SL2100

Getting Started Guide

Please read this manual carefully before installing this product and save this manual for future use.

This guide explains the installation, configuration and operation of the SL2100 Telephone System including the Outside (CO) line and telephone connections. This Getting Started Guide will cover the most frequently used configuration options. Only the SL2100 Main chassis is included, it does not cover optional items. For more advanced configuration, refer to Hardware Manual (separate issue) for the details.

GVT-027618-301-00 NA
Issue 1.0

Table of Contents

PRODUCT LIABILITY

1. USING THE EQUIPMENT SAFELY

The following safety information describes how to avoid injuries while working with the equipment and how to prevent damage to the equipment. Learn the meaning of the following symbols and then read this section carefully before using the equipment.

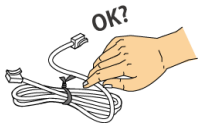
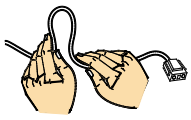
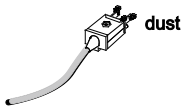
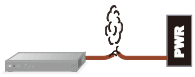
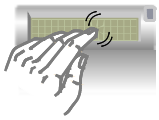
SYMBOL	DESCRIPTION
DANGER 	Incorrect use of the equipment may cause personal injury or death.
WARNING 	Incorrect use of the equipment may cause personal injury or a serious system fault.
CAUTION 	Incorrect use of the equipment may limit the system performance or cause the system to fail.

The telephone system can only be used in NEC-designated countries.
If a system-down, malfunction, defect or external factor such as an electrical failure indirectly causes a loss of profit, the company (or affiliates) will not be held responsible.
The goal is to produce a comprehensive and accurate manual. However, if errors or omissions are found in this manual, please notify NEC Corporation.
If the system requires installation or repair, contact the dealer or its service technician.
Carefully read all the manuals that relate to the system.

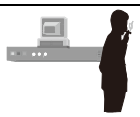
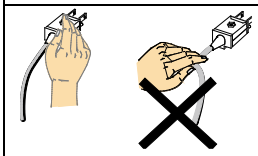
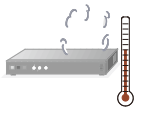
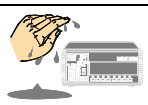
2. SAFETY CONSIDERATIONS

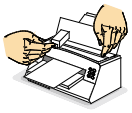
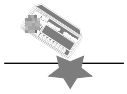
The following describes the safety considerations that must be observed before using the system, the power related equipment and the peripheral equipment, such as consoles, the Main Distribution Frame (MDF), telephones, PCs, printers, etc.

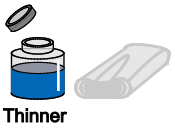
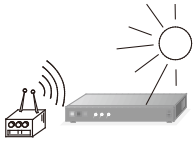
DANGER 	
	If the system emits smoke or a burning, acrid odor, immediately turn off the system power. Operating the system in this state might cause a fire, an electrical shock, or a system failure. After turning off the power and confirming that the smoke has disappeared, contact the dealer.
	If any equipment, such as the system, the main power source, a cabinet or peripheral equipment tips over, turn off the power and contact the dealer.

	System knockout panels are only allowed to be cut using side cutters. Box cutter/knife is not allowed to be used.
	If liquid reaches the inside of the system or the main power source, turn off the power. Operating the system in this state might cause a fire, an electrical shock, or a system failure.
	Do not touch the internal parts of the main power source to disassemble or configure it. This action may cause a fire, an electrical shock or a system failure. NEC Corporation does not take any responsibility for disassembled or reconfigured equipment.
	Do not put any container objects (such as a vase or a cup) on the main power source or any peripheral equipment. It might cause a fire, an electrical shock or a system failure.
	Be sure to use cables designated by NEC or cables attached to the equipment. If cables are not designated particularly, choose cables with considering safety and transmission performance carefully. Ask the dealer or your local agency if needed.
	Do not tamper with, modify, forcefully bend, forcefully remove or twist an electrical cord or any wiring to or from the system, the main power source or any peripheral equipment. It might cause a fire, an electrical shock, or a system failure. If the wiring is damaged, contact the dealer.
	Correctly insert all of the electrical plugs into the electrical outlets. Before inserting a plug into an electrical outlet, ensure that there is no dust on the plug's blades. If there is dust on a blade, it might cause a fire.
	Do not use power other than the power that was designated for the system when it was installed.
	Do not attempt to repair or move the main power source without assistance from the dealer.
	Do not put any metal or combustible objects into a vent of the system, the main power source, or any peripheral equipment. Operating the system in this state might cause a fire, an electrical shock, or a system failure. If this occurs, turn off the power and contact the dealer.
	Be careful when using any peripheral equipment's Liquid Crystal Display (LCD). If the liquid leaks, it can be harmful to the user and to the system.
	Before connecting any non-NEC, customer-provided equipment, check with the supplier to ensure that the equipment is compatible. If the supplier cannot confirm the compatibility, do not connect the equipment. Connecting incompatible equipment might cause a fire or an electrical shock.

WARNING

	Do not place any object on the system or the main power source. If the object falls, it might cause personal injury or damage to the equipment.
	When removing a plug from an outlet, be sure to grip the plug, not the cord. Gripping the cord to remove the plug could cause a fire or an electrical shock to occur.
	If lightning causes a fault, contact the dealer.
	Provide the appropriate temperature, humidity, and ventilation on an around-the-clock basis. For example, at a height that is one meter (3.28 feet) above the floor, the temperature should be between 20°C and 25°C (68°F to 77°F) and the humidity should be approximately 50%.
	Take appropriate anti-static measures so that the other end of the anti-static kit can be connected to the metal part of the frame.
	Observe the following precautions when using any optional batteries: ・The system's emergency back-up battery may be a rechargeable lead battery. Check the emergency battery for an electrical failure. ・Battery acid (electrolyte) is extremely harmful to human skin and eyes. If battery acid contacts skin, wash the affected area with soap and water. If battery acid contacts the eyes, flush the eyes with water. In either event, seek medical attention. If there is battery acid on a cloth, use water to wash the battery acid from the cloth. ・Do not intentionally short batteries. Do not put the battery near a fire or in a fire. Do not disassemble the battery, drop it or knock it against another object. The battery's life expectancy is affected by its environment. The normal battery life is approximately three years. If the battery is used in an outdoor setting and is exposed to high temperatures, its life expectancy drops to approximately one year. ・Perform periodic diagnostic tests and maintenance procedures on the emergency battery and its terminals to ensure their readiness. If there is a power failure and the emergency battery is not ready, then the system will not work. Additionally, a damaged or dead battery, or terminals that need replacement might cause battery acid to leak, which might cause smoke or a fire. The battery and terminals are periodic replacement parts (the cost is chargeable to the customer). A service contract, with the supplier or service technician, to perform routine maintenance for the battery is recommended.
	Do not touch peripheral equipment with wet hands. Do not allow any liquid to touch any of the peripheral equipment.

	Do not touch the printer's internal components when replacing disposables such as a cartridge or a ribbon. Ensure that the printer is turned off and that it is not hot in order to prevent burns from any accidental contact with the internal components.
	Do not drop the peripheral equipment or knock it against another object. These actions might cause an equipment failure.

CAUTION	
	Do not use benzine, thinner or alcohol for cleaning. When removing dust and dirt, put diluted, mild detergent on a cloth and then wring out the cloth. Remove the dust and dirt with the cloth and then wipe the cleaned area with a dry cloth.
	Do not place any equipment in the following environments: ・Locations that are exposed to direct sunlight ・Locations where the moisture level exceeds the allowed level ・Locations where the equipment might be exposed to water, oil, or chemicals ・Locations with very low temperatures, such as in a walk-in cooler or freezer ・Locations that are exposed to Electromagnetic Interference (EMI) from devices such as television sets and two-way radios ・Locations that receive illegal electric waves The life expectancies of the system and the main power source will be shortened if placed in a location that is affected by hydrogen sulfide or salt, such as a seaside area.

2.1 Installation Environment

Consider the following items before the installation.

2.1.1 Stability

WARNING	
	Install the system with anchor bolts to prevent constant movement or vibration, such as from a nearby motor or automatic door, and to resist catastrophic movement from natural disasters, such as an earthquake. If the system moves or falls, an injury could occur.

2.1.2 Floor, Wall and Ceiling

WARNING	
	The wall and ceiling materials must be resistant to Electrostatic Discharge (ESD) and provide heat insulation. Since the battery's life expectancy depends on the ambient temperature, the room where the battery is installed must be well ventilated and vented to the outside. Check the battery specifications to determine if the battery can or cannot be installed near a motor or a power transformer.
	The floor material that is under and around the system must be resistant to ESD.

2.1.3 Windows

CAUTION 	Keep all of the windows closed if the location is affected by dust, sea breeze or corrosive gas. Curtains or blinds are necessary to avoid direct sunlight.

2.1.4 Fire Extinguisher

WARNING 	Place a fire extinguisher for electrical fires (such as a carbon-gas fire extinguisher or a halon-gas fire extinguisher) near the system. It is recommended that the room also be equipped with an automatic fire-detection system. In the event of smoke and fire, turn off the main power source and the backup battery, then use the fire extinguisher to put out the fire while trying to avoid inhaling any smoke.

2.1.5 Safety Environment

WARNING 	Consider measures to deal with disasters (such as fires, floods and earthquakes) and to ensure the safety of the staff.
	Regularly clean the room or rooms where the switching equipment resides.
	Do not spray any insecticides directly on the equipment (insecticides can adversely affect the switching equipment).

2.1.6 Air Conditioning Facilities

WARNING 	The system and the air conditioning system must be installed separately and have separate power sources.
	To prevent an electromagnetic arc from causing noise, attach a surge-limiting capacitor and resistor on the air conditioner's electromagnetic switch's coil.
	It might be necessary to adjust the ventilation so the air conditioning is equally effective throughout the equipment room.
	Do not place the system in a location where condensation might fall from an air conditioner or a duct.
	Do not place the system in a location where hot and humid air is exhausted, as this might damage the system.

2.1.7 Lightning Strikes

WARNING 	The grounding system must protect the system, MDF, main power source, PCPro, printer, modems, etc. from damage caused by lightning strikes and electrical surges. All the grounding conductors must have a resistance of less than one Ω to bring a zero-voltage reference to the system components. To achieve this, the following ground conductors must connect to the Primary Ground Bar: ・The Earth Ground (E) from the Rectifier ・The Frame Ground (FE) from the system ・The Power Ground (PE) from the system, through the Rectifier ・The Frame Ground (FE) from the MDF ・The AC service outlets, with plug outlets, for the PCPro, printer, modems and any measurement devices, such as a protocol analyzer.

2.1.8 Electromagnetic Interference

CAUTION 	When installing an additional device in the vicinity of the system, observe the installation and operating instructions for the device. Otherwise, EMI noise from the device may cause a malfunction of the system.

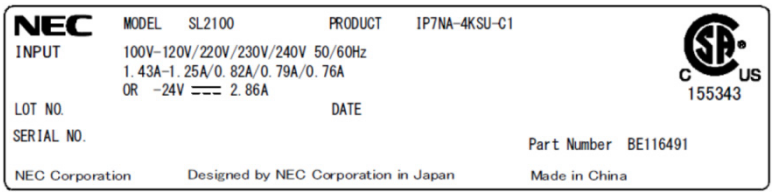
2.2 Disposables and Periodic-replacement Parts

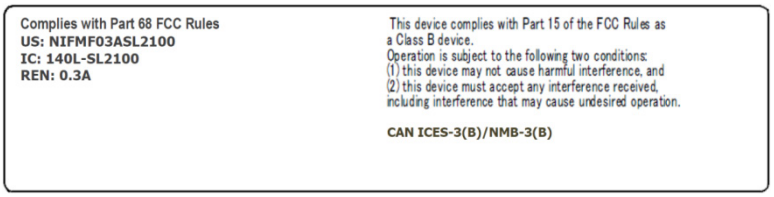
CAUTION 	Many parts, such as batteries, backup batteries, fuses and displays need to be replaced on a periodic basis. In the event of sudden traffic, a part that is past due for replacement might lead to a system failure and damage to the system. A service contract with the dealer or its service technician to monitor the replacement cycles and to supply the replacement parts and the necessary disposables is recommended.

Regulatory

CERTIFICATION LABELS

The product certification labels can be found on the outside surface of the main unit. These labels have important safety and regulatory compliance information.





SAFETY INFORMATION

This equipment has been certified by Canadian Standards Association (CSA) and found to comply with all applicable safety requirements for North America:

- CAN/CSA C22.2 No. 60950-1-07+ A1:2011+A2:2014 — Safety of Information Technology Equipment -- Part l: General Requirements

RADIO FREQUENCY INTERFERENCE

In compliance with FCC Part 15 rules, the following statements are provided.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For Canada: CAN ICES-3(B)/NMB-3(B)

TELEPHONE TERMINAL EQUIPMENT (TTE)

This equipment complies with Part 68 of the FCC rules and requirements adopted by ACTA (Administrative Council for Terminal Attachments). On the main chassis of this equipment is a label that contains, among other information, the FCC Registration Number (or product identifier) in the format: US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

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

The Ringer Equivalence Number (REN) applies to analog telephone lines (or trunks) and is used to determine the maximum number of devices that may be connected to a telephone line. Excessive devices on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. The REN for this product is part of the FCC Registration Number (or product identifier) in the format: US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). The REN and the FCC Registration Number for this product are provided below.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.
For single and two-line equipment that connects to the telephone network via a plug and jack, the plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by ACTA. A compliant telephone cord and modular plug may be provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

TELEPHONE/SERVICE PROVIDER COMPANY NOTIFICATION

Before connecting this telephone system to the telephone network, the telephone company may require the following information.

Site Telephone Number	
FCC Registration Number	US: NIFMF03ASL2100
Ringer Equivalence Number (REN)	0.3A
Service Order Codes (SOC)	9.0F (analog), 6.0P (digital)
Facility Interface Codes (FIC)	02LS2, 04DU9-BN, 04DU9-DN, 04DU9-1KN, 04DU9-1SN
USOC Jacks	RJ11C, RJ48C, RJ61X

ALARM DIALING EQUIPMENT

If the SL2100 system is used with alarm dialing equipment, ensure that the installation of the SL2100 does not disable your alarm dialing equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

ELECTRICAL SAFETY ADVISORY

Telephone companies report that electrical surges, typically lightening transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem. Therefore it is recommended that you use a surge arrestor on the AC power input.

INCIDENCE OF HARM

Should this product cause harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, you will be notified as soon as possible. Additionally the telephone company may request that you disconnect the equipment until the problem is resolved. Also, you will be advised of your right to file a complaint with the FCC, should you feel it is necessary.

REPAIR SERVICE REQUIREMENTS

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

HEARING AID COMPATIBILITY

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

OTHER

TOLL RESTRICTION AND LEAST COST ROUTING EQUIPMENT

NOTE -- The software contained in the SL2100 to allow user access to the network must be upgraded to recognize newly established network area codes and exchange codes as they are placed into service.

Failure to upgrade the premises system or peripheral equipment to recognize the new codes as they are established will restrict the customer and the customer's employees from gaining access to the network and these codes.

EQUAL ACCESS REQUIREMENTS

CAUTION -- This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

DIRECT INWARD DIALING (DID)

VOICE ANNOUNCEMENT/MONITORING OVER DID LINES

CAUTION -- When using the Voice Announcement feature to eavesdrop or record sound activities at the other end of the telephone line may be illegal under certain circumstances and laws. See section below, RECORDING CONVERSATIONS or MONITORING AUDIO, for more details.

ANSWER SUPERVISION

CAUTION -- Allowing this equipment to be operated in such a manner as to not provide for proper Answer Supervision is a violation of Part 68 of the FCC Rules. Proper Answer Supervision is when:

A. This equipment returns answer supervision to the Public Network when DID calls are:

- Answered by the called station
- Answered by the Attendant
- Routed to a recorded announcement that can be administered by the Customer Premise Equipment (CPE) user
- Routed to a dial prompt

B. This equipment returns answer supervision on all DID calls forwarded to the Public Network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received.

RECORDING CONVERSATIONS or MONITORING AUDIO

CAUTION -- The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversations or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. This includes using the Voice Announcement feature for recording or monitoring purposes. 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.

MUSIC ON HOLD

CAUTION -- In accordance with U.S. Copyright Law, a license may be required from the American Society of Composers, Authors and Publishers (ASCAP), or other similar organizations, if radio, television broadcasts, music, or works other than material not in the public domain are transmitted through the Music On Hold feature of this telecommunications system. NEC Corporation of America, hereby disclaims any liability arising out of the failure to obtain such a license.

CANADA -- TELEPHONE TERMINAL APPARATUS

Notice: This equipment meets the applicable Innovation, Science and Economic Development Canada (ISED) Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that ISED technical specifications were met. It does not imply that ISED approved the equipment.

Avis: Le présent matériel est conforme aux spécifications techniques applicables d'Innovation, Sciences et Développement économique Canada (ISED) au matériel terminal. Cette conformité est confirmée par le numéro d'enregistrement. Le sigle IC, placé devant le numéro d'enregistrement, signifie que l'enregistrement s'est effectué conformément à une déclaration de conformité et indique que les spécifications techniques d'ISED ont été respectées. Il n'implique pas qu'ISED a approuvé le matériel.

Notice: The Ringer Equivalence Number (REN) for this terminal equipment is 0.3. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

Avis: L'indice d'équivalence de la sonnerie (IES) du présent matériel est de 0.3. L'IES assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

ISED Registration Number: IC: 140L-SL2100

Ringer Equivalence Number (REN): 0.3

BATTERY DISPOSAL

The SL2100 system includes the batteries listed below. When disposing of these batteries, Chassis, and/or Unit, you must comply with applicable regulations relating to your location regarding proper disposal procedures.

Unit Name	Type of Battery	Quantity	Note
IP7[ ]-CPU-C1	Lithium	1	
External Battery (IP4WW-Battery Box)	Sealed Lead	2 per IP4WW-Battery Box	

The SL2100 IP7[ ]-CPU-C1 provides Real-Time Clock backup for approximately three years. The Lithium battery should be replaced every two years.

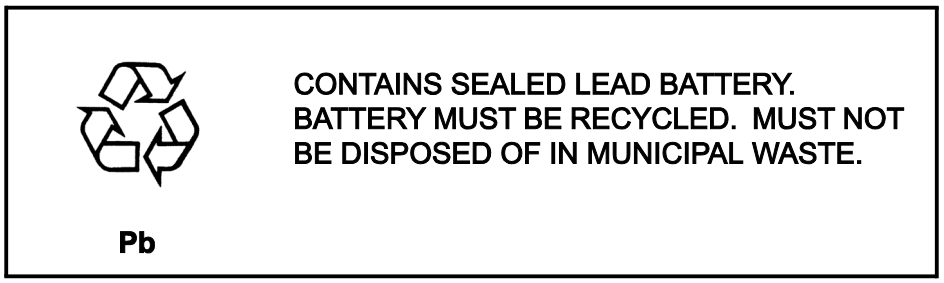
IMPORTANT SAFEGUARDS FOR BATTERY DISPOSAL

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

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

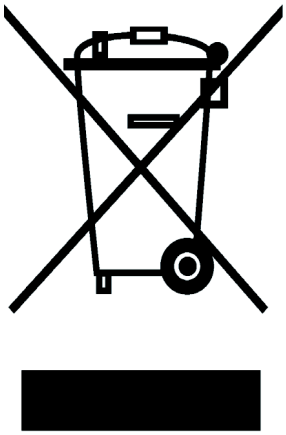
Sealed lead batteries must be returned to an approved sealed lead battery recycler. This may be where the batteries were originally sold or a local seller of automotive batteries. Contact your local waste management officials for other information regarding the environmentally sound collection, recycling and disposal of the battery contained in this product.

The packaging for the SL2100 system contains the following labels regarding proper disposal.



PRODUCT DISPOSAL INFORMATION

For Countries in the European Union



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

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

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

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

BATTERY INFORMATION

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

For an overview of the location of batteries used in these systems, the battery replacement or removal instructions, please refer to the SL2100 System Hardware Manual.

MEMO

Thank you for purchasing the SL2100 system.

The SL2100 Getting Started Guide explains the installation, Configuration and operation of the SL2100 telephone system including the Outside (CO) line and telephone connections.
The guide covers the most frequently used configuration options. Only the SL2100 Main Chassis is included, it does not cover optional items.
If this is your first installation please follow this guide and complete the initial setup.

For more advanced configuration, refer to SL2100 Hardware Manual (separate issue) for the details.

General Information

The SL2100 system is a progression from SL1000/SL1100 system and is newly provide a legacy and IP communication system for All-In-One Small Box to support Small and Medium Business with easy installation and easy operation.
The SL2100 has new designed Multiline Terminals and a new small compact chassis comes with the four universal slots and one CPU/EXIFE slot for Slot-In design chassis.
The SL2100 system enable to expand up to three chassis (one Main and two Expansion chassis) by bus connection and provides a maximum of 36 analog trunks and 72 Multiline Terminals also equipped to support IP Networking, Digital Networking (PRI, T1/E1) and IP Trunks or IP extensions.

Chapter 1 Introduction

Section 1 What is the SL2100?

The SL2100 is an advanced hybrid IP telephone system. It is wall mountable with a slot-in designed chassis.
The chassis has four Universal slots and one CPU/EXIFE Slot.
Supports up to three chassis (one main and two expansion chassis) by bus connection and provides maximum 36 analog trunks and 72 multiline terminals.
Support IP networking, digital networking (PRI, T1/E1) and IP trunks or IP extensions.
All equipment is operational when the SL2100 is installed as shown in this guide and it is not necessary to make any changes to the system configuration. (In case for basic features)
For example, calls received on exchange lines ring at telephone number 101-108 (extension port No.1-8).
With the default setting;

- Each telephone will function and is assigned an extension number.
- Each telephone can make outside calls by dialing 9/0 (trunk access code).
- Each exchange line has a function key with busy lamp indication.

The following features are available **at default on CPU-C1**.

- VoIP Channels*: 8ch.
  If you require up to 16 channels of VoIP resources per system, install the IP7WW-VOIPDB-C1 and increase the number of VoIP resources by adding necessary number of licenses (additional 16 channels of VoIP resources).
- VRS/Voice Mail: 4ch.
  Expands to 16 channels by adding optional hardware (IP7WW-EXIFB-C1).
- Voice Prompt: 1 language
  Enable to use multi-language voice prompts when optional hardware (IP7WW-SDVMS-C1 / IP7WW-SDVML-C1) is installed. Up to 26 languages are provided.
- VRS/Voice Mail Recording Storage: 2 hours
  You can expand the storage capacity by installing one of the following optional pieces of hardware: IP7WW-SDVMS-C1 / IP7WW-SDVML-C1.
  (SDVMS : Approx. 15 hours / SDVML : Approx. 120 hours)

1.1 Outside Lines

You can connect analog trunk lines to the SL2100 system using 3COIDB board. PRT/T1/E1 lines are also supported using the PRIDB optional board.

- ☐ The trunk lines must be loop start type.
- ☐ The SL2100 system also detects caller ID that sent by the network provider.
- ☐ Each line is connected via a RJ61 8-way socket. The exchange lines are supplied by your network provider.

1.2 SL2100 Multiline Terminals

You can connect eight SL2100 multiline terminals to a digital extension port using an optional 082U-B1 board. (If you connect more multiline terminals you need to install more optional boards.)
The SL2100 system multiline terminals have illuminated function keys that can be tailored to your requirements.
The SL2100 system multiline terminals have a LCD display that shows information about who is calling, the call you are on or the feature you are using.
Each multiline terminal is connected to the SL2100 system via a RJ11 4-way socket. The telephone cables are supplied with the terminal.
SL2100 DSS Consoles are available, which provides busy lamp indication. They can be installed alongside a system multiline terminal for use by system operator (DSS console takes one digital station port).

IP Multiline Terminal also available.
This IP entry multiline terminal has DESI-Less LCD with eight programmable keys. The IP multiline terminal is connected to the Ethernet port (10M/100M) and Power Feeding is supported by PoE.

The multiline terminal provides adjustable legs for angling the phone to best suit each user.
The legs can be set for different heights (Low/High)

	IP7WW-12TXH-B1 TEL 	IP7WW-24TXH-B1 TEL 	IP7WW-8IPLD-C1 TEL 	IP7WW-60D-B1 DSS CONSOLE 
Terminal Type	Digital (2W) Multi-Line Terminal	Digital (2W) Multi-Line Terminal	IP (i-SIP) Multi-Line Terminal	Digital (2W) DSS Console
Connected to	Digital Extension Port	Digital Extension Port	Ethernet Port at LAN (100M)	One of Digital Extension Ports
Power Feeding	by Digital Ext. Port	by Digital Ext. Port	by PoE Only	by Digital Ext. Port
Color Line-Up	Black Only	Black Only	Black Only	Black Only
LCD	24 digits x 3 lines w/ Backlit	24 digits x 3 lines w/ Backlit	168 x 128 Dots w/ Backlit	---
Number of Programmable Keys	12 (BLF : Red/Green)	24 (BLF : Red/Green)	8 (**) (BLF : Red/Green)	60 (BLF : Red/Green)
Soft Keys	Yes	Yes	Yes	---
Menu Cursor Key	Yes	Yes	Yes	---
Incoming LED	2 colors (Red/Green)	2 colors (Red/Green)	2 colors (Red/Green)	---
Handsfree	Full-duplex	Full-duplex	Full-duplex	---
Backlit Dial Pad	No	No	No	---
Illuminance Sensor	No	No	No	---
Headset Port	Yes	Yes	Yes	---
PC Port	No	No	Yes (10M/100M/1000M x 1)	---
Angle Adjustment	2-steps (Low/High)	2-steps (Low/High)	2-steps (Low/High)	2-steps (Low/High)
EHS(*) Support	Yes (by WHA ADP)	Yes (by WHA ADP)	Yes (by EHS Cable)	---
Wall Mounting Kit	Built-In	Built-In	use Wall Mount Kit	Built-In
Support CODEC	---	---	G.711/G.729a	---

(*) EHS: Electric Hook-Switch

(**) Up to "8"physical keys are available and it can be expanded up to 32 keys by changing the "DESI-Less Page" by pressing the Scroll Key.

1.3 Analog Terminals

You can connect up to two analog terminals (for 082U-B1 board), eight analog terminals or Analog cordless phones (for 008U-C1 board) to any of the station ports.

- The telephones can be: dial pulse or DTMF dialing and they can have Hook Flash or Timed Break Recall.
- The SL2100 can send Caller ID to the analog telephone.

(The analog telephone must be supported with the Caller-ID with display.)

AT-45

1.4 External MOH/ BGM

You can connect one external music source (user provided) per system.
The Audio-In in the music resource is connected to the Audio-In of “RL/Audio” port on the 082U-B1.

1.5 External Paging

You can connect three external paging devices (user provided) per system
The Audio-Out in the Paging device is connected to the Audio-Out on the “RL/Audio” port onto the 082U-B1.

1.6 Doorphone/Sensor device

You can connect a total of six doorphone boxes and/or sensor devices (user provided) per system.
The doorphone boxes or sensor devices are connected to Analog station port on the 082U-B1(SLI-1/2 port) and is set using the Hardware switches.

For other options, refer to SL2100 Hardware Manual and SL2100 Features and Specifications Manual.

1.7 System Connection Diagram

Figure 1-1 shows a system connection diagram.

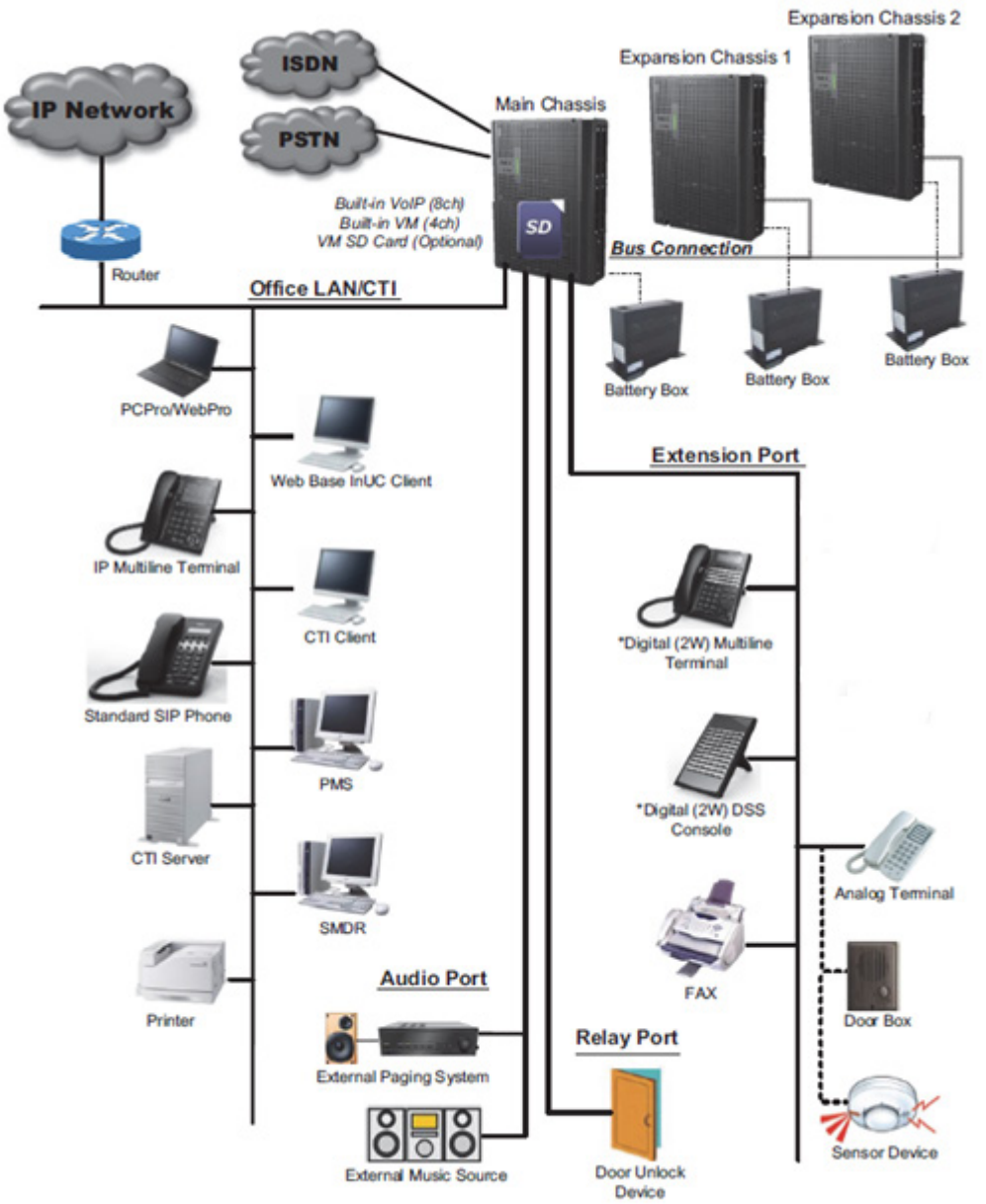
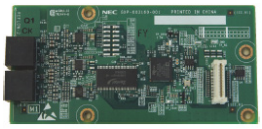
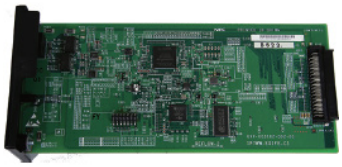
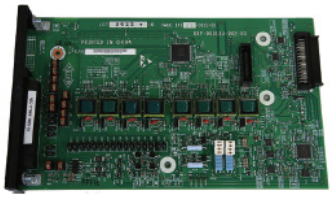
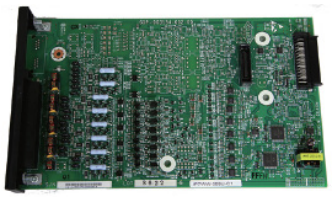
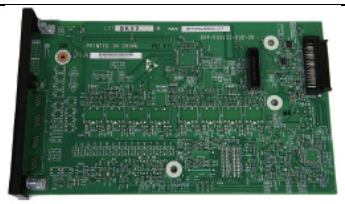
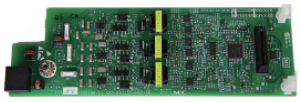
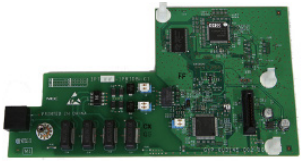
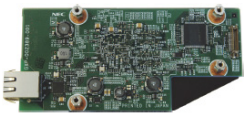


Figure 1-1 System Configuration

1.8 Equipment List (Not all items)

Listed below are the available optional items.

Items	Description	Outline
IP7[ ]-4KSU-C1	One common chassis used for the Controlling (Main) chassis or Expansion chassis, A maximum of three chassis (one controlling and two expansion chassis) can be connected by bus connection. The Chassis has one CPU/EXIFE slot and four universal slots.	
IP7[ ]-CPU-C1	The CPU-C1 board is installed into the CPU/EXIFE Slot in the Controlling Chassis and controls all the functions and operations of the SL2100 system using the system software loaded into the CPU-C1 memory.	
IP7WW-EXIFB-C1	The EXIFB-C1 board is installed on to the CPU-C1 board. It is individually connected to each EXIFE-C1 board (on Expansion Chassis). Supports: • VRS/VM (InMail) channels expansion (Up to 16ch) • Additional 48 Telephony resources (DTMF/Dial tone/Busy tone/FSK caller-ID receiver/sender) • Support Analog Modem (V.34)	
IP7WW-EXIFE-C1	The EXIFE-C1 board is installed into the CPU/EXIFE slot on the Expansion Chassis.	
IP4WW-Battery Box	Connected to each Chassis power supply, the external backup battery provides DC power in case a loss of AC power occurs. An optional (locally provided), external battery source can be used to provide power during a power failure.	
IP7WW-082U-B1	This 082U-B1 board is installed on the Universal slot in the IP7[ ]-4KSU-C1 chassis and provides a total of eight digital extension ports and two analog extension ports. Two general purpose relay, one Audio-In and Audio-Out ports, are initially available. Either the analog trunk daughter board (3COIDB) or ISDN PRI/T1/E1 daughter board (1PRIDB) can be mounted on this board.	

IP7[ ]-008U-[ ]1	This 008U-C1 board is installed on the Universal slot in the IP7[ ]-4KSU-C1 chassis and provides a total of eight analog extension ports. Either the analog trunk daughter board (3COIDB) or ISDN PRI/T1/E1 daughter board (1PRIDB) can be mounted on this board.	
IP7WW-000U-C1	This is an expansion board for mounting a 3COIDB-C1 or 1PRIDB daughter board, and is installed on the Universal slot in the IP7[ ]-4KSU-C1 chassis.	
IP7WW-3COIDB-C1	This 3COIDB-C1 daughter board provides three analog trunks and is mounted on the 082U-B1, 008U-C1 or 000U-C1 board. A total of four 3COIDB boards can be mounted per Chassis.	
IP7WW-1PRIDB-C1	The 1PRIDB-C1 daughter board is mounted on the 082U-B1, 008U-C1 or 000U-C1 board and installed on the Universal slot in the IP7[ ]-4KSU-C1 chassis and provides either an ISDN Primary Rate Interface, T1 Interface or E1 interface. A total of three 1PRIDBs can be installed per system or one 1PRIDB per Chassis.	
IP7WW-VOIPDB-C1	The VOIPDB-C1 daughter board provides the RTP/RTCP voice processing function. This board is mounted onto the CPU-C1 board (VOIPDB slot) of the controlling chassis.	
IP7WW-SDVMS-C1	The SDVMS-C1 (VRS/VM (InMail)) SD cards are for storage purposes (1GB (approximately 15 hours recording) and mount onto the CPU-C1 board (SD card slot).	
IP7WW-SDVML-C1	The SDVML-C1 (VRS/VM (InMail)) SD cards are for storage purposes (4GB (approximately 120 hours recording) and mount onto the CPU-C1 board (SD card slot).	
IP7WW-12TXH-B1 TEL (BK)	The 12TXH-B1 TEL is a 2-wire digital multiline telephone.	

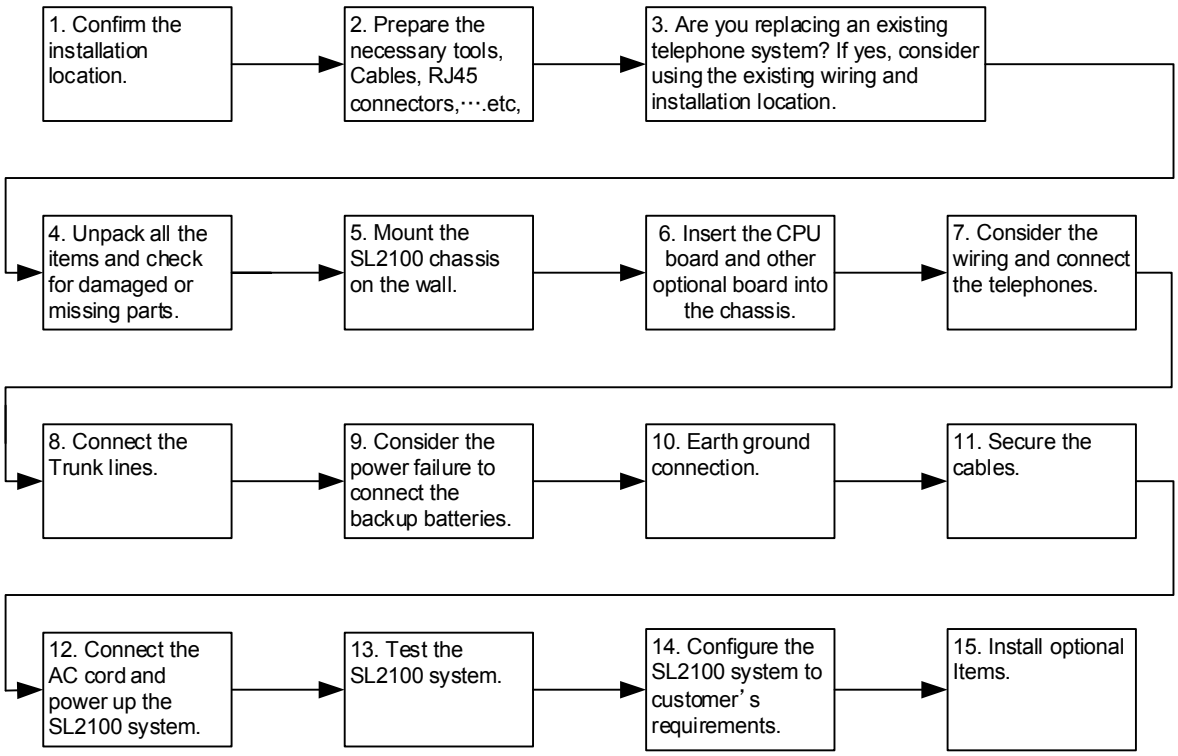
IP7WW-24TXH-B1 TEL (BK)	The 24TXH-B1 TEL is a 2-wire digital multiline telephone.	
IP7[ ]-8IPLD-C1 TEL (BK)	The 8IPLD-C1 TEL is an IP multiline telephone.	
IP7WW-60D DSS-B1 CONSOLE (BK)	The DSS console gives a 2-wire Digital multiline terminal user a Busy Lamp Field (BLF) and one-button access to extensions, trunks and system features. Mainly designed for operator use, the 60-button DSS console provides an additional 60 programmable keys.	
DP-D-1[ ]/HS.D503DOR-A/DX4NA Doorphone Box	Doorphone unit with call button, microphone and loudspeaker.	
System Feature License	Certain features can be enabled by adding a license key.	

Chapter 2 Installation

Section 1 Before Installation

1.1 Installation Procedure (Replacing an existing Telephone System)

The procedure below outlines the required steps for installing the SL2100.



1.1.1 Confirm the Installation Location

The Installation location must be confirmed before installing the system.

- AC outlet: Quantity of AC outlet, AC cord fits for the distance between Chassis and AC outlet
- Weight tolerance for the wall: Material of the wall
- Installation areas: enough space, temperature, humidity and other environmental requirements
- Earth Ground: available
- Trunk Line: available

1.1.2 Prepare the necessary tolls (Not supplied)

Make sure the necessary tools (screw driver set, pliers set, etc.) are available.

Required Items	Specification
Telephone Cables	Recommended cable type: **Twisted Pair** Conductor diameter: **0.4 to 0.6 mm** Maximum cable length (with 0.5mm diameter cable): SL2100 system Telephone/DSS Console --- **300 meters** Analog Telephone --- **1125 meters**
Cat 5 Straight Cable (or equivalent)	SL2100 IP Multiline Terminal --- **100 meters**
RJ11 Plugs	
Fixing Tools for RJ45 Plug and cable	
2-conductor connectors for outside(CO) line	

2-conductor connectors for extension	
Philips head screwdriver	
4 Wall Fixing plugs suitable for the type of wall	

1.1.3 Replacing an Existing Telephone System

If you are replacing your existing telephone system with the SL2100, we recommend that you check the following.

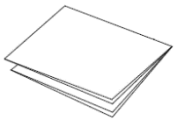
- Do not disconnect all of the lines or extensions from your existing telephone system. If for any reason you have problems installing the SL2100 you will need your old system in working order to continue your business.
- If you plan to use existing telephone cabling within your building, check :
  - The cable is twisted pair cable.
  - There are 2 wires (1 pair) available to each SL2100 system phone location.
  - You will need an RJ11 socket for each SL2100 system phone and DSS console.

  Some of the wiring may be required for the modifications.
- Move the exchange lines/analog telephones one at time and test each one before moving over the next.

1.1.4 Unpacking

1.1.4.1 Unpack the IP7[ ]-4KSU-C1 Chassis

Unpacking the IP7[ ]-4KSU-C1 and check against the following list. Inspect for physical damage.

Items	Quantity		Remarks
IP7( )-4KSU-C1	1		• Power Supply is initially equipped into the IP7[ ]-4KSU-C1. • IP7[ ]-CPU-C1 board and other option boards are not included.
AC Power Cord	1		IP7[ ]-4KSU-C1 without C does not including the AC Power cord.
Screw(M4.1x25)	4		These four screws are for wall mounting.
Template for Wall Mounting	1		This is the template for mount the chassis to the wall.

1.1.4.2 Unpacking CPU board and each option board

Unpack each board as required and check it against the following list. Inspect for physical damage.

Items	List of Contents	Quantity	Note
IP7[ ]-CPU-C1	CPU-C1 Board	1	
	Lithium Battery (CR2032)	1	
	EULA sheet	1	
IP7WW-082U-B1	082U-B1 Board	1	
IP7WW-008U-C1	008U-C1 Board	1	
IP7WW-000U-C1	000U-C1 Board	1	
IP7WW-3COIDB-C1	3COIDB-C1 Board	1	
	3 x 8 Screw with Washer and Spring Washer	1	
IP7WW-1PRIDB-C1	1PRIDB-C1 Board	1	
	3 x 8 Screw with Washer and Spring Washer	1	
IP7WW-VOIPDB-C1	VoIP Daughter Board	1	
	3 x 8 Screw with Washer and Spring Washer	4	
Unpack other parts as necessary.			

Section 2 Installation

2.1 General Precautions

Ensure you take the following precautions when installing the SL2100 system.

- 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 with the chassis.
- Install batteries with the correct polarity to prevent damaging equipment.
- 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.
- To avoid damage, the chassis should not be placed on unstable surfaces.
- To avoid damage the plastic parts, never use an electric screw driver to tighten the screws.
- To prevent overheating, do not bundle AC power cords together.
- Make sure the chassis has proper earth ground.
- If Expansion Chassis are installed, turn the power on/off in the following order: Expansion 2 Chassis, Expansion 1 Chassis and then Main Chassis

!! Not all boards are hot swappable. Do not remove or install from the chassis when powering up.

2.2 Preparations

- Make sure the necessary tools (screw driver set, pliers set, etc) are available.
- Make sure you have a building plan showing common equipment, extensions, the telecom demarcation, and earth ground location. The installation site must meet the following site / environmental requirements.

2.3 Site Requirements

・The system should be wall-mounted only. Ensure enough space exists to allow the installation of additional Chassis and/or a battery box.

・A dedicated 100V-120V/220V/230V/240VAC circuit located within two meters of the Chassis is required. A separate dedicated AC outlet is necessary for each Chassis.

2.4 Environmental Requirements

Meeting established environmental standards maximizes the life of the system. Make sure that the site is not:

- In direct sunlight or in hot, cold or humid places.
- In dusty areas or in areas where sulfuric gases are produced.
- In places where shocks or vibrations are frequent or strong.
- In places where water or other fluids comes in contact with the equipment.
- In areas near high-frequency machines or electric welders.
- Near computers, telexes, microwaves, air conditioners, etc.
- Near radio antennas (including shortwave).

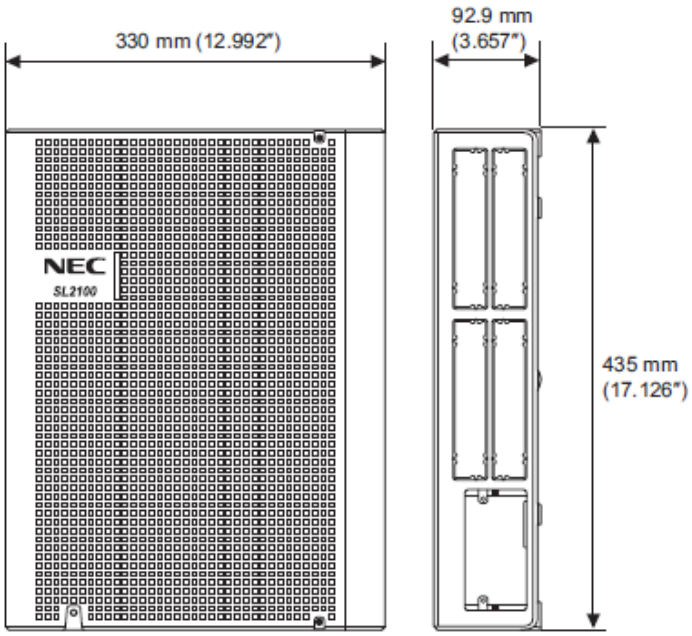
Section 3 Installing the Chassis

When installing the chassis, always wall mount it. Before installing the chassis, the wall where the Chassis is to be mounted must be able to support the weight of the Chassis and ensure the appropriate spacing exist as shown below.

If an external battery is required, is must be supplied locally.

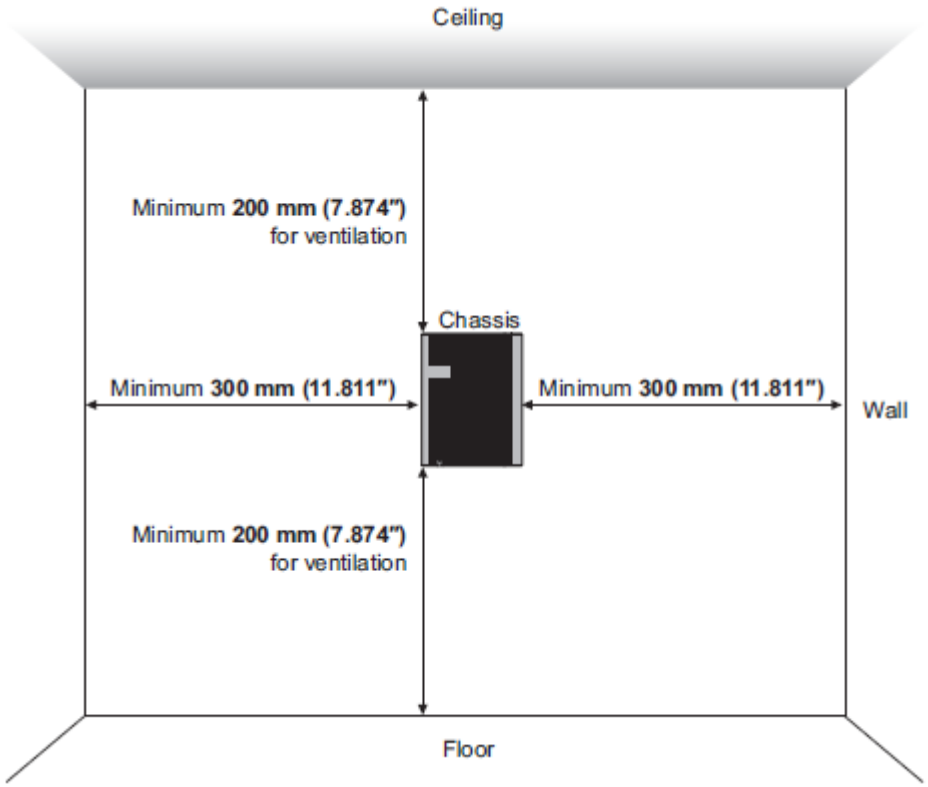
3.1 Chassis Dimension

For the installation location, refer to the size of Chassis and re-confirm the installation spaces.



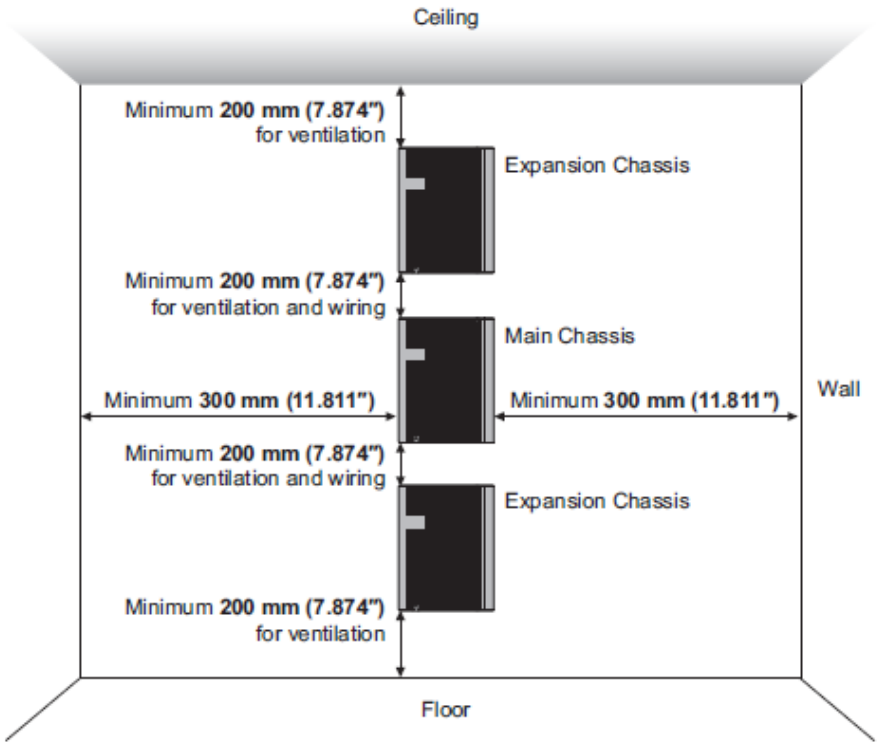
3.2 Wall Mounting the Chassis

The chassis requires minimum space between the ceiling, floor or wall for ventilation. Refer to the following figure to install the chassis.

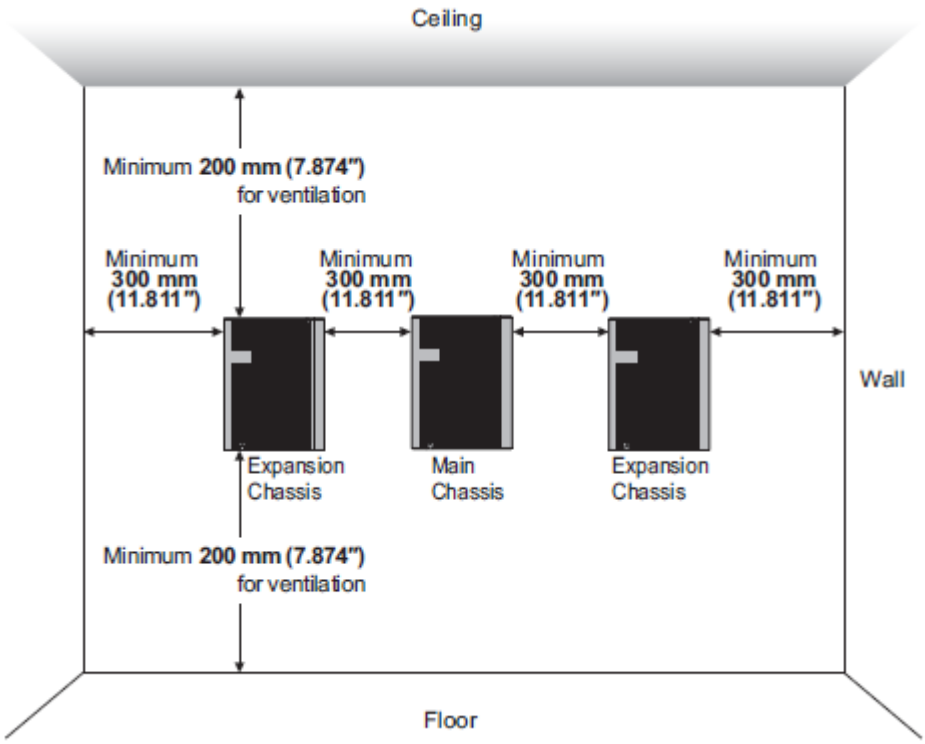


!! If installing three chassis in your system, NEC strongly recommend centering the main chassis to accommodate the maximum length of the extension cable. If you do not center the main chassis, the cable may not reach the other chassis.

【Vertical Arrangement】

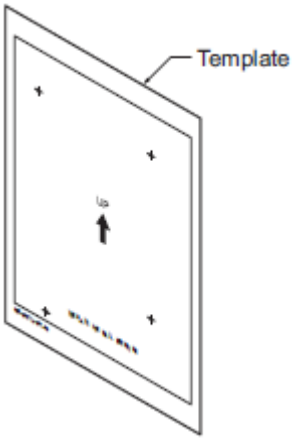


【Horizontal Arrangement】

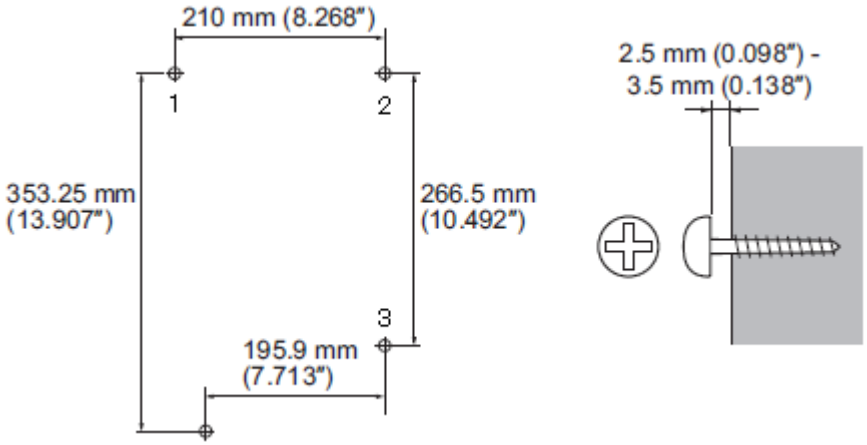


3.2.1 Wall Mounting Procedure

1. Use the attached template and put on the wall to mark the four screw positions.



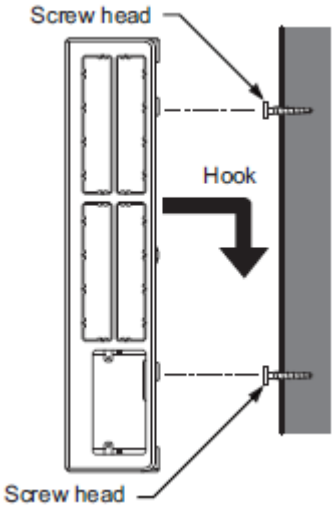
2. Install three screws (1-3) into the wall. The screw heads must stand off from the wall about 2.5 mm (0.098″) to 3.5 mm (0.138″).



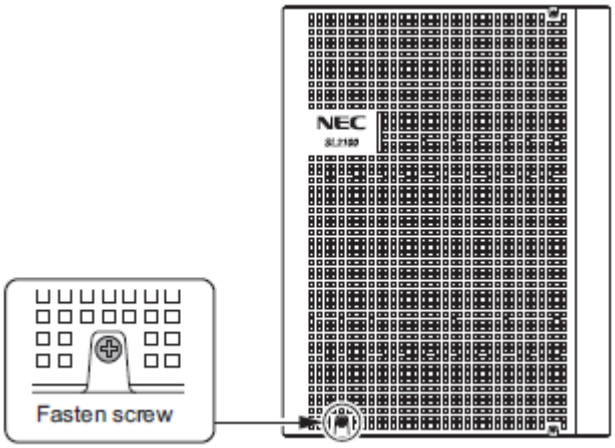
- The screw diameter is 4 mm (0.158″) to 4.5 mm (0.177″).
- Wall-Mounting Screws (M4.1x 25: 4 pcs) are attached to the Chassis.

→ Another screw is installed after slide the chassis into the position.

3. Align the three holes on the back of the Chassis with the three screws installed in the wall.



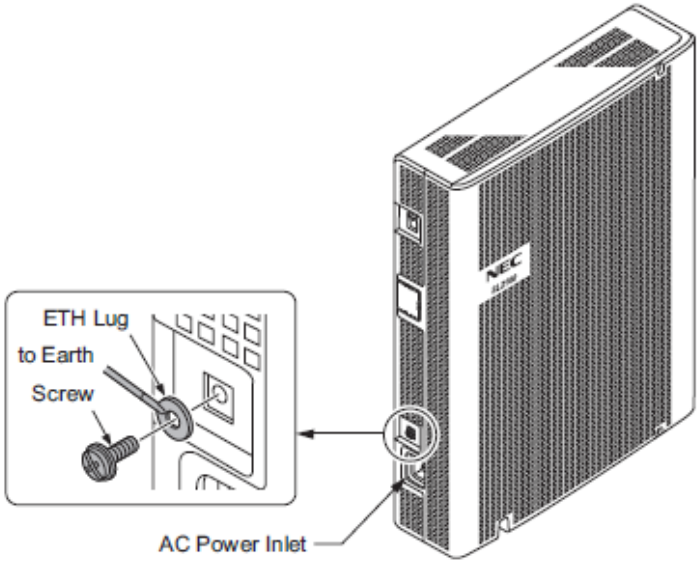
4. Tighten the other screw at the lower left after you slide the chassis into the wall.



3.3 Connecting Earth Ground

The ETH (Earth Ground Lug) is located near the AC power inlet on each Chassis.
In each Chassis, connect the ETH lug to the verified grounding point using a minimum cable size of 14AWG (Φ2.0 mm) wire.

!! Ensure all Main and Expansion Chassis are powered off and unplug the AC cord.



The grounding cable is supplier-provided (not attached to the system).

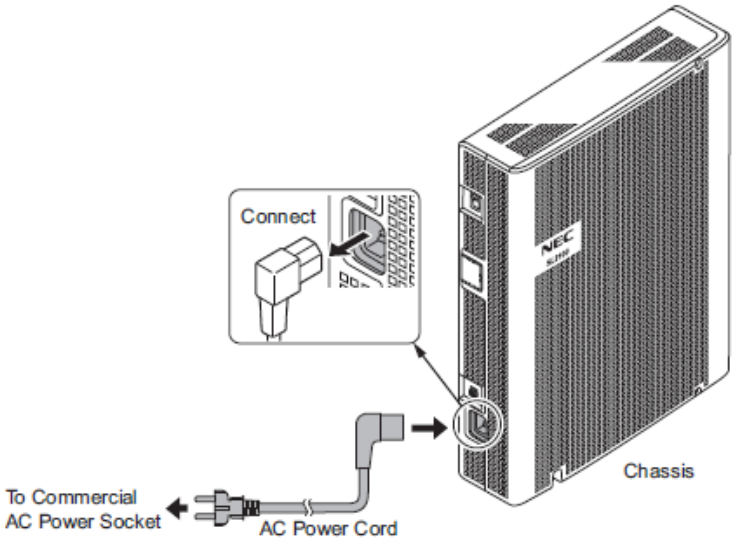
Each chassis in the system must be grounded separately using the procedure listed below.

1. Loosen the screw.
2. Insert a grounding wire (supplier provided).
3. Tighten the screw.
4. Connect the grounding wire to earth ground.

!! Proper grounding is very important to protect the system from external noise and to reduce the risk of electrocution in the event of a lightning strike.

3.4 Connect AC power cord

The AC power inlet is located at the back side of each chassis. The AC power cord is connected to the AC inlet and the commercial AC power socket.



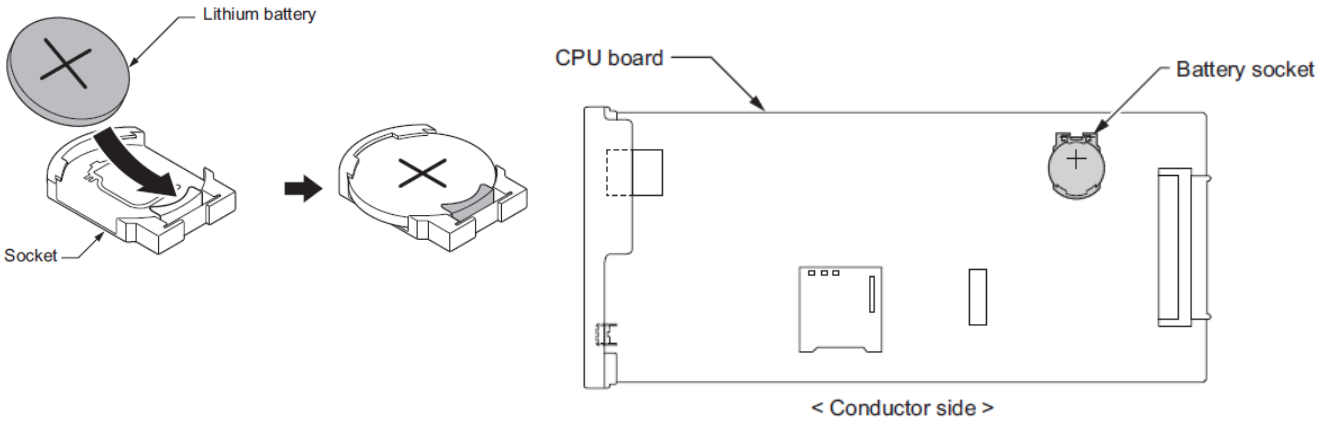
!! Each Chassis must have its own commercial AC power socket.

Section 4 Installing the CPU board and other option board

Each 4KSU-C1 has four universal slots for the station, trunk and optional boards excluding the CPU/EXIFE slot.

4.1 Mount the CPU board

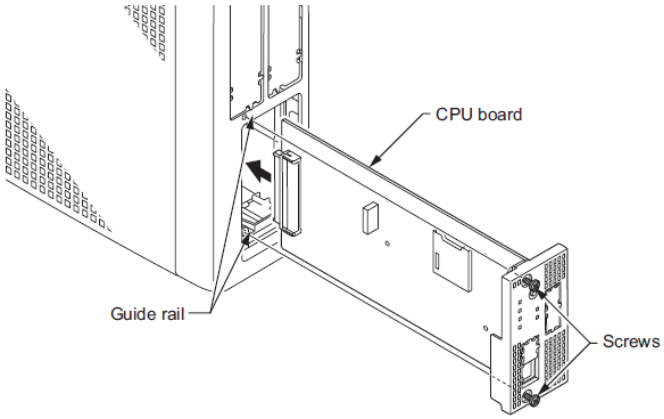
1) Insert the Lithium Battery (CR2032) into the battery socket.



!! Ensure the Chassis are power off and unplug the AC cord.

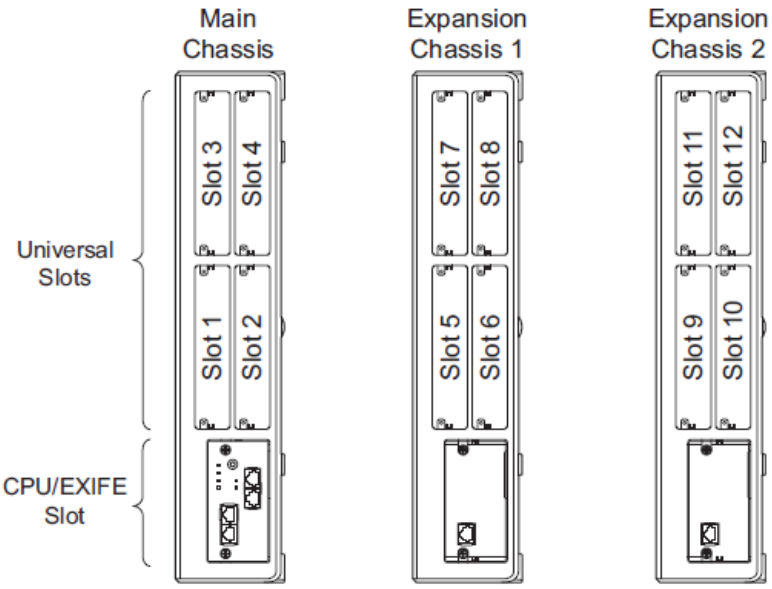
!! Not all boards are hot swappable. Do not remove or install from the chassis when powering up.

2) Insert a CPU-C1 board in the guide rail of chassis and push it securely into position and tighten the two screws on the board



4.2 Mounting the Expansion boards (082U/008U)

Each 4KSU-C1 has four universal slots for the station, trunk and optional boards. However the **Slot 4,8,12 does NOT support any type of Multiline Terminals.** Analog extensions (and any type of Trunks) will work. The Slot Numbers (Slot No.1 to No.12) are fixed for each Chassis, refer to the following illustration.

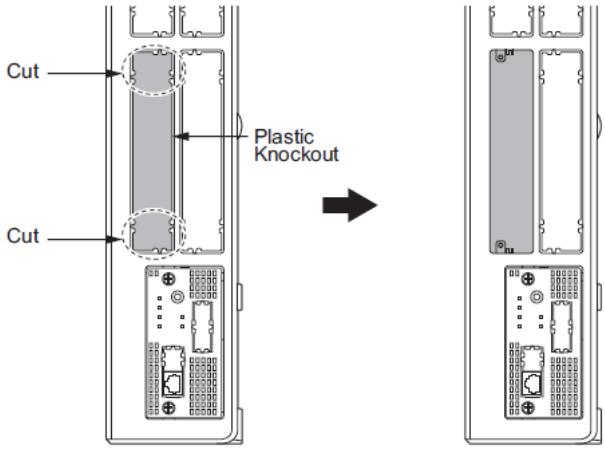


The procedure for mounting the expansion interface boards are as followings;

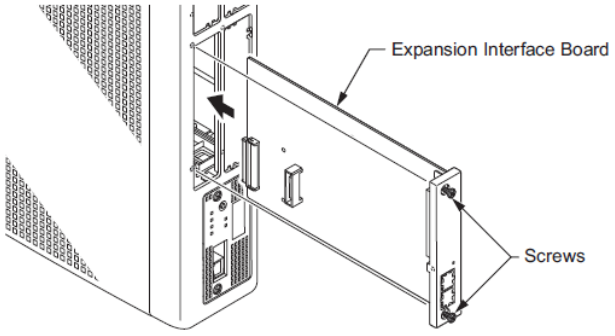
!! Not all boards are hot swappable. Do not remove or install from the chassis when powering up.

1) Ensure the Chassis are powered off and unplug the AC cord.
2) Use micro nipper to cut and remove the plastic knockouts as required for each expansion interface board slot.

!! For your safety, smooth the cut edges after removing the plastic knockout.



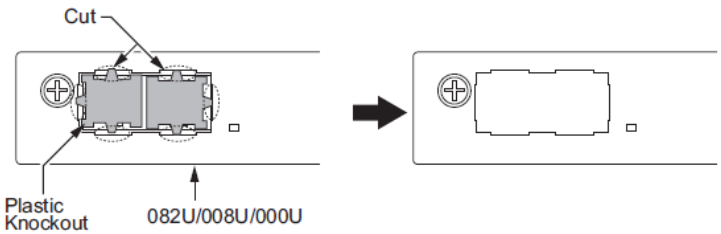
3) Insert an expansion interface board in the guide rail of the chassis and push it securely into position and tighten the two screws of the board.



4.3 Mounting the Daughter boards (3COIDB/1PRIDB)

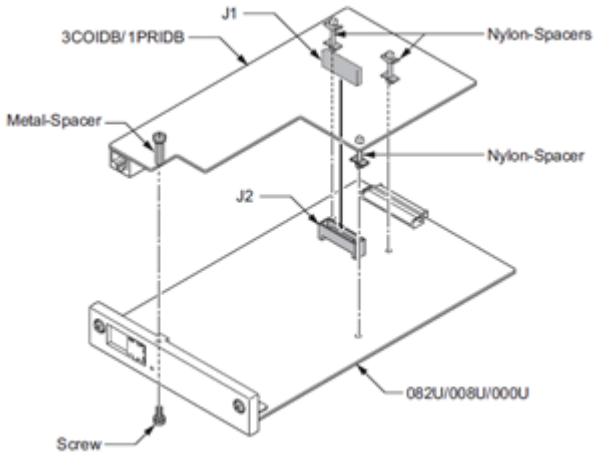
!! Not all boards are hot swappable. Do not remove or install from the chassis when powering up.

1) When the expansion interface boards (082U/008U) are inserted to the chassis, loosen two screws and pull out the 082U/008U board.
2) Use micro nippers to cut and remove the specified plastic knockout on the 082U/008U/000U board.

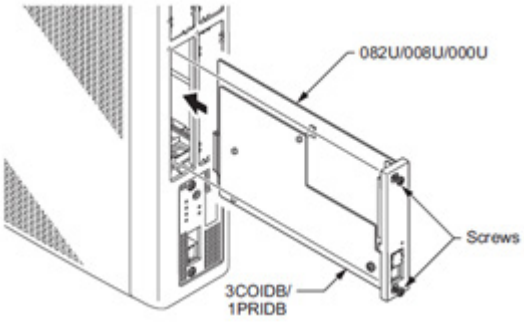


!! For your safety, smooth the cut edges after removing the plastic knockout.

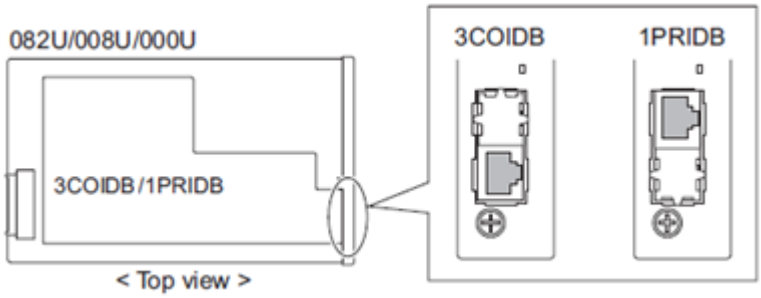
3) Mount the daughter board onto the 082U/008U/000U board using the attached screw. Refer to the following figure.



4) Insert the board to the specified slot.



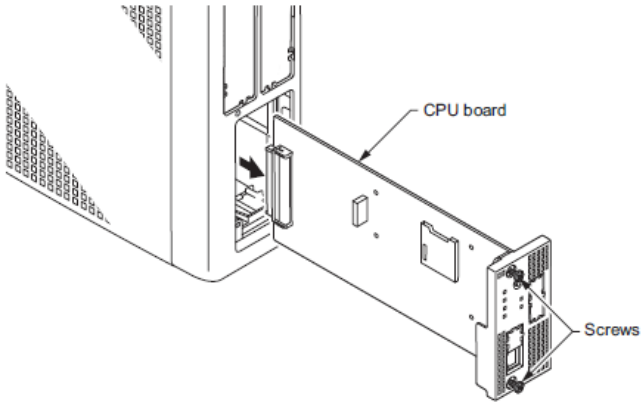
※For your convenience, the following illustration shows the recognition of the type of Trunk daughter board.



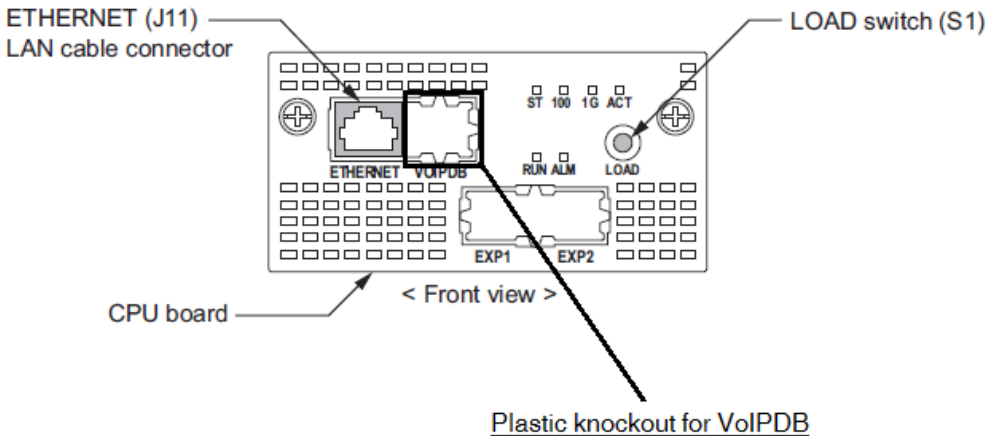
4.4 Mounting the VoIP Daughter board

The IP7WW-VOIPDB-C1 daughter board is used to convert the RTP (Real Time Transfer Protocol) packets via the IP Network and PCM highway. The daughter board is installed on the CPU board.

1) Ensure the Chassis are powered off and unplug the AC cord
2) Loosen two screws and pull out the CPU board if the CPU is installed.

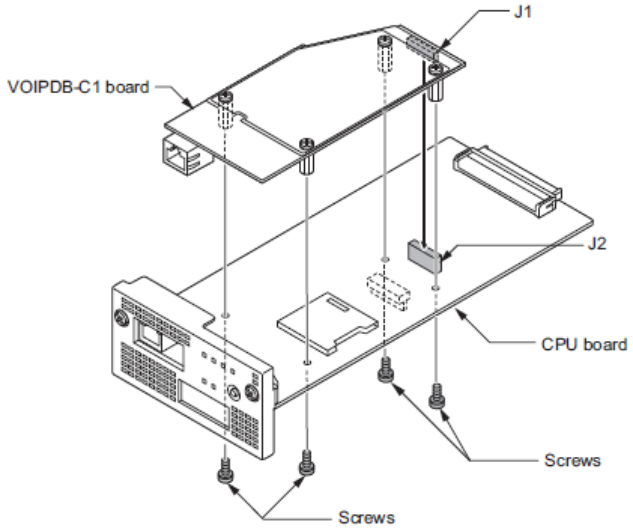


3) Use micro nippers to cut and remove the plastic knockouts (for VoIPDB) of CPU-C1 board.

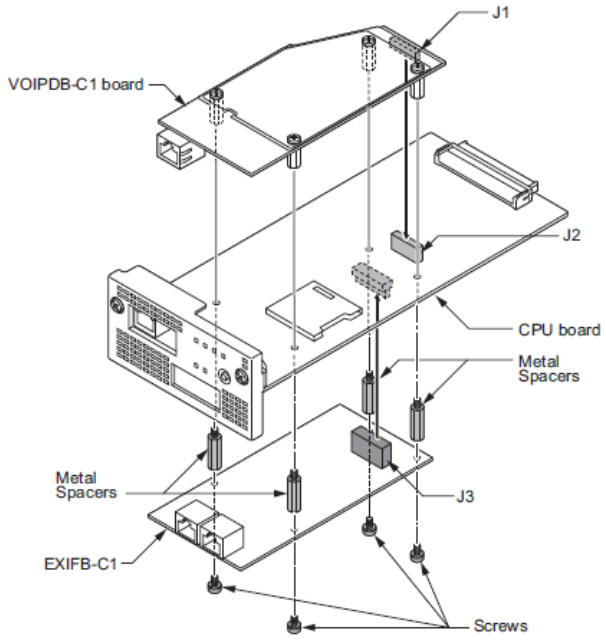


!! For your safety, smooth the cut edges after removing the plastic knockout.

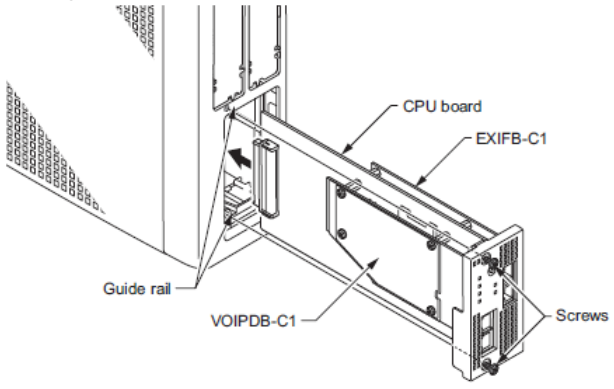
4) Install the VOIPDB-C1 board to J2 connector on the CPU board and tighten the four screws from the back side if there is no EXIFB-C1.



4)-1. When both VOIPDB-C1 and EXIFB-C1 boards are mounted on the CPU board, refer to the following installation.



5) Insert the CPU board in the guide rail of chassis and push it securely into position, and tighten the two screws.



Section 5 Connecting Extensions and Trunks

Take the following precautions when running the cables.

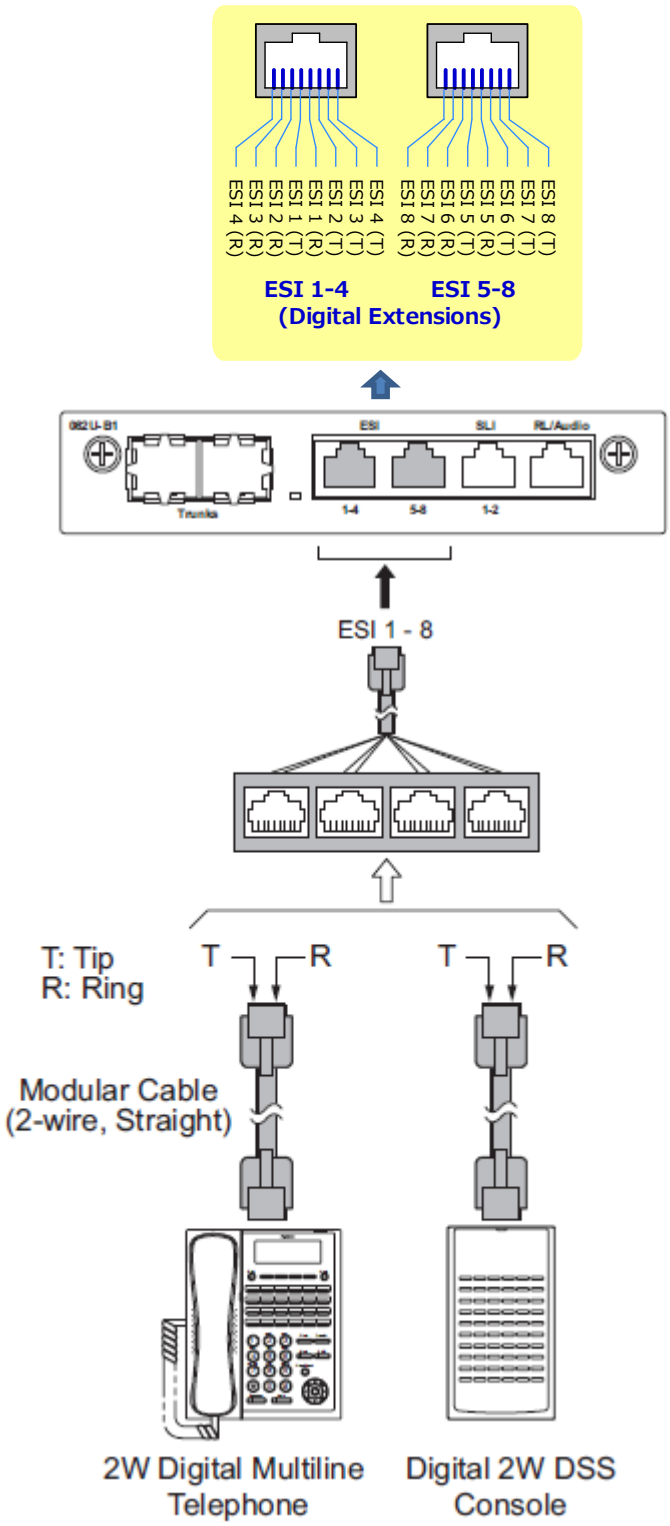
- Do not run the cable with a power cable, computer cable etc.
- Do not run the cable near any high frequency generating equipment.
- Use cable protectors if the cables are run on the floor.
- Aerial distribution wiring is not allowed.
- Maximum cable lengths are listed in the following table.

Device	Cable Type	Cable Run Length
IP7WW-12/24TXH-B1	24AWG (Ø0.5 mm)	300 m
IP7WW-60DSS-B1	24AWG (Ø0.5 mm)	300 m
IP7WW-8IPLD-C1	Cat5/5e Straight Cable	100 m
AnalogTerminals(20mA)	24AWG (Ø0.5 mm)	1125 m

5.1 2W Digital Multiline Terminal (IP7WW-12/24TXH-B1)

2W Digital Multiline Terminals and/or 2W DSS Consoles can be connected to the 082U-B1 board. The board provides RJ61 modular jack labeled ESI 1-4, 5-8 for extension connections.

1. Insert the modular plugs of the extension line cords (2-wire/4-wire) into the extension modular jacks on the 082U-B1 board.

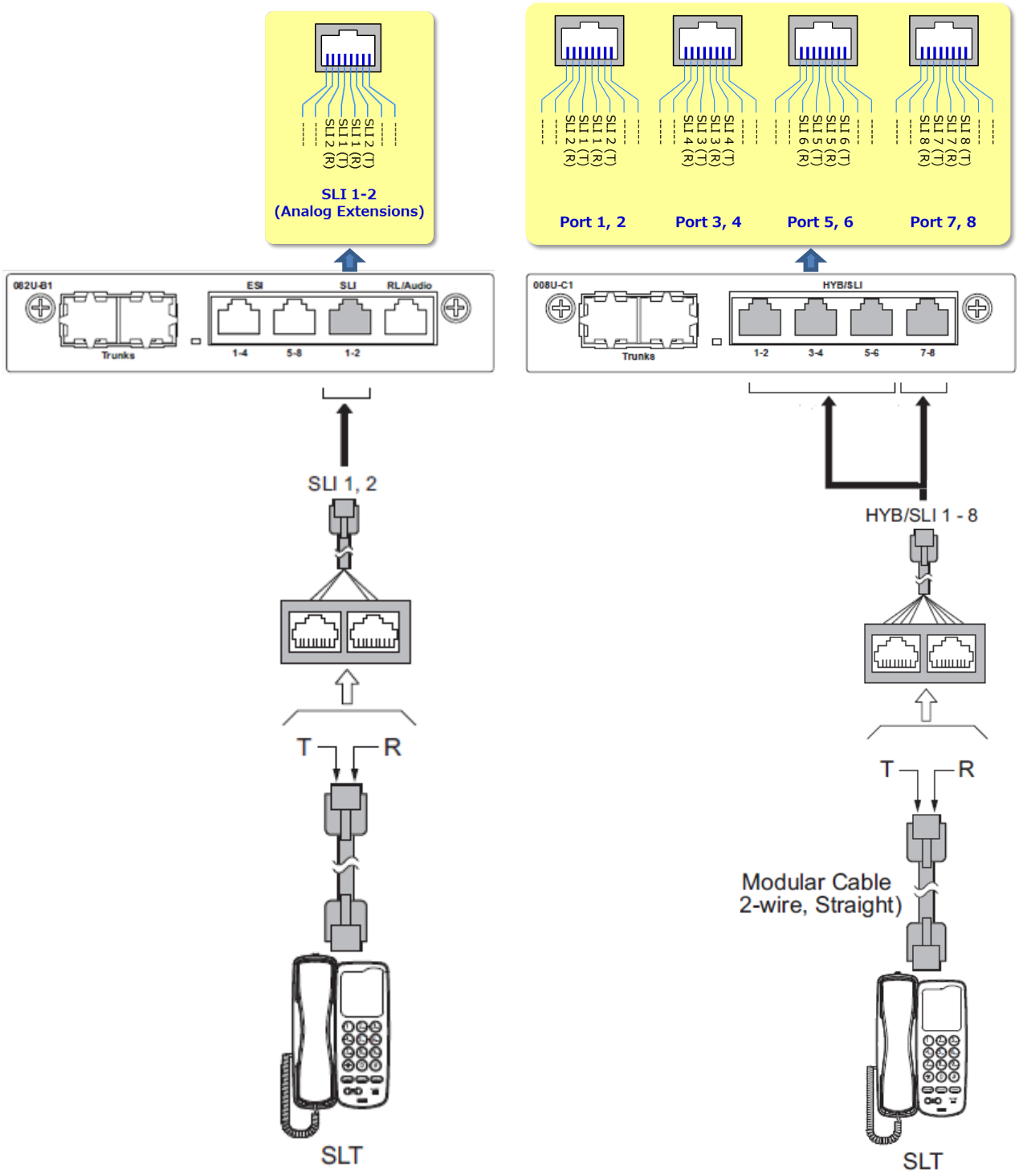


5.2 Analog Terminal

Analog Terminals can be connected to the **082U-B1/008U-C1** board.

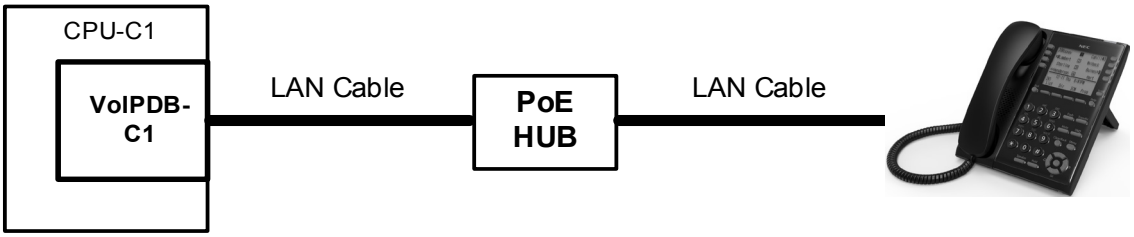
The board provides RJ61 modular jack labeled **SLI 1-2** (082U-B1)/ **HYB/SLI 1-2, 3-4, 5-6, 7-8** (008U-C1) for the extension connections.

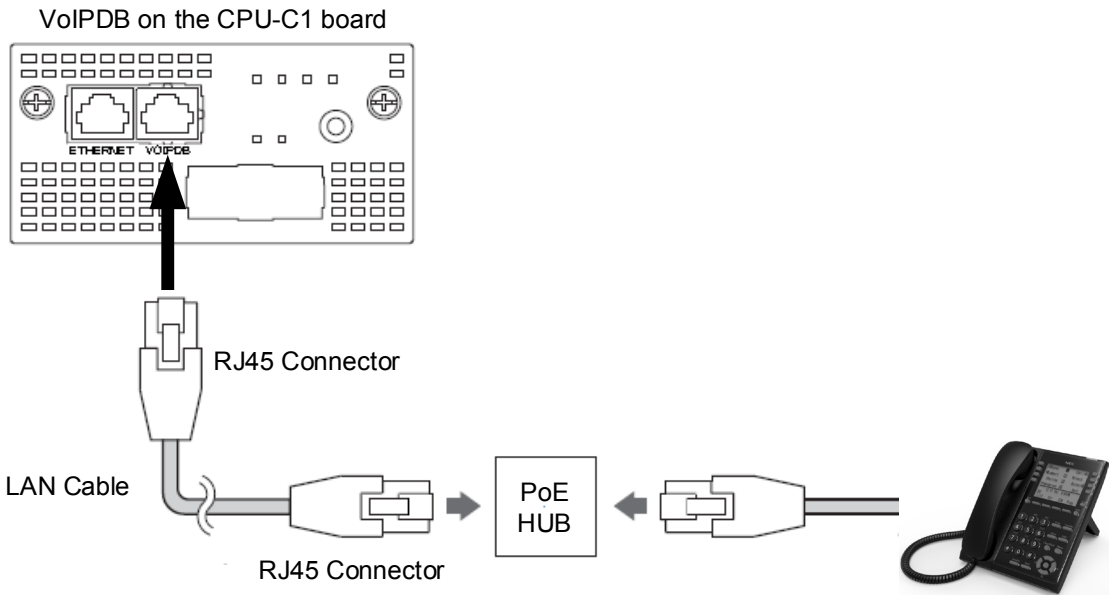
1. Insert the modular plugs of the extension line cords (2-wire) into the extension modular jacks on the 082U-B1/008U-C1 board.



5.3 IP Multiline Terminal (IP7WW-8IPLD-C1)

The IP Multiline Terminal is connected to the VoIPDB-C1 board through **PoE HuB**.
Using LAN cable to connect VoIPDB and IP Multiline Terminal through **PoE HuB**.

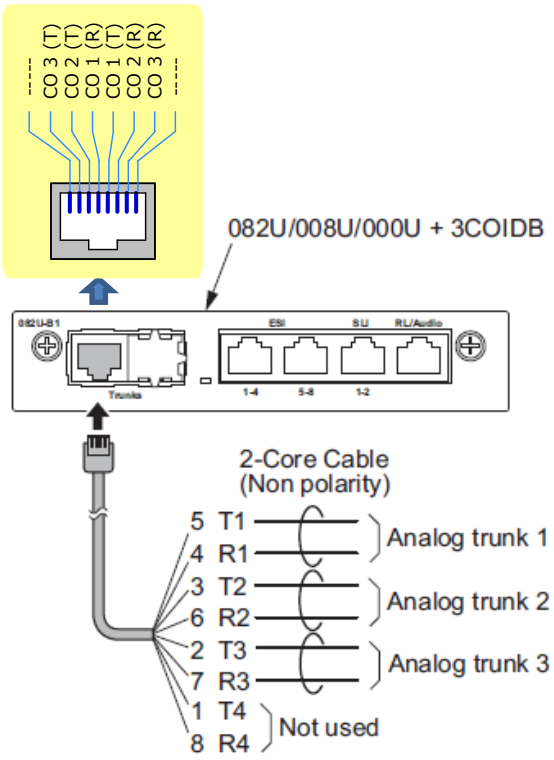


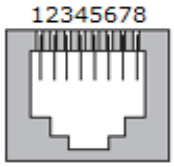


5.4 Analog Trunk

The Analog Trunk from Telco line is connected to the 3COIDB-C1 board.
The board provides RJ61 modular jack labeled Trunks/COI 1-3 for the trunk connections.

1. Insert the modular plugs of the trunk line cords into the analog trunk modular jacks on the board.



3COIDB	Pin No.	Pin Function (COI:1-3)
	1	Not Used
	2	CO 3 (Tip)
	3	CO 2 (Tip)
	4	CO 1 (Ring)
	5	CO 1 (Tip)
	6	CO 2 (Ring)
	7	CO 3 (Ring)
	8	Not Used

!! Ensure that you connect the 2 wires as shown otherwise the line will not operate correctly.
!! Use twisted pair telephone cable.
!! Fit lightning protectors to each line.

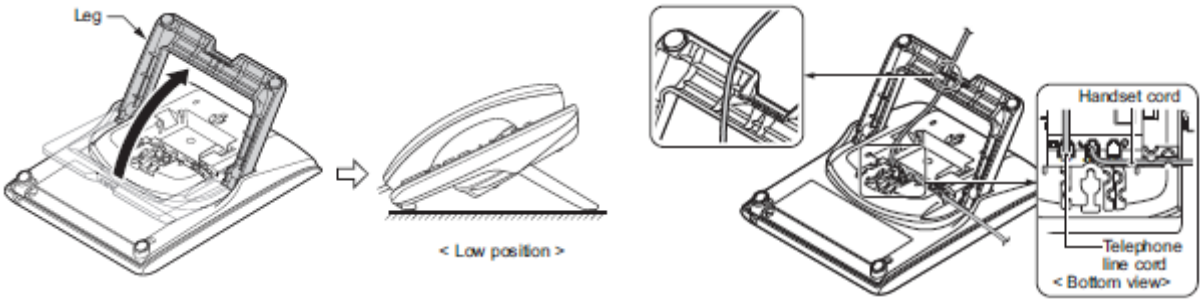
For connecting the Audio device, Door Box, General Purpose Relay, refer to the Hardware Manual.

5.5 Multiline Terminal Leg Adjustment

The multiline terminal provides an adjustable leg for angling the phone to fit each user's preference. The leg can be set for two different heights (Low/High).

1. Low Position Setting

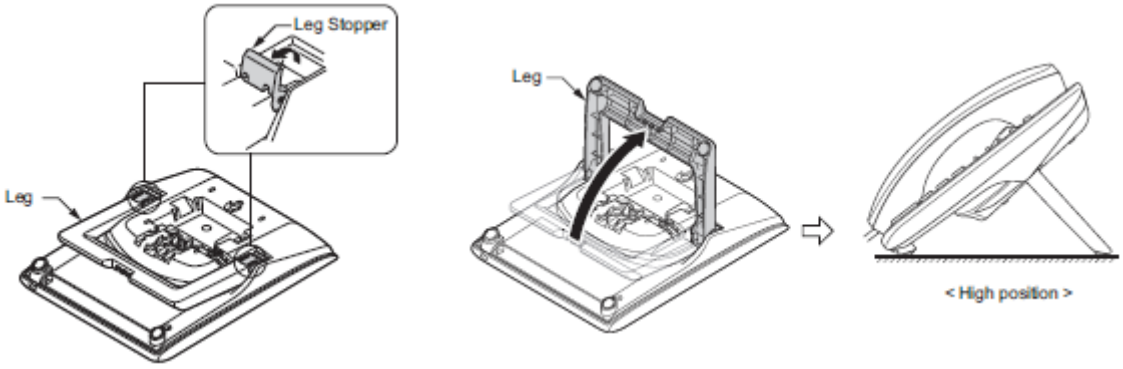
1) Turn telephone over (button side down).
2) Adjust the legs to desired height.
3) Lead the line and handset cords through the applicable grooves.



4) Turn telephone over (button side up).

2. High Position Setting

1) Turn telephone over (button side down).
2) Pull up the leg stoppers.

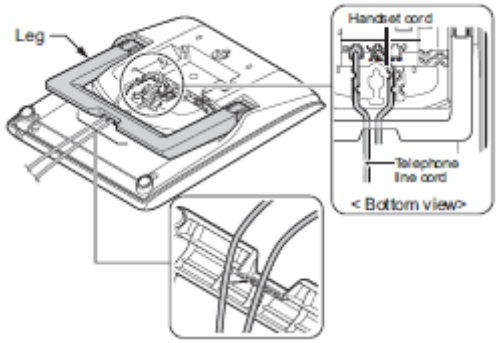


3) Adjust the legs to desired height.
4) Lead the line and handset cords through the applicable grooves.
5) Turn telephone over (button side up).

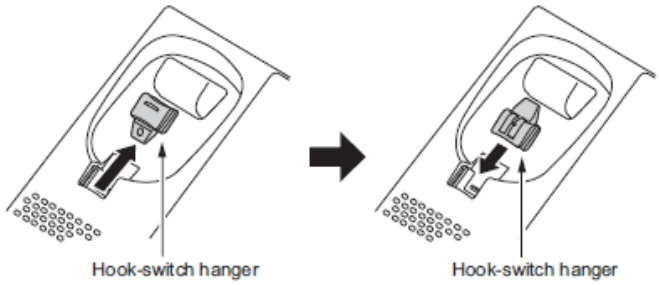
5.6 Wall Mounting the Multiline Terminal

5.6.1 Digital Multiline Terminal

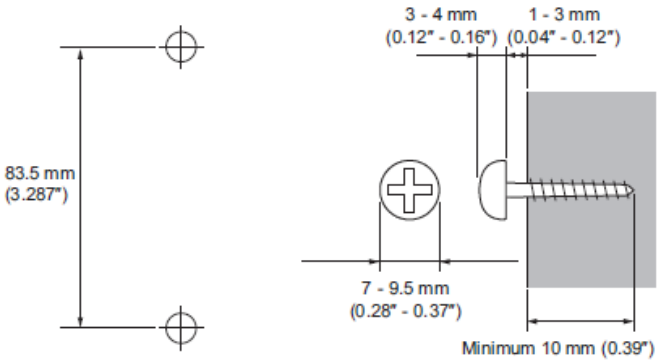
1) Arrange the cables and put down the leg as shown below.



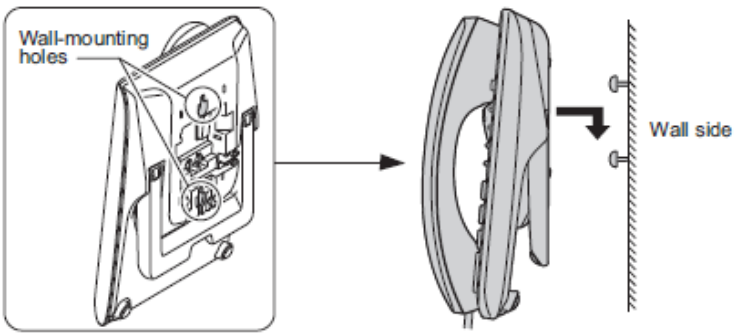
2) Remove the hook-switch hanger and Insert the hook-switch hanger in the slot below the hook switch.



3) Install two screws into a wall. The screw heads must protrude about 3 mm (0.12”).

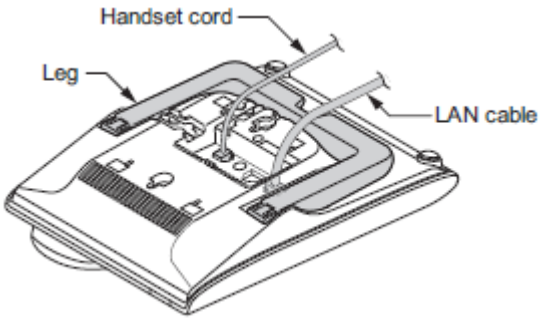


4) Attach the phone to the wall.

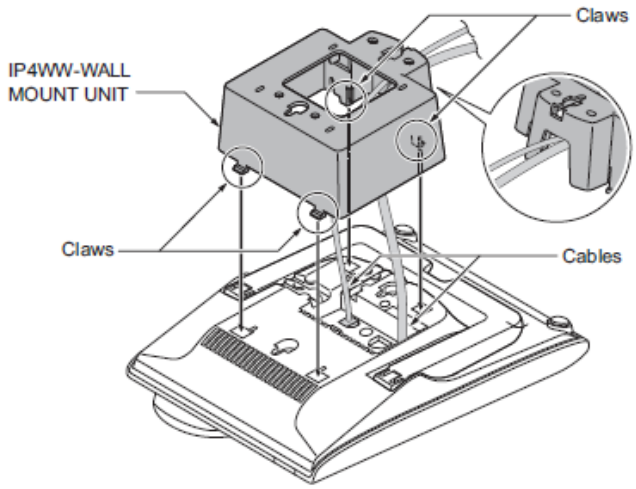


5.6.2 IP Multiline Terminal

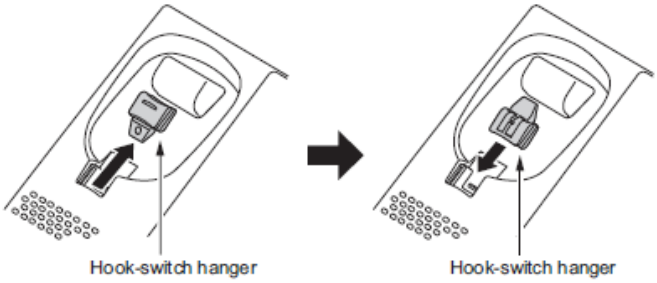
1) Arrange the cables and put down the leg as shown below.



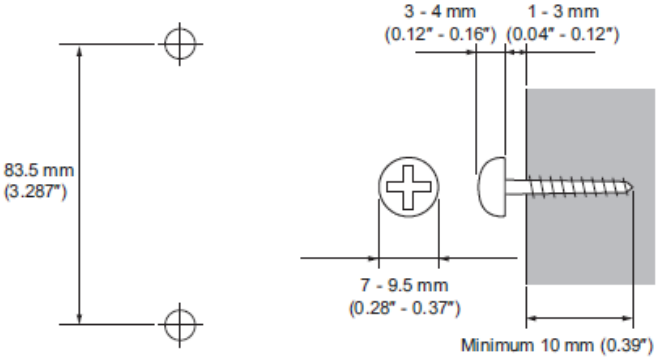
2) Attach the IP4WW-WALL MOUNT UNIT (Optional) to the bottom panel and arrange the cables as shown below.



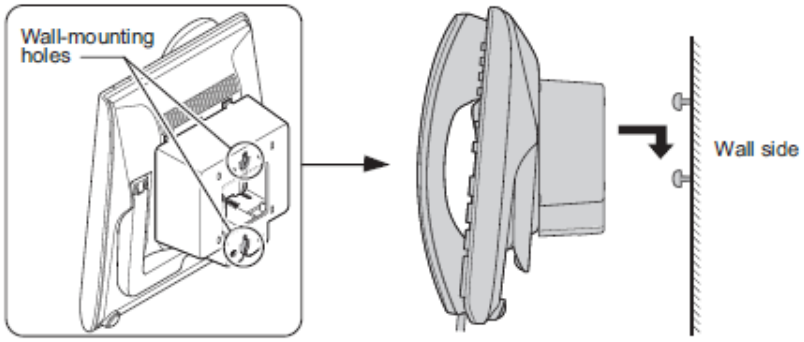
3) Remove the hook-switch hanger and Insert the hook-switch hanger in the slot below the hook switch.



4) Install two screws into a wall. The screw heads must protrude about 3 mm (0.12”).



5) Attach the phone to the wall.



Section 6 Starting Up the SL2100 system

6.1 Before starting up the system

Before starting up the system, make sure:

- Chassis are installed correctly.
- All extensions are cabled correctly.
- All earth ground and PSTN trunks are cabled correctly.
- All boards are configured, equipped and secured correctly.
- AC power cord is cabled correctly.
- At least one display type multiline telephone is connected to the system. (for programming)
- The Lithium battery is installed on the CPU-C1 board correctly.

6.2 Plug the AC power cord

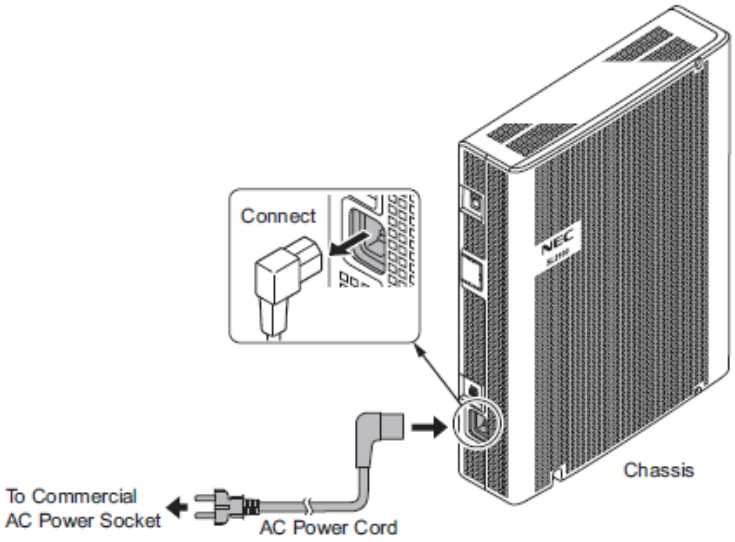
The AC power inlet is located at the back side of each chassis. The AC power cord is connected to the AC inlet and the commercial AC power socket.

!! Before connecting the AC power cord, make sure:

• The power switch at the left side of each chassis is turned OFF.

• The power switch at the commercial AC power socket is turned OFF.

• The AC plug fits the commercial AC power socket. The plug adapter is necessary if it does not fit.



6.3 Starting Up the System

There are two methods for startup (COLD Start and HOT Start).

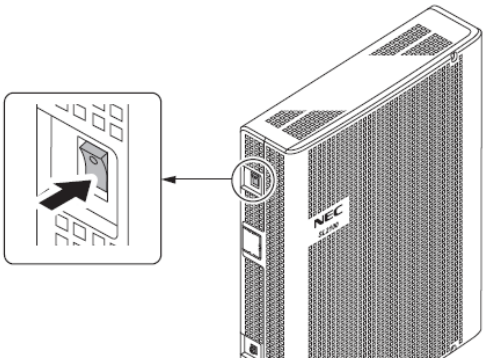
Start Up Method	Description	Purpose
COLD Start	The factory setting data is loaded.	・First time start up ・System Initialization
HOT Start	The customer setting data is loaded.	・System Reboot

6.4 Perform a COLD Start

This section describes the process for starting the system for the first time or starting a system that requires the customer data be deleted.

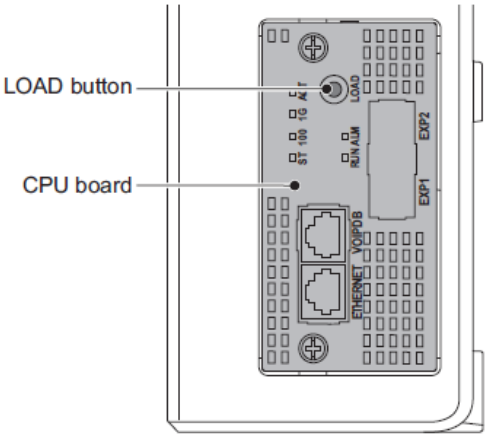
!! System software is loaded from flash memory, and the customer data is deleted from RAM memory.

1) Set the power switch to OFF position.



2) Once the system has powered off, push in and hold the **LOAD** button on the CPU board.

!! If expansion chassis are installed, the power switch in the expansion chassis must be ON.

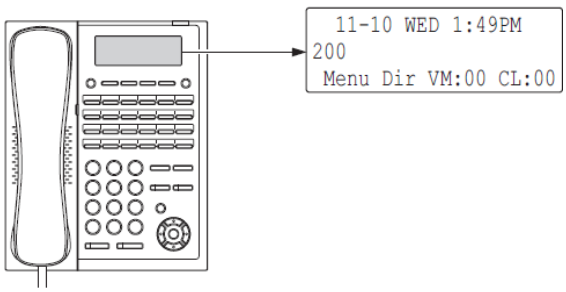


3) Turn the power switch ON at the main chassis.

4) Continue holding the **LOAD** button for approximately three seconds or until ALM LED lights red.

5) Release the **LOAD** button.

6) When the system has completed reloading the software (about one minute), the RUN LED flashes green on the CPU board and the connected multiline telephone's display will shows the time and date and extension number.



6.5 Perform a HOT Start

This section describes how to load system software from flash memory, and the customer data from RAM memory.

!! System software and Customer data are loaded from flash memory.

1) Turn the system power off.
2) After it has powered off, turn the power switch back to ON. Wait approximately one minutes.
3) When the system has completed reloading the software, the RUN LED flashes green on the

CPU card and the connected multiline telephone display shows the time and date and the extension number.

Section 7 Test the System

Follow the procedures below to test the system.

7.1 Test the SL2100 2W Digital Multiline Terminals

Test each phone in turn.

1) Press **Speaker**.
   If you hear system dialing tone the phone has initialized correctly. Press **Speaker** to clear.
   If you do not hear dial tone, move to step 2.
2) Check the connections.
   Check the connections from the phone to the SL2100. Ensure all 2 wires are connected as shown in *5.1 2W Digital Multiline Terminal (IP7WW-12/24TXH-B1)*.
3) Plug the phone into the ESI connection port at the 082U-B1 board.
   (The RJ61 socket (ESI 1/5-ESI 4/8) has four 2W-digital extension ports, therefore if you connect a multiline terminal directly to an RJ61 socket, you can get the first port instead of four port. However if you need the four port, you need to consider the wiring.)
   If you have used telephone cable and RJ11 sockets to extend the connections,
   plug the phone directly into the ESI connection port at the 082U-B1 board using the line cord supplied with the system phone.
   If the phone does not initialize correctly, move to step 4.
4) Swap the phone
   Try another digital multline terminal plugged directly into the ESI connection port using the line cord supplied with the phone.

7.2 Test the Analog Terminals (Test each phone in turn)

1) Lift the handset.
   If you hear system dial tone the phone has working correctly.
   If you do not hear dial tone, move to step 2.
2) Check the connections.
   Check the connections from the phone to the SL2100 to ensure both wires are connected as shown in *5.2 Analog Terminal*.
3) Plug the phone into the SLT connection port at the SL2100 board.
   If you have used telephone cable and RJ11 sockets to extend the connections,
   plug the phone directly into the SLT connection port at the SL2100 board using the RJ11 line cord.
   (Ensure the line cord connections are correct).
   If you do not hear dial tone when you lift the handset, move to step 4.
4) Swap the phone.
   Try another analog terminal plugged directly into the SLT connection using the RJ11 line cord.

7.3 Test the IP Multiline Terminal (Test each phone in turn)

1) Lift the handset.
   If you hear system dial tone the phone is working correctly.
   If you do not hear dial tone or there is no display, move to step 2.
2) Check the connections
   Check the connections from the phone to the SL2100 to ensure both LAN cables are connected as shown in *5.3 IP Multiline Terminal (IP7WW-8IPLD-C1)*.
3) Plug the phone into the VOIPDB connection at the VoIPDB board through the PoE HUB.
   (Ensure the LAN cable connections are correct).
   If you do not hear dial tone when you lift the handset, move to step 4.
4) Swap the phone.
   Try another IP multiline terminal plugged into the PoE HUB using another LAN cable.

7.4 Test the Outside CO Lines

Test each line in turn and only test the lines you have connected.

1) **To test CO1.**

1) Lift the handset on the multiline telephone and dial **#9** (Trunk Access Code) **+ 001** (Trunk Number).
If you hear an exchange dial tone, the line is working correctly. If you do not hear an exchange dial tone, check the connections from the outside CO line to the SL2100 and ensure both wires are connected to CO1 as shown in *5.4 Analog Trunk*.

2) **To test CO2.**

1) Lift handset of a multiline telephone and dial **#9** (Trunk Access Code) **+ 002** (Trunk Number).
If you hear an exchange dial tone, the line is working correctly. If you do not hear an exchange dial tone, check the connections from the outside CO line to the SL2100 and ensure both wires are connected to CO2 as shown in *5.4 Analog Trunk*.

3) **To test CO3.**

1) Lift handset of a multiline telephone and dial **#9** (Trunk Access Code) **+ 003** (Trunk Number).
If you hear an exchange dial tone, the line is working correctly. If you do not hear an exchange dial tone, check the connections from the outside CO line to the SL2100 and ensure both wires are connected to CO3 as shown in *5.4 Analog Trunk*.

□ The RJ61 socket (CO1-3) has for three CO ports, therefore if you connect one CO port directly to an R61 socket, you can get the first CO port instead of the three port. However if you need more than four ports, you need to consider other CO Interface and wiring.

Section 8 Power Failure

When an AC power failure occurs, all the phones stop working even though the line or telephone are in use.

8.1 Use the External Backup Battery Box (option) to connect each chassis

The external backup battery box (Option: IP4WW-Battery Box) with batteries provides power to the system when AC power fails.
The backup time is about one hour depends on the traffic.
For more details refer to the Hardware Manual.

Section 9 Install Optional board and equipment

Refer to the Hardware Manual for details on optional units and equipment.

Chapter 3 Configuring the SL2100 system

Section 1 SL2100 Configuration

This section covers the most frequently used SL2100 configuration options. For more advanced configuration settings, refer to the Hardware manual or Features and Specifications Manual.
The SL2100 has three different methods for programming. The first is use a handset, the second uses WebPro and third uses PCPro.
The WebPro application is a web server running on the CPU-C1 board of the SL2100 system. No special installation program is required. This documet explains how to use and program using a handset.

1.1 Overview

The SL2100 consists of exchange lines and telephones connected to the 082U/008U/000U + 3COIDB board you have installed.
Within the SL2100 configuration the outside (CO) lines are referred to as trunks and the telephones as extensions.
When the SL2100 starts up, as shown in this guide, all the equipment will operate. It is not necessary to make any changes to the system configuration.
With the default settings:

- Each telephone function and is assigned an extension number.
- Calls received on the exchange lines ring at telephone number 101-108.
- Extension 101 is the operator. Any user can reach extension 101 by dialing 0 or dialing 101.
- Each telephone can make exchange line calls by dialing 9 (Trunk Access Code).
- Each exchange line 1-12 displayed on function key 1-12 with busy lamp indication.
- The Pilot number for voice mail is 3999.
- Mailbox numbers 1-64 are assigned as personal mailboxes for Extensions 101 – 164.

1.2 Before you Begin

Before you begin configuring your system it is important that you:

- Have a diagram of your exchange lines and telephones.
- Plan your requirements before you start.

While you configure your system, it is important that you:

- Exit configuration mode periodically, this will save your changes into battery backed memory. They will not be lost if the power is removed.
- Fill out the configuration sheets as you go so that you have a record of your configuration.
- Make small changes, exit configuration mode and test the changes. Do not make all your changes at once as this can make testing very difficult.
- Record your changes as you can only ‘undo’ them by re-entering the previous values.
- Do not unplug the phone. If it is unplugged by mistake then plug it back in, your changes will not be lost.

1.3 How to change the SL2100’s Configuration

The configuration is stored into memory within the SL2100. You can change the configuration using any SL2100 system phone.
When you have made your changes, the SL2100 automatically save the configuration into memory.
Check the Telephone User Guide for other options.
There are some options that are set via normal service codes, for example:

- Time setting – with service code 728.
- System Phone Book – with service code 753.
- Telephone Names – with service code 700.
- Key Touch Tone – with service code 724.
- Confirm Incoming Ring tone – with service code 711 ……..etc,

Section 2 Entering the Telephone Programming Mode (Tel Pro)

The installer/system administrator can enter system programming mode from a display type key telephone. (Up to two users can enter to the mode at the same time)
--Program Mode
System data is identified by a number.
Enter the number using the keypad to select the Program Number.
⇒In a newly installed system, use extension port No.1.

2.1 How to Enter Programming Mode

The installer/system administrator can enter system programming mode using a display type multiline telephone. (A maximum of two users can enter mode at the same time.)

1) Press **Speaker**. (Do not lift the handset)
2) Dial # * # *.

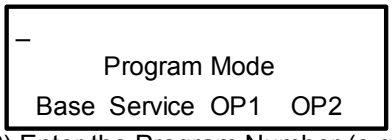
3) Dial the system password, then press **Hold** key to enter Program Mode.

For the programming details, refer to the SL2100 Programming Manual.

2.2 Selecting the Programming Number

Each configuration setting within the SL2100 is identified by a Program Number (e.g., 10-01-01).

1) Ensure the LCD display shows.;
If it is not displayed, press the **Mute** key several times to returns the previous screen.



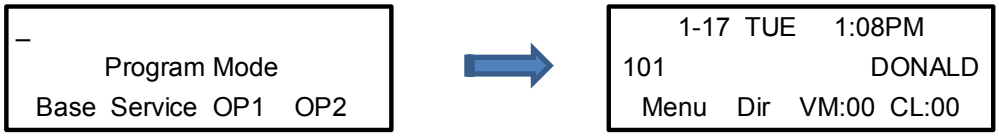
2) Enter the Program Number (e.g. 10-01-01).

*If you dial an incorrect Program Number, you can returns the previous screen by pressing the **Mute** key.*
*If you enter incorrect data, you can returns the previous screen without saving the setting by pressing the **Mute** key.*

2.3 Exiting the Programming Mode

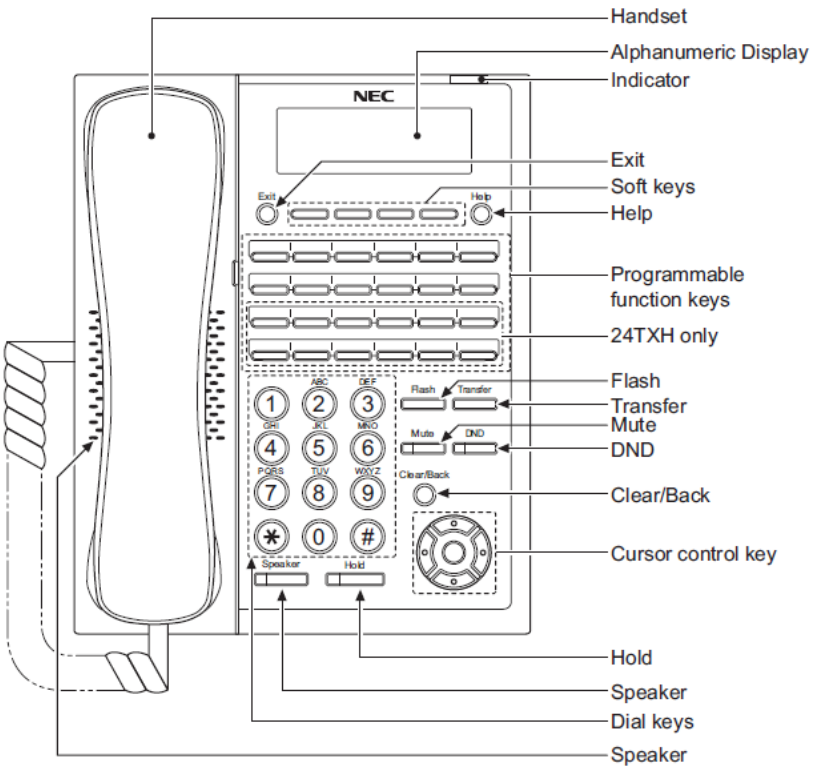
1) Press **Mute** key several times to return to the "Program Mode" Screen.

2) Press **Speaker** key to exit.

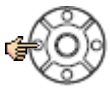
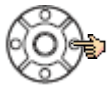


The system automatically saves the customer data to memory, which is backed up using a lithium battery.

2.4 Using the System Phone Keys to make changes from Programming Mode



Keys for Entering Data	
Use this key...	**When you want to...**
0-9 and *	Enter data into a program.
Hold	Complete the programming step you just made (e.g., pressing **Enter** on a PC keyboard). When a program entry displays, press **Hold** to bypass the entry without changing it.
Clear/Back	Delete the entry to the left (e.g., pressing **Backspace** on a PC keyboard).
Flash	Delete or clear all characters to the right of the cursor.
Mute	Exit one step at a time from the program window currently being viewed. For example, if programming item 5 in 15-03, pressing **Mute** allows you to enter a new option in program 15-03. Pressing **Mute** again allows you to select a new program in the 15-XX series. Pressing Answer a third time allows you to enter a new program beginning with **1**. Pressing **Mute** one last time brings you to the beginning program display, allowing you to enter any program number.
DND	Switch between the different input data fields by pressing **DND**. The cursor moves up to the top row of the display. Pressing **DND** again moves the cursor back to the middle row.
Enter 	**Enter key:** Complete the programming step you just made (e.g., pressing **Enter** on a PC keyboard). When a program entry displays, press **Enter** to bypass the entry without changing it. Same function as **Hold** key.
↑ 	Scroll forward through a list of entry numbers (e.g., from extension etc.) or through entries in a table (e.g., Common Permit Table). If you enter data and then press this key, the system accepts the data before scrolling forward.
↓ 	Scroll backward through a list of entry numbers (e.g., from extension etc.) or through entries in a table (e.g., Common Permit Table). If you enter data and then press this key, the system accepts the data before scrolling backward.

← 	Scroll Cursor to the left…….
→ 	Scroll Cursor to the right…….

2.5 Time and Date Setting

Use this setting to change the time and/or date displayed, for example, when the time and date on the multiline telephone is not correct. Below shows the steps for changing the time and/or date.

2.5.1 Program10-01-xx

No.	Operation	Display Shows;
1	After logging into Programming Mode.	– Program Mode Base Service OP1 OP2
2	Dial **10 01 01**. Edit the last two digits of the year (e.g., 17) you can overwrite the current entry. Press **Hold** key to confirm the entry and step to the next option.	10-01-01 Year 17 ← →
3	Enter the two digits of the month (01-12). Press **Hold** key to confirm the entry and step to the next option.	10-01-02 Month 1 ← →
4	Enter the two digits of the day (01-31). Press **Hold** key to confirm the entry and step to the next option.	10-01-03 Day 20 ← →
5	Enter the two digits of the hour (24-hour format). Press **Hold** key to confirm the entry and step to the next option.	10-01-05 Hour 18 ← →
6	Enter the two digits of the minutes (00-59). Press **Hold** key to confirm the entry and step to the next option.	10-01-06 Minute 50 ← →
7	Enter the two digits of the seconds (00-59). Press **Hold** key to confirm the entry and step to the next option.	10-01-07 Second 3 ← →
8	When you are done, press **Mute** key several times to return to Programming Mode.	– Program Mode Base Service OP1 OP2
9	Press **Speaker** key to save changes and exit from Programming Mode.	1-20 FRI 6:51PM 101 DONALD Menu Dir VM:00 CL:00

2.6 Telephone Ringing Assignment

Use this feature to change the ringing assignment of SL2100 Terminals.

You may want to change this setting if:

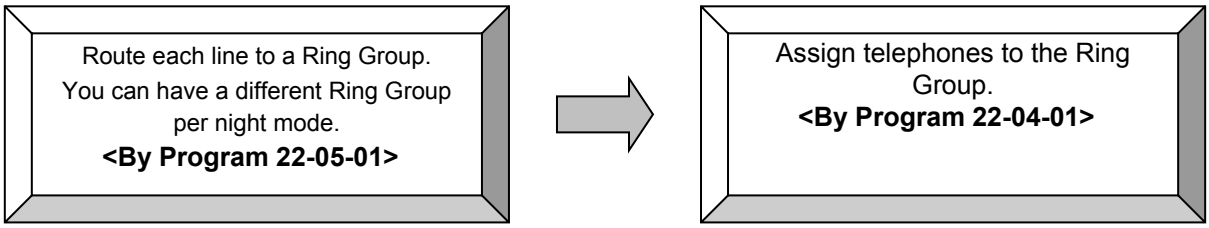
- ☐ You want one or more outside (CO) lines to ring at one or more telephones.
- ☐ You want a dedicated outside (CO) line to ring at a specific telephone.
- ☐ You want outside (CO) lines to ring at a different locations throughout the day or on the weekend.

2.6.1 System Operation

The ringing assignment is achieved by pointing the Outside(CO) line to Incoming Ring Groups. The ring group then contains the telephones that will ring.

Route each Outside(CO) line to an Incoming Ring Group (IRG) in Program 22-05-01. A line can route to a different IRG in each night mode.

You then place telephones into IRG's in program 22-04-01, a phone can be a member of more than one IRG. Up to 48 telephones can be entered per IRG.



2.6.2 Program 22-05-01

Use this program to assign the incoming ring group (IRG) number to the outside (CO) lines. Different IRGs can be assigned to each exchange line to provide different ring assignments throughout the day.

2.6.2.1 Default Setting

- ☐ Each Line (e.g.,CO1-CO3) is assigned to incoming Ring Group (IRG) number 1.
- ☐ There are up to eight settings available.
- ☐ IRG number 1 is used for all eight settings.
- ☐ Each exchange line ring at IRG 1 and telephone number 101-108, regardless of the time of day.

No.	Operation	Display Shows;
1	Log Into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **22 05 01**. Change the Trunk Number (1-3), if required.	22-05-01 Trunk**1** Mode1 =1 ← - + →
3	Press **DND** key to move the cursor to Mode Number. Change the Mode Number (1-8), if requred,	22-05-01 Trunk1 Mode**1** =1 ← - + →
4	Press **DND** key to move the cursor to IRG Number. Change the IRG Number (1-50), if required.	22-05-01 Trunk1 Mode1 =**1** ← - + →
5	Press **Hold** key to confirm the entry and step to the next option.	
6	When you are done, press **Mute** key several times to return to Programming Mode.	
7	Press **Speaker** key to save changes and exit from Programming Mode.	

2.6.3 Program 22-04-01

The telephones are placed into Ring Group(IRG's).

2.6.3.1 Default Setting

☐ Telephone Number 101-108 are the member of IRG number 1.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **22 04 01**. Change the Incoming Ring Number (1-50), if required.	22-04-01 INC Group**1** Memb.01=101 ← - + →
3	Press **DND** key to move the cursor to Member Number. Change the Member Number (01-48), if requred.	22-04-01 INC Group1 Memb.**01**=101 ← - + →
4	Press **Hold** key to move the cursor to Extension Number. Change the Extension Number, if required.	22-04-01 INC Group1 Memb.01=**101** ← - + →
5	Press **Hold** key to confirm the entry and step to the next option.	
6	When you are done, press **Mute** key several times to return to Programming Mode.	
7	Press **Speaker** key to save changes and exit from Programming Mode.	

2.6.4 Program 20-07-01

Turn on the Day/Night mode Option.

2.6.4.1 Default Setting

☐Day/Night modes can not be changed using telephones.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **20 07 01**. Change the Feature Class (1-15), if required. (Default: all telephones are assigned to Class 1.)	20-07-01 FCTN Cls**1** SW Manual NTservice1:On ← - + →
3	Press **DND** key to move the cursor to Switch Manual Night Service. Change the Switch Manual Night Service (0:disable/1:enable), if requred.	20-07-01 FCTN Cls1 SW Manual NTservice**1**:On ← - + →
4	Press **Hold** key to confirm the entry and step to the next option.	
5	When you are done, press **Mute** key several times to return to Programming Mode.	
6	Press **Speaker** key to save changes and exit from Programming Mode.	

2.6.5 Assign a Function Key to each mode

To assign a key to each mode, you need to exit the Programming Mode. The keys are set using the telephone, not within SL2100 Programming Mode.

Assign keys at the telephone(s) that will change the mode. A phone with an LCD is preferable.

☐ This is not done within the SL2100 Configuration Mode. Keys are changed by dialing a service code using telephone itself.

☐ You will need a separate key for each mode you are using.

☐ The key for the current mode lights red. To change the mode, press the appropriate key.

2.6.5.1 Default Setting

There are no keys set to day/night modes on any of the telephones.

No.	Operation	Display Shows;
1	At the telephone that you want to be able to change day/night mode, press **Speaker** key.	1-20 FRI 6:51PM 101 DONALD Menu Dir VM:00 CL:00
2	Dial service code **751**.	Key Program
3	Press the **Programmable Function Key** you want to set (its current setting is shown in LCD display). If the key is not defined the function, go to step 5.	Key Program Key xx xxxxxxxxxxxxxxx
4	If the Function Key is already assigned the function but not used, press **Speaker Key** + **752** + **Function Key** (to be cleared) + **000** + **Speaker key** to clear the current setting and go back to step 1 again to set the Function Key.	
5	Dial **09** followed by the mode number 1 to 8. 1 = Day 2 = Night 1 3 = Mid-Night 1 4 = Rest 1 5 = Day 2 6 = Night 2 7 = Mid-Night 2 8 = Rest 2 ☞ If you want to clear the Day/Night Mode key, press 00 after Step 3 to clear the function.	Key Program Key xx Night Service 0
6	Repeat 3 and 4 to set additional keys/modes.	

2.6.6 Configuration sheet: Telephone Ring Assignment

Defaults are shown.

Place the telephones into Ring Groups.

IRG Number	List of telephones that will ring PRG 22-04-01
IRG 1	*Default=101-108*
IRG 2	
IRG 3	

IRG 4	
IRG 5	
IRG 6	
IRG 7	
IRG 8	
IRG 9	
IRG 10	

Up to 50 IRG's are available, only 10 are listed as this is normally sufficient.
Up to 48 telephones can be entered per IRG. Try to keep the number of ringing telephones to a minimum.

Assign the Ring Groups to the Exchange Lines.

Day/Night Mode Number	**Trunk 1** PRG 22-05-01 default=IRG1	**Trunk 2** PRG 22-05-01 default=IRG1	**Trunk 3** PRG 22-05-01 default=IRG1
1			
2			
3			
4			
5			
6			
7			
8			

Turn on the ability to change the mode.

Mode Change	**Setting** Default=1 (on)
PRG20-07-01	

Assign Keys at the telephone(s) that change the mode. A phone with an LCD is preferable.

- This is not done within the SL2100 Configuration mode. Keys are changed by dialing a Service Code at the telephone.
- You will need a separate key for each mode you are using.
- The key for the current mode lights red. To change the mode, press the appropriate key.

Telephone	**Mode 1**	**Mode 2**	**Mode 3**	**Mode 4**	**Mode 5**	**Mode 6**	**Mode 7**	**Mode 8**
	Key	Key	Key	Key	Key	Key	Key	Key
	Key	Key	Key	Key	Key	Key	Key	Key

Note:

- Plan your requirements as the ring assignment is the most important operation of your telephone system.
- Try to keep the number of ring modes to a minimum, three per day is sufficient (normal day working, lunch times and evenings for example). You may want to add an additional mode to cover the weekend.
  - Do not have too many phones in a ring group. Remember that calls can be answered by pressing the Function Keys at the SL2100 phones. See also Call Pickup in the Features & Specifications Manual.

2.6.7 Example Configuration

This example provides a telephone ring assignment configuration.

2.6.7.1 Circumstances

- ☐ You have three Outside (CO) lines (trunks) connected.
- ☐ Trunks 1 & 2 (CO1/2) needs to ring at extensions 101 and 102 during the day time working.
- ☐ During lunch mode, they should ring at extension 105.
- ☐ In the evenings and on weekends they should forward to an answer phone, the answer phone is connected to station port 7 and is extension number 107.
- ☐ Trunk 3 (CO3) is a dedicated line and should go to telephone 106 at all times.
- ☐ Telephone 101 will have Function keys to change the mode for day, lunch etc.

Step 1

Place the telephones into an IRG for each of the modes (day time, lunch time, evenings and weekends).

IRG Number	List of telephones that will ring PRG 22-04-01
IRG 1	101, 102 (day time)
IRG 2	105 (lunch time)
IRG 3	107 (evenings and weekends)
IRG 4	106 (at all times)

Step 2

Assign the IRG number to each trunk for the modes you will use.

Mode	Trunk 1 PRG 22-05-01	Trunk 2 PRG 22-05-01	Trunk 3 PRG 22-05-01
1 Day	IRG 1	IRG 1	IRG 4
2 Lunch	IRG 2	IRG 2	IRG 4
3 Evening & Weekend	IRG 3	IRG 3	IRG 4

Step 3

Turn on the ability to change the ring mode for day time, lunch time, evenings, etc.

Mode Change	Setting
PRG20-07-01	1 (on)

Step 4

Assign modes 1 (Day), 2 (Lunch) and 3 (Evenings and Weekends) to keys at telephone 101.

1. At telephone 101, press **Speaker key**.
2. Dial service code **751.**
3. Press Key 7 (Its current setting is shown in the display). If Key 7 is not defined the function, dial **09** followed by **1** for the mode number.
4. If Key 7 is already assigned the function but not used, press **Speaker Key** + **752** + .Key **7** + **000** + **Speaker key** to clear the current setting and go back to step 1.
5. Dial **09** followed by **1** for the mode number.
6. Repeat steps 3 and 4 for Key 8 = mode 2 and Key 9 = mode 3.

Telephone	Mode 1	Mode 2	Mode 3
101	Key 7	Key 8	Key 9

2.7 Telephone Ring Style

This operation allows you to change the telephone ring style of outside and internal calls.

2.7.1 Program 20-15-01

Set the ring pattern for outside calls.

2.7.1.1 Default Setting

Outside calls have a single ring pattern of **2 seconds On/ 4 seconds Off**.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **20 15 01**. Change the ring pattern (1-13) for outside calls, if require.	20-15-01 TRK Normal INC Call 2 ← →
3	Press **Hold** key to confirm the entry and step to the next option.	
4	When you are done, press **Mute** key several times to return to Programming Mode.	
5	Press **Speaker** key to save changes and exit from Programming Mode.	

No.	Ring Cycle
1	On
2	On:2.0 / Off:4.0
3	On:1.0 / Off:2.0
4	On:0.5 / Off:0.5
5	On:0.25 / Off:0.25
6	On:0.5 / Off:0.5 / On:0.5 / Off:1.5
7	On:0.25 / Off:0.25 / On:0.25 / Off:5.25
8	On:0.375 / Off:0.25 / On:0.375 / Off:2.0
9	On:0.25 / Off:0.125 / On:0.25 / Off:0.125 / On:0.25 / Off:2.0
10	On:1.0 / Off:4.0
11	On:0.25 / Off:0.25 / On:0.25 / Off:4.25
12	On:1.0 / Off:3.0
13	On:0.25 / Off:0.25 / On:0.25 / Off:2.25

2.7.2 Program 20-15-03

Set the ring pattern for outside calls.

2.7.2.1 Default Setting

Internal calls have a double ring pattern of **1 seconds On/ 3 seconds Off**.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **20 15 03**. Change the ring pattern (1-13) for outside calls, if required	20-15-03 Internal INC Call 12 ← →

No.	Ring Cycle
1	On
2	On:2.0 / Off:4.0
3	On:1.0 / Off:2.0

	4	On:0.5 / Off:0.5	
	5	On:0.25 / Off:0.25	
	6	On:0.5 / Off:0.5 / On:0.5 / Off:1.5	
	7	On:0.25 / Off:0.25 / On:0.25 / Off:5.25	
	8	On:0.375 / Off:0.25 / On:0.375 / Off:2.0	
	9	On:0.25 / Off:0.125 / On:0.25 / Off:0.125 / On:0.25 / Off:2.0	
	10	On:1.0 / Off:4.0	
	11	On:0.25 / Off:0.25 / On:0.25 / Off:4.25	
	12	On:1.0 / Off:3.0	
	13	On:0.25 / Off:0.25 / On:0.25 / Off:2.25	
3	Press **Hold** key to confirm the entry and step to the next option.		
4	When you are done, press **Mute** key several times to return to Programming Mode.		
5	Press **Speaker** key to save changes and exit from Programming Mode.		

2.8 Internal Call Ringing Mode

This feature allows you to change the way internal calls to telephones are presented.
Internal calls can either ring the phone or voice announce where the caller can speak directly to the loudspeaker of the phone they are calling.

2.8.1 Program 20-02-12

Set the mode for Internal calls.

2.8.1.1 Default Setting

The default setting is signal call mode.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **20 02 12**. Change the Internal Call Ringing Mode (0: Voice Announce Mode /1: Ring Mode) if required.	20-02-12 ICM Call Type 1:Signal ← -1 +1 →
3	Press **Hold** key to confirm the entry and step to the next option.	
4	When you are done, press **Mute** key several times to return to Programming Mode.	
5	Press **Speaker** key to save changes and exit from Programming Mode.	

2.9 Extension Name

This feature allows you to add or edit the extension names that is shown in the multiline telephone display.

2.9.1 Program 15-01-01

Use this program to add or edit an extension name.

2.9.1.1 Default Setting

The default setting is not assigned to the extension name for all extensions.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **15 01 01.** Enter the Extension Number and press **DND** key to step to the next option. (e.g. Extension Number: 101)	15-01-01 TEL101 Ext Name - ← →
3	Enter Extension Name, (e.g. Extension Name: David) using the keypad. Up to 12 characters can be entered.	15-01-01 TEL101 Ext Name - David ← →
4	Press **Hold** key to confirm the entry and step to the next option.	
5	When you are done, press **Mute** key several times to return to Programming Mode.	
6	Press **Speaker** key to save changes and exit from Programming Mode.	

2.10 Outgoing Exchange Line Access

This feature allows you to dedicate an exchange line to specific equipment. You may want to change this setting if you want a dedicated exchange line for one of the telephones (e.g.,FAX). Each telephone is assigned a trunk access map (TAM) number.The TAM number is then given the access properties for each of the exchange lines.

2.10.1 Program 15-06-01

Use this program to give the telephones a trunk access map (TAM) number. There are 128 TAM numbers available. You can specify a different TAM number for each day/night mode. See changing the Telephone Ringing Assignment for the modes you may be using.

2.10.1.1 Default Setting

All telephones have a default setting of trunk access map (TAM) number 1.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you you have already logged into Pogramming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **15 06 01.** Enter the Extension Number and press **DND** key to step to the Next option. (e.g. Extension Number: 101)	15-06-01 TEL101 Mode1 Acc-Map 1 ← - + →
3	Enter the TAM Number (1-128) for each mode (1-8); you can overwrite the current entry.	
4	Press **Hold** key to confirm the entry and step to the next option.	
5	When you are done, press **Mute** key several times to return to Programming Mode.	
6	Press **Speaker** key to save changes and exit if you are finished.	

2.10.2 Program 14-07-01

This program allows you give each exchange line the access properties for the TAM number. Each exchange line (CO1, CO2, CO3, and CO4) have full access (property type 7) for TAM number 1. Each telephone can access any of the trunks.

2.10.2.1 Default Setting

Each exchange line (CO1, CO2, CO3) has full access (Property type 7) for TAM number 1. Therefore every telephone can access any of the trunks.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **14 07 01.** Enter the TAM Number and press **DND** key to Select Trunk number (001-128) and step to the Next option.	14-07-01 Access Map**1** TRK **001** = 7: Full access |2 ← - + →
3	Enter the Access Property Number (0-7) for each trunk, you can overwrite the current entry. 0 – No access 1 – Outgoing only 2 – Incoming only 3 – Retrieve held call only 4 – Outgoing and retrieve held call 5 – Incoming and retrieve held call 6 – Incoming and outgoing 7 – Incoming, outgoing and retrieve held call	14-07-01 Access Map1 TRK 001 = **7**: Full access |2 ← - + →
4	Press **Hold** key to confirm the entry and step to the next option.	
5	When you are done, press **Mute** key several times to return to Programming Mode.	
6	Press **Speaker** key to save changes and exit if you are finished.	

2.10.3 Configuration sheet: Outgoing Excahnge Line Access

Use following table to record the outgoing exchange line access.
Give each telephone a TAM number.

PRG 15-06-01	**TAM Number for each day/night mode** Default=TAM1 for all modes							
Telephone	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
101								
102								
103								
104								
105								
106								
107								
108								

There are 128 TAM numbers available.

Give each exchange line the access properties for the TAM number.

PRG 14-07-01					**Values available:**
TAM Number	**Trunk 1**	**Trunk 2**	**Trunk 3**	**Trunk 4**	0 – No access 1 – Outgoing only 2 – Incoming only 3 – Retrieve held call only 4 – Outgoing and retrieve held call 5 – Incoming and retrieve held call 6 – Incoming and outgoing 7 – Incoming, outgoing and retrieve held call
1	7	7	7	7	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	

Although there are 128 TAM numbers available, only five are listed as this is normally sufficient.

2.11 Caller ID

You will need to enable this setting if:

☐ You have Caller ID service supplied on your outside lines.

☐ You have Analog telephones that are Caller ID compatible.

The SL2100 can detect the Caller ID and display it on the LCD display of the SL2100 system phones. It can also be available at a Analog phone that is Caller ID compatible.

You will need turn on the Caller ID detection for each trunk where it will be received. You will also need to turn on Caller ID for each of the analog telephones that are Caller ID compatible.

2.11.1 Program 14-02-10, Program 15-03-09

Turn on Caller ID for each Analog trunk.

2.11.1.1 Default Setting

The default for Caller ID is 1 (on for each trunk).

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **14 02 10.** For each trunk, enter 1 to turn on Caller ID. You can overwrite the current entry and press **Hold** key to confirm the entry and step to the next option.	14-02-10 Trunk1 Caller ID **0**:No ← - + →
3	When you are done, press **Mute** key several times to return to Programming Mode.	
4	Dial **15 03 09**. For each telephone, enter 1 to turn on Caller ID. You can overwrite the current entry and press **Hold** key to confirm the entry and step to the next telephone.	15-03-09 TEL101 Ext No Display **0**:Off ← - + →
5	When you are done, press **Mute** key several times to return to Programming Mode.	
6	Press **Speaker** key to save changes and exit if you are finished.	

2.11.2 Configuration sheet: Caller ID

With defaults shown.

Turn on the Caller ID for each trunk.

PRG 14-02-10	
Trunk number	**Setting** Default= 1 On
Trunk 1	
Trunk 2	
Trunk 3	
Trunk 4	

Turn on the Caller ID for each Analog telephone.

PRG 15-03-09	
Telephone	**Setting** Default=0 Off
101	
102	
103	
104	
105	
106	
107	
108	

2.12 Recall for Analog Telephones

This feature allows you to change the recall setting. You may want to change this setting when you have analog telephones connected and the **RECALL** key does not work correctly. This is highlighted when you press the **RECALL** key but the call is not placed on hold. Recall is also referred to as Timed Break Recall (TBR).
The SL2100 must be configured with the correct recall timing that matches the analog telephones that you have connected.

2.12.1 Program 82-04-0x

Set the system to detect a recall duration of 105ms to 1000ms. You will need to change three options within this program. The SL2100 will accept a recall duration of 540mS to 660mS(600ms±10%).

2.12.1.1 Default Setting

The SL2100 will accept a Recall duration of 105ms to 660ms.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial 82 04 04, Enter the Maximum Break Time (default: 100ms (**20**)) and press **Hold** key three times to confirm the entry and step to the next option.	82-04-04 Max. Break Time **20** ← →
3	Change the setting to **21** (this is equivalent to 105mS) and press **Hold** key to confirm the entry and step to the next option.	82-04-07 Min. Flash Time **21** ← →

4	Change the setting to **200** (this is equivalent to 1000mS) and press **Hold** key to confirm the entry and step to the next option.	82-04-08 Max. Flash Time **1**32 ← →
5	When you are done, press **Mute** key several times to return to Programming Mode.	
6	Press **Speaker** key to save changes and exit if you are finished.	

2.12.2 Configuration sheet: RECALL Timing

With defaults shown in below table.

	82-04-04 default=20 (100mS)	**82-04-07** default=21 (105mS)	**82-04-08** default=132 (660mS)
Setting			
Equivalent duration (mS)			

2.13 Department Extension Groups

This feature allows you to group telephones into department extension groups, as well as define how calls will ring within that group and the frequency. You may want to change this setting if you have people that work within a group and you need the department, not a specific individual. The call will ring at any telephone that is available within the group. If they do not answer, the call will step to the next member.
The telephones are placed into department groups. There are 50 groups available.
The group is given a number (pilot number) that you dial to reach the group.
You can choose the following options for each group.

- ☐ How the calls will ring around the group - either in a set order of priority or randomly at any telephone.
- ☐ Try each telephone once or keep hunting - your call can ring at each available telephone in the group and if not answered stay at the last member or keep trying each member.
- ☐ How long each member rings before the call will step on to the next one available.

2.13.1 Program 16-02-01

Set the telephones into a department group.

2.13.1.1 Default Setting

All telephones (except Extension 213-228 (:Group 50) are in department Group 1.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into programming mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **16 02 01.** For each telephone, enter the Group number (1-50) that telephone. You can overwrite the current entry and press **Hold** key to confirm the entry and step to the priority option.	16-02-01 TEL101 Extension Grp 1 ← - + →
3	For each telephone enter the priority number (1-200), you can overwrite the current entry and Press **Hold** key to confirm the entry and step to the next telephone.	16-02-01 TEL101 Priority **1** ← - + →
4	When you are done, press **Mute** key several times to return to Programming Mode.	
5	Press **Speaker** key to save changes and exit if you are finished.	

2.13.2 Program 16-01-02

Select how calls ring around the department group.

2.13.2.1 Default Setting

Calls ring in priority order within the department group.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **16 01 02.** For each group, select the ring mode. You can overwrite the current entry (0: Priority Order/1: Circular Order) and press **Hold** key to confirm the entry and step to the next option.	16-01-02 TEL Group**1** Pilot Call 0: Priority ← - + →
3	When you are done, press **Mute** key several times to return to Programming Mode.	
4	Press **Speaker** key to save changes and exit if you are finished.	

2.13.3 Program 16-01-04

Select how many times the calls try each member of the department group.

2.13.3.1 Default Setting

Calls try each telephone once.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **16 01 04.** For each group, select the hunting mode. You can overwrite the current entry (0: Calls try each telephone once/1: Calls continue trying the telephones) and press **Hold** key to confirm the entry and step to the next option.	16-01-04 TEL Group**1** Hunting Mode **0**: Last ← - + →
3	When you are done, press **Mute** key several times to return to Programming Mode.	
4	Press **Speaker** key to save changes and exit if you are finished.	

2.13.4 Program 16-01-09

Select how long calls ring at each member of the department group. You can use this option to turn off the step on operation by setting the time to 0 seconds.

2.13.4.1 Default Setting

Calls ring each member for 15 seconds.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **16 01 09.** For each group, select the ring duration (0-64800 seconds). You can overwrite the current entry. (0 second will stop the call stepping on.) and press **Hold** key to confirm the entry and step to the next option.	16-01-09 TEL Group**1** DepGr Call N/A**15** Sec|1 ← - + →
3	When you are dopne, press **Mute** key several times to return to Programming Mode.	
4	Press **Speaker** key to save changes and exit if you are finished.	

2.13.5 Program 11-07-01

Give the department group a pilot number. Try to use a number that is easy to remember.
For example use:
Pilot number 401 for group 1
Pilot number 402 for group 2….etc.

2.13.5.1 Default Setting

There are no pilot number assigned.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **11 07 01.** For each group, enter the pilot number (3 digits required). Dial to reach the group and press **Hold** key to confirm the entry and step to the next group. If you duplicate a number, you will see Duplicate Data. The entry will be removed and you can enter a new number.	11-07-01 TEL Group**1** Ext Grp No. _ ← - + →
3	When you are done, press **Mute** key several times to return to Programming Mode.	
4	Press **Speaker** key to save changes and exit if you are finished.	

2.13.6 Configuration Sheet: Department Groups

Defaults are shown.

Telephone number	**Department Group number** 16-02-01 default=1	**Priority number** 16-02-01
101		1
102		2
103		3
104		4
105		5
106		6
107		7
108		8

Department Group number 1-50	**Pilot Number** 11-07-01	**Ring in priority/random** 16-01-02 default=0 Priority	**Try once or continually** 16-01-04 default=0 Once	**Ring time before step on** 16-01-09 default=15 seconds
1				
2				
3				
4				

There are 50 groups available, only four are listed as this is usually sufficient.

2.14 Create an Internal Paging Group

This setting allows you to add the SL2100 system phones into a paging group. You may want to change this setting if you want to make a paging call. The paging will be broadcast out of the loudspeakers of the SL2100 system phones. Paging is useful if you have staff that leave their desk and you need to contact them. There are 50 paging groups available.

2.14.1 Program 31-02-01

Place the telephones into paging groups. You can only broadcast the paging call out of the loudspeakers of SL2100 system phones, not analog telephones. By default, extensions 101 ~ 116 are in page group 01. Below are the steps needed to create a paging group.

2.14.1.1 Default Setting

None of the telephones are in a paging group.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	– Program Mode Base Service OP1 OP2
2	Dial **31 02 01.** For each telephone, enter the paging group number (0-32, enter 0 to remove the phone from a group). You can overwrite the current entry and press **Hold** key to confirm the entry and step to the next option.	31-02-01 TEL101 INT PG Grp No **0** _ ← - + →
3	Enter 1 to place the telephone in the Internal All Call Page option.	31-02-02 TEL101 INT All Call PG **0**:Off ← - + →
4	When you are done, press **Mute** key several times to return to Programming Mode.	
5	Press **Speaker** key to save changes and exit if you are finished.	

2.14.2 Configuration Sheet: Create an Internal Paging Group

Defaults are shown.

Telephone	Page Group Number 31-02-01 default=0 :None	All call page 31-02-02 default=0 :No
101		
102		
103		
104		
105		
106		
107		
108		

2.15 Automatic Side Tone Adjustment for Analog Trunks

This setting must be used on every install of an SL2100 that has Analog trunks. This program will test the Analog trunks and assign the proper system levels so that the lines and system will be evenly matched. During the testing the system will be inoperable and after the test the system must be reset. It is recommended to do this test before the system is cutover to not interfere with normal business.

2.15.1 Program 90-68-01

Below are the steps needed to run the automatic side tone adjustment program.

No.	Operation	Display Shows;
1	Log into Programming Mode. If you have already logged into Programming Mode, skip this operation.	_ Program Mode Base Service OP1 OP2
2	Dial **90 68 01**, Enter the trunk number (1 – 128).	90-68-01 Adjustment Start _ ← →
3	Press the **Hold** key and the automatic line adjustments will start.. **Note:** While this test is being performed the system will not be operational.	90-68-01 Measurement(1/5) ← →
4	Once the test is completed you can copy the settings to all lines or perform the test line by line. To copy the settings to all lines press **1** and press the **Hold** key. After pressing **Hold**, press the **Mute** key three times and then press the **Speaker** key to save the changes and exit Programming Mode. **Note:** If the settings have been copied to all lines, be sure and test all lines after the system has been reset. If one of the lines is having voice quality issues, run the test again for that specific line.	90-68-01 Copy ? (1:Yes) ← →
5	Perform a system **Reset**.	

For the other features, refer the Features & Specifications Manual.

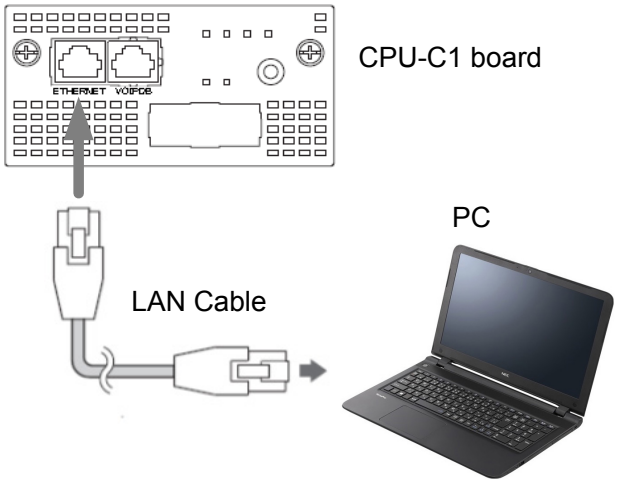
Section 3 Web Programming

This section shows how to connect to the SL2100 Web programming and configuration changes.
The PC must support the following browsers for the Web programming:

System	Minimum Requirements	
CPU	CPU and Memory are dependent on the Microsoft Operating System Memory environment used.	
Memory		
OS	Windows 7, Windows 8.1, Windows10	
Browser	Internet Explorer	11 or later
	Firefox	42 or later
	Chrome	52 or later
	Microsoft Edge	TBD
Monitor Resolution	1024 × 768 pixel over	
Communication Port	LAN, Modem or ISDN	

By default, the SL2100 is enabled to receive its IP address, Subnet Mask and Default Gateway from the network's DHCP server.

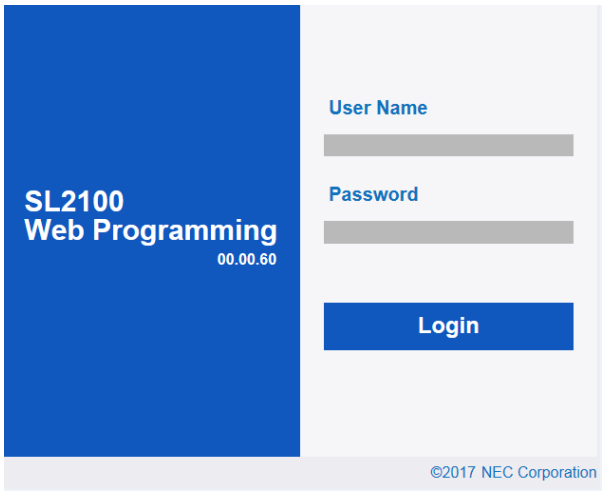
1. Connect the PC to the Ethernet port on the CPU-C1 using a LAN cable.



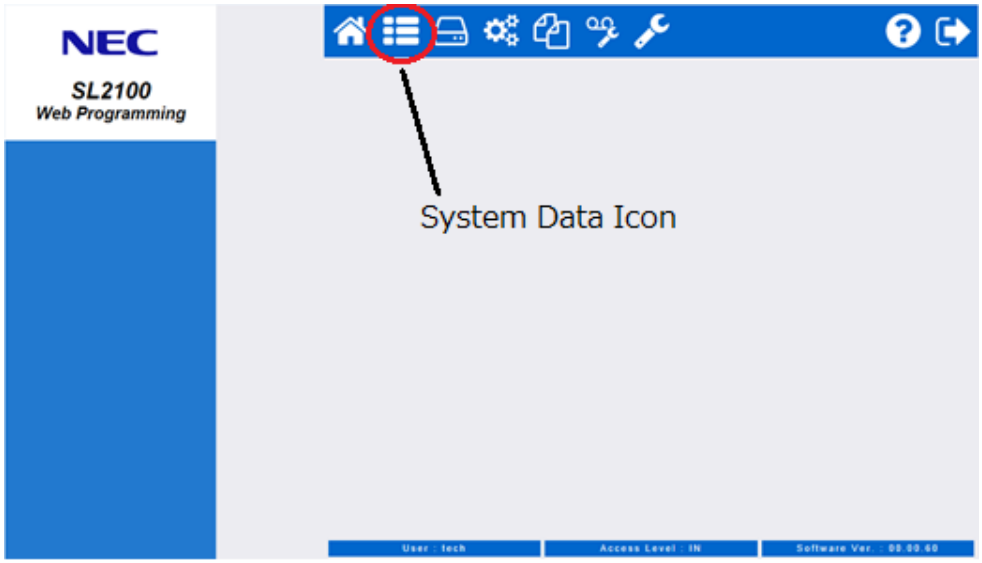
2. Connect the Web Programming.
   Launch any supported browser and enter the IP addresss of the SL2100 system. If a DHCP server does not exist, refer to the following chart:

SL2100 IP Address	SL2100 Subnet Mask	Your PC Address	Your PC Subnet Mask
192.168.0.10	255.255.255.0	192.168.0.11	255.255.255.0

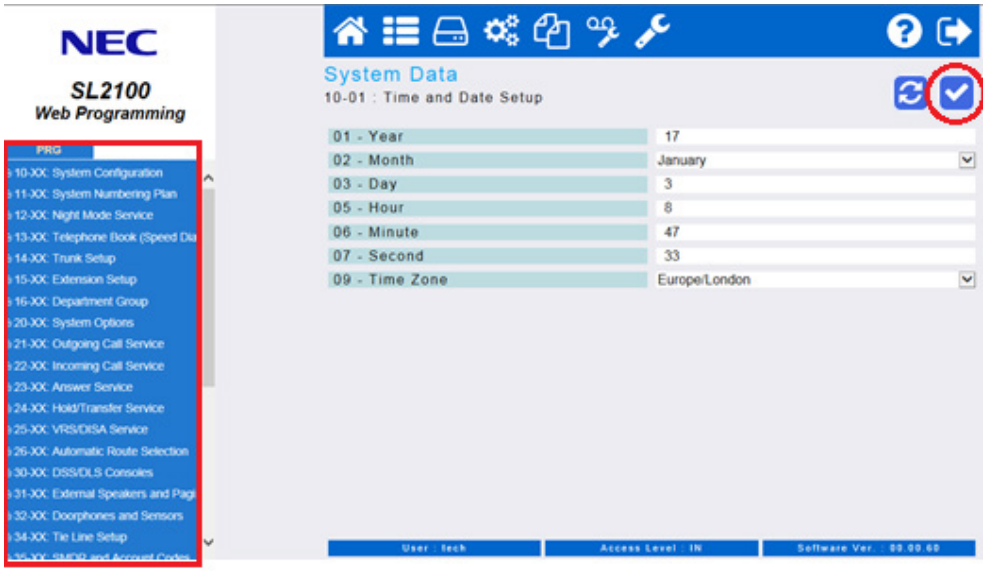
3. When the WebPro Login Screen is displayed, enter the User Name and Password (using PRG90-02).



4. When the WebPro home page displays, click the System Data icon to access the Programming Mode. (e.g., PRG10-01)



5. You can change any value in Time and Date Setup (PRG10-01 for example) from the default. Click the check icon ☑ to change the data.

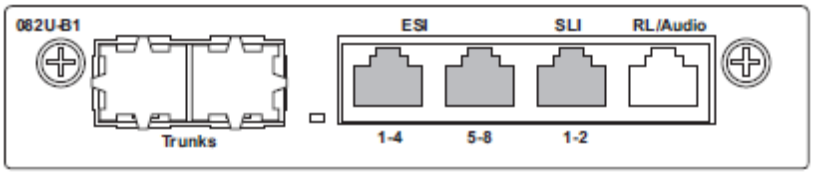


6. For other programming, click the corresponding program number from the PRG menu (left hand side).

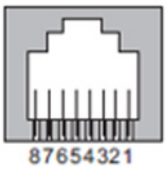
7. Click Log-out icon  to logout of Web Programming.

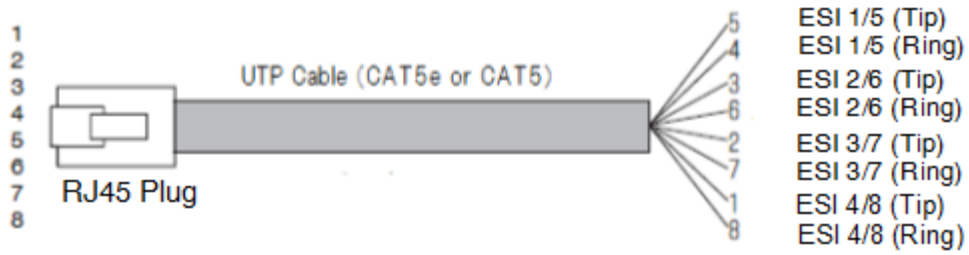
Appendix 1 Wiring Example for 082U-B1 board

This is one of the example if you want to connect the Digital Multiline Terminals and Analog Terminals to the 082U-B1 board, the wiring will be shown as followings;,

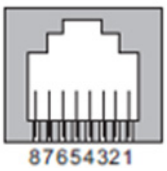


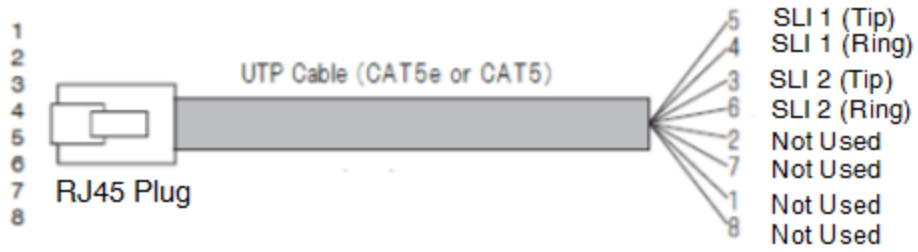
1. Digital (2W) Multiline Terminal

RJ-61 Pin-out	Channel No.	ESI-1/ ESI-5		ESI-2/ ESI-6		ESI-3/ ESI-7		ESI-4/ ESI-8	
 87654321	**Signal**	L1(Tip)	L2(Ring)	L1(Tip)	L2(Ring)	L1(Tip)	L2(Ring)	L1(Tip)	L2(Ring)
	RJ-61 Pin No. (on 082U-B1)	5	4	3	6	2	7	1	8



2. Single-Line Telephone/ Door Box/ Sensor device

RJ-61 Pin-out	Channel No.	SLI-1		SLI-2	
 87654321	**Signal**	L1(Tip)	L2(Ring)	L1(Tip)	L2(Ring)
	RJ-61 Pin No. (on 082U-B1)	5	4	3	6



MEMO

SL2100

Getting Started Guide

NEC Corporation

Issue 1.0