3 Installing the 19” Controlling Chassis

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

1. Ensure the chassis is powered down.
2. Align the CC-CP00 blade with the slot guide of the Controlling Chassis.

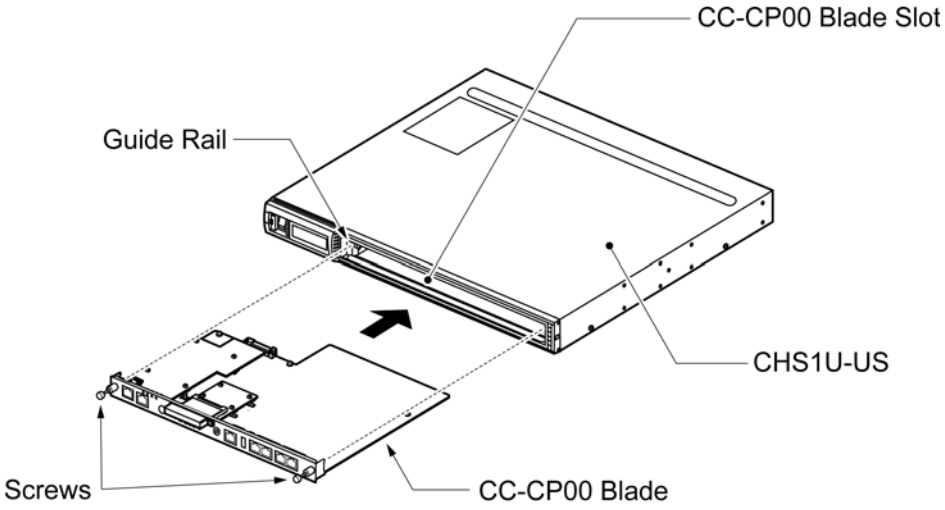


Figure 5-38 19” CHS1U-AU Controlling Chassis

3. Slide the CC-CP00 blade into the chassis until resistance (back plane) is felt.
4. Gently push until the blade seats. Tighten the two retaining screws on front of the blade.

3.5.4 Installing the 19” Expansion Chassis

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

1. Ensure the chassis is powered down.
2. Align the blade with the universal slots of the Expansion Chassis.

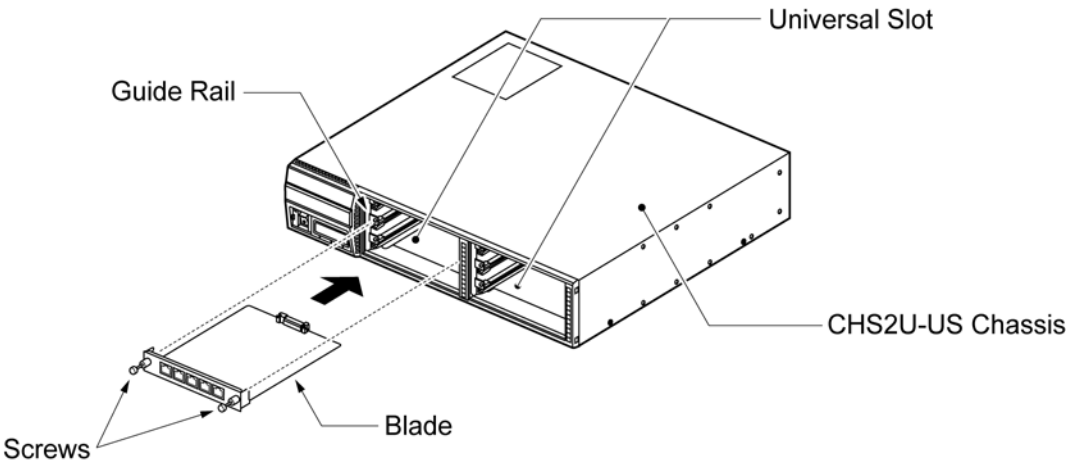


Figure 5-39 19” CHS2U-AU Expansion Chassis

3. Slide the blade into the chassis until resistance (back plane) is felt.
4. Gently push until the blade seats. Tighten the two retaining screws on front of the blade.

3.5.5 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 BUS slot of the Controlling Chassis. The PZ-BS11 is installed in the expansion slot of the Expansion Chassis.

The BUS cable is used to connect the Controlling Chassis and its PZ-BS10 to the second, third, and fourth PZ-BS11 interface.

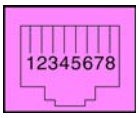
Use only the CAT 5 cables provided by NEC to make the connections between the Controlling and Expansion Chassis.

The PZ-BS10 provides:

- Communication Processor Interface for data handling through Communication Channel (18 slots maximum)
- 64 Channels for Telephony Resource (e.g., DTMF Tone Receiver, Call Progress Tone Detector, Caller ID Receiver, Caller ID Signal Sender)
- DSP Resource Management

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

Table 5-2 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 (-)

3.5.5.2 Install the PZ-BS10 Expansion Base Blade in the CHS1U-AU Controlling Chassis

1. Ensure the chassis is powered down.

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

2. Locate the door positioned on the left end (expansion bay) of the Controlling Chassis (refer to Figure 5-40 PZ-BS10 Expansion Bay in Controlling Chassis).

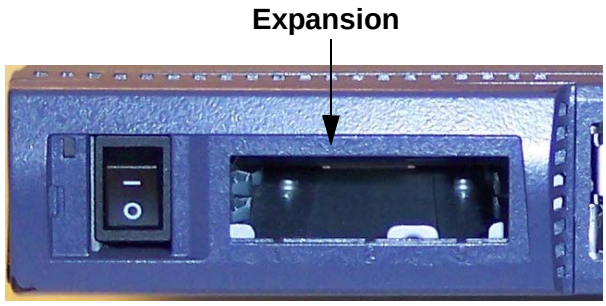


Figure 5-40 PZ-BS10 Expansion Bay in Controlling Chassis

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

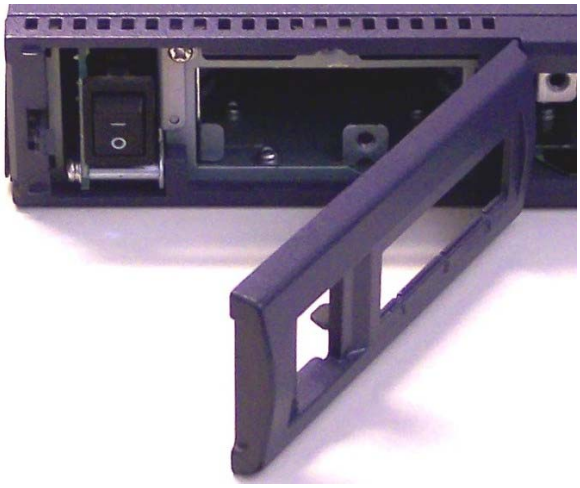


Figure 5-41 Open Base Chassis Cover

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 within the expansion bay (refer to Figure 5-42 PZ-BS10 Blade Guides).

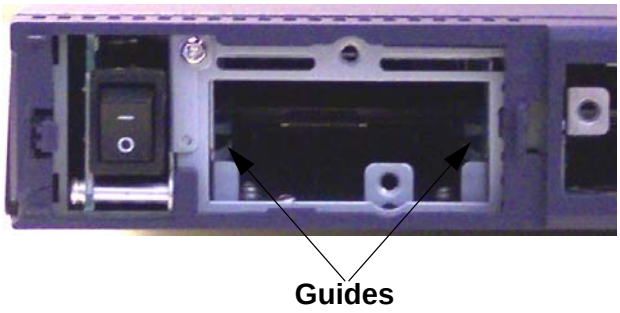


Figure 5-42 PZ-BS10 Blade Guides

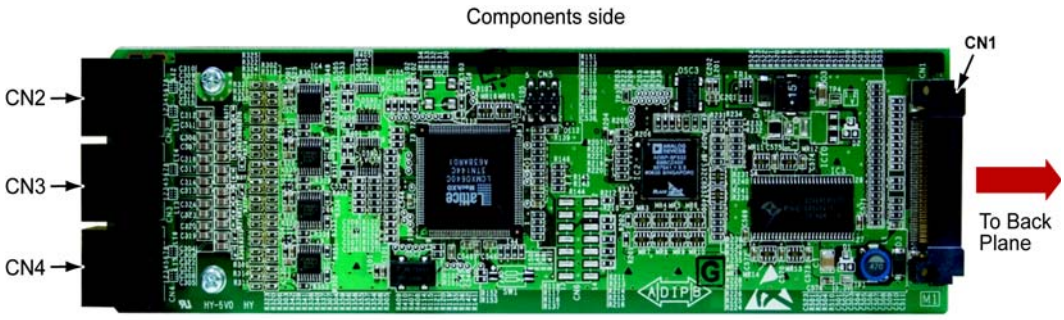


Figure 5-43 PZ-BS10 Components

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

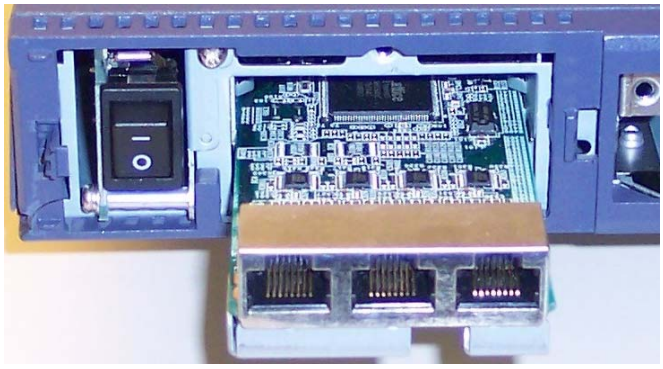


Figure 5-44 Installing PZ-BS10 Blade in Expansion Bay

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

8. Align the door with the hinge and reattach the door.

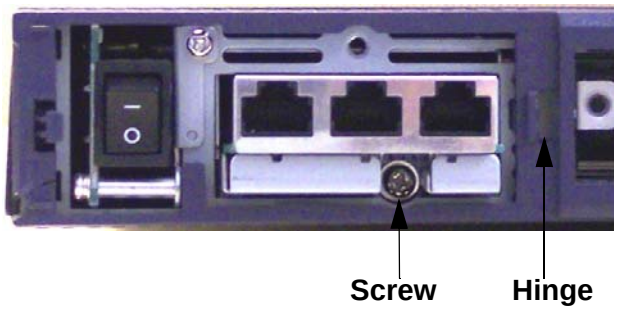


Figure 5-45 PZ-BS10 Blade Installed

9. Close the PZ-BS10 cover.

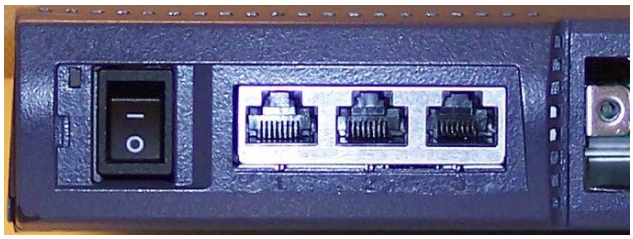


Figure 5-46 PZ-BS10 Installed (Cover Closed)

3.5.5.3 Install the PZ-BS11 Expansion Blade in the CHS2U-AU 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.

Expansion Bay

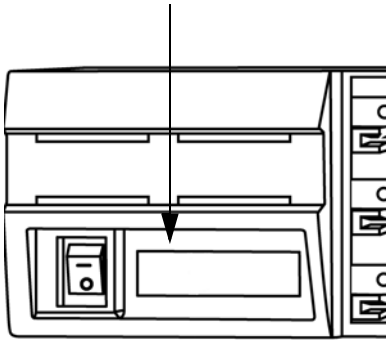


Figure 5-47 PZ-BS11 Expansion Bay in Expansion Chassis

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

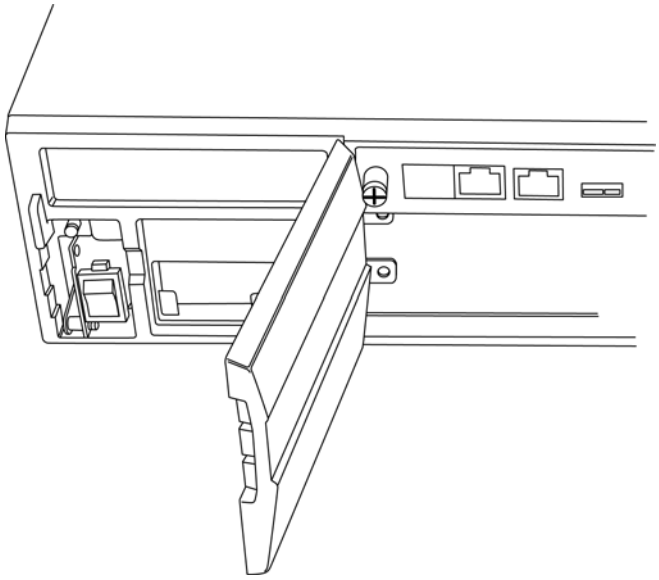


Figure 5-48 Open Expansion Chassis Cover

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.

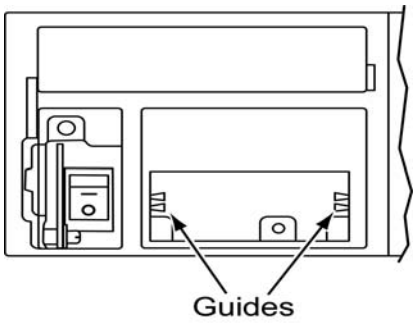


Figure 5-49 PZ-BS11 Blade Guides

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

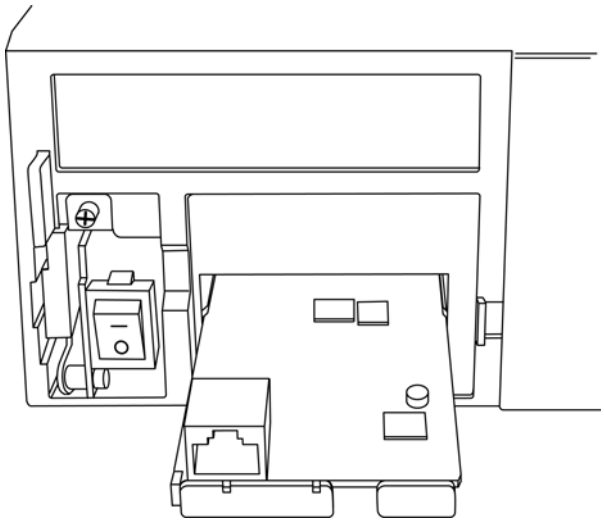


Figure 5-50 Installing PZ-BS11 Blade in Expansion Chassis

7. Gently push until the blade seats and install the supplied retaining screw.
8. Align the door tabs with hinges and reattach the cover.

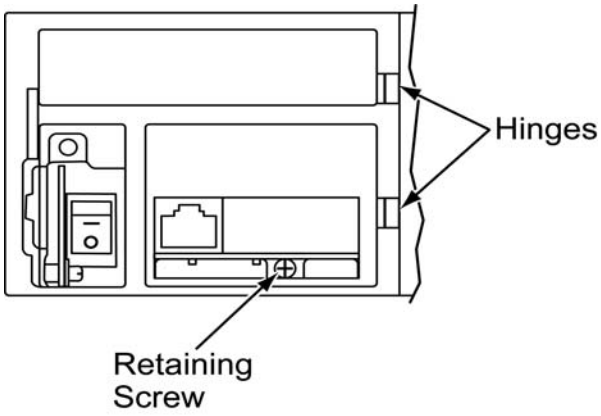


Figure 5-51 PZ-BS11 Blade Installed

9. Close the PZ-BS11 blade cover.

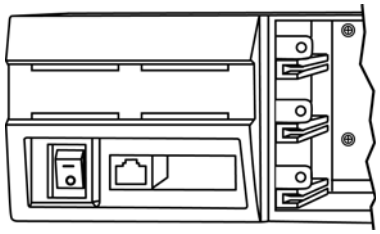


Figure 5-52 PZ-BS11 Installed (Cover Closed)

3.5.5.4 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

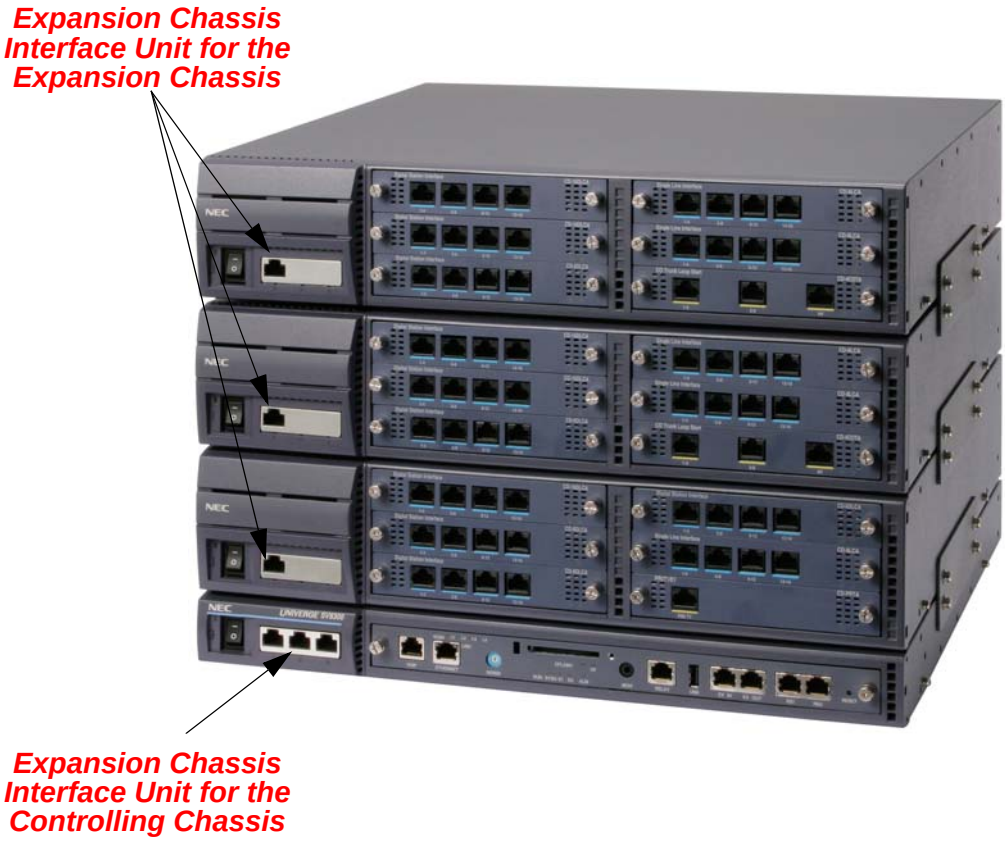


Figure 5-53 19" Expansion Chassis Interface Units

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 BUS connector on the PZ-BS11 blade (see Figure 5-54 System Expansion Cabling. Attach the opposite end to the BUS connector on the PZ-BS10 of the Controlling Chassis.

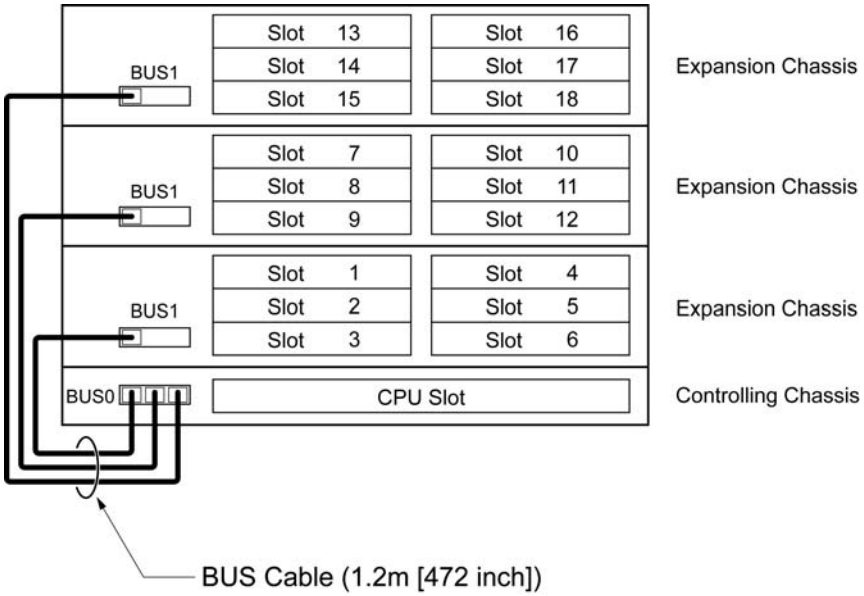


Figure 5-54 System Expansion Cabling

3. Repeat for additional Expansion Chassis.

3.5.6 Cable Connection between CPU Blades

When providing multiple-unit configuration, the IP connection between UNITs is required. The UNIT is connected to IP network via the VoIPDB blade on the CPU blade. Refer to Figure 5-55 Cable Connection between CPU Blades.

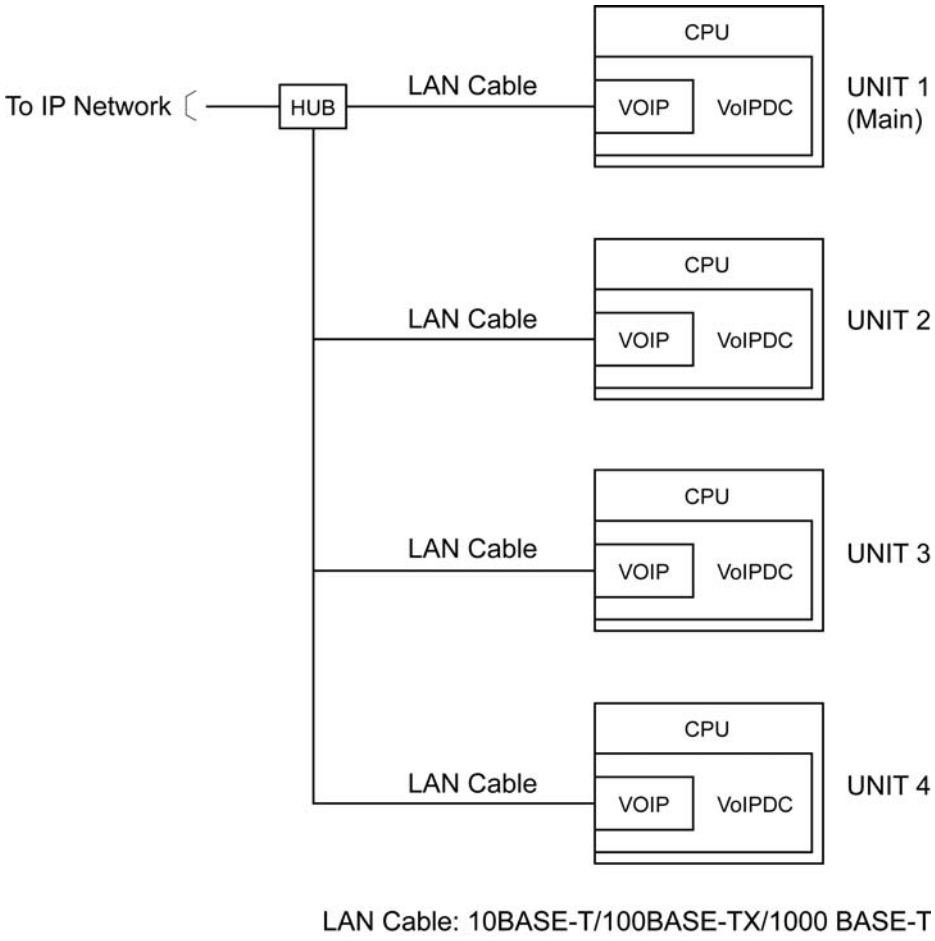


Figure 5-55 Cable Connection between CPU Blades

3.5.7 Install 19” Chassis Grounding

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 (CHS1U-AU or CHS2U-AU) 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).

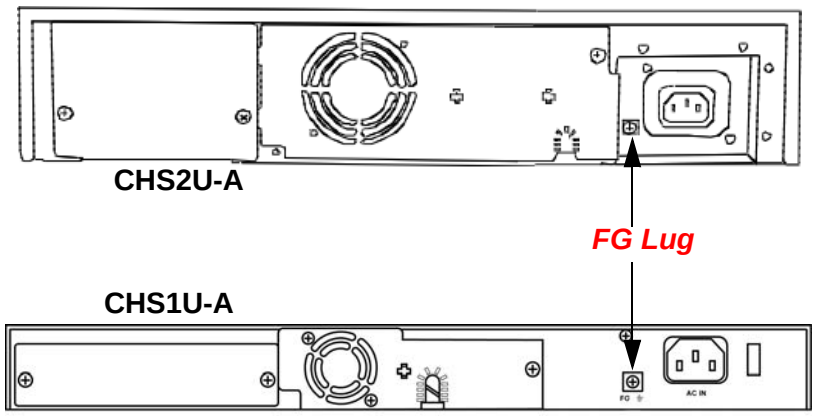


Figure 5-56 Chassis Grounding Lug

3.5.8 Install 19” Grounding on Multiple 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 (CHS1U-AU or CHS2U-AU) 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).

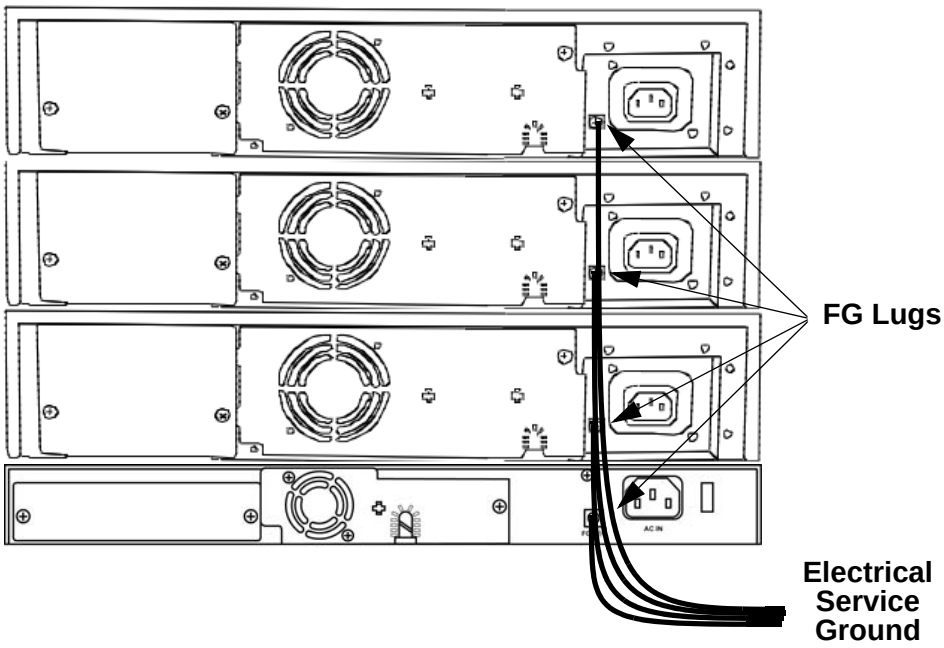


Figure 5-57 19" Chassis Grounding Lug (Multiple-Chassis)

3.5.9 Install AC Power Cords

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

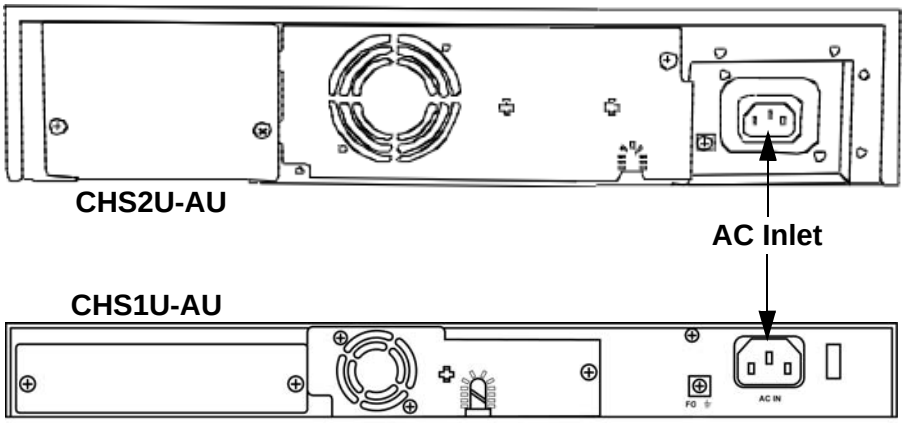


Figure 5-58 Install the AC Power Cord

3.5.10 Install AC Power Cords on Multiple Chassis (Optional)

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

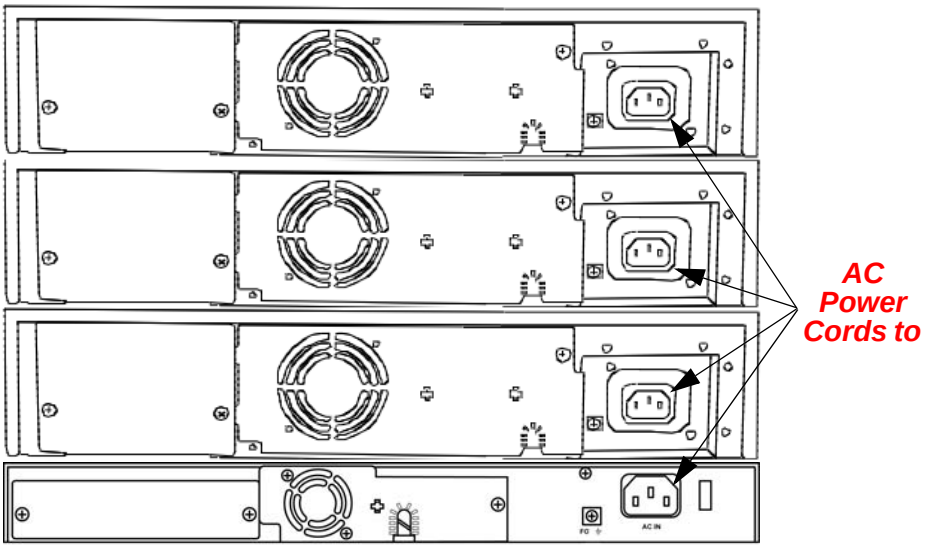


Figure 5-59 Install 19" AC Power Cords (Multiple-Chassis)

3.5.11 Install Additional Blades

Refer to Chapter 5, 2.1 Installation and Safety Precautions on page 6-2.

3.5.12 Apply Power to the 19" Chassis

Refer to Chapter 5, 2.6 Powering Up the SV8100 on page 6-7.

SECTION 4 BATTERY CONNECTION

There are three types of battery connection to provide battery life in the event of a power failure, internal battery, external battery without CHS LARGE BATT BOX and external battery with CHS LARGE BATT BOX.

4.1 Install Internal Batteries

4.1.1 Install Internal Batteries CHS1U-AU Chassis

An internal battery source using two batteries can be installed using the CHS1U BATT MTG KIT (mounting kit) and CHS1U BATT CA INT BATT (internal cabling).

1. Ensure the chassis is powered down.
2. Disconnect AC power and grounding cable from rear of chassis.

3. Remove screws from battery access panel on rear of chassis (see Figure 5-60 Removing Battery Access Panel).

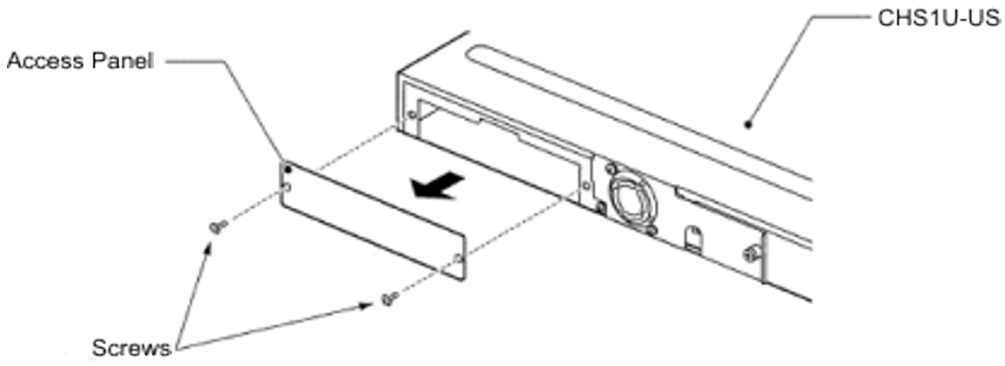


Figure 5-60 Removing Battery Access Panel

4. Remove battery access panel and set aside (refer to Figure 5-60 Removing Battery Access Panel).

5. Remove access panel containing the fan (refer to Figure 5-61 Removing Access Panel).

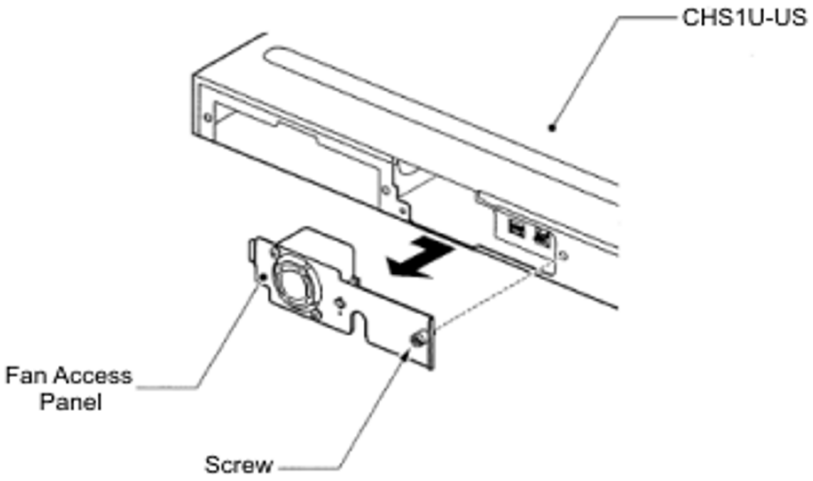


Figure 5-61 Removing Access Panel

6. Using tie wraps, secure the CHS1U BATT CA INT BATT to the Cable support bracket (refer to Figure 5-62 Securing Cable to Support Bracket).

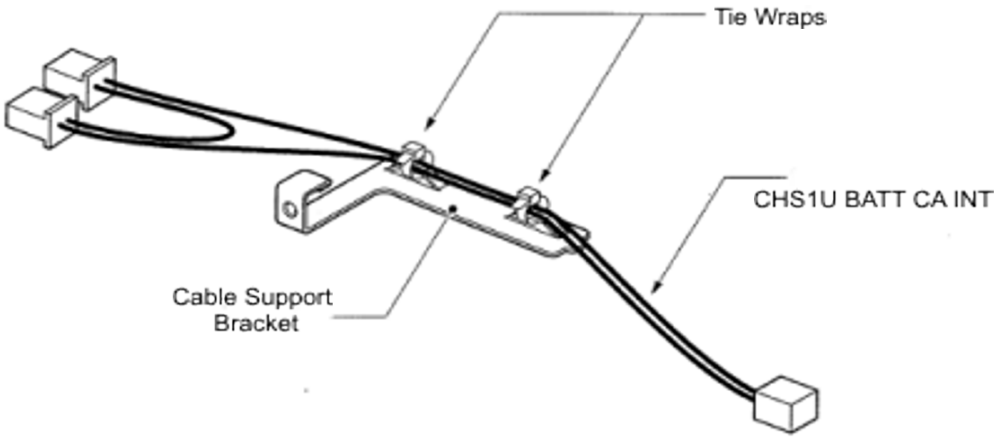


Figure 5-62 Securing Cable to Support Bracket

7. Using supplied screw, secure Cable Support Bracket to CHS1U-AU (see Figure 5-63 Securing Cable Support Bracket to Chassis).

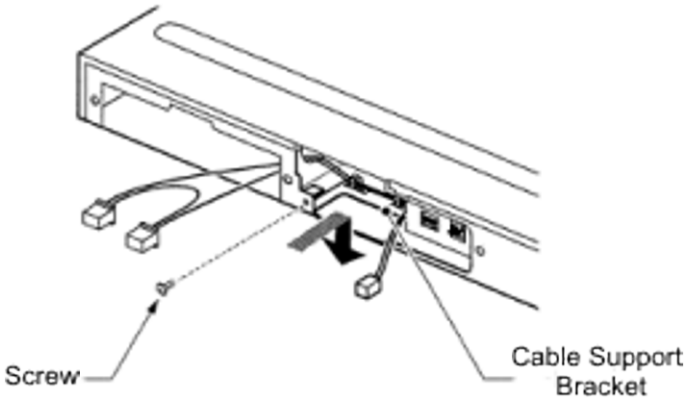


Figure 5-63 Securing Cable Support Bracket to Chassis

8. Using supplied screws, secure two 12V-0.8AH (locally supplied) batteries to battery tray (see Figure 5-64 Securing Batteries to Battery Tray).

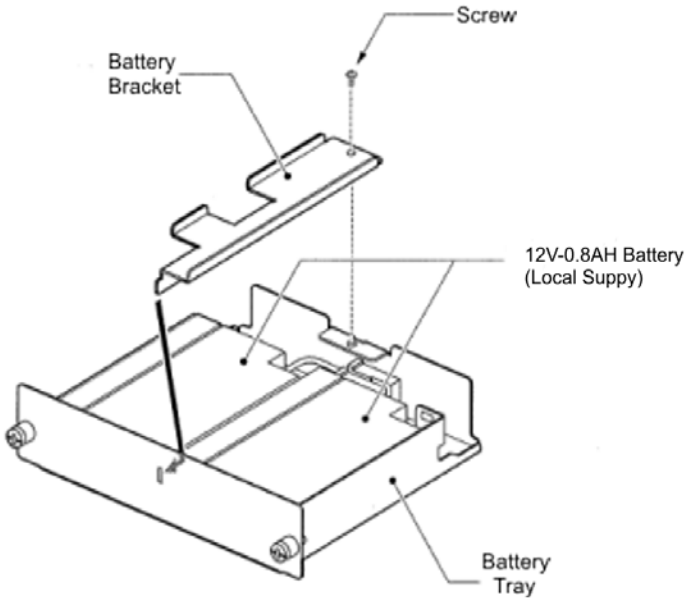


Figure 5-64 Securing Batteries to Battery Tray

9. Secure battery bracket to tray (refer to Figure 5-64 Securing Batteries to Battery Tray on page 5-50).

10. Connect CHS1U BATT CA INT BATT to internal batteries (12V-0.8AH battery). Refer to Figure 5-65 Battery Connections to CHS1U BATT CA INT BATT.

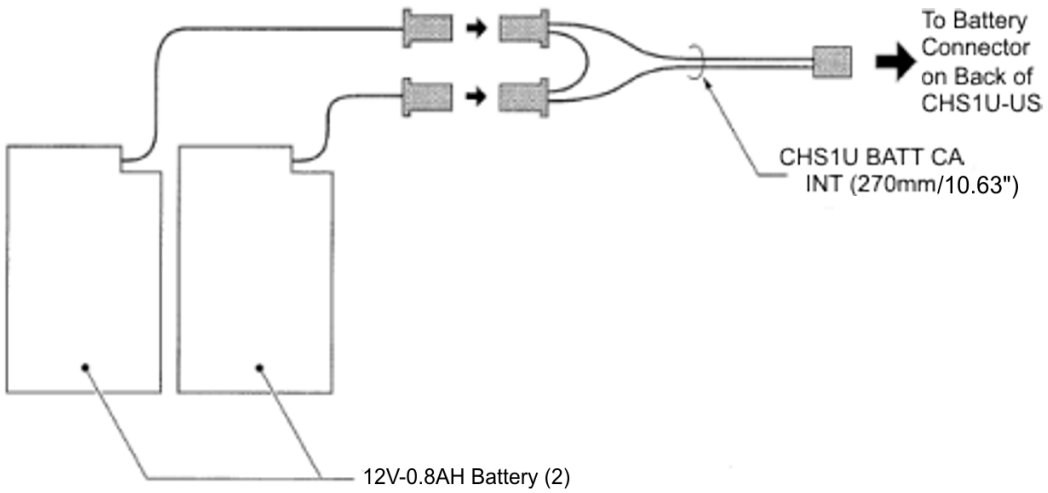


Figure 5-65 Battery Connections to CHS1U BATT CA INT BATT

11. Connect CHS1U BATT CA INT BATT to battery connection on PSU (Power Supply Unit) on rear of CHS1U-AU (refer to Figure 5-66 Connect CHS1U BATT CA INT BATT Cable to PSU Battery Connection).

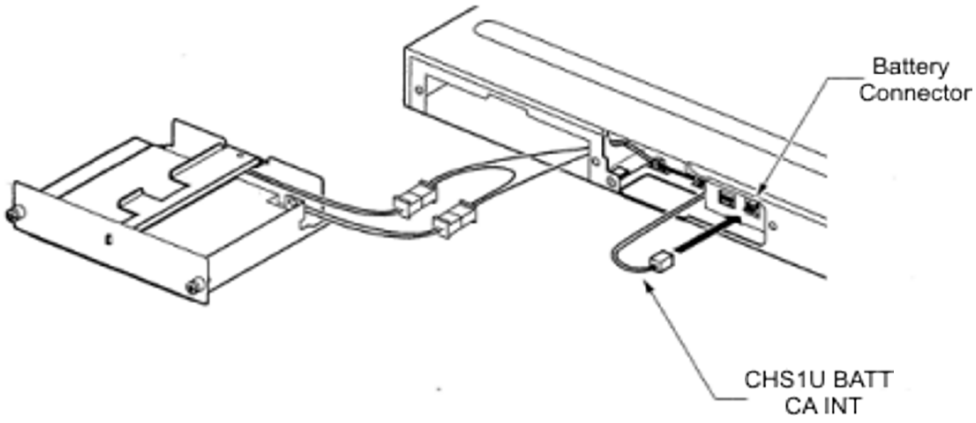


Figure 5-66 Connect CHS1U BATT CA INT BATT Cable to PSU Battery Connection

12. Slide battery tray into space on rear of chassis (see Figure 5-67 Install Battery Tray into CHS1U-AU Chassis).

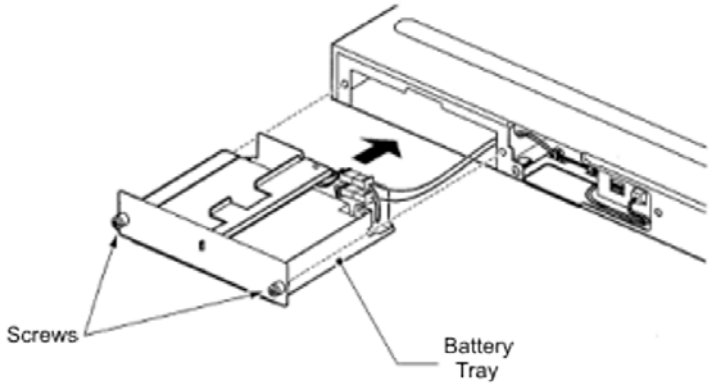


Figure 5-67 Install Battery Tray into CHS1U-AU Chassis

13. Secure battery tray using two retaining screws (refer to Figure 5-67 Install Battery Tray into CHS1U-AU Chassis).

14. Insert the access panel tab into the slot on the rear of the CHS1U-AU chassis (see Figure 5-68 Re-Install Fan Access Panel).

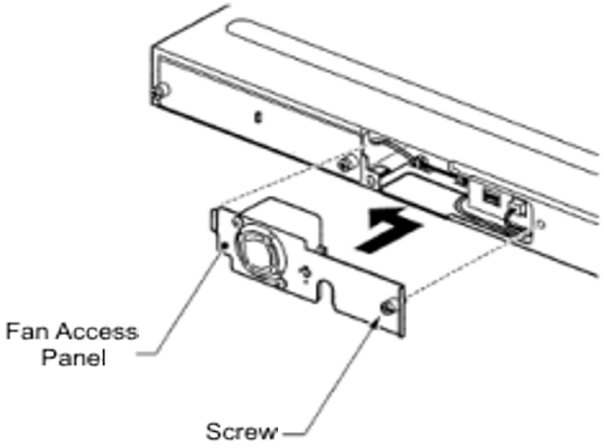


Figure 5-68 Re-Install Fan Access Panel

15. Secure panel with the retaining screw (refer to Figure 5-68 Re-Install Fan Access Panel).

4.1.2 Install Internal Batteries CHS2U-AU Chassis

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

1. Remove screws from battery access panel on rear of chassis.

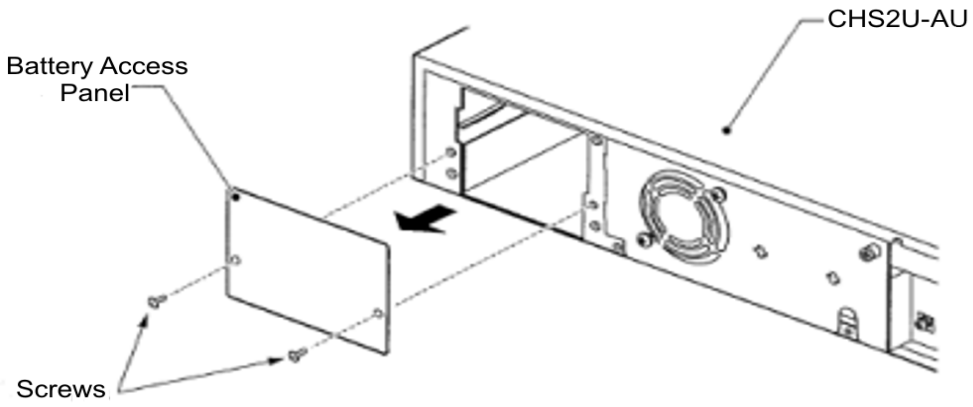


Figure 5-69 Removing Battery Access Panel

2. Remove access panel containing the fan. Refer to Figure 5-70 Removing Access Panel.

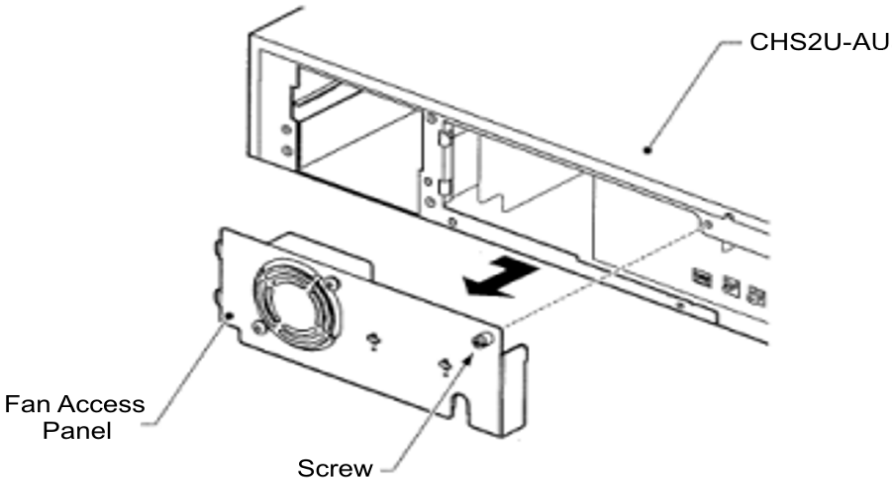


Figure 5-70 Removing Access Panel

3. Using tie wraps, secure CHS2U BATT CA INT in cable guide bracket (refer to Figure 5-71 Secure Cable in Support Bracket).

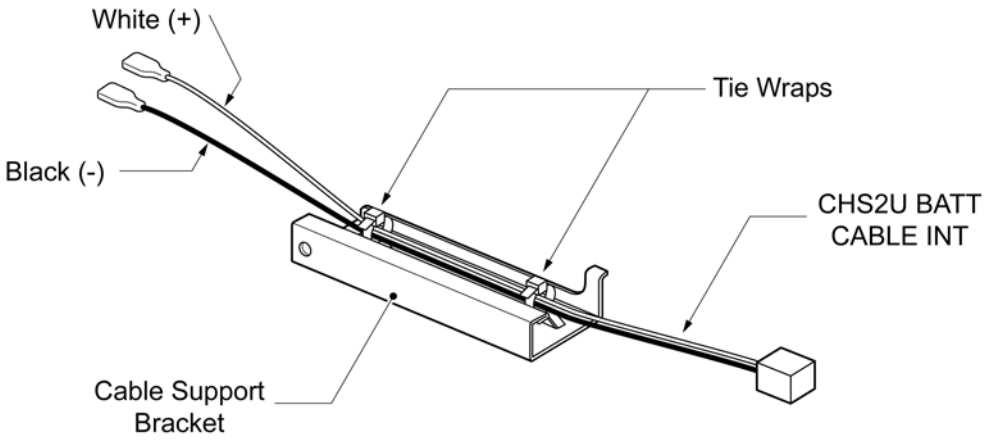


Figure 5-71 Secure Cable in Support Bracket

4. With supplied screw, install cable guide in chassis (refer to Figure 5-72 Installing Cable Support Guide).

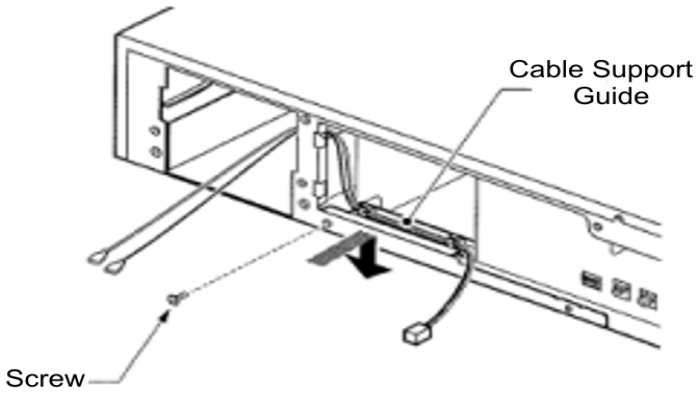


Figure 5-72 Installing Cable Support Guide

5. Install two batteries (12V-2.3AH) into the CHS2U BATT MTG KIT (refer to Figure 5-73 Installing Two Batteries).

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

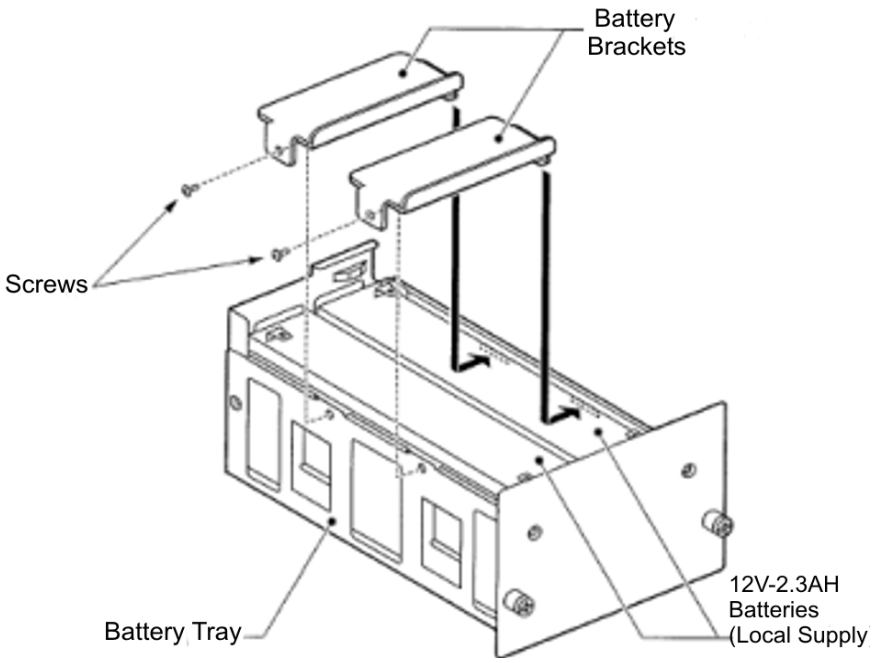


Figure 5-73 Installing Two Batteries

6. Using the supplied screws, secure the brackets to the CHS2U BATT MTG KIT (refer to Figure 5-73 Installing Two Batteries on page 5-54).

7. Connect the provided battery cables to the batteries (refer to Figure 5-74 Installing Battery Cable).

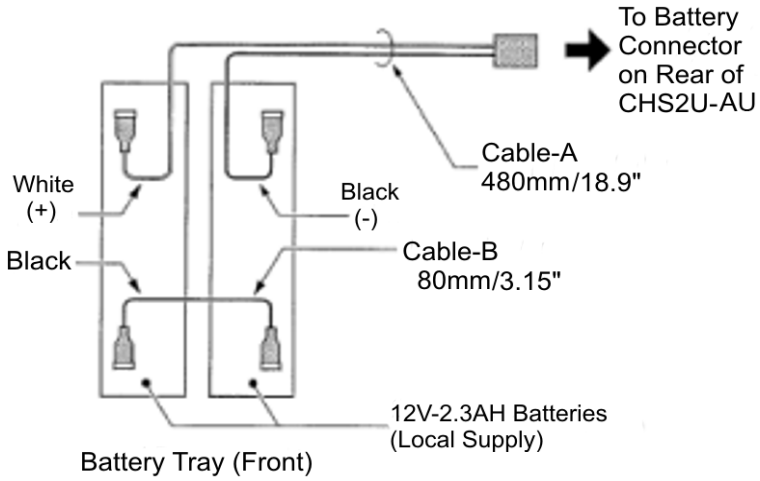


Figure 5-74 Installing Battery Cable

8. Connect CHS2U BATT CA INT to battery connector (refer to Figure 5-75 Connecting CHS2U BATT CA INT).

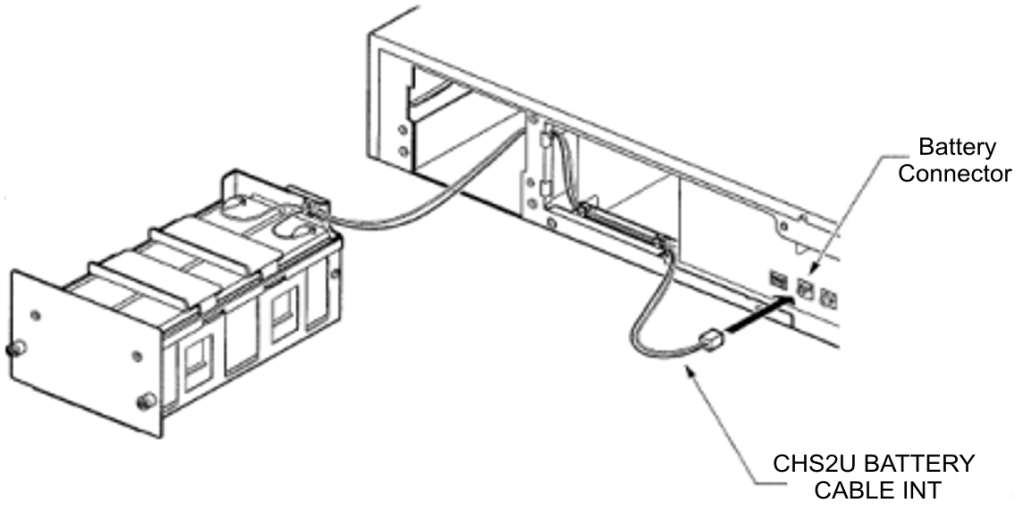


Figure 5-75 Connecting CHS2U BATT CA INT

9. Install CHS2U BATT MTG KIT into CHS2U-AU chassis (see Figure 5-76 Installing Battery Tray into CHS2U-AU Chassis).

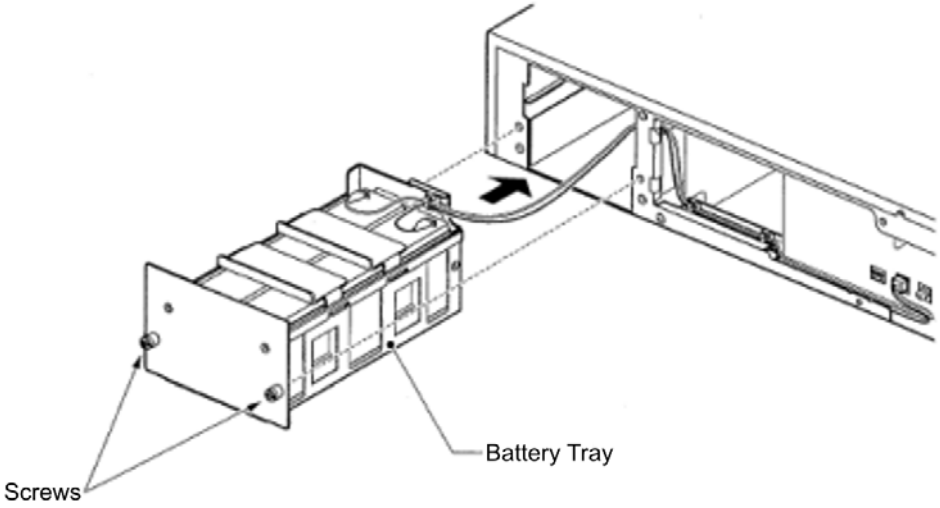


Figure 5-76 Installing Battery Tray into CHS2U-AU Chassis

10. Tighten the retaining screws (refer to Figure 5-76 Installing Battery Tray into CHS2U-AU Chassis).

11. Reinstall access panel containing the fan (refer to Figure 5-77 Installing the Access Panel).

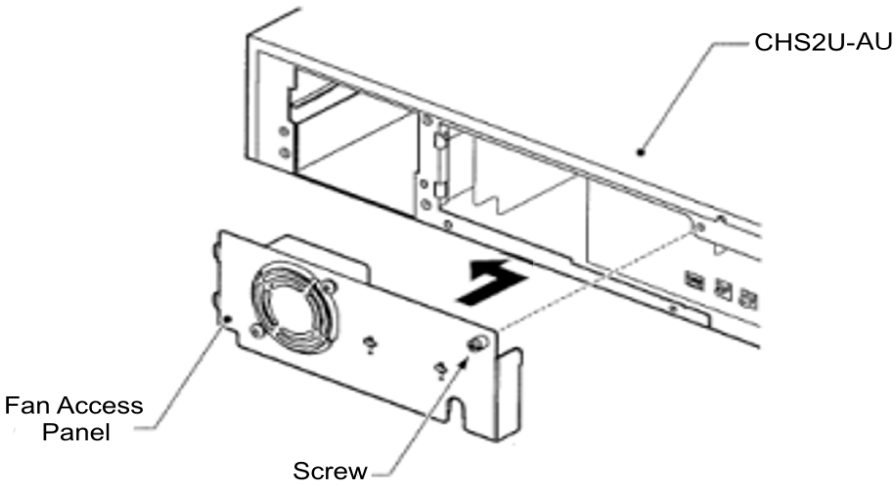


Figure 5-77 Installing the Access Panel

12. Connect grounding and AC power cable.

4.2 Install External Batteries (without CHS LARGE BATT BOX)

An external battery source can be used to provide longer battery life in the event of a power failure.

1. Remove fan access panel from rear of CHS1U-AU chassis (refer to Figure 5-78 Removing Fan Access Panel CHS1U-AU).

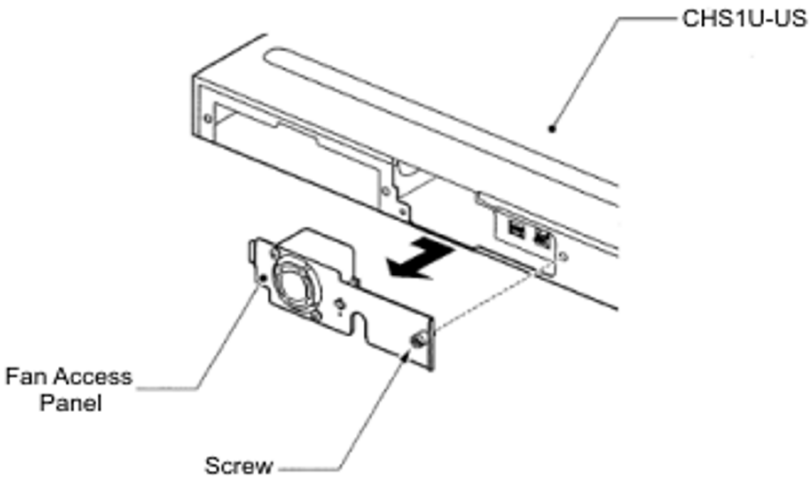


Figure 5-78 Removing Fan Access Panel CHS1U-AU

2. Remove fan access panel from rear of CHS2U-AU chassis (refer to Figure 5-79 Removing Fan Access Panel CHS2U-AU).

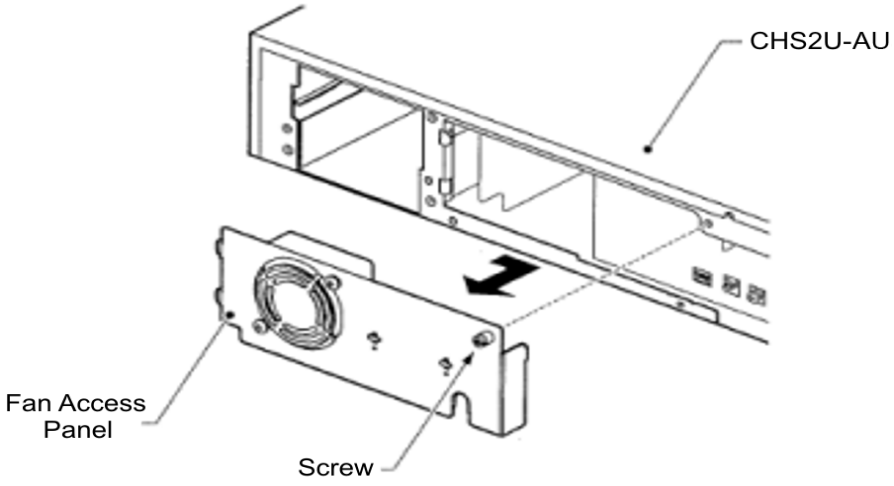


Figure 5-79 Removing Fan Access Panel CHS2U-AU

3. Connect locally supplied external batteries and CHS2U BATT CA EXT-A (see Figure 5-80 External Battery Box (1U+2Ux1 Configuration) – Two Batteries) for two batteries and (see Figure 5-81 External Battery Box (1U+2Ux2/1U=2Ux3 Configuration) – Four Batteries) for four batteries.

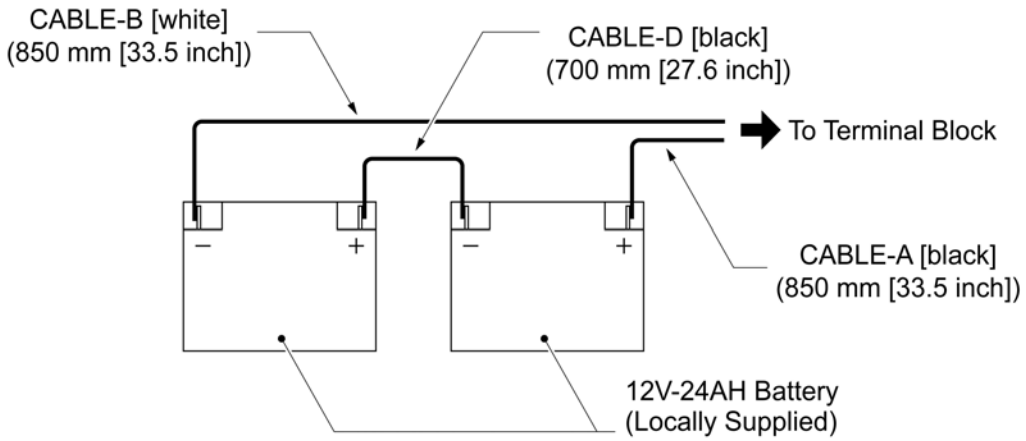


Figure 5-80 External Battery Box (1U+2Ux1 Configuration) – Two Batteries

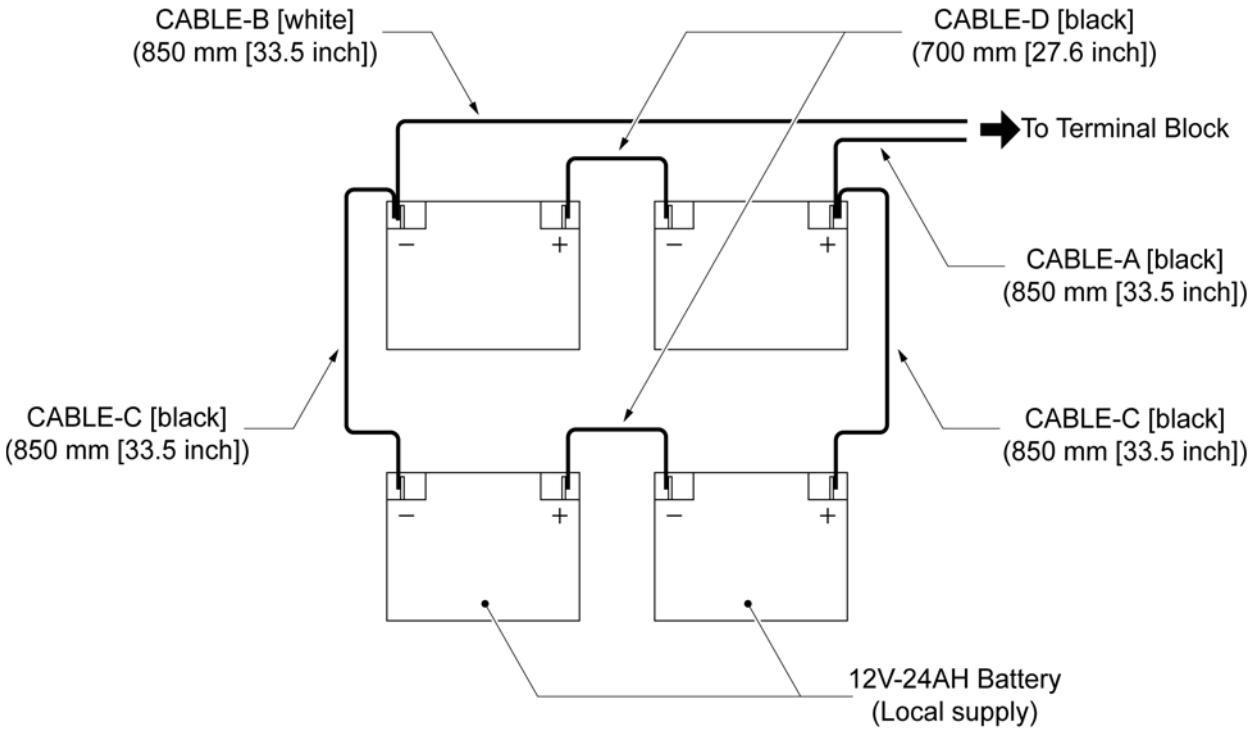


Figure 5-81 External Battery Box (1U+2Ux2/1U=2Ux3 Configuration) – Four Batteries

4. Connect other end of cable to battery connector on rear of CHS1U-AU and CHS2U-AU chassis (refer to Figure 5-82 Connecting External Battery Box to CHS1U-AU and CHS2U-AU Chassis).

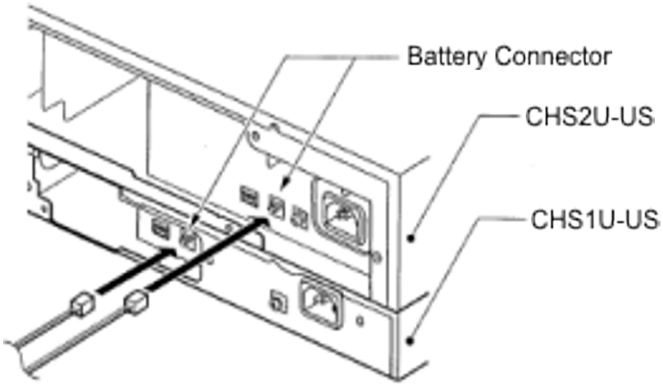


Figure 5-82 Connecting External Battery Box to CHS1U-AU and CHS2U-AU Chassis

5. Insert the access panel tab into the slot on the rear of the CHS1U-AU chassis [see Figure 5-83 Re-Install Fan Access Panel (CHS1U-AU Chassis)].

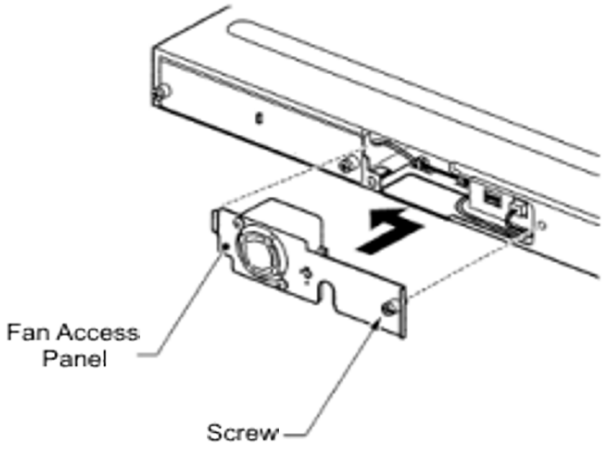


Figure 5-83 Re-Install Fan Access Panel (CHS1U-AU Chassis)

6. Secure panel withe retaining screw (refer to Figure 5-83 Re-Install Fan Access Panel (CHS1U-AU Chassis) on page 5-59).

7. Insert the access panel tab into the slot on the rear of the CHS2U-AU chassis [see Figure 5-84 Re-Install Fan Access Panel (CHS2U-AU Chassis)].

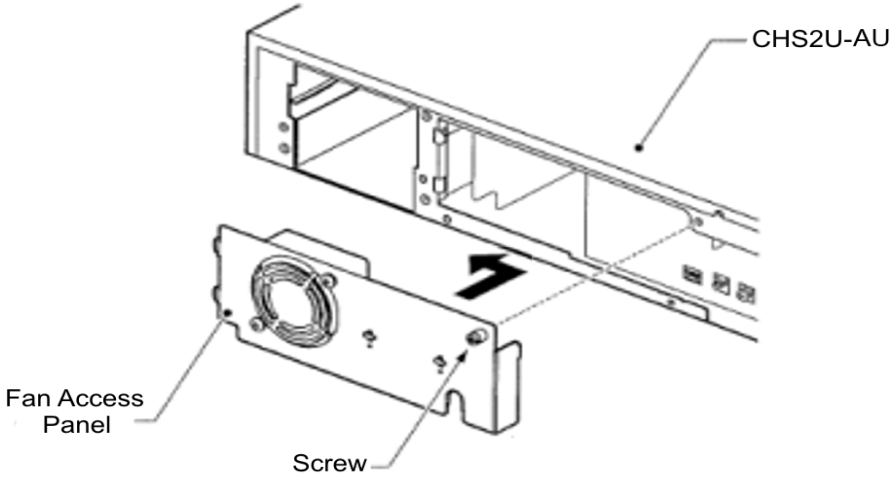


Figure 5-84 Re-Install Fan Access Panel (CHS2U-AU Chassis)

8. Secure panel withe retaining screw [refer to Figure 5-84 Re-Install Fan Access Panel (CHS2U-AU Chassis)].

4.3 Install External Batteries (with CHS LARGE BATT BOX)

An external battery source with CHS LARGE BATT BOX can be used to long battery life in the event of a power failure.

The CHS LARGE BATT BOX can provide 45 minutes backup time or 3 hours backup time.

4.3.1 45 Minutes Backup Time

One CHS LARGE BATT BOX can support per one UNIT (1U+2Ux3).

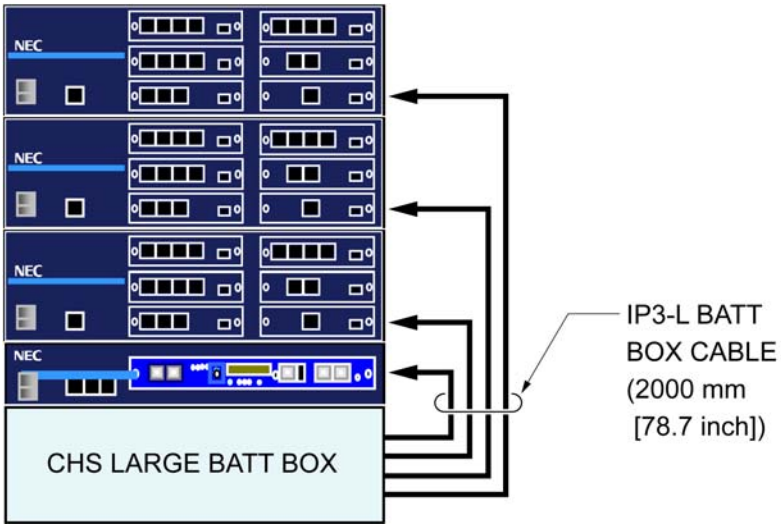


Figure 5-85 CHS LARGE BATT BOX (45 Minutes Battery Backup)

Table 5-3 Battery Capacity of Single External Battery

Configuration	Battery Capacity (Number of Batteries)	Numbers of CHS LARGE BATT BOX
1U	21AH (3 sets of [2x12V-7AH]	1
1U+2U		
1U+2Ux2		
1U+2Ux3		

✎ *Battery: Locally supplied*

4.3.2 3 Hours Backup Time

One CHS LARGE BATT BOX can support one chassis (1U or 2U).

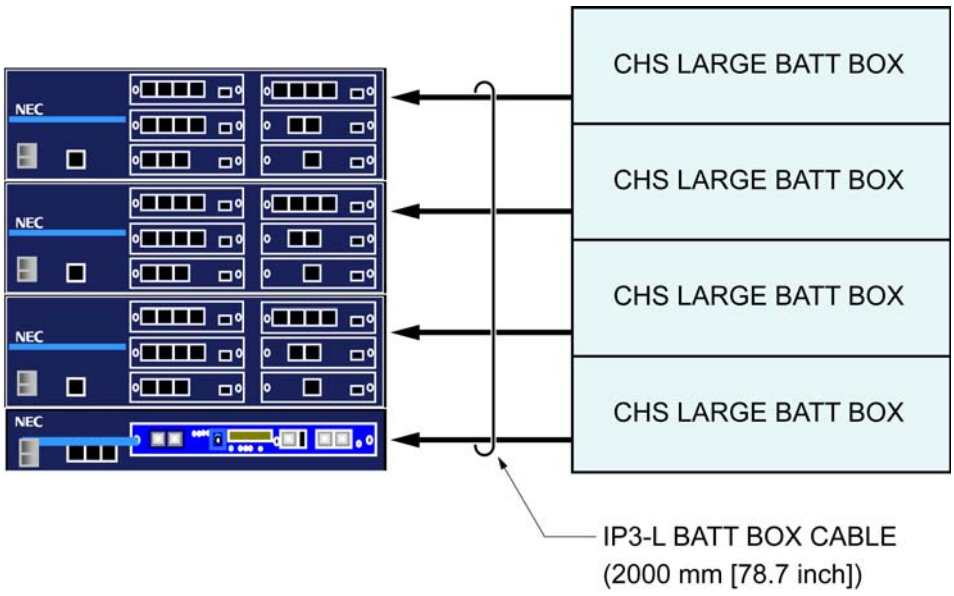


Figure 5-86 CHS LARGE BATT BOX (3 Hours Battery Backup)

Table 5-4 Battery Capacity of Multiple External Batteries

Configuration	Battery Capacity (Number of Batteries)	Numbers of CHS LARGE BATT BOX
1U	21AH (3 sets of [2x12V-7AH]	1
1U+2U	42AH (6 sets of [2x12V-7AH]	2
1U+2Ux2	63AH (9 sets of [2x12V-7AH]	3
1U+2Ux3	84AH (12 sets of [2x12V-7AH]	4

✎ *Battery: Locally supplied*

1. Position the CHS BASE UNIT on desired surface and mark four holes to be drilled (refer to Figure 5-87 CHS BASE UNIT).

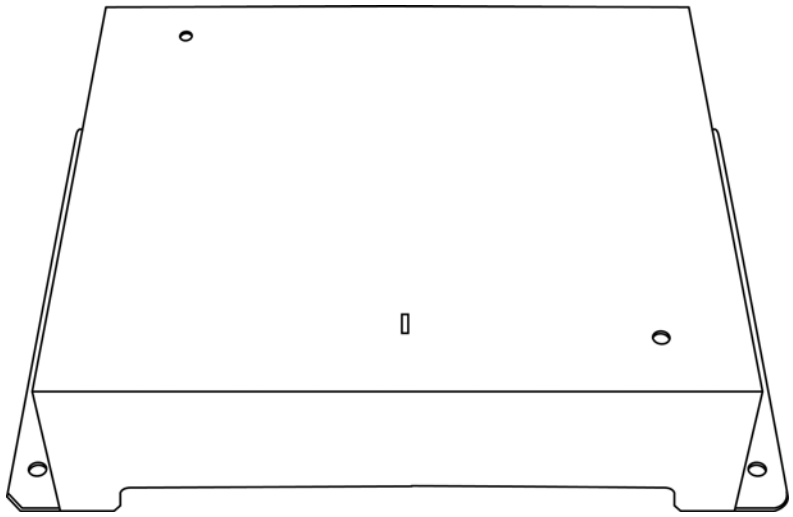


Figure 5-87 CHS BASE UNIT

2. Drill the four holes required for floor installation.

3. Using four screws, secure the CHS BASE UNIT to the floor (refer to Figure 5-88 Secure CHS BASE UNIT with Screws for screw location).

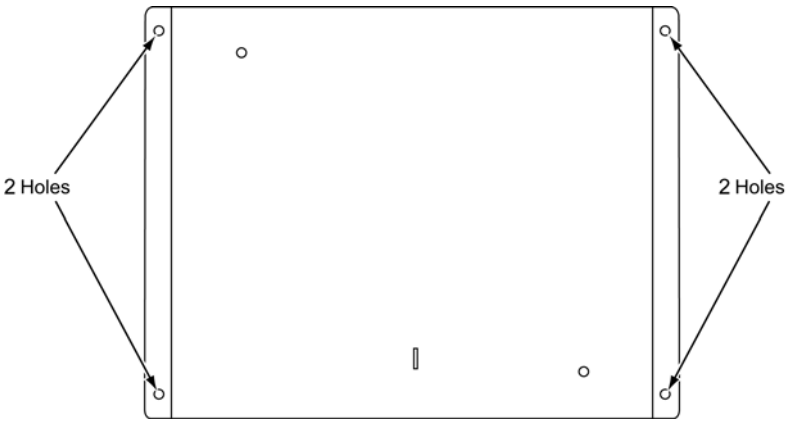


Figure 5-88 Secure CHS BASE UNIT with Screws

4. Position the CHS LARGE BATT BOX on top of the CHS BASE UNIT.

5. Secure the CHS LARGE BATT BOX to the CHS BASE UNIT using eight screws supplied with the CHS2U JOINT BRACKET KIT (refer to Figure 5-89 Install Joint Brackets with Screws for bracket location).

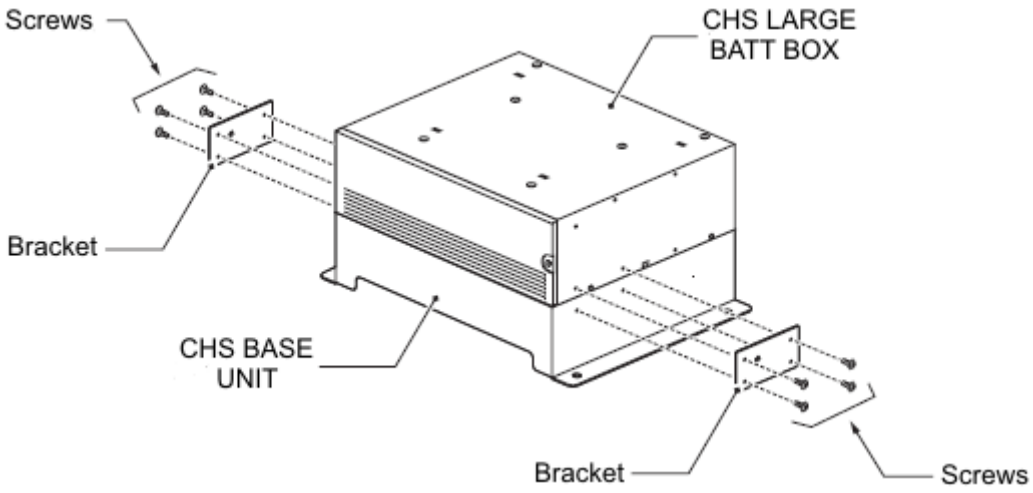


Figure 5-89 Install Joint Brackets with Screws

6. Remove the front cover of CHS LARGE BATT BOX (refer to Figure 5-90 Removing the Front Cover of CHS LARGE BATT BOX).

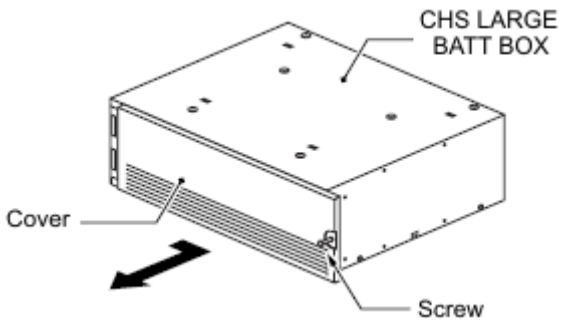


Figure 5-90 Removing the Front Cover of CHS LARGE BATT BOX

7. Remove the battery tray bracket, then pull out the battery tray from CHS LARGE BATT BOX (refer to Figure 5-91 Removing Battery Tray).

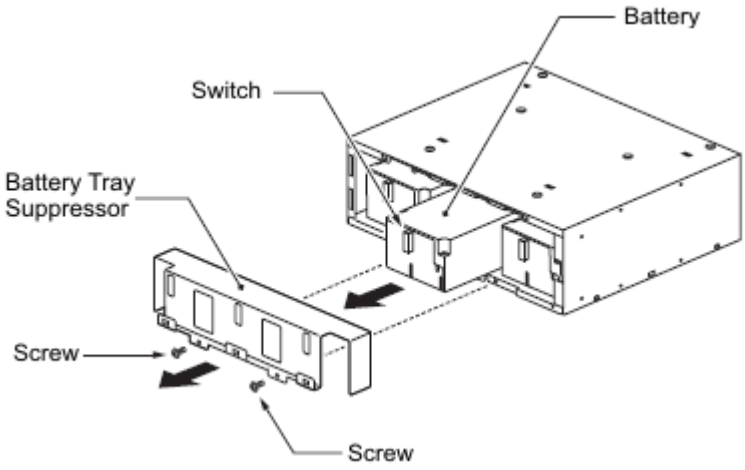


Figure 5-91 Removing Battery Tray

8. Remove the top cover and battery bracket from the battery tray (refer to Figure 5-92 Removing Top Cover and Battery Bracket).

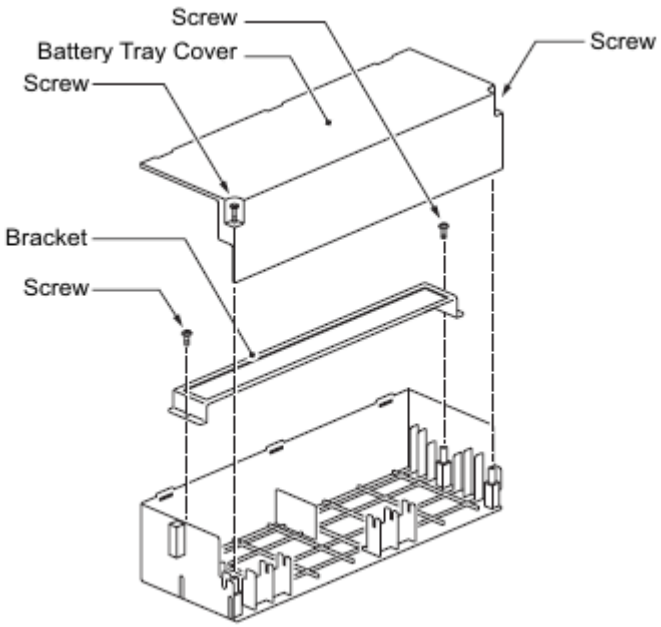


Figure 5-92 Removing Top Cover and Battery Bracket

9. Mount the batteries in the battery tray, then fix the batteries by the battery bracket (refer to Figure 5-93 Mounting Batteries).

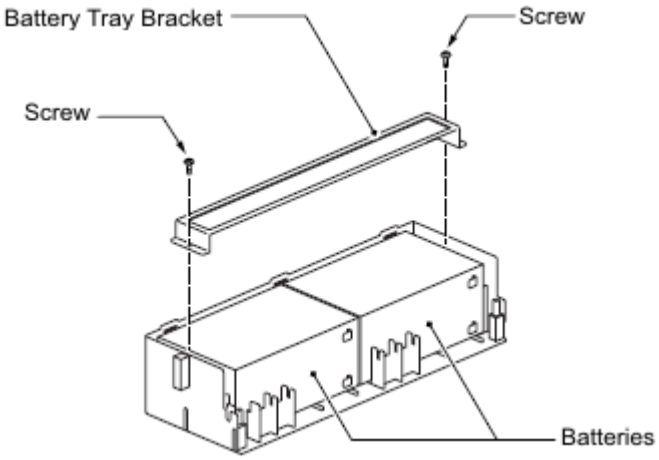


Figure 5-93 Mounting Batteries

10. Connect the provided battery cables to the batteries (7AH-12V battery). (Refer to Figure 5-94 Connecting Battery Cables).

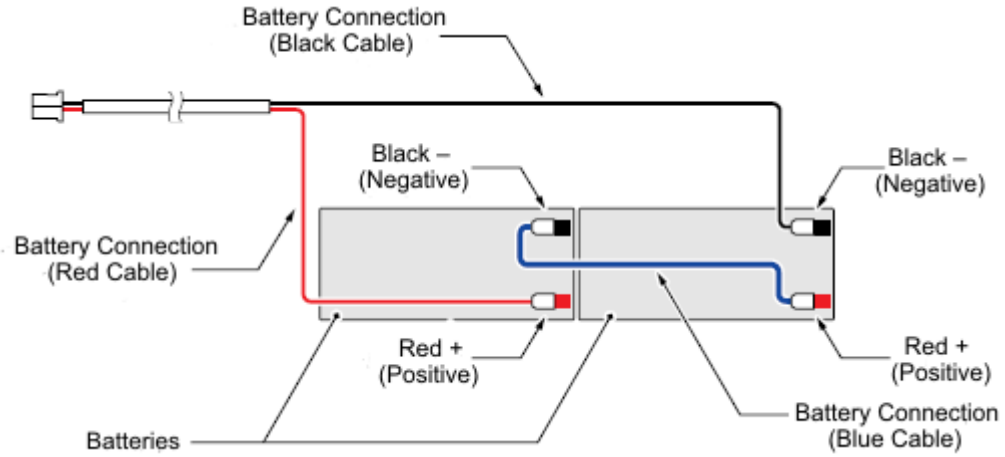


Figure 5-94 Connecting Battery Cables

11. Install the top cover of battery tray (refer to Figure 5-95 Install Top Cover of Battery Tray).

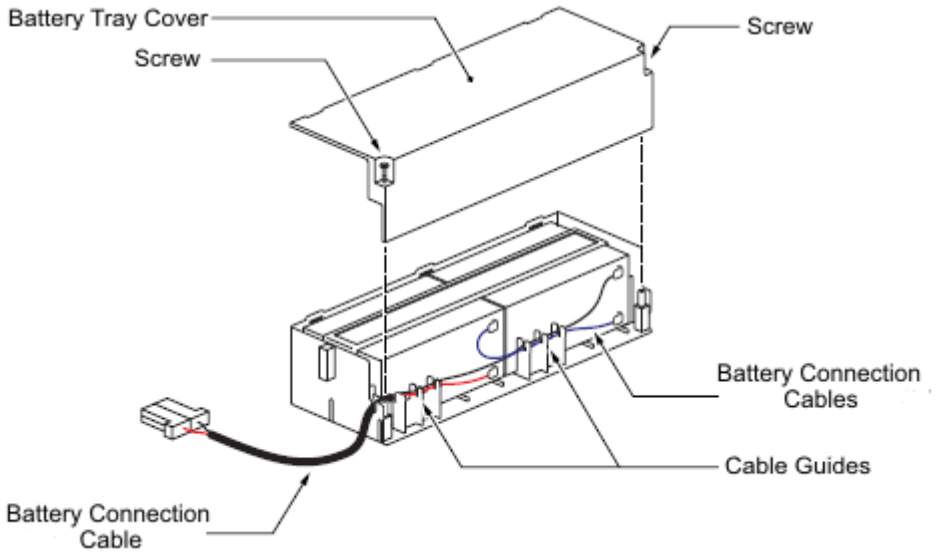


Figure 5-95 Install Top Cover of Battery Tray

12. Insert the battery tray into the CHS LARGE BATT BOX.
13. Do the STEP 7 to STEP 12 for the remained battery tray.
14. Using two screws, install the battery bracket.
15. Connect the battery cables to the fuse unit (refer to Figure 5-96 Connecting Battery Cable to Fuse Unit).

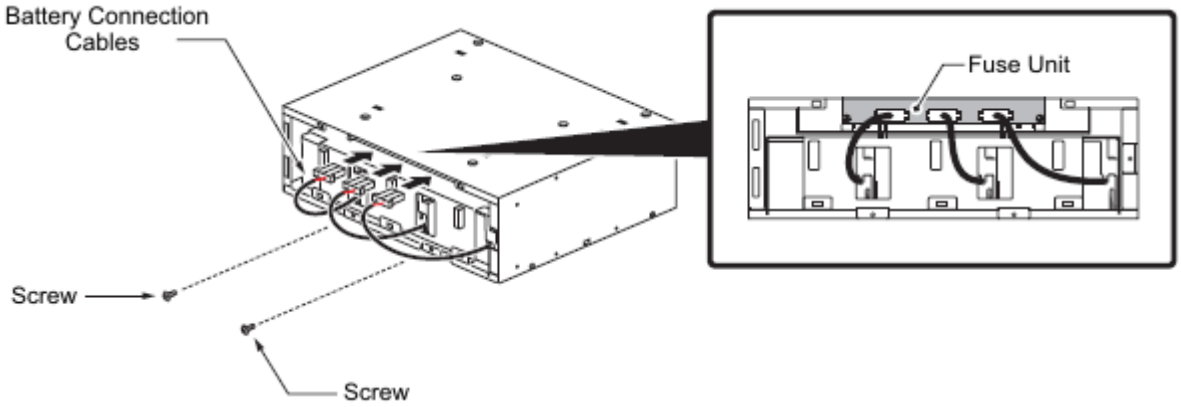


Figure 5-96 Connecting Battery Cable to Fuse Unit

16. Install the front cover (refer to Figure 5-97 Install CHS LARGE BATT BOX Front Cover).

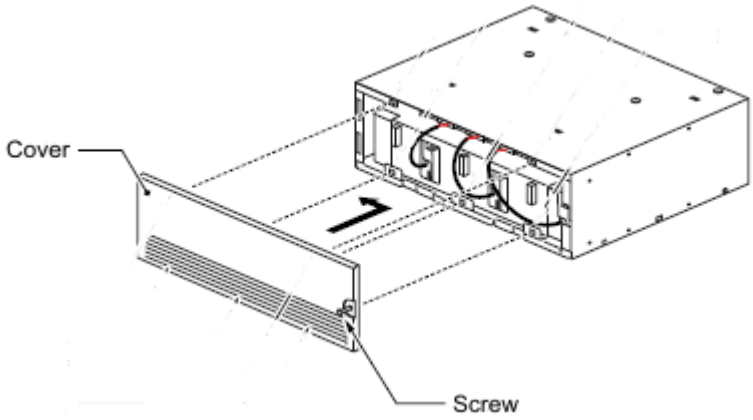


Figure 5-97 Install CHS LARGE BATT BOX Front Cover

17. Connect the IP3-L BATT BOX CABLE between the terminal unit in the CHS LARGE BATT BOX and battery connector of the chassis through holes [refer to Figure 5-98 Cable Connection between Chassis and CHS LARGE BATT BOX (45 Minutes Battery Backup)].

When providing 45 minutes backup time:

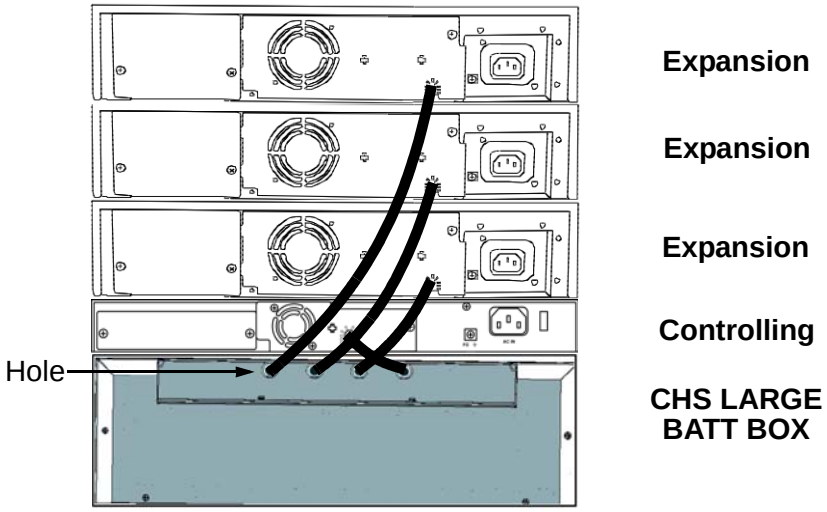


Figure 5-98 Cable Connection between Chassis and CHS LARGE BATT BOX (45 Minutes Battery Backup)

When providing 3 hours backup time:

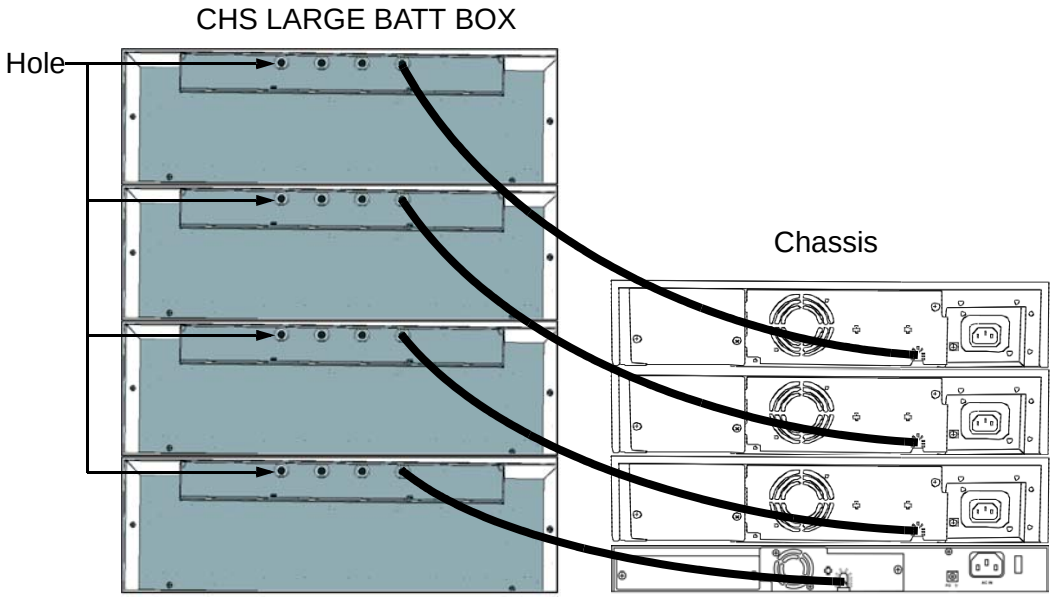


Figure 5-99 Cable Connection between Chassis and CHS LARGE BATT BOX (3 Hours Battery Backup)

4.3.3 CHS LARGE BATT BOX Fuse Replacement

1. Loosen screw on front of CHS LARGE BATT BOX. Refer to Figure 5-100 Removing CHS LARGE BATT BOX Cover.

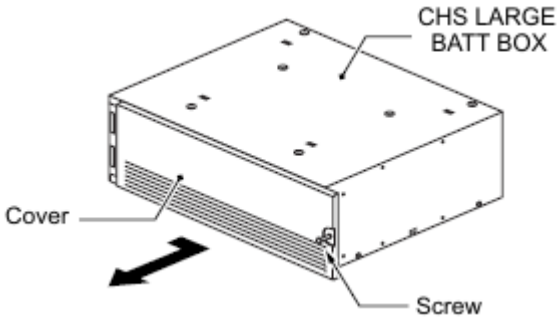


Figure 5-100 Removing CHS LARGE BATT BOX Cover

2. Remove two screws from front of Battery Tray Suppressor. Refer to Figure 5-101 Removing Battery Tray Suppressor.

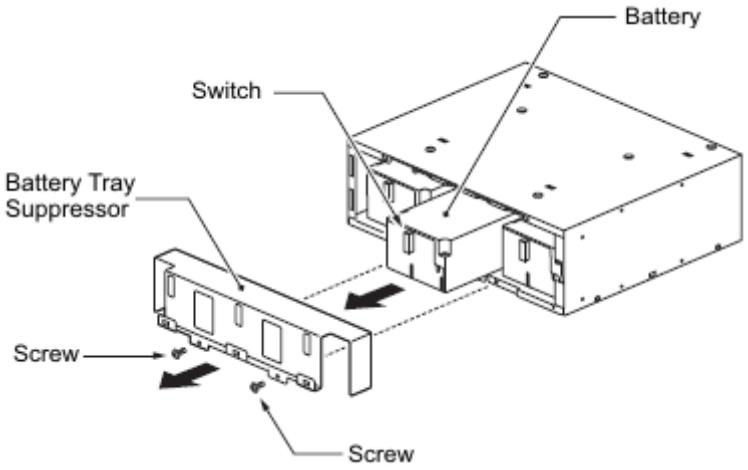


Figure 5-101 Removing Battery Tray Suppressor

3. Slide Battery Tray Suppressor outward to remove.

4. Disconnect the Battery Connection Cables from the Fuse Unit. Refer to Figure 5-102 Disconnecting Battery Cables on page 5-70.

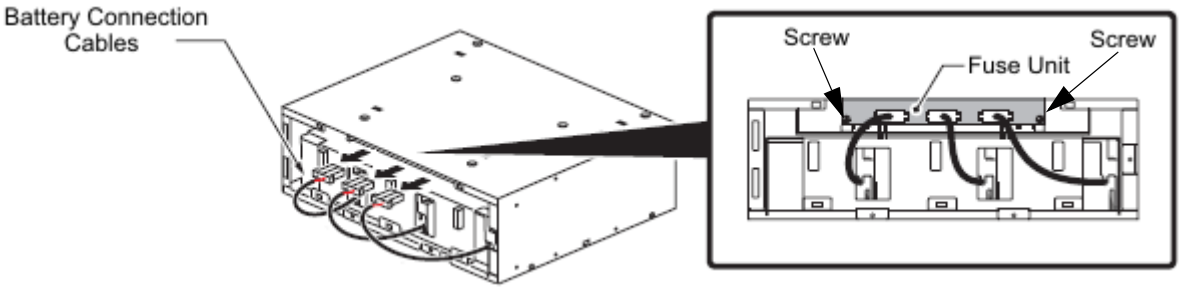


Figure 5-102 Disconnecting Battery Cables

5. Loosen two screws and pull Fuse Unit out of the CHS LARGE BATT BOX.

6. See Figure 5-103 CHS LARGE BATT BOX Fuse Unit on page 5-71 for replacement of 8A or 30A fuses.

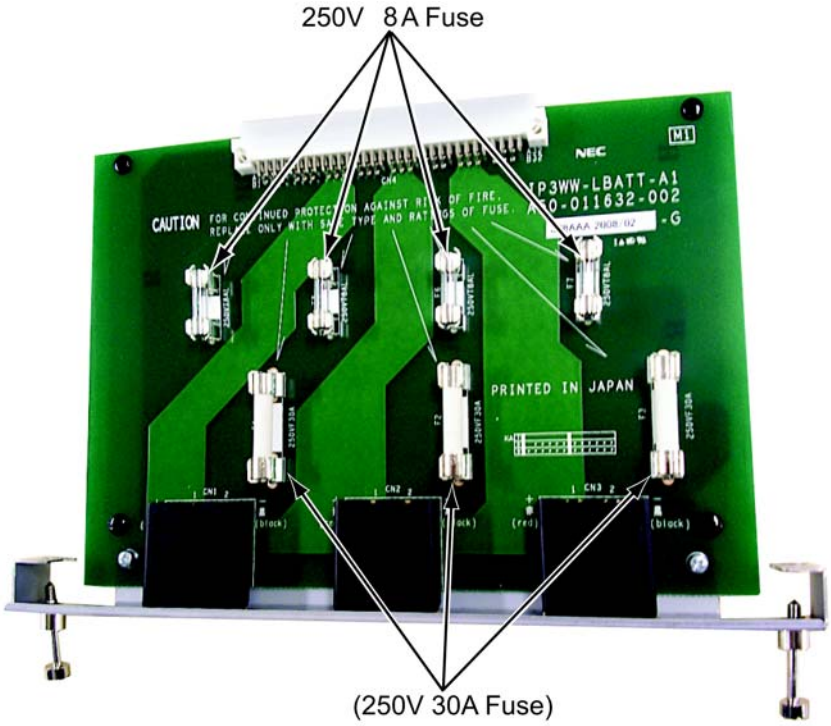


Figure 5-103 CHS LARGE BATT BOX Fuse Unit

7. Slide the Fuse Unit into the and tighten the two screws (refer to Figure 5-102 Disconnecting Battery Cables on page 5-70).

8. Plug the Battery Connection Cables into the Fuse Unit. Refer to Figure 5-104 Connecting Battery Cables on page 5-71.

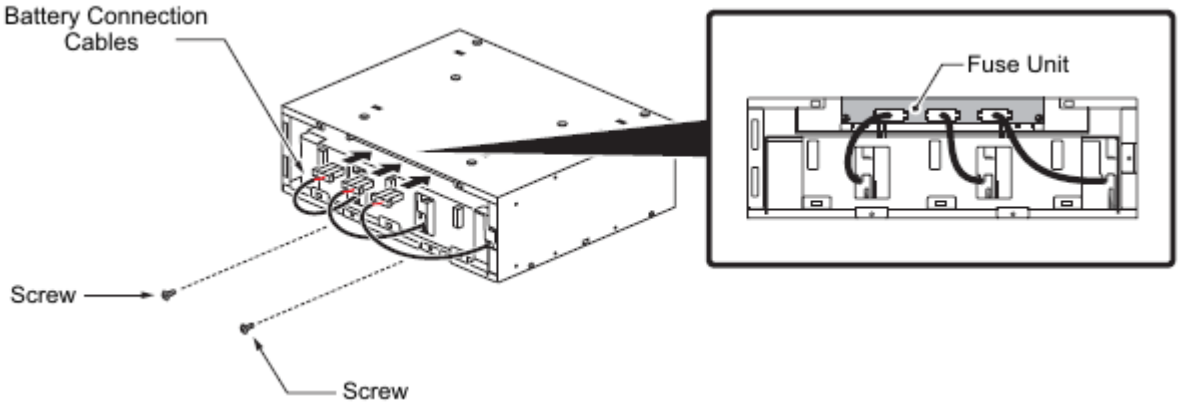


Figure 5-104 Connecting Battery Cables

9. Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw. Refer to Figure 5-105 Installing Cover Battery.

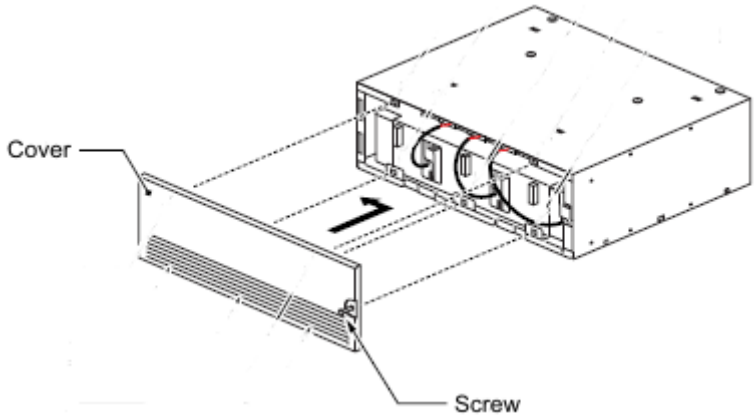


Figure 5-105 Installing Cover Battery

SECTION 5 REMOVE AND INSTALL COOLING FAN

If required, the cooling fan installed in the CHS1U-AU and the CHS2U-AU chassis can be removed and replaced. The following provide separate procedures for both types of chassis.

5.1 CHS1U-AU Chassis

5.1.1 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.

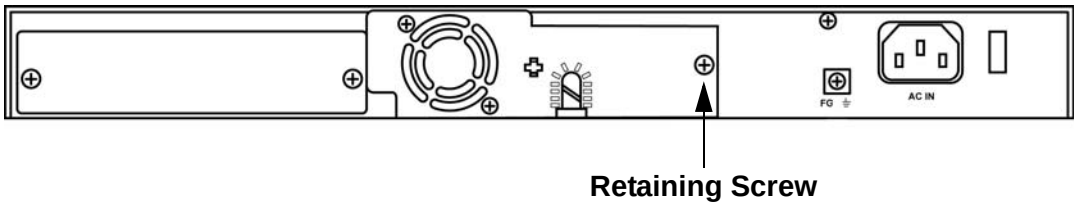


Figure 5-106 CHS1U-AU Chassis Access Panel

3. Swing access panel outward and unplug fan power cable. See Figure 5-107 Opening Chassis Access Panel (CHS1U-AU Chassis).

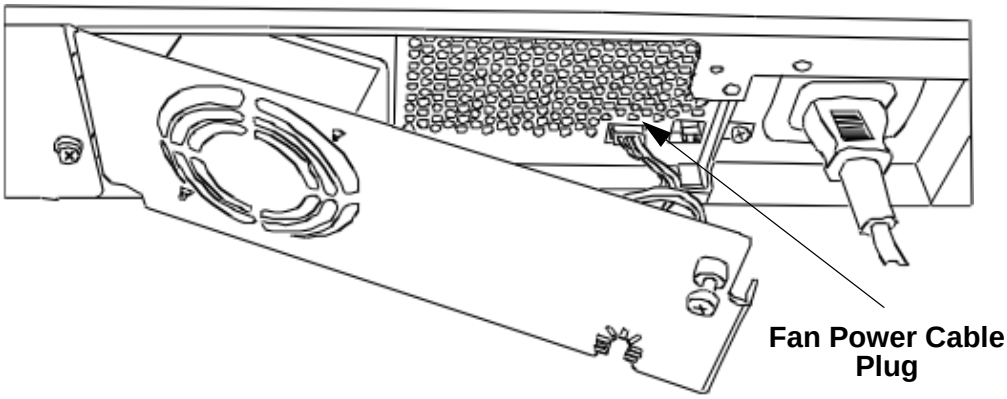


Figure 5-107 Opening Chassis Access Panel (CHS1U-AU Chassis)

4. Remove chassis access panel from rear of chassis.

5. Remove cabling from retention clips. See Figure 5-108 Chassis Access Panel Removed (CHS1U-AU Chassis).

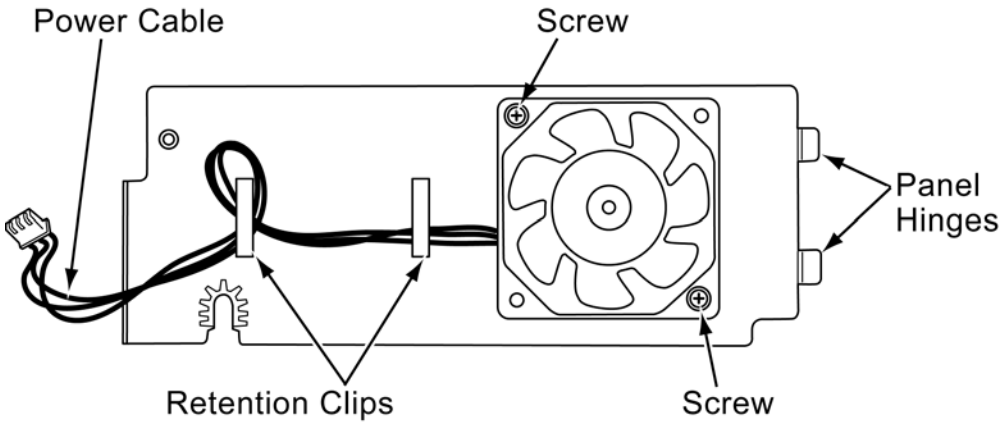


Figure 5-108 Chassis Access Panel Removed (CHS1U-AU Chassis)

6. Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan [refer to Figure 5-108 Chassis Access Panel Removed (CHS1U-AU Chassis)].

5.1.2 Install Cooling Fan

1. Align replacement fan with holes and secure with two screws [refer to Figure 5-108 Chassis Access Panel Removed (CHS1U-AU Chassis) on page 5-73].
2. Install cabling into retention clips [refer to Figure 5-108 Chassis Access Panel Removed (CHS1U-AU Chassis) on page 5-73].
3. Insert access panel hinges into slots on rear of chassis.
4. Plug fan power cable into three prong plug [refer to Figure 5-107 Opening Chassis Access Panel (CHS1U-AU Chassis) on page 5-73].
5. Reinstall access cover and secure with retaining screw (refer to Figure 5-106 CHS1U-AU Chassis Access Panel on page 5-73).

5.2 CHS2U-AU Chassis

5.2.1 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.

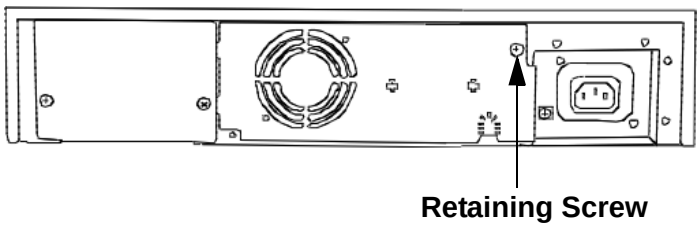


Figure 5-109 CHS2U-US Chassis Access Panel

3. Swing access panel outward and unplug fan power cable. Refer to Figure 5-110 Opening Chassis Access Panel (CHS2U-AU Chassis).

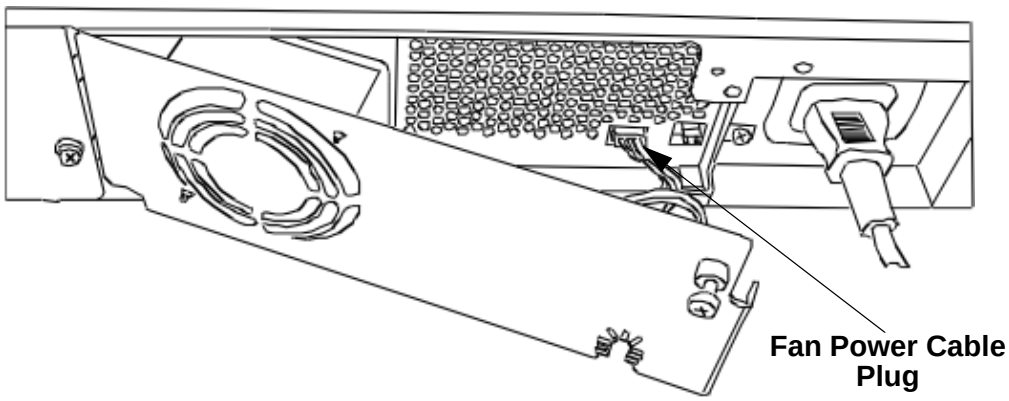


Figure 5-110 Opening Chassis Access Panel (CHS2U-AU Chassis)

4. Remove chassis access panel from rear of chassis.

5. Remove cabling from retention clips. Refer to Figure 5-111 Chassis Access Panel Removed (CHS2U-AU Chassis).

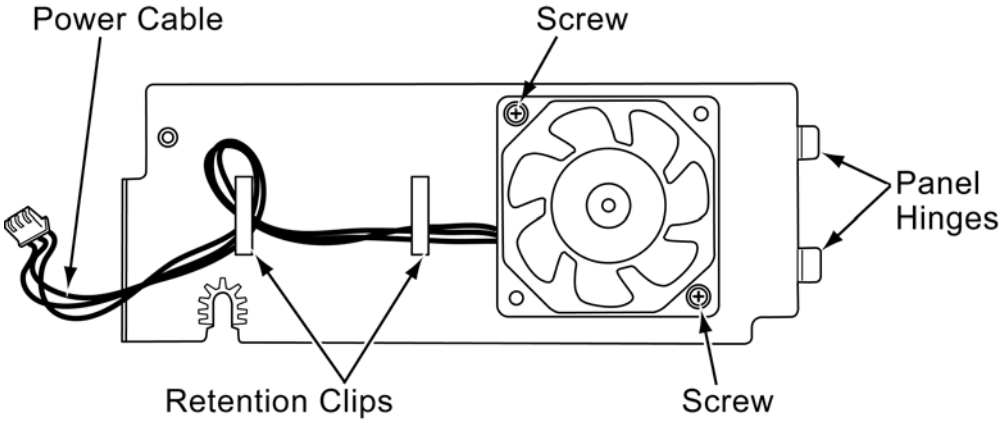


Figure 5-111 Chassis Access Panel Removed (CHS2U-AU Chassis)

6. Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan [refer to Figure 5-111 Chassis Access Panel Removed (CHS2U-AU Chassis) on page 5-75].

5.2.2 Install Cooling Fan

1. Align replacement fan with holes and secure with two screws [refer to Figure 5-111 Chassis Access Panel Removed (CHS2U-AU Chassis) on page 5-75].
2. Install cabling into retention clips [refer to Figure 5-111 Chassis Access Panel Removed (CHS2U-AU Chassis) on page 5-75].
3. Insert access panel hinges into slots on rear of chassis.
4. Plug fan power cable into three prong plug [refer to Figure 5-110 Opening Chassis Access Panel (CHS2U-AU Chassis) on page 5-75].
5. Reinstall access cover and secure with retaining screw (refer to Figure 5-109 CHS2U-US Chassis Access Panel on page 5-74).

Installing the SV8100/SV8300 Blades

SECTION 1 GENERAL INFORMATION

This chapter contains information to help the technician install the blades for the UNIVERGE SV8100/SV8300 system. The technician should be familiar with this section before installing any equipment.

1.1 Slot Locations

Each CHS2U-AU has six slots.

In the Controlling Chassis, the CD-CP00-AU (for Key Systems) must be installed in the first slot (slot 1). The CC-CP00 (for IPS systems) ***must be*** installed in the CHS1U-AU.

Slot Locations in the Controlling Chassis:

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

Slot Locating in the Expansion Chassis:

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

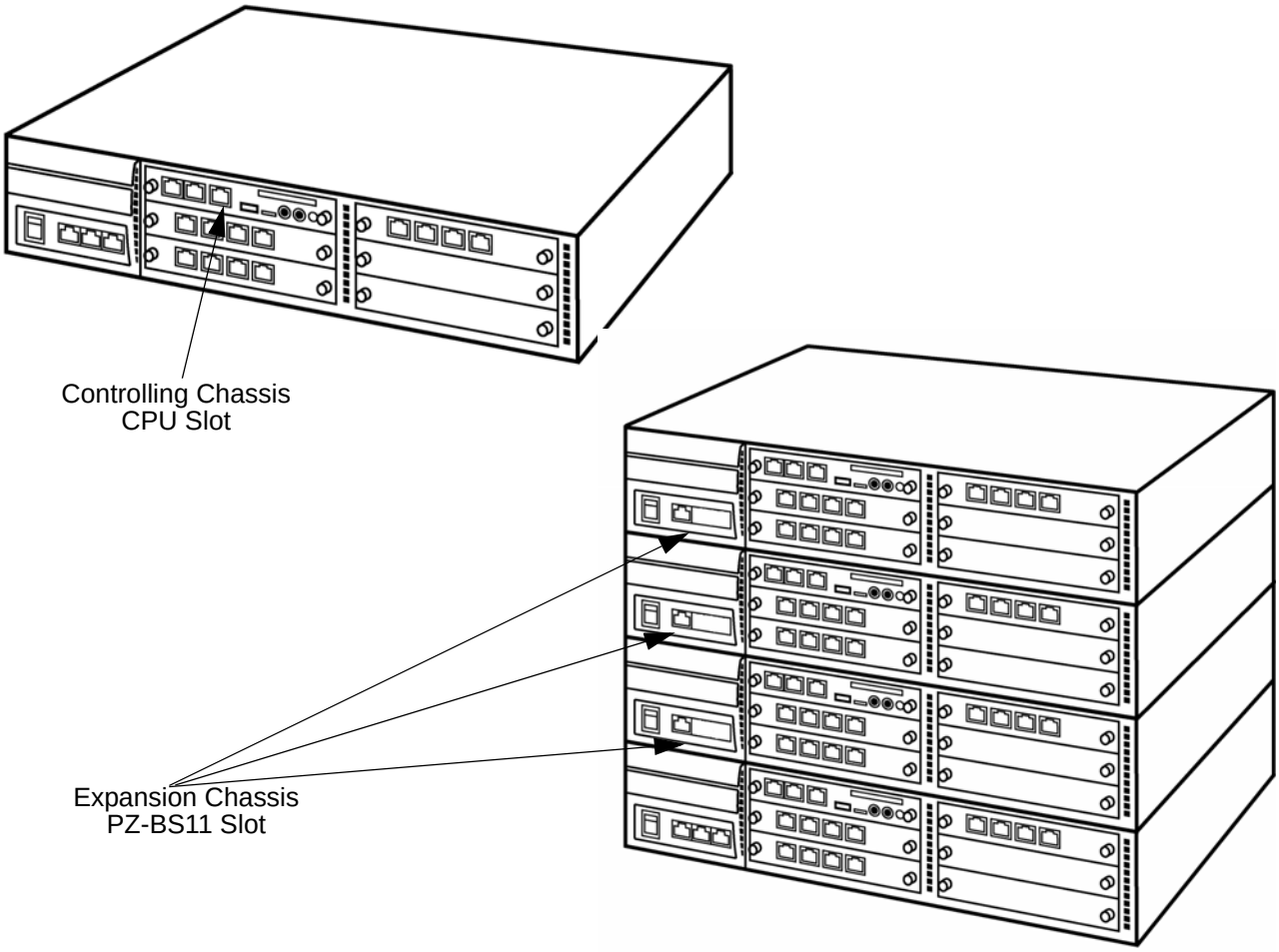


Figure 6-1 19" Chassis CPU and Expansion Slot Locations

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-AU
  - CC-CP00
  - PZ-BS10 and PZ-BS11
  - PZ-ME50-AU
  - PZ-32IPLA, PZ-64IPLA and PZ-128IPLA
  - PZ-VM21

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 within the guide rail and push the blade 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).

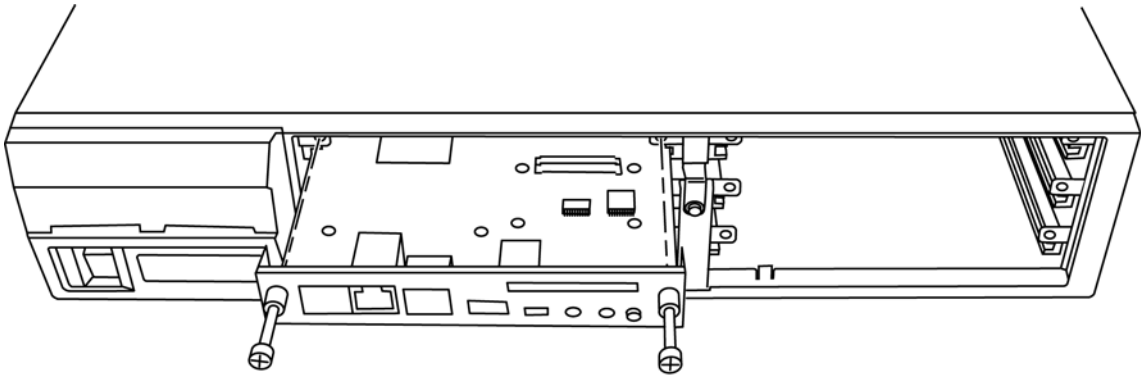


Figure 6-2 Inserting Blades in the 19” CHS2U-AU Chassis

2.2.2 Order of Installing Extension Blades

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

To avoid unexpected extension/trunk numbering if the VoIP or Voice Mail blades register with the system first, install these blades after the other types of extension and trunk blades have been 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 6-1 Extension Blade Installation Order Example on page 6-4 applies.

Table 6-1 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. System programming (Program 90-05) must be performed to change the slot identification.

Adding any daughter board to increase the available ports or going 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 6-2 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 has previously been installed* 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 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.

2.2.3 Order of Installing Trunk Blades

2.2.3.1 Installing CD-4COTC, 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 blades register with the system first, install these blades after the other types of extension and trunk blades have been installed.

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

Table 6-3 Trunk Blade Installation Order Example

Order of Installation	Blade Slot Number	Blade	Line Circuits
1	4	CD-4COTC with PZ-4COTG	1~8
2	5	CD-4COTC	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-4COTC blade with PZ-4COTG daughter board is installed for trunks 1~8, the CD-PRTA (T1/PRI) blade automatically uses trunks 9~32. If CD-4COTC with PZ-4COTG 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 of the blades listed below, the system *must first be powered down*.

- CD-CP00-AU
- CC-CP00
- PZ-BS10 and PZ-BS11
- PZ-ME50-AU
- PZ-32IPLA, PZ-64IPLA and PZ-128IPLA
- PZ-VM21

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 capability. Refer to Program 90-05 in the UNIVERGE SV8100 Programming Manual for detailed programming information.

2.5 Blade Capacities

The universal architecture of the UNIVERGE SV8100/SV8300 provides flexibility when installing blades. With the exception of the CD-CP00-AU and CC-CP00 blades, any blade can be installed in any slot. Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7 provides a list of the blades and the maximum capacities with various chassis configurations.

2.6 Powering Up the SV8100

2.6.1 Performing a Cold Start

This section describes the process for starting the system for the first time or starting a system that has been turned off.

IMPORTANT CONSIDERATIONS

- ***System software loaded from flash memory and the customer data is erased 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-AU.

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. Once 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-AU.

2.6.3 Resetting the System

This section describes the process of resetting a system that is running. Observe the important information listed in 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 6-4 Default Port Settings

Station Ports:	Port 1~99 : 101~199 Port 100~199 : 3101~3200 Port 200~512 : 3201~3513
Virtual Station Ports:	Port 1~99 : 201~299 Port 100~199 : 3601~3700 Port 200~256 : 3701~3757
Trunk Ports:	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 will automatically detect and assign most circuit types when the device is connected.

1. Dial 10-03-01.
2. Press TRANSFER to Select the slot, port or channel (with DLC 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 type of device connected, 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-AU:

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 of saving the database – either using the PCPro application or saving directly to ( )B Memory on CD-CP00-AU. 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-AU 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 will require 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 within 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-AU blade.

When restoring a database file, as the slot definitions may be different, remove all blades from the system except the CD-CP00-AU and the CD-8DLCA/CD-16DLCA in slot 2. After the system has been reset, blades can be installed again. Program 10-03 or Program 90-04 can be used prior to updating to recordthe 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-AU.

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-AU 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-AU, 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-AU and CD-8DLCA/CD-16DLCA in slot 2. After the system has been reset, the blades can be reinstalled. Use Program 10-03 prior to updating to record the current slot definitions.***

To perform a system software and firmware upgrade:

1. Turn the system power off.
2. Once the system has powered down, insert the USB Memory containing the software upgrade into the USB port on the CD-CP00-AU.
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-AU 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 un-install 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-AU. The remaining four LEDs are off.

    - To confirm the new software version has been 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-AU (SV8100 Central Processing Unit)

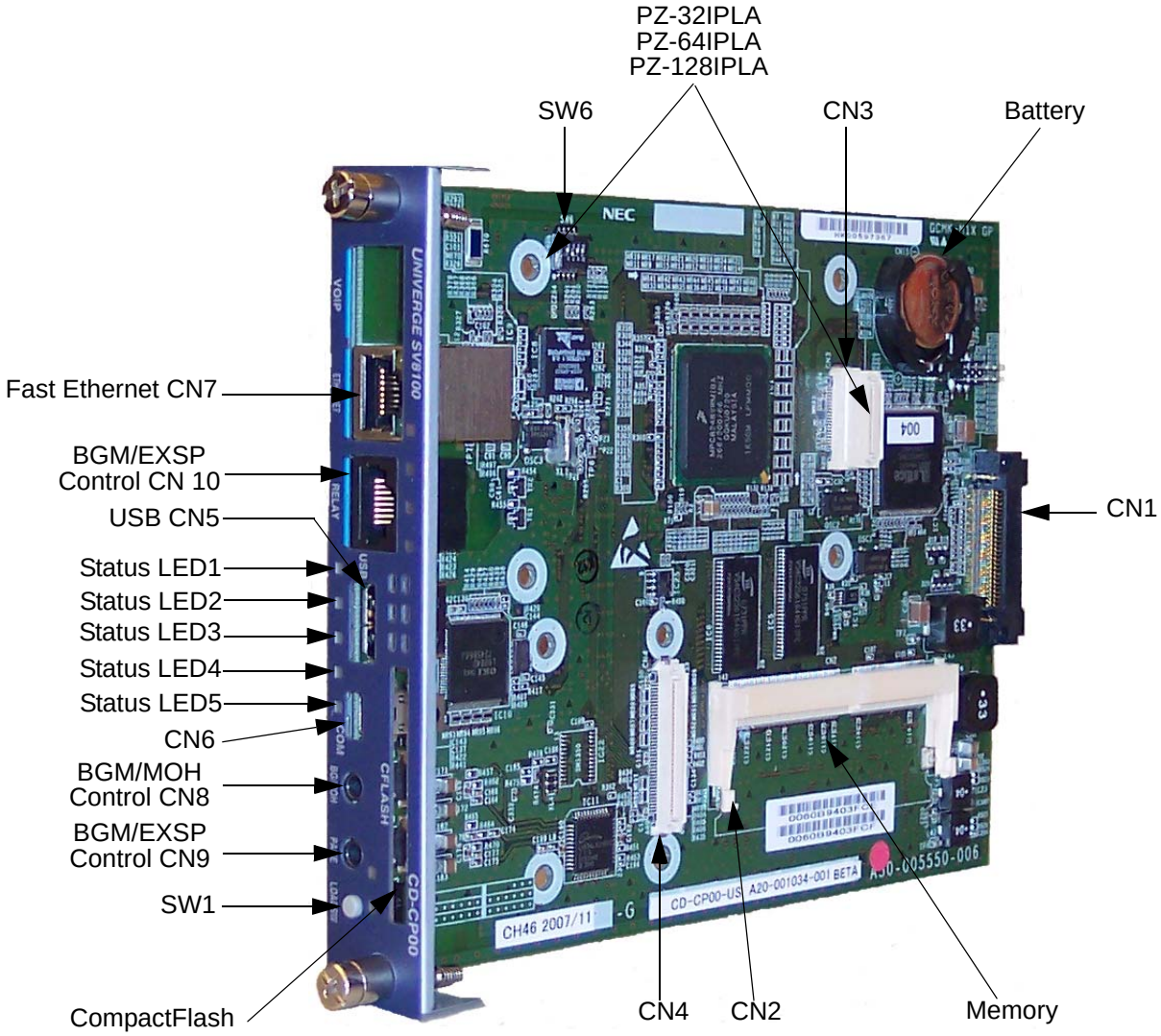


Figure 6-3 CD-CP00-AU Blade Layout

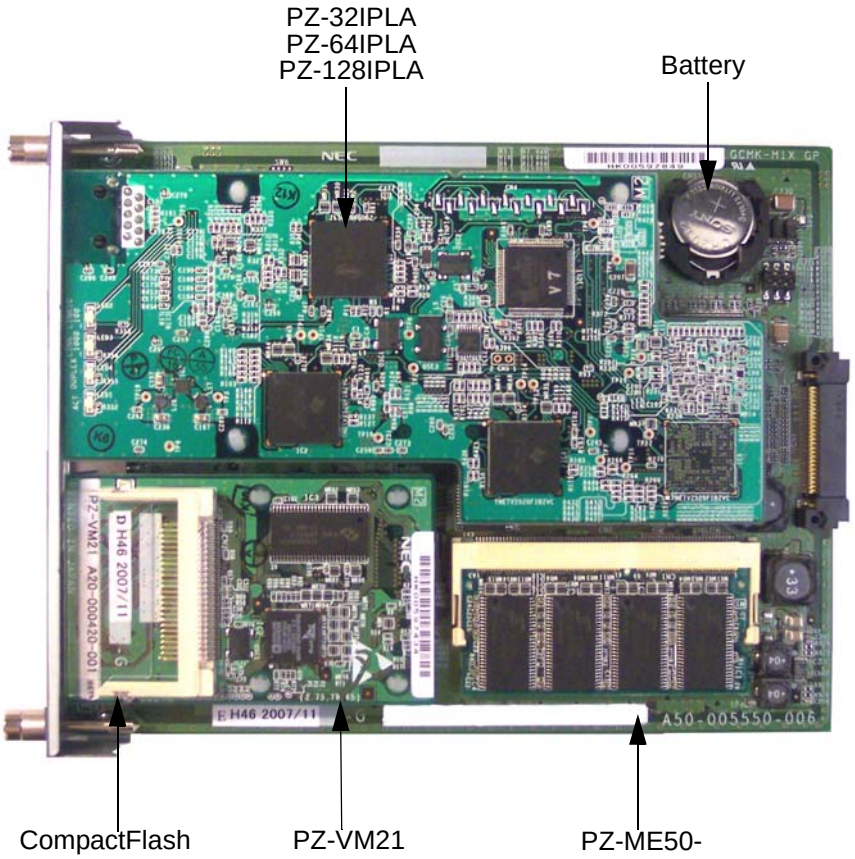


Figure 6-4 CD-CP00-AU Blade with Daughter Boards Installed

3.1.1 Description

The CD-CP00-AU blade is available only for the SV8100 system.

The CD-CP00-AU controls all the functions and operations of the SV8100 system using the system software loaded into the CD-CP00-AU memory. The system software can be upgraded as new software becomes available.

One CD-CP00-AU blade must be installed in the Controlling Chassis.

The CD-CP00-AU 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-AU provides:

- ❒ 200 trunk ports maximum
- ❒ 512 extension ports maximum
  - – 512 ports digital/IP extensions maximum
  - – 320 digital ports maximum
  - – 368 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-AU)
- ❒ 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 will be 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 (USA only))
- ❒ Call Progress Tone Detection

- C-Channel Control
- Conference: 64 Channels
- Caller ID Receiver; 32 Channels
- Caller ID Generator; 4 or 10 Channels for Analog Stations
- This can be expanded up to 20 by disabling 32 channels of the Conference circuits and disabling the MFC Tone Sender
- A load switch which is used for initial system startup, resetting the system, or when upgrading system software
- One Serial Port (Adapter module required)
- One USB Port – USB 1.1
  - *Memory size – minimum of 32MB (normally 512MB or 1GB) should be used.*
  - *USB device power consumption is less than 200mA(2W).*
- One Gbit Ethernet Port for VoIP function
- One CompactFlash Card Slot
- Background Music/EXSP Control Port
- Status LED
- BGM LED
- EXSP Control LED
- Two Audio Input/Output Terminals
- One General Purpose Control Terminal
- One Music On Hold External Source
- High-Level Data Link Control (HDLC) Packet Processing
- Real Time Clock (tolerance 30 seconds/month)
- Internal MOH Generation (supplied from Melody IC)
- 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-AU 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-AU ***installed in Slot 1*** of the Controlling Chassis.

IMPORTANT INSTALLATION NOTES

- ***The chassis power must be off when installing or removing the CD-CP00-AU.***
- ***After removing a previously installed CD-CP00-AU, 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-AU. The polarity "+" symbol must be on top as illustrated in Figure 6-5 CD-CP00-AU Battery Installation.

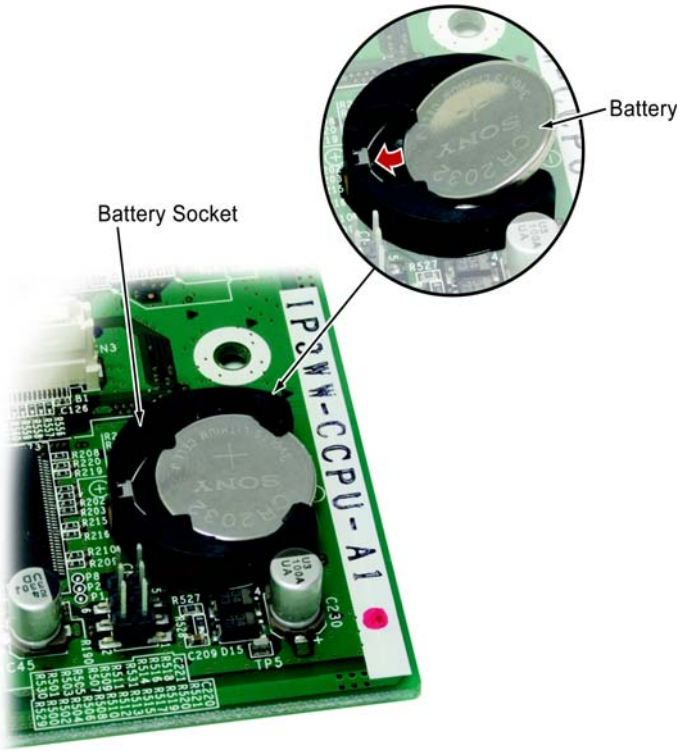


Figure 6-5 CD-CP00-AU Battery Installation

2. Refer to Figure 6-4 CD-CP00-AU Blade with Daughter Boards Installed on page 6-14 to Install the PZ-VM21, PZ-ME50-AU and/or PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter board, if required.

3. Ensure the power supply is **OFF**, then slide the CPU into the CCPU slot 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 CPU. The other end of the cable plugs into the music source.

   - Refer to the PGD(2)-U( ) ADP in the Chapter 10 Installing SV8100/SV8300 Optional Equipment section 2.1 Using a PGD(2)-U( ) ADP on page 10-1 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 6-7, 2.6.2 Performing a Hot Start on page 6-8, or 2.6.4 Performing a Software Upgrade on page 6-11.
   - Customer information is stored in the RAM memory and, in case of a power failure, will be restored. The lithium battery in the system saves the RAM memory when power is lost.

3.1.3 Switch Settings

Refer to Table 6-5 CD-CP00-AU Switch Settings for system restart/ system reset and with system power on. Figure 6-3 CD-CP00-AU Blade Layout on page 6-13 shows the location of the SW1 switch on the CD-CP00-AU blade.

Table 6-5 CD-CP00-AU Switch Settings

	USB Memory Status	Operation
Switch SW1 – Load Switch	**With a system restart or a system reset while holding the SW1 switch:**	
	When USB Memory is not installed:	Cold Start 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 6-6 CD-CP00-AU Switch 6 Settings

	Configuration	Note
SW6-1	OFF	Not Used
SW6-2	ON	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 CPU 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 6-7 CD-CP00-AU LED Indications on page 6-19 provides a list of each LED and associated operation and status indications. Refer to Figure 6-3 CD-CP00-AU Blade Layout on page 6-13 for the location of the LEDs on the CD-CP00-AU.

Table 6-7 CD-CP00-AU LED Indications

LED Indication					Status
RUN (LED1)	LED2	LED3	LED4	LED5	
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
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

Table 6-7 CD-CP00-AU LED Indications (Continued)

LED Indication					Status
RUN (LED1)	LED2	LED3	LED4	LED5	
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
On	Off	Off	Off	Off	System starting up

3.1.5 Connectors

Table 6-8 CD-CP00-AU Connections describes each connector on the CD-CP00-AU, Table 6-9 CD-LTA RJ11 Cable Connector Pin-Outs describes the pin-outs for connectors on the CCPU-A. Refer to Figure 6-3 CD-CP00-AU Blade Layout on page 6-13 for the location of the connections on the CD-CP00-AU blade.

Table 6-8 CD-CP00-AU Connections

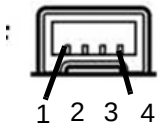
Connector	Connector Description
CN1	Backboard Connection
CN2	PZ-ME50-AU (Expanded Memory) Connection
CN3	PZ-32IPLA/PZ-64IPLA/PZ-128IPLA Connection
CN4	PZ-VM21 Blade Connection
CN5	USB Memory Connection (used for upgrading software or downloading system data)

Table 6-8 CD-CP00-AU Connections (Continued)

Connector	Connector Description
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)

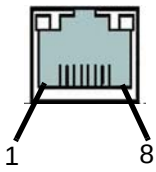
Table 6-9 CD-LTA RJ11 Cable Connector Pin-Outs

USB Cable Connector – CN5 (Type A, Female)
(USB 1.1/2.0 Standard)



Pin No.	Signal
1	Vcc
2	-D
3	+D
4	GND

Ethernet Cable Connector – CN7 (RJ-45)
(10Base-T/100Base-TX Port)



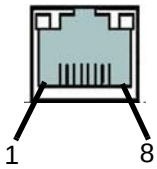
Pin No.	Connection
1	Tx+
2	Tx-
3	Rx+
4	–
5	–
6	Rx-
7	–
8	–

Pin Jack – CN8/CN9
(Polarity)

Pin No.	Signal
1	EXT1
2	EXT2

RJ-45 Cable Connector – CN10
(External Source Control)
(No Polarity)

Table 6-9 CD-LTA RJ11 Cable Connector Pin-Outs (Continued)



Pin No.	Connection
1	NC
2	NC
3	EXCNT2
4	EXCNT1
5	EXCNT1
6	EXCNT2
7	NC
8	NC

3.2 CC-CP00 (SV8300 Central Processing Unit)

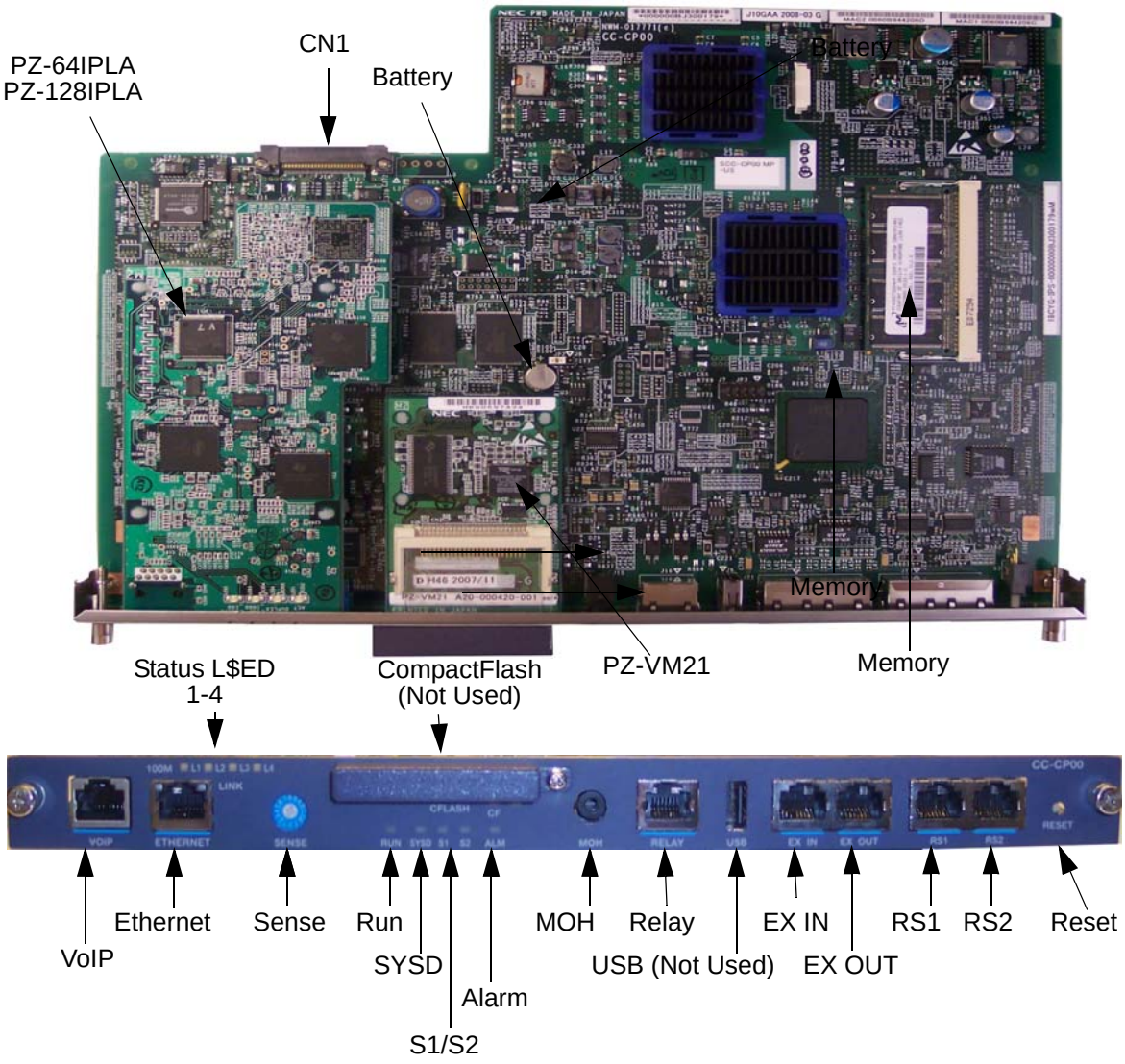


Figure 6-6 CC-CP00 Blade

3.2.1 Description

The CC-CP00 blade is available only for the SV8300 system.

The CC-CP00 controls all the functions and operations of the SV8300 system using the system software loaded into the CC-CP00 memory. The system software can be upgraded as new software becomes available.

One CC-CP00 blade must be installed in the Controlling Chassis. A second CPU can be installed in the first Expansion Chassis if additional VoIP or voice mail resources are required. A second CCPU can also be used for a CCPU redundancy feature (primary/secondary CCPUs) as a backup in case of a hardware failure. (The CCPUs must be programmed for primary/secondary operation.)

The CC-CP00 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 (MPC8260 @ 266 MHz)
- Time Switch, Optional Blade Control Circuit
- Backboard Interface Circuit

The CC-CP00 provides:

- 512 trunk ports maximum
- 1290 extension ports maximum (standalone)
  - 960 ports digital extension number
  - 1024 ports IP extension number
  - 1296 analog ports maximum
- 1500 extension ports maximum (Remote Unit)
  - 1500 ports digital and IP extension number
  - 1500 analog ports maximum
- 1000 virtual extensions
- Connection for 64/128 VoIP Daughter Blade (PZ-64IPLA, PZ-128IPLA)
- Connection for Modem Daughter blade (PZ-VM21)
- One Blue Status LED
- Three Green Status LEDs
- Two Red Status LEDs

- Six diagnostic LEDs which indicate the status of various system functions
- During normal operation, the “RUN” LED will be flashing and the remaining LEDs will be off.
- 1019x1019 Time Division Multiplex Switch (TDM Switch)
- Digital Phase Locked Loop (DPLL)
- Tone Generator
- Tone Processing DSP
- Connection for Memory Module
- DSP
- TDSW
- DTMF Tone Sender: 64 channels
- DTMF Tone Receiver: 64 channels
- DTG
- System Tone Sender
- MF Receiver: 64 channels
- MF Sender: 64 channels
- MF Signal Sender (Sends caller information to CO for E911 (USA only))
- CFT
- Call Progress Time Detection
- C-Channel Control
- Conference: 32 Channels
- Caller ID Receiver; 64 Channels
- Caller ID Generator; 16 Channels for Analog Stations
- A reset switch which is used for initial system startup, resetting the system, or when upgrading system software
- Two Serial Ports (null modem/cross-over cable required)
- One USB Port – USB 1.1/2.0 (requires USB driver – download from NEC web site) Not Used
- One Gbit Ethernet Port for VOIPDB
- One Fast Ethernet Port (10 Base-T/100 Base-TX)
- One CompactFlash Card Slot
- Status LED
- One EXIFU Interface Connector
- One Music On Hold External Source

- HDLC Packet Processing
- Real Time Clock (tolerance 30 seconds/month)
- Internal MOH Generation (supplied from Melody IC)
- Call Control Server (ex: Voice Mail Server, SIP Server, RTP Forwarding, VoCoder Conversion)
- One Connector for PAL EPROM
- One lithium battery (Sony CR2032 or equivalent) which provides battery back-up of system data and RAM memory for approximately 30 months

The CC-CP00 functions provided are:

- Call Control Server
- Voice Mail Server (voice mail requires a compact flash card)
- SIP Server
- RTP Forwarding
- VoCoder Conversion

3.2.2 Installation

Each SV8300 system ***must have the*** CC-CP00 ***installed in*** the Controlling Chassis.

IMPORTANT INSTALLATION NOTES

- ***The power to the chassis must be off when installing or removing the CC-CP00.***
- ***After removing a previously installed CPU 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. Remove the CC-CP00 and install the VMDB, MEMDB or VOIPDB daughter board, if required.
2. Ensure the power supply is **OFF**, then slide the CPU in the CCPU slot in the Controlling Chassis.
3. When the second CPU blade is installed in the Expansion Chassis, the system automatically assigns the primary and secondary designation. The CPU installed first is assigned as the primary.

4. If external Music on Hold (MOH) is being installed, plug the cable into the CN8 or CN9 pin jack connector on the CPU. The other end of the cable plugs into the music source.

   - Refer to the PGD(2)-U( ) ADP in Section 2 PGD(2)-U( ) ADP on page 10-1 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 Hot or Cold start-up can be used or the system can be upgraded using system software. Refer to 2.6.1 Performing a Cold Start on page 6-7, 2.6.2 Performing a Hot Start on page 6-8, or 2.6.4 Performing a Software Upgrade on page 6-11.
   - Customer information is stored in the RAM memory and is saved when a power failure occurs. The lithium battery in the system saves the RAM memoryt.

3.2.3 Switch Settings

Refer to Table 6-10 CC-CP00 Switch Settings for system restart/ system reset and with system power on. Figure 6-6 CC-CP00 Blade on page 6-22 shows the location of the switches on the CC-CP00 blade.

Table 6-10 CC-CP00 Switch Settings

Switch	Setting Position	Function
Reset (Push Switch)	–	For system reset
Sense (Rotary Switch)	0	On-line (Call processing is in progress): for Remote Unit
	1	On-line (Call processing is in progress): for Unit 1
	2	On-line (Call processing is in progress): for Unit 2
	3	On-line (Call processing is in progress): for Unit 3
	4	On-line (Call processing is in progress): for Unit 4
	8	Off-line (Call processing is stopped): Program upgrade (FTP)
	A	Off-line (Call processing is stopped): Standard office data setting
	E	Off-line (Call processing is stopped) RS1/RS2 port: 9600bps fixed ETHERNET/VOIP port: Default setting*
	F	Off-line (Call processing is stopped) RS1/RS2 port: AS per CM40Y=08 ETHERNET/VOIP port: Default setting*
	5-7, B-D	Not Used

* = For details, refer to Command Manual

3.2.4 LED Indications

Table 6-11 CC-CP00 LED Indications provides a list of each LED and its associated operation and status indications. Refer to Figure 6-6 CC-CP00 Blade on page 6-22 for the location of the LEDs on the CC-CP00.

Table 6-11 CC-CP00 LED Indications

LED	Color	Status	
RUN	Blue	Status indications of CPU blade operation.	
		Off	No operation
		Blinking (Slowly)	Off-line/program upgrade (Off-line).
		Blinking (120IPM)	On-line (system operating normally).
SYSD	Red	Status indications of Flash ROM access	
		Off	Normal Status
		Blinking	Blinking while copying the system data from the flash memory to the SDRAM.
S1	Green	Status indications on system reset.	
		Blinking (120IPM)	Blinking while copying the CPU program from the flash memory to the SDRAM
		Status indications on CPU Program Upgrade (On-line).	
		On	Remains lit after the CPU program download to the flash memory (outdated side) is completed.
		Blinking (240IPM)	Blinking while downloading the CPU program to the flash memory (outdated side).
		Blinking (120IPM)	Blinking after the CPU program download to the flash memory (outdated side) is interrupted/fails.
		Blinking (60IPM)	Blinking while copying the program of flash memory (upgraded side) to the flash memory (outdated side).
		Blinking specially (On : Off = 7 : 3)	Blinking when the program copy from the flash memory (upgraded side) to the flash memory (outdated side) is completed.
		Off	Off when the program change of the flash memory (outdated side) is completed.
		Status indications on CPU Program Upgrade (Off-line)	
		On	Remains lit after the CPU program download to the flash memory (outdated side) is completed.
		Off	Off when the program change of the flash memory (outdated side) and the flash memory (upgraded side) is completed.
S2	Green	Status indications on system reset.	
		Blinking	Blinking while copying the system data from the flash memory to the SDRAM or while downloading the DSP firmware program.
		Status indications of VoIPDB.	
		Off	VoIPDB is not mounted/Office data is not assigned/VoIP license is short.
		On	VoIPDB is mounted (When the connection is established).
		Blinking	VoIPDB is mounted (when sending/receiving a packet).

Table 6-11 CC-CP00 LED Indications (Continued)

LED	Color	Status	
ALM	Red	Status indications of MJ/MN alarm.	
		On	MJ alarm
		Blinking	MN alarm
		Off	Normal status
LINK	Green	Status indications of link on ETHERNET port.	
		On	Link is established
		Blinking	Link is established (When receiving a packet.)
		Off	Link is not established
100M	Green	Status indications of data speed on ETHERNET port.	
		On	100Mbps
		Off	10Mbps
CF	–	Not Used	

3.2.5 Connectors

Table 6-12 CC-CP00 Connections describes each connector on the CD-CP00-AU, Table 6-13 CC-CP00 Connector Pin-Outs on page 6-29 describes the pin-outs for connectors on the CCPU-A. Refer to Figure 6-6 CC-CP00 Blade on page 6-22 for the location of the connections on the CCPU-A1 blade.

Table 6-12 CC-CP00 Connections

Connector	Connector Description
CN1	Backboard connection
J13	VoIPDB connection
J8	VMDB connection
ETERNET	Ethernet cable connection (for PCPro, SMDR, PMS or OAI)
MOH	Pin jack for external source connection (External MOH)
RELAY	External source control connection
EX IN/EX OUT	Unit synchronization connection for the wireless system
RESET	System reset switch
RS1/RS2	RS-232C port (for PCPro, SMDR, MCI or printer)

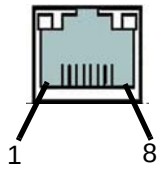
The CPU supports the following:

- Expansion Chassis
- DSPDB Daughter Board (providing 32 channels for the DTMF Receiver, Call Progress Tone Detection and Caller ID Receivers)
- Third-Party CTI/TAPI 2
- 16VOIPU Blade and 16VOIPDB

- T1 Trunks
- ACD/inDepth
- PRI Trunks
- BRI S-Bus/T-Bus
- E&M Trunks
- Networking

Table 6-13 CC-CP00 Connector Pin-Outs

Ethernet Cable Connector – ETHERNET (RJ-45)
(10Base-T/100Base-TX)

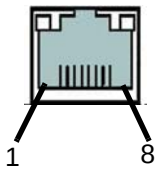


Pin No.	Signal
1	TX-
2	Rx+
3	NC
4	NC
5	Rx-
6	NC
7	NC
8	TX+

Pin Jack – MOH
(No Polarity)

Pin No.	Signal
1	EXT1
2	EXT2

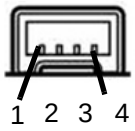
RJ-45 Cable Connector – RELAY
(External Source Control)
(No Polarity)



Pin No.	Signal
1	NC
2	NC
3	EXCNT2
4	EXCNT1
5	EXCNT1
6	EXCNT2
7	NC
8	NC

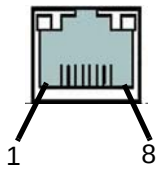
Table 6-13 CC-CP00 Connector Pin-Outs (Continued)

USB Cable Connector – USB (Type A, Female)
(USB 1.1/2.0 Standard) [Not Used]



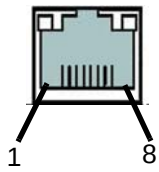
Pin No.	Signal
1	Vcc
2	-D
3	+D
4	GND

RJ-45 Cable Connector – EX IN/EX OUT
(Polarity)



Pin No.	Signal
1	NC
2	NC
3	NC
4	FS-
5	FS+
6	NC
7	NC
8	NC

RJ-45 Cable Connector – RS1/RS2
(RS-232C)



Pin No.	Signal
1	CTS
2	DTR
3	TXD
4	DCD
5	GND
6	RXD
7	DSR
8	RTS

3.3 PZ-ME50-AU (Memory Expansion Daughter Board)

Figure 6-7 PZ-ME50-AU Daughter Board

3.3.1 Description

The PZ-ME50-AU Daughter Board is available for the SV8100 systems.

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-AU and provides the SDRAM, Flash Memory and SRAM. Table 6-14 PZ-ME50-AU Capacities on page 6-31 lists each memory type and its capacity.

Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7 provides the maximum capacities for the PZ-ME50-AU daughter board when upgraded.

Table 6-14 PZ-ME50-AU Capacities provides the memory capacities for the PZ-ME50-AU blades.

Table 6-14 PZ-ME50-AU 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 6-15 PZ-ME50-AU Capacities provides the maximum capacities for the PZ-ME50-AU blade.

Table 6-15 PZ-ME50-AU Capacities

	Basic System (CD-CP00-AU)	Memory Expansion Board PZ-ME50-AU	System 256 Port License	System Unlimited Port License	∗ NetLink (Networked Chassis)
64 Ports without PZ-ME50-AU	X	–	–	–	–
64 Ports with PZ-ME50-AU (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 1 CD-LTA blade can be installed when the CD-CP00-AU is installed with the PZ-ME50-AU. Up to 4 CD-LTA blades can be installed per system (one per chassis) when the PZ-ME50-AU is installed on the CD-CP00-AU.*

✎ *Only 8 ports of VRS are available when thePZ-ME50-AU is not installed on the CD-CP00-AU.*

3.3.2 Installation

To install a PZ-ME50-AU on the CD-CP00-AU or CC-CP00:

Do not remove or install the CD-CP00-AU with the power on.

For installation on the CD-CP00-AU blade refer to Figure 6-4 CD-CP00-AU Blade with Daughter Boards Installed on page 6-14. For installation on the CC-CP00 blade, refer to Figure 6-6 CC-CP00 Blade on page 6-22.

✎ *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-AU.***
- ***CD-CP00-AU without the PZ-ME50-AU installed, supports a single chassis system only (six slots only).***
- ***CD-CP00-AU with the PZ-ME50-AU is required to support a system with multiple chassis.***
- ***CD-CP00-AU without the PZ-ME50-AU 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. If the PZ-ME50-AU has not been physically installed on the CD-CP00-AU, do not attempt to change the PCPro database configuration to indicate that the PZ-ME50-AU has been installed on the CD-CP00-AU, program ports 64 and higher and then upload the PCPro configuration to the SV8100 system. This process can cause the SV8100 database to become corrupted. Refer to the next bullet for the proper installation/programming procedure.***
- ***To properly install and configure the PZ-ME50-AU; first install the PZ-ME50-AU on the CD-CP00-AU. To program the ports above 64 using PCPro, perform a new download before attempting to program the ports.***

3.4 PZ-VM21 (Voice Mail Daughter Board)

Figure 6-8 PZ-VM21 Daughter Board

3.4.1 Description

The PZ-VM21 is common to both UNIVERGE SV8100/SV8300 systems.

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 a modemfor remote maintenance functions. Its robust feature set rivals the abilities of standalone products on a single, plug-in voice mail blade.

✎ *In the SV8300, the PZ-VM21 can provide only an optional modem ability for remote maintenance functions.*

This daughter board is installed on either the CD-CP00-AU or CC-CP00.

The daughter board available is:

- PZ-VM21 – providing eight channels for VRS voice mail (a compact flash card is required for VRS voice mail) and a single channel V34 modem.

Refer to the following table for maximum upgrade capacity of the PZ-VM21 daughter board:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

Depending on the compact flash card used, the voice mail can provide:

Table 6-16 CompactFlash Voice Mail Specifications

UNIVERGE SV8100/SV8300 VM8000 InMail Part Numbers and Capacities	
4422043	UNIVERGE SV8100/SV8300 VM8000 InMail 512M Drive ○ (1) 32-hour CompactFlash Card with software.
4426022	UNIVERGE SV8100/SV8300 VM8000 InMail 8-Port License
4426020	UNIVERGE SV8100/SV8300 VM8000 InMail 2-Port License
4426021	UNIVERGE SV8100/SV8300 VM8000 InMail 4-Port License
4426023	Language License
4422011	CD-VM21 Daughter Board Interface for InMail CF.
Mailboxes:	Station Mailboxes = 512 Routing Mailboxes = 32 Group Mailboxes = 32 Total Mailboxes = 576

3.4.2 Installation

To install a PZ-VM21 on the CD-CP00-AU or CC-CP00:

Do not remove or install the CD-CP00-AU or CC-CP00 with the power on.

1. Included with the PZ-VM21 are four plastic spacers. 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 6-9 Installing the PZ-VM21 on page 6-36.

2. For installation on the CD-CP00-AU blade refer to Figure 6-4 CD-CP00-AU Blade with Daughter Boards Installed on page 6-14. For installation on the CC-CP00 blade, refer to Figure 6-6 CC-CP00 Blade on page 6-22.

3. Position the PZ-VM21 CN1 connector over the CN4 connector on the CD-CP00-AU blade. Press the boards together, ensuring the plastic spacers lock in place.

4. Insert the CompactFlash card into the CN2 slot.

   ✎ *The LED1 status lights steadily when a card is installed.*

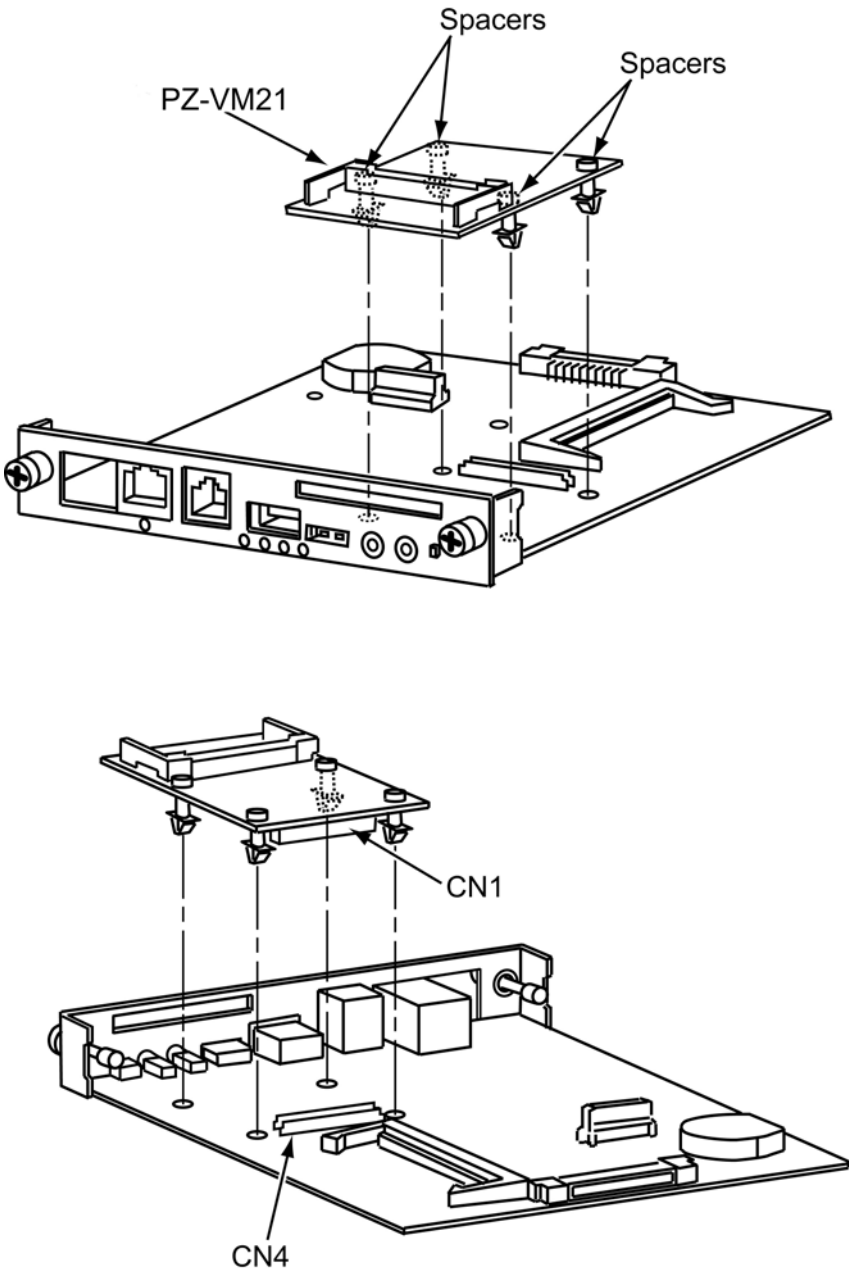


Figure 6-9 Installing the PZ-VM21

One PZ-VM21 blade providing InMail can be installed per system.

Refer to the UNIVERGE SV8100/SV8300 System InMail System Guide for complete set-up information.

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.

3.5 PZ-32IPLA/PZ-64IPLA/PZ-128IPLA (Voice over IP Daughter Boards)

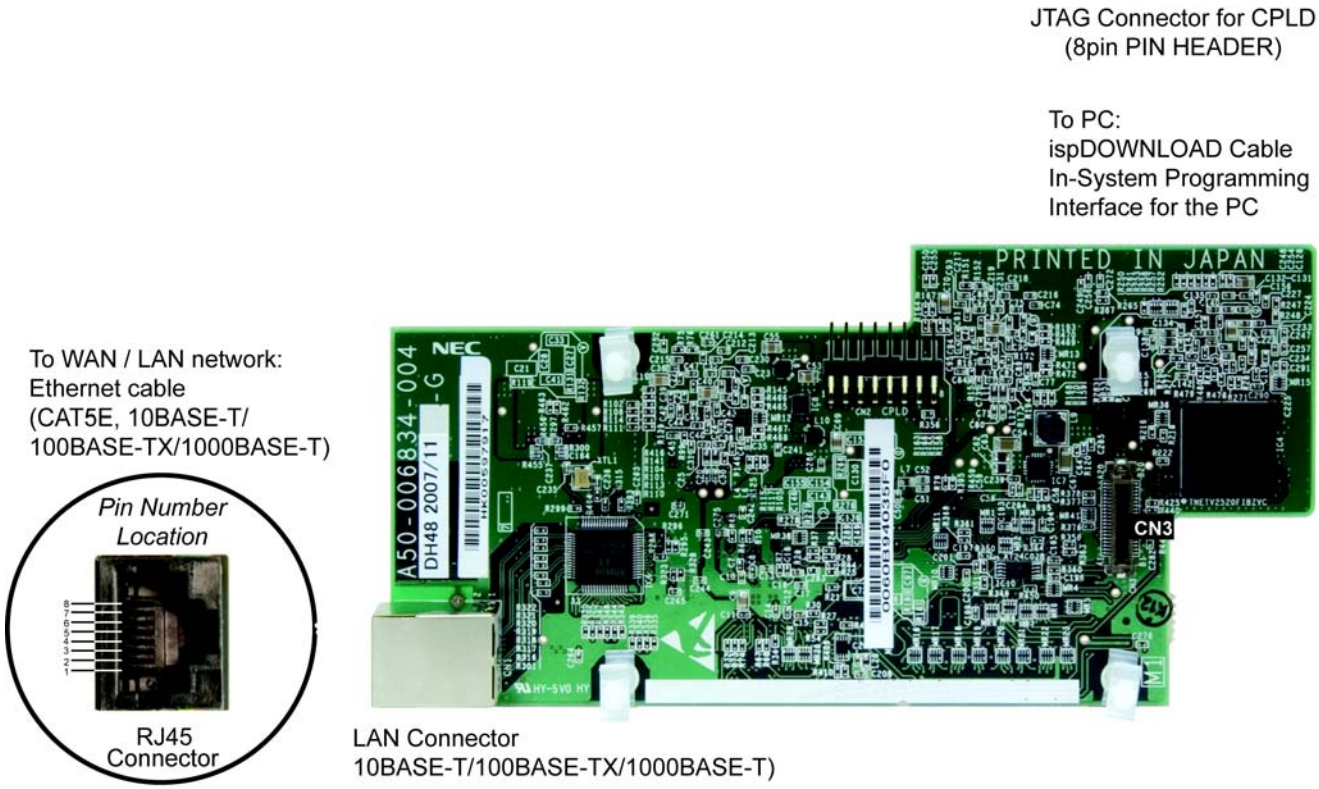


Figure 6-10 IPLA Daughter Board

3.5.1 Description

The PZ-32IPLA, PZ-64IPLA and PZ-128IPLA daughter boards are common to both UNIVERGE SV8100/SV8300 systems.

The PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter boards are 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-AU/CC-CP00. 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 into 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/ SV8300 telephones, and place or receive outside calls.

The VoIP daughter board provides the voice (RTP/RTCP) processing function. The call control function is mounted on the CPU. Only one version of the VOIPDB (32, 64, or 128) can be installed on the CPU at a time.

The VOIPDB daughter board provides:

- ❒ 32 (PZ-32IPLA) channels
- ❒ 64 (PZ-64IPLA) channels

- 128 (PZ-128IPLA) channels

Refer to the following table for maximum upgrade capacities of the PZ-32IPLA,/PZ-64IPLA/PZ-128IPLA daughter boards:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

When installing an IPLA daughter board, thesystem allocates the maximum number of trunk ports for the blade being installed.

This daughter board is installed on either the CD-CP00-AU or CC-CP00.

3.5.2 Installation

To install a PZ-32IPLA/PZ-64IPLA/PZ-128IPLA on the CD-CP00-AU or CC-CP00 :

Do not remove or install the CD-CP00-AU or CC-CP00 with the power on.

1. With the system power off, remove the CD-CP00-AU or CC-CP00.
2. Install the IPLA daughter board on the CD-CP00-AU or CC-CP00 blade.
3. Insert the CD-CP00-AU into slot 1 in the Controlling Chassis or, the CC-CP00 into the CHS1U-AU.

   ✎ *Refer to Figure 4-25 19" Controlling Chassis – Guides Slot 1 on page 4-25 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.

3.5.3 Switch Settings

This daughter board does not have any switch that needs to be set and does not require any hardware setting.

3.5.4 LED Indications

LED indications for the PZ-32IPLA, PZ-64IPLA and PZ-128IPLA Daughter Boards are indicated in Table 6-17 IPLA Daughter Board LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-4 CD-CP00-AU Blade with Daughter Boards Installed on page 6-14 or Figure 6-6 CC-CP00 Blade on page 6-22 for the location of the LEDs on the blades.

Table 6-17 IPLA Daughter Board LED Indications

LED	Function	LED Status	Operation Status
Link 10/100 (LED 1)	10Base-T/100 Base-TX link speed indicator	On Red	100 Base-TX link up
LINK 1000 (LED2)	1000Base-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 6-18 IPLA Daughter Board LED CN1 Transmit/Receive Data Indications

LED	Link Up									
	Auto Negotiation Mode					Force Mode				
	1000 M bps	100Mbps		10Mbps		1000 M bps	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

3.5.5 Connectors

Figure 6-11 VoIP Connections shows a typical connection layout. Figure 6-12 Connecting an IPLA Daughter Board to a Network/PC illustrates how to connect a VoIP Daughter Board to a Network or PC.

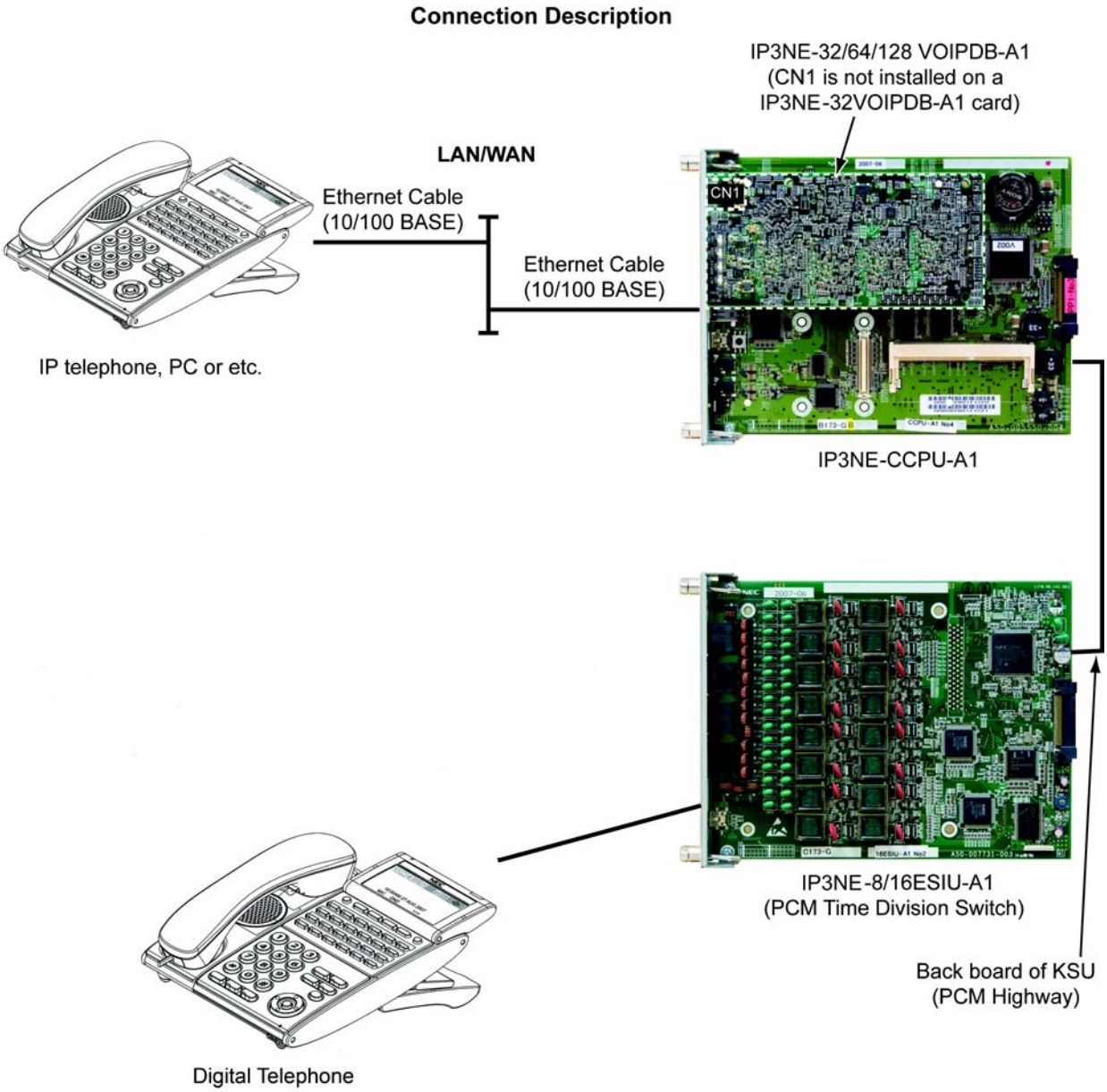


Figure 6-11 VoIP Connections

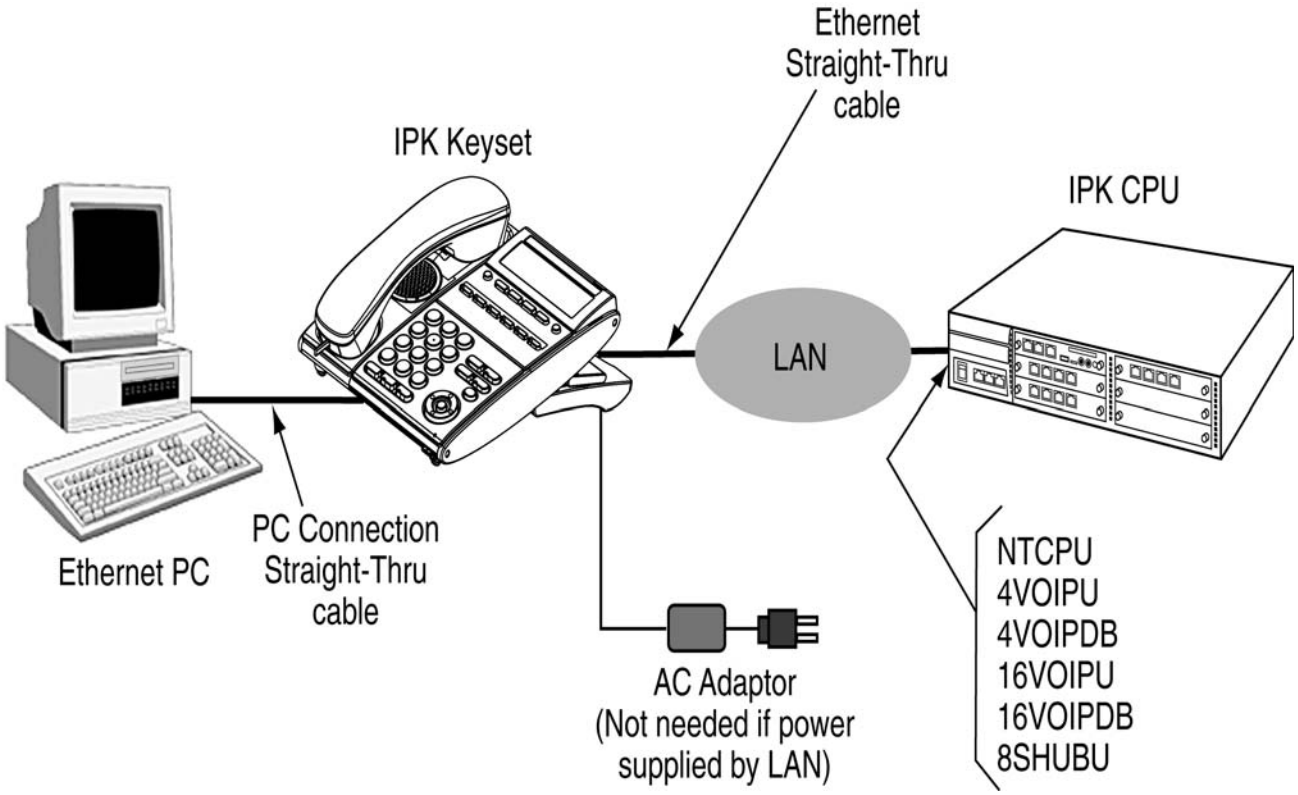


Figure 6-12 Connecting an IPLA Daughter Board to a Network/PC

SECTION 4 STATION BLADES

4.1 CD-8DLCA/CD-16DLCA (Digital Station Interface)

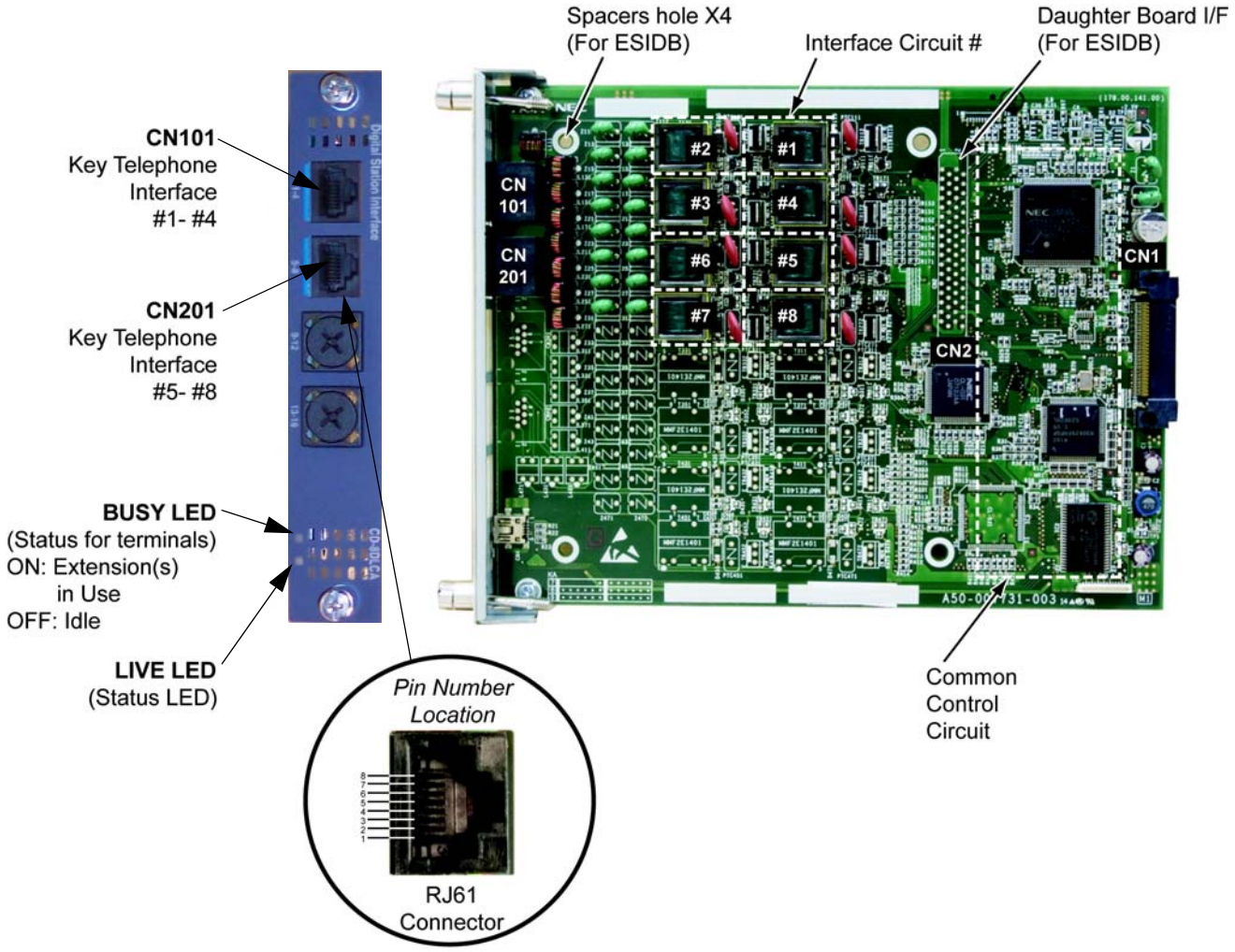


Figure 6-13 CD-8DLCA Blade

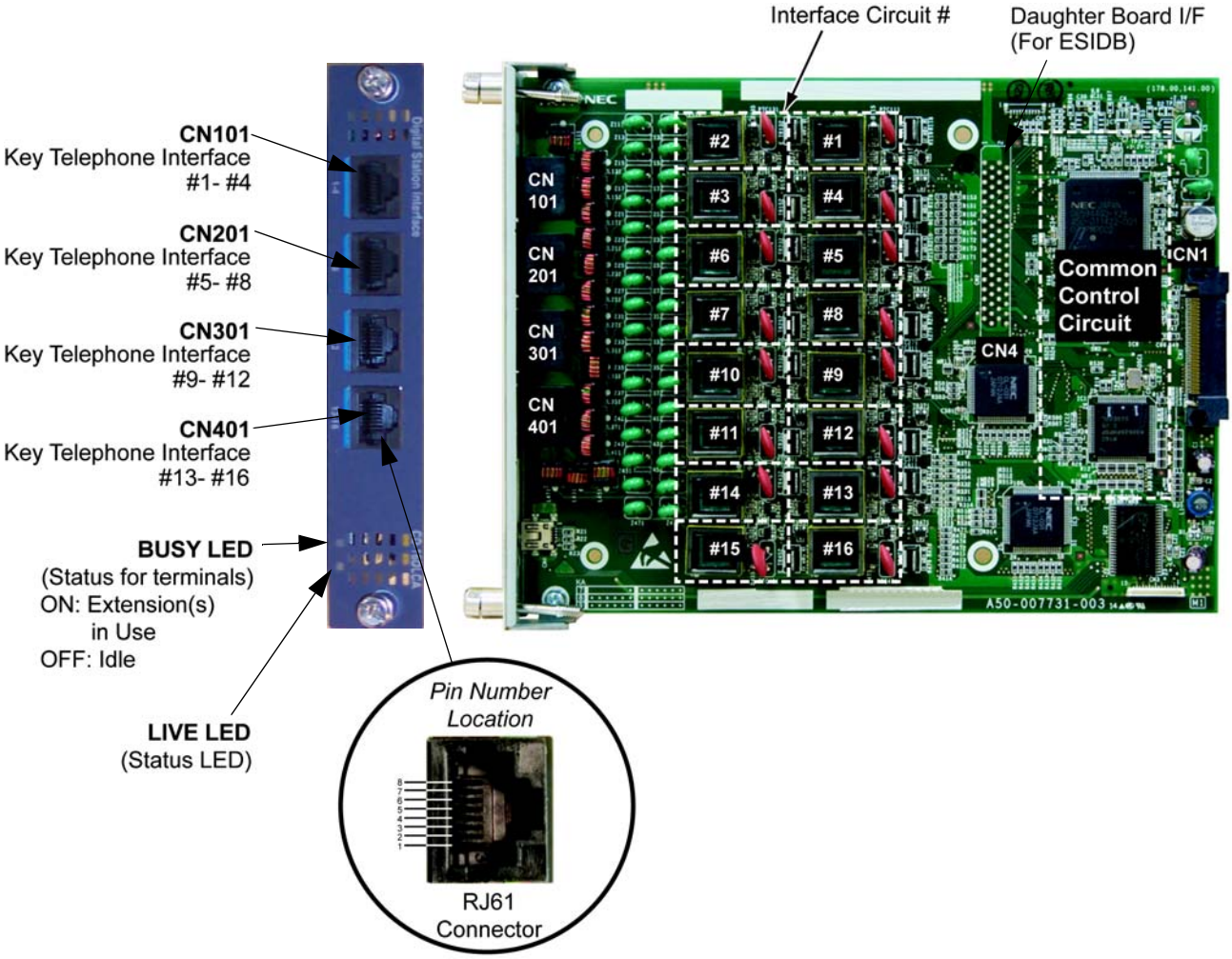


Figure 6-14 CD-16DLCA Blade

4.1.1 Description

The CD-8DLCA and the CD-16DLCA are available for both the SV8100 and SV8300 systems. Both are 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, PGD(2)-U( ) ADP adapters)
- These ports provide -48V feeding.
- Two blade status LEDs – One Live LED, One Busy/Idle LED

Refer to the following table for maximum upgrade capacity of the CD-8DLCA/CD-16DLCA ESIU blades:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

4.1.2 Installation

The CD-8DLCA/CD-16DLCA blades 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-8DLCB/CD-16DLCA:

1. If installing the CD-8DLCA and the PZ-8DLCB daughter board is to be attached, do it now. Refer to 4.2.2 Installation on page 6-46.

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 6-19 CD-8DLCA/CD-16DLCA LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-13 CD-8DLCA Blade and Figure 6-14 CD-16DLCA Blade for the location of the LEDs on the blades.

Table 6-19 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.	–
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.		–

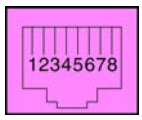
4.1.4 Connectors

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 CN401connectors are removed from the blade.

Any cabling to the DLCA blade must be in the building - no outside cabling is permitted.

Table 6-20 CD-8DLCA/CD-16DLCA/ RJ-61 Cable Connector Pin-Outs on page 6-45 show the pin-outs for the RJ-61 connector. Refer to Figure 6-13 CD-8DLCA Blade on page 6-42 and Figure 6-14 CD-16DLCA Blade on page 6-43 for the location of the connectors on the ESIU blades.

Table 6-20 CD-8DLCA/CD-16DLCA/ RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector CD-8DLCA – CN101 (ports 1~4), CN201 (ports 5~8) CD-16DLCA – CN101 (ports 1~4), CN201 (ports 5~8), CN301 (ports 9~12), CN401 (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)

4.2 PZ-8DLCB (Digital Station Daughter Board)

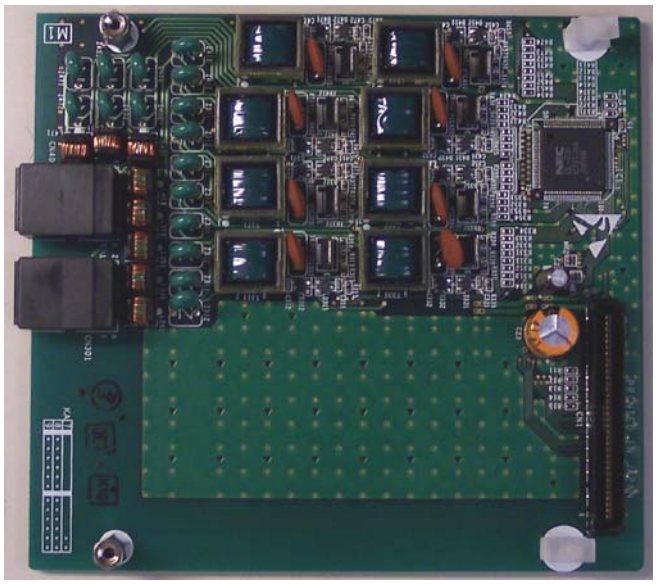


Figure 6-15 PZ-8DLCB Blade

4.2.1 Description

The PZ-8DLCB daughter board is common to both UNIVERGE SV8100/SV8300 systems.

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 table for maximum upgrade capacity of the PZ-8DLCB blades:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

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 6-13 CD-8DLCA Blade on page 6-42 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 6-14 CD-16DLCA Blade for connector locations.

The following tables show the cable connections of the two RJ-61 connectors on the PZ-8DLCB.

Table 6-21 PZ-8DLCB CN301 Connection

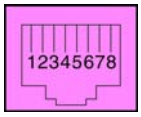
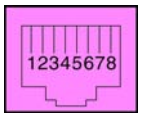
RJ-61 Cable Connector CN301 (ports 9~12)		
	**Pin No.**	**Connection**
	1	(T4) Tip for port 12
	2	(T3) Tip for port 11
	3	(T2) Tip for port 10
	4	(R1) Ring for port 9
	5	(T1) Tip for port 9
	6	(R2) Ring for port 10
	7	(R3) Ring for port 11
	8	(R4) Ring for port 12

Table 6-22 PZ-8DLCB CN401 Connection

RJ-61 Cable Connector CN401 (ports 13~16)		
	**Pin No.**	**Connection**
	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)

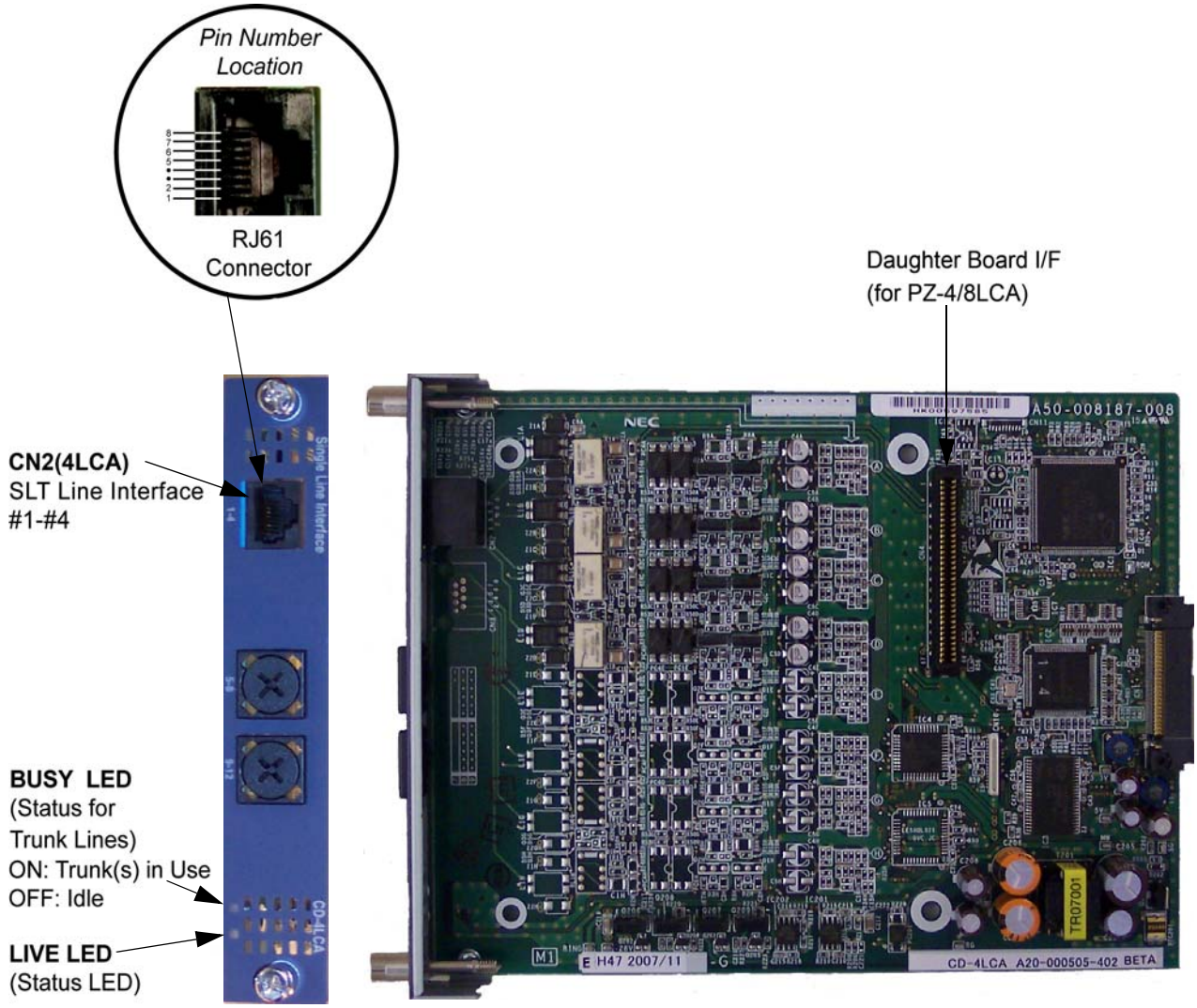


Figure 6-16 CD-4LCA Blade

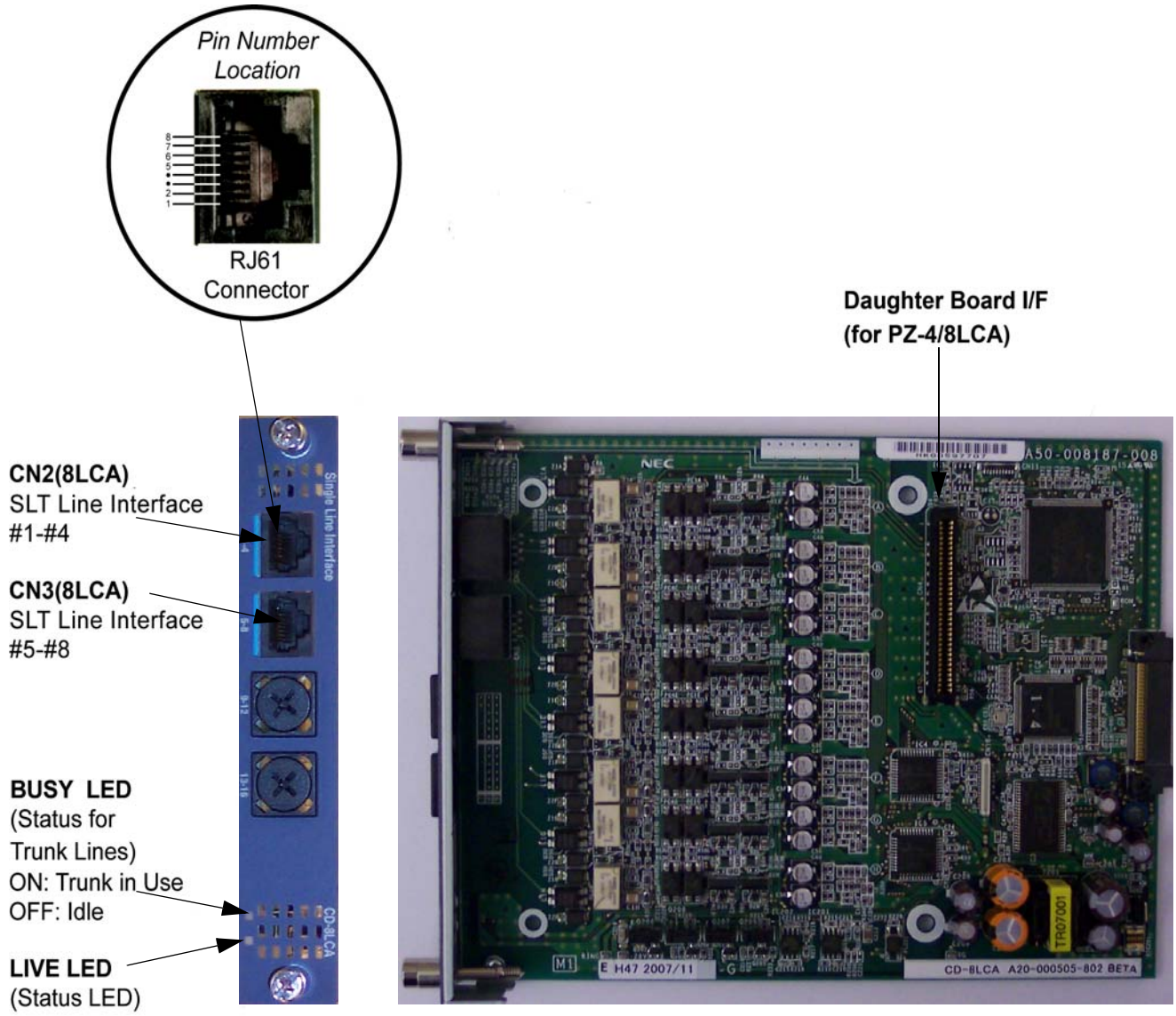


Figure 6-17 CD-8LCA Blade

4.3.1 Description

The CD-4LCA/CD-8LCA blade is common to both UNIVERGE SV8100/SV8300 systems.

The 4/8LC blades provide four (4LC) analog extension ports or eight (8LC) analog extension ports (used for on-premise analog telephones, fax machines, and analog modems).

The 4LC and 8LC are not rated for OPX use. A 4DIOPU 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
- ❒ Two blader status LEDs

- Constant current type battery feeding (25mA / -28Vdc)
- Feeding Polarity Reverse Ability
- Connector for PZ-4LCA/PZ-8LCE Daughter Boards
- 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 table for maximum upgrade capacity of the CD-4LCA/ CD-8LCA SLIU blades:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

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/PZ-4/8LCA blades and the PZ-4LCA/ PZ-8LCE daughter boards 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 into any available universal slot.

✎ *If the PZ-4LCA/PZ-8LCE is used, install this prior to inserting the CD-8LCA into the chassisLED Indications*

LED indications for the CD-4LCA/CD-8LCA are listed in Table 6-23 CD-4LCA/CD-8LCA LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-16 CD-4LCA Blade on page 6-48 and Figure 6-17 CD-8LCA Blade on page 6-49 for the location of the LEDs on the blades.

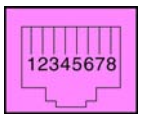
Table 6-23 CD-4LCA/CD-8LCA LED Indications

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.		–

4.3.3 Connectors

Table 6-24 CD-4LCA/CD-8LCA RJ-61 Cable Connector Pin-Outs show the pin-outs for the RJ-61 connector. Figure 6-16 CD-4LCA Blade on page 6-48 and Figure 6-17 CD-8LCA Blade on page 6-49 show the location of the connectors and the pin number locations on the CD-4LCA/ CD-8LCA blades

Table 6-24 CD-4LCA/CD-8LCA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector CD-4LCA – CN2 (ports 1~4) CD-8LCA – CN2 (ports 1~4), CN3 (ports 5~8)		
	**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)

4.4 PZ-4LCA/PZ-8LCE (4-Port/8-Port SLI Daughter Boards)

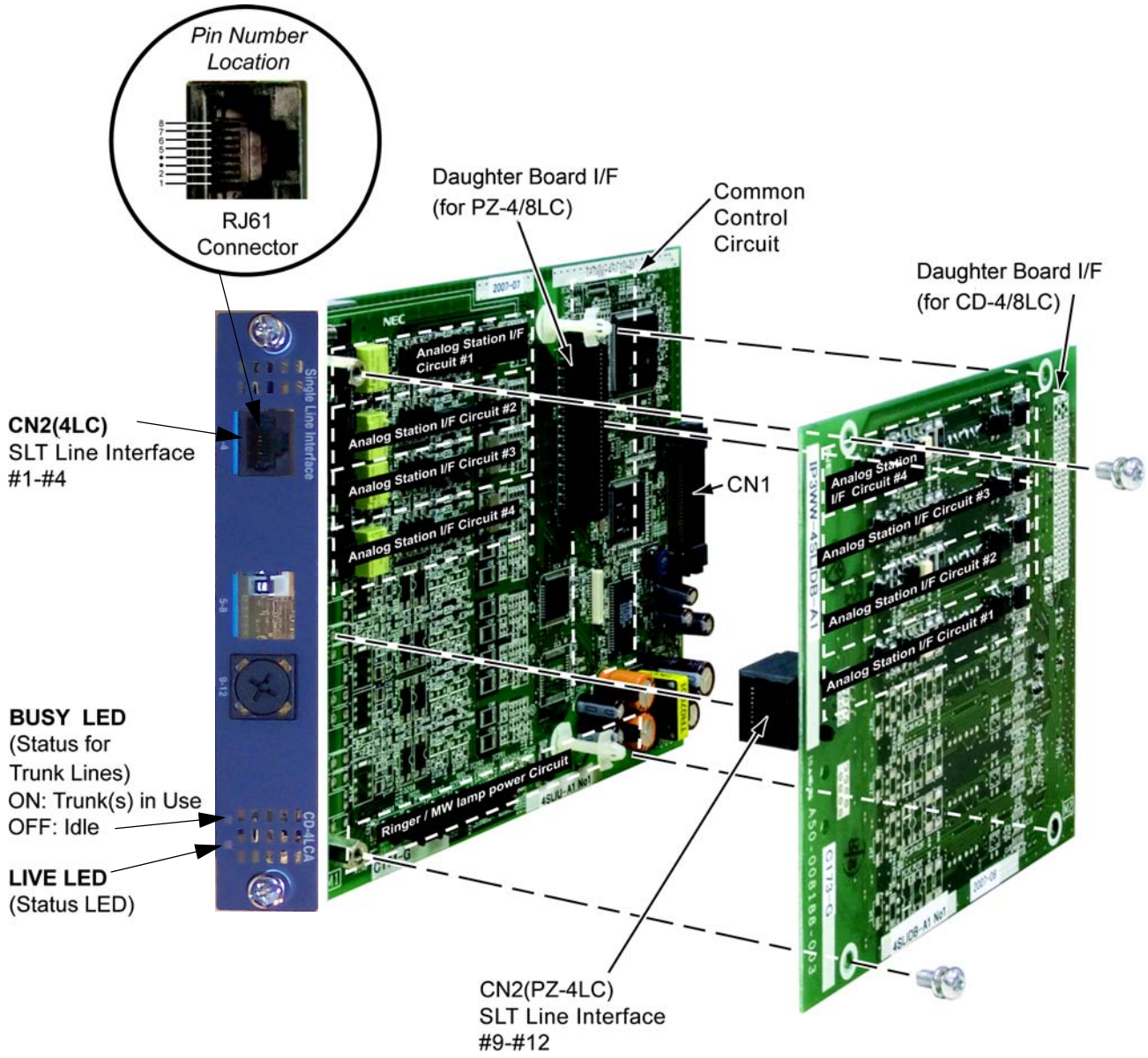


Figure 6-18 Installing the PZ-4LCA Daughter Board

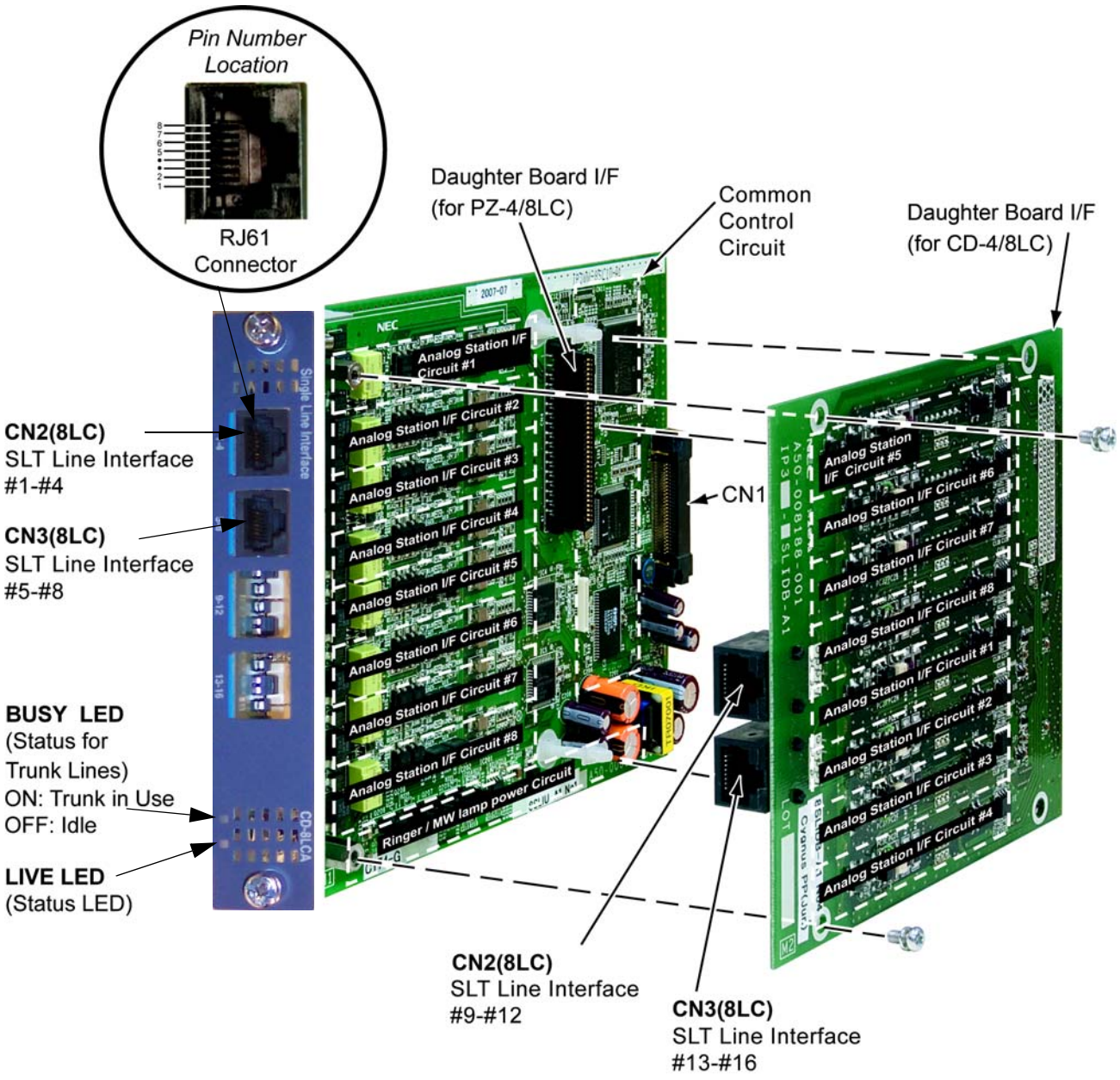


Figure 6-19 Installing the PZ-8LCE Daughter Board

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
- One extension status LED
- Two status LEDs
- 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) and 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 table for maximum upgrade capacity of the PZ-4LCA/PZ-8LCE SLI daughter boards:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

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 blades and the PZ-4LCA/PZ-8LCE daughter boards are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to these blades or daughter boards must be within 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. Included with thePZ-4LCA/PZ-8LCE are four plastic spacers. 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. Figure 6-18 Installing the PZ-4LCA Daughter Board on page 6-52 and Figure 6-19 Installing the PZ-8LCE Daughter Board on page 6-53 show the location of the connectors on the PZ-4LCA/PZ-8LCE daughter boars..

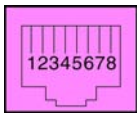
2. Position the PZ-4LCA/PZ-8LCE CN1 connector over the CN4 connector on the SLIU blade. Press the boards together, ensuring the plastic spacers lock in place. Refer to Figure 6-18 Installing the PZ-4LCA Daughter Board on page 6-52 and Figure 6-19 Installing the PZ-8LCE Daughter Board on page 6-53.

3. Install the PZ-4LCA/PZ-8LCE blade into the slot in the chassis.

4.4.3 Connectors

Table 6-25 PZ-4LCA/PZ-8LCE/ RJ-61 Cable Connector Pin-Outs show the pin-outs for the RJ-61 connector. Refer to Figure 6-18 Installing the PZ-4LCA Daughter Board on page 6-52 and Figure 6-19 Installing the PZ-8LCE Daughter Board on page 6-53 for illustrations showing the location of the connectors on the SLIDB blades.

Table 6-25 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)

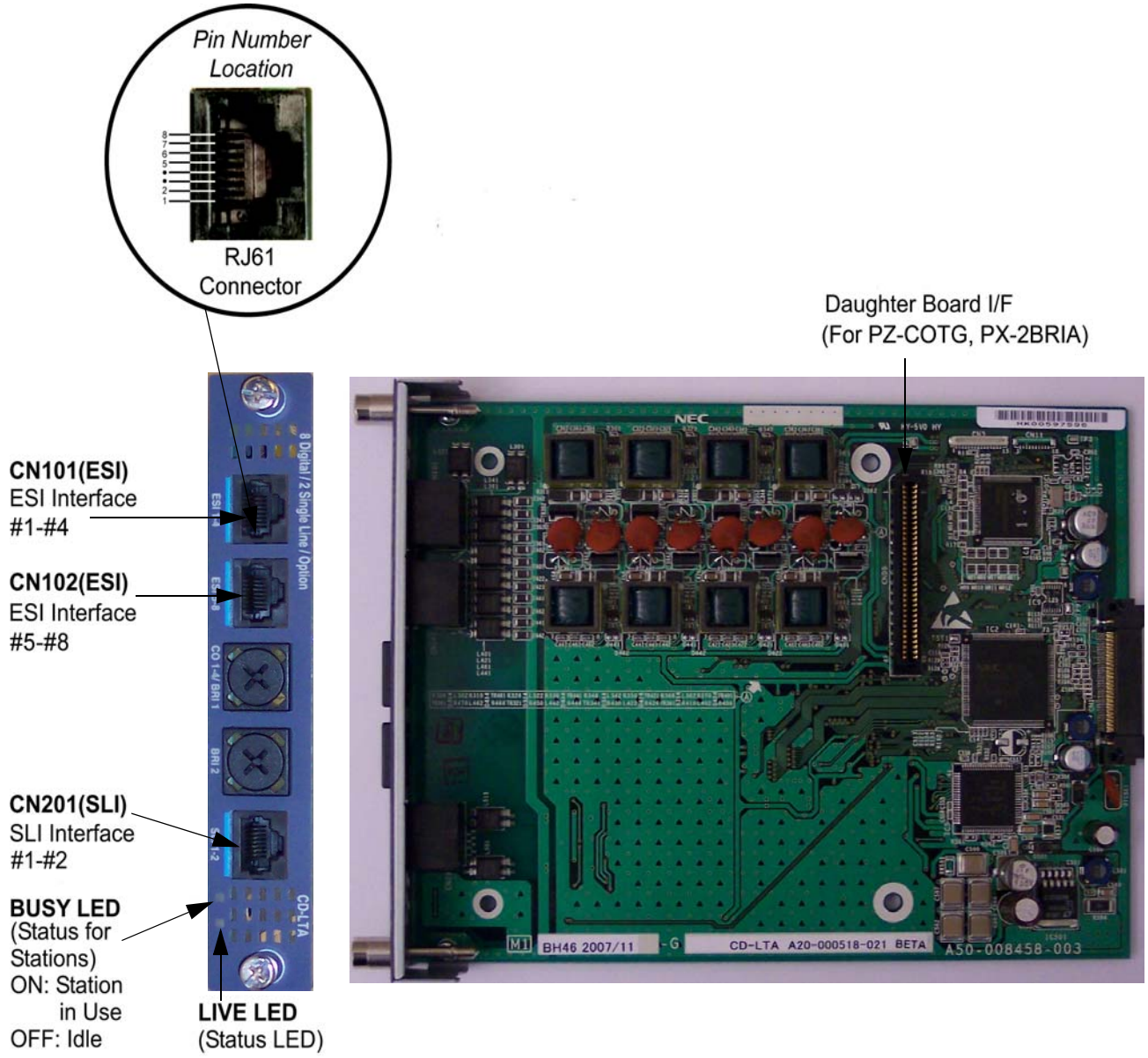


Figure 6-20 CD-LTA Blade

4.5.1 Description

The CD-LTA blade is available only for the SV8100 system.

The Digital Station/SLT Combination blade provides eight Digital Station ports and two analog ports. This blade allows for either a PZ-4COTG analog trunk daughter board or PZ-2BRIA daughter board to be installed.

The blade provides:

- Eight Digital Station ports
- Two analog extension ports

- Two status LEDs

Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7 provides the maximum capacities for the CD-LTA blade when upgraded.

Table 6-26 CD-LTA Maximum Capacities provides the maximum capacities (for the CD-LTA blades) when installed.

Table 6-26 CD-LTA Maximum Capacities

CCPU	CD-LTA
Without PZ-ME50-AU	Only one supported
With PZ-ME50-AU	Maximum of four per system One per chassis

4.5.2 Installation

Install the CD-LTA blade into 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 6-27 CD-LTA LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-20 CD-LTA Blade on page 6-56 for the location of the LEDs on the blade.

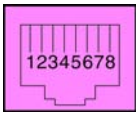
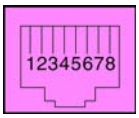
Table 6-27 CD-LTA LED Indications

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 6-28 CD-LTA RJ11 Cable Connector Pin-Outs on page 6-59 shows the pin-outs for the RJ-61 connector. Refer to Figure 6-20 CD-LTA Blade on page 6-56 for an illustration showing the location of the connectors on the CD-LTA blade.

Table 6-28 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 Analog: 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-4COTC (4 Loop Start Trunk Interface)

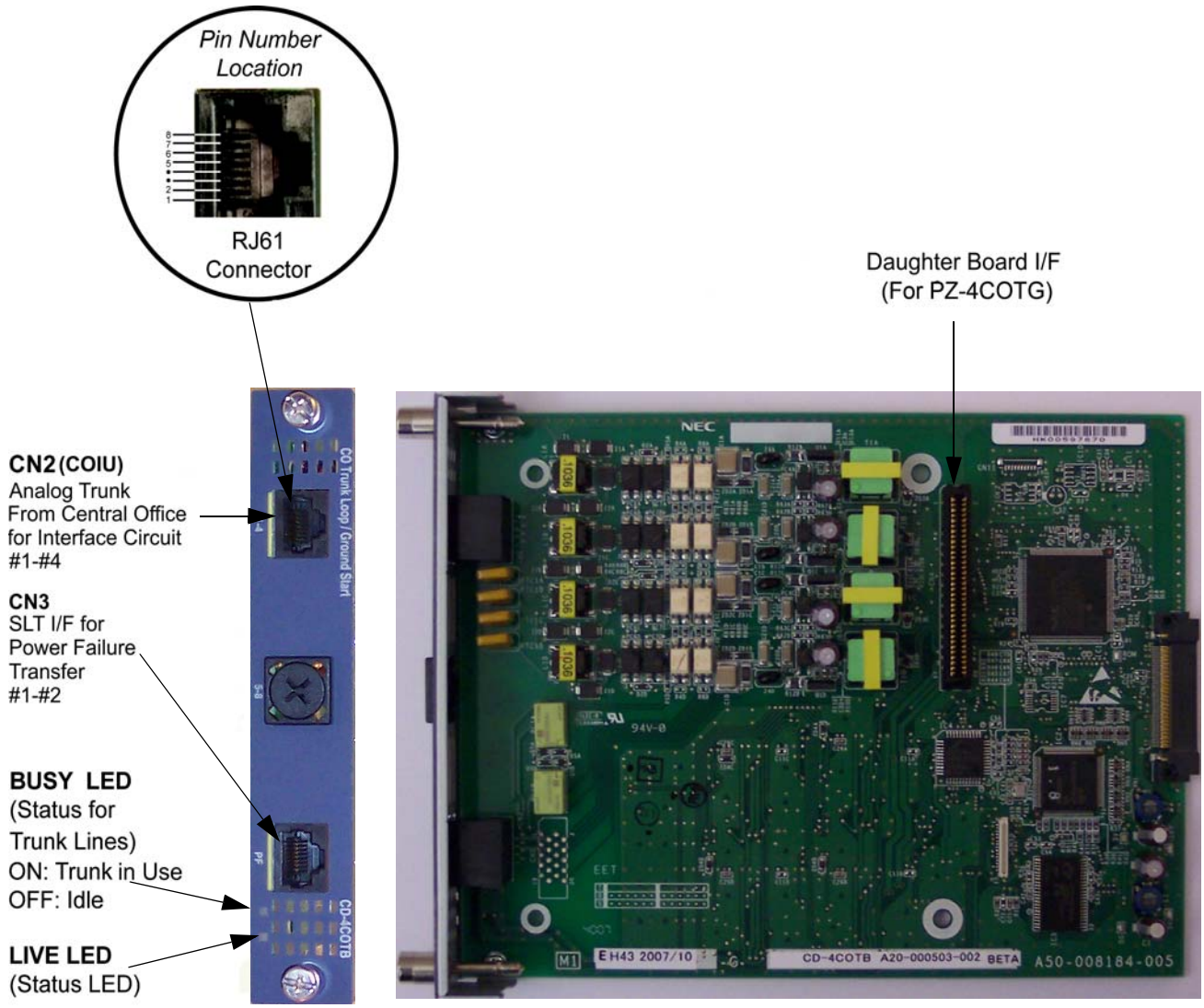


Figure 6-21 CD-4COTC Blade

5.1.1 Description

The CD-4COTC blade is common to both UNIVERGE SV8100/ SV8300 systems.

The CD-4COTC blade provides:

- ❒ CD-4COTC: Four analog loop start trunk circuits
- ❒ One trunk status LED
- ❒ One Blade status LED
- ❒ Four Caller ID Circuits

- Two Power Failure Transfer Circuits
- Connection for PZ-4COTG Daughter Board

The CD-4COTC blade consumes four trunk ports ranging between ports 001~200. The CN2 connector provides connection to four analog trunk ports..

- ***When using the CD-4COTC blade for ground start trunks, the PBX ground must be connected as described in Chapter 4 Installing the SV8100 Chassis, section 3.5.5 Install 19" Chassis Grounding on page 4-34 or the trunks do not function correctly.***
- ***When connecting the RJ-61 cables to the CD-4COTC blades, note the position of the Power Failure connector (CN3). Do not confuse this connector as the trunk connector (CN2).***
- ***Do not wire an RJ-11 directly to the CD-4COTC interface. Use the appropriate RJ-61 wiring when connecting to the CD-4COTC.***

Refer to the following tables for maximum upgrade capacities of the CD-4COTC blade:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

5.1.2 Installation

Install the CD-4COTC blade into an available slot in the chassis. (Refer to Figure 6-21 CD-4COTC Blade on page 6-60 for a layout of the blade.)

✎ *If the PZ-4COTG is to be used, install this prior to inserting the CD-4COTC blade into the chassis.*

5.1.3 LED Indications

LED indications for the CD-4COTC are listed in Table 6-29 CD-4COTC LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-21 CD-4COTC Blade on page 6-60 for the location of the LEDs on the blades.

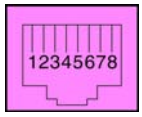
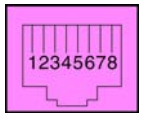
Table 6-29 CD-4COTC LED Indications

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 6-30 CD-4COTC RJ-61 Cable Connector Pin-Outs on page 6-63 shows the pin-outs for the RJ-61 connector. Refer to Figure 6-21 CD-4COTC Blade on page 6-60 for an illustration showing the location of the connectors on the CD-4COTC blades.

Table 6-30 CD-4COTC RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector – CN2, Trunks **The CN2 connector is *polarity sensitive* (tip-to-tip, ring-to-ring).**		
	**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
RJ-61 Cable Connector – CN3, 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	–

5.2 PZ-4COTG (4 Loop Start Trunk Interface Daughter Board)

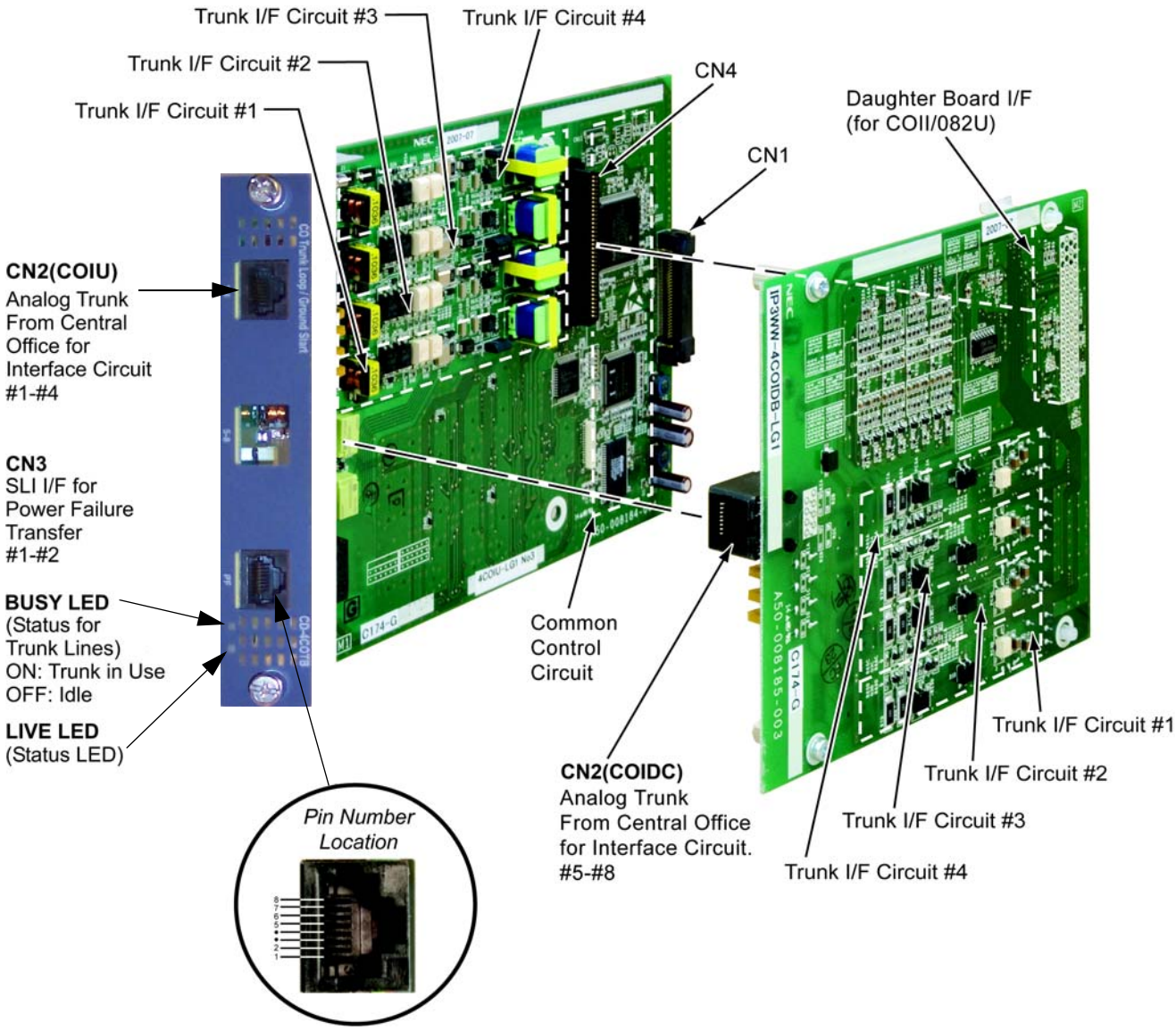


Figure 6-22 Installing the PZ-4COTG Daughter Board

5.2.1 Description

The PZ-4COTG daughter board is common to both UNIVERGE SV8100/SV8300 systems.

The PZ-4COTG daughter board provides:

- ❒ PZ-4COTG: Four analog loop start trunk circuits
- ❒ Four Caller ID Circuits
- ❒ Connector for CD-4COTC Blade
- ❒ Connector for CD-LTA

The PZ-4COTG consumes four trunk ports ranging between ports 001~200. The CN2 connector provides connection to four analog trunk ports.

- ***When using the PZ-4COTG daughter board for ground start trunks, the PBX ground must be connected as described in Chapter 4 Installing the SV8100 Chassis, section 3.5.5 Install 19" Chassis Grounding on page 4-34 or the trunks do not function correctly.***
- ***When connecting the RJ-61 cable to the PZ-4COTG daughter board, note the position of the Power Failure connector (CN3). Do not confuse this connector as the trunk connector (CN2).***
- ***Do not wire an RJ-11 directly to the CD-4COTC interface. Use the appropriate RJ-61 wiring when connecting to the CD-4COTC.***

Refer to the following table for maximum upgrade capacity of the PZ-4COTG **COI daughter board:**

❒ Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

5.2.2 Installation

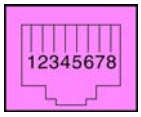
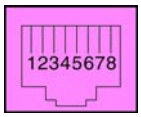
To install the PZ-4COTG:

1. Four spacers are included with the PZ-4COTG. Install the plastic spacers on the CD-4COTC 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-4COTG CN1 connector over the CN4 connector on the CD-4COTC or CD-LTA. Press the blades together, ensuring the plastic spacers lock in place.
3. Install the PZ-4COTG blade (refer to Figure 6-22 Installing the PZ-4COTG Daughter Board on page 6-64).

5.2.3 Connectors

Table 6-31 PZ-4COTG RJ-61 Cable Connector Pin-Outs on page 6-66 shows the pin-outs for the RJ-61 connector. Figure 6-22 Installing the PZ-4COTG Daughter Board on page 6-64 shows the location of the connectors on the PZ-4COTG blades.

Table 6-31 PZ-4COTG RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector CN2, Trunks – Connecting to CD-4COTC Blade The CN2 connector is *polarity sensitive* (tip-to-tip, ring-to-ring).		
	**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
RJ-61 Cable Connector CN2, Trunks – Connecting to CD-LTA Blade The CN2 connector is *polarity sensitive* (tip-to-tip, ring-to-ring).		
	**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)

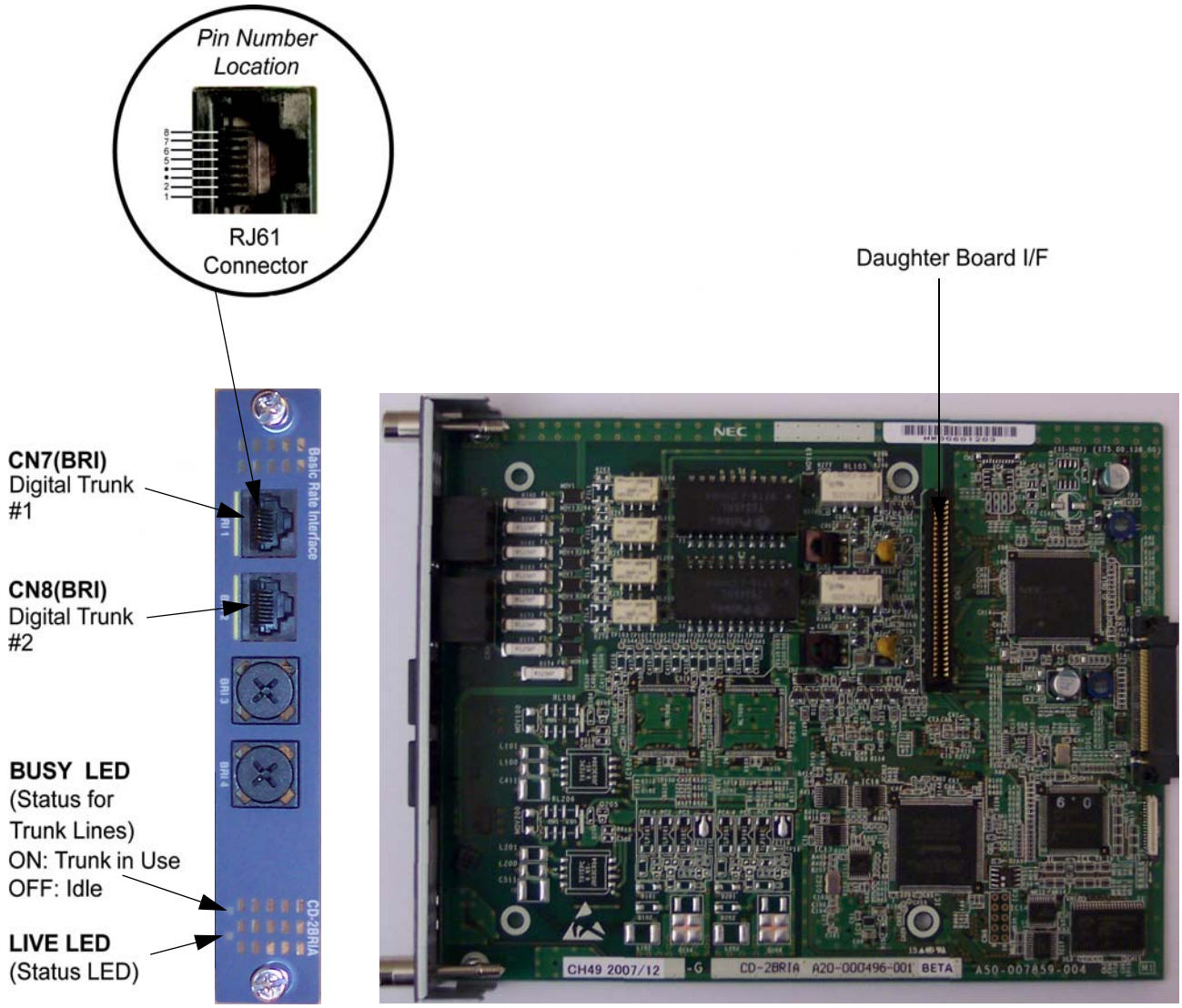


Figure 6-23 CD-2BRIA Blade

5.3.1 Description

The CD-2BRIA blade is common to both UNIVERGE SV8100/SV8300 systems.

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
- ❒ 64 Kb/s Clear B-Channel and 16 Kb/s D-Channel
- ❒ Two Status LEDs
- ❒ Connector for PZ-2BRIA

These trunk circuits T-Bus (SV8100) or S-Bus (SV8300 only) 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 table for maximum upgrade capacity of the CD-2BRIA **blade:**

❒ Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

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 6-23 CD-2BRIA Blade on page 6-67 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 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 6-23 CD-2BRIA Blade on page 6-67 for the location of the connectors on the blade.)

5.3.3 LED Indications

LED indications for the CD-2BRIA are listed in Table 6-32 CD-2BRIA LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-23 CD-2BRIA Blade on page 6-67 for the location of the LEDs on the blade.

Table 6-32 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 6-33 CD-2BRIA RJ-61 Cable Connector Pin-Outs show the pin-outs for the RJ-45 cable connector for S-Bus and T-Bus connections. Figure 6-23 CD-2BRIA Blade on page 6-67 shows the location of the connectors on the CD-2BRIA blade.

Table 6-33 CD-2BRIA RJ-61 Cable Connector Pin-Outs

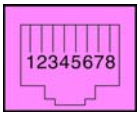
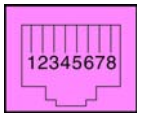
RJ-61 Cable Connector – CN2		
	**Pin No.**	**Connection**
	1	—
	2	—
	3	RA
	4	TA
	5	TB
	6	RB
	7	—
	8	—

Table 6-33 CD-2BRIA RJ-61 Cable Connector Pin-Outs (Continued)

RJ-61 Cable Connector – CN7, CN8		
	**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)

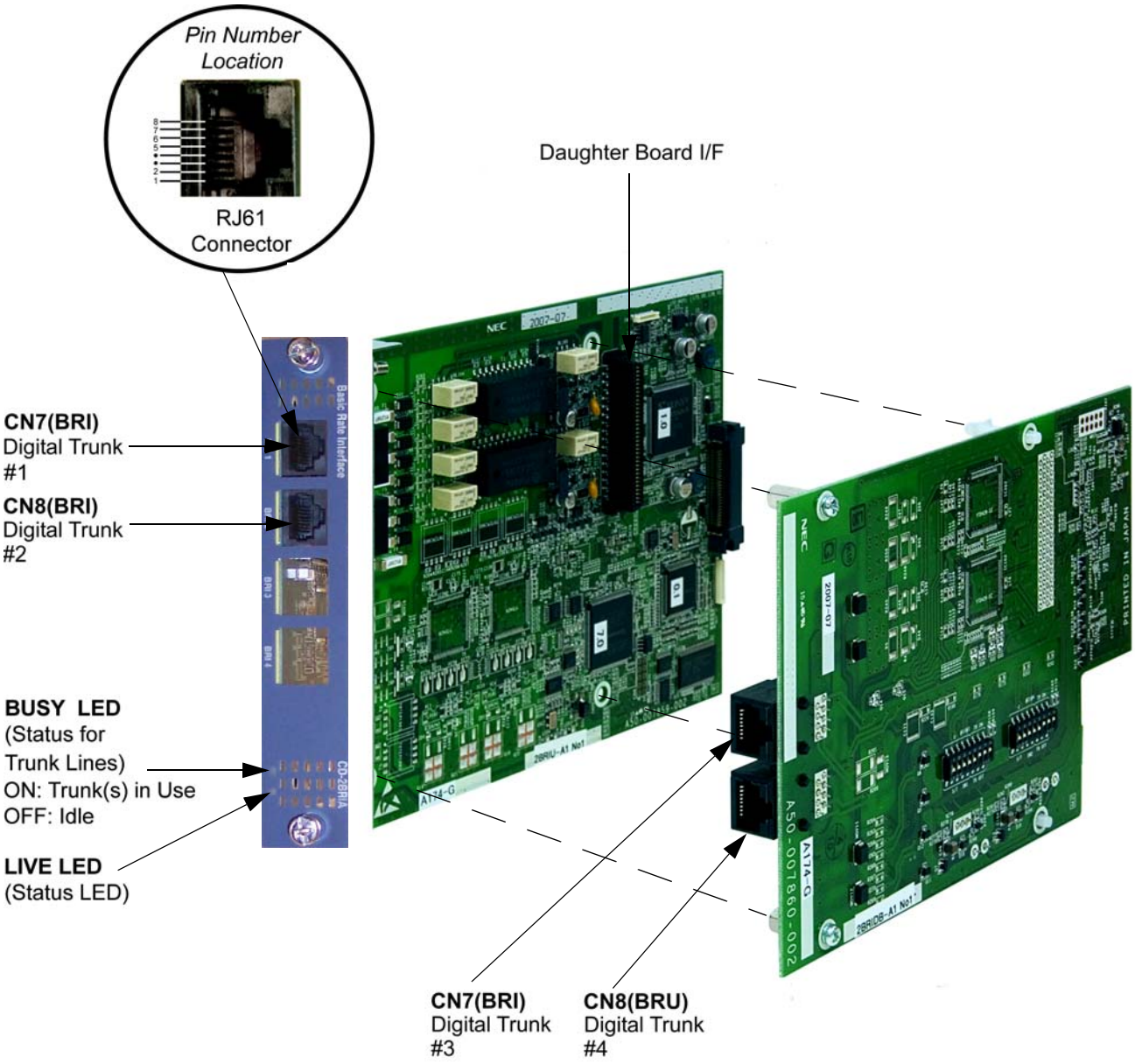


Figure 6-24 Installing the PZ-2BRIA Daughter Board

5.4.1 Description

The PZ-2BRIA daughter board is common to both UNIVERGE SV8100/SV8300 systems.

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) wired as T-Bus or S-Bus
- ❒ 64 Kb/s Clear B-Channel and 16 Kb/s D-Channel
- ❒ Connection point for CD-2BRIA

❒ Connection point for CD-LTA

These trunk circuits wired as T-Bus (SV8100) or S-Bus (SV8300 only) 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/SV8300 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 it will not terminate any existing call.

Refer to the following table for maximum upgrade capacities of the PZ-2BRIA **blade:**

❒ Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

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 6-24 Installing the PZ-2BRIA Daughter Board on page 6-71.)*

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.***

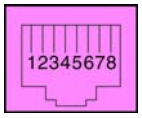
❍ ***Once connected, the PKG LED will not be indicated for the status of Layer 1 Link.***

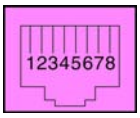
3. Connect the cable from the NT1 Network Termination cable to the CN7 or CN8 connector on the CD-2BRIA and/or PZ-2BRIA daughter board.

5.4.3 Connectors

Table 6-34 PZ-2BRIA RJ-61 Cable Connector Pin-Outs shows the pin-outs for the RJ-45 cable connector for S-Bus and T-Bus connections. Figure 6-24 Installing the PZ-2BRIA Daughter Board on page 6-71 for shows the location of the connectors on the PZ-2BRIA daughter board.

Table 6-34 PZ-2BRIA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector – CN2		
	**Pin No.**	**Connection**
	1	—
	2	—
	3	RA
	4	TA
	5	TB
	6	RB
	7	—
	8	—

RJ-61 Cable Connector – CN7, CN8		
	**Pin No.**	**Connection**
	1	—
	2	—
	3	TA
	4	RA
	5	RB
	6	TB
	7	—
	8	—

5.5 CD-4DIOPA (OPX Telephone Interface)

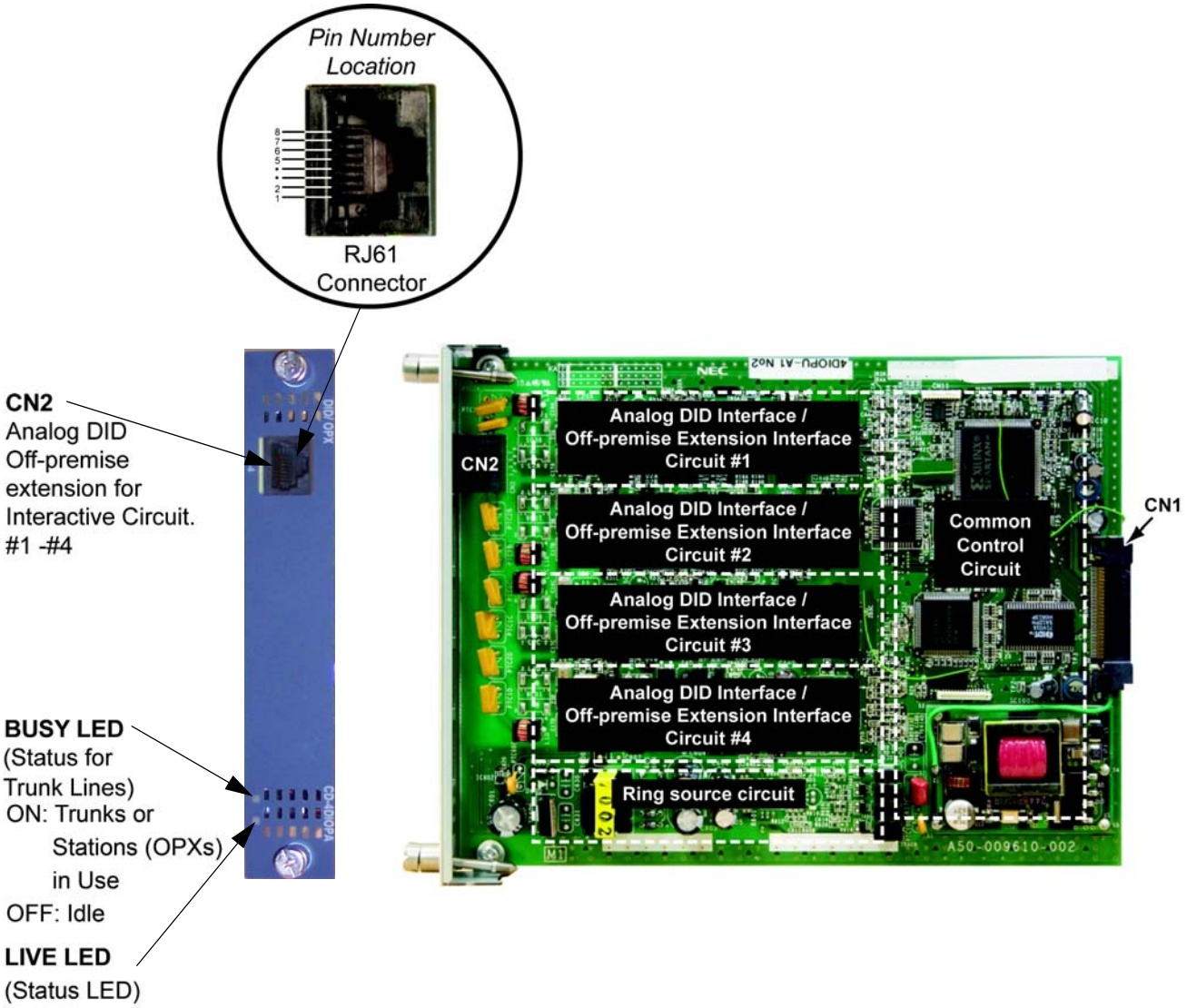


Figure 6-25 CD-4DIOPA Blade

5.5.1 Description

The CD-4DIOPA blade is common to both UNIVERGE SV8100/ SV8300 systems.

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

Refer to the following table for maximum upgrade capacities of the CD-4DIOPA **blade:**

❒ Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

✎ *Analog DID not supported in Australia.*

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 6-35 CD-4DIOPA LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-25 CD-4DIOPA Blade on page 6-74 for the location of the LEDs on the blade.

Table 6-35 CD-4DIOPA LED Indications

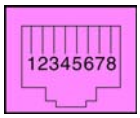
LED Indication		Operation Status		Remarks
Live LED (Green)	**Busy LED (Red)**			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
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

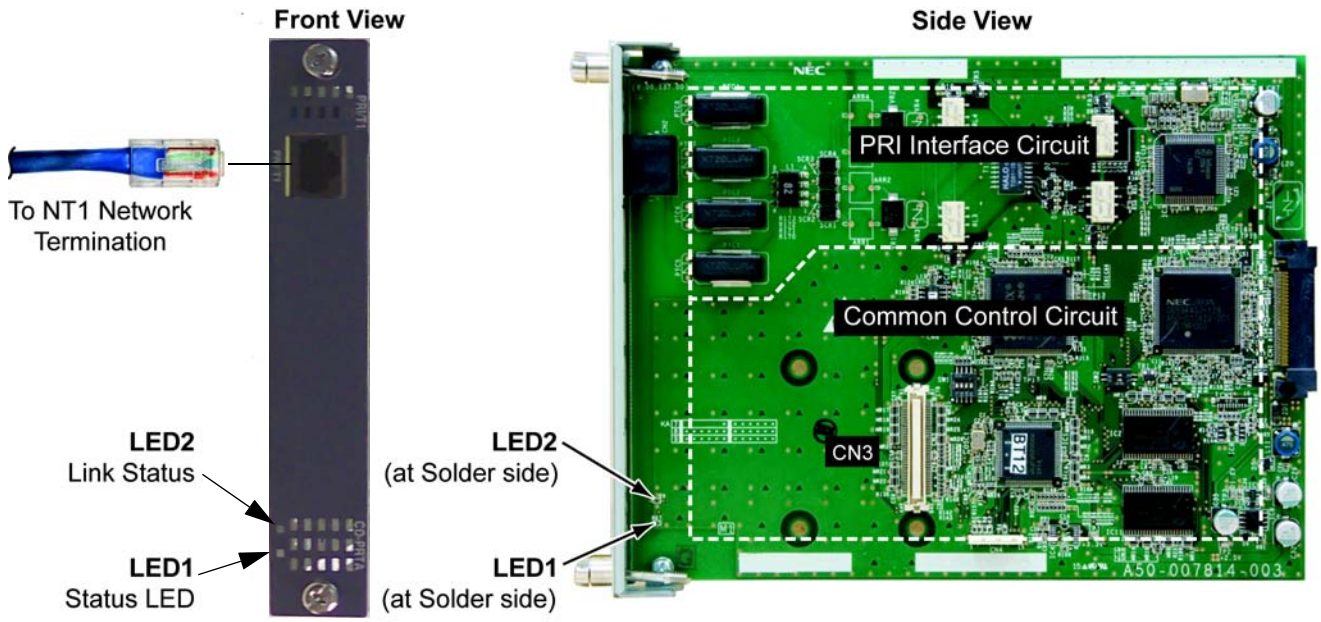
The CN2 connector provides connection to four analog DID trunk ports, which are polarity sensitive (tip-to-tip, ring-to-ring). The OPX circuits, however, are not polarity sensitive. The CD-4DIOPA requires one universal slot. (Refer to Figure 6-25 CD-4DIOPA Blade on page 6-74.) If Program 10-03-01 has OPX defined, note that the blade consumes four (4DIOPA) trunks when installed. If OPX is not defined, then only trunks ports are consumed.

Table 6-36 CD-4DIOPA RJ-61 Cable Connector Pin-Outs on page 6-76 shows the pin-outs for the RJ-61 connector. Figure 6-25 CD-4DIOPA Blade on page 6-74 shows the location of the connectors on the 4DOIPA blade.

Table 6-36 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 (Primary Rate Interface)



*In case of T-point Connection *In case of S-point Connection

Figure 6-26 CD-PRTA Blade (Front and Side View)

5.6.1 Description

The CD-PRTA blade is common to both UNIVERGE SV8100/SV8300 systems.

The CD-PRTA PRI blade provides an interface for ISDN Primary Rate Interface (PRI) applications. This blade has a single 30-channel 2Mb per second digital signal circuit. Each blade connects to the network via an NT1 Network Termination.

Each PRI blade provides 30 PRI (30B + 1D) channels running at 2.0Mbps 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 30 consecutive trunk ports. For example, if a COIU blade is installed for trunks 1~8, the CD-PRTA automatically uses trunks 9~38. If the COIU blades are installed for trunks 1~8 and 17~24, CD-PRTA uses trunks 25~55. The CD-PRTA cannot use trunks 9~16 (even if available) since they are not part of a consecutive block of 30 trunks. Each CD-PRTA requires 30 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:

- 2M Function

Refer to the following table for maximum upgrade capacities of the CD-PRTA **blade:**

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

5.6.2 Installation

To install the CD-PRTA:

1. Plug the CD-PRTA into any universal slot on the chassis.

With normal operation, LED 1 flashes green.

2. Connect the cable from the NT1 Network Termination cable to the CN2 connector on the CD-PRTA. Figure 6-27 PRI Layout for NT-1 Network on page 6-78 is a cabling diagram.

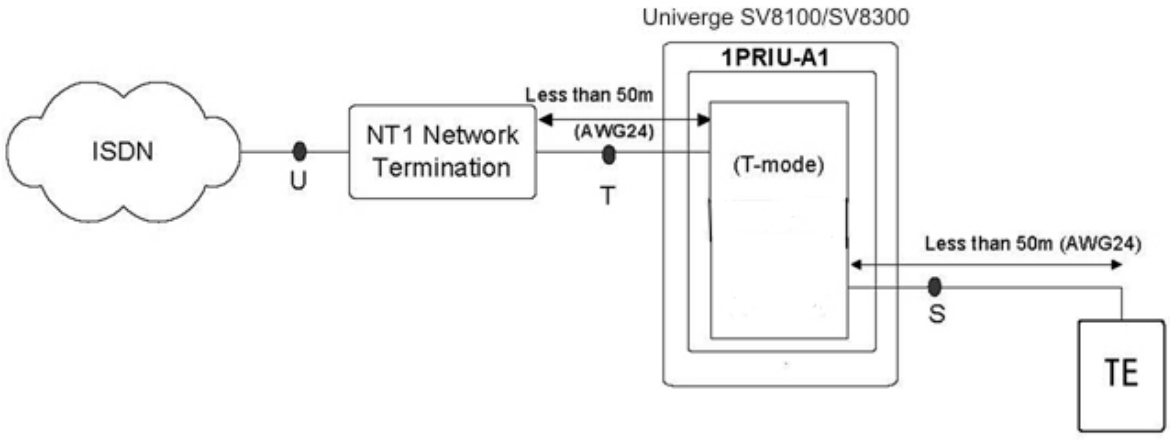


Figure 6-27 PRI Layout for NT-1 Network

5.6.3 LED Indications

LED indications for the CD-PRTA are listed in Table 6-38 CD-PRTA LED Indications. Each LED is listed with its associated function and LED and Operational status.

Table 6-37 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 6-28 CD-PRTA LED Indication Pattern of Layer 1 on PRI Unit on page 6-80 for LED pattern information. LED indications for the ISDN are listed in Table 6-38 CD-PRTA LED Indications on page 6-80.

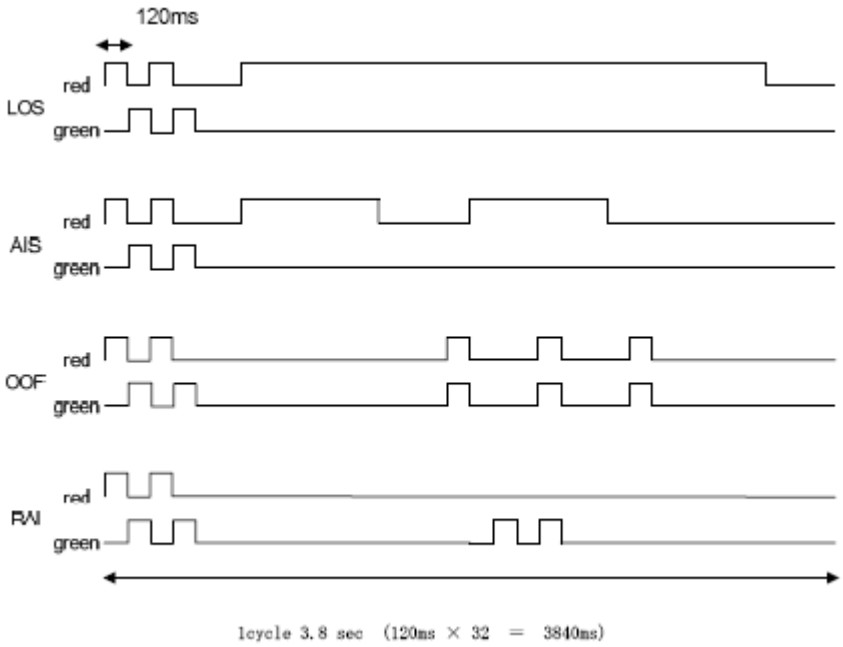


Figure 6-28 CD-PRTA LED Indication Pattern of Layer 1 on PRI Unit

Table 6-38 CD-PRTA LED Indications

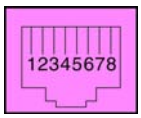
Alarm	Details of the Alarm	LED Indication Pattern
LOS	Loss of Signal (Red Alarm) No Signal (Analog Interface)	Following an alarm blink (red, green, red, green) a Red LED lights.
AIS	Alarm Indication Signal (Blue Alarm)	Following an alarm blink (red, green, red, green) a Red LED slowly flashes On and 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 6-39 CD-PRTA RJ-45 Cable Connector Pin-Outs shows the pin-outs for the RJ-45 connector. Figure 6-26 CD-PRTA Blade (Front and Side View) on page 6-77 shows the location of the connectors on the PRIU blade.

Table 6-39 CD-PRTA RJ-45 Cable Connector Pin-Outs

RJ-45 Cable Connector – CN2		
	**Pin No.**	**Connection**
	1	TA
	2	TB
	3	—
	4	RA
	5	RB
	6	—
	7	—
	8	—

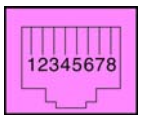
RJ-45 Cable Connector – CN2 T-Bus Connection		
	**Pin No.**	**Connection**
	1	RA
	2	RB
	3	—
	4	TA
	5	TB
	6	—
	7	—
	8	—

Table 6-40 CD-PRTA RJ48C Connector Pin-outs shows the pin-outs for the 8-pin RJ48C connector for the network and terminal interfaces.

Table 6-40 CD-PRTA RJ48C Connector Pin-outs

Network Interface Pinout for the 8-Pin RJ48C Connector	
Pin No.	**Connection**
1	RxD (R1)
2	RxD (T1)
4	TxD (R)
5	TxD (T)
3, 6	No Connection
7, 8	No Connection

Terminal Interface Pinout for the 8-Pin RJ48C Connector	
Pin No.	**Connection**
1	RxD (R)
2	RxD (T)
4	TxD (R1)
5	TxD (T1)
3, 6	No Connection
7, 8	No Connection

5.7 CD-4ODTA (4-Port Tie Line Interface Blade)

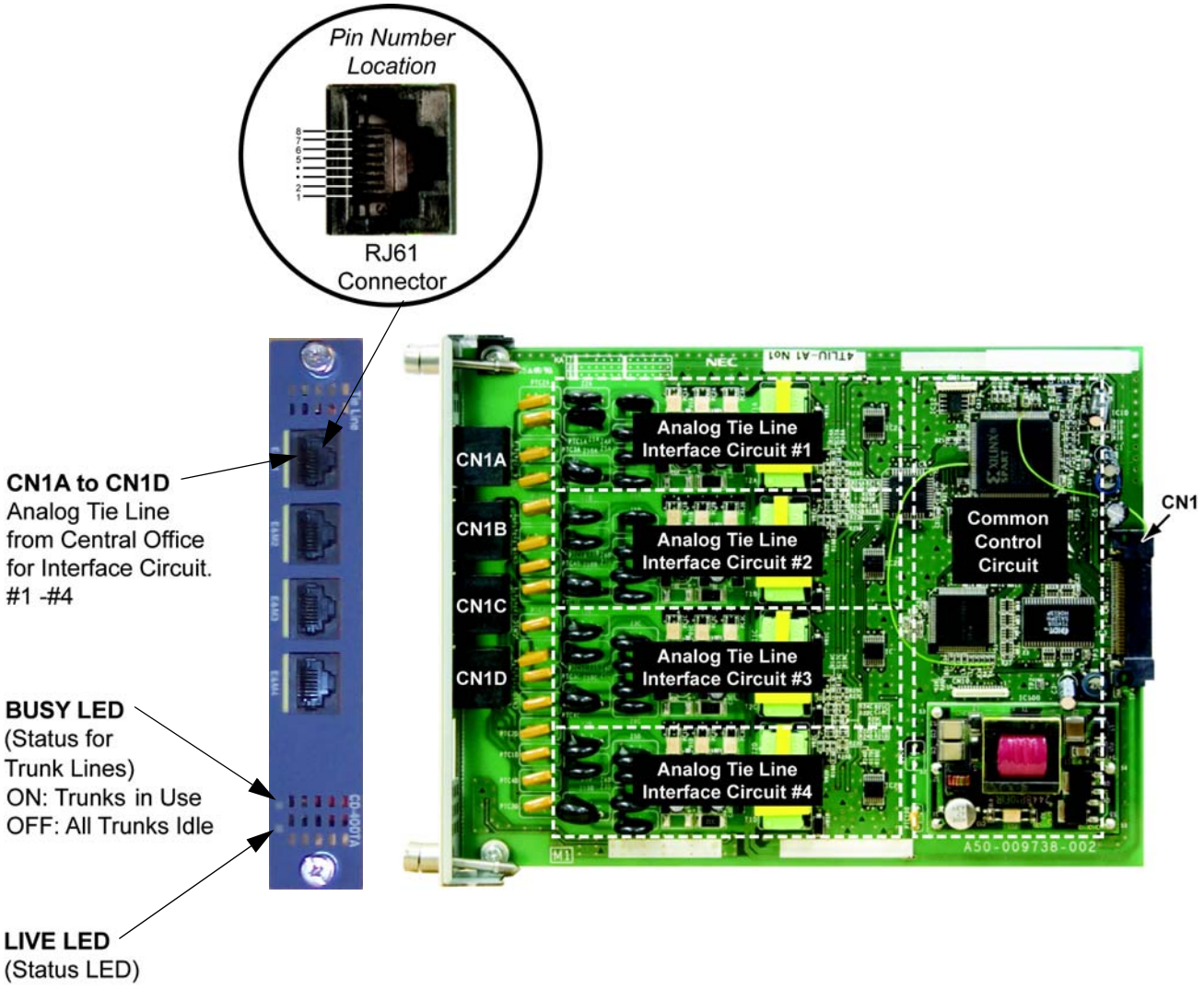


Figure 6-29 CD-4ODTA Blade

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 [SV8100] and CM35Y=105 [SV8300]). System programming is also used to select the connection types with Type I or Type V. The CD-4ODTA consumes 4 ports ranging between ports 001~200 (SV8100) and 000~511 (SV8300). 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/SV8300 is connected to another UNIVERGE SV8100/SV8300 directly, there is up to 1,500 ohms loop resistance (including system).

Refer to the following table for maximum upgrade capacities of the CD-4ODTA blade:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

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/SV8300 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 6-29 CD-4ODTA Blade on page 6-83.
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 6-41 CD-4ODTA LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-29 CD-4ODTA Blade on page 6-83 for the location of the LEDs on the blade.

Table 6-41 CD-4ODTA LED Indications

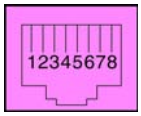
LED Indication		Operation Status		Remarks
Live LED (Green)	**Busy LED (Red)**			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
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 6-42 CD-4ODTA RJ-61 Cable Connector Pin-Outs on page 6-86 shows the pin-outs for the RJ-61 connector. Figure 6-29 CD-4ODTA Blade on page 6-83 shows the location of the connectors on the ODT blade.

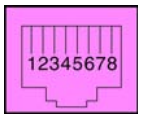
Table 6-42 CD-4ODTA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector – 2-Wire E&M, CN1A~CN1D



Pin No.	Connection	Description
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

RJ-61 Cable Connector – 4-Wire E&M, CN100~CN400



Pin No.	Connection	Description
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

✎ *Using Type I or Type V, a system loopback test can be performed by connecting E&M1 to E&M2.*

<2-Wire E&M>

E&M1		E&M2
E	→	M
M	→	E
R	→	T
T	→	R

<4-Wire E&M>

E&M1		E&M2
E	→	M
M	→	E
R	→	T1
T	→	R1
R1	→	T
T1	→	R

5.7.5 Connections

Figure 6-30 Voice Signal Connection for Type I And V on page 6-87 and Figure 6-31 Control Signal Connection on page 6-88 show the signaling methods for circuit types.

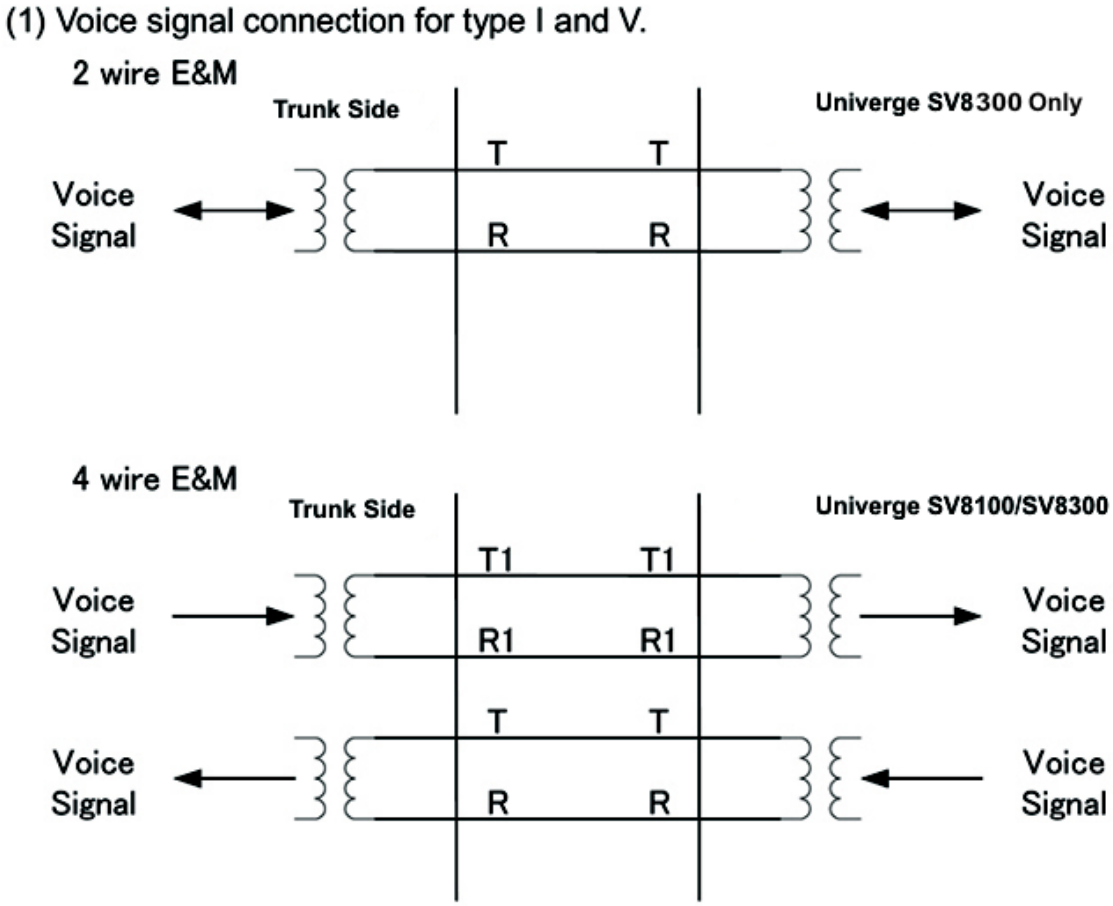
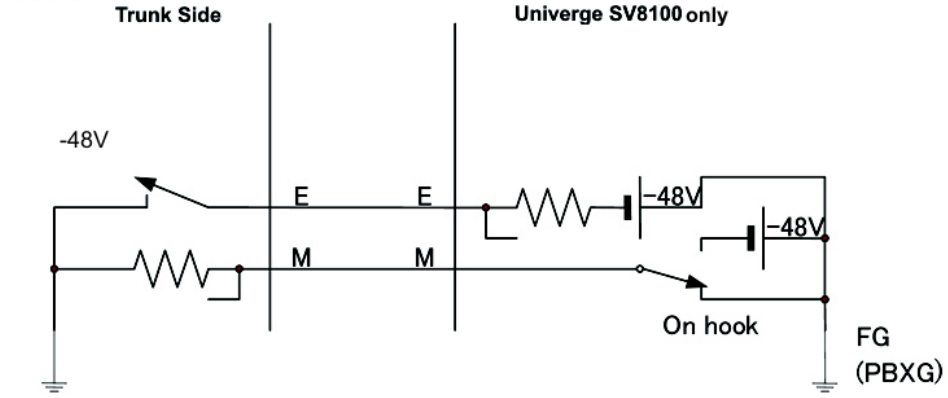


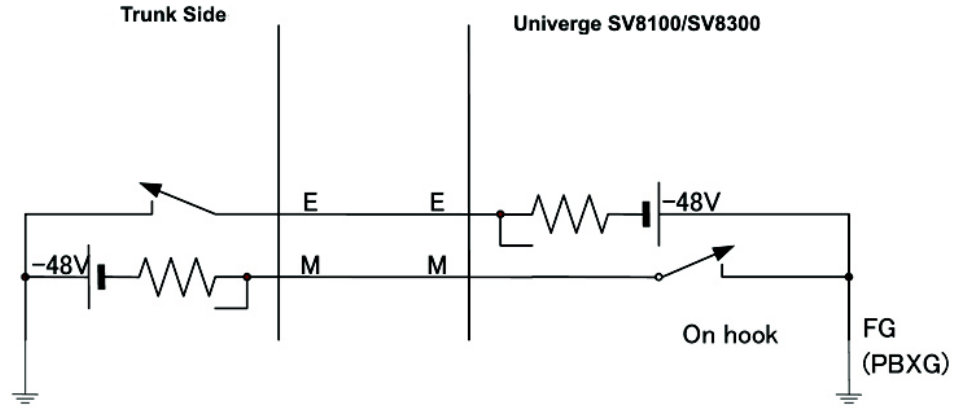
Figure 6-30 Voice Signal Connection for Type I And V

(2) Control Signal connection

Type I



Type V



Type V (Back to Back connection)

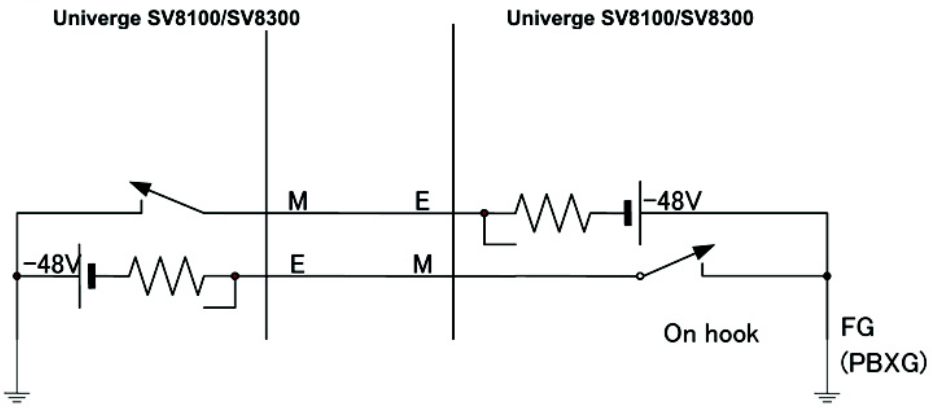


Figure 6-31 Control Signal Connection

SECTION 6 OPTIONAL BLADES

6.1 CD-VM00 (Voice Mail and Server)

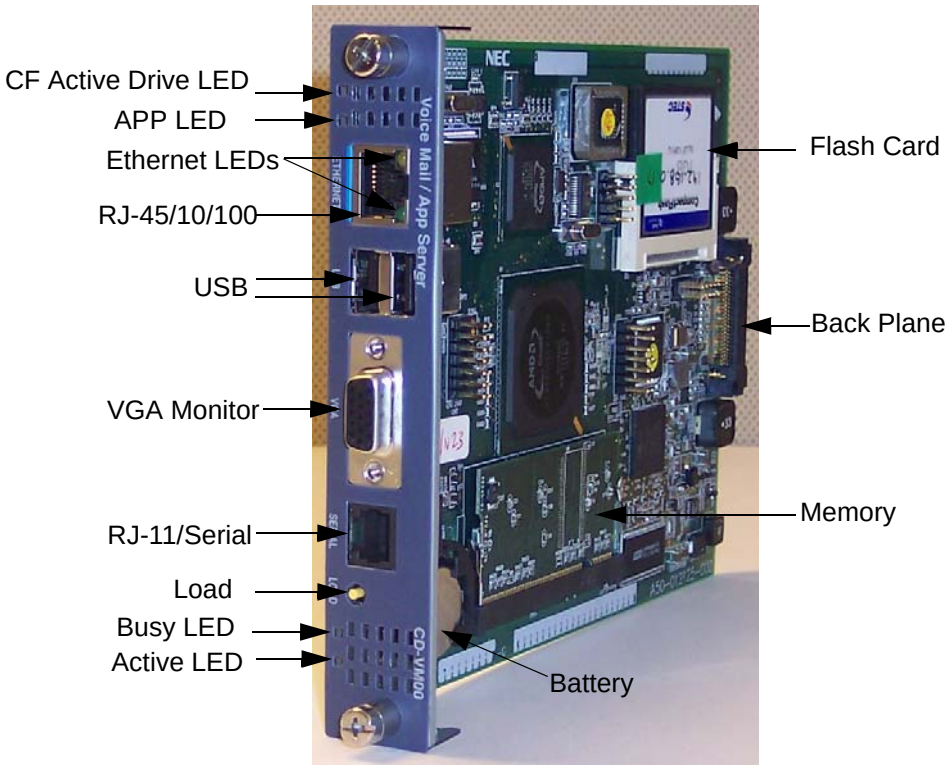


Figure 6-32 CD-VM00 Blade

6.1.1 Description

The CD-VM00 blade is common to both UNIVERGE SV8100/SV8300 systems.

This blade is a PC platform installed in the UNIVERGE SV8100/ SV8300 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
- Automatic Gain Control (AGC)
- 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 6-33 Install the CR-2032 Battery on page 6-90).

Figure 6-33 Install the CR-2032 Battery

3. 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 6-34 Install the SO-DIMM Memory on page 6-90).

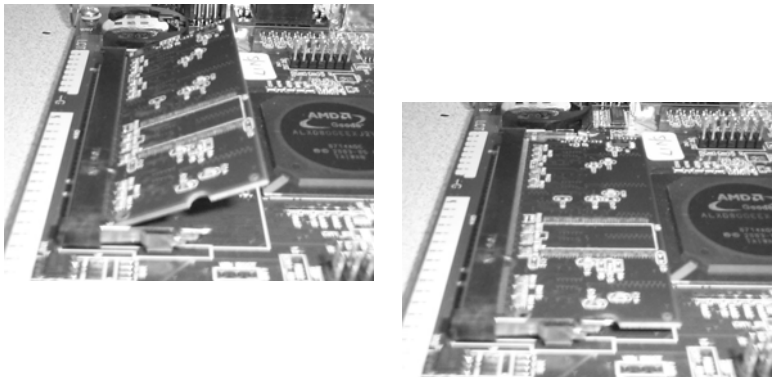


Figure 6-34 Install the SO-DIMM Memory

5. Install the Compact Flash drive into slot CN7, make sure the drive is fully seated in the slot (refer to Figure 6-35 Install the Compact Flash Drive).

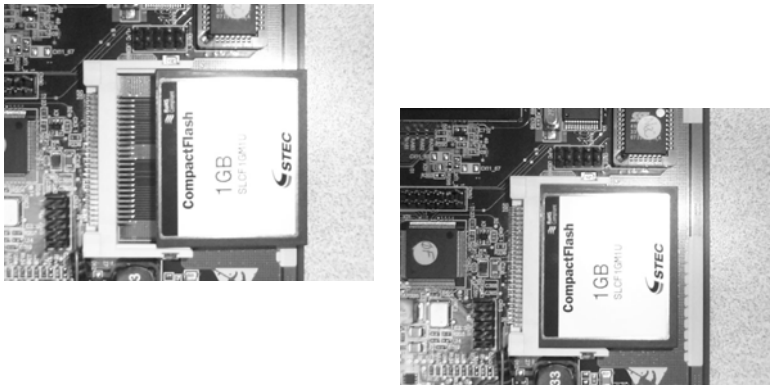


Figure 6-35 Install the Compact Flash Drive

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 of the user interfaces.

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 (Not available in Australia). 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) on page 6-93. The connection for a DCE device uses the swapped line cord shown in 6.1.4.4 RS-232 Serial Cable (DCE) on page 6-93.

6.1.4.2 DB9 to 6-pin Modular RS-232 Adapter

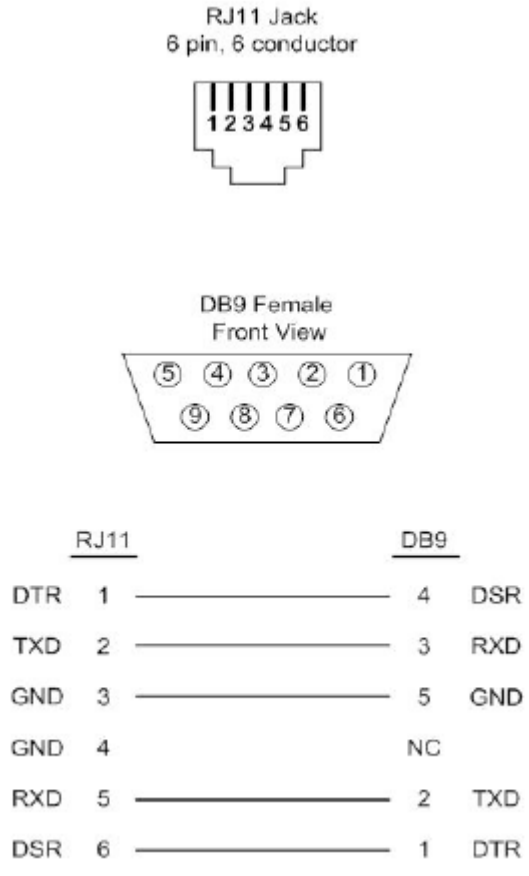


Figure 6-36 CD-VM00 DB9 to 6-Pin Modular RS-232 Adapter

6.1.4.3 RS-232 Serial Cable (DTE)

6-pin		Cable		6-pin
1	——		——	6
2	——	Black	——	5
3	——	Red	——	4
4	——	Green	——	3
5	——	Yellow	——	2
6	——		——	1

Figure 6-37 CD-VM00 RS-232 Serial Cable (DTE)

6.1.4.4 RS-232 Serial Cable (DCE)

6-pin		Cable		6-pin
1	——		——	1
2	——	Black	——	2
3	——	Red	——	3
4	——	Green	——	4
5	——	Yellow	——	5
6	——		——	6

Figure 6-38 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.

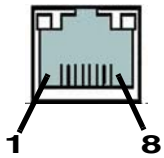
6.1.4.7 10 Base-T/100 Base-TX Ethernet Interface

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 6-43 Ethernet Connector Pin-Out on page 6-94.

Table 6-43 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-CCTA (CCIS Trunk Interlace)

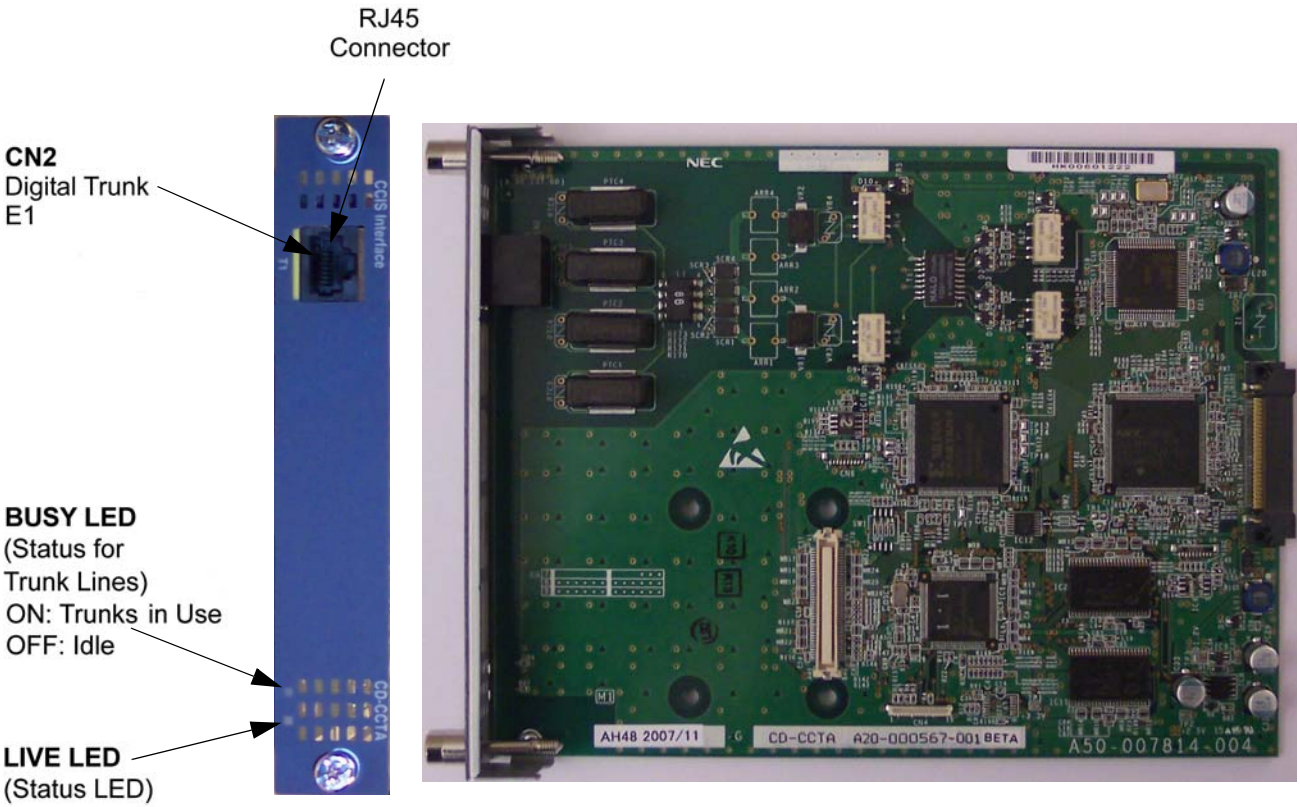


Figure 6-39 CD-CCTA Blade

6.2.1 Description

The CD-CCTA blade is supported by the UNIVERGE SV8300 only.

The Common Channel Handler Interface blade is a digital trunk ETU that terminates E1 trunks (up to 30 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 CCIS network and controls the signaling between the PBX and the CP00. Each CD-CCTA blade supports one CCIS link. Four CD-CCTA blades can be installed per system.

The E1 interface has a single 30 channel 64kb/s digital signal circuit which can be configured either for E1 trunking.

Refer to the following tables for maximum upgrade capacities of the CD-CCTA blade:

- Table 2-4 SV8100 Maximum System Capacities – Blades on page 2-7

6.2.2 Installation

Install the CD-CCTA in any universal slot.

6.2.3 LED Indications

LED indications for the CD-CCTA are listed in Table 6-44 CD-CCTA LED Indications. Each LED is listed with its associated function and LED and Operational status. Refer to Figure 6-40 CD-CCTA LED Indication Pattern of Layer 1 on E1 Unit on page 6-96 for LED pattern information.

Table 6-44 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.*

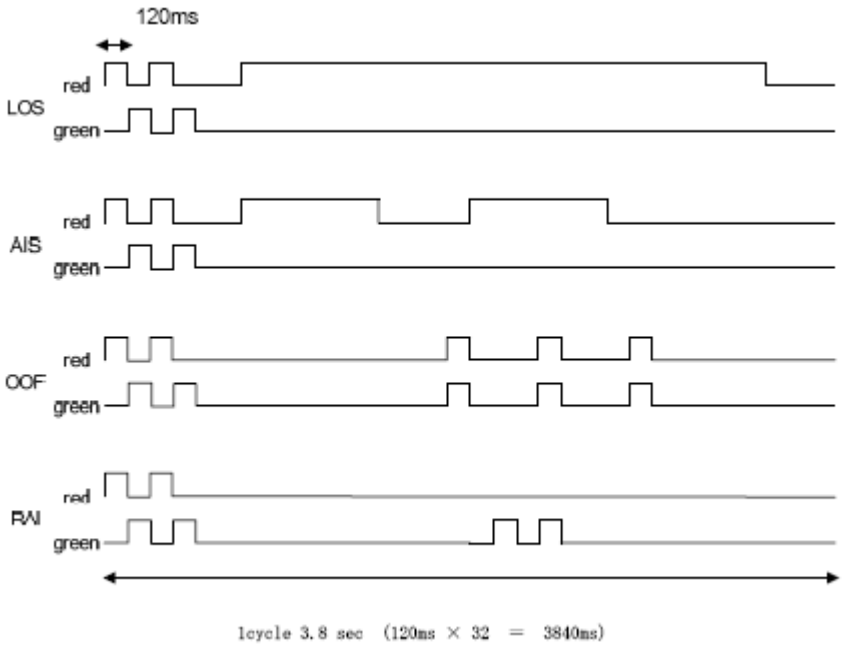
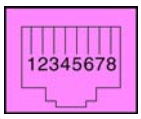


Figure 6-40 CD-CCTA LED Indication Pattern of Layer 1 on E1 Unit

6.2.4 Connectors

Table 6-45 CD-CCTA RJ-45 Cable Connector Pin-Outs shows the pin-outs for the RJ-45 connector. Figure 6-39 CD-CCTA Blade on page 6-94 shows the location of the connectors on the CD-CCTA blade.

Table 6-45 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	—

SECTION 7 CABLING AND MDF CONNECTION

7.1 Connection Requirements

The chassis is connected with each multiline terminal, single line telephone, optional equipment, 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/E1 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 6-41 MDF Pin-Out (Connectors 1~6) on page 6-97 and Table 6-47 MDF Cable Connections (Station) on page 6-98 or Table 6-48 MDF Cable Connections (Trunk) on page 6-99. 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.

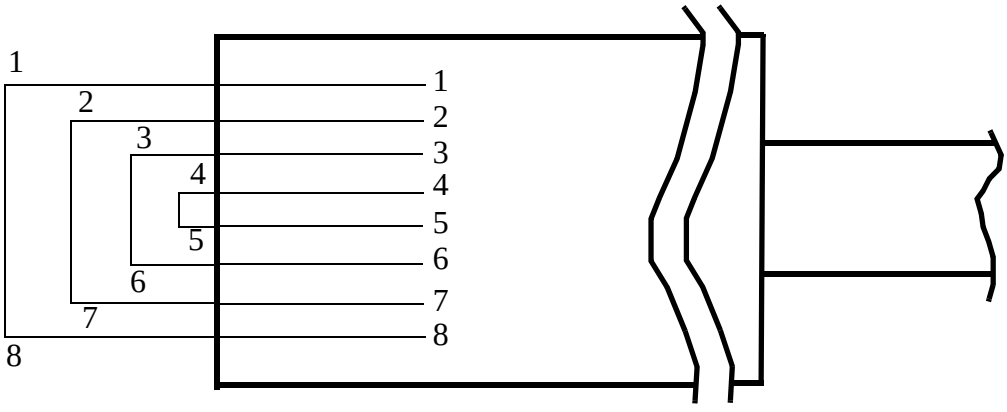


Figure 6-41 MDF Pin-Out (Connectors 1~6)

Table 6-46 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 6-47 MDF Cable Connections (Station)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA		LTA			
				8	16	4	8	DLCA	LCA	BRI	COTC
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
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

Table 6-47 MDF Cable Connections (Station) (Continued)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA		LTA			
				8	16	4	8	DLCA	LCA	BRI	COTC
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 6-48 MDF Cable Connections (Trunk)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	COTC		DIOPA	PRTA	BRIA	CCTA
				4	8	OPX	PRI		
1	26 1	WH–BL BL–WH	GN RD	T R	T R	T R	RA RB	TA–1 TB–1	RA RB
	27 2	WH–OR OR–WH	GN RD	T R	T R	T R	– TA	RA–1 RB–1	– TA
	28 3	WH–GN GN–WH	GN RD	T R	T R	T R	TB –	TA–2 TB–2	TB –
	29 4	WH–BR BR–WH	GN RD	T R	T R	T R	– –	RA–2 RB–2	– –

Table 6-48 MDF Cable Connections (Trunk) (Continued)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	COTC		DIOPA	PRTA	BRIA	CCTA
				4	8	OPX	PRI		
2	30 5	WH–SL SL–WH	GN RD	T R	T R	T R	RA RB	TA–1 TB–1	RA RB
	31 6	RD–BL BL–RD	GN RD	T R	T R	T R	– TA	RA–1 RB–1	– TA
	32 7	RD–OR OR–RD	GN RD	T R	T R	T R	TB –	TA–2 TB–2	TB –
	33 8	RD–GN GN–RD	GN RD	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	RA RB	TA–1 TB–1	RA RB
	35 10	RD–SL SL–RD	GN RD	T R	T R	T R	– TA	RA–1 RB–1	– TA
	36 11	BK–BL BL–BK	GN RD	T R	T R	T R	TB –	TA–2 TB–2	TB –
	37 12	BK–OR OR–BK	GN RD	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	RA RB	TA–1 TB–1	RA RB
	39 14	BK–BR BR–BK	GN RD	T R	T R	T R	– TA	RA–1 RB–1	– TA
	40 15	BK–SL SL–BK	GN RD	T R	T R	T R	TB –	TA–2 TB–2	TB –
	41 16	YL–BL BL–YL	GN RD	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	RA RB	TA–1 TB–1	RA RB
	43 18	YL–GN GN–YL	GN RD	T R	T R	T R	– TA	RA–1 RB–1	– TA
	44 19	YL–BR BR–YL	GN RD	T R	T R	T R	TB –	TA–2 TB–2	TB –
	45 20	YL–SL SL–YL	GN RD	T R	T R	T R	– –	RA–2 RB–2	– –
6	46 21	VI–BL BL–VI	GN RD	T R	T R	T R	RA RB	TA–1 TB–1	RA RB
	47 22	VI–OR OR–VI	GN RD	T R	T R	T R	– TA	RA–1 RB–1	– TA
	48 23	VI–GN GN–VI	GN RD	T R	T R	T R	TB –	TA–2 TB–2	TB –
	49 24	VI–BR BR–VI	GN RD	T R	T R	T R	– –	RA–2 RB–2	– –
	50	–	–	–	–	–	–	–	–
	25	–	–	–	–	–	–	–	–

7.3.2 Outside Lines

The connection of CO lines is an RJ-61. 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 6-47 MDF Cable Connections (Station) on page 6-98 or Table 6-48 MDF Cable Connections (Trunk) on page 6-99 for information about the MDF Connector Assembly Cable positions, the cable number, and lead functions.

Loop Start, OPX, E&M Tie lines, and E1 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.

- - NOTES - -

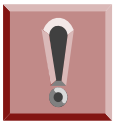
Installing DT300/DT700 Series (DTL/ITL) Digital and IP Multiline Terminals

7

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*^{term} Series i telephones, single line telephones, cordless telephones and wireless telephones discussed in the document can be installed on the SV8100/SV8300 systems.



To avoid damage to equipment, do not install the D^{term} 70 on the SV8100/SV8300 system. The D^{term} 70 (DTU/DTP) terminal uses -24V and has no protection from the -48V power supply used by the SV8100/SV8300 system.

Table 7-1 Terminal Category Reference Chart

Category		DT300/DT700 Series Terminals		
		Equipment	Product Name (idea)	Note
Digital Terminal	Economy	2-button without LCD	DTL-2E-1( ) (BK) TEL	–
		6-button with LCD	DTL-6DE-1( ) (BK) TEL	–
	Value	12-button with LCD	DTL-12D-1 (BK)/(WH) TEL	–
		24-button with LCD	DTL-24D-1 (BK)/(WH) TEL	–
		32-button with LCD	DTL-32D-1 (BK)/(WH) TEL	24-button + 8-button LK Unit
		DESI-less	DTL-8LD(BK)/(WH) TEL	–
		12-button with PSA	DTL-12PA-1( ) (BK) TEL	with Power Save Adapter (PSA)
IP Terminal	Economy	2-button without LCD	ITL-2E-1( ) (BK) TEL	–
		6-button with LCD	ITL-6DE-1( ) (BK) TEL	–
	Value	12-button with LCD	ITL-12D-1 (BK)/(WH) TEL	–
		24-button with LCD	ITL-24D-1 (BK)/(WH) TEL	–
		32-button with LCD	ITL-32D-1 (BK)/(WH) TEL	24-button + 8-button LK Unit
		DESI-less	ITL-8LD-1 (BK)/(WH) TEL	–
		12-button with PSA	ITL-12PA-1( ) (BK) TEL	with Power Save Adapter (PSA)
	Sophi	32-button	ITL-320C-1( ) (BK) TEL	with large color touch LCD

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 for a variety of height positions.

There are several easy-to-read LCD displays available, including a new large color touch panel LCD.

The following tables list each terminal and the options available.

Table 7-2 Terminal and Adapter Compatibility show the compatibility between the terminals and adapter used in the system.

Table 7-2 Terminal and Adapter Compatibility

Terminal	Adapter Unit			
	ADA-L( )	APR-L( )	ILPA	PSA-L( )
IP Terminals:				
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	✓	—	✓	✓
Digital Terminals:				
DTL-2E-1( ) (BK) TEL	—	—	—	—
DTL-6DE-1( ) (BK) TEL	—	—	—	—
DTL-8LD(BK)/(WH) TEL	✓	✓	—	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	—	✓
DTL-12PA-1( ) (BK) TEL	✓	✓	—	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	—	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	—	✓
Console:				
DCL-60-1 (BK)/(WH) CONSOLE	—	—	—	—

— = Option Not Available

✓ = Optional Available

Table 7-3 Terminal and Line Key/LCD Compatibility shows the compatibility between the terminals and Line Key or LCD used in the system.

Table 7-3 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
IP Terminals:						
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	✓	—	—	—	✓	✓
Digital Terminals:						
DTL-2E-1( ) (BK) TEL	—	—	—	—	—	—
DTL-6DE-1( ) (BK) TEL	—	—	—	—	—	—
DTL-8LD(BK)/(WH) TEL	✓	—	—	—	—	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	—	✓	✓	✓
DTL-12PA-1( ) (BK) TEL	✓	✓	—	✓	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	—	—	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	—	—	✓	—

— = Option Not Available

✓ = Optional Available

Table 7-4 Terminal and Tenkey Kit Compatibility shows the compatibility between the terminals and Tenkey kits used in the system.

Table 7-4 Terminal and Tenkey Kit Compatibility

Terminal	Tenkey Kit				
	BS(F)-L( )	BS(S)-L( )	BS(ACD)-L( )	BS(Braille)-L( )	BS(Retro)-l
IP Terminals:					
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	✓	✓	✓	✓	✓
Digital Terminals:					
DTL-2E-1( ) (BK) TEL	—	—	—	—	✓
DTL-6DE-1( ) (BK) TEL	—	—	—	—	✓
DTL-8LD(BK)/(WH) TEL	✓	✓	✓	✓	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
DTL-12PA-1( ) (BK) TEL	✓	✓	✓	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓

— = Option Not Available

✓ = Optional Available

Table 7-5 Terminal and Optional Equipment Compatibility shows the compatibility between the terminals and optional equipment used in the system.

Table 7-5 Terminal and Optional Equipment Compatibility

Terminal	Equipment		
	PSA-L( )	WM-L( )*	PANEL-L( )
IP Terminals:			
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	✓	✓	✓
Digital Terminals:			
DTL-2E-1( ) (BK) TEL	—	✓	✓
DTL-6DE-1( ) (BK) TEL	—	✓	✓
DTL-8LD(BK)/(WH) TEL	✓	✓	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	✓
DTL-12PA-1( ) (BK) TEL	—	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	✓
Console:			
DCL-60-1 CONSOLE **	—	✓	—

— = Option Not Available

✓ = Optional Available

* The WM-L( ) is required if the ADA-L( ) UNIT or APR-L( ) UNIT are installed on the telephone.

** DCL-60-1( ) = Special Wall Mount

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 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 DT300 Series digital multiline Terminals are supported by the IPK II system (similar to the D^{term} Series i Telephones) with optional Retro key pad installed.*

2.1 Digital MultilineTerminals

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)
- ❒ Four Softkeys (Help, Exit)
- ❒ Three-color LED

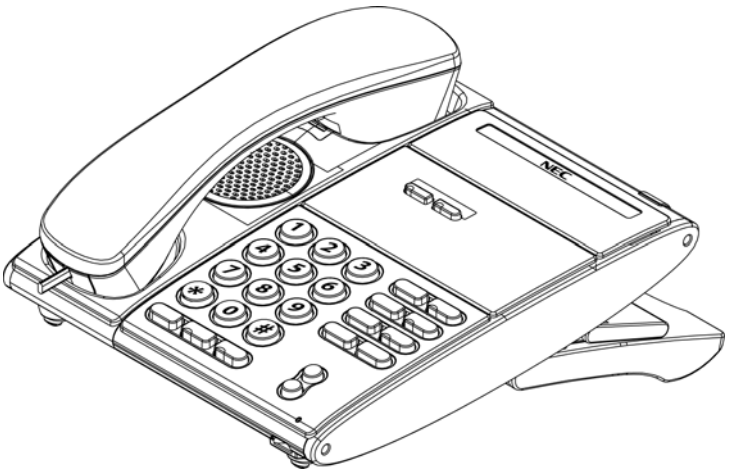


Figure 7-1 DTL-2E-1( ) TEL

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 designSoftkeys
- 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 with cursor keys

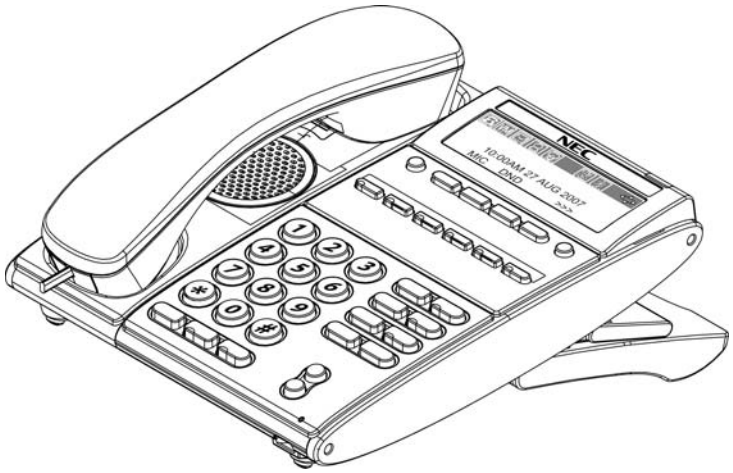


Figure 7-2 DTL-6DE-1( ) TEL

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 10-key dial pad for easy viewing
- ❒ Full-duplex handsfree operation

Figure 7-3 DTL-8LD-1( ) TEL

2.1.4 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
- Eight 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 10-key dial pad for easy viewing
- Full-duplex handsfree operation

Figure 7-4 DTL-12D-1( ) TEL

2.1.5 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
- ❒ Eight 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 10-key dial pad for easy viewing
- ❒ Full-duplex handsfree operation
- ❒ PSA-L( ) adapter

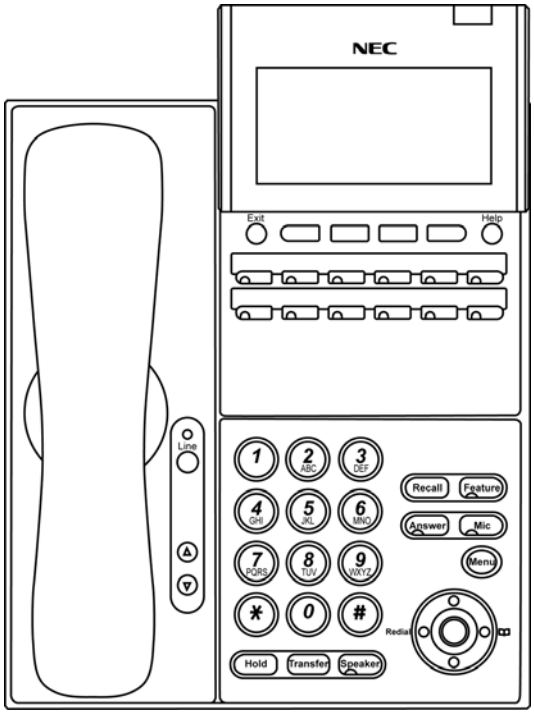


Figure 7-5 DTL-12PA-1( ) TEL

2.1.6 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
- Eight 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 10-key dial pad for easy viewing
- Full-duplex handsfree operation

Figure 7-6 DTL-24D-1( ) TEL

2.1.7 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
- ❒ Eight 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 10-key dial pad for easy viewing
- ❒ Full-duplex handsfree operation

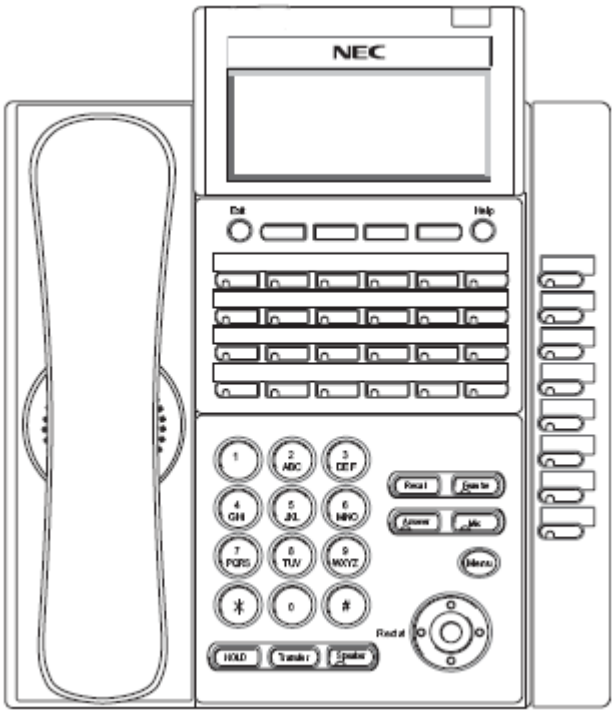


Figure 7-7 DTL-32D-1( ) TEL

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 IPK II system.*

3.1 IP MultilineTerminals

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 7-8 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

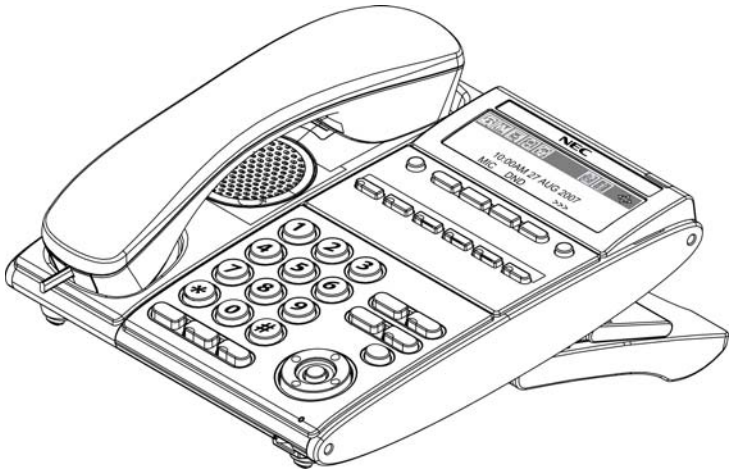


Figure 7-9 ITL-6DE-1( ) TEL

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 10-key dial pad 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 7-10 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 10-key dial pad for easy viewing
- ❒ Full-duplex handsfree operation
- ❒ IEEE 802.3af compliant
- ❒ XML open interface
- ❒ 10 Base-T/10 0Base-TX network interface
- ❒ Backlit LCD

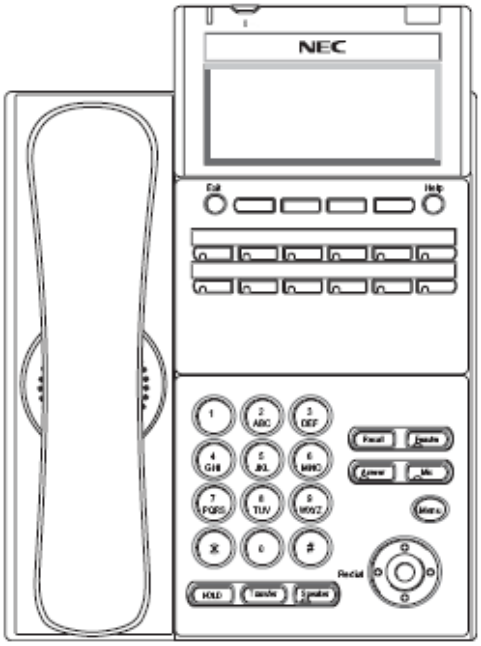


Figure 7-11 ITL-12D-1( ) TEL

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 10-key dial pad 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

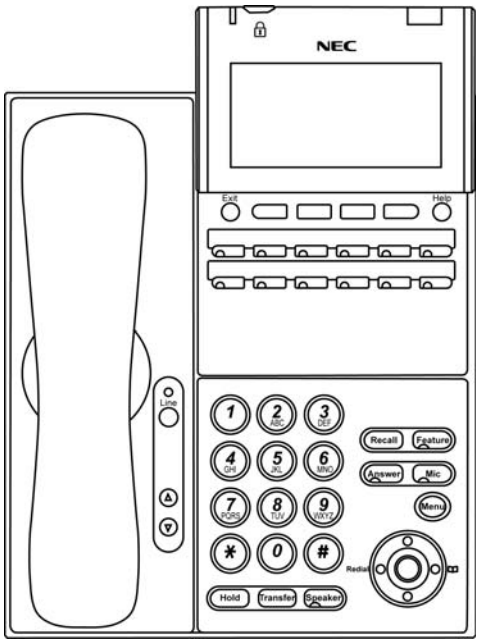


Figure 7-12 ITL-12PA-1( ) TEL

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 10-key dial pad 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 7-13 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 10-key dial pad for easy viewing
- ❒ Full-duplex handsfree operation
- ❒ IEEE 802.3af compliant
- ❒ XML open interface
- ❒ 10 Base-T/100 Base-TX network interface
- ❒ Backlit LCD

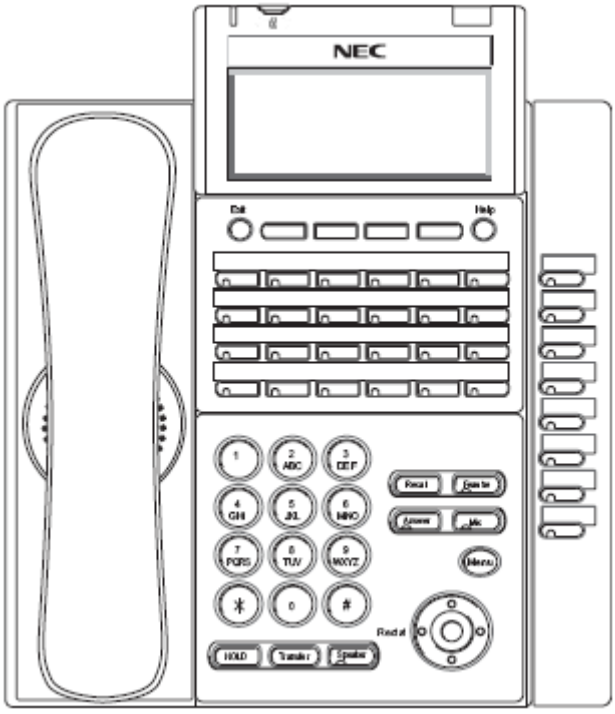


Figure 7-14 ITL-32D-1( ) TEL

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 10-key dial pad for easy viewing
- ❒ Full-duplex handsfree operation
- ❒ IEEE 802.3af compliant
- ❒ XML open interface
- ❒ 10Base-T/100Base-TX network interface
- ❒ Backlit LCD

Figure 7-15 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 side of the multiline terminal. The handset is also attached to the bottom side of the multiline terminal.

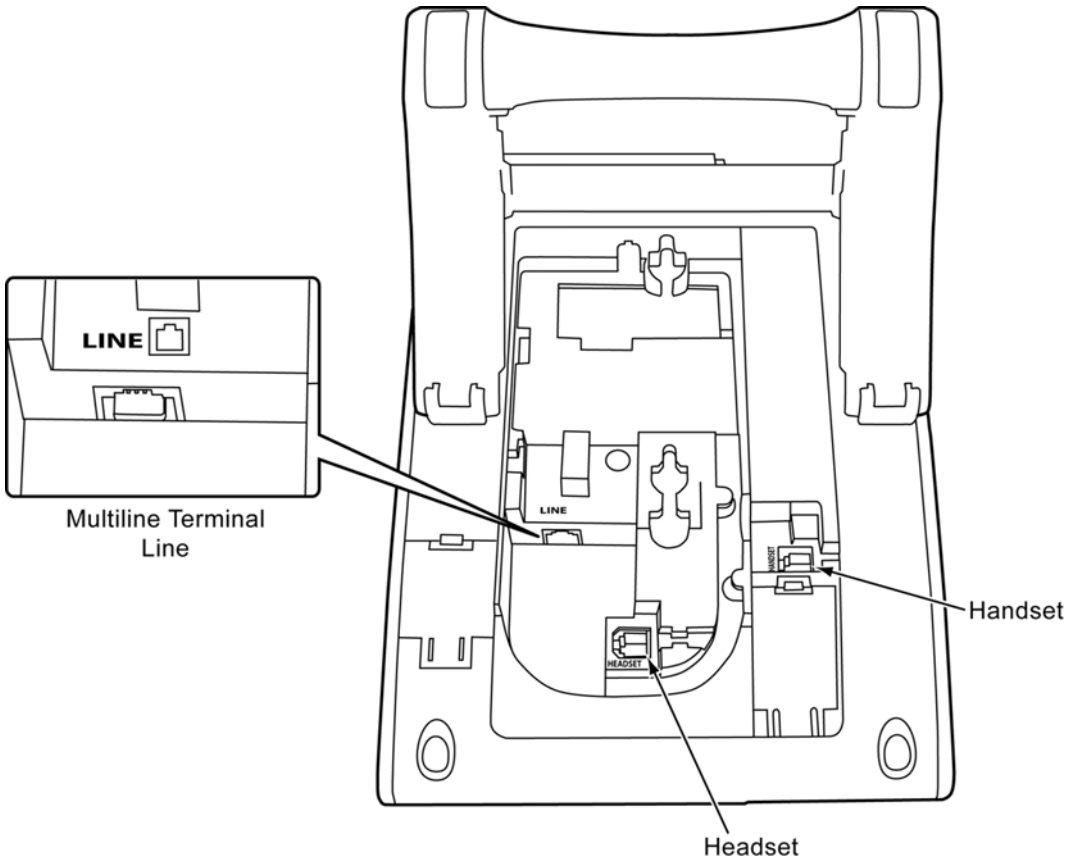


Figure 7-16 Connecting a Multiline Terminal to the System

2. Lead the Line and Handset cables through the applicable grooves.

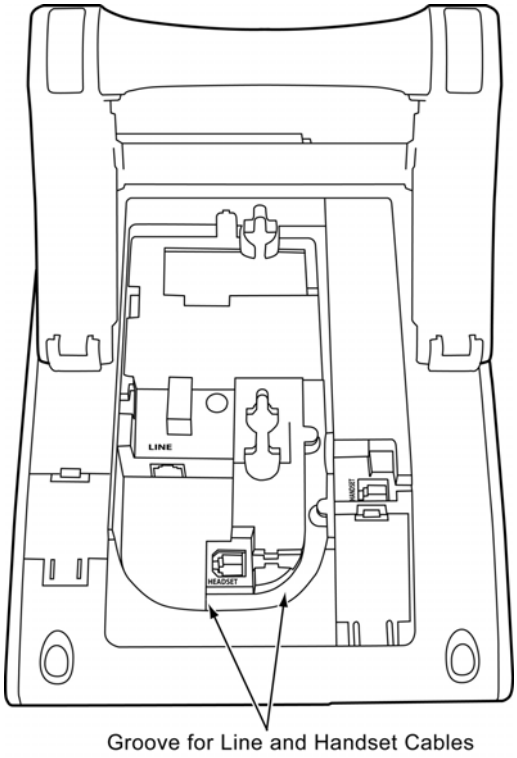


Figure 7-17 Leading Line Cords on a multiline terminal

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 7-18 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 7-19 Typical Network IP Connection on page 7-24.

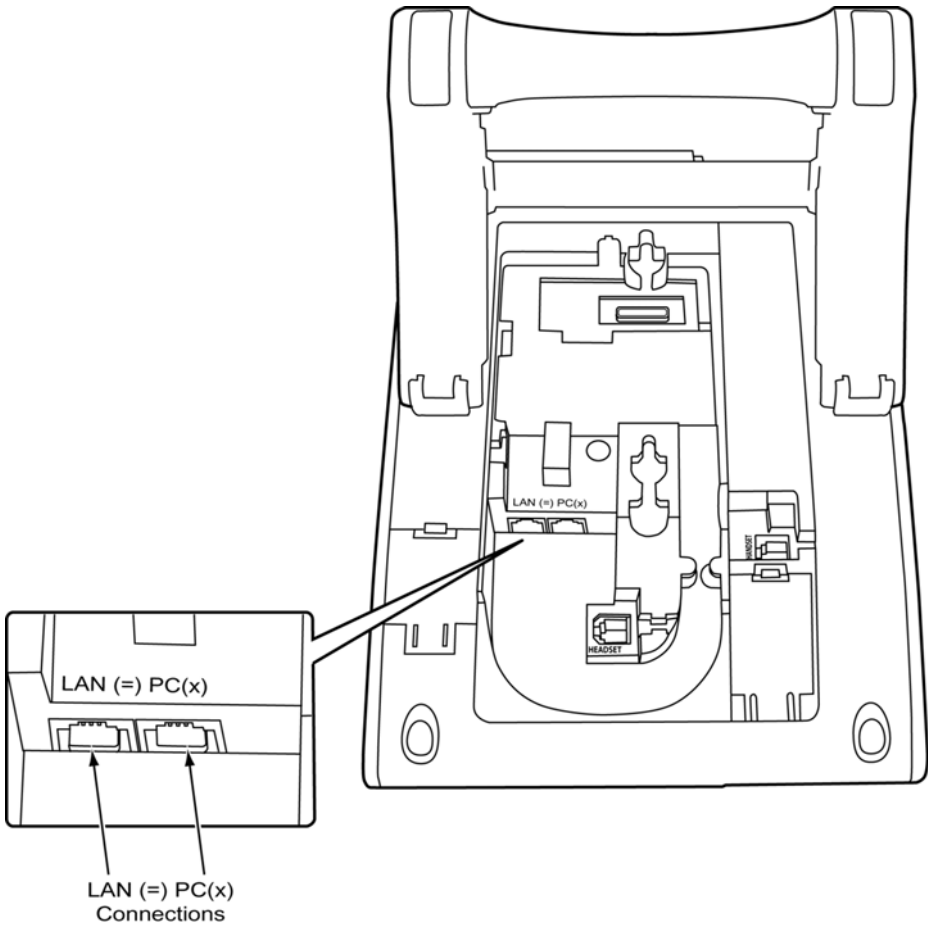


Figure 7-18 IP Terminal Connector Locations

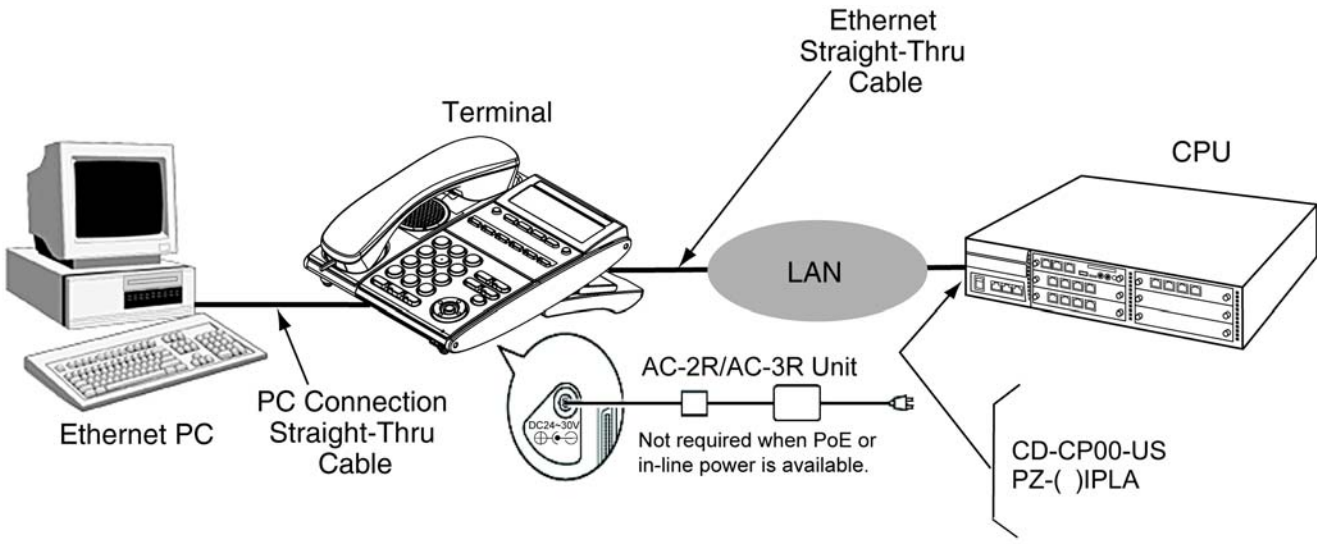


Figure 7-19 Typical Network IP Connection

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 7-20 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 7-21 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 7-22 Removing the Line Key Panel on page 7-25).

Figure 7-22 Removing the Line Key Panel

4. Lift and remove the DESI sheet.

Figure 7-23 Removing the DESI Sheet

5. Press the right end of the Line Key placeholder and lift to remove (refer to Figure 7-24 Removing the Line Key Placeholder on page 7-26).

Figure 7-24 Removing the Line Key Placeholder

6. Install the 12LK-L KIT and press down until click is heard.

Figure 7-25 Installing the 12LK-L KIT

7. If desired, print and install the new DESI sheet.

Figure 7-26 Installing the DESI Sheet

8. Install the supplied Line Key Panel (refer to Figure 7-27 Installing the Line Key Panel).

Figure 7-27 Installing the Line Key Panel

9. Install the side panel.

10. 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 R/W mode. The Message Waiting LED should be lit.*

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 7-6 Numbered Keypad Type

Numbered Keypad 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 will be lit Red.

5. Press **Exit** to return the telephone to the idle condition.

4.5.3 Configuring the IP Telephone for the Correct Number of Line Keys

1. Press HOLD CONF ✱ # 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 Softkey **3** for Maintenance Setting.

4. Press Softkey **4** for Adjust.

5. Press Softkey **2** for Key Kit Type.

6. Press the Up/Down key to select the keypad kit being used.

Table 7-7 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 Softkey **4** for Next.

8. Press the Up/Down key to select the Line Key kit being used.

   ✎ *By default, the correct line key kit for the keypad kit selected above will be highlighted.*

Table 7-8 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 will reset 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 7-28 Attaching Directory Card to Directory Card Holder. Note that the open end slides into the directory card holder.

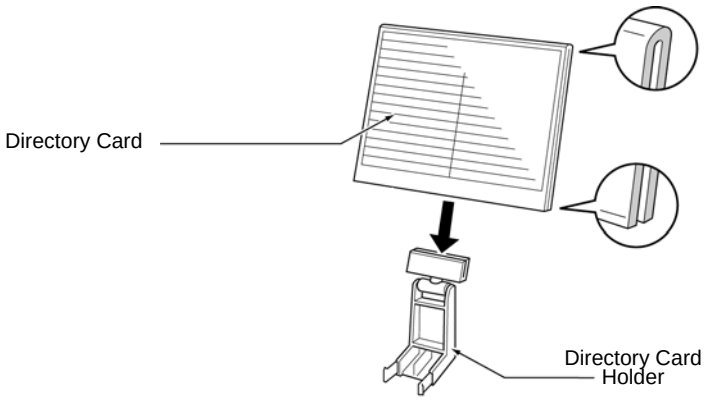


Figure 7-28 Attaching Directory Card to Directory Card Holder

2. Locate the two grooves on the top of the telephone as illustrated in Figure 7-29 Attaching Directory Card Holder to theMmultiline 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.***

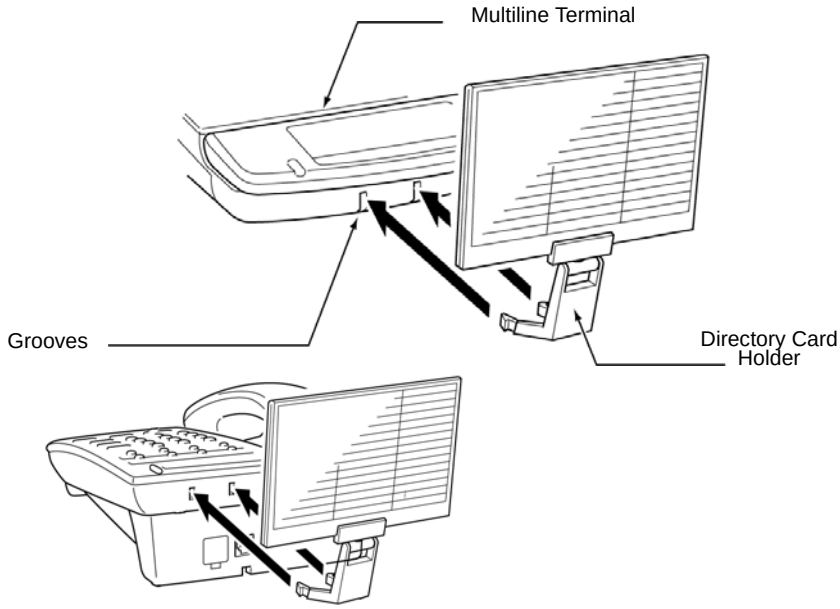


Figure 7-29 Attaching Directory Card Holder to theMmultiline Terminal

4.7 Installing a Numbered Keypad on the Multiline Terminal

The BS( )-L( ) Kits are keypad sets, which can be installed on a multiline terminal replacing the Standard Numbered Keypad. The *D*^{term} Series i Retro is an optional keypad available to be used with the IPK II and IPS terminals.

❍ Standard Numbered Keypad

The standard keypad (in black or white), is commonly delivered with the UNIVERGE SV8100/SV8300 terminal (refer to Figure 7-30 Standard Numbered Keypad on page 7-31).

Figure 7-30 Standard Numbered Keypad

❍ BS (Retro)-L KIT

The optional Retro keypad (in black or white), is compatible with the ***D^term*** Series i telephone, allowing the terminal to be used with the IPK II and IPS multiline terminals.

Figure 7-31 BS (Retro)-L KIT

4.7.1 Installing the Numbered Keypad on a Multiline Terminal

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 plastic panels. (Refer to paragraph Figure 7-32 Remove Plastic Panels.)

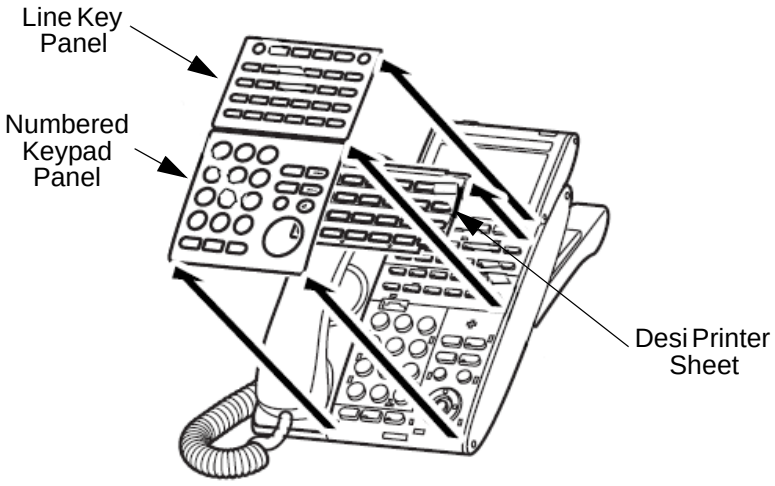


Figure 7-32 Remove Plastic Panels

2. Pull down on the tab and lift the Numbered Keypad away from the telephone to remove the existing button. Refer to Figure 7-33 Removing Numbered Keypad from DT300/DT700 Series Terminal.

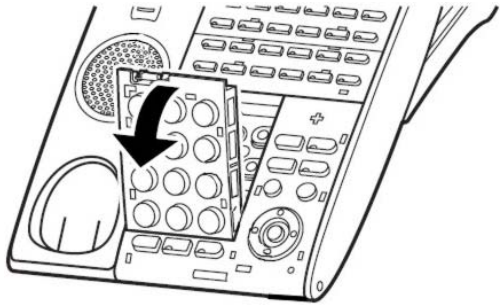


Figure 7-33 Removing Numbered Keypad from DT300/DT700 Series Terminal

3. 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 7-34 Install New Numbered Keypad into DT300/DT700 Series Terminal.

Figure 7-34 Install New Numbered Keypad into DT300/DT700 Series Terminal

4. Insert the DESI printer sheet and plastic panels on the multiline terminal. Refer to Figure 7-35 Install Plastic Panels.

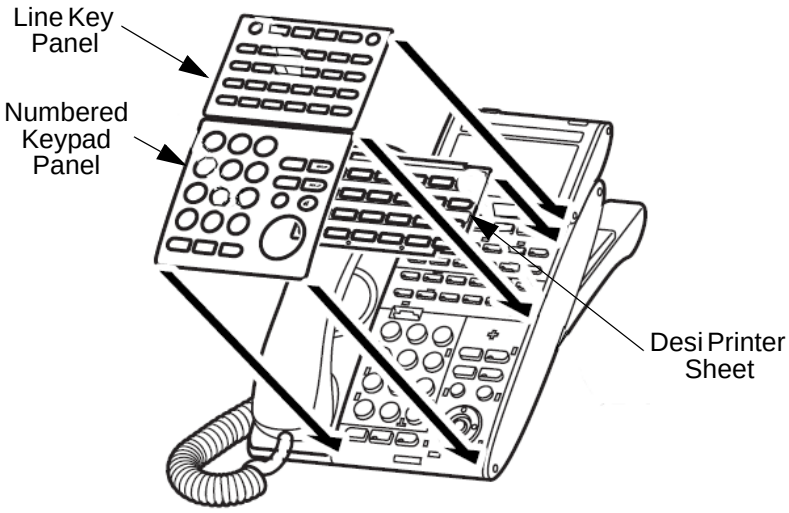


Figure 7-35 Install Plastic Panels

4.7.2 Configuring the Digital Telephone for the Numbered Keypad

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 lit.*

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 7-9 Numbered Keypad Type

Numbered Keypad Type	Push	LED Indication
Japanese	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 Value	09	Line 1 and 2 LED flashing Red
Model A Value	10	Line 1 LED flashing Green
Model B Value	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 LED is lit.

5. Press **Exit** to return the telephone to the idle condition.

4.7.3 Configuring the IP Telephone for the Numbered Keypad

1. Enter the terminal's program mode by pressing HOLD CONF ✱ #.

2. At the Login screen, enter the user name (default = ADMIN) and password (default = 6633222) and press the **OK** Softkey.

3. Press Softkey **3** for Maintenance Setting.

4. Press Softkey **4** for Adjust.

5. Press Softkey **2** for Key Kit Type.

6. Select the type of keypad kit being used by pressing the Up/ Down key.

Table 7-10 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 Softkey **4** for Next.

8. Press the Up/Down key to select the line key kit being used.

   ✎ *By default, the correct line key kit for the keypad kit selected above is highlighted.*

Table 7-11 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.

4.8 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 7-36 Adjust Height of DT300/DT700 Series Terminal on page 7-36).

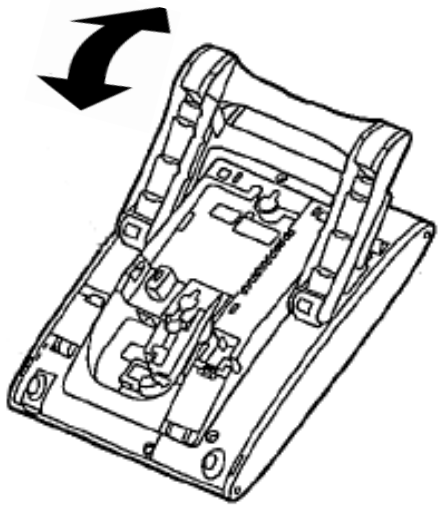


Figure 7-36 Adjust Height of DT300/DT700 Series Terminal

3. Turn telephone over (button side up).

4.9 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.

4.9.1 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 7-37 Separating the Tilt Legs.

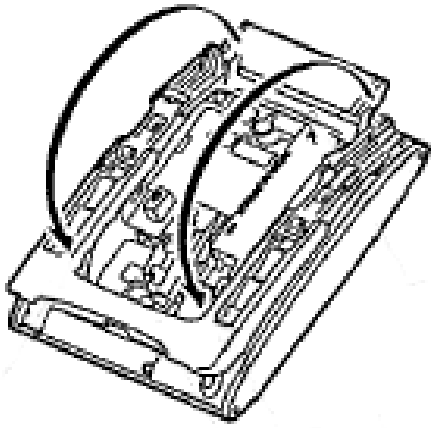


Figure 7-37 Separating the Tilt Legs

3. Push downward (two arrows) and slide downward (refer to Figure 7-38 Removing Tilt Legs from Multiline Terminal).

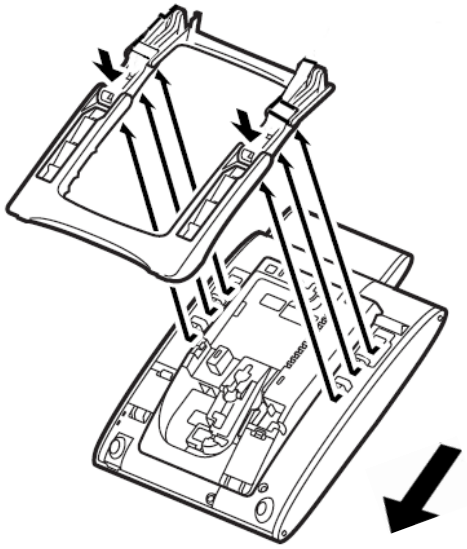


Figure 7-38 Removing Tilt Legs from Multiline Terminal

4. Lift and remove the Tilt Legs.

4.9.2 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 7-39 Attach Tilt Legs to DT300/DT700 Series Terminal.

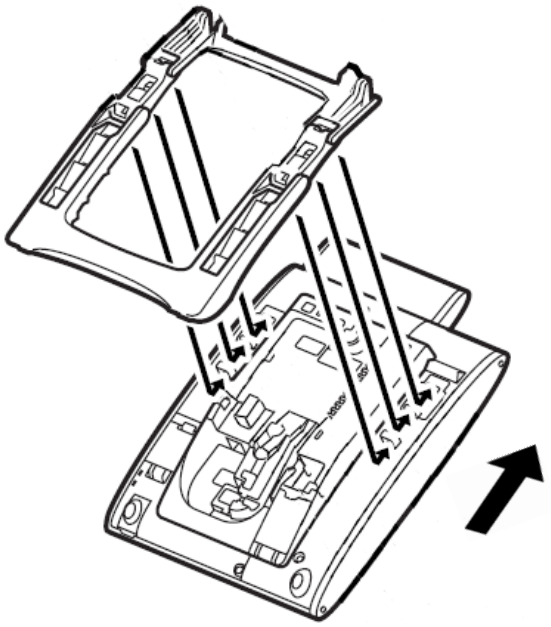


Figure 7-39 Attach Tilt Legs to DT300/DT700 Series Terminal

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 7-40 Connecting the Tilt Legs on page 7-38).

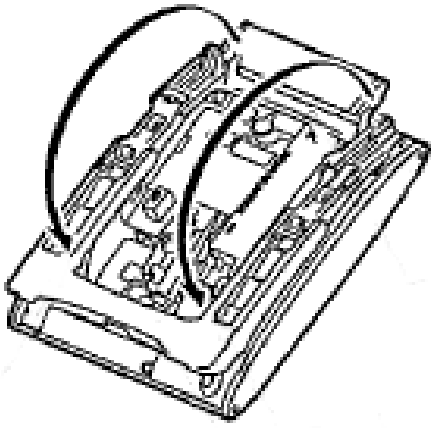


Figure 7-40 Connecting the Tilt Legs

5. Snap legs together and adjust to desired height. Refer Figure 7-41 Adjust Height of DT300/DT700 Series Terminal.

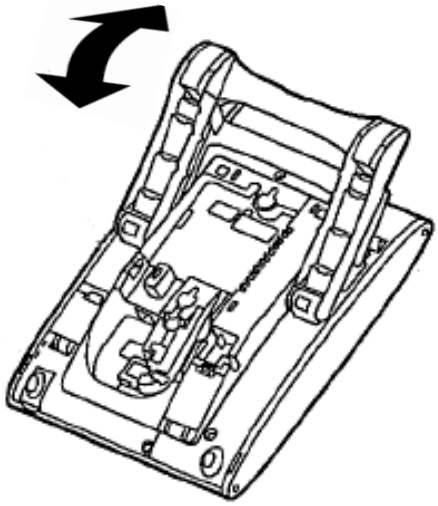


Figure 7-41 Adjust Height of DT300/DT700 Series Terminal

4.10 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.

4.10.1 Wall Mounting a Multiline Terminal using the Base Plate

4.10.1.1 Adjusting the Hanger Hook

1. Remove the hook from the unit.

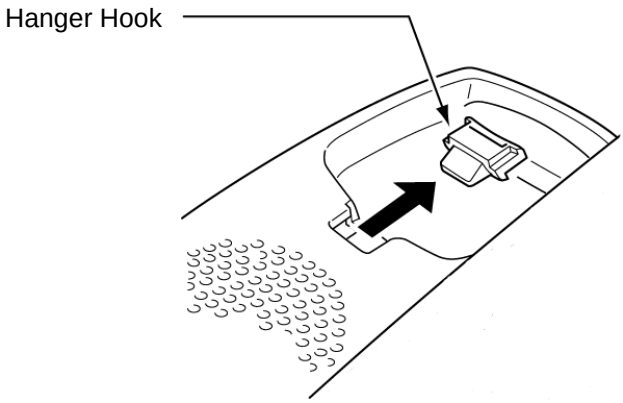


Figure 7-42 Removing the Hanger Hook on a DT300/ DT700 Series Terminal

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.

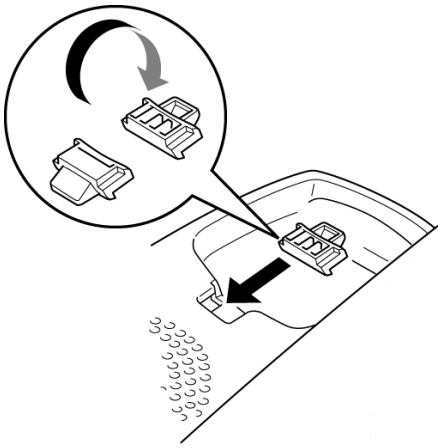


Figure 7-43 Sliding the Hanger Hook into Position

4.10.1.2 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 7-44 Bundling the Line Cord.

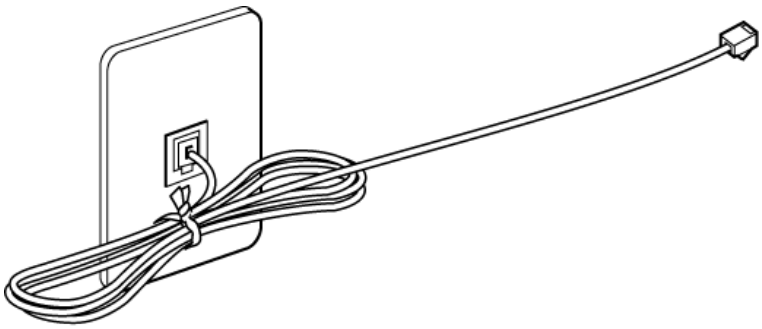


Figure 7-44 Bundling the Line Cord

2. Ensure the Tilt Legs are in the flat (unused position).

3. Plug the line cord into the multiline terminal as illustrated in Figure 7-45 Plugging in Line Cord.

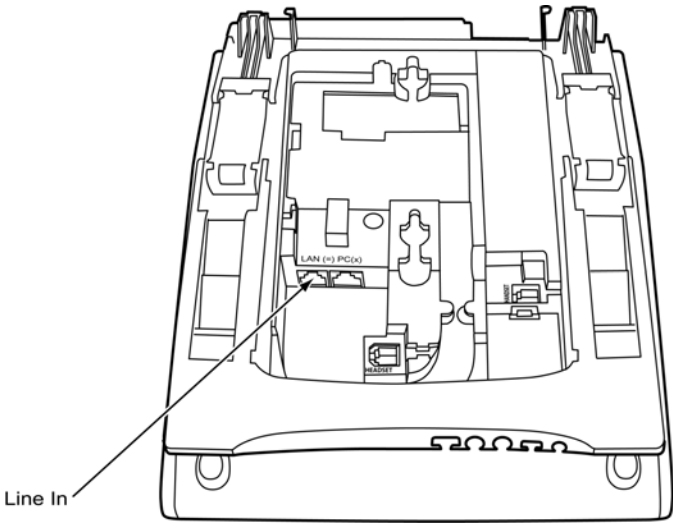


Figure 7-45 Plugging in Line Cord

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 7-46 Mount Multiline Terminal Wall on Wall Plate on page 7-41).

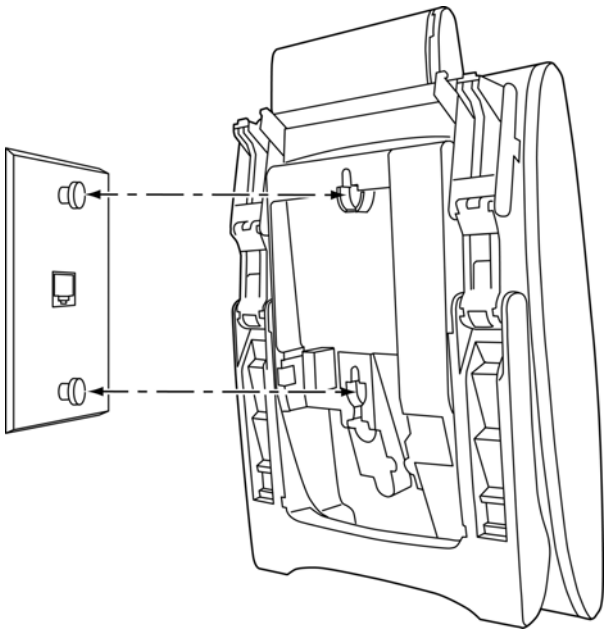


Figure 7-46 Mount Multiline Terminal Wall on Wall Plate

5. Push spare line cord behind the multiline terminal.

4.10.1.3 Removing the Multiline Terminal from the Wall Mounted Base Plate.

To remove the multiline terminal, push up on the telephone until it comes loose.

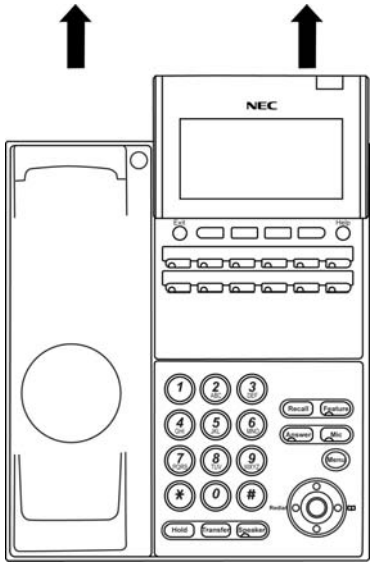


Figure 7-47 Removing the Multiline Terminal

4.10.1.4 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 7-48 Wall Mounting Base on Wall Plate.

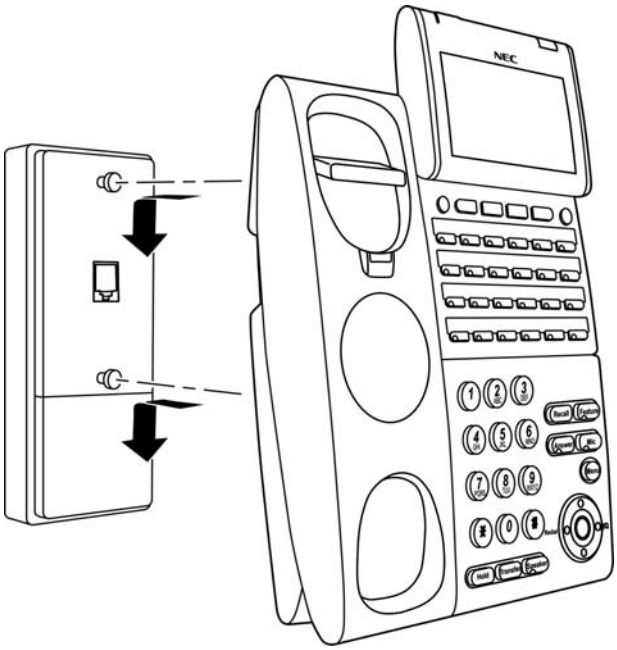


Figure 7-48 Wall Mounting Base on Wall Plate

2. Hang the multiline terminal on the base.

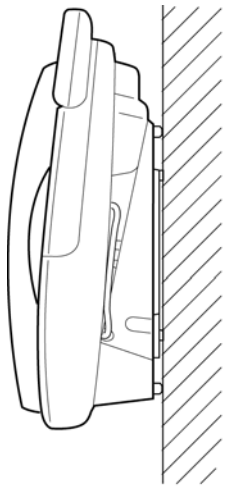


Figure 7-49 Wall Mounted Multiline Terminal

✎ *Because of strength 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.

Table 7-12 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-1( )2D-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	✓	✓	N/A	✓	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	N/A
	DESI-less LK/LCD Unit				N/A	N/A
	Backlit LCD				N/A	N/A
IP	DESI-less LK/LCD Unit	N/A (Built in)	✓	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

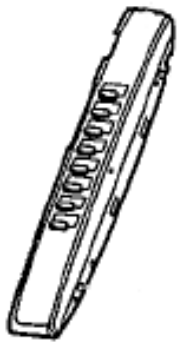


Figure 7-50 8LK-L UNIT

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.

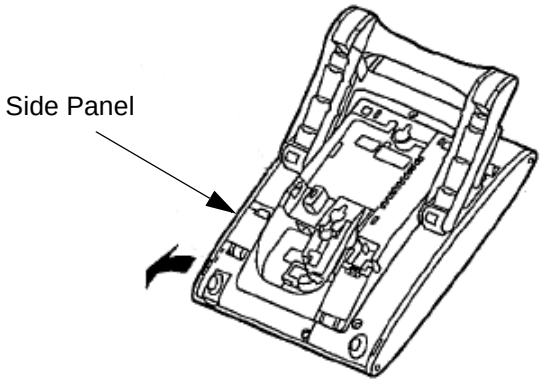


Figure 7-51 Remove Side Panel from Multiline Terminal

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.

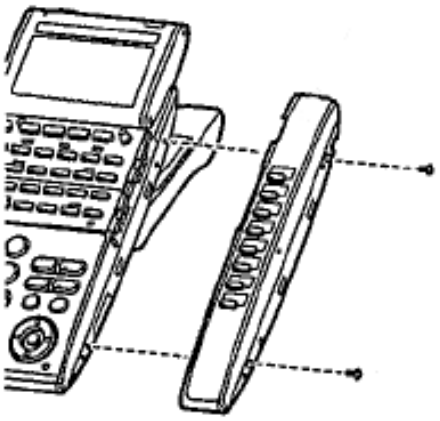


Figure 7-52 Securing the 8LK-L UNIT with Screws

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.

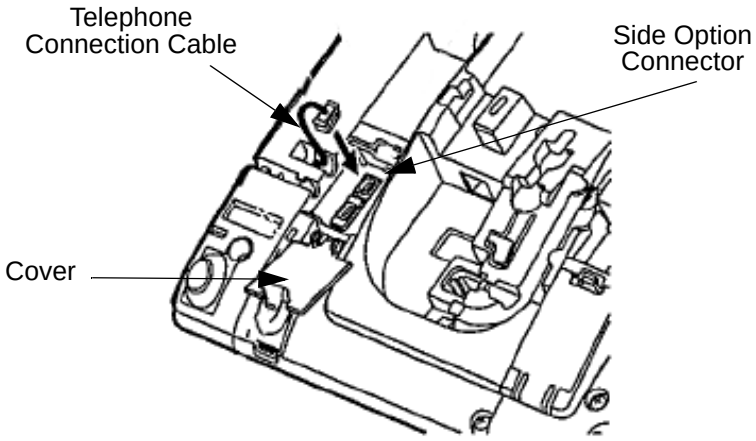


Figure 7-53 Install the 8LK-L UNIT Cable

9. Connect the cable from the 8LK-L UNIT to the side option connector (see Figure 7-53 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 position.
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 side of terminal
- ❒ Supports Desi-less 2 LCD panels
- ❒ Eight line keys by four pages

Figure 7-54 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.

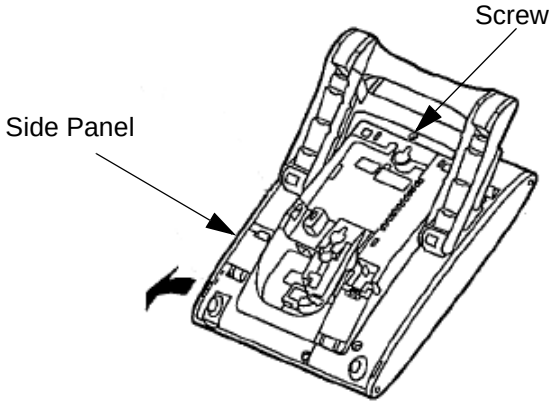


Figure 7-55 Remove Side Panel from Multiline Terminal

3. Remove the screw (refer to Figure 7-55 Remove Side Panel from Multiline Terminal on page 7-47).
4. Carefully, return the multiline terminal to the buttons side up position.
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 7-56 Ribbon Cable Connector).

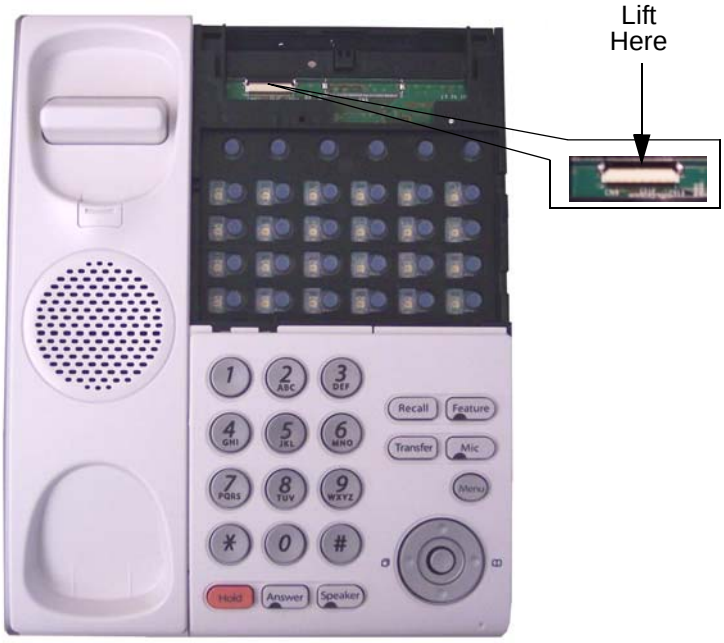


Figure 7-56 Ribbon Cable Connector

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 7-57 Ribbon Cable Installed on page 7-49).

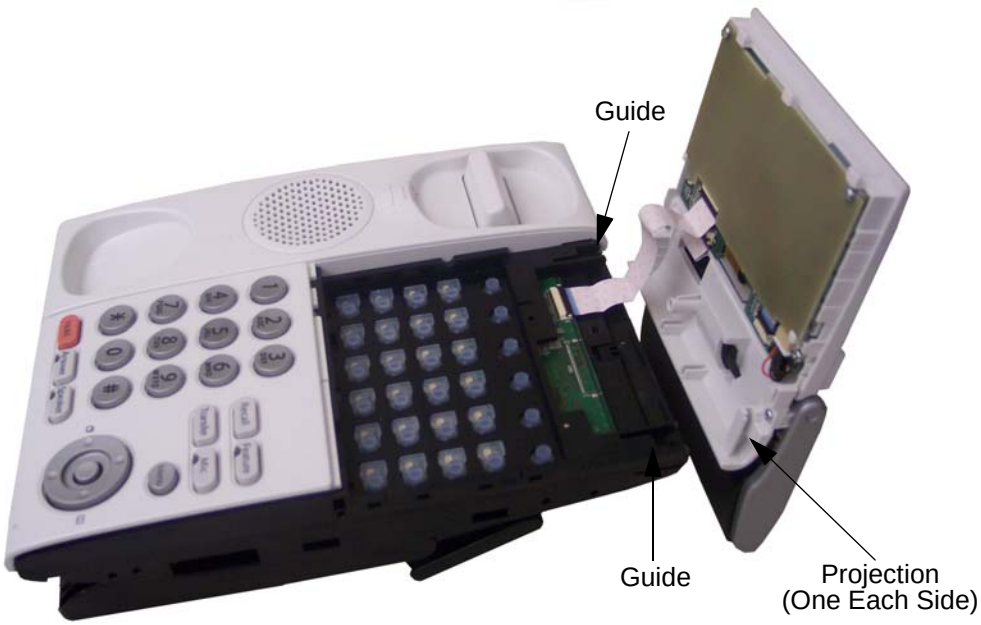


Figure 7-57 Ribbon Cable Installed

9. Align the projections on the bottom of the 8LKD (LD)-L UNIT into 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 7-58 8LKD (LD)-L UNIT Installed).

Figure 7-58 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 7-59 Install Screw).

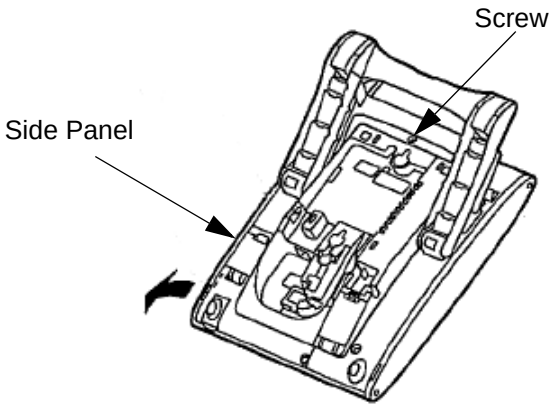


Figure 7-59 Install Screw

13. Attach the side panel to the side of the 8LKD (LD)-L UNIT (refer to Figure 7-65 Install Screw on page 7-53).
14. Return the multiline terminal to the buttons side up position.
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 side of terminal
- ❒ Supports Desi-less 2 LCD panels
- ❒ Eight line keys by four pages

Figure 7-60 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.

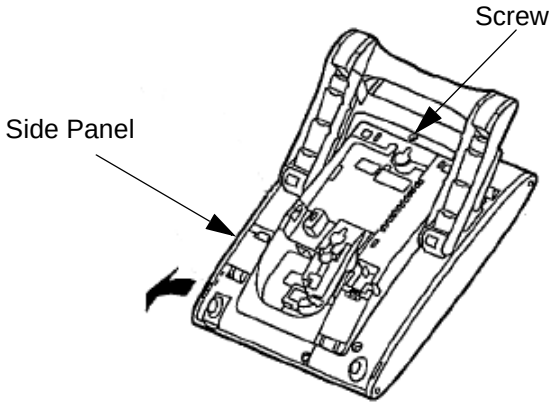


Figure 7-61 Remove Side Panel from Multiline Terminal

3. Remove the screw (refer to Figure 7-61 Remove Side Panel from Multiline Terminal on page 7-51).
4. Carefully, return the multiline terminal to the buttons side up position.
5. Remove the Softkeys and Line Key kit from the telephone.

6. Gently lift the small black bar to open the ribbon cable connector.

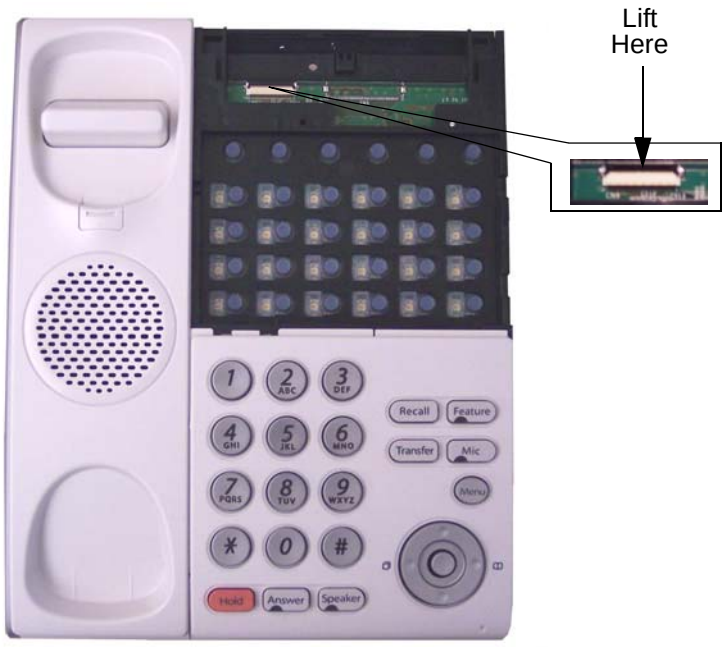


Figure 7-62 Ribbon Cable Connector

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 7-63 Ribbon Cable Installed on page 7-52).

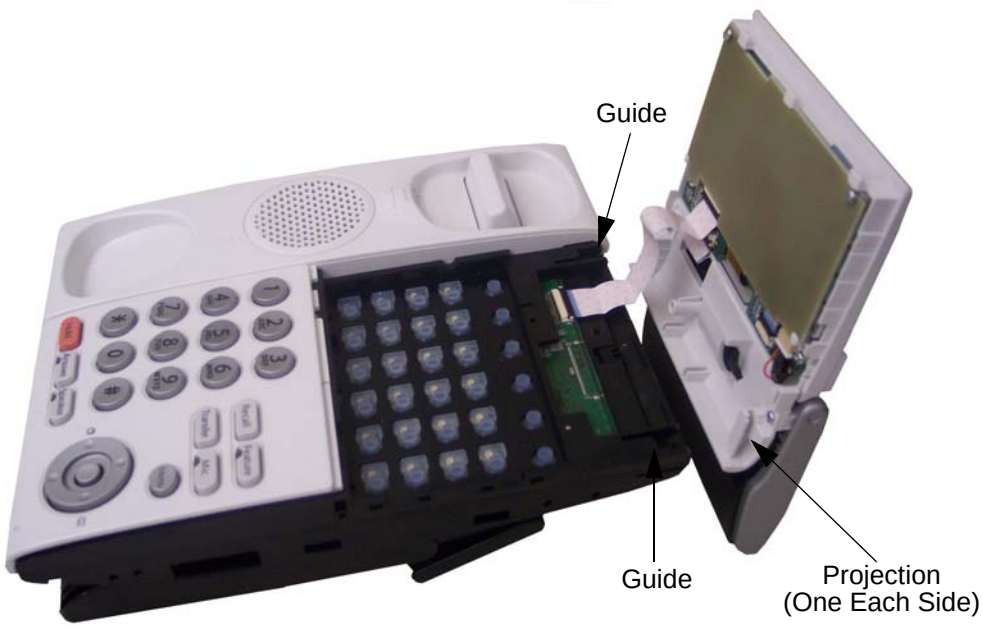


Figure 7-63 Ribbon Cable Installed

9. Align the projections on the bottom of the 8LKI (LD)-L UNIT into the guide holes on top of the multiline terminal (refer to Figure 7-63 Ribbon Cable Installed).

10. Slide the 8LKI (LD)-L UNIT toward the keypad buttons until snug (refer to Figure 7-64 8LKI (LD)-L UNIT Installed).

Figure 7-64 8LKI (LD)-L UNIT Installed

11. Holding the LCD in place, turn the multiline terminal button side down.

12. Install screw (refer to Figure 7-65 Install Screw).

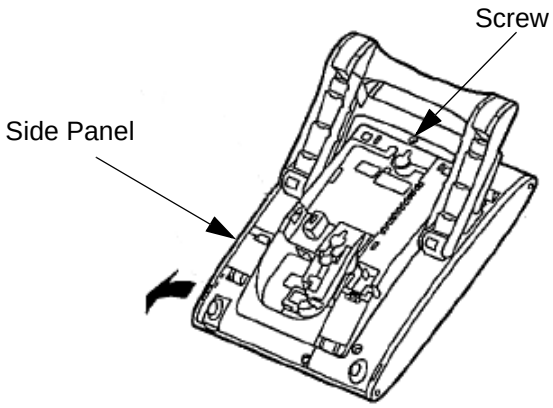


Figure 7-65 Install Screw

13. Attach the side panel to the side of the 8LKI (LD)-L UNIT (refer to Figure 7-65 Install Screw).

14. Return the multiline terminal to the buttons side up position.

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. There are also two keys that allow “shifting” between the first and second set of 100 extensions.

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 7-66 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 at a time.*

3. Pry the side panel from the multiline terminal.

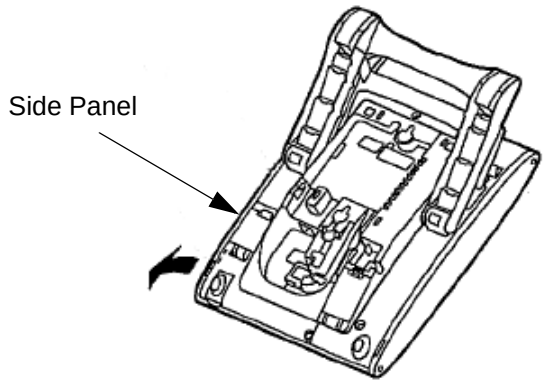


Figure 7-67 Remove Side Panel from Multiline Terminal

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.

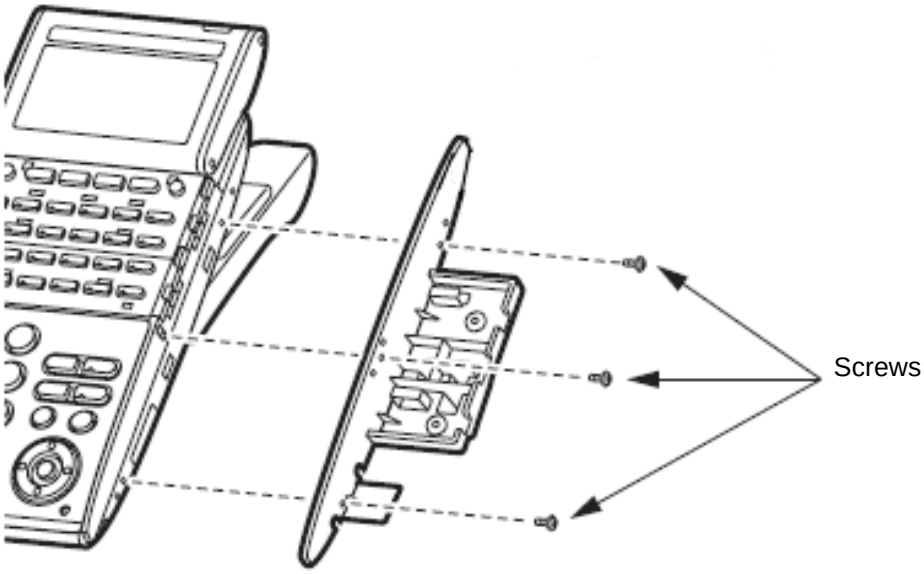


Figure 7-68 Secure Bracket to Multiline Terminal with Screws

7. Carefully push the Serial cable into the Serial Cable Groove (ITL, DT700 only).

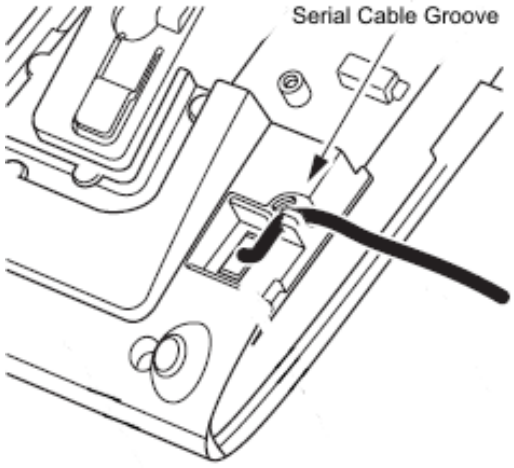


Figure 7-69 Press Serial Cable into Groove

8. Using the guides, slide the DCL-60-1( ) onto the installed bracket (refer to Figure 7-69 Press Serial Cable into Groove).

9. Secure the DCL-60-1 CONSOLE to the bracket with the two screws provided.

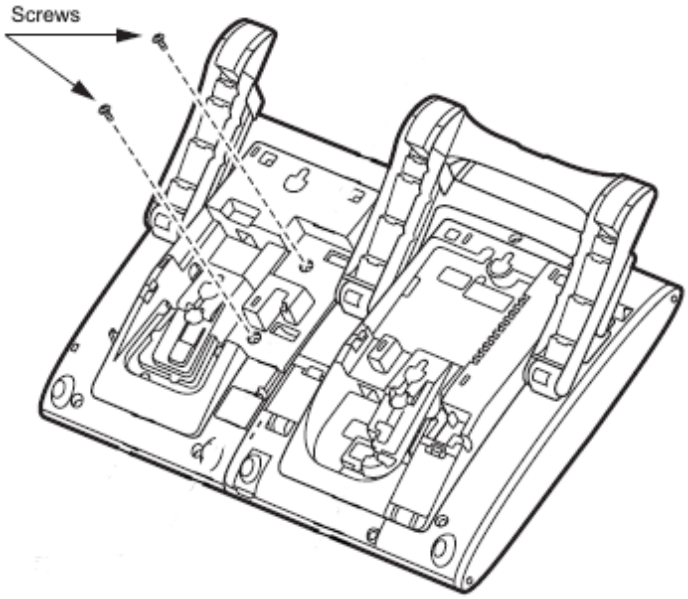


Figure 7-70 Securing the DCL-60-1 CONSOLE with Screws

10. Open the small door covering the side option connectors by pulling the cover latch toward you (refer to Figure 7-71 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).

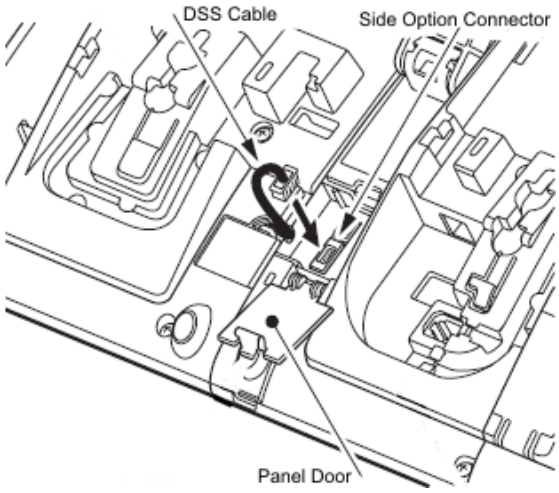


Figure 7-71 Serial Cable Installed

12. Set the height of 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 7-72 Connect AC Adapter Cable on page 7-58.

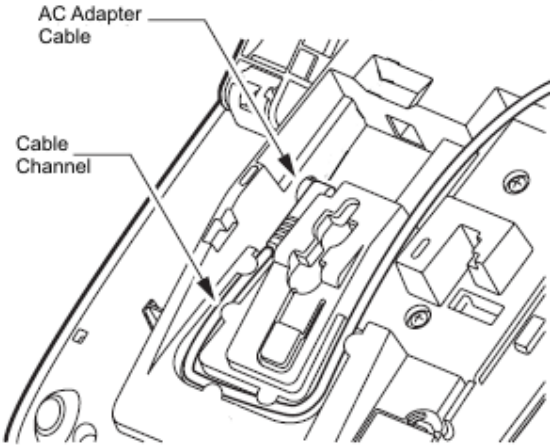


Figure 7-72 Connect AC Adapter Cable

18. Complete the installation by reattaching both plastic panels to the front of the multiline terminal.

Figure 7-73 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).

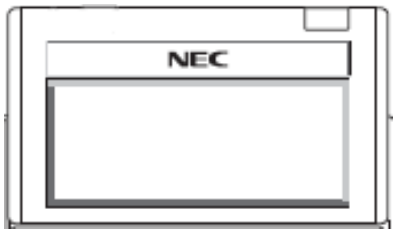


Figure 7-74 LCD (BL)-L UNIT

5.2.6 PANEL( )-L UNIT

Optional plastic color side panels that allow users to customize the ITL/DTL terminals. The following colors are available for the Base (all), VLCD (Value LCD) and SLCD (Sophi LCD) terminals:

- ❒ Silver (original)
- ❒ Red
- ❒ Blue
- ❒ Clear
- ❒ Wood Grain
- ❒ Environmental

✎ *Right and Left side panels are not interchangeable.*

Figure 7-75 PANEL( )-L UNIT

5.2.7 WM-L( ) UNIT Attached to Wall

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 back side of the telephone.

When optional adapters are used, the multiline terminal must be installed on the wall using the WM-L( ) 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 WM-L( ) UNIT.

3. Attach the WM-L( ) UNIT to the wall using four screws (refer to Figure 7-76 Attach the WM-L( ) UNIT to Wall).

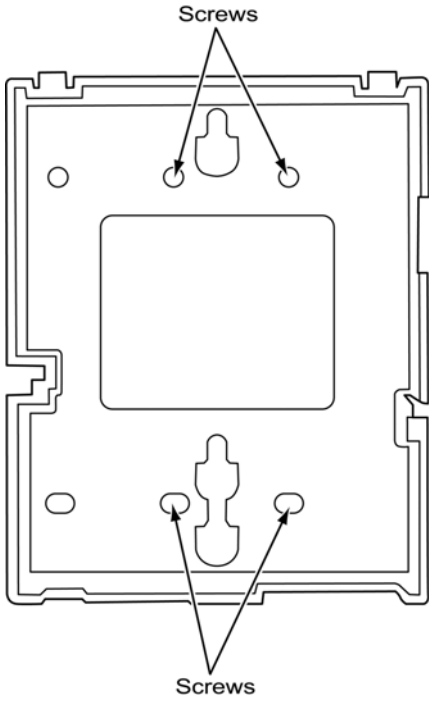


Figure 7-76 Attach the WM-L( ) UNIT to Wall

4. Align the four cutouts with the four tabs on the WM-L( ) UNIT (refer to Figure 7-77 Cutouts for WM-L( ) UNIT).

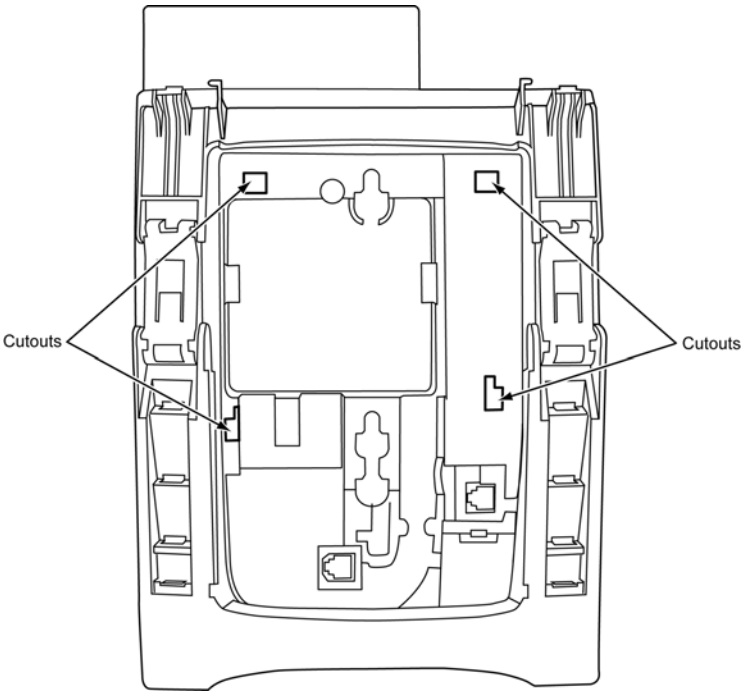


Figure 7-77 Cutouts for WM-L( ) UNIT

5. Push down on telephone until the WM-L( ) UNIT snaps into place (refer to Figure 7-78 WM-L( ) UNIT Installed).

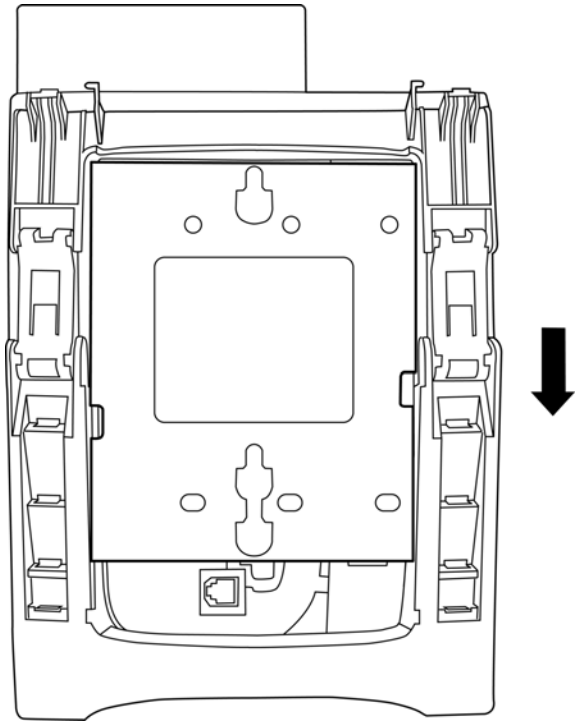


Figure 7-78 WM-L( ) UNIT Installed

5.2.8 Release the WM-L( ) UNIT

1. To release the telephone from the WM-L( ) UNIT, press the release button and push the telephone up (refer to Figure 7-79 WM-L( ) UNIT Release Button).

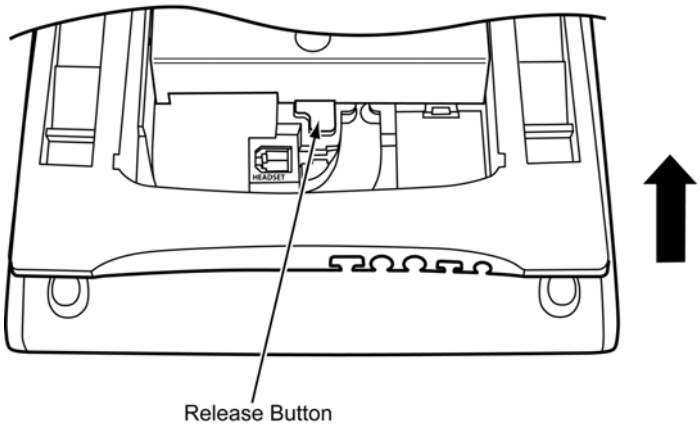


Figure 7-79 WM-L( ) UNIT Release Button

5.2.9 WM-L( ) UNIT Attached to Wall Plate

The WM-L( ) UNIT (Wall Mount Unit) is used to attach any DT300/ DT700 Series multiline terminal to the wall plate This unit connects to the back side of the telephone.

When optional adapters are used, the multiline terminal must be installed on the wall plate using the WM-L( ) UNIT.

1. Plug line cord in the wall plate receptacle. Leave about eight inches of cord and bundle the rest.
2. Feed the line cord through the opening in the WM-L( ) UNIT.
3. Plug the line cord into the multiline terminal as illustrated in Figure 7-80 Plugging in Line Cord.

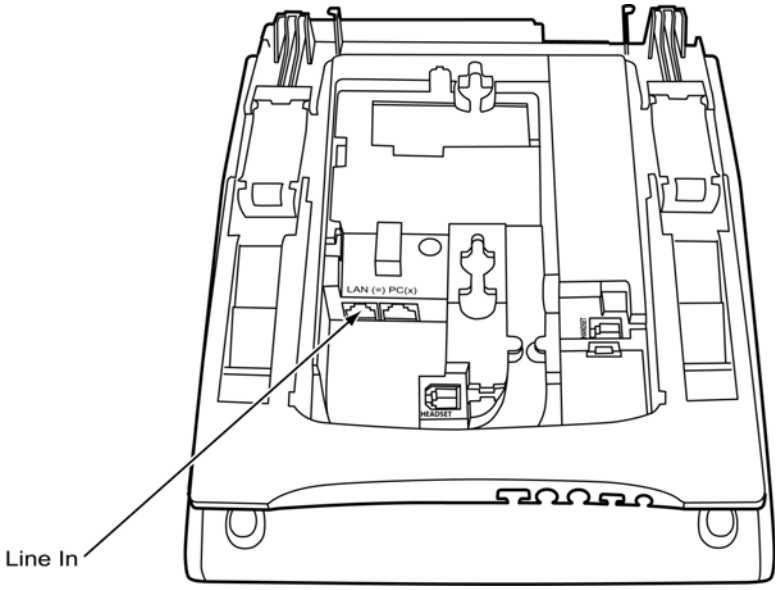


Figure 7-80 Plugging in Line Cord

4. Align the four cutouts with the four tabs on the WM-L( ) UNIT (refer to Figure 7-81 Cutouts for WM-L( ) UNIT on page 7-63).

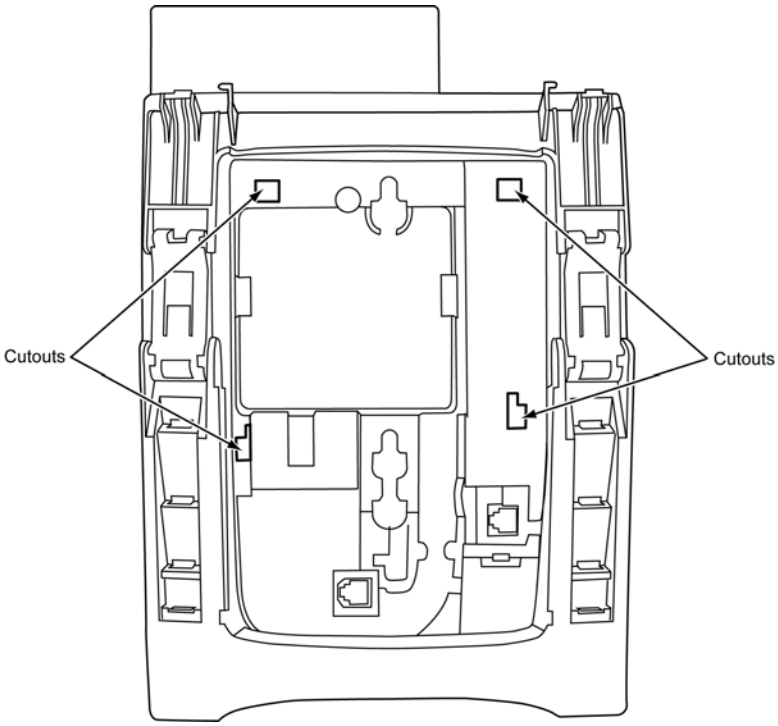


Figure 7-81 Cutouts for WM-L( ) UNIT

5. Push up on the WM-L( ) UNIT until it snaps into place (refer to Figure 7-82 WM-L( ) UNIT Installed).

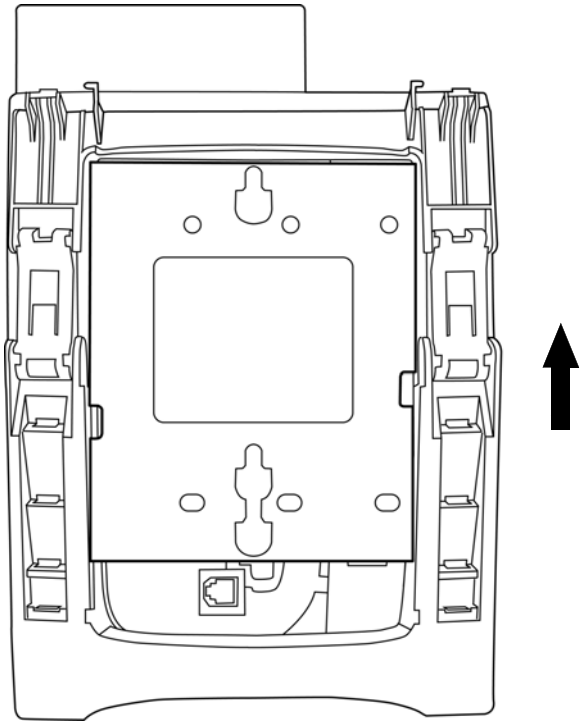


Figure 7-82 WM-L( ) UNIT Installed

6. Align the two holes on the back of the WM-L( ) UNIT with the two screws on the wall plate and slide downward (refer to Figure 7-83 Mount Multiline Terminal Wall on Wall Plate).

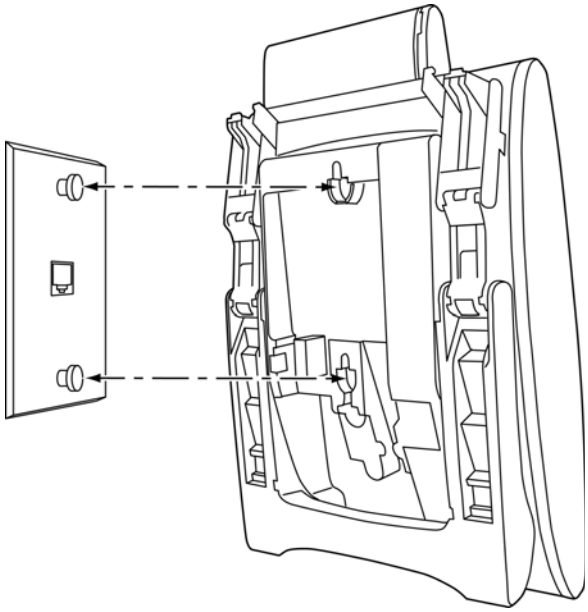


Figure 7-83 Mount Multiline Terminal Wall on Wall Plate

✎ *Because of strength variation in wall plates, this method is not recommended.*

7. Push excess line cord behind the multiline terminal.

5.2.10 Removing the Multiline Terminal from the Wall Mounted Plate.

To remove the multiline terminal, push up on the telephone until it comes loose.

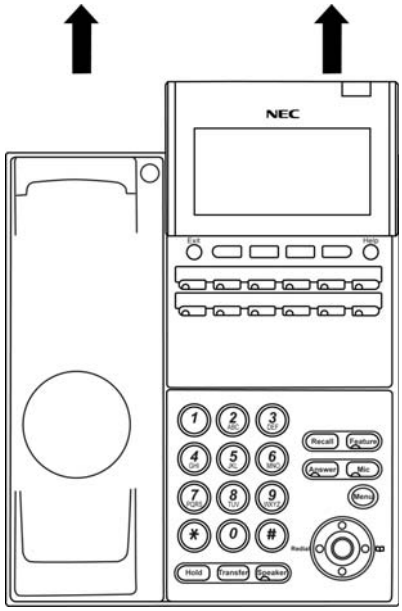


Figure 7-84 Removing the Multiline Terminal

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 7-85 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 7-86 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 capabilities 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 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.

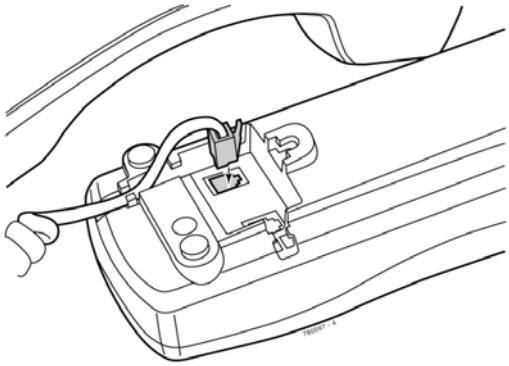


Figure 7-87 Installing the UTR-1-1( ) USB Handset Cable

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.

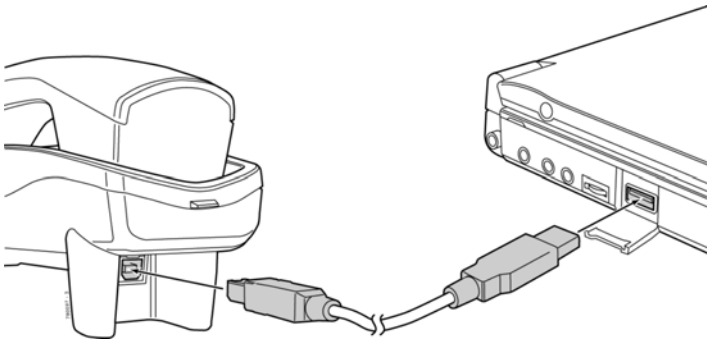


Figure 7-88 Installing the UTR-1-1( ) USB Handset to a PC

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.

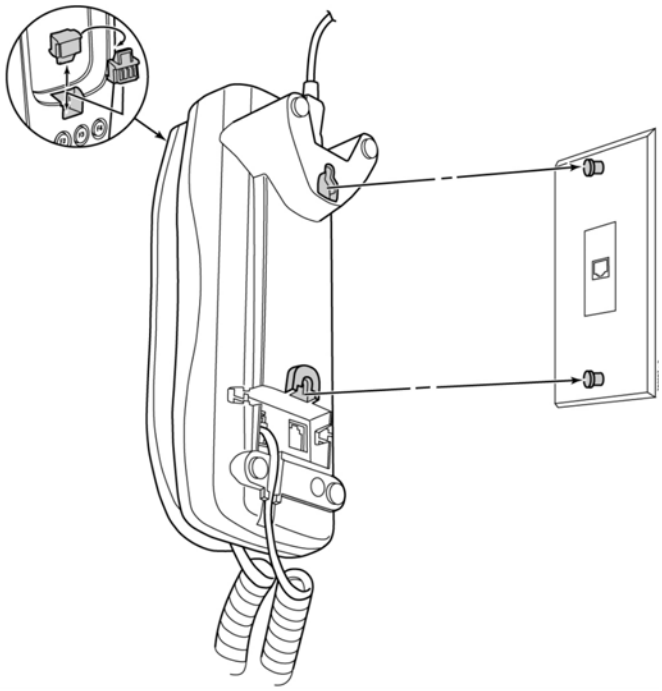


Figure 7-89 Wall Mounting the UTR-1-1( ) USB Handset

✎ Because of strength variation in swall 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.

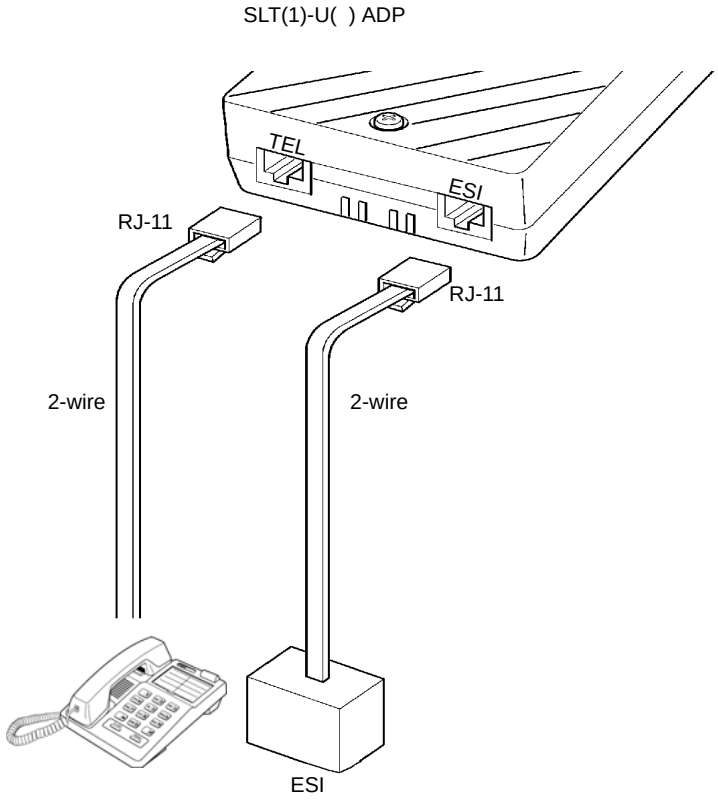
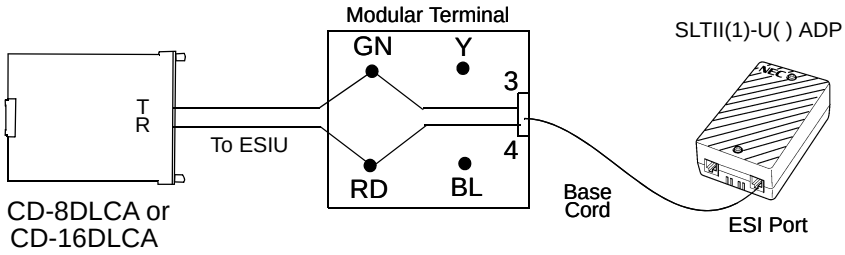
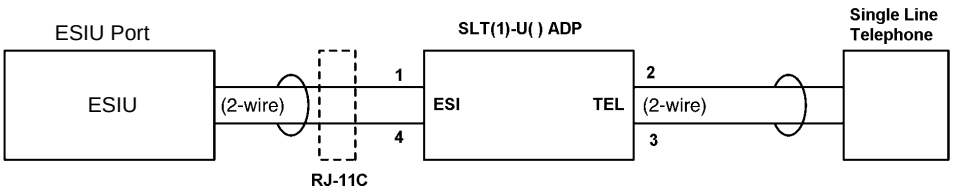


Figure 7-90 Installing SLT Adapter



Modular Terminal Connections



Single Line Telephone Connections

Figure 7-91 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.

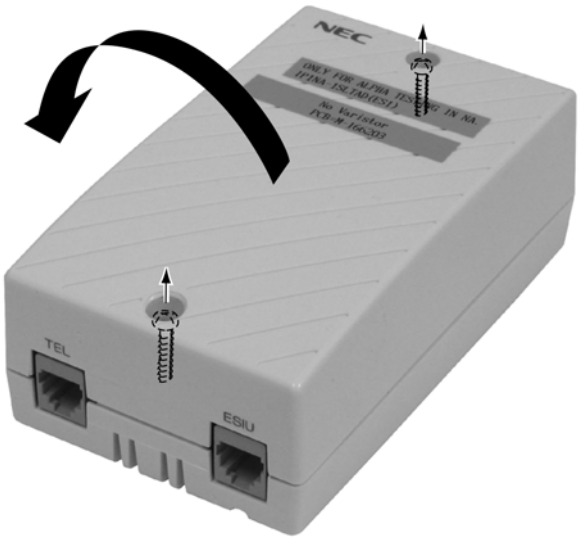


Figure 7-92 Removing the Cover

4. Using the two screws provided with the SLT Adapter, attach the back cover to the desired location.

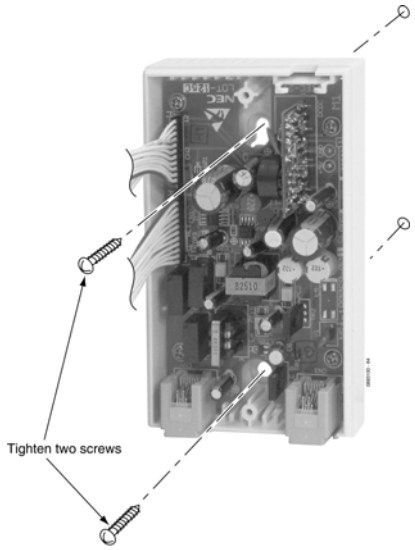


Figure 7-93 Attaching the Unit

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.

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Installing SV8100/SV8300 Bluetooth

SECTION 1 GENERAL DESCRIPTION

This chapter provides information regarding the bluetooth telephone and adapter that can be used with the UNIVERGE SV8100/SV8300 system.

SECTION 2 BLUETOOTH CORDLESS HANDSET

2.1 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:

- Keyset-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.

When charging the BCH, the following LEDs provide indications of the status:

Table 8-1 BCH Charging LEDs

On-Hook Charging:	Red = Charging	Green = Charging Complete
Off-Hook (Idle):	No LED = Idle	Flashing Red = Incoming Call

The BCH will retain call histories for up to 10 outgoing and 10 incoming calls. For outgoing calls, this would include completed and uncompleted calls. For incoming calls, this would include 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.

2.2 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 (1meter) apart from one another.
- 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) apart from any of the devices listed below. Be also 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 2.4 GHz band)
  - Manufacturing equipment, such as plasma strippers (LSI manufacturing)
  - Speedway electronic toll gates
  - Bluetooth devices

2.3 Controls and Indicators

Controls and indicators can be found in Figure 8-1 Bluetooth Cradle Controls and Indicators or Figure 8-2 Bluetooth Handset Controls and Indicators on page 8-4.

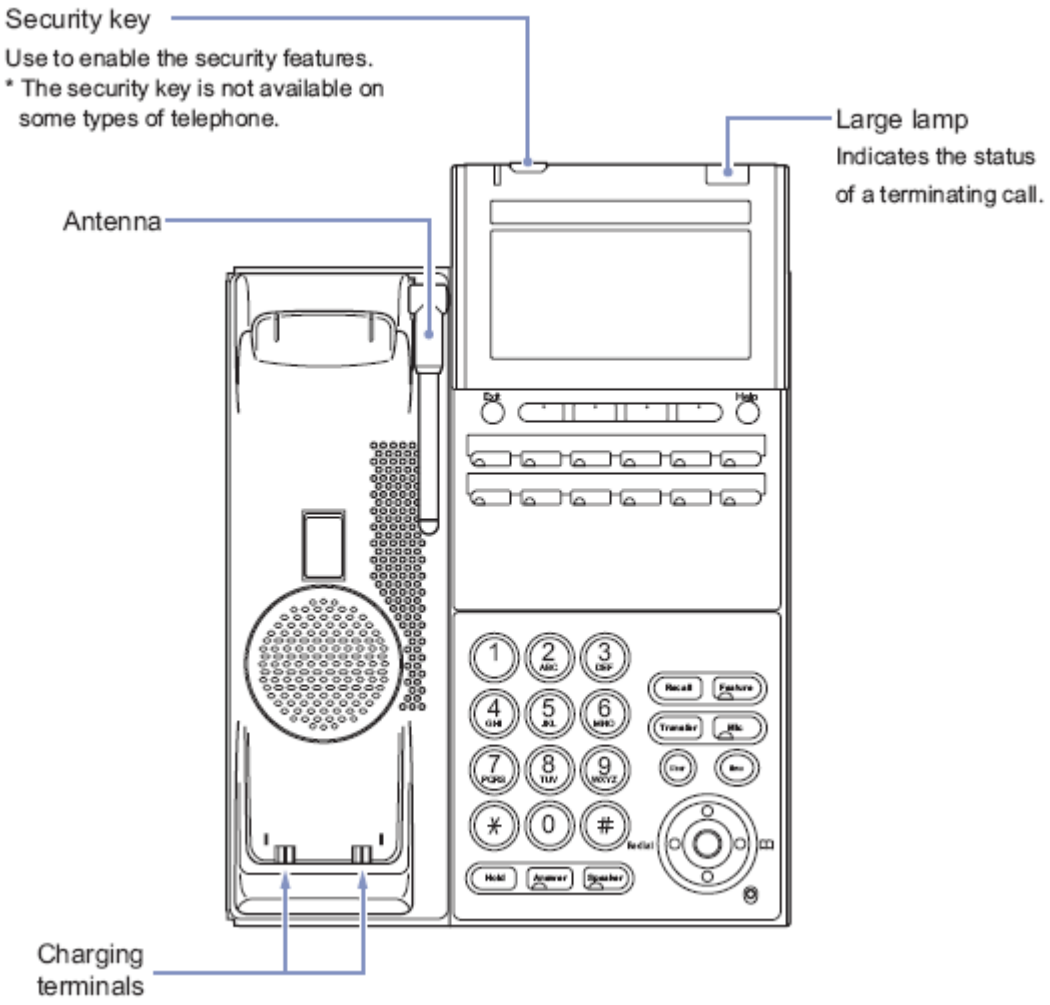


Figure 8-1 Bluetooth Cradle Controls and Indicators

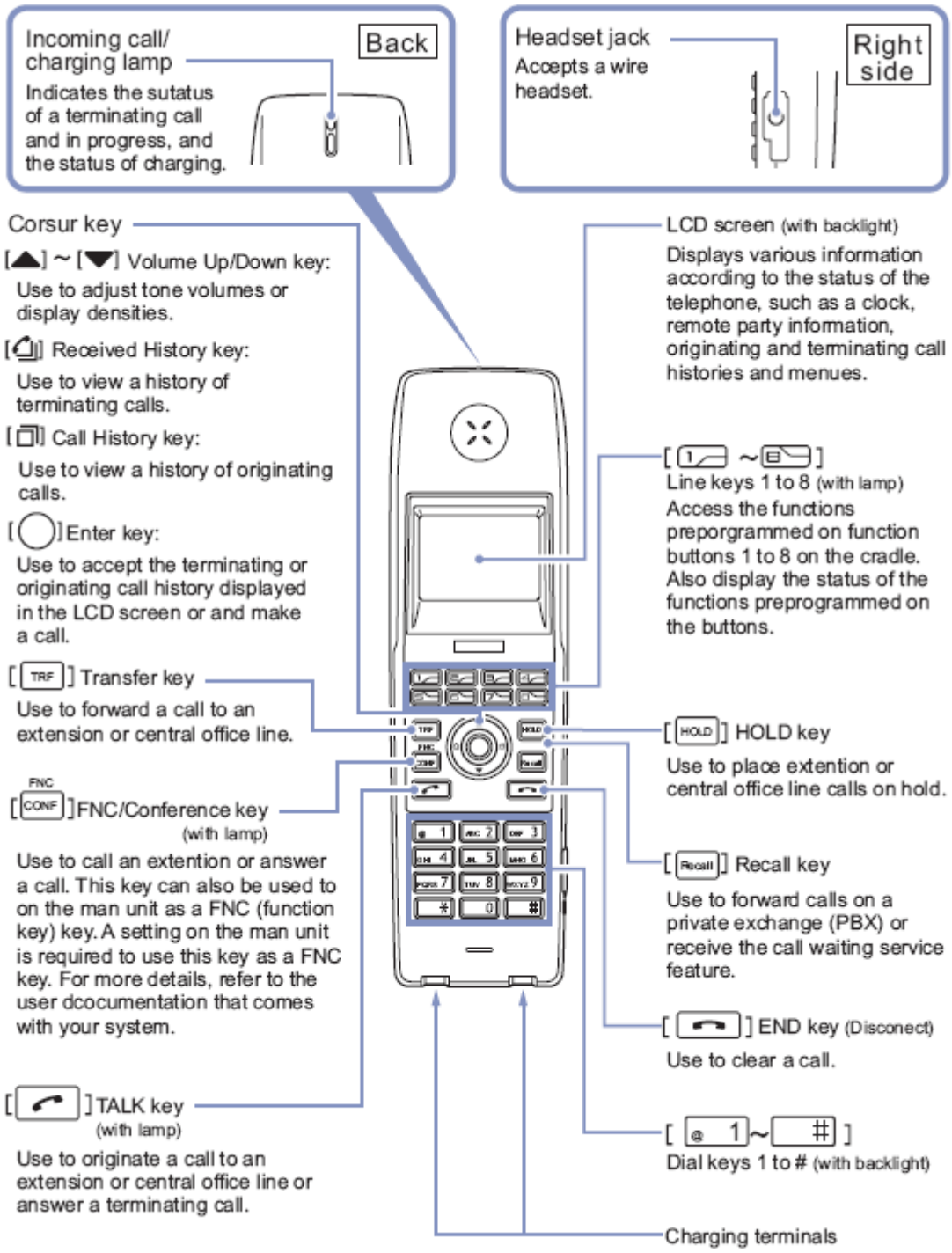


Figure 8-2 Bluetooth Handset Controls and Indicators

2.4 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.

2.4.1 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 8-3 Separate Tilt Leg from Leg Support).

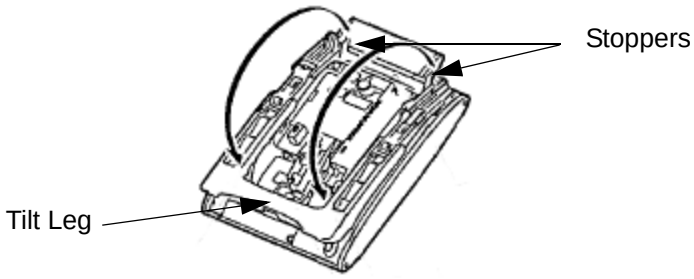


Figure 8-3 Separate Tilt Leg from Leg Support

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 8-4 Remove Legs From Multiline Terminal on page 8-6).

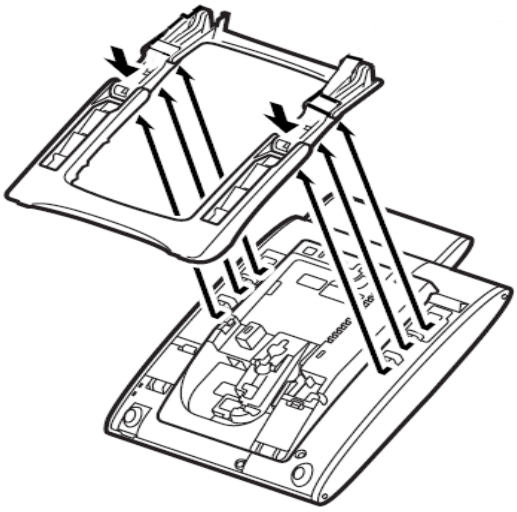


Figure 8-4 Remove Legs From Multiline Terminal

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 8-5 Detach Cradle from Multiline Terminal).

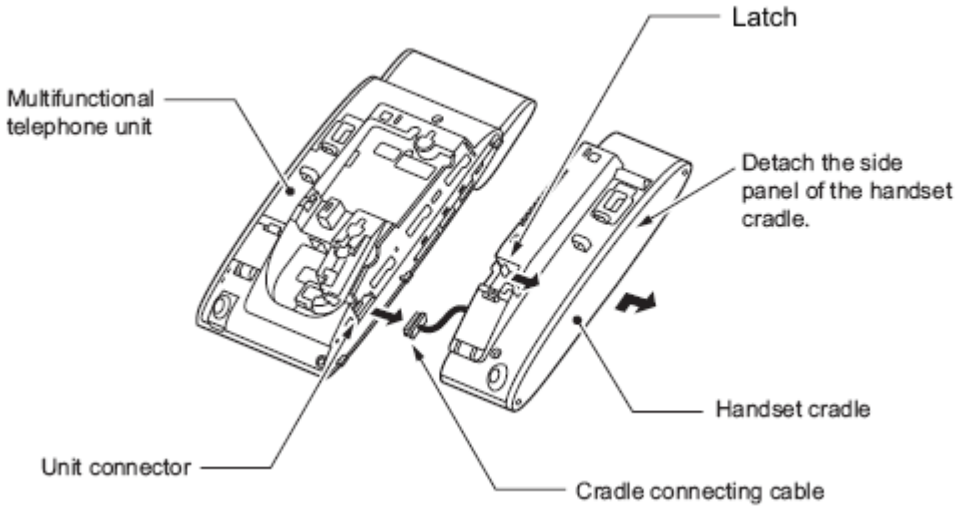


Figure 8-5 Detach Cradle from Multiline Terminal

10. Insert the cradle connecting cable of the Bluetooth Cradle (BTC) into the unit connector.

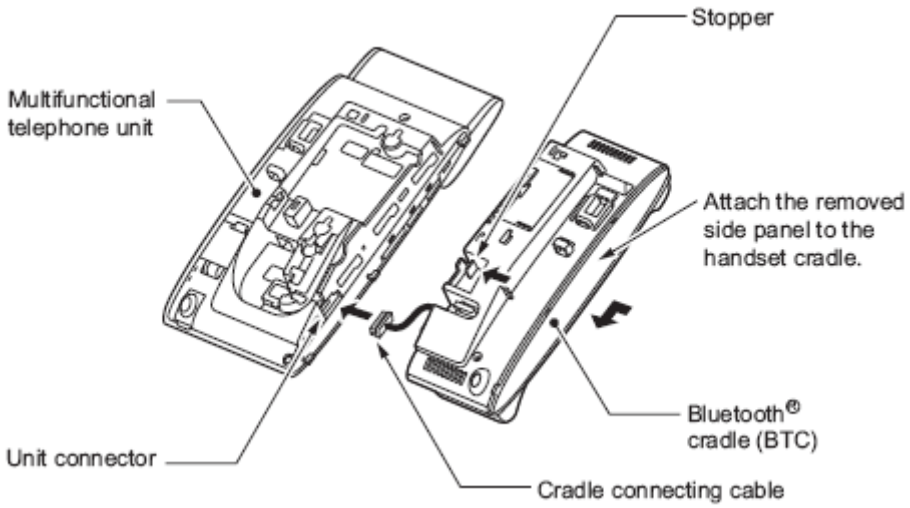


Figure 8-6 Attach Bluetooth Cradle to the Multiline Terminal

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 8-6 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.

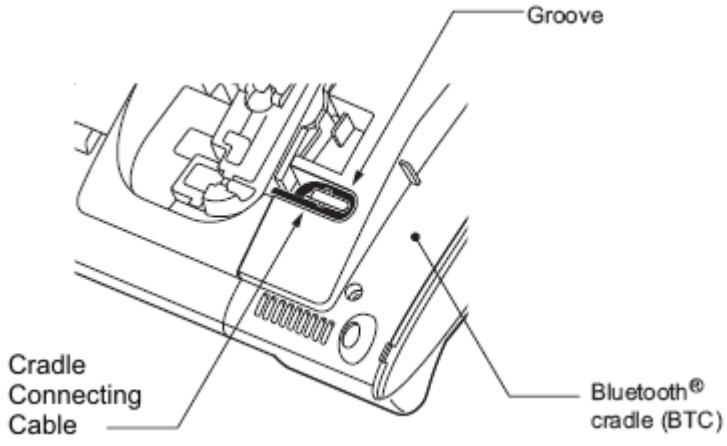


Figure 8-7 Grooved Cutout for Connecting Cable

14. Remove the connector cover (rubber) from the bottom of the multiline terminal.

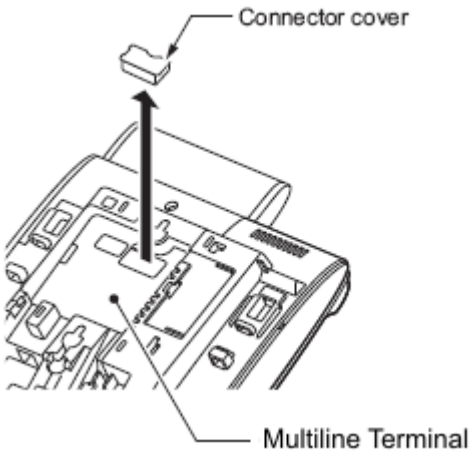


Figure 8-8 Removing the Connector Cover

15. Insert the lower claws of the Bottom Unit (see Figure 8-9 Installing the Bottom Unit) into precut holes on the multiline terminal.

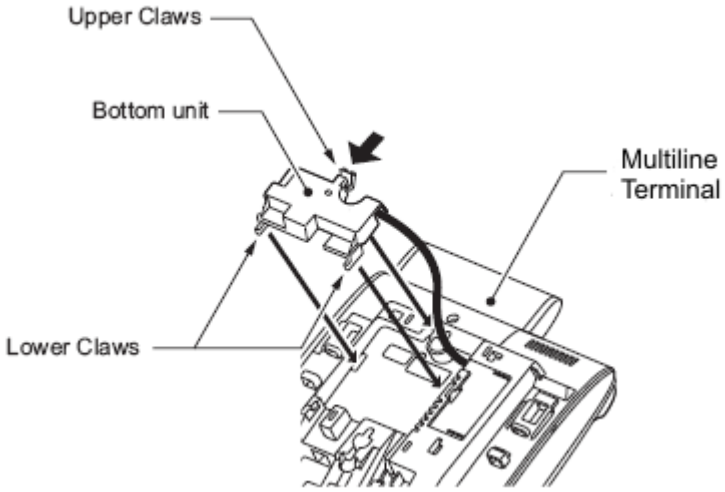


Figure 8-9 Installing the Bottom Unit

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 8-10 Stowing the Bottom Unit Cable). Stow the extra bottom unit connecting cable and close the cover.

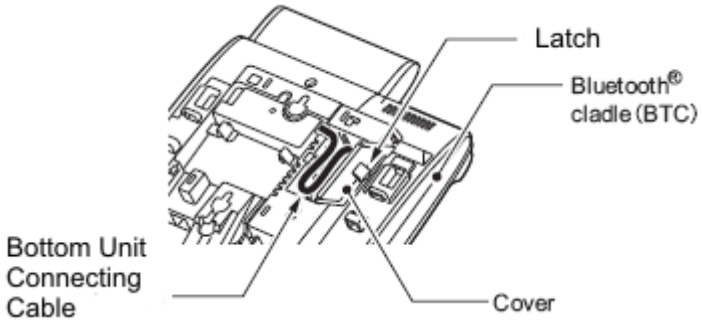


Figure 8-10 Stowing the Bottom Unit Cable

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 8-11 Insert Stopper for Handset Use).

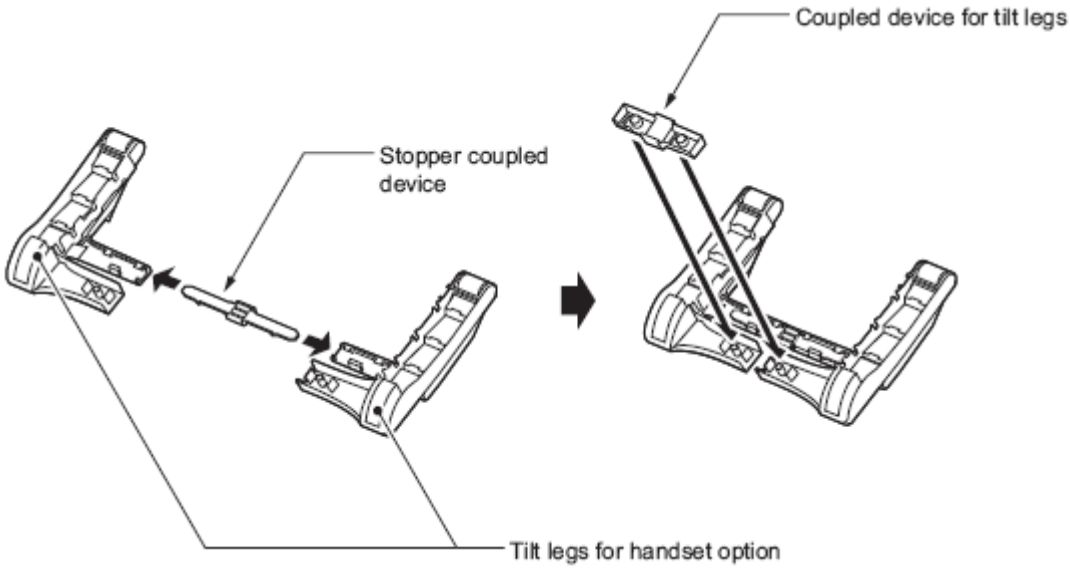


Figure 8-11 Insert Stopper for Handset Use

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. Return the multiline terminal to the numbered keypad in the up position.

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 8-12 Bluetooth Handset Installed).

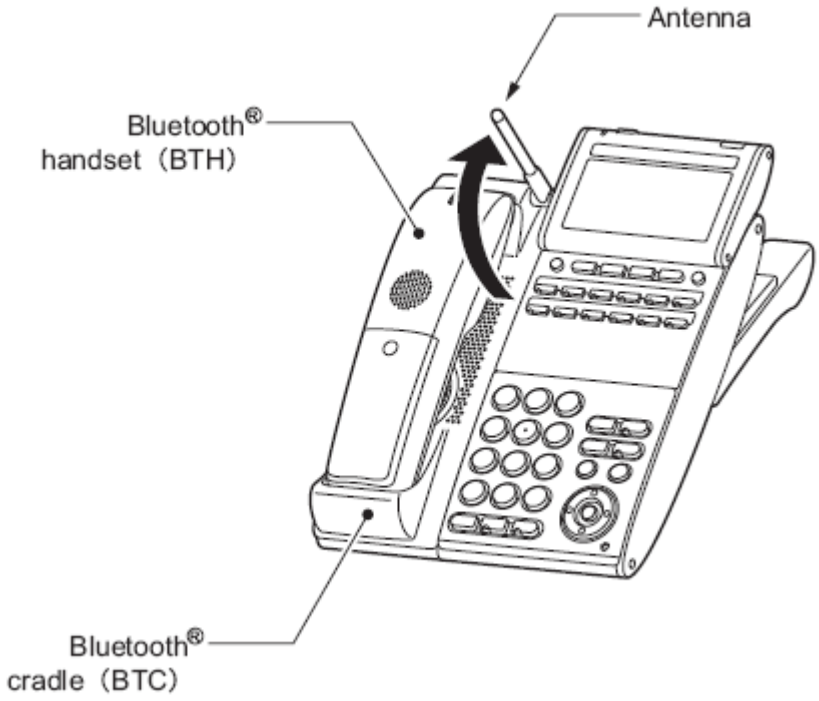


Figure 8-12 Bluetooth Handset Installed

2.4.2 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 will not fall due to 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 withstand the weight of the telephone and the load from pulling the telephone during operation.

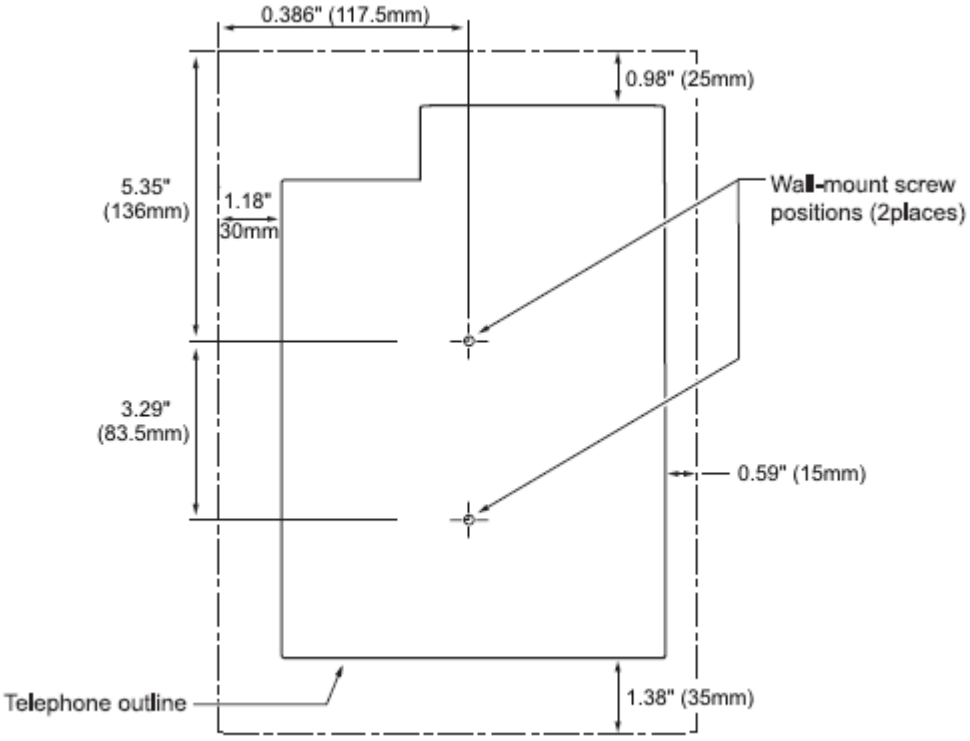


Figure 8-13 Wall Mount Spacing Guide BCH-L (BK) UNIT

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 8-14 Installing Wood Screws on page 8-11).*

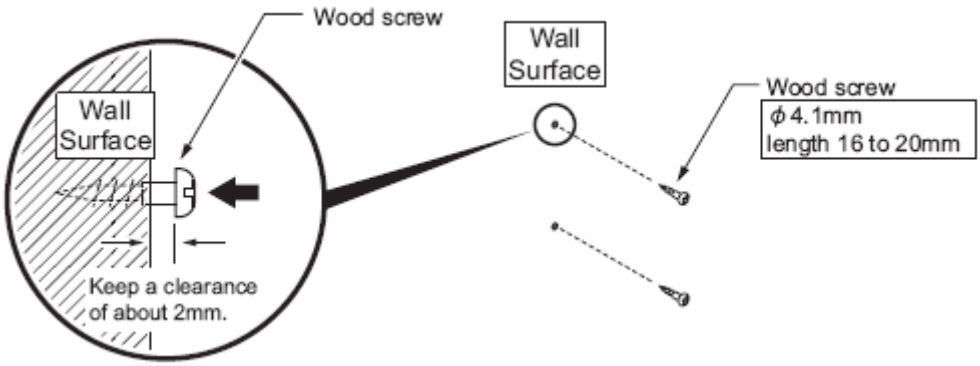


Figure 8-14 Installing Wood Screws

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.

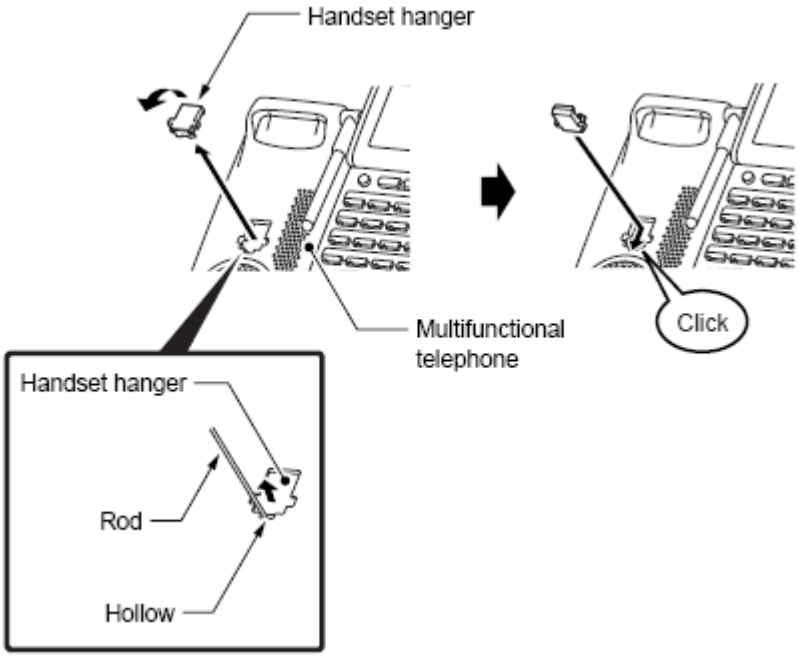


Figure 8-15 Change Handset Hanger

4. Turn multiline terminal upside down.

5. Lower the tilt leg to the first position (refer to Figure 8-3 Separate Tilt Leg from Leg Support).

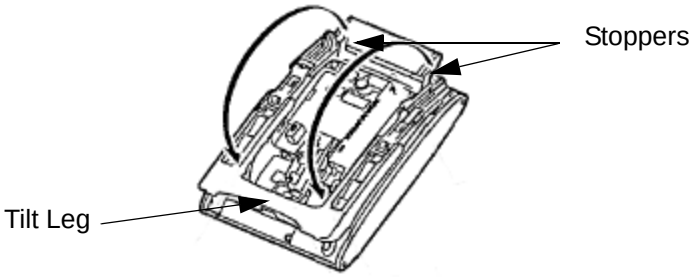


Figure 8-16 Separate Tilt Leg from Leg Support

6. Hook the wall mount holes (C and D) on the back of the terminal on wood screws (c and d) installed.

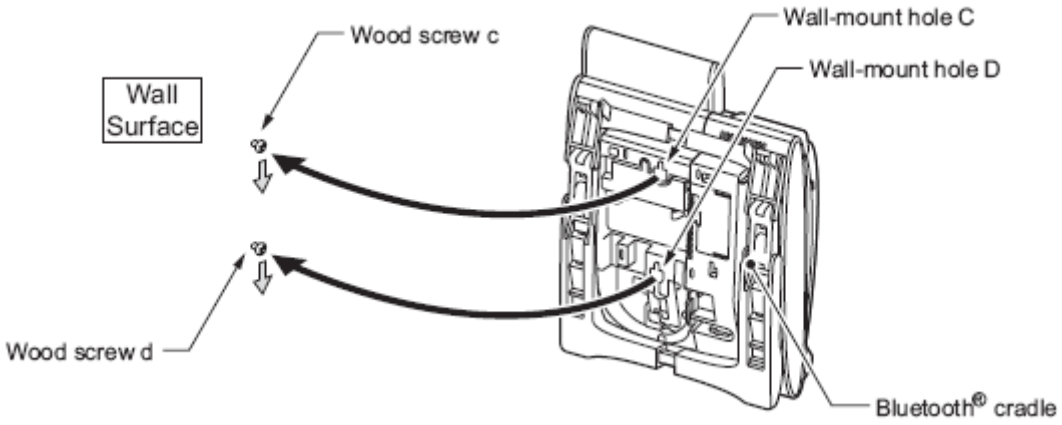


Figure 8-17 Wall Mounting the Terminal

2.4.3 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.

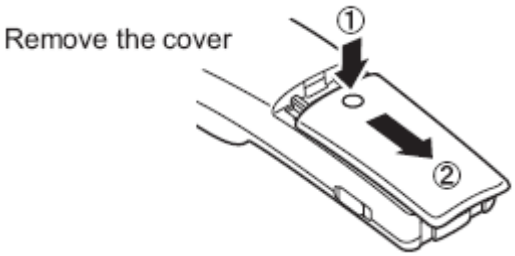


Figure 8-18 Removing Battery Cover from Handset

2. Remove existing battery and dispose of properly.

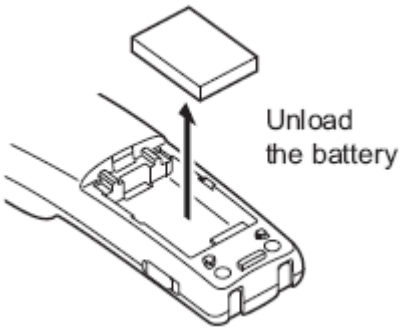


Figure 8-19 Removing Battery from Handset

3. Install new Li-ion battery.

   ✎ *Full charge takes approximately 16 hours.*

4. Reinstall battery cover.

SECTION 3 BLUETOOTH HUB ADAPTER

3.1 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.

3.1.1 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 8-20 Separate Tilt Leg from Leg Support).

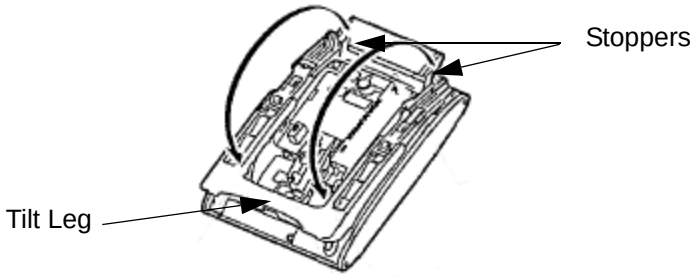


Figure 8-20 Separate Tilt Leg from Leg Support

4. Remove the connector cover (rubber) from the bottom of the multiline terminal (see Figure 8-21 Removing the Connector Cover on page 8-15).

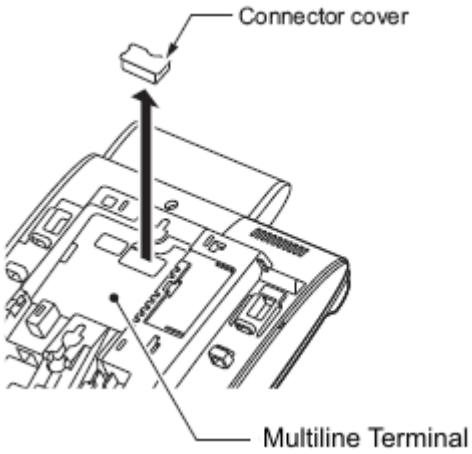


Figure 8-21 Removing the Connector Cover

5. Insert the lower claws of the Bottom Unit (see Figure 8-22 Installing the BHA-L UNIT) into precut holes on the multiline terminal.

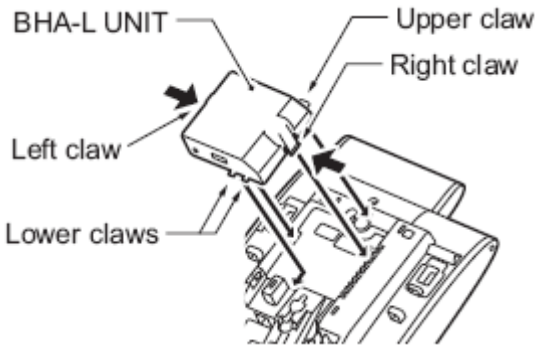


Figure 8-22 Installing the BHA-L UNIT

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. Return the multiline terminal to the numbered keypad in the up position.
9. Connect the Line cord and the AC adapter.

3.1.2 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.

3.1.2.1 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 Aspire X:
  Press menu keys > [5. Optional Devices] > [1. Bluetooth].
- If the BHA-L UNIT is connected to a PBX (other than Aspire X):
  Press menu keys > [3. Setup] > [5. Optional Devices] > [1. Bluetooth].

3.1.2.2 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.

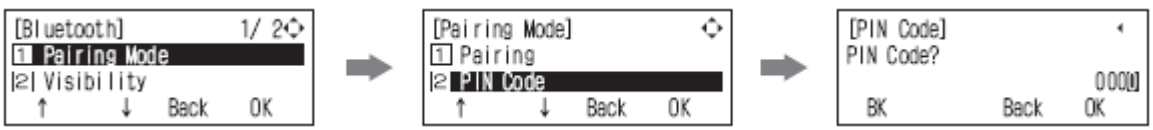


Figure 8-23 Entering a PIN Code

3.1.2.3 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 8-24 Pairing a Device on page 8-17).

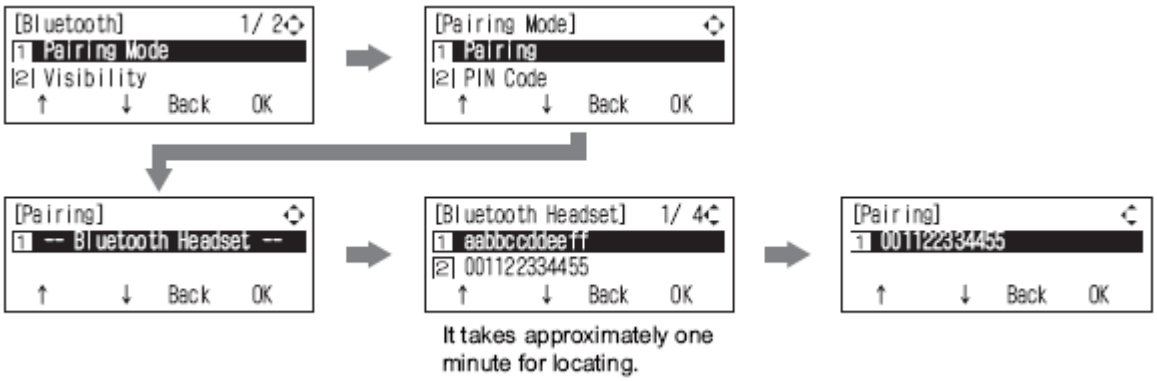


Figure 8-24 Pairing a Device

3.1.2.4 Connecting the Paired Device

Enable the Bluetooth device. Select [2. Enable] in the connection 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.

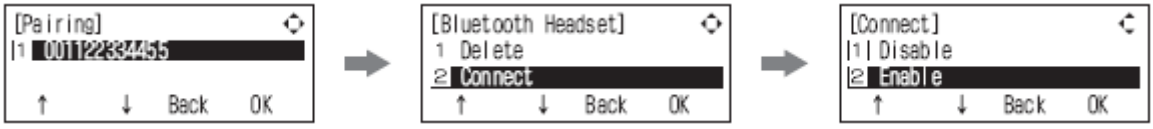


Figure 8-25 Connecting the Paired Device

3.1.2.5 Unpairing

To unpair a paired the Bluetooth device, select the device in the [Delete] screen.

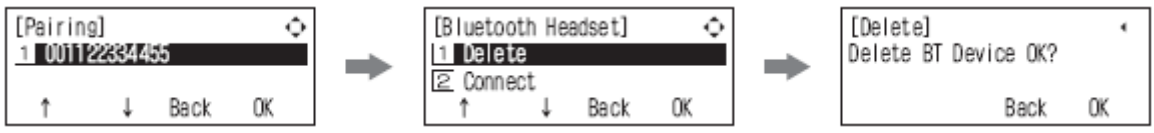


Figure 8-26 Unpairing a Device

3.1.2.6 Visibility Setting

Set whether to make information about the BHA-L UNIT visible to other Bluetooth devices (default: [1. Disable]).

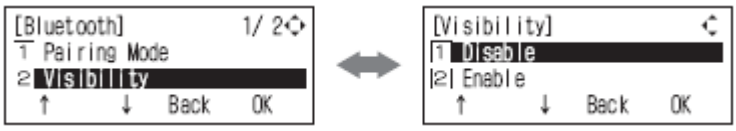


Figure 8-27 Setting Visibility Option

3.1.2.7 BT Information

You can view the following kinds of information about the BHA-L UNIT:

- Firmware and hardware versions.
- Bluetooth module information and standard.
- Installed profile versions.
- Device address and name.

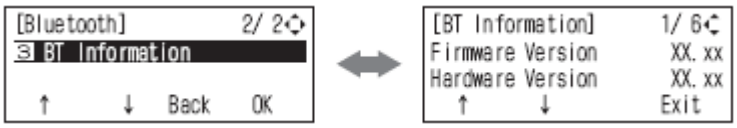


Figure 8-28 Setting Bluetooth Information

Installing SV8100/SV8300 Wireless Telephones

SECTION 1 GENERAL DESCRIPTION

The wireless telephones provide wireless freedom that also allows access to features provided by the UNIVERGE SV8100/SV8300 system.

SECTION 2 NEC SIP DECT SOLUTIONS

The implementation of SIP Digital Enhanced Cordless Telecommunication (DECT) in a NEC Telephone System is a stand-alone DECT 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 9-1 SIP DECT System Configuration shows the SIP DECT System Configuration. All connections are IP connections over Ethernet.

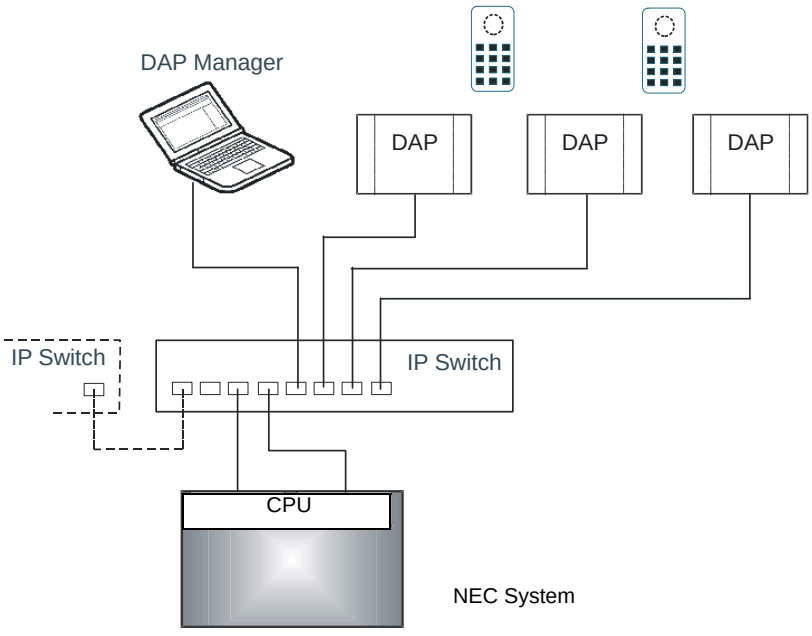


Figure 9-1 SIP DECT System Configuration

2.1 Installation

The hardware installation consists of the following steps:

1. Determine the number of DAPs that needs 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.

Installing SV8100/SV8300 Optional Equipment

10

SECTION 1 GENERAL INFORMATION

This chapter provides information for installing optional equipment, such as PGD(2)-U( ) ADPs, background music, door boxes, DSS consoles, *D*^{term} VSR, external paging as well as other handsets, recording devices and adapters on the SV8100/SV8300 digital and IP telephones.

SECTION 2 PGD(2)-U( ) ADP

2.1 Using a PGD(2)-U( ) ADP

The PGD(2)-U( ) 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)-U( ) ADPs [with amplifier], one on the CD-CP00-AU [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)-U( ) 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)-U( ) 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 to eight general purpose relays with the PGD(2)-U( ) ADPs (four relays on each PGD(2)-U( ) ADP) and one on the CD-CP00-AU for a maximum of nine.

The PGD(2)-U( ) ADP connects to any available digital extension port. The terminal connections made in the PGD(2)-U( ) ADP and the jumper settings determine what features are used for each circuit.

Figure 10-1 PGD(2)-U( ) ADP

2.2 LED Indications

Table 10-1 PGD(2)-U( ) ADP LED Indications

LED	Indication	Note
LED 1	Green LED when CH1 in use.	Flashing green LED indicates dipswitch setting and programming for CH1 are conflicting.
LED 2	Green LED when CH2 in use.	Flashing green LED indicates dipswitch setting and programming for CH2 are conflicting.

2.3 Setting up PGD(2)-U( ) ADP Connections

- If the PGD(2)-U( ) 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)-U( ) ADP.

1. Remove the screw from the front of the PGD(2)-U( ) ADP.

Figure 10-2 Remove Cover from PGD(2)-U( ) ADP

2. Using a screwdriver, break out the plastic piece covering the cable hole.

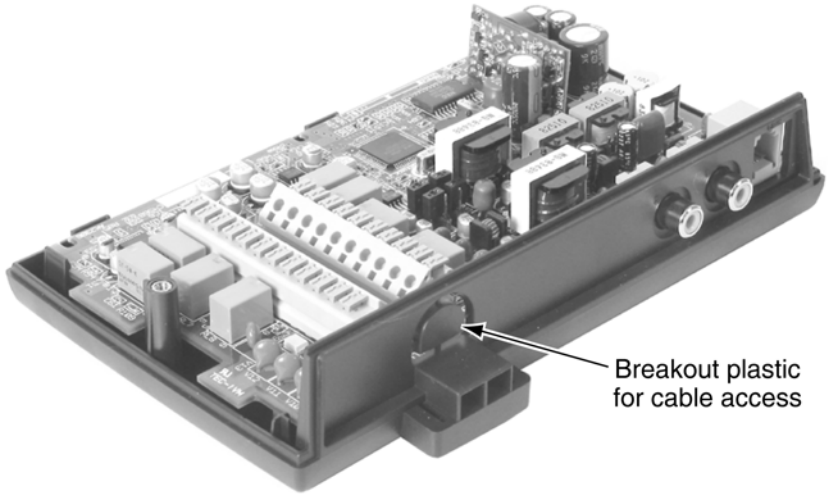


Figure 10-3 Remove Plastic Cover from Cable Hole

3. Set the S3 – S6 jumpers to the proper settings for the function to be used (refer to Table 10-2 PGD(2)-U( ) ADP S3 – S6 Jumper Settings on page 10-3).

Table 10-2 PGD(2)-U( ) ADP S3 – S6 Jumper Settings

	S3	S4	Function	LED Indication
Channel 1	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.
	S5	**S6**	**Function**	**LED Indication**
Channel 2	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.

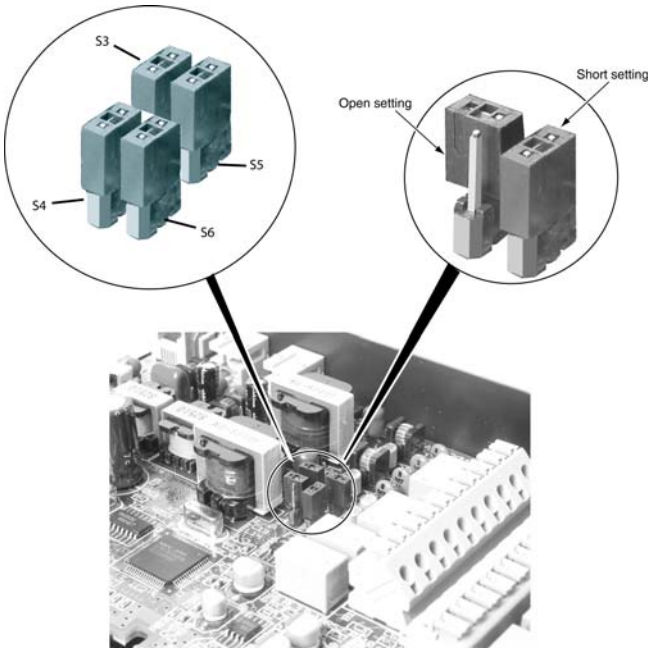
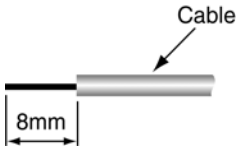


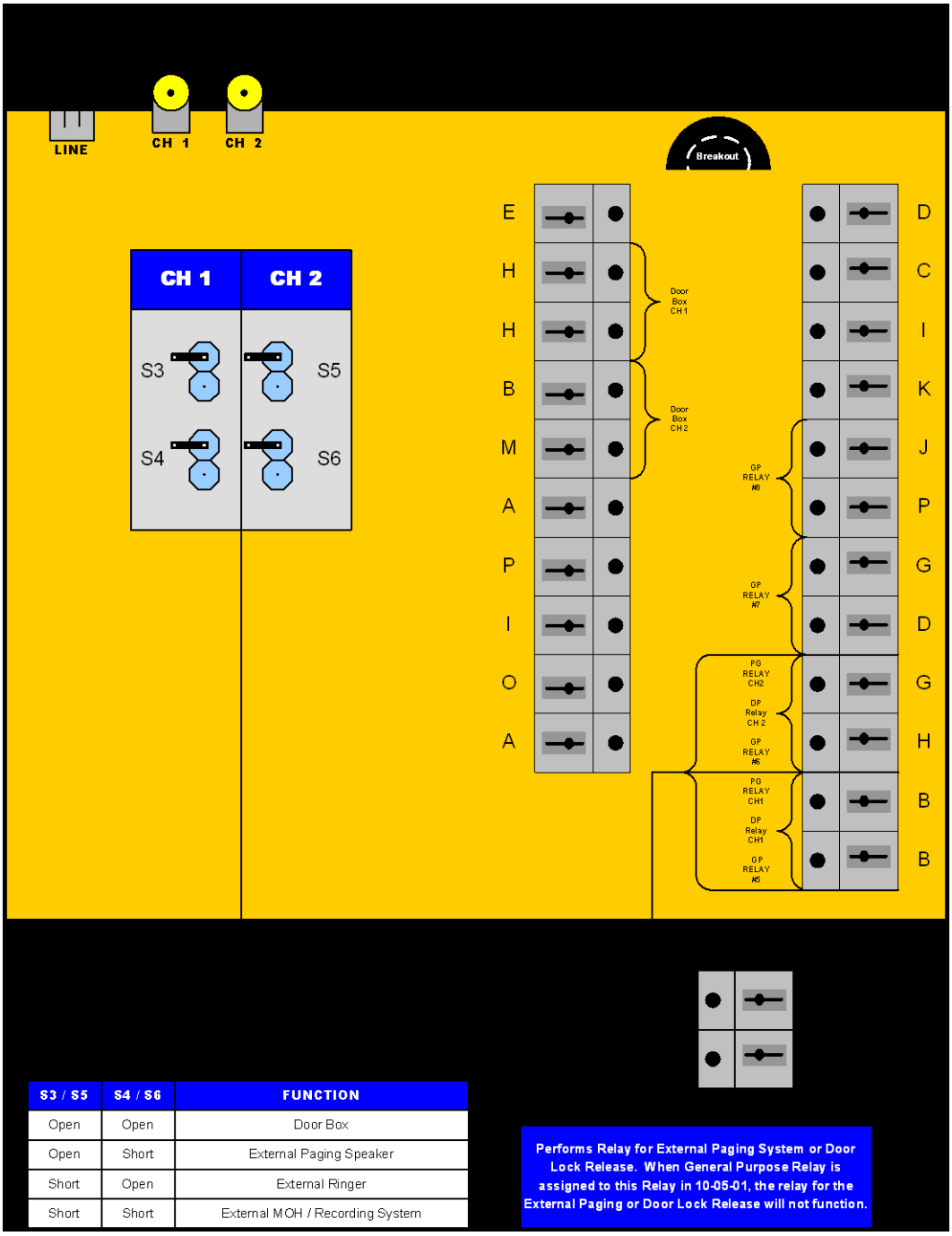
Figure 10-4 PGD(2)-U( ) ADP Jumper Settings

4. Strip one end of the cable to be connected to the control relay or door box so that approximately 1/4” (8 mm) of bare wire is exposed.



5. 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)-U( ) ADP connections.*



S3 / S5	S4 / S6	FUNCTION
Open	Open	Door Box
Open	Short	External Paging Speaker
Short	Open	External Ringer
Short	Short	External MOH / Recording System

Figure 10-5 PGD(2)-U( ) ADP Connection Diagram

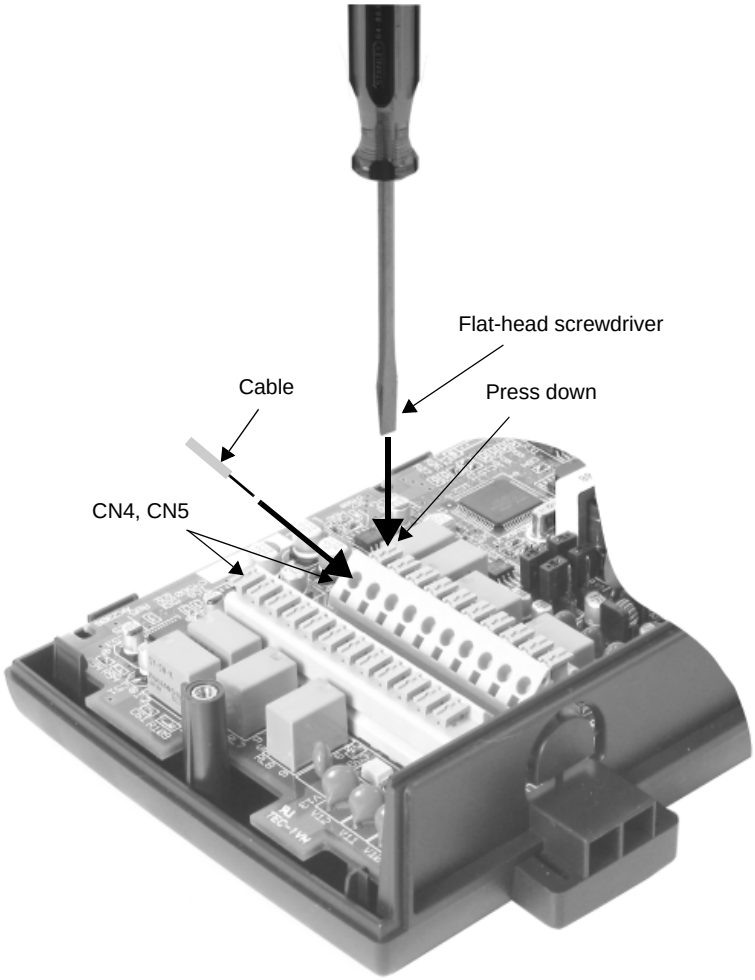


Figure 10-6 Connecting Cable to the PGD(2)-U( ) ADP

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)-U( ) ADP.

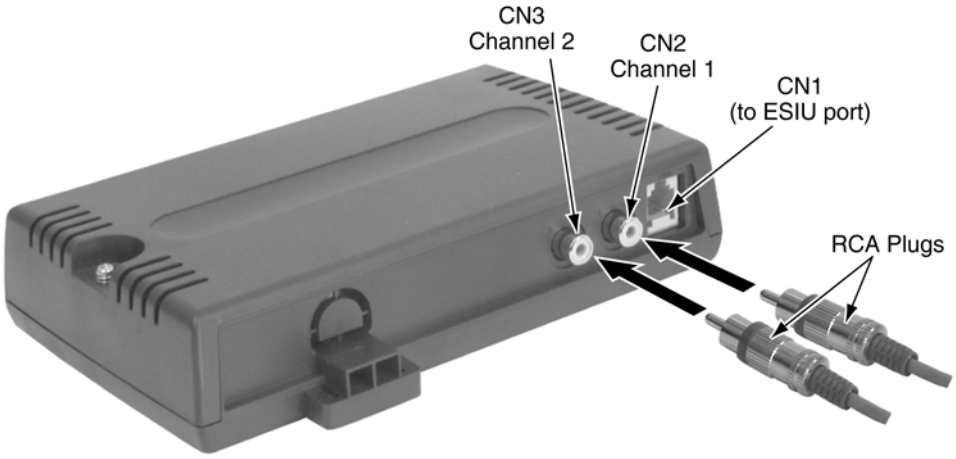


Figure 10-7 PGD(2)-U( ) ADP Connections

9. Install a modular jack for each PGD(2)-U( ) 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)-U( ) ADP.

In some cases, when testing the operation of an extension port when connecting to a Cordless II, Cordless Lite II, or PGD(2)-U( ) 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)-U( ) 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)-U( ) 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)-U( ) 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.

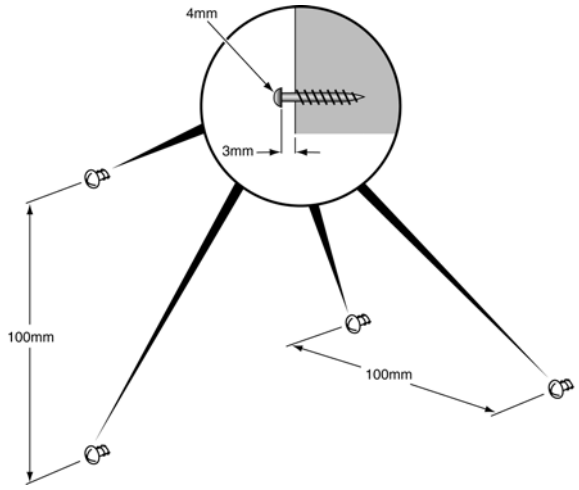


Figure 10-8 Installing the Screws

14. The back of the PGD(2)-U( ) ADP has two key-hole type openings. Place the PGD(2)-U( ) ADP over the two screws and slide it down or over (depending on the positioning) to lock it in place.

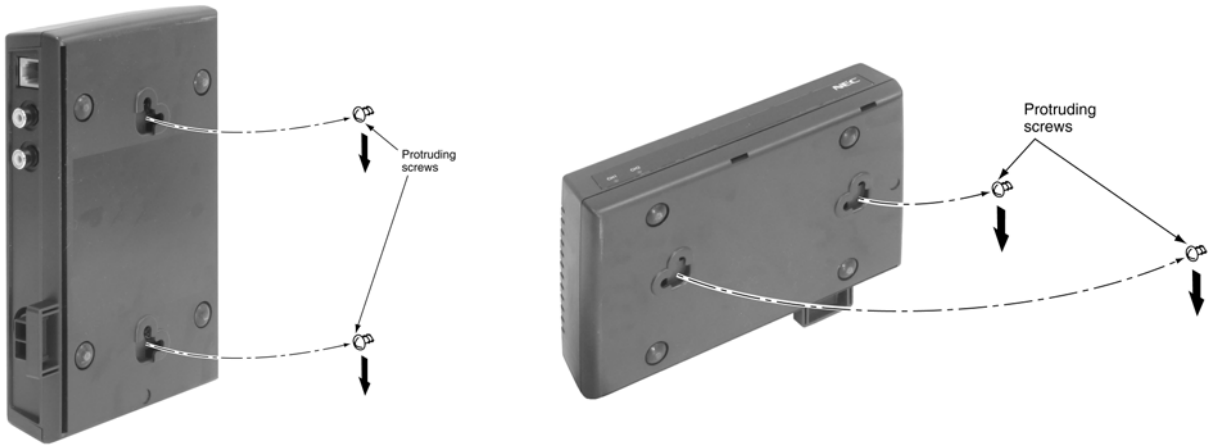


Figure 10-9 Wall Mounting the PGD(2)-U( ) ADP

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 whenever the user's extension is idle.

1. Connecting to the CD-CP00-AU:
   Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-AU 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.

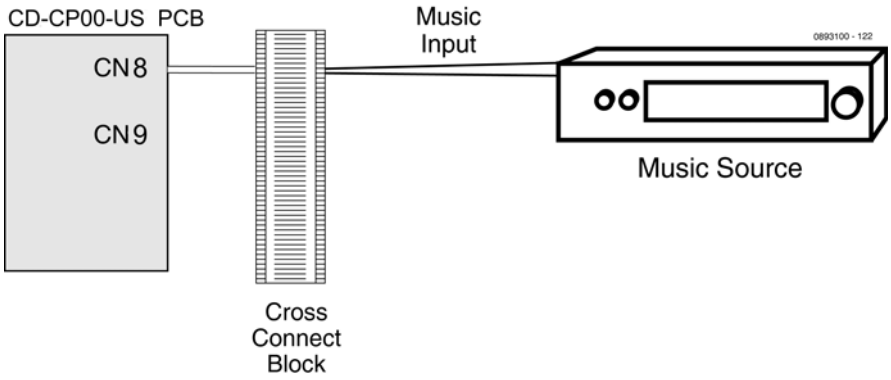


Figure 10-10 CPRU Connections

SECTION 4 DOOR BOX

4.1 Installing a Door Box

A PGD(2)-U( ) 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)-U( ) 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-AU also provides one general purpose relay. The CD-CP00-AU relay 0 is assigned to the door box extension port in Program10-05-01. When the relay on the PGD(2)-U( ) 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)-U( ) 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)-U( ) ADP circuit used for an analog Door Box cannot also be used for External Paging.

1. Make sure the jumper in the PGD(2)-U( ) ADP for the associated Door Box is set correctly. (Refer to Figure 10-4 PGD(2)-U( ) ADP Jumper Settings on page 10-4).
2. If a line cord was not previously connected to the PGD(2)-U( ) ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U( ) 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)-U( ) 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 within the PGD(2)-U( ) 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)-U( ) ADP. Connect the opposite end to the unlock device.

    ✎ *Refer to External Page and Door Box/Page Relays on page 10-16 for additional information when using the CD-CP00-AU relay.*

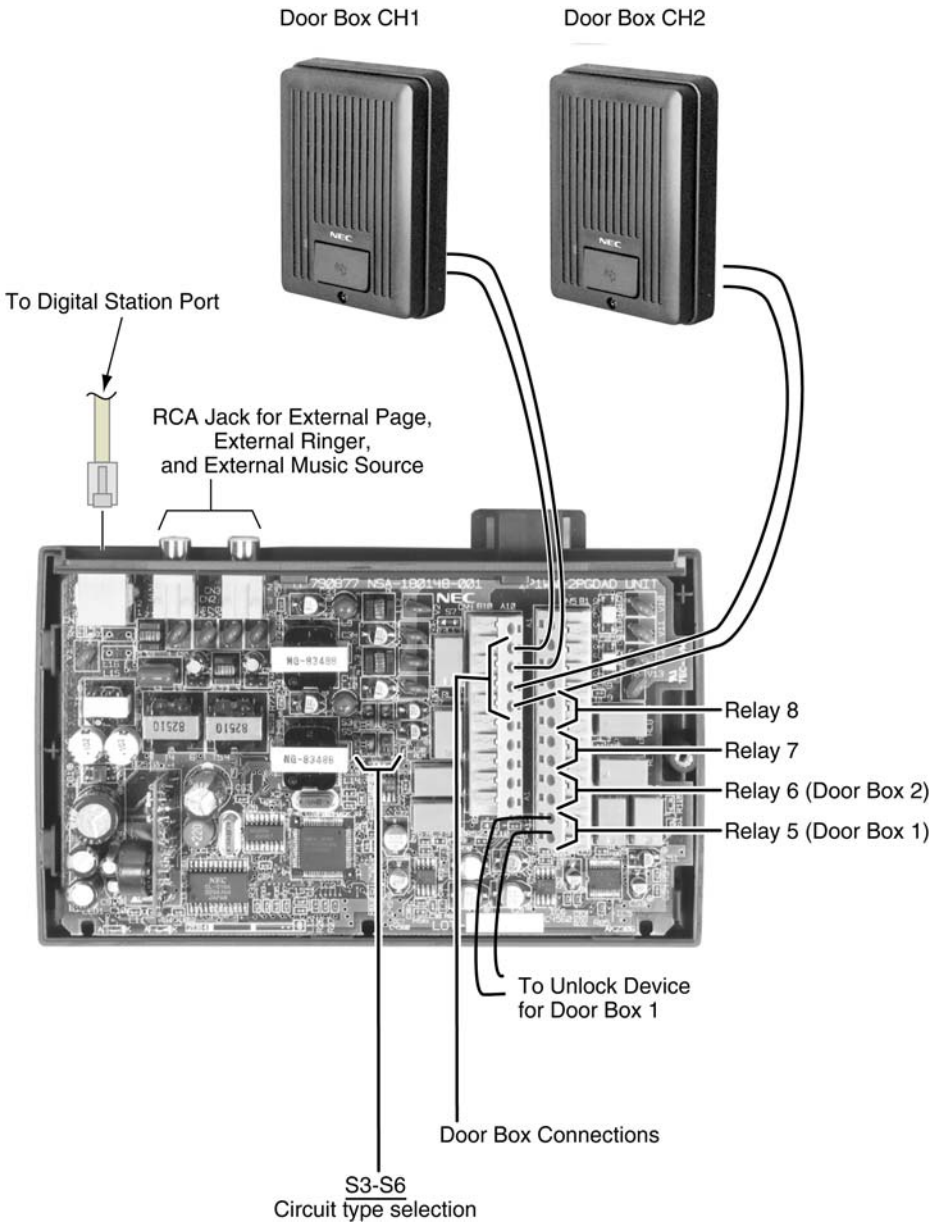


Figure 10-11 Setting the PGD(2)-U( ) ADP for a Door Box

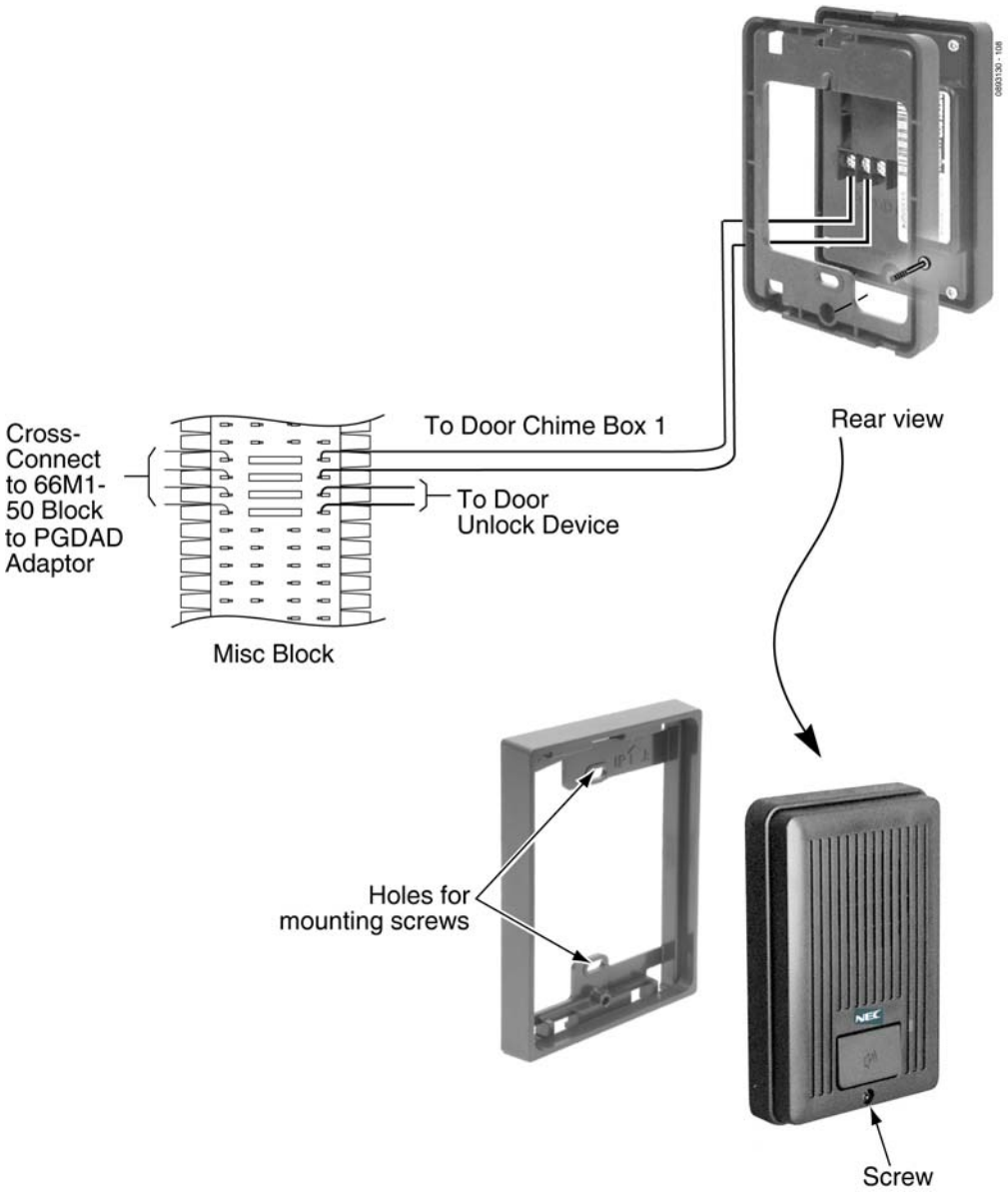


Figure 10-12 Installing a Door Box

SECTION 5 EXTERNAL PAGING

5.1 External Page

Two external page zone/door box circuits are provided by each PGD(2)-U( ) ADP installed. Each Door Box/external page circuit provides a dry relay contact. The CD-CP00-AU also provides a connection for external paging and a relay. The external page on the CD-CP00-AU is speaker number 9 – the relay is number 0. The external page speakers provided by the PGD(2)-U( ) ADPs are 1-8 – the relays on the PGD(2)-U( ) ADPs are numbered 1-8.

The PGD(2)-U( ) 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-AU cannot be used for talkback.

A PGD(2)-U( ) ADP circuit used for External Paging cannot also be used for an analog Door Box.

5.2 Installing an External Page System

1. Connecting to the CD-CP00-AU:
   Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-AU 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)-U( ) ADP:
   Make sure the jumper in the PGD(2)-U( ) ADP for the channel is set correctly. (Refer to Figure 10-4 PGD(2)-U( ) ADP Jumper Settings on page 10-4).
2. If a line cord was not previously connected to the PGD(2)-U( ) ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U( ) 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)-U( ) ADP.

7. Connect the two-conductor station cable from the CN5 connectors in the PGD(2)-U( ) ADP to the external relay/external page.

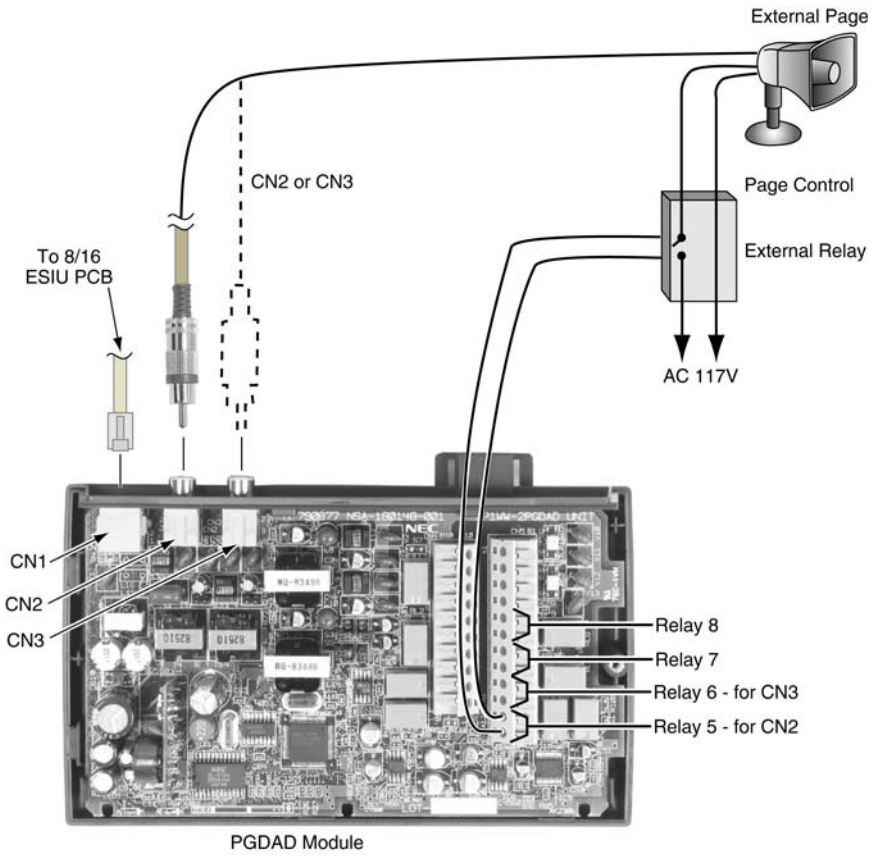


Figure 10-13 PGD(2)-U( ) ADP Cable Connection

The PGD(2)-U( ) 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)-U( ) ADP but, if required, an external page amplifier can be used for additional amplification.

The page output of the CD-CP00-AU 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-AU, the PGD(2)-U( ) 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)-U( ) ADP is installed which can be used to activate ancillary devices (i.e. door unlock devices). The CD-CP00-AU also provides one page relay. When the relay on the PGD(2)-U( ) 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)-U( ) 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)-U( ) ADP are set as General Purpose Relays, then those relays cannot be used for Door Box/Page Relays.***
- ***Program 10-21-05 sets the relay switch on the CD-CP00-AU.***
- ***If General Purpose Relay set to 1 (Relay #1), the page relay will not function on the CD-CP00-AU. General Purpose Relays override Paging Relays and the Paging Relay is associated with Relay #1 on CN100.***

- 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-AU:

1. Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-AU 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)-U( ) ADP:

4. Make sure the jumper in the PGD(2)-U( ) ADP for the channel is set correctly. (Refer to Figure 10-4 PGD(2)-U( ) ADP Jumper Settings on page 10-4).

5. If a line cord was not previously connected to the PGD(2)-U( ) ADP, complete Steps 3-6. Otherwise, skip to Step 7.

6. Install a modular jack for each PGD(2)-U( ) ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.

7. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.

8. Install bridging clips as required.

9. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U( ) ADP.

10. Connect the two-conductor station cable from the CN5 connectors in the PGD(2)-U( ) 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.

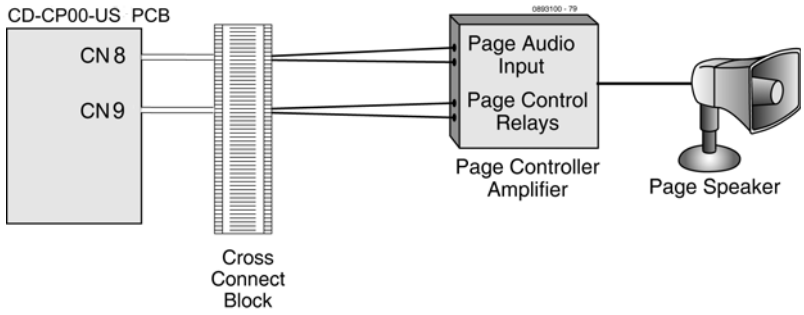


Figure 10-14 CD-CP00-AU Page Connections

SECTION 7 EXTERNAL RECORDING SYSTEM/EXTERNAL RINGER

7.1 External Recording System or External Ringer

The PGD(2)-U( ) 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)-U( ) 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)-U( ) 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)-U( ) 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)-U( ) ADP:

1. Make sure the jumper in the PGD(2)-U( ) ADP for the channel is set correctly. (Refer to Figure 10-4 PGD(2)-U( ) ADP Jumper Settings on page 10-4).
2. If a line cord was not previously connected to the PGD(2)-U( ) ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U( ) 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)-U( ) ADP.
7. Connect an RCA jack to the audio output(s) on the back of the PGD(2)-U( ) 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 10-15 PGD(2)-U( ) ADP Cable Connection on page 10-19.

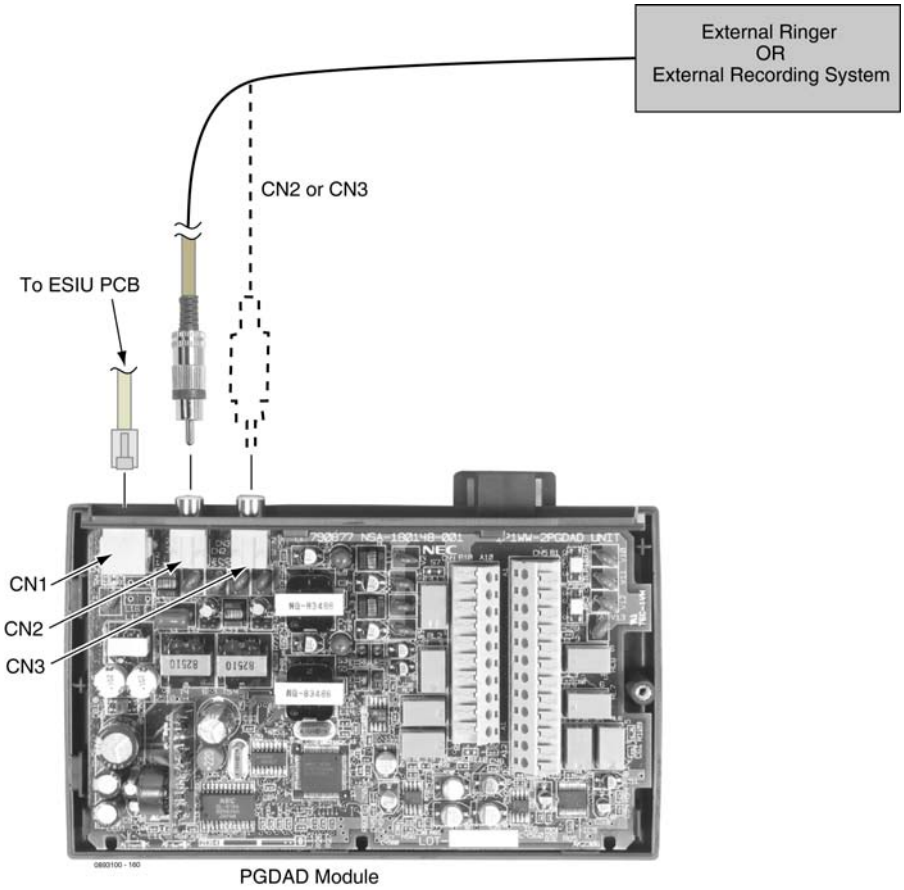


Figure 10-15 PGD(2)-U( ) ADP Cable Connection

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)-U( ) ADP has defined the circuit type as either type 7 for External Ringer or 9 for ACIs. (If the PGD(2)-U( ) ADP circuit had previously been defined for another type of circuit, unplug the PGD(2)-U( ) 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)-U( ) 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.
  Aspire S: ACI Ports 1-8
  Aspire: 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.
  Aspire S: ACI Groups 1-4
  Aspire: ACI Groups 1-16

- **11-12-50 : Service Code Setup (For Service Access)**
  Specify the service code to be used 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.
  Aspire S: ACI Ports1-8
  Aspire: 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).
  Aspire S: ACI Ports 1-8, ACI Groups 1-4
  Aspire: 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's 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 will be 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 (code 69 + 0). 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**
  Use this option to 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-AU 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-AU, the PGD(2)-U( ) 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-AU 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-AU

1. Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-AU 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)-U( ) ADP:

1. Make sure the jumper in the PGD(2)-U( ) ADP for the channel is set correctly. (Refer to Figure 10-4 PGD(2)-U( ) ADP Jumper Settings on page 10-4).
2. If a line cord was not previously connected to the PGD(2)-U( ) ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U( ) 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)-U( ) ADP.
7. Connect an RCA jack to the audio output(s) on the back of the PGD(2)-U( ) 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.

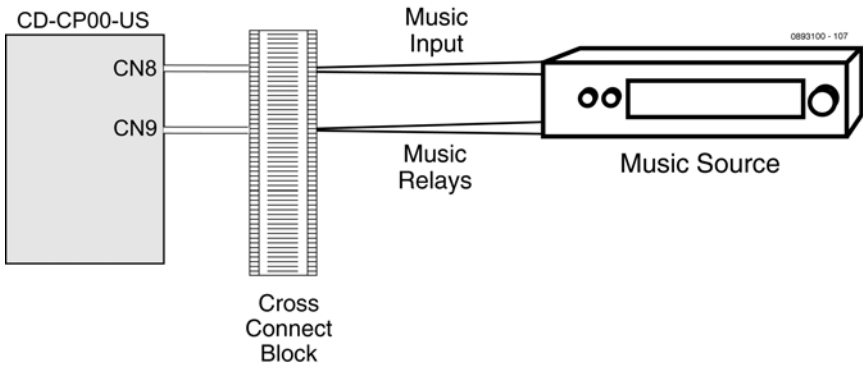


Figure 10-16 CPRU Connections

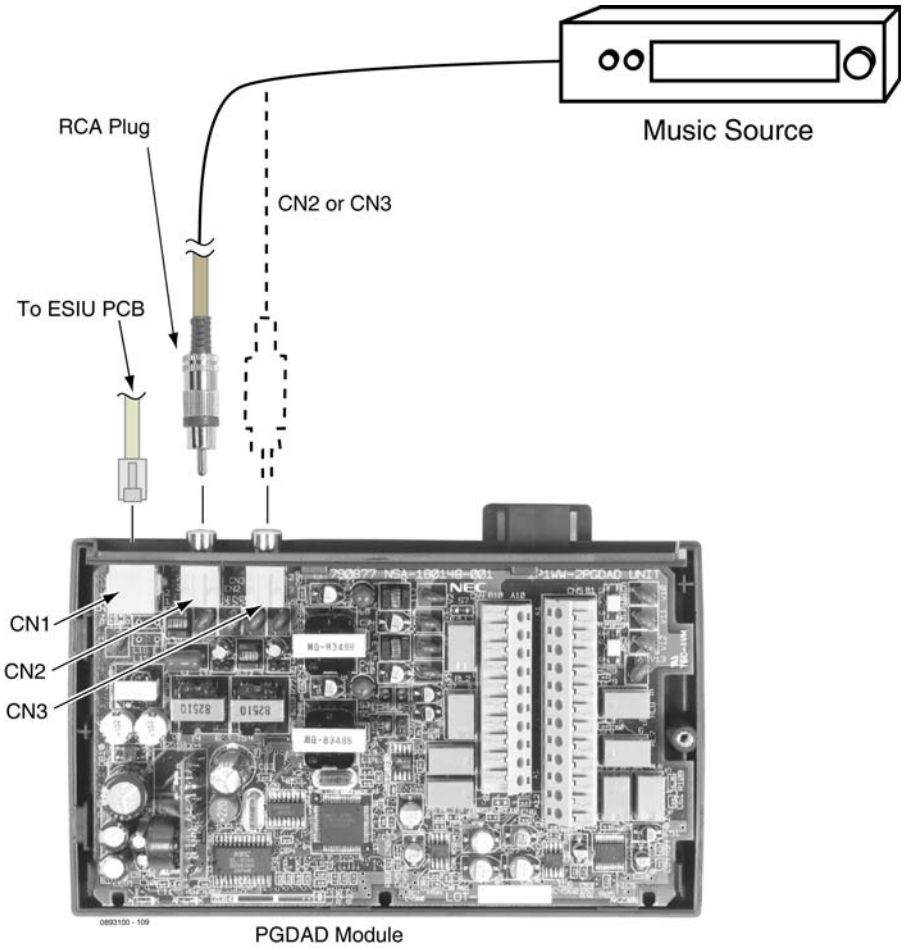


Figure 10-17 PGD(2)-U( ) ADP Connections

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 CN17 connector on the CD-CP00-AU 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.

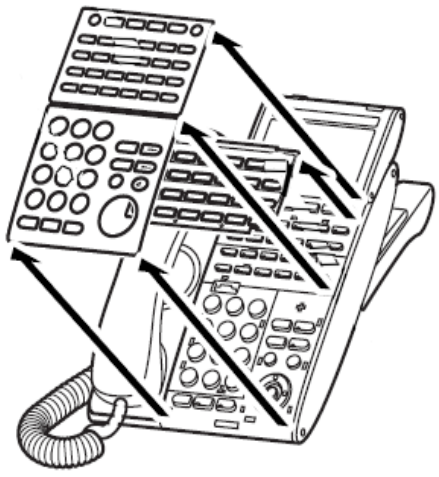


Figure 10-18 Removing the Faceplate

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.

SECTION 11 *D^term* ® VOICE SECURITY RECORDER (VSR)

11.1 *D^term* Voice Security Recorder (VSR)

The *D^term* 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 10-19 *D^term* Voice Security Recorder

11.2 PC Compatibility

The *D^term* Voice Security Recorder application supports Microsoft operating systems which support USB devices such as Windows 98SE, Windows® ME, Windows 2000, and Windows XP. Note that 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 10-20 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.

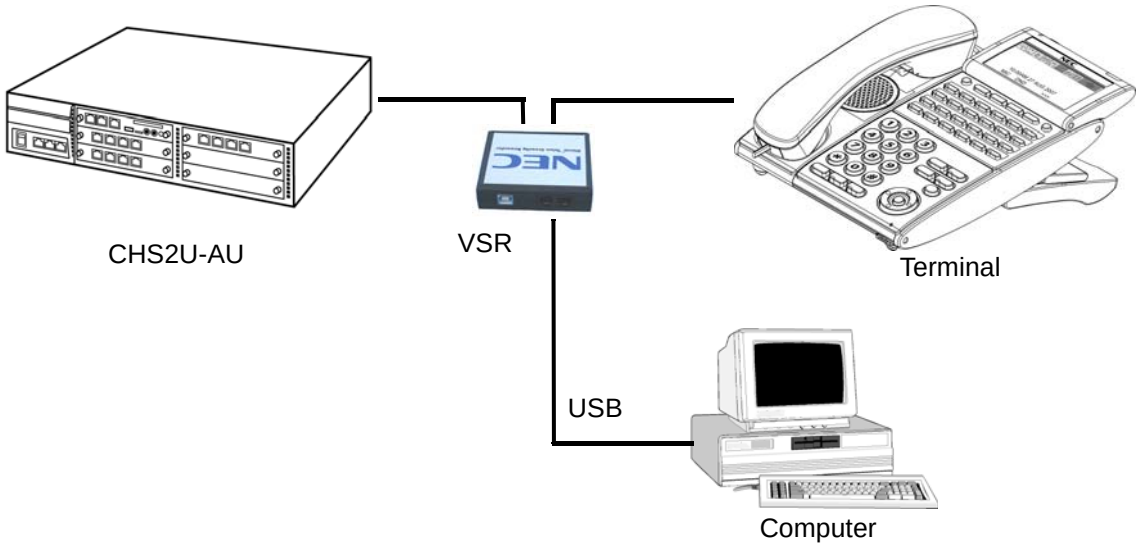


Figure 10-20 VSR Connection Configuration

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 will automatically detect the new hardware and start 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 10-21 Voice Security Recorder Installation-1

2. Insert the NEC Installation CD in your CD drive and press **Next>.**

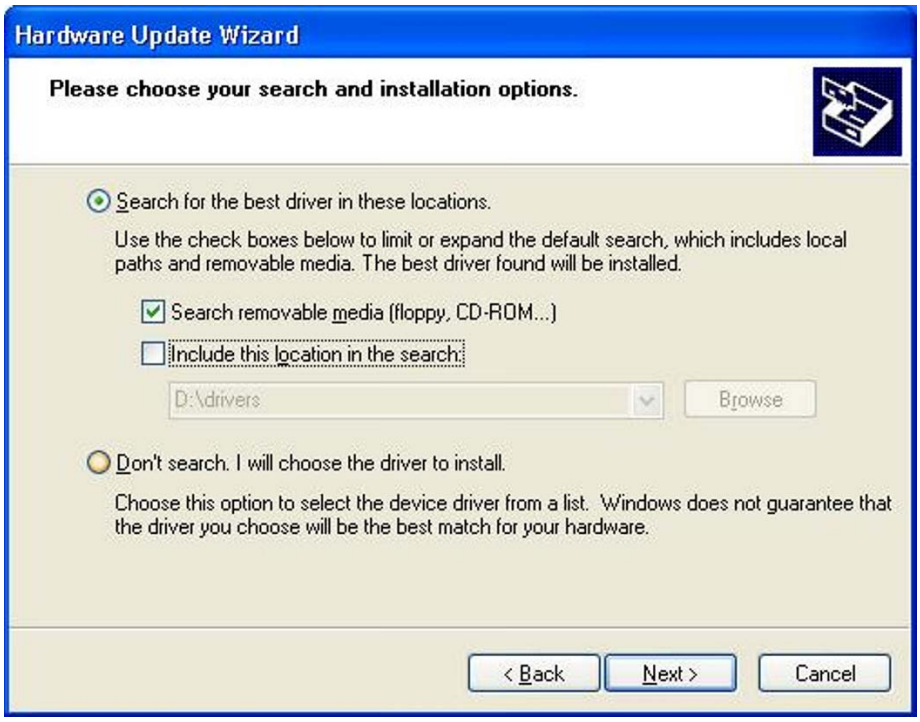


Figure 10-22 Voice Security Recorder Installation-2

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 10-23 Voice Security Recorder Installation-3 on page 10-29).

Figure 10-23 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*^{term} ® 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*^{term} VSR unit.
9. Connect the NEC telephone system to the remaining port on the *D*^{term} VSR unit (refer to Figure 10-34 Voice Security Recorder Connection on page 10-39).

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 prerecorded 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 10-24 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.

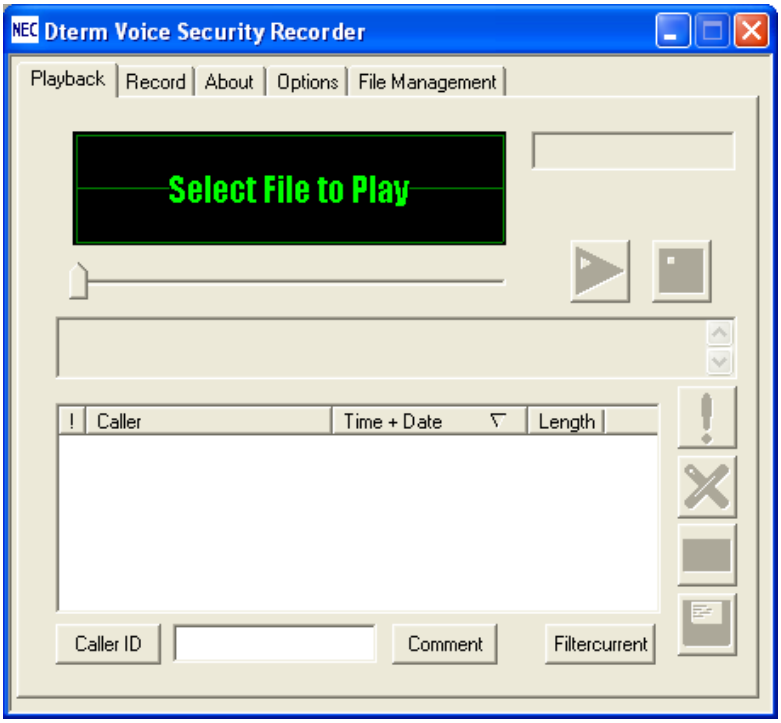


Figure 10-25 VSR Playback Tab

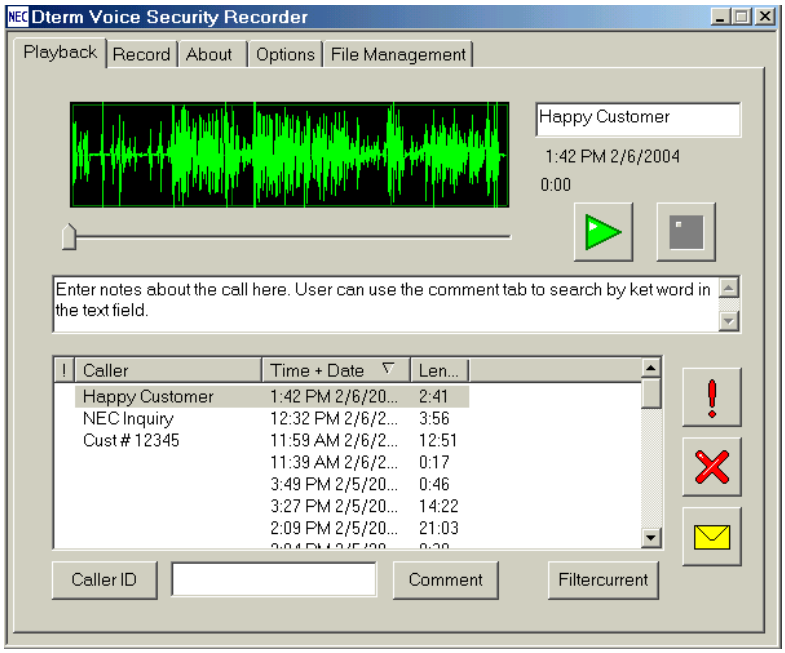


Figure 10-26 Caller ID or Comment Editor

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 10-27 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.

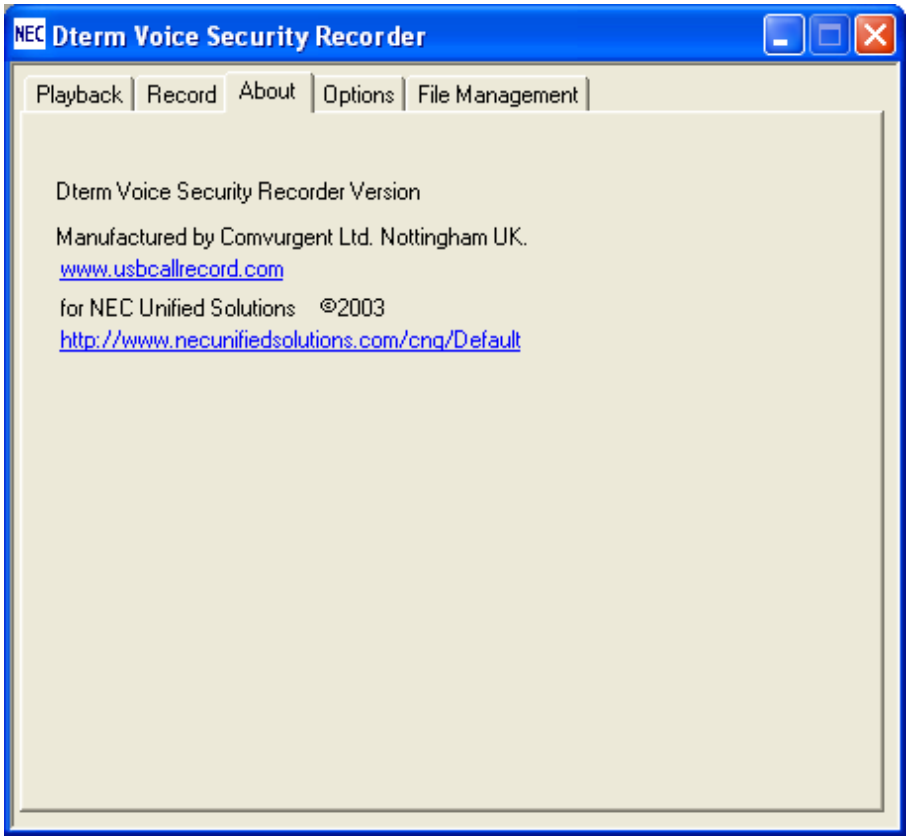


Figure 10-28 VSR About Tab

11.3.6 Options Tab

This tab allows the user to select various setup options of the VSR.

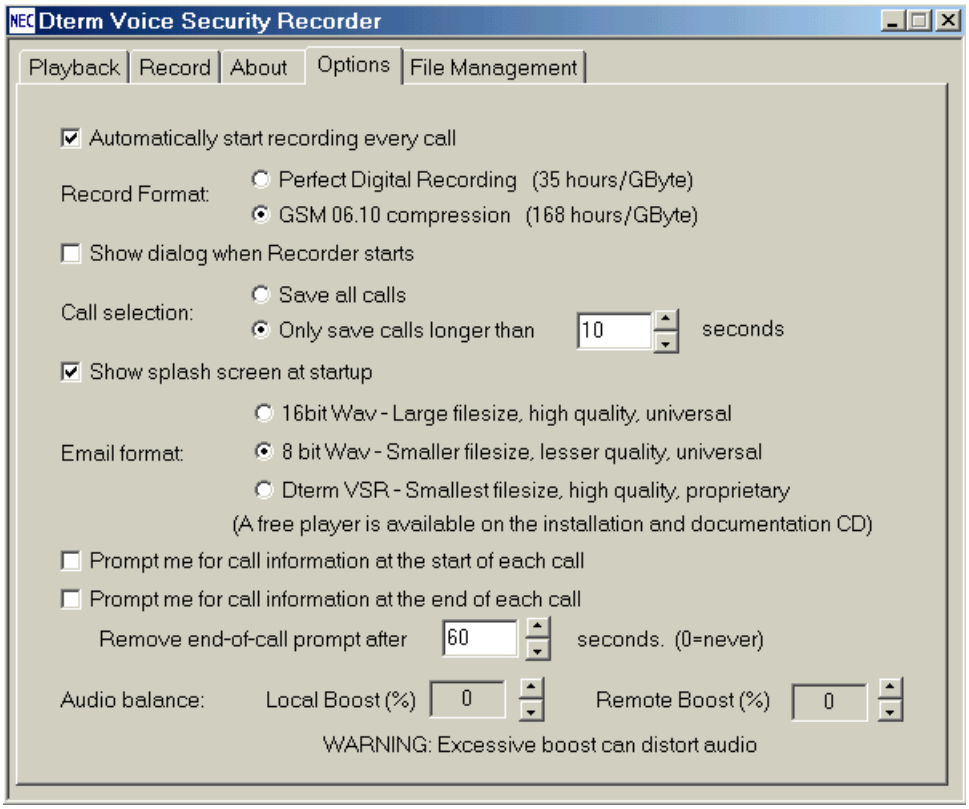


Figure 10-29 Select VSR Setup Options

- 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^{term} 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.

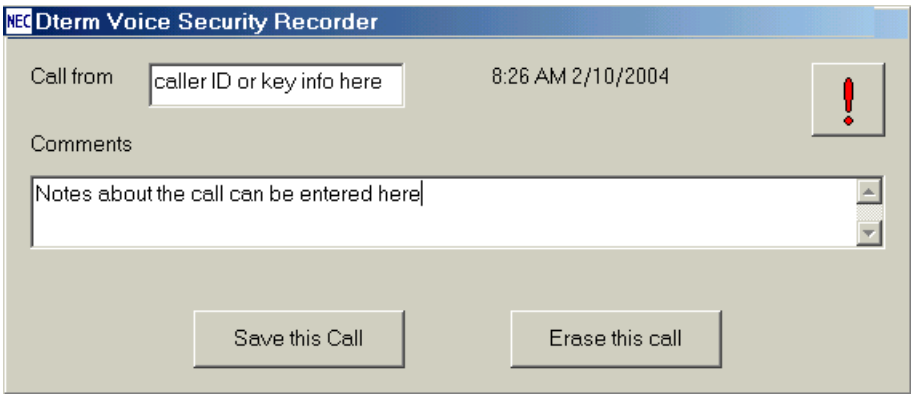


Figure 10-30 Manage Calls at Completion

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.

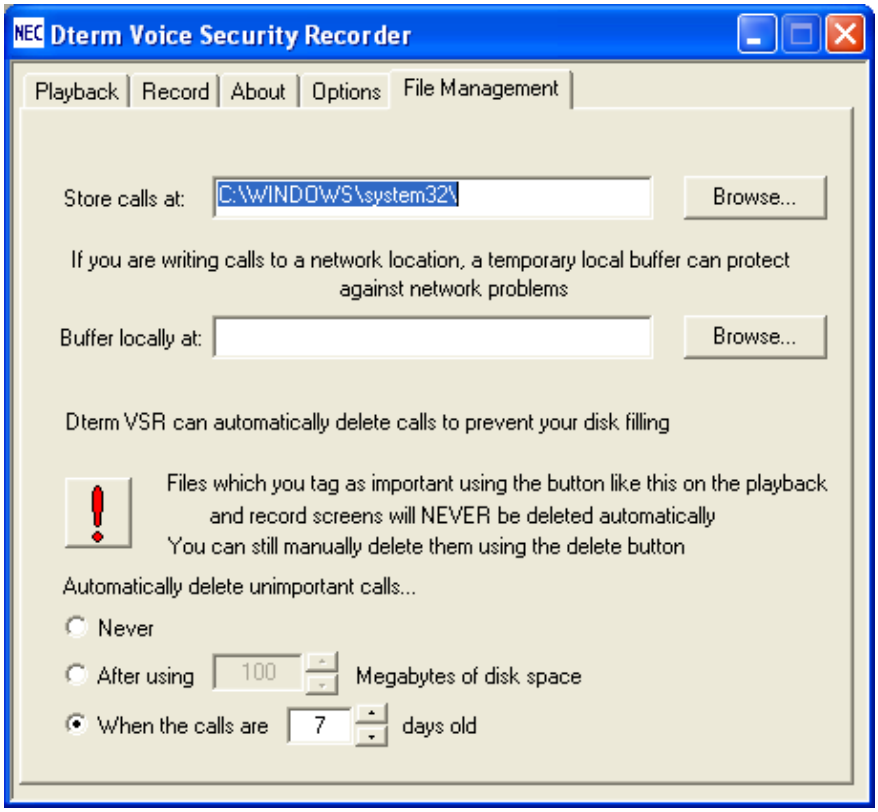


Figure 10-31 File Management Tab

11.3.8 Custom Program Settings

Comvurgent provides the dealer or user the option of making additional adjustments.

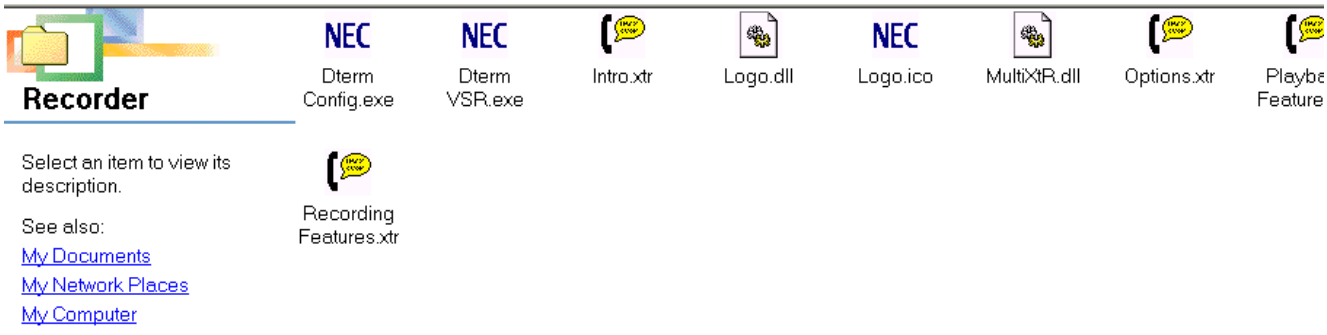


Figure 10-32 Comvurgent Options for Additional Adjustments

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 10-33 Customizing Application to Meet Requirements.

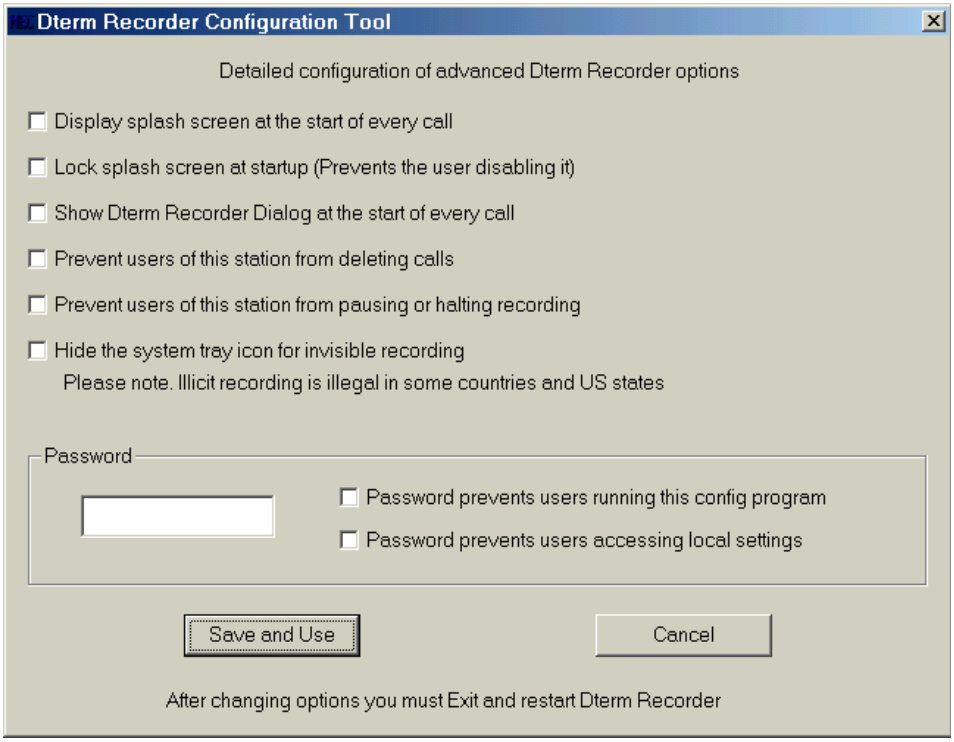


Figure 10-33 Customizing Application to Meet Requirements

- Display splash screen at the start of every call

  Reminds user that recording is taking place by splashing a screen with every call.

- Show *D*^{term} Recorder dialog at the start of every 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 making changes, the application must be closed and started again to become effective.*

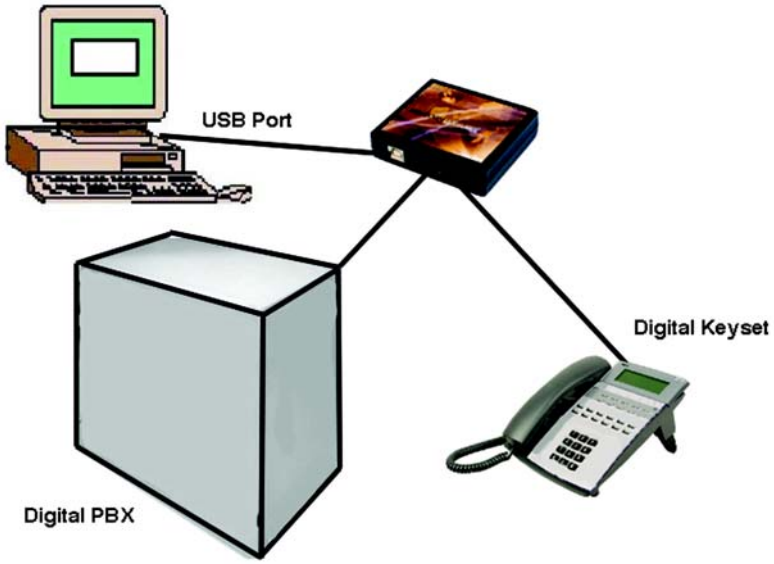


Figure 10-34 Voice Security Recorder Connection

11.4 Operation Note

Use the Options and File Management tabs within the *D*^{term} ® 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*^{term} Voice Security Recorder application, that the audio balance of the remote side be changed to approximately 100%.

1. Open the *D*^{term} 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.*

11.5 4-Port Digital Call Logging Unit

11.5.1 Description

The 4-Port Digital Call Logging Unit is a Universal Serial Bus (USB) device designed to be installed in the “BackOffice” next to the telephone system. These devices can be stacked on one PC (up to 12 per PC or 48 ports) or, 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*^{term} 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 the functionality of the telephone in its normal manner.

The device meets the appropriate FCC and UL requirements required 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-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 10-35 4-Port Digital Call Logging Unit Connection Configuration.

11.5.3 Connectors

The NEC 4-Port Digital Call Logging Unit USB recording device has five 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 in any way the telephone operation with or without connection of the host PC.

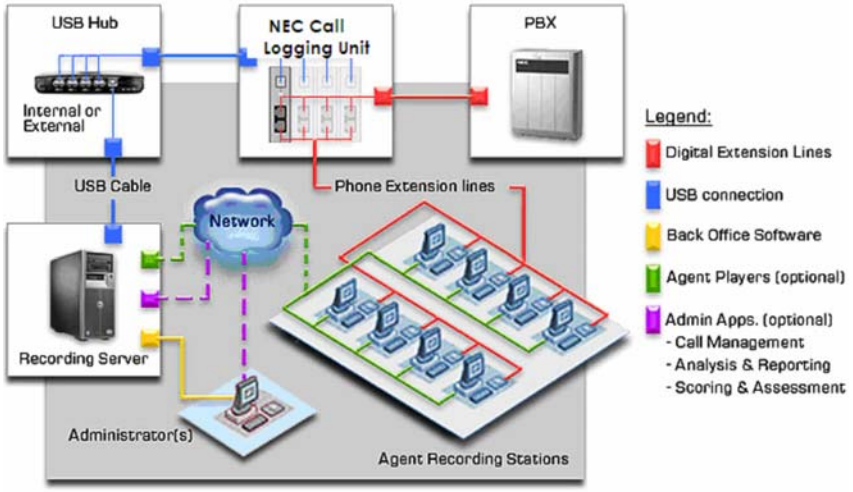


Figure 10-35 4-Port Digital Call Logging Unit Connection Configuration

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

- 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.*

11.5.6 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.

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 will result in an unsuccessful installation.

The installer will need to 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 light in weight, this can be done quite easily with Velcro tape.

11.5.6.2 Set Up PC

1. Set up the PC with the appropriate number of USB Controller Cards and/or USB hubs for the number of 4-Port Digital Call Logging Unit devices (do not connect more than four devices to each USB Controller Card). Follow the installation instructions for the Controller Card carefully. The PC should be connected to the LAN for supervisor access as well as to facilitate Windows and software updates as needed. Additionally, it may be desirable to load PC Anywhere on the PC for remote administration of the application.
2. Once USB cards are installed, go to **www.windowsupdate.com**. Download and install any updated device drivers 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(s).
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. Once USB hubs are installed, restart the PC again.

11.5.6.3 Install the 4-Port Digital Call Logging Unit

1. Connect the 4-Port Digital Call Logging Unit device to the USB cable and plug the USB cable into the PC. Windows responds with the Found New Hardware wizard.

2. Insert the provided NEC BackOffice CD into 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. Once 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. Once 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-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 will 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 will be recording. Refer to Figure 10-36 Digital Station Ports.

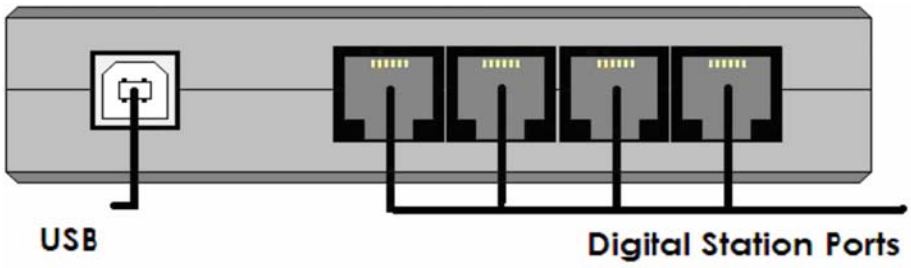


Figure 10-36 Digital Station Ports

11.5.6.4 Install the 4-Port Digital Call Logging Unit BackOffice Software

1. Insert the **NEC BackOffice** CD into 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 10-37 Recorder Screen.

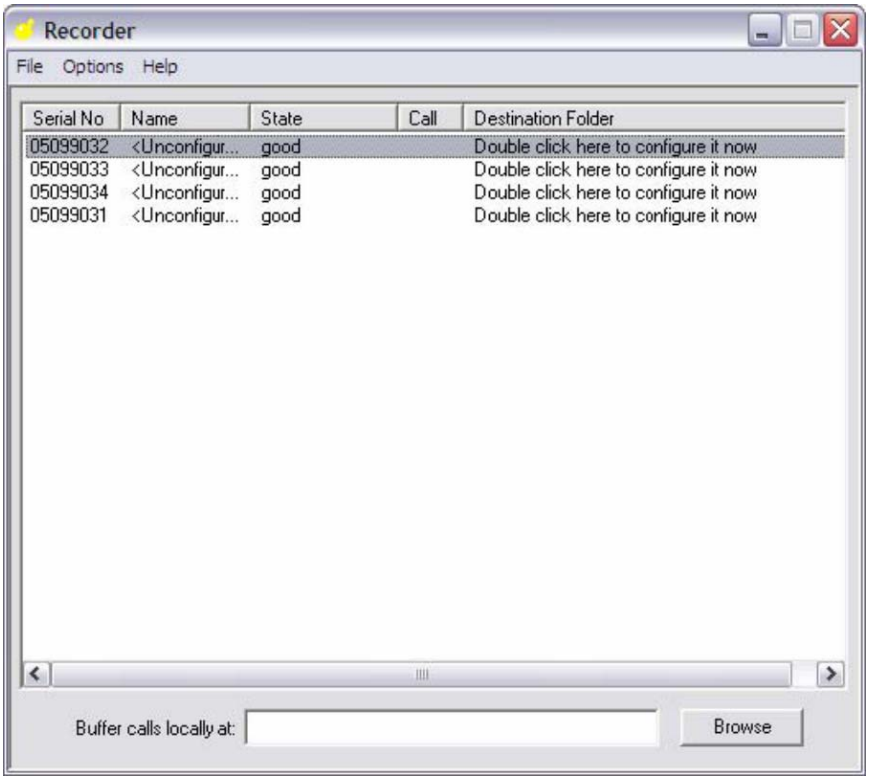


Figure 10-37 Recorder Screen

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).

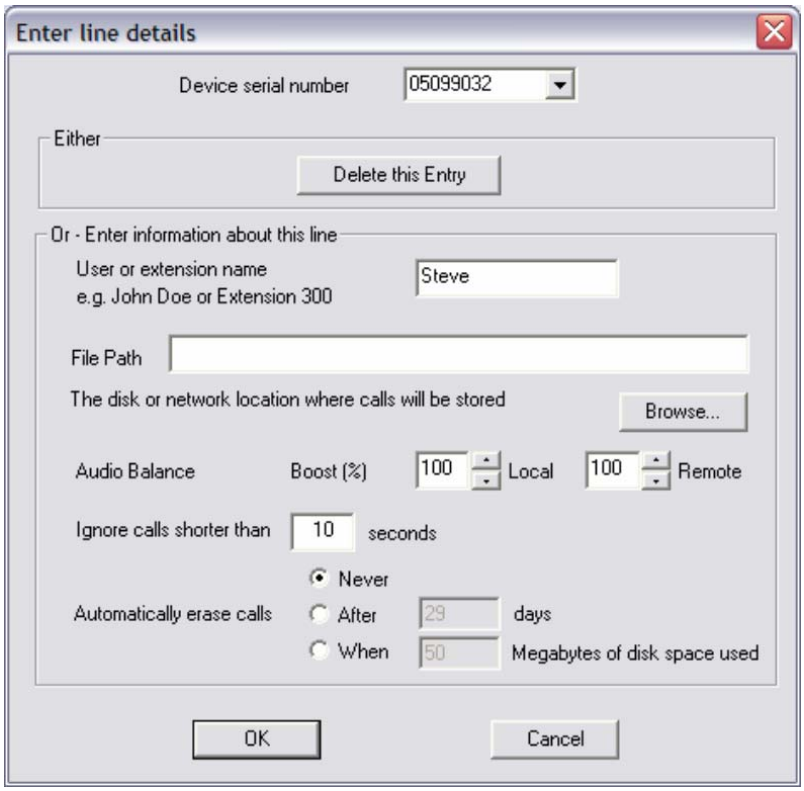


Figure 10-38 Enter Line Details Dialog Box

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. It is also recommended that you 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. It is suggested to perhaps boost the remote side on most installs to 150%, but to test 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 has been 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 be left on at all times (with battery backup) and the application always running.*

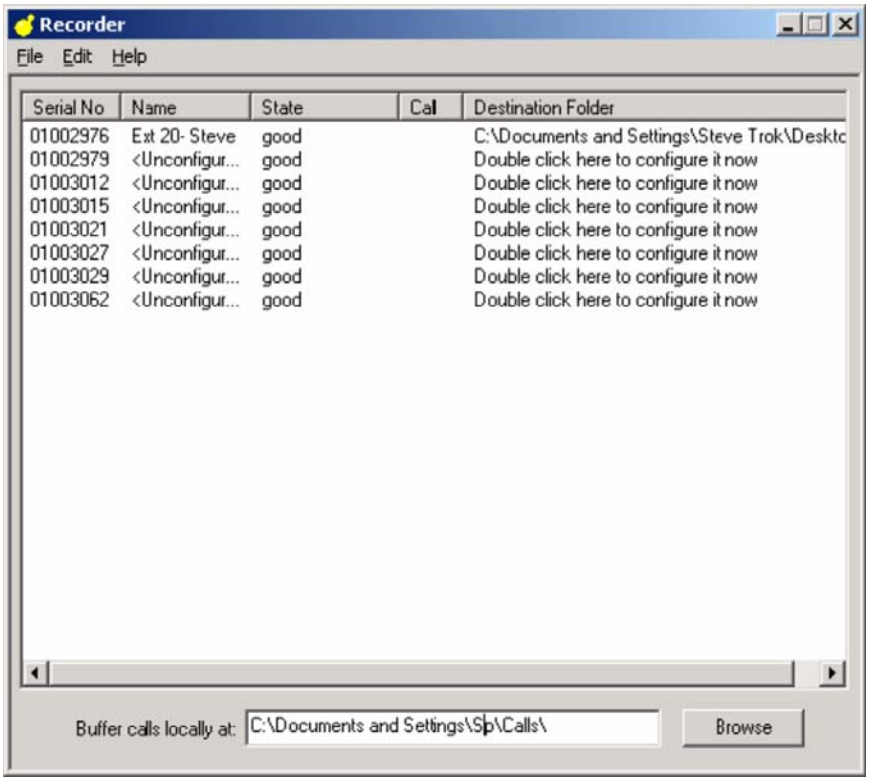


Figure 10-39 Recorder Screen

11.5.6.5 Choose and Install Player Options

There are several player options 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, e-mailing conversations, exporting to wav file, etc. This software can be downloaded from **www.usbcallrecord.com** for free.
- **VSR Manager 2.0** – enables a supervisor(s) to search for calls, playback calls, associate notes about calls and mark them as important, as well as delete or e-mail 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

There are two options for playing back calls recorded by your VSR(s). The first is the Desktop Player which is designed to be used by an individual user to play back their own archive of calls or to play back NEC *D*^{term} VSR calls stored on their PC or network. It is designed to easily manage 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.

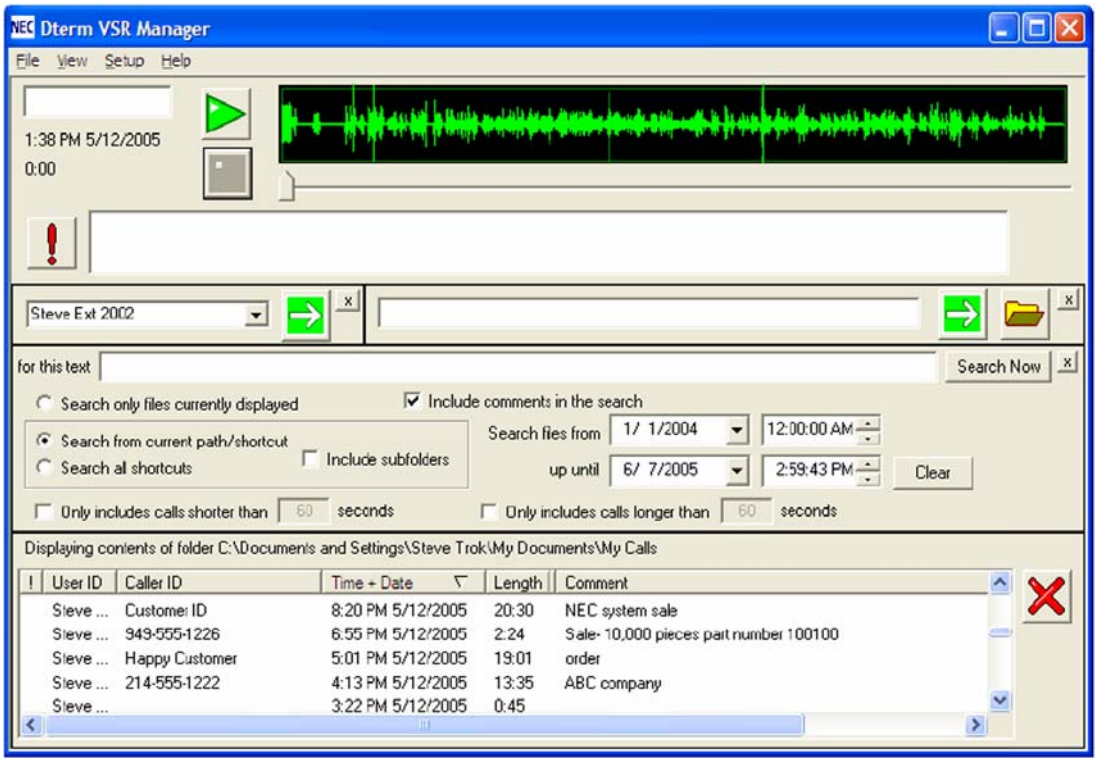


Figure 10-40 *D*^{term} VSR Manager Screen

The second player option is the **VSR Manager**. Take your call recording environment to the next level with NEC's 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 designed to manipulate 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 10-41 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.

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 is designed to assist you with the installation of the software and to help 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, 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.

11.6.1.4 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 up to date with Windows Service Packs, it's likely the Microsoft .Net Framework 1.1 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 doubts, try to install VSR Manager 2.0. The installation will halt and inform 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 will not be replaced if lost.***
- ***If the key becomes damaged within the warranty period, you will need to 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

There are two options 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*^{term} VSR calls stored on their PC or network. It is designed to easily manage 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.

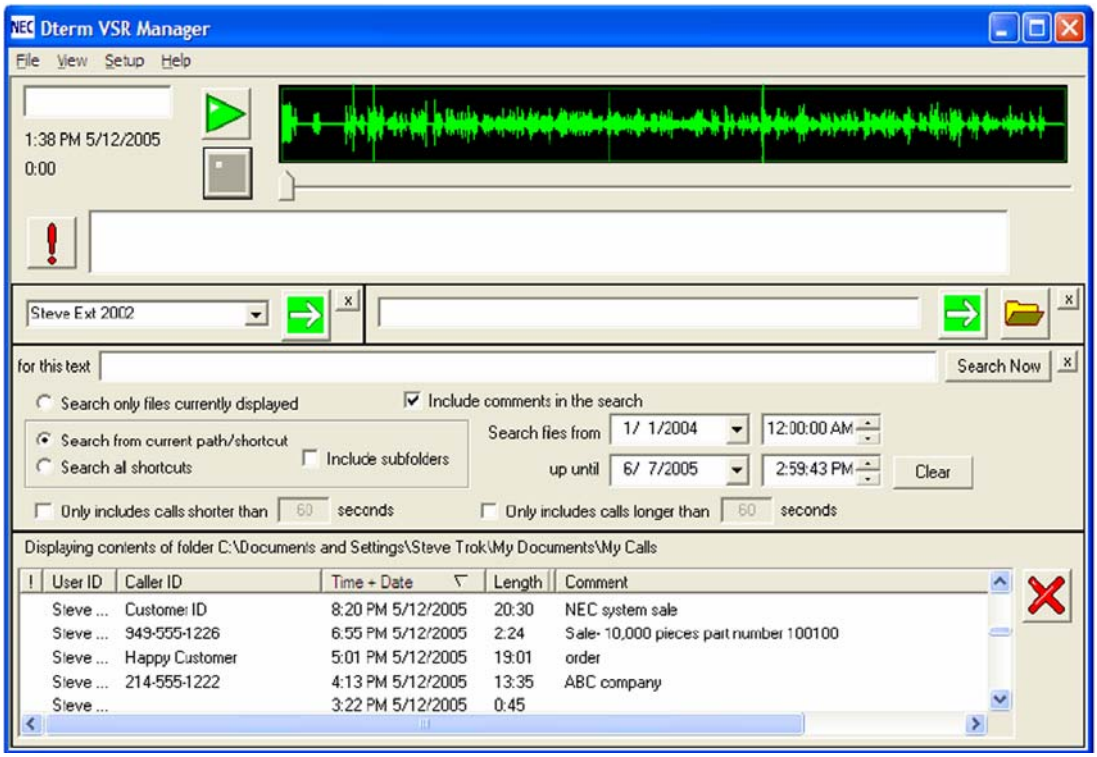


Figure 10-42 *D*^{term} VSR Reporter Pro Screen

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 designed to manipulate 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.

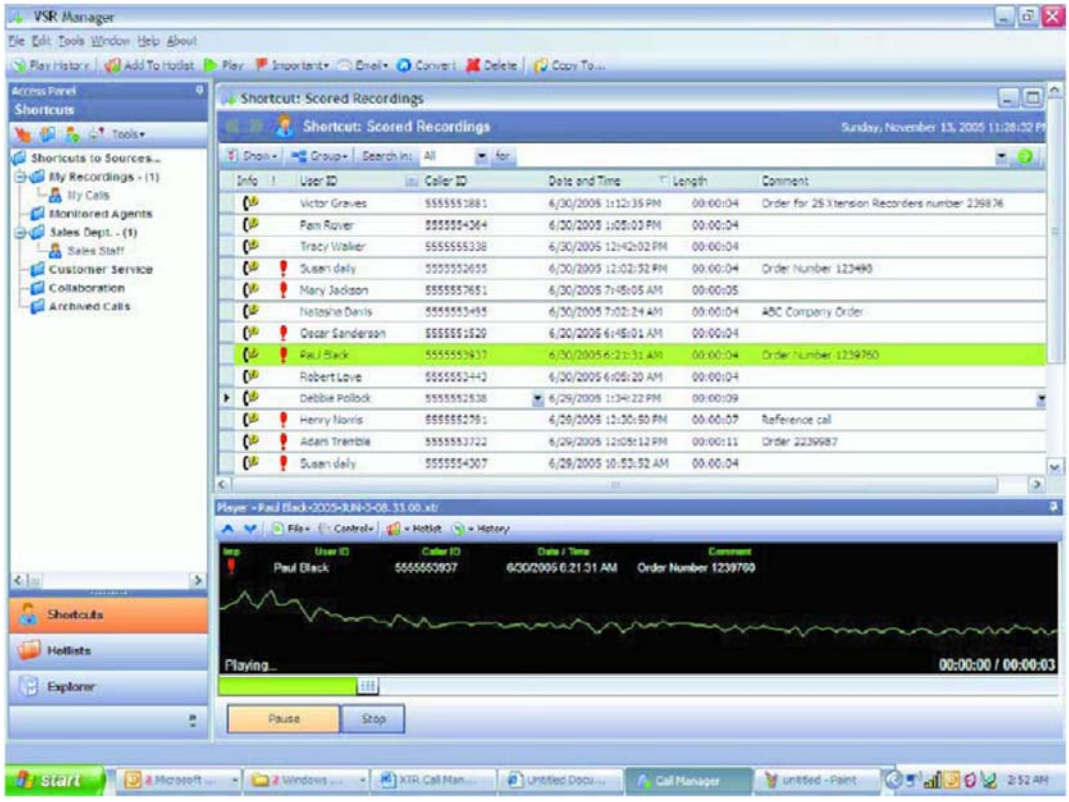


Figure 10-43 VSR Reporter Pro Screen

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*^{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 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 up to date with Windows Service Packs, it's likely the Microsoft .Net Framework 1.1 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 doubts, try to install VSR Reporter Pro 2.0. The installation will halt and inform 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 will not 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 into 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.

SECTION 12 TELEPHONE ADAPTERS

12.1 Using Adapters

The modular terminals can support the installation of one additional adapter underneath the terminal. These adapters provide the multiline terminal different abilities, depending on the adapter installed.

Figure 10-44 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/SV8300 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 10-45 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** get 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 10-46 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 cross-over 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 10-47 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-AU), 84-05-02 (VOIPU) or 85-01-03 (SHUBU).

Figure 10-47 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 10-48 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( ) on DTL/ITL multiline terminal.

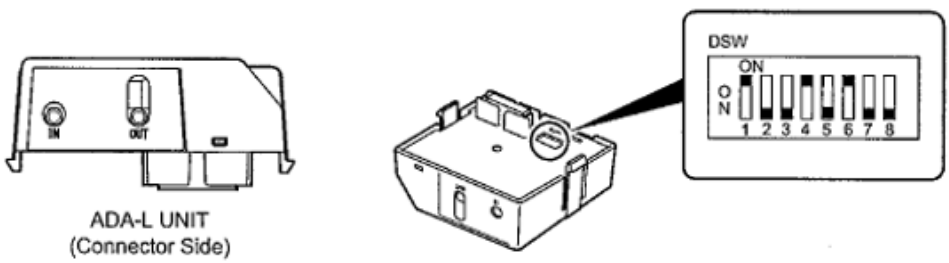


Figure 10-48 ADA-L( ) Unit

To provide control to the recorder or to enable/disable the record start warning tones, refer to Table 10-3 ADA-L( ) Unit Switch Settings.

Table 10-3 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	Used for Voice Inputting via a TRANS 2 On = Disable Off = Enable (Default)
	DSW 4	Output Hook Signal to External Device On = Output (Default) Off = No Output
	DSW 5	Current Level for OUT Jack On = Low Off = High (Default)
	DSW 6	Not used On = (Default)
	DSW 7 and DSW 8	Not used Off = (Default)

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 10-49 Separate Tilt Leg from Leg Support).

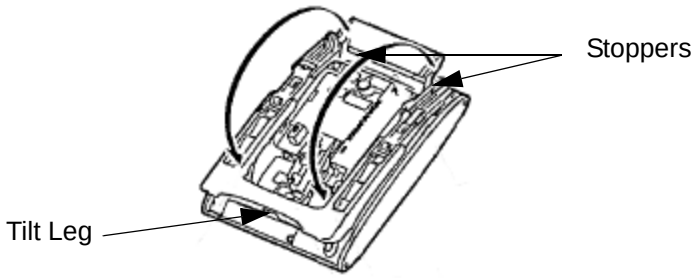


Figure 10-49 Separate Tilt Leg from Leg Support

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 10-50 Bottom Option Interface Knockout).

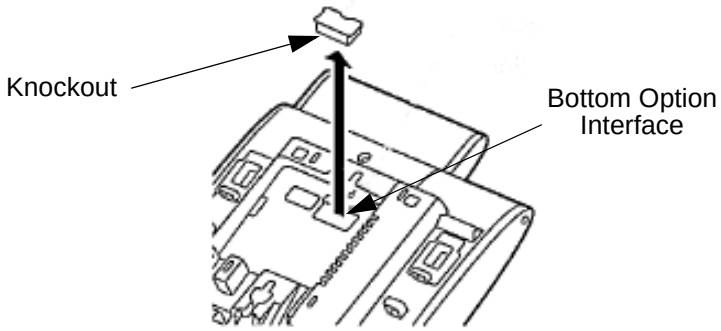


Figure 10-50 Bottom Option Interface Knockout

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 10-51 Install ADA-L( ) Unit).

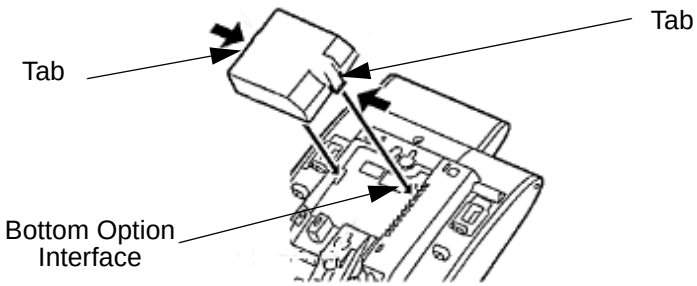


Figure 10-51 Install ADA-L( ) Unit

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 10-48 ADA-L( ) Unit on page 10-60).

   - ***DSW 5 is used to change the output level from 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 10-52 ADA-L( ) OUT Jack Connection).

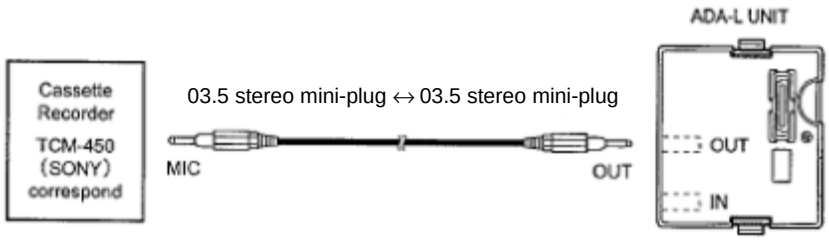


Figure 10-52 ADA-L( ) OUT Jack Connection

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 10-48 ADA-L( ) Unit on page 10-60).

   - ***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 10-53 ADA-L( ) IN Jack Connection).

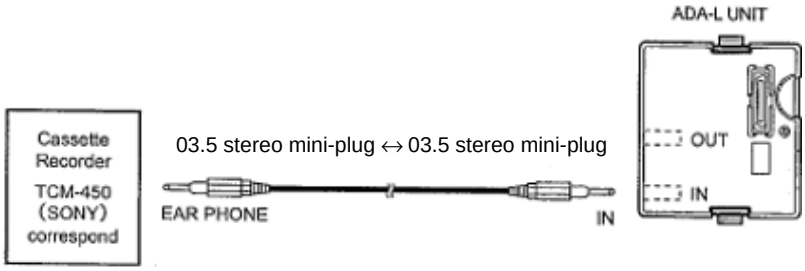


Figure 10-53 ADA-L( ) IN Jack Connection

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 as there is only one physical port number 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 lamping, or Caller ID.

12.4.1 APR-L( ) UNIT Switch Settings

Figure 10-54 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( ) on DTL multiline terminal.

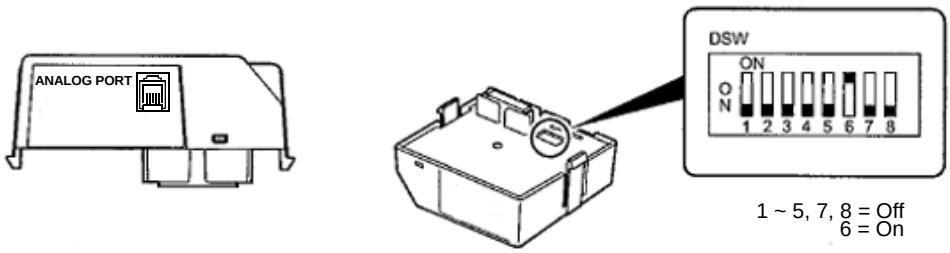


Figure 10-54 APR-L( ) UNIT

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 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 10-55 Separate Tilt Leg from Leg Support).

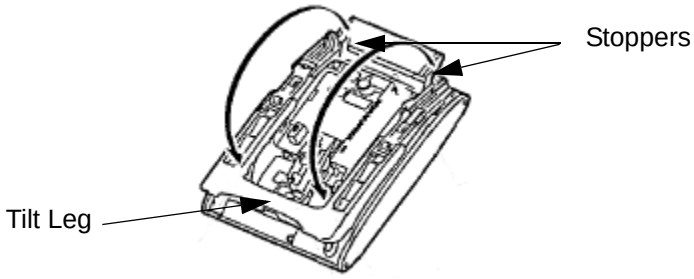


Figure 10-55 Separate Tilt Leg from Leg Support

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 10-56 Bottom Option Interface Knockout on page 10-66).

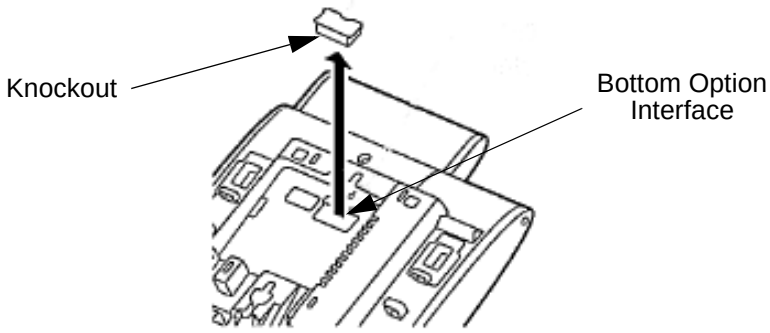


Figure 10-56 Bottom Option Interface Knockout

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 10-57 Install APR-L( ) UNIT).

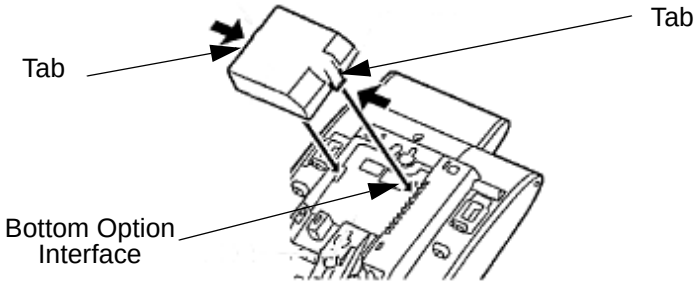


Figure 10-57 Install APR-L( ) UNIT

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.

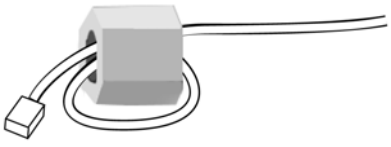


Figure 10-58 Ferrite Bead with APR Adapter

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
Displays the type of terminal installed. This can be used to verify that the system recognizes the adapter.

10-03-06 : Blade Setup
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 : Blade Setup
The port number of the APR Adapter is displayed for the extension (APR ports = 193-256 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)

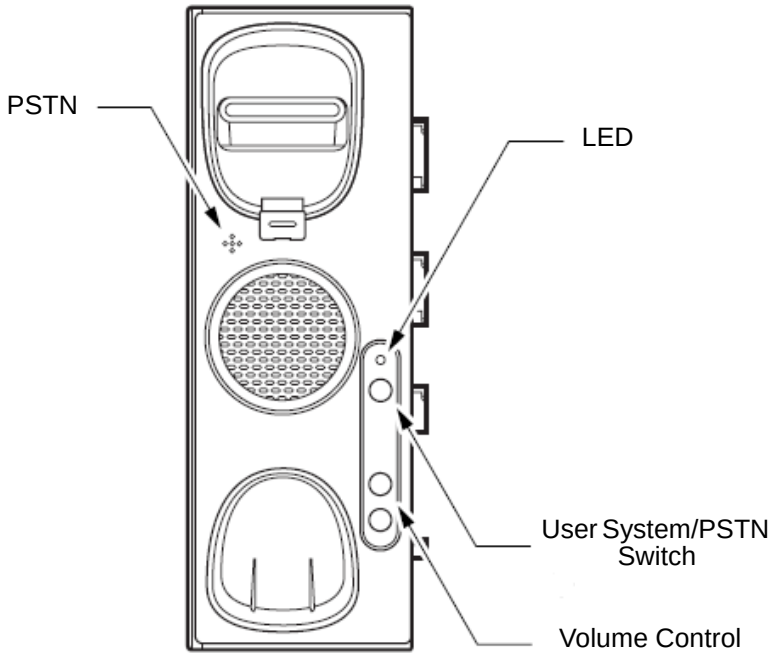


Figure 10-59 PSA-L UNIT

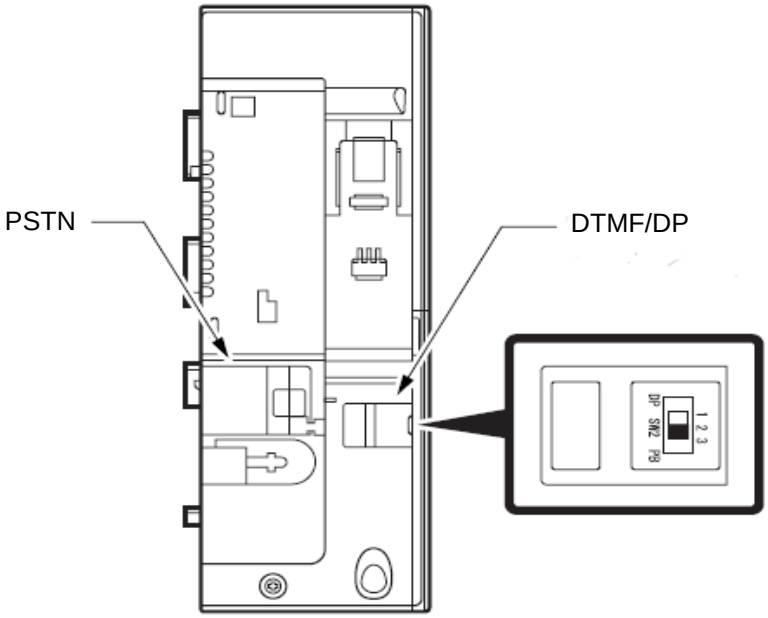


Figure 10-60 PSA-L UNIT Connections

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 the 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 10-61 Separate Tilt Leg from Leg Support on page 10-69).

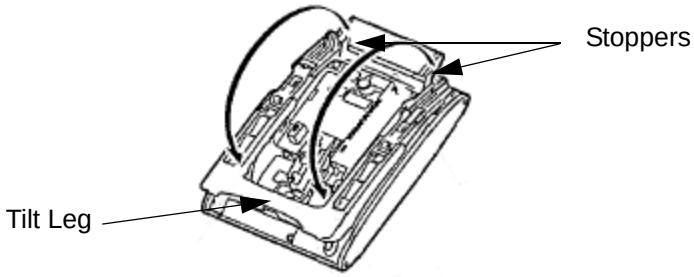


Figure 10-61 Separate Tilt Leg from Leg Support

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.

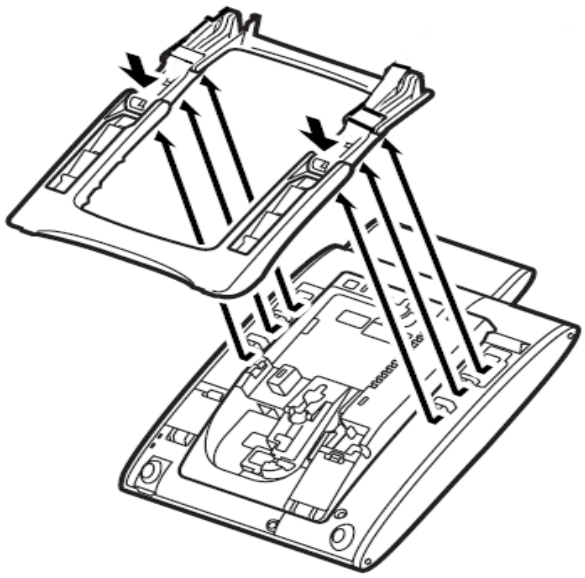


Figure 10-62 Remove Legs From Multiline Terminal

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.

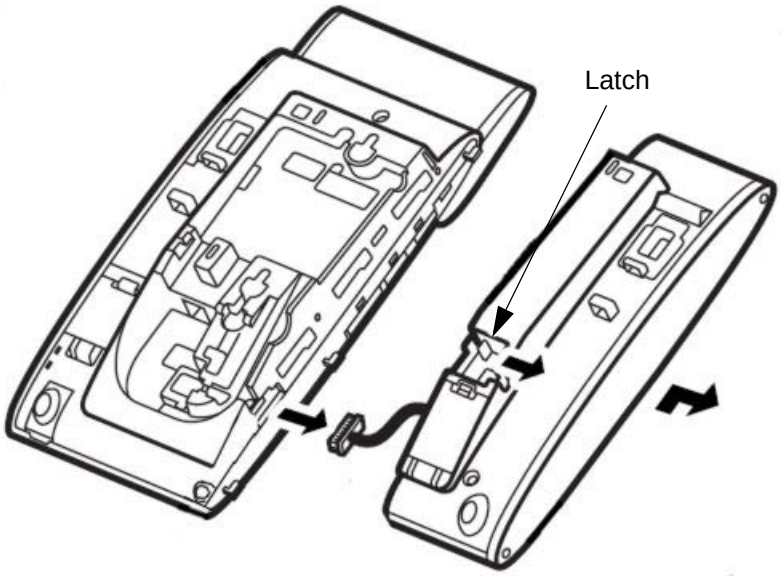


Figure 10-63 Bottom of Multiline Terminal (Legs Removed)

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.

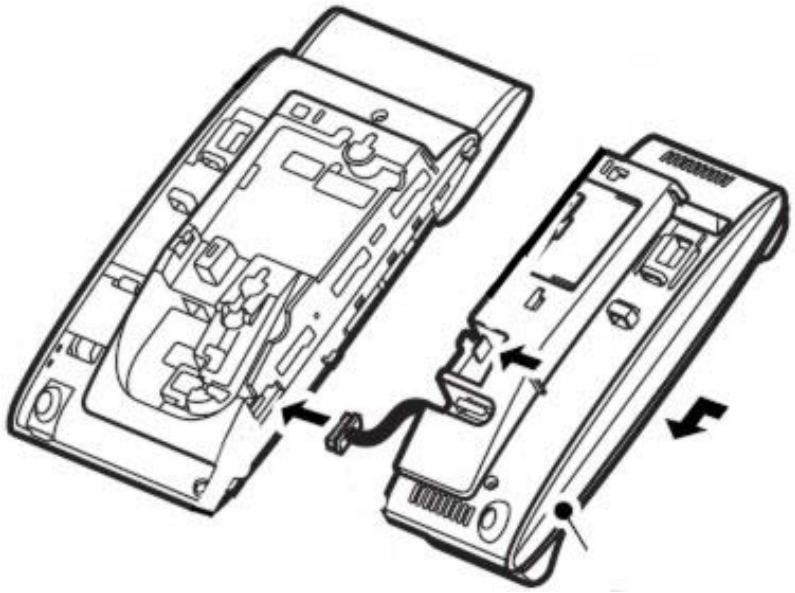


Figure 10-64 Attach PSA-L( ) Unit to the Multiline Terminal

10. Gently press the serial cable into the grooved cutout for the cable.

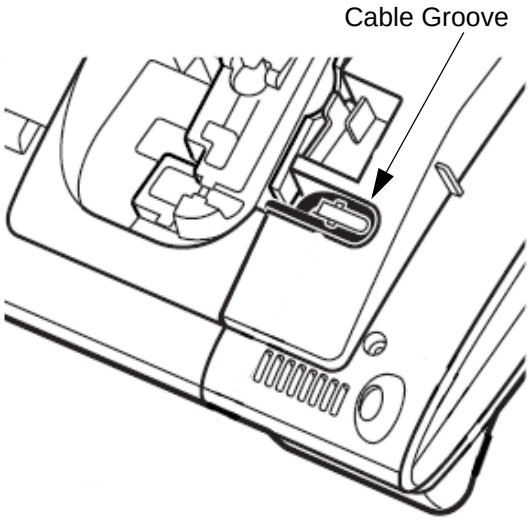


Figure 10-65 Grooved Cutout for Serial Cable

11. Connect the serial connection cord (refer to Figure 10-64 Attach PSA-L( ) Unit to the Multiline Terminal on page 10-71) from the PSA-L UNIT to the terminal body.

12. Open the Dip Switch Cover (refer to Figure 10-60 PSA-L UNIT Connections on page 10-68). 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.

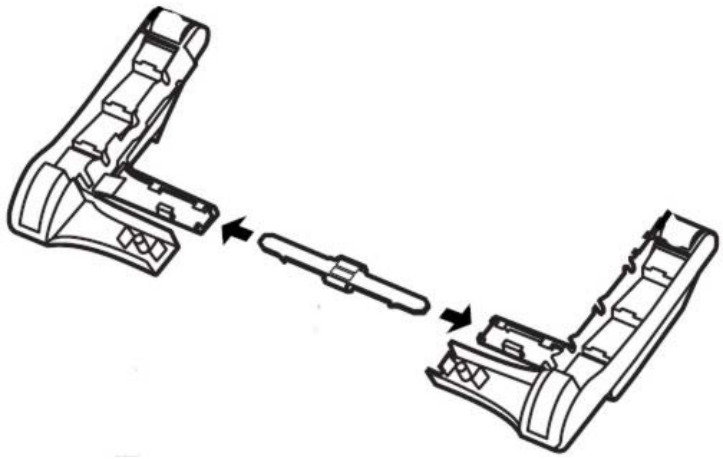


Figure 10-66 Insert Stopper for Handset Use

14. For the Handset, set the connector in place.

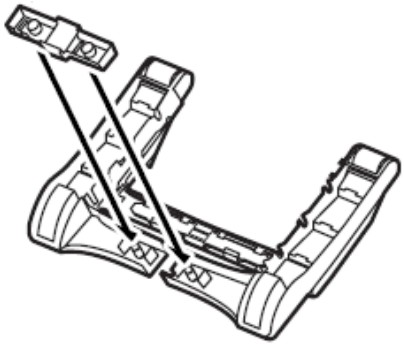


Figure 10-67 Insert Connector for Handset Use

15. Attach the analog trunk cable and the handset cable. Refer to Figure 10-60 PSA-L UNIT Connections on page 10-68.

16. Reinstall the legs, pushing upwards until both locks snap into place.

17. Return tilt leg to desired position.

18. Return the multiline terminal to the numbered keypad in the up position.

19. Connect the Line cord, the PSTN cable and the Handset cord (if used).

20. Remove both plastic panels from the front of the multiline terminal.

Figure 10-68 Remove Plastic Panels

21. Pull tab down and lift out the numbered keypad panel.

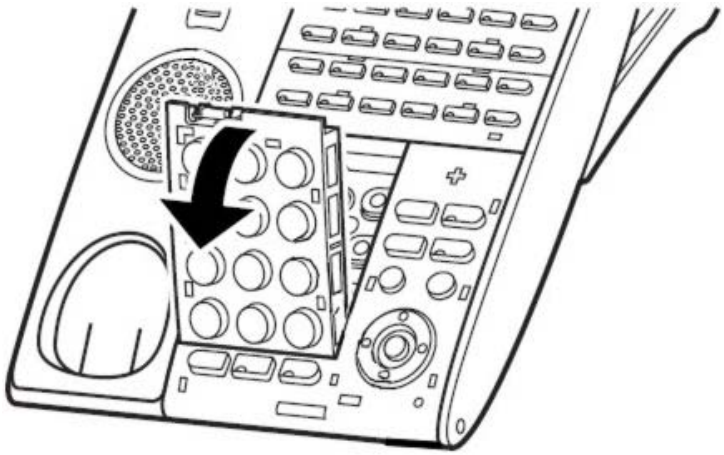


Figure 10-69 Remove Numbered Keypad

22. Install the new keypad panel supplied with the PSA-L UNIT.

Figure 10-70 Install Numbered Keypad

23. Reinstall both plastic panels to the front of the multiline terminal (refer to Figure 10-71 Install Plastic Panels on page 10-74).

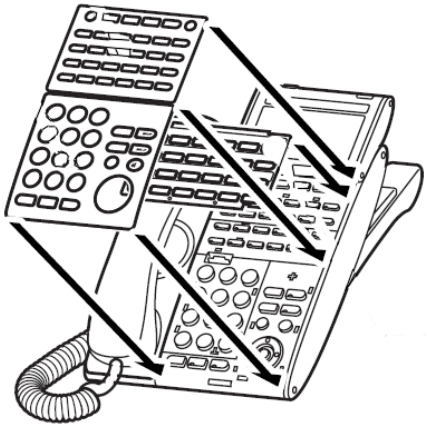


Figure 10-71 Install Plastic Panels

24. Connect the line cord to the adapter.

25. Connect the user system (KTS or PBX) cable.

26. 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 ∅ or ⋎ to increase or decrease audio levels.

   - Other than receiving calls, no other multiline terminal functions are 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 functions are 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 functions are 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 functions are available.

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.

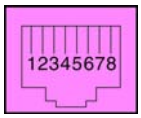
The CD-4COTB Blade provides 2 Power Failure Transfer circuits.

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 10-4 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 10-72 Power Failure Connector (CN3) Shown on CD-4COTB Blade on page 10-77.

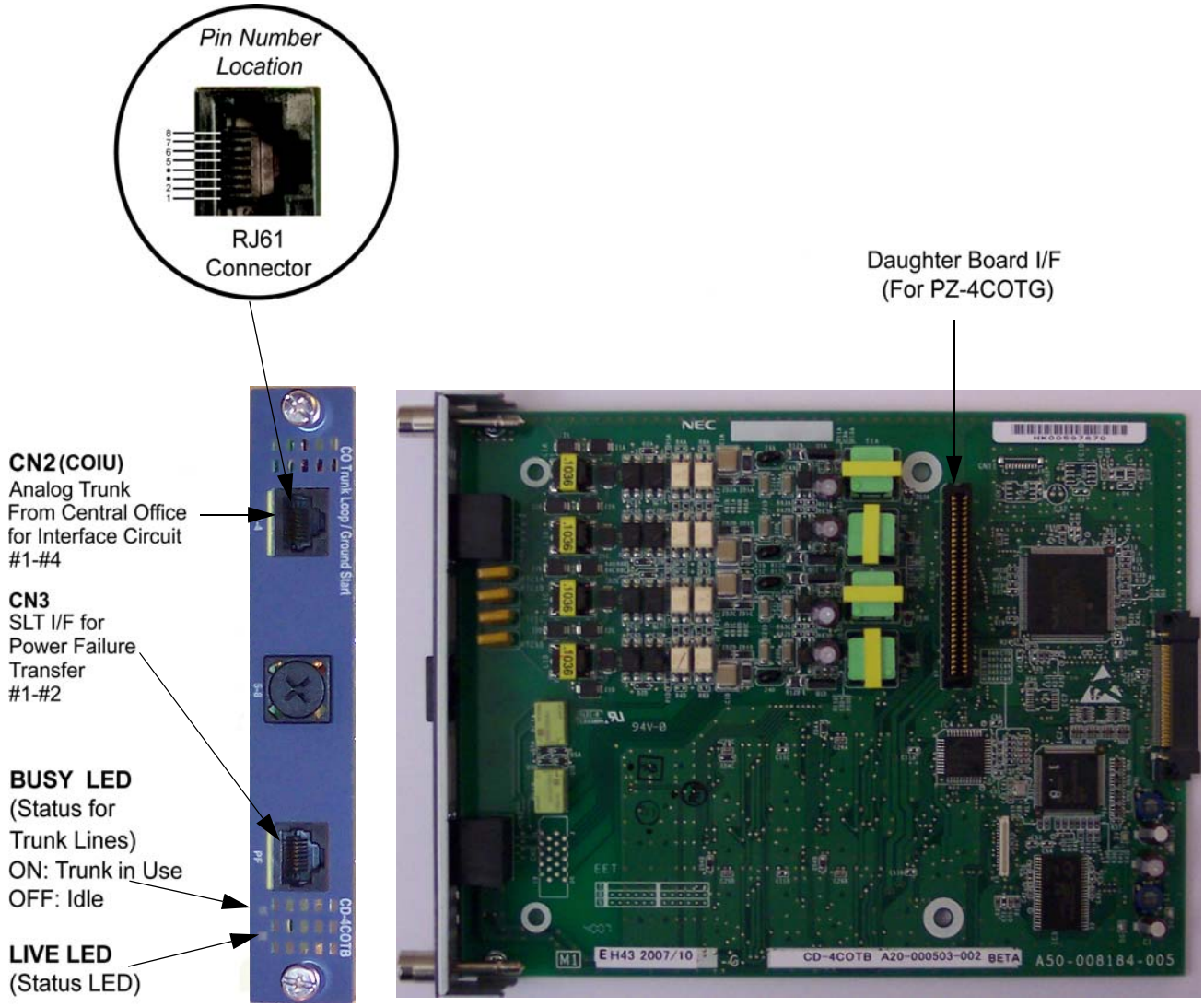


Figure 10-72 Power Failure Connector (CN3) Shown on CD-4COTB Blade

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Installing D^term Series i Telephones

SECTION 1 GENERAL INFORMATION

The SV8100/SV8300 system supports several different IPK II *D^term* 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^term* Series i telephones, single line telephones, cordless telephones and wireless telephones discussed in the document can be installed on the SV8100/SV8300 systems.

To avoid damage to equipment, do not install the D^term 70 on the SV8100/SV8300 system. The D^term 70 (DTU/DTP) terminal uses -24V power supply used by the SV8100/ SV8300 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 11-1 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.

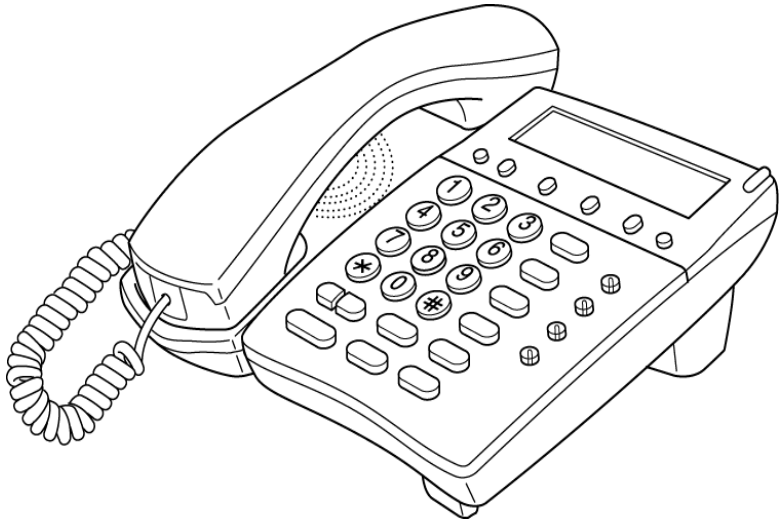


Figure 11-2 DTR-4D-1( ) TEL

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/SV8300 system.

Figure 11-3 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 also used with the SV8100/SV8300 system.

Figure 11-4 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/SV8300 system.

Figure 11-5 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/SV8300 system.

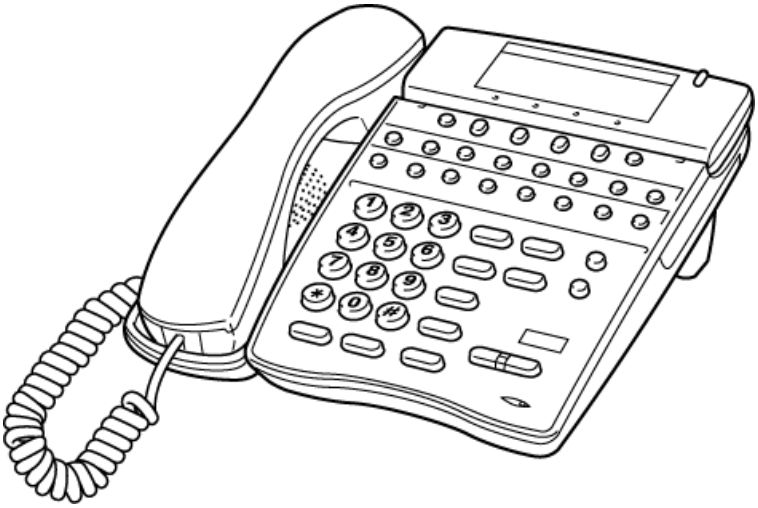


Figure 11-6 DTH-16D-1( ) TEL Multiline Terminal

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 used also with the SV8100/SV8300 system.

Figure 11-7 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/SV8300 system.

Figure 11-8 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 also be used also with the SV8100/SV8300 system.

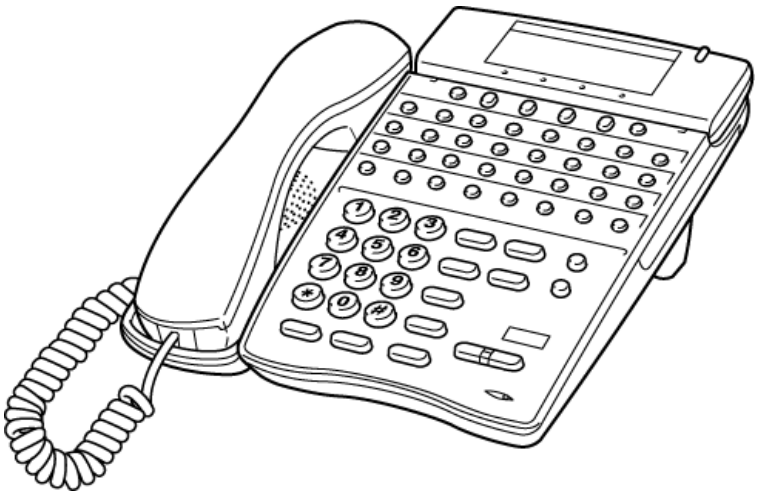


Figure 11-9 DTH-32D-1( ) TEL Multiline Terminal

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.

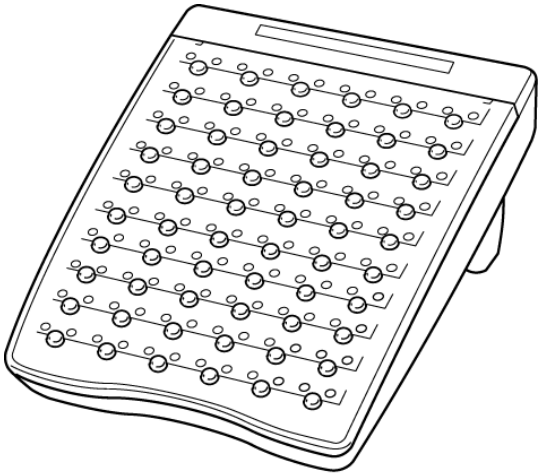


Figure 11-10 DCR-60-1( ) Console

SECTION 3 CONNECTING A MULTILINE TERMINAL TO THE SYSTEM

This instruction applies to all DTH/DTR/IP 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.

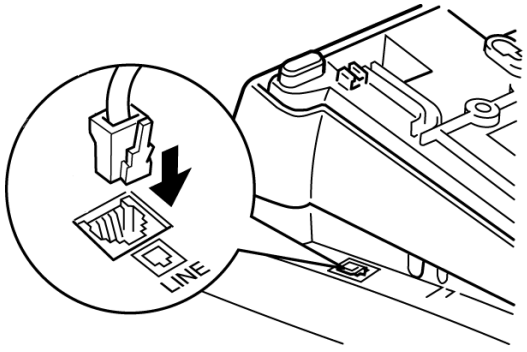


Figure 11-11 Connecting a Multiline Terminal to the System

2. Lead the telephone and handset cords through the applicable grooves.

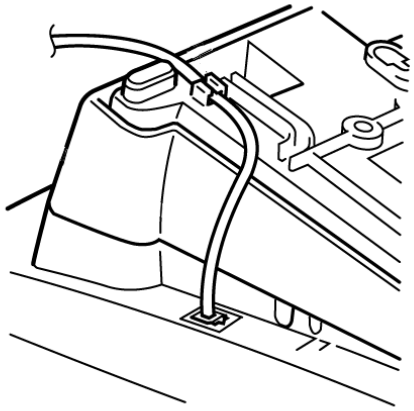


Figure 11-12 Leading Line Cords on a Multiline Terminal

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.

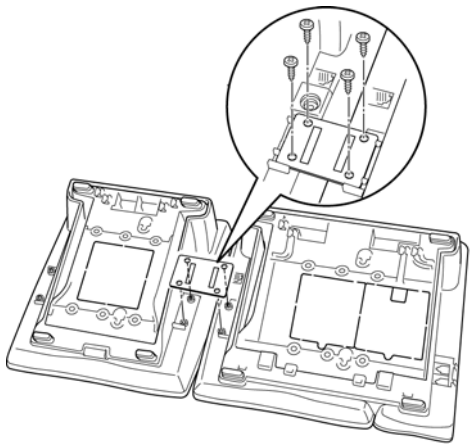


Figure 11-13 Connecting the DCR Console to a Multiline Terminal

3. Connect the line cord and the AC adapter to the indicated locations on the bottom of the Attendant Console.

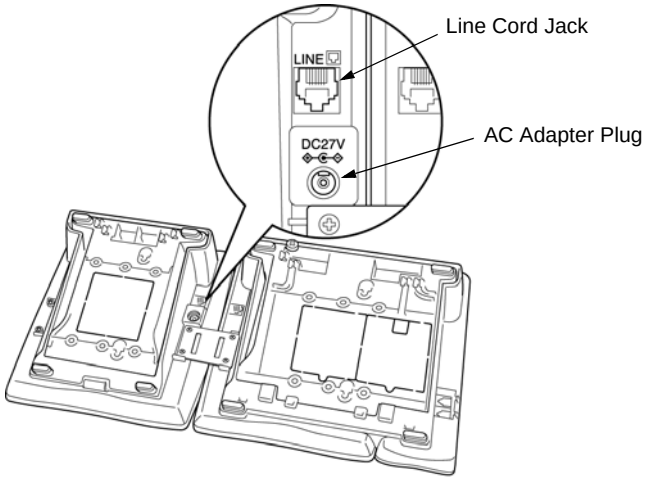


Figure 11-14 Connecting the Line Cord and AC Adapter when Installing a DCR Attendant Console

4. When the Attendant Console and the multiline terminal are properly connected, they sit side-by-side as shown in Figure 11-15 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.*

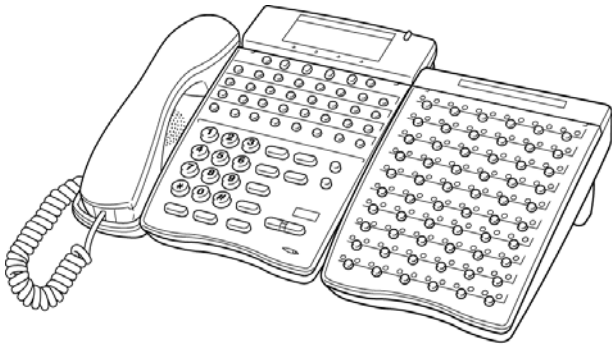


Figure 11-15 Attendant Console and Multiline Terminal

SECTION 5 ADJUSTING THE LCD ON A MULTILINE TERMINAL

The SV8100/SV8300 display multiline terminals have an adjustable Liquid Crystal Display (LCD). The LCD can be adjusted by pulling up or pushing down as desired.

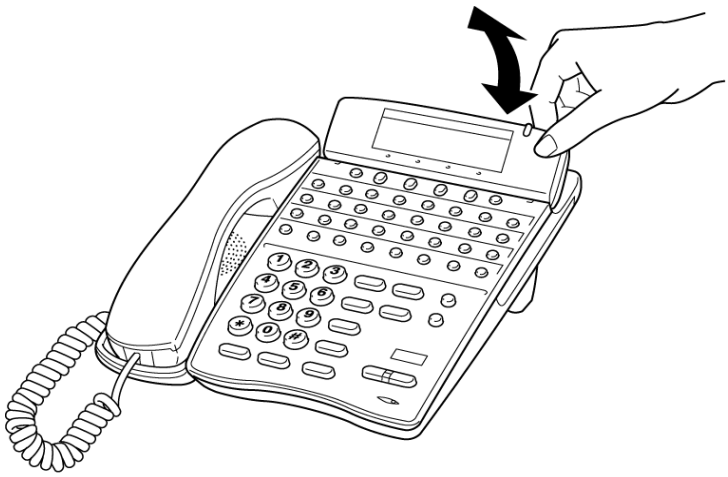


Figure 11-16 Adjusting the LCD on a Multiline Terminal

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.***

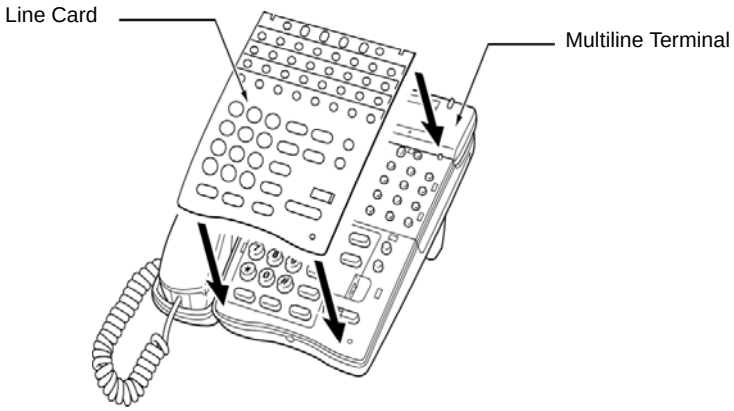


Figure 11-17 Installing Line Card and Plastic Panel on a Multiline Terminal

2. Place the plastic panel over the line card and push the corners of the plastic panel until they click into place.

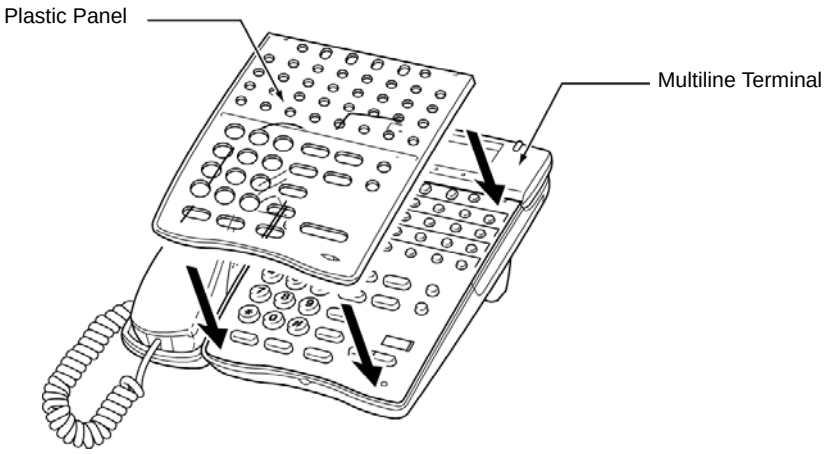


Figure 11-18 Installing Plastic Panel on a DTH/DTR Multiline Terminal

6.2 Removing the Plastic Panel

Lift up on the plastic panel as illustrated in Figure 11-19 Removing the Plastic Panel from the Multiline Terminal and remove it from the telephone.

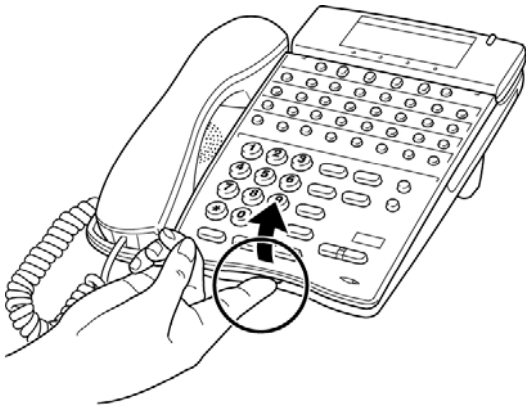


Figure 11-19 Removing the Plastic Panel from the Multiline Terminal

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 11-20 Attaching Directory Card to Directory Card Holder.

Note that the open end slides into the directory card holder.

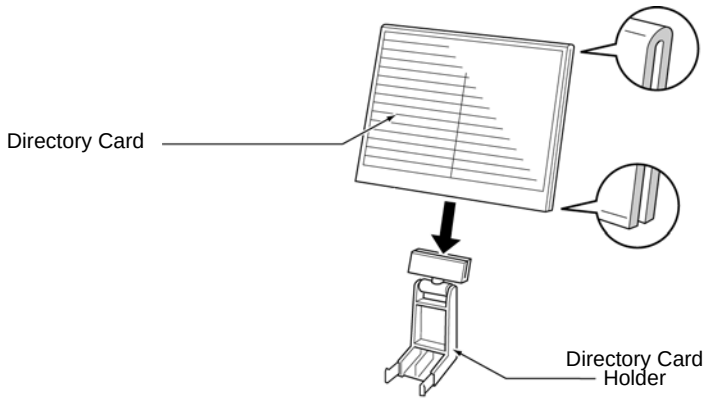


Figure 11-20 Attaching Directory Card to Directory Card Holder

2. Locate the two grooves on the top of themultiline terminal as illustrated in Figure 11-21 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.*

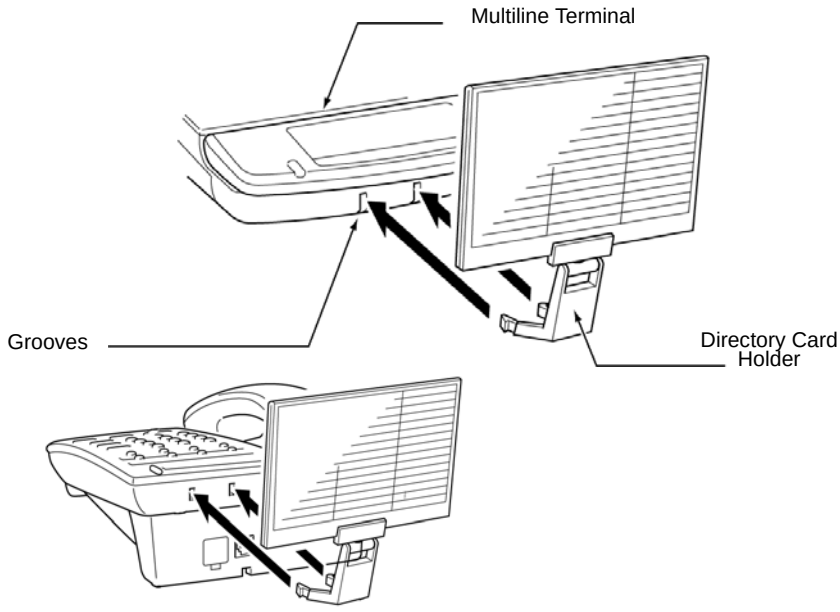


Figure 11-21 Attaching Directory Card Holder to the Multiline Terminal

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 11-12.)

2. Pull up on the tab and lift the button pad away from the telephone to remove the existing button.

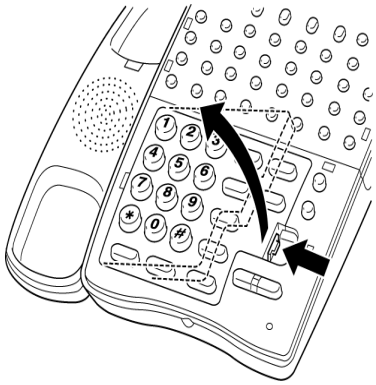


Figure 11-22 Removing the Button Set from a Multiline Terminal

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.

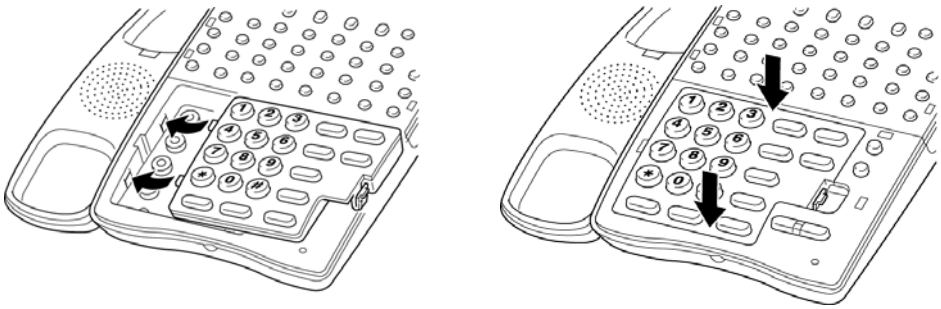


Figure 11-23 Inserting a New Button Set into a Multiline Terminal

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 11-24 Raising the Height on the DTH/DTR Multiline Terminal.

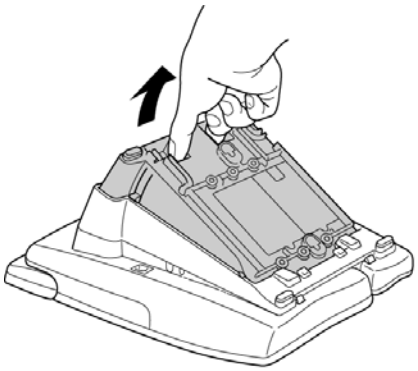


Figure 11-24 Raising the Height on the DTH/DTR Multiline Terminal

2. After the height is adjusted, pull the line cord though 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 11-25 Lowering the Base Plate on the Multiline Terminal.

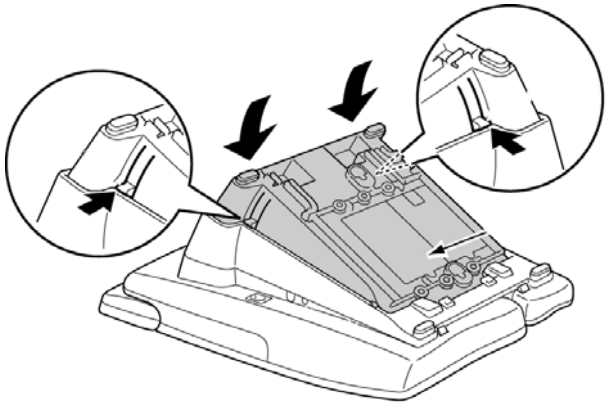


Figure 11-25 Lowering the Base Plate on the Multiline Terminal

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 11-26 Removing Base Plate, and slide the base cover in the direction of the arrows until it clicks.

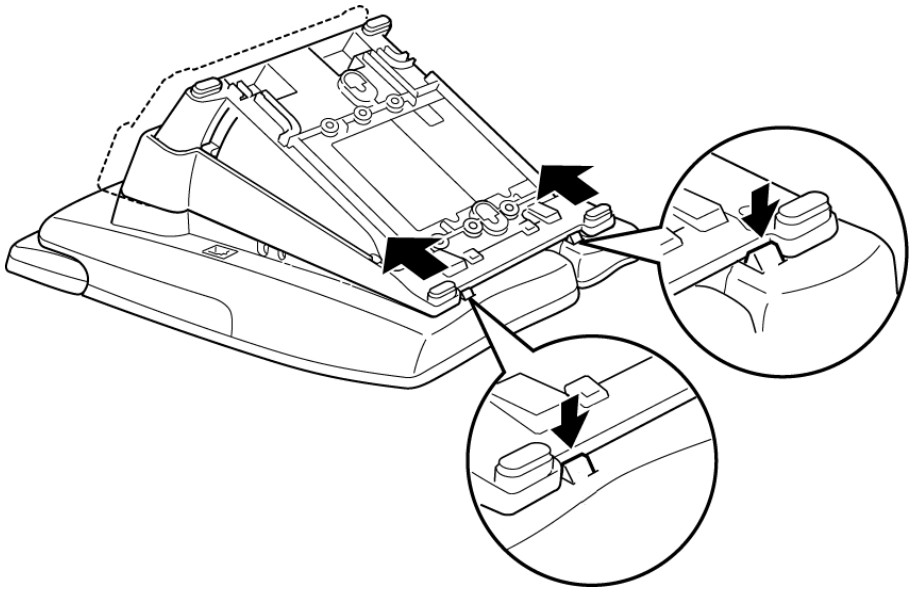


Figure 11-26 Removing Base Plate

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 11-27 Installing Base Plate.
2. Slide the cover in the direction of the arrows until it clicks in place.

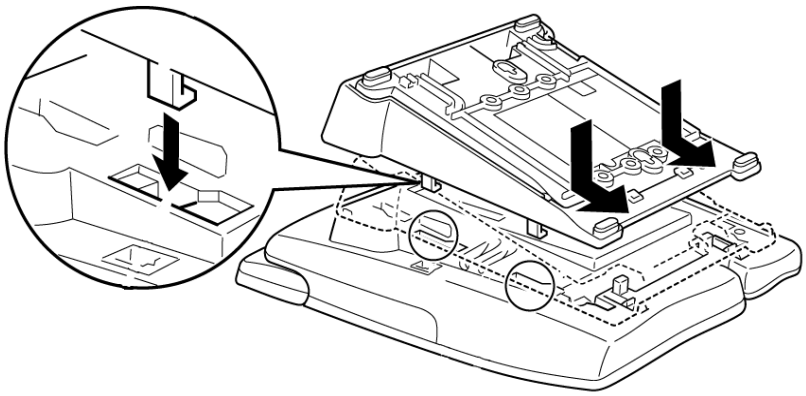


Figure 11-27 Installing Base Plate

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.

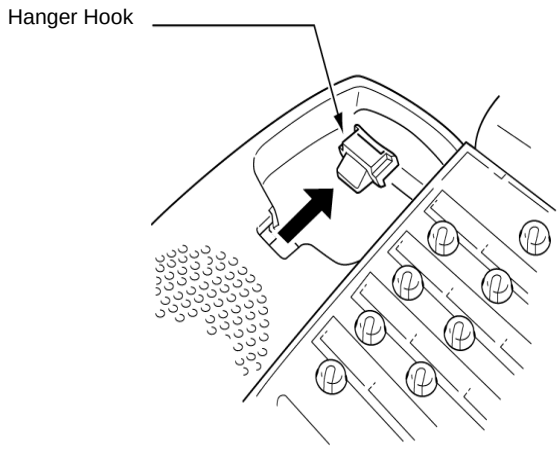


Figure 11-28 Removing the Hanger Hook on a Multiline Terminal

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.

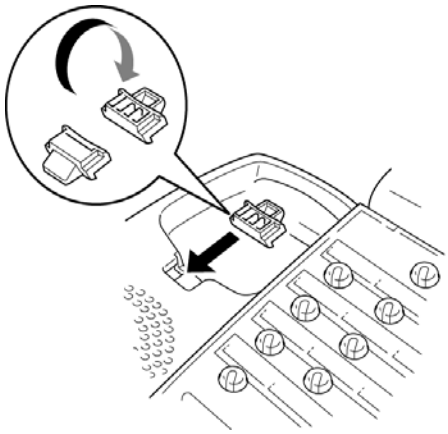


Figure 11-29 Sliding the Hanger Hook into Position

11.1.2 Wall Mounting the Multiline Terminal

1. Extend and remove the base cover from the multiline terminal. Refer to Section 10 Removing or Installing the Base Plate on a Multiline Terminal.

2. Remove cutout shown in Figure 11-30 Removing the Cutout.

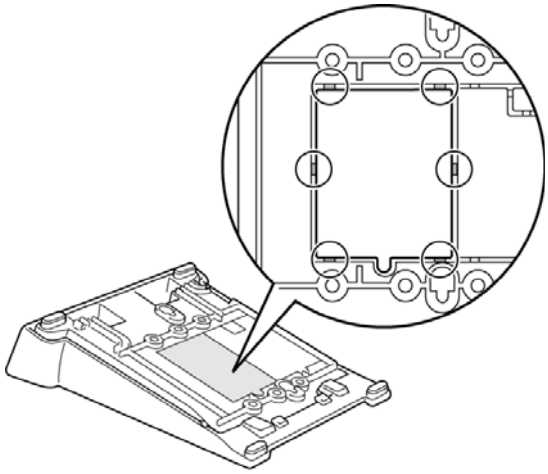


Figure 11-30 Removing the Cutout

3. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest as shown in Figure 11-31 Bundling the Line Cord.

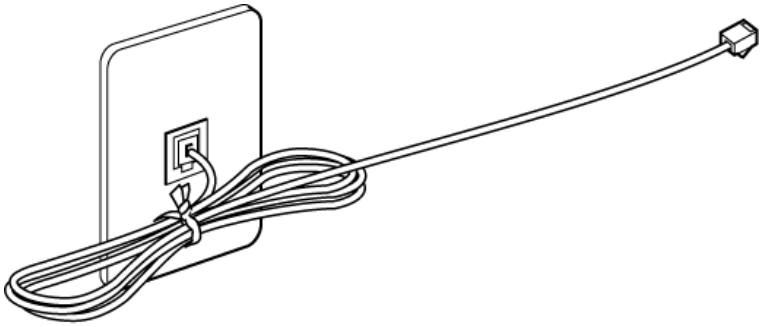


Figure 11-31 Bundling the Line Cord

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 11-32 Wall Mounting the Base Plate.

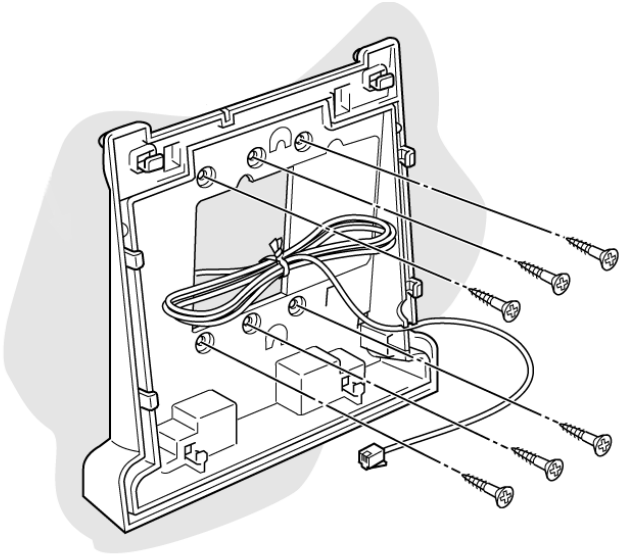


Figure 11-32 Wall Mounting the Base Plate

5. Install the multiline terminal over the four tabs on the base cover, and push down until it clicks in place.

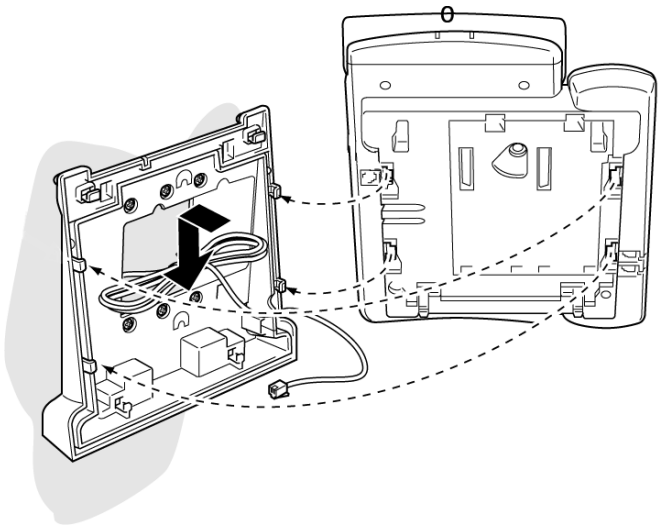


Figure 11-33 Installing the Multiline Terminal

6. Plug the line cord into the multiline terminal as illustrated in Figure 11-34 Plugging in Line Cord into Multiline Terminal.

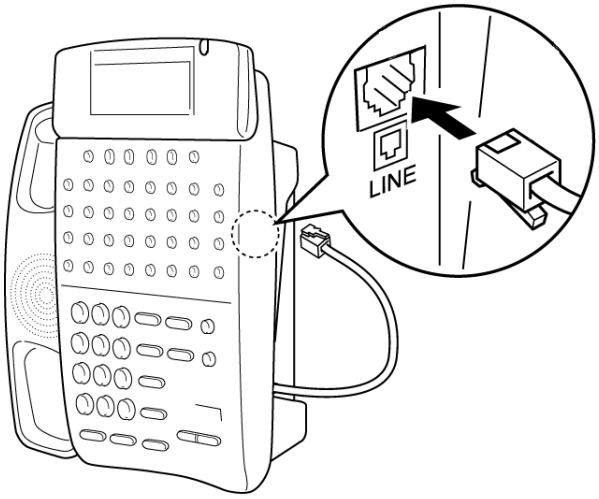


Figure 11-34 Plugging in Line Cord into Multiline Terminal

7. Push spare line cord behind the multiline terminal as shown in Figure 11-35 Hiding Excess Cord.

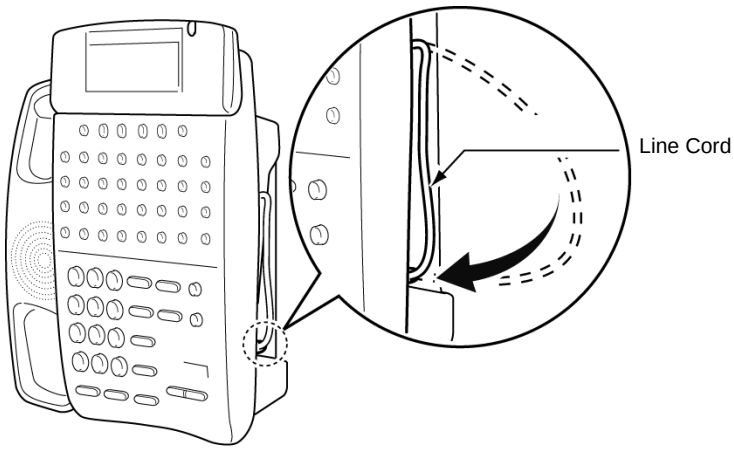


Figure 11-35 Hiding Excess Cord

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 11-36 Removing the Multiline Terminal, and push up on the Telephone until it comes loose.

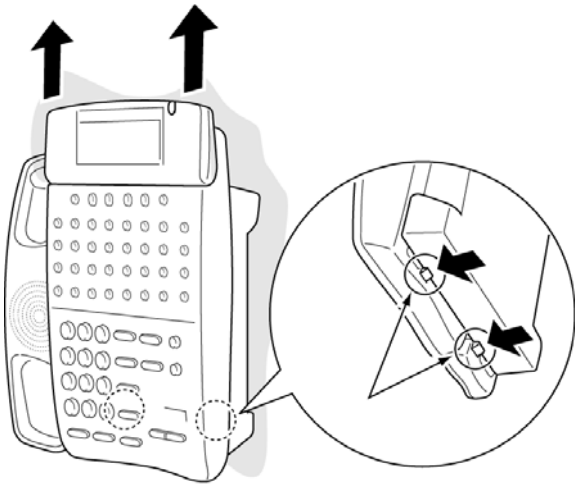


Figure 11-36 Removing the Multiline Terminal

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 11-37 Wall Mounting Base Plate on Wall Plate.

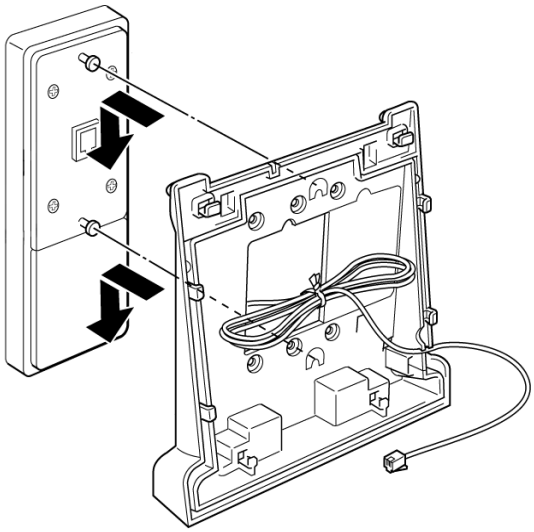


Figure 11-37 Wall Mounting Base Plate on Wall Plate

2. Hang the multiline terminal on the base cover.

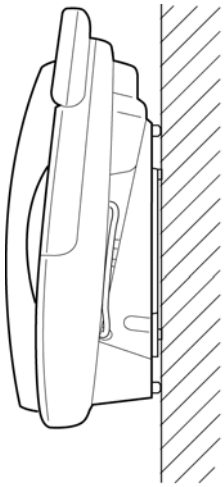


Figure 11-38 Wall Mounted Multiline Terminal

✎ Because of strength variation in swall 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 11-39 Attaching the Wall Mount Unit to the Wall.

3. Attach the WM-R( ) Unit using six screws.

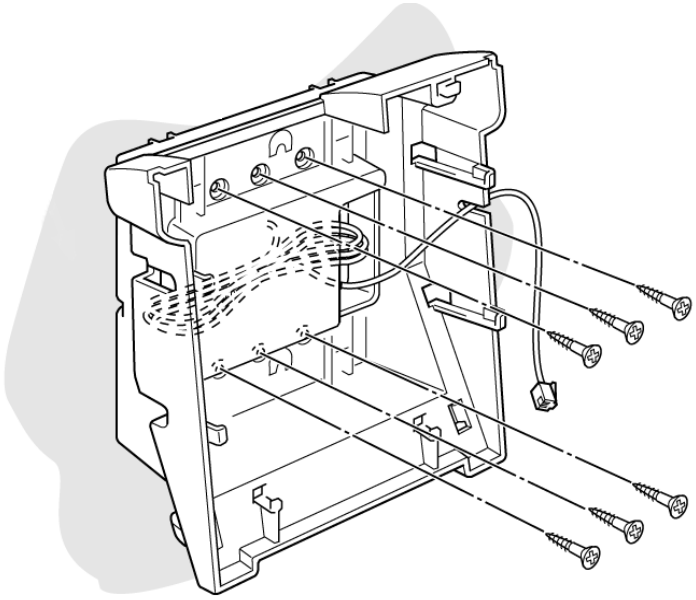


Figure 11-39 Attaching the Wall Mount Unit to the Wall

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 11-40 Attaching the Multiline Terminal to the Wall Mount Unit.

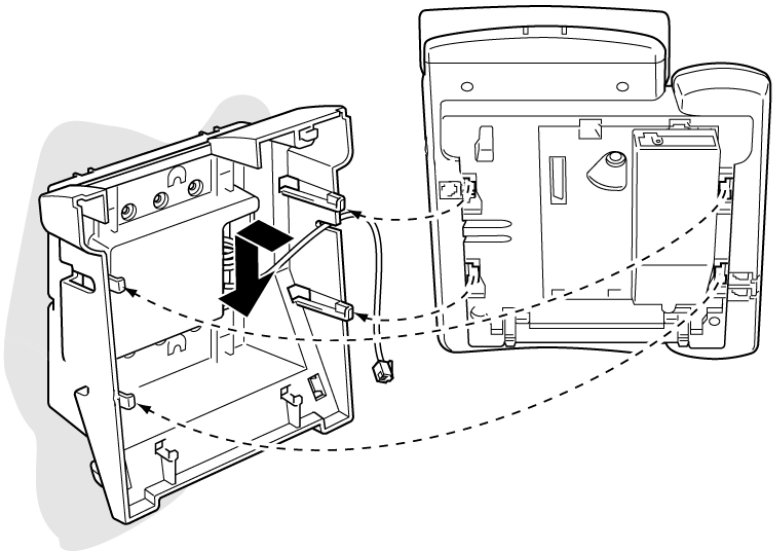


Figure 11-40 Attaching the Multiline Terminal to the Wall Mount Unit

5. Plug the line cord into the multiline terminal as illustrated in Figure 11-41 Plugging in Line Cord.

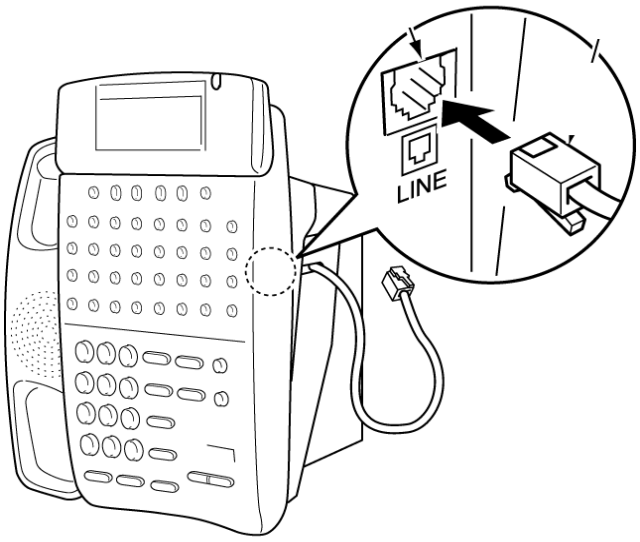


Figure 11-41 Plugging in Line Cord

6. Push spare line cord behind the multiline terminal as shown in Figure 11-42 Hiding Excess Cord Behind the Wall Mount Unit.

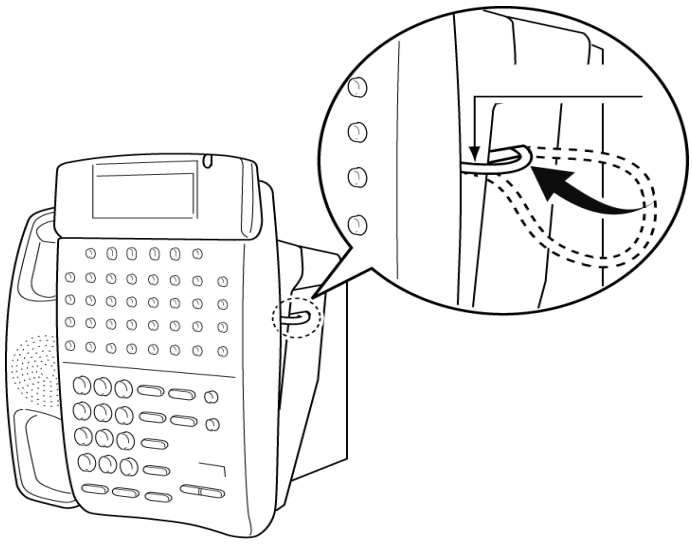


Figure 11-42 Hiding Excess Cord Behind the Wall Mount Unit

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 11-43 Removing Multiline Terminal from the Wall Mount Unit, and push up on the multiline terminal until it comes loose.

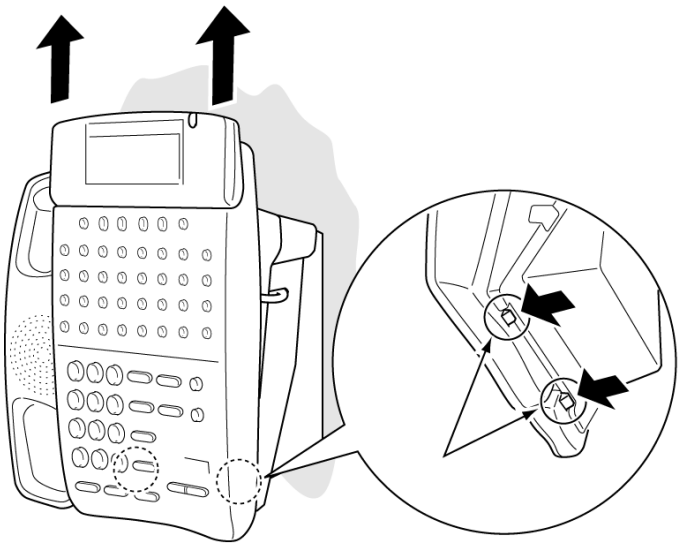


Figure 11-43 Removing Multiline Terminal from the Wall Mount Unit

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 11-44 Mounting Wall Mount Unit on the Wall Plate.

✎ ***This method is not recommended because of varied strength of switch boxes.***

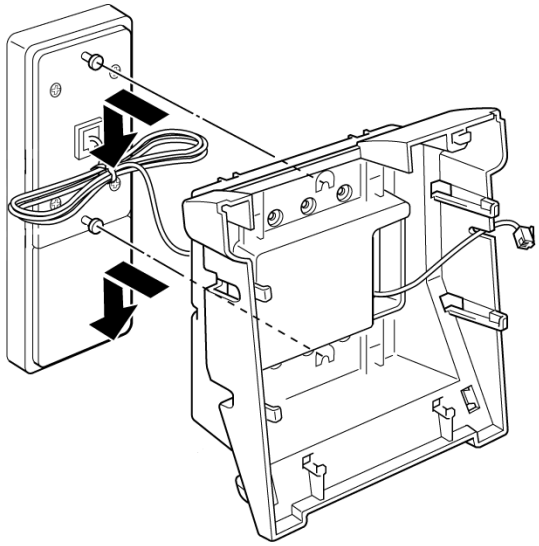


Figure 11-44 Mounting Wall Mount Unit on the Wall Plate

2. Hang the multiline terminal on the base cover.

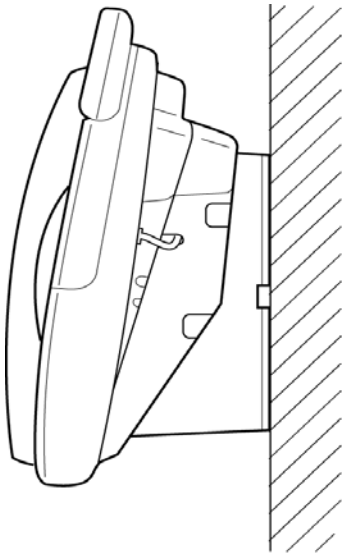


Figure 11-45 Wall Mounted Multiline Terminal

Installing D^term Series i Optional Equipment

12

SECTION 1 GENERAL INFORMATION

The SV8100/SV8300 system provides several adapters that allow peripheral equipment to be attached to the IPK II *D^term* Series i multiline terminals. This optional equipment enhances the SV8100/SV8300 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 12-1 Raising the Base Plate.

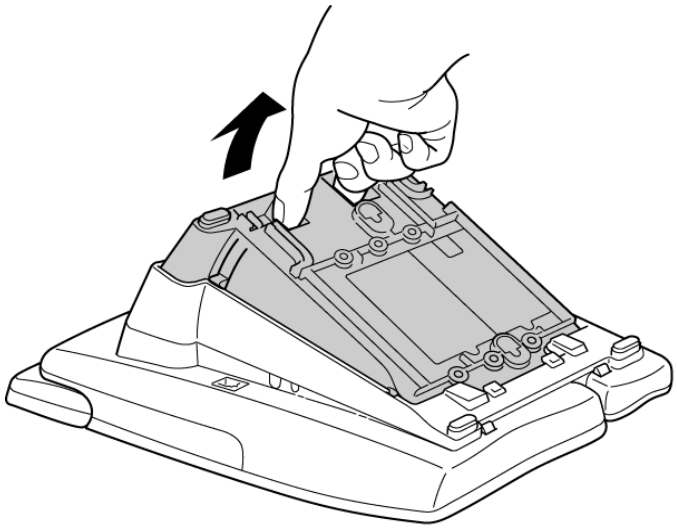


Figure 12-1 Raising the Base Plate

3. Press down on the tabs indicated in Figure 12-2 Removing the Multiline Terminal Base Plate, and push forward on the base plate to remove it.

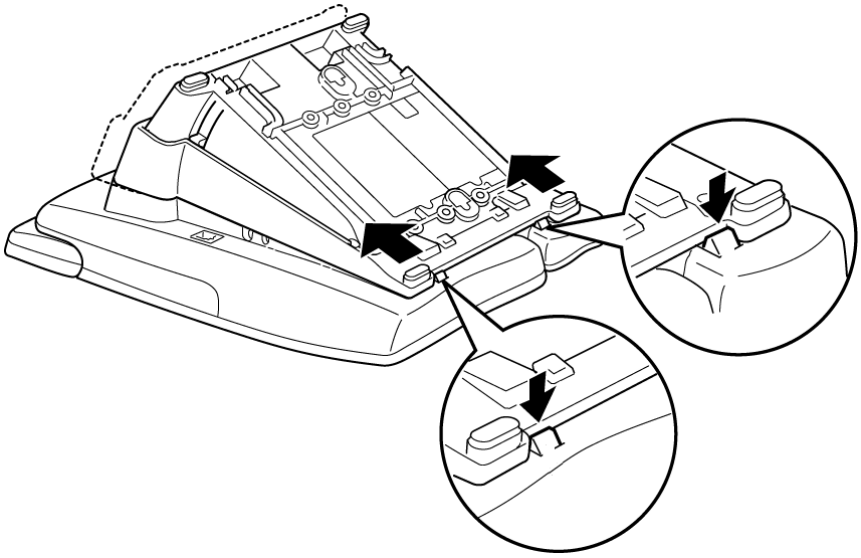


Figure 12-2 Removing the Multiline Terminal Base Plate

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 12-3 Modifying Base Plate for Adapter Installation.

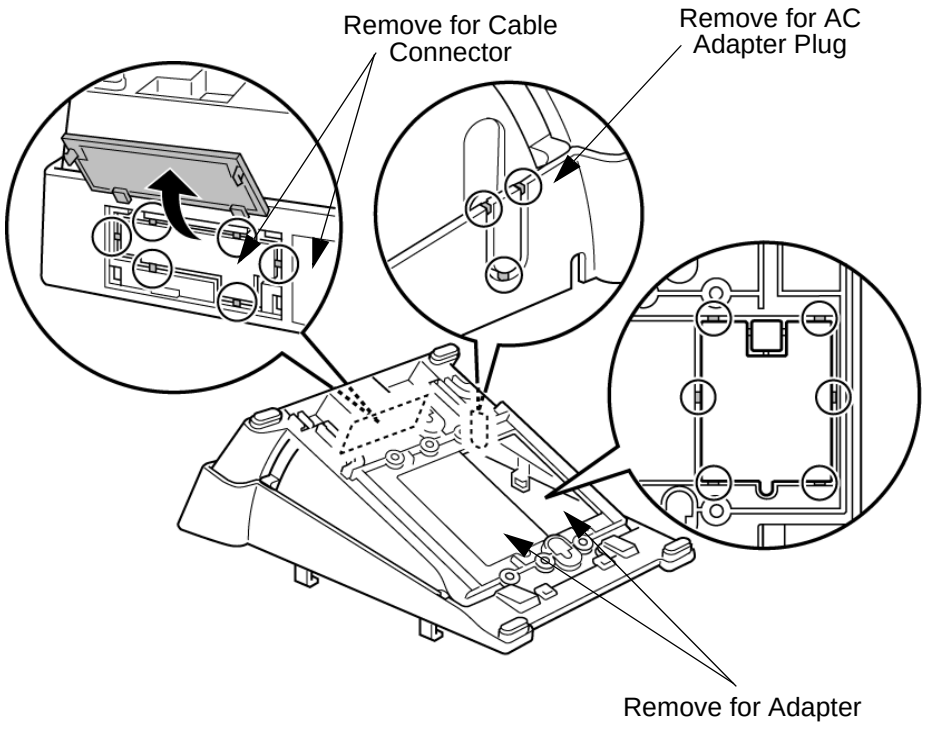


Figure 12-3 Modifying Base Plate for Adapter Installation

SECTION 3 INSTALLING ADAPTERS

3.1 AC-2R/AC-3R Unit (AC Adapter)

This unit shown in Figure 12-4 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.

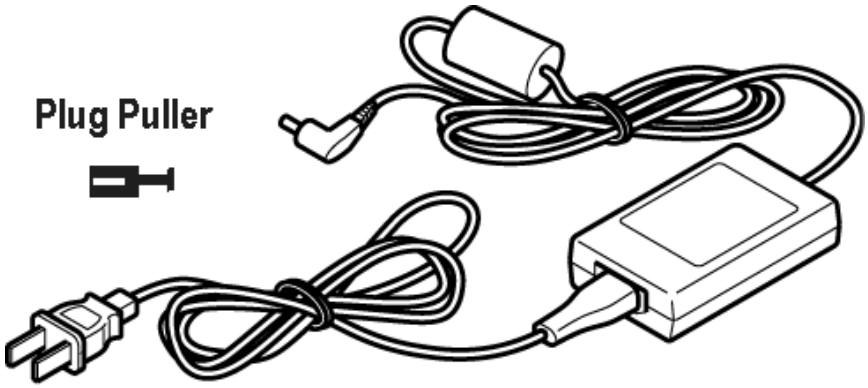


Figure 12-4 AC-2R/AC-3R Unit (AC Adapter)

The power requirements for the AC-2R/AC-3R Unit are:

- Input: 110~240 Vac, 50/60 Hz, 45 VA
- Output: 27 Vdc, 750 mA
- Polarity: ⊖———— ●) ———— ⇑

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 multiline terminal for adapter installation. Refer to Section 2 Preparing Multiline Terminal for Adapter Installation on page 12-1.

3. The Plug Puller shown in Figure 12-4 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.

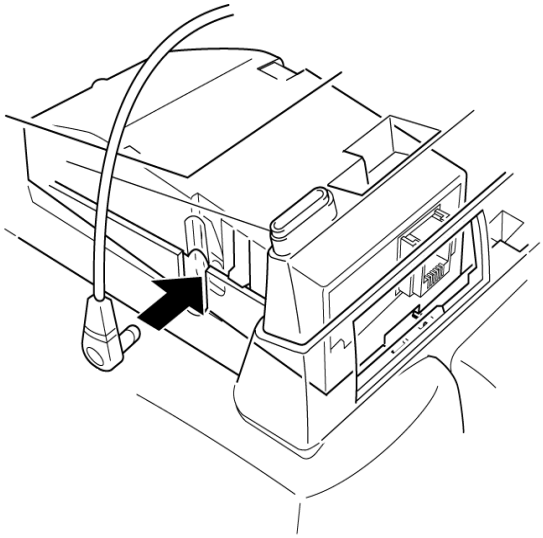


Figure 12-5 Connecting the AC Adapter to an Installed Adapter

3.2 AD(A)-R( ) Unit (Ancillary Device Adapter)

This Ancillary Device Adapter, shown on Figure 12-6 AD(A)-R( ) Unit, allows connection of a tape recorder to all multiline terminals except the DTR-2DT-1( ).

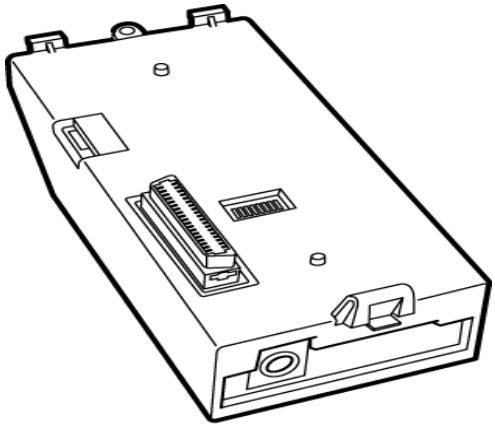


Figure 12-6 AD(A)-R( ) Unit

Figure 12-7 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.

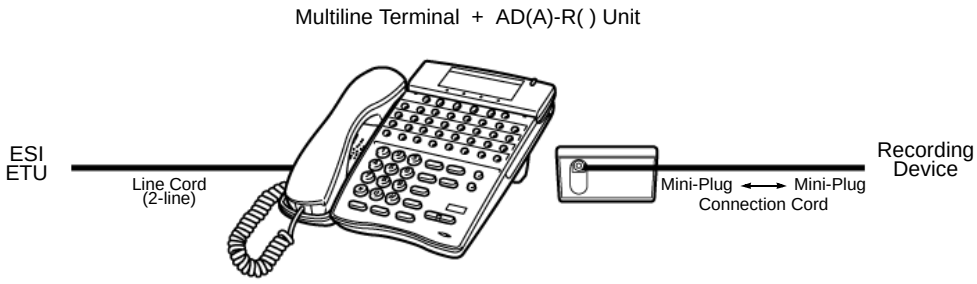


Figure 12-7 Connecting a Multiline Terminal to a Recording Device using an AD(A)-R( ) Unit (Example)

When installing the AD(A)-R( ) Unit, connect the cables to the AD(A)-R( ) Unit, set the dip switches, and then 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.

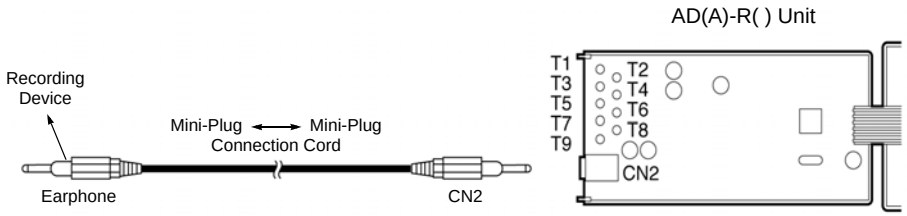


Figure 12-8 AD(A)-R( ) Unit Connection without Pause Control

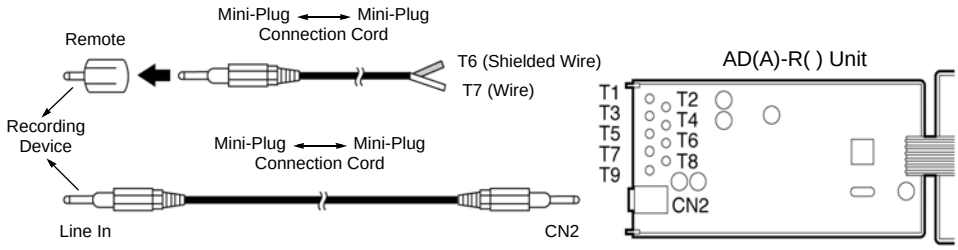


Figure 12-9 AD(A)-R( ) Unit Connection with Pause Control

To connect the cables:

1. Cut off the plug on one end of the cable.

2. Remove the screw as illustrated in Figure 12-10 Removing AD(A)-R( ) Unit Cover on page 12-6 and open the unit cover.

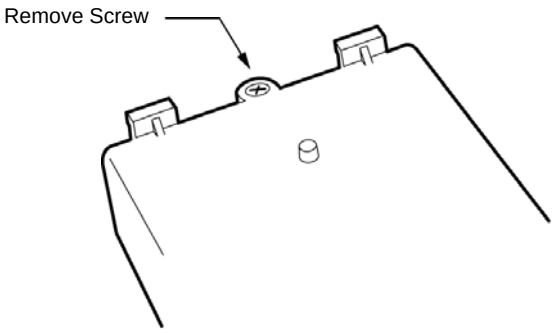


Figure 12-10 Removing AD(A)-R( ) Unit Cover

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 12-11 Attaching Cables to the AD(A)-R( ) Unit.

   Attach the cables to the AD(A)-R( ) Unit according to Table 12-1 AD(A)-R( ) Unit Cable Connections on page 12-7.

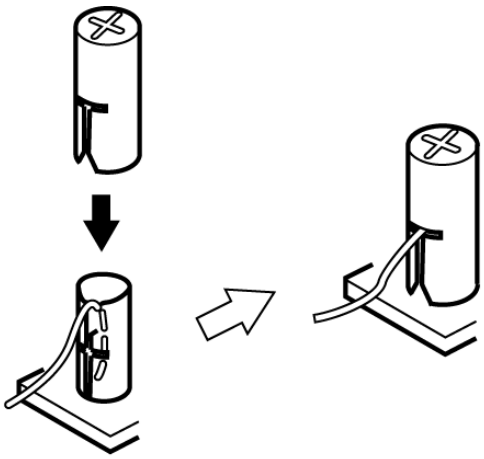


Figure 12-11 Attaching Cables to the AD(A)-R( ) Unit

Table 12-1 AD(A)-R( ) Unit Cable Connections

Terminal Number	Cables to Connect	Terminal Specifications
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 Ω 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 Table 12-2 AD(A)-R( ) Unit Switch Settings.
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		

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 12-12 AD(A)-R( ) Unit Cable Access Port.

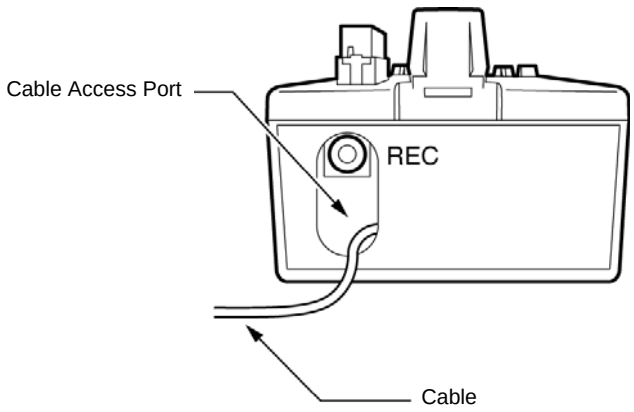


Figure 12-12 AD(A)-R( ) Unit Cable Access Port

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 12-13 AD(A)-R( ) Switch Default Settings. The dip switches (DSW) allow a technician to configure the unit for specific settings.

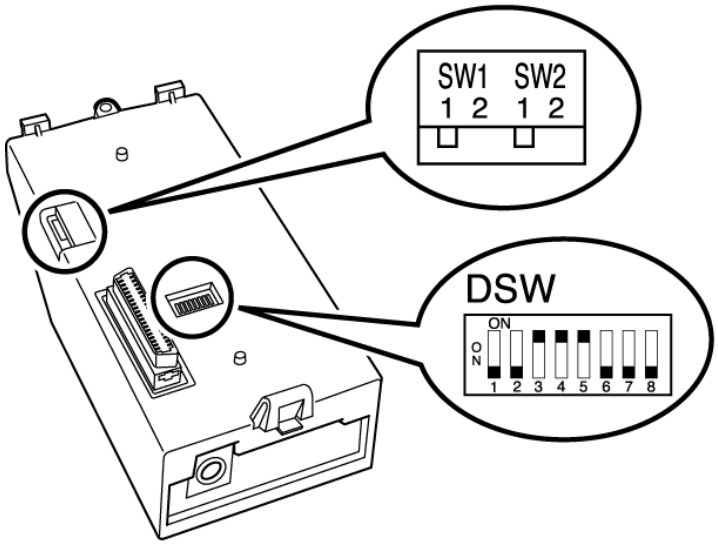


Figure 12-13 AD(A)-R( ) Switch Default Settings

To provide control to the recorder or to enable/disable the record start warning tones, refer to Table 12-2 AD(A)-R( ) Unit Switch Settings.

Table 12-2 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 Ω
	SW2-2	Used for Complex Impedance Devices (< 30 Ω Input Impedance)
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 11-16.*

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 12-14 Attaching the AD(A)-R( ) Unit to the Multiline Terminal on page 12-10.

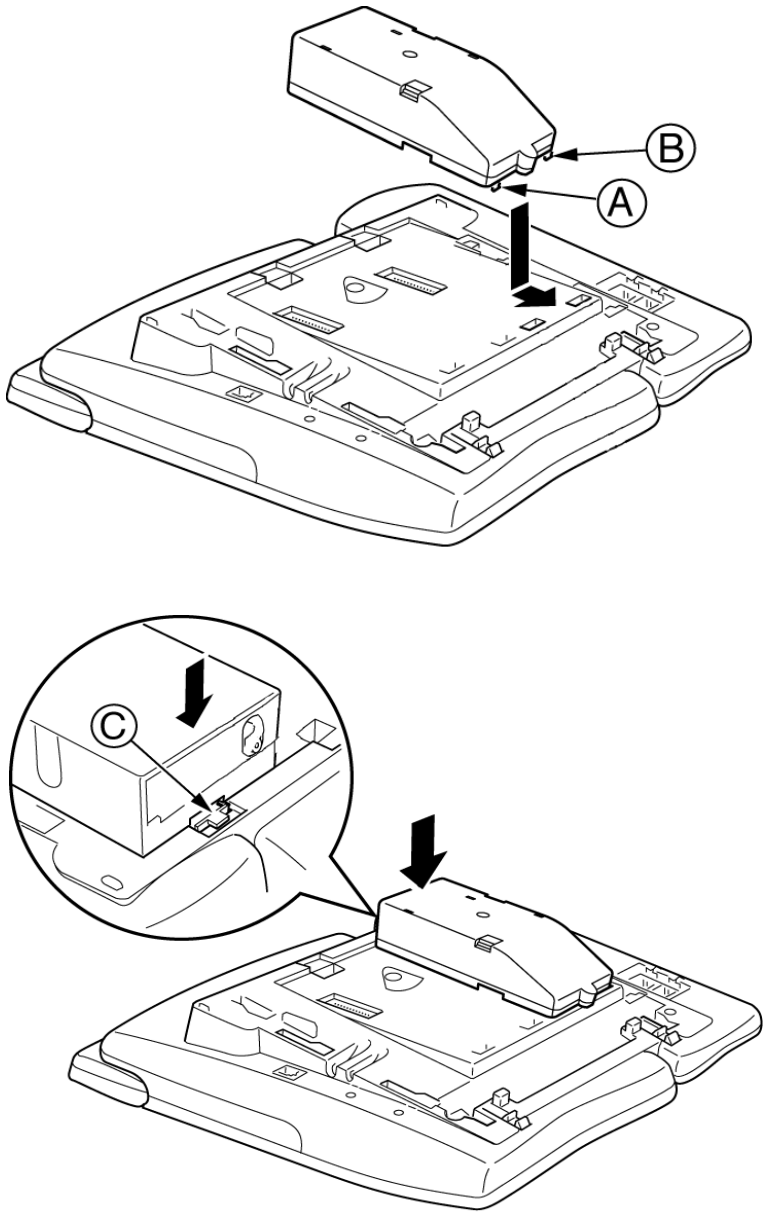


Figure 12-14 Attaching the AD(A)-R( ) Unit to the Multiline Terminal

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 11-8.

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 12-15 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.

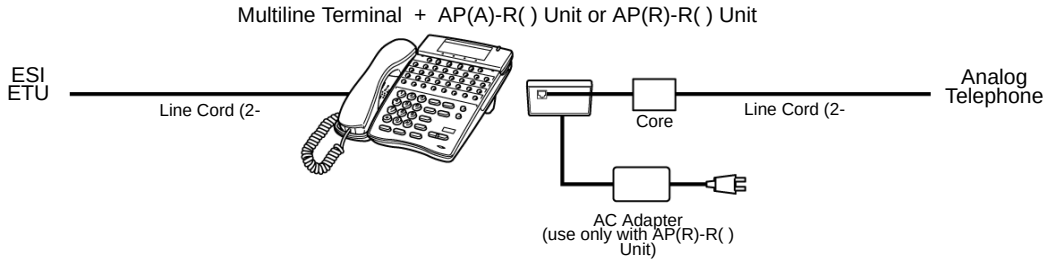


Figure 12-15 Connecting a Multiline Terminal to an Analog Telephone using an AP(A)-R( ) Unit/AP(R)-R( ) Unit (Example)

3.3.1 Switch Settings

The AP(A)-R( ) Unit and AP(R)-R( ) Unit have three switch locations. Refer to Table 12-3 AP(A)-R( )/AP(R)-R( ) Unit Switch Settings for a description of each switch and an explanation of the settings.

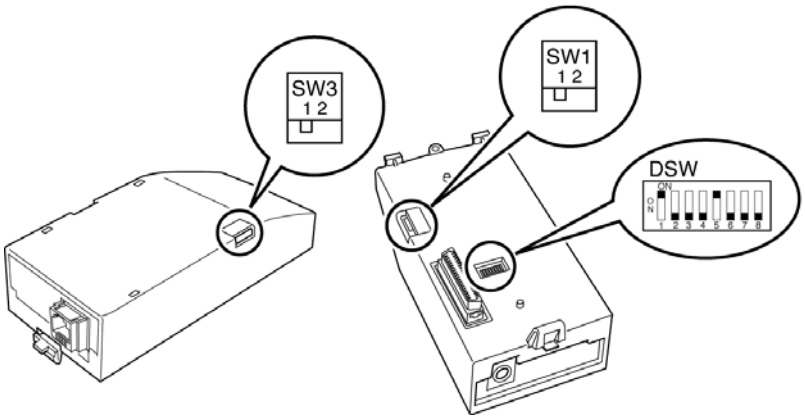


Figure 12-16 AP(A)-R( ) Unit/AP(R)-R( ) Unit Switches

Table 12-3 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 Ω 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 11-16.*

1. Prepare multiline terminal for adapter installation. Refer to Section 2 Preparing Multiline Terminal for Adapter Installation on page 12-1.
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 12-17 Attaching the AP(A)-R( )/AP(R)-R( ) Unit to the Multiline Terminal on page 12-13.

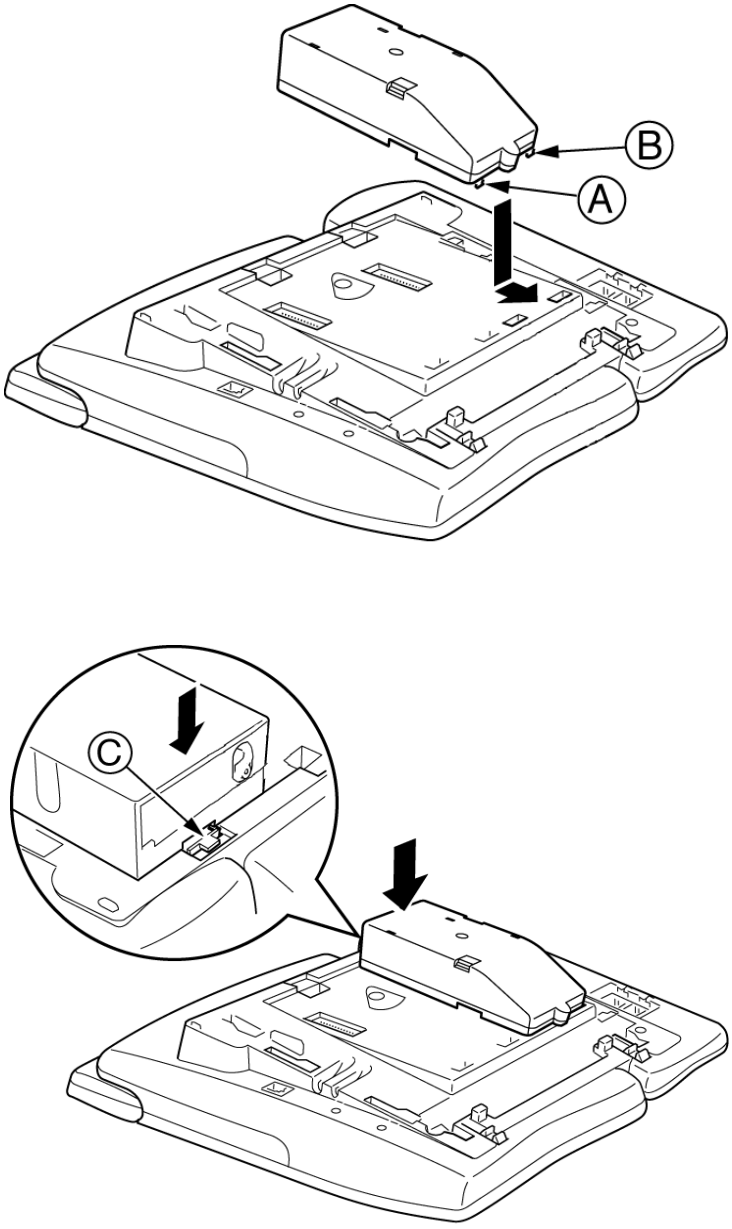


Figure 12-17 Attaching the AP(A)-R( )/AP(R)-R( ) Unit to the Multiline Terminal

3. Install the ferrite core (provided with the unit) about two inches from the line cord plug.

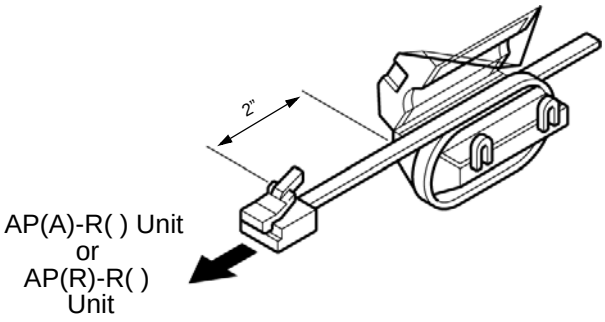


Figure 12-18 Installing the Ferrite Core on the AP(A)-R( )/AP(R)-R( ) Unit

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 12-5 Connecting the AC Adapter to an Installed Adapter on page 12-4*.

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 11-8.

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 (1.5 m) of the PC. An AC-2R/AC-3R Unit is necessary.

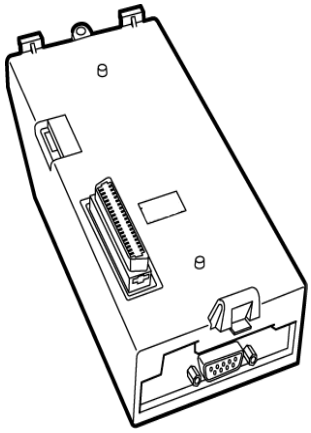


Figure 12-19 CT(A)-R( ) Unit

Figure 12-20 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.

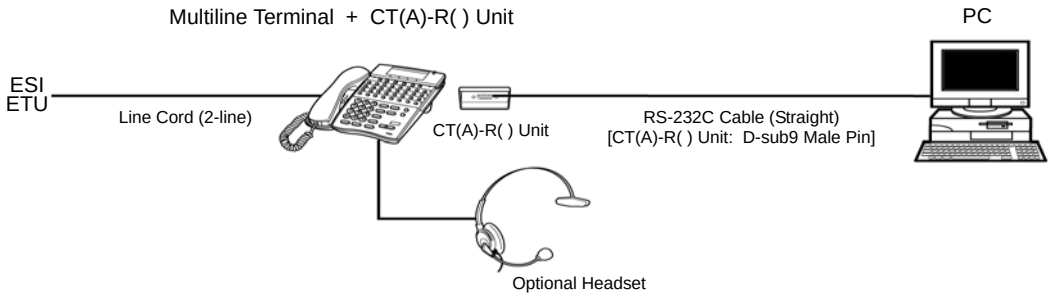


Figure 12-20 Connecting a Multiline Terminal to a PC using a CT(A)-R( ) Unit (Example)

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 11-16.*

1. Prepare multiline terminal for adapter installation. Refer to Section 2 Preparing Multiline Terminal for Adapter Installation on page 12-1.

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 12-21 Attaching the CT(A)-R( ) Unit to the Terminal on page 12-16.

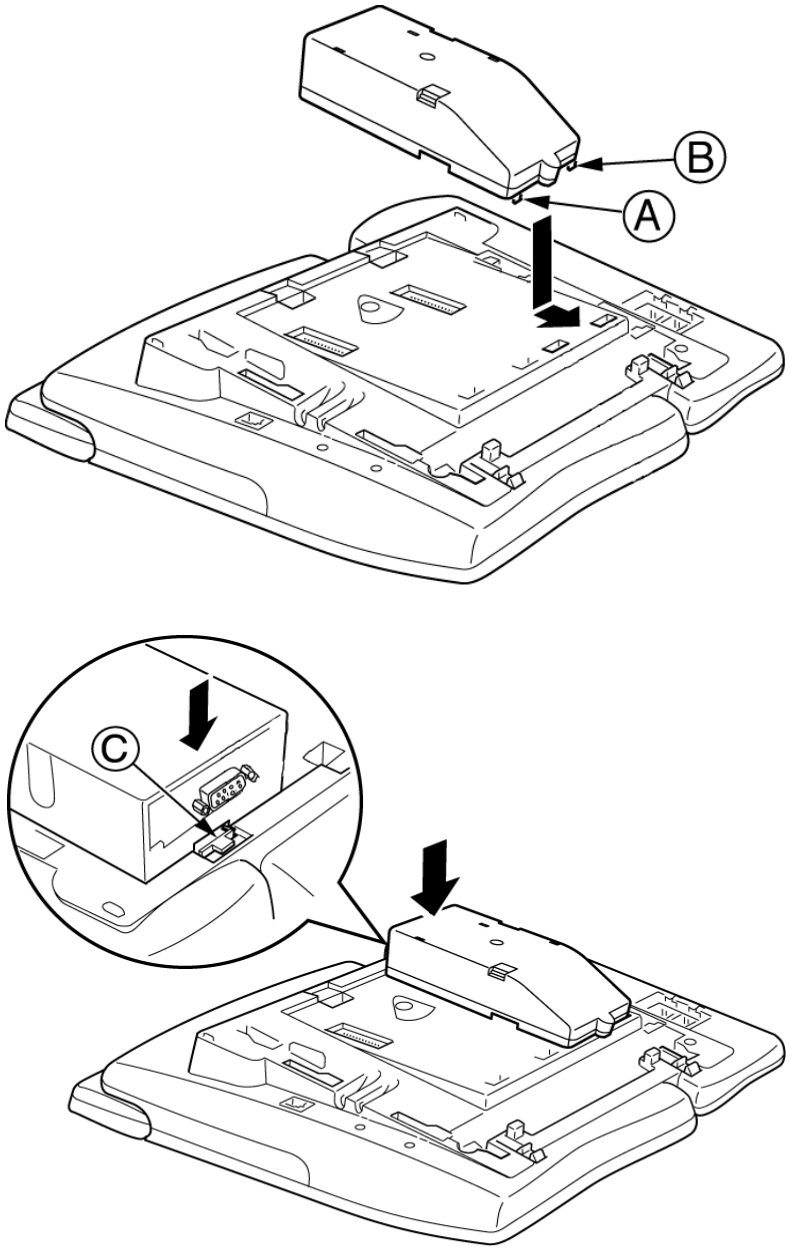


Figure 12-21 Attaching the CT(A)-R( ) Unit to the Terminal

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 11-8.

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 12-22 Connecting the RS-232C Cable to the CT(A)-R( ) Unit.

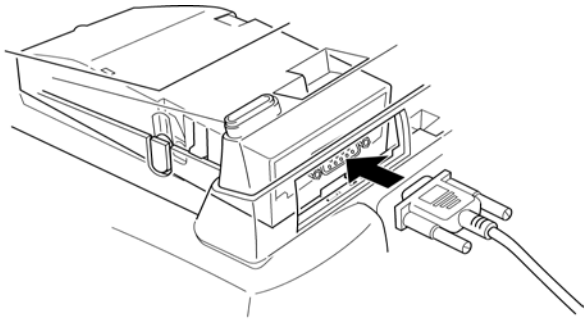


Figure 12-22 Connecting the RS-232C Cable to the CT(A)-R( ) Unit

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 12-23 Attaching the Headset to the Multiline Terminal.

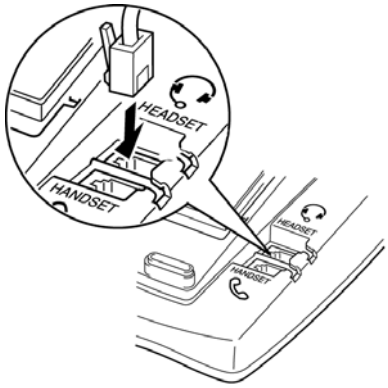


Figure 12-23 Attaching the Headset to the Multiline Terminal

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.

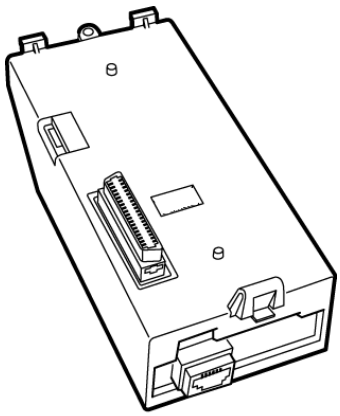


Figure 12-24 CT(U)-R( ) Unit

Figure 12-25 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.

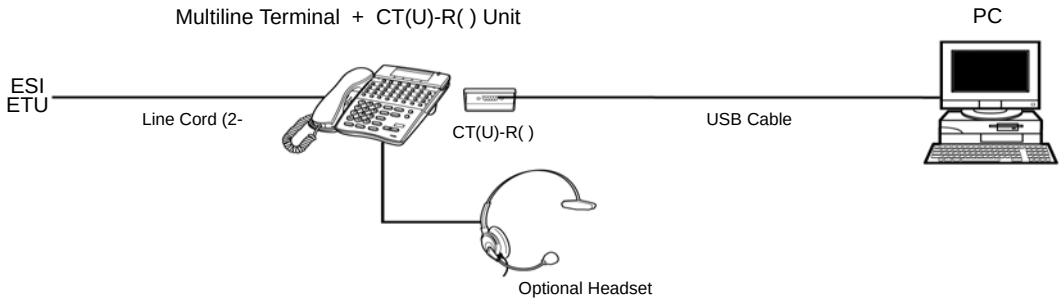


Figure 12-25 Connecting a Multiline Terminal to a PC using a CT(U)-R( ) Unit (Example)

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 11-16.*

1. Prepare multiline terminal for adapter installation. Refer to Section 2 Preparing Multiline Terminal for Adapter Installation on page 12-1.

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 12-26 Attaching the CT(U)-R( ) Unit to the Multiline Terminal on page 12-20.

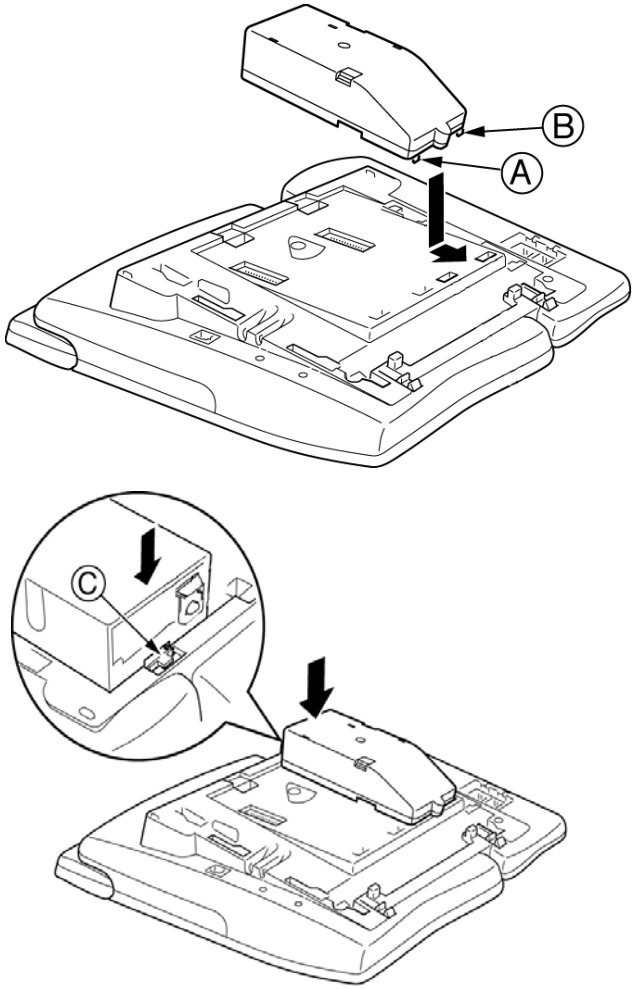


Figure 12-26 Attaching the CT(U)-R( ) Unit to the Multiline Terminal

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 11-8.

4. Attach the AC-2R/AC-3R to the CT(U)-R( ) Unit. Refer to Figure 12-5 Connecting the AC Adapter to an Installed Adapter on page 12-4.

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 12-27 Connecting the USB Cable to the CT(U)-R( ) Unit.

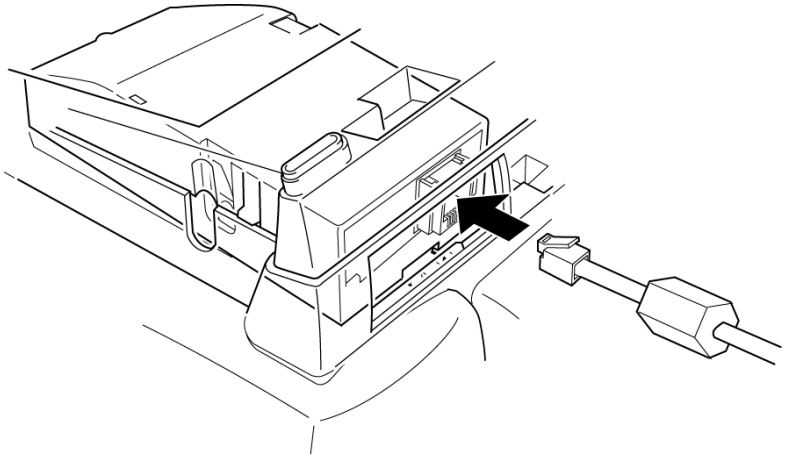


Figure 12-27 Connecting the USB Cable to the CT(U)-R( ) Unit

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 12-23 Attaching the Headset to the Multiline Terminal on page 12-17.

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 terminal upside down, facing from the bottom of the open cover, install this unit in terminal adapter Slot 1.

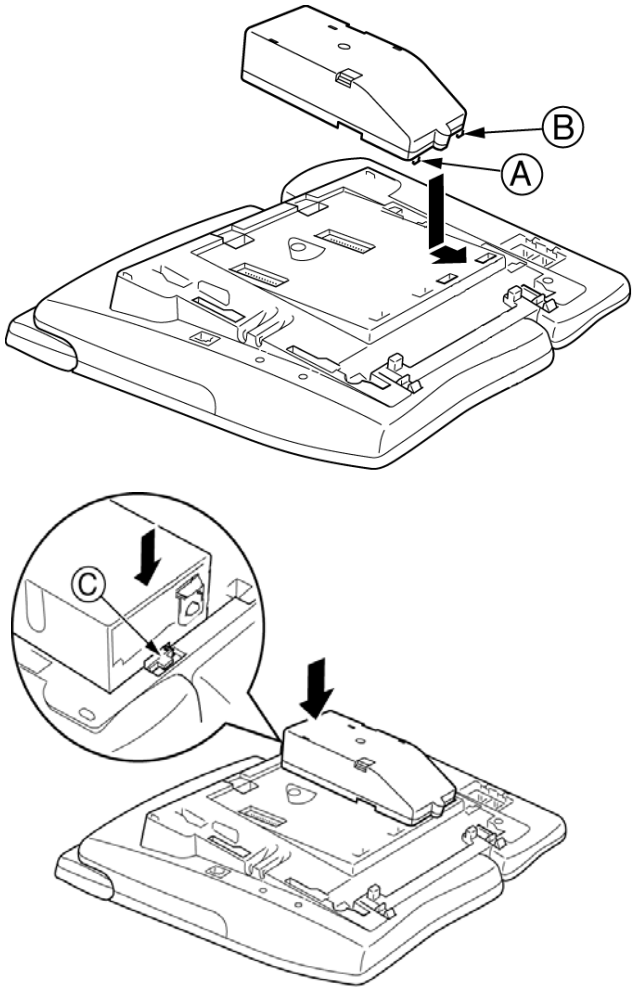


Figure 12-28 Attaching the HF-R( ) Unit to the Multiline Terminal

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 12-28 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 11-8.

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.

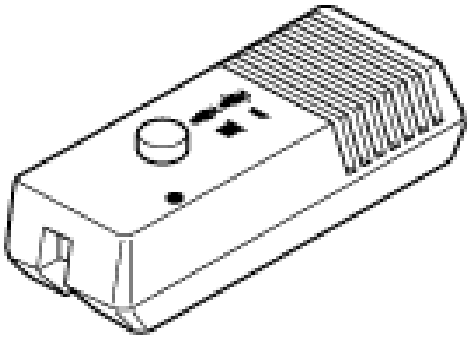


Figure 12-29 Microphone with Mute

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 12-30 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.

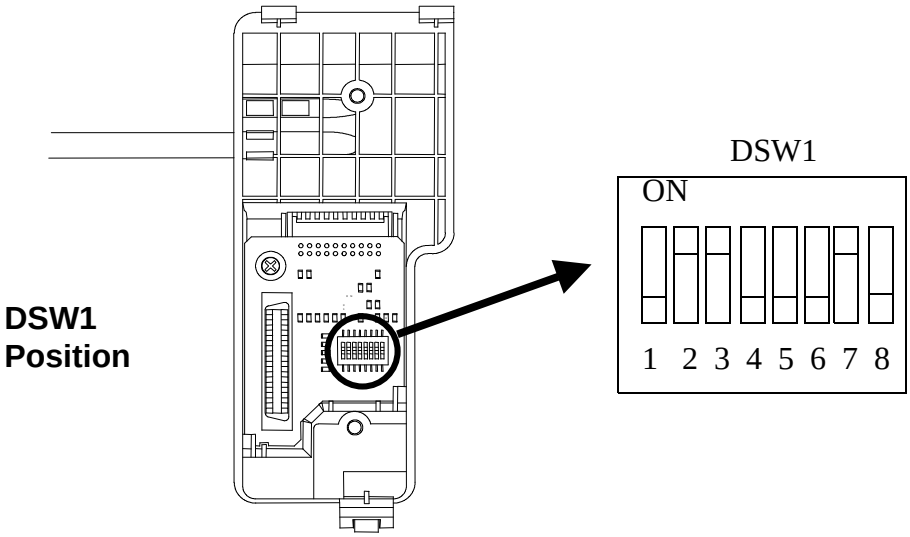


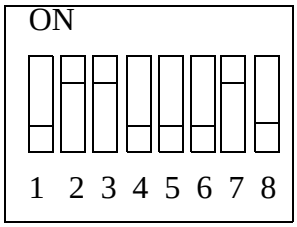
Figure 12-30 ADM Interface Unit

4.2.1 Connecting the Interface Unit

1. Set DSW1 to the pattern for the applicable multiline terminal as shown in Table 12-4 DSW1 Switch Positions on the next page.

2. Place the ADM and multiline terminal upside down and remove the Base Units.

Table 12-4 DSW1 Switch Positions

Series	Multiline Terminal	DSW1 Switch Positions
D^{term} Series i	DTR/H-(8)/(16)D-2( ) TEL DTR/H -16LD-2( ) TEL DTR/H-16D(BL)-2( ) TEL	

3. Plug the interface unit into the right adapter connection as shown on Figure 12-31 ADM and Multiline Terminal with Base Covers Removed on the next page.

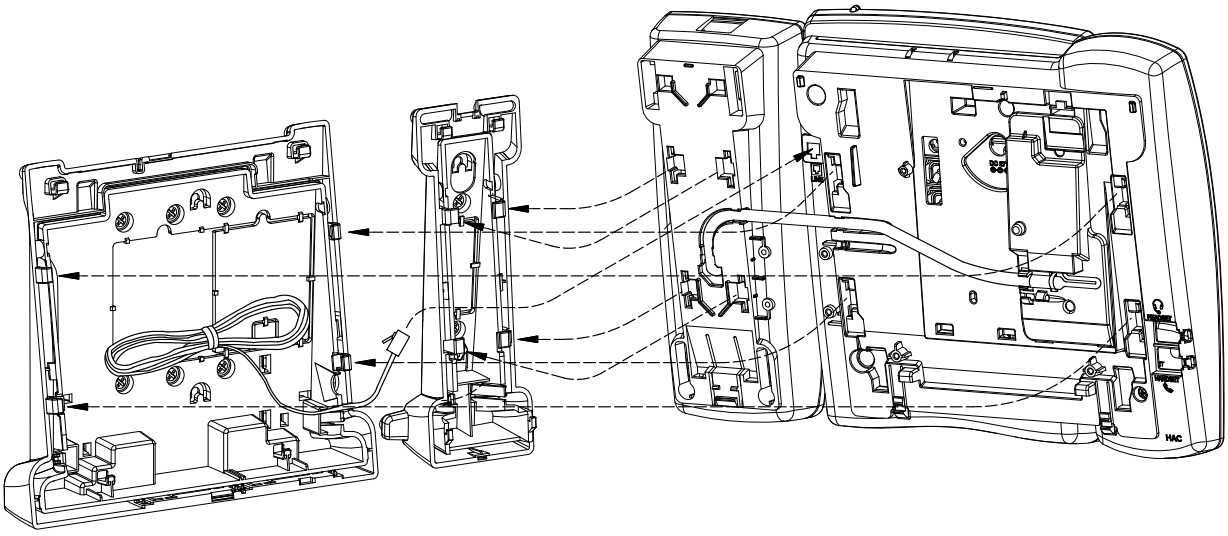


Figure 12-31 ADM and Multiline Terminal with Base Covers Removed

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 12-32 Installing the Connector Plate on the next page.

✎ *The connector plate cannot be used with InMail terminals.*

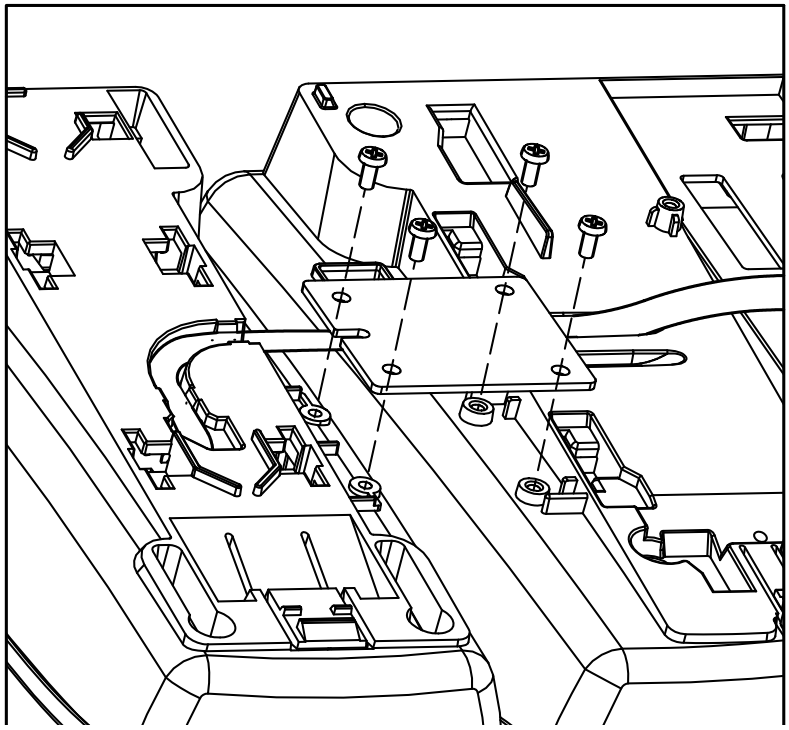


Figure 12-32 Installing the Connector Plate

6. Replace the base units as shown in Figure 12-31 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 12-33 Installing Base Units on the Wall on page 12-26.
3. Install the base units on the wall using the eight screws.

4. Install the ADM and multiline terminal as shown on Figure 12-31 ADM and Multiline Terminal with Base Covers Removed on page 12-24.

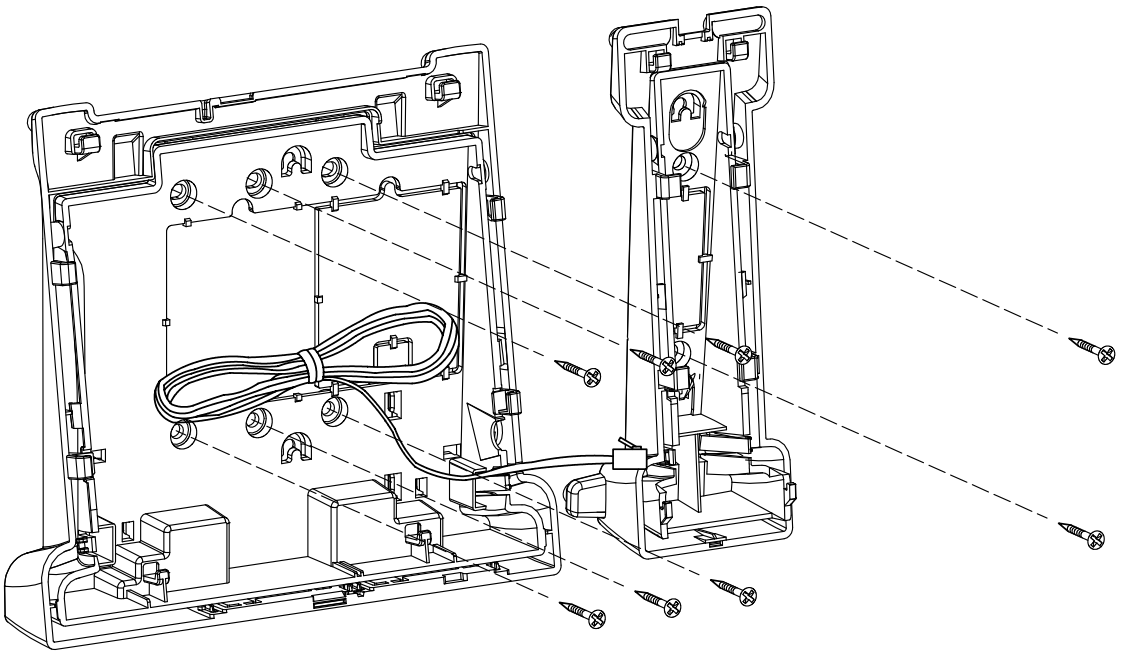


Figure 12-33 Installing Base Units on the Wall

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 12-34 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.

UNIVERGE SV8100/SV8300

SYSTEM HARDWARE MANUAL

NEC Australia Pty Ltd

Issue No. 1.5
NWA-033622-001

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