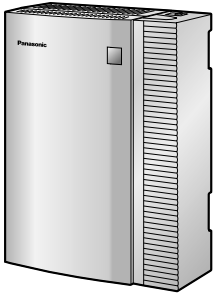# Panasonic®

Installation Manual
Hybrid IP-PBX

Model No. **KX-TDA50**

Thank you for purchasing a Panasonic Hybrid IP-PBX.
Please read this manual carefully before using this product and save this manual for future use.

KX-TDA50: PSMPR Software File Version 6.0000 or later

SD Logo is a trademark of SD-3C, LLC.

Document Version: 2010-11

System Components

System Components Table

Category	Model No.	Description
Main Unit	KX-TDA50	Main Unit
CO Line Cards	KX-TDA5180	4-Port Analog Trunk Card (LCOT4)
	KX-TDA5193	4-Port Caller ID Card (CID4)
	KX-TDA5450	4-Channel SIP Trunk Card (SIP-GW4)
	KX-TDA5451	4-Channel VoIP DSP Card (SIP-DSP4)
	KX-TDA5480	4-Channel VoIP Gateway Card (IP-GW4)
Extension Cards	KX-TDA5170	4-Port Hybrid Extension Card (HLC4)
	KX-TDA5171	4-Port Digital Extension Card (DLC4)
	KX-TDA5172	8-Port Digital Extension Card (DLC8)
	KX-TDA5173	4-Port Single Line Telephone Extension Card (SLC4)
	KX-TDA5174	8-Port Single Line Telephone Extension Card (SLC8)
	KX-TDA5175	4-Port Proprietary Extension Card (PLC4)
	KX-TDA5176	8-Port Proprietary Extension Card (PLC8)
	KX-TDA5470	4-Channel VoIP Extension Card (IP-EXT4)
Other Cards	KX-TDA5105	Memory Expansion Card (MEC)
	KX-TDA5161	4-Port Doorphone Card (DPH4)
	KX-TDA5166	8-Channel Echo Canceller Card (ECHO8)
	KX-TDA5168	Extension Caller ID Card (EXT-CID)
	KX-TDA5191	2-Channel Message Card (MSG2)
	KX-TDA5192	2-Channel Simplified Voice Message Card (SVM2)
	KX-TDA5194	2-Channel Simplified Voice Message Card (ESVM2)
	KX-TDA5196	Remote Card (RMT)
Optional SD Memory Cards	KX-TDA5920	SD Memory Card for Software Upgrade to Enhanced Version

Category		Model No.	Description
Cell Stations (CSs)	**2.4 GHz**	KX-T0141	2-Channel Cell Station Unit Using a Super Hybrid Port or a HLC/DLC Card for 2.4 GHz Portable Station
		KX-T0151	2-Channel Cell Station Unit Using a Super Hybrid Port or a HLC/DLC Card for 2.4 GHz Portable Station
	DECT 6.0	KX-T0155	DECT 6.0 2-Channel Cell Station Unit Using a Super Hybrid Port or a HLC/DLC Card for DECT 6.0 Portable Station
		KX-T0158	DECT 6.0 8-Channel Cell Station Unit Using a Super Hybrid Port or a HLC/DLC Card for DECT 6.0 Portable Station
Proprietary Equipment		KX-A236	Additional AC Adaptor
		KX-T30865	Doorphone
		KX-T7765	
		KX-T7775	

Equipment Compatibility

Compatible Panasonic Proprietary Telephones

The PBX supports the following telephones:
- Digital proprietary telephones (e.g., KX-DT300 series)
- Analog proprietary telephones (e.g., KX-T7700 series)
- IP proprietary telephones (e.g., KX-NT300 series)
- Portable stations (e.g., KX-TD7690)
- DSS consoles (e.g., KX-DT390)

Incompatible Panasonic Proprietary Telephones

The PBX does not support the following telephones:
- KX-T30800 series proprietary telephones and DSS consoles
- KX-T61600 series proprietary telephones and DSS consoles
- KX-T123200 series proprietary telephones and DSS consoles

<u>Note</u>

- For the equipment (e.g., Add-on Key Module, USB Module, Headset[1]) that can be connected to a particular telephone, refer to the telephone's manual.
- For other equipment that can be connected to the PBX, refer to "1.1.2 System Connection Diagram".

[1] The KX-T7090 headset can be connected to the KX-T7000, KX-T7200, KX-T7300, and KX-T7400 series telephones.

Notice

- Under power failure conditions, the connected telephones may not operate. Please ensure that a separate telephone, not dependent on local power, is available for emergency use.
- Prior to connection of this product, please verify that the intended operating environment is supported. Satisfactory performance cannot be guaranteed for the following:
  – interoperability and compatibility with all devices and systems connected to this product

    –   proper operation and compatibility with services provided by telecommunications companies over connected networks

Note

In this manual, the suffix of each model number (e.g., KX-TDA50**G**) is omitted unless necessary.

Safety Notices

Please observe the safety notices in this manual in order to avoid danger to users or other people, and prevent damage to property.
The notices are classified as follows, according to the severity of injury or damage:

WARNING	This notice means that misuse could result in death or serious injury.
CAUTION	This notice means that misuse could result in injury or damage to property.

List of Abbreviations

- APT $\rightarrow$ Analog proprietary telephone
- DPT $\rightarrow$ Digital proprietary telephone
- IP-PT $\rightarrow$ IP proprietary telephone
- PS $\rightarrow$ Portable station
- PT $\rightarrow$ Proprietary telephone
- SLT $\rightarrow$ Single line telephone

Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Do not use the product near water, for example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
- Avoid using wired telephones during an electrical storm. There is a remote risk of electric shock from lightning.
- Do not use a telephone in the vicinity of a gas leak to report the leak.

SAVE THESE INSTRUCTIONS

Important Information

SAVE THESE INSTRUCTIONS

WARNING

SAFETY REQUIREMENTS

For All Telephone Equipment
* Do not install the product in any other way than described in relevant manuals.
* The product must only be installed and serviced by qualified service personnel. The product should be used as-is from the time of purchase; it should not be disassembled or modified. Disassembly or modification can cause a fire, electric shock, or damage to the product.
* Do not install the product in a place exposed to rain or moisture, or a place where water, oil, or other liquids can drip or splash onto on the product. Such conditions can lead to fire or electric shock, and may impair the performance of the product.
* Follow all warnings and instructions marked on the product.
* Do not place the product on an unstable or uneven surface. If the product were to fall over, it may cause injury or damage to the product.
* Products that require a power source should only be connected to the type of electrical power supply specified on the product label. If you are not sure of the type of power supply to your home, consult your dealer or local power company.
* For safety purposes some products are equipped with a grounded plug. If you do not have a grounded outlet, please have one installed. Do not bypass this safety feature by tampering with the plug.
* Do not supply power to a combination of devices that exceeds the total rated capacity of the wall outlets or extension cables used. If outlets, power strips, extension cords, etc. are used in a manner that exceeds their rated capacity, they emit large amounts of heat, which could cause a fire.
* Unplug the product from the wall outlet and have it serviced by qualified service personnel in the following cases:
  a. When the power supply cord or plug is damaged or frayed.
  b. If liquid has been spilled into the product.
  c. If the product has been exposed to rain or water.
  d. If the product does not operate according to the operating instructions. Adjust only the controls that are explained in the operating instructions. Improper adjustment of other controls may result in damage and may require service by a qualified technician to restore the product to normal operation.
  e. If the product has been dropped or the cabinet has been damaged.
  f. If product performance deteriorates.

For the PBX
* If damage to the unit exposes any internal parts, disconnect the power supply cord immediately and return the unit to your dealer.
* To prevent fires, electric shock, injury, or damage to the product, be sure to follow these guidelines when performing any wiring or cabling:
  a. Before performing any wiring or cabling, unplug the product's power cord from the outlet. After completing all wiring and cabling, plug the power cord back into the outlet.
  b. When laying cables, do not bundle the product's power cord with the power cords of other devices.
  c. Do not place any objects on top of the cables connected to the PBX.
  d. When running cables along the floor, use protectors to prevent the cables from being stepped on.
  e. Do not run any cables under carpeting.

• Unplug this unit from the AC outlet if it emits smoke, an abnormal smell or makes unusual noise. These conditions can cause fire or electric shock. Confirm that smoke has stopped and contact an authorized Panasonic Factory Service Center.
• Danger of explosion exists if a battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the battery manufacturer. Dispose of used batteries according to the manufacturer's instructions.
• Make sure that the wall that the cabinet will be attached to is strong enough to support the cabinet. If not, it is necessary for the wall to be reinforced.
• Only use the wall-mounting equipment (screws, washers) included with the PBX.
• Do not insert objects of any kind into this product, as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock.

CAUTION

SAFETY REQUIREMENTS

For All Telephone Equipment
• The product should be kept free of dust, moisture, high temperature (more than 40 °C [104 °F]) and vibration, and should not be exposed to direct sunlight.
• Unplug the product from the wall outlet before cleaning. Wipe the product with a soft cloth. Do not clean with abrasive powders or with chemical agents such as benzene or thinner. Do not use liquid cleaners or aerosol cleaners.

For the PBX
• Before touching the product (PBX, cards, etc.), discharge static electricity by touching ground or wearing a grounding strap. Failure to do so may cause the PBX to malfunction due to static electricity.
• When driving the screws into the wall, be careful to avoid touching any metal laths, wire laths or metal plates in the wall.
• When relocating the equipment, first disconnect the telecom connection before disconnecting the power connection. When the unit is installed in the new location, reconnect the power first, and then reconnect the telecom connection.
• The power supply cord is used as the main disconnect device. Ensure that the AC outlet is located near the equipment and is easily accessible.
• The SD Memory Card poses a choking hazard. Keep the SD Memory Card out of reach of children.
• Slots and openings in the front, back and bottom of the cabinet are provided for ventilation; to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface while in use. The product should never be placed near or over a radiator or other heat source. This product should not be placed in a sealed environment unless proper ventilation is provided.
• When this product is no longer in use, make sure to detach it from the wall.

SECURITY REQUIREMENTS

In order to use the PBX safely and correctly, the Security Requirements below must be observed. Failure to do so may result in:
• Loss, leakage, falsification or theft of user information.
• Illegal use of the PBX by a third party.
• Interference or suspension of service caused by a third party.

What is User Information?
User Information is defined as:

1. Information stored on the SD Memory Card
Phonebook data, user IDs, system settings data, passwords (User/Administrator/Installer), Personal Identification Numbers (PINs), etc.
2. Information sent from the PBX to a PC or other external device:
Phone call data (including telephone numbers of outside parties), call charge data, etc.

Requirements
1. The SD Memory Card contains software for all the processes of the PBX and all customer data. It can be easily removed and taken away from the PBX by a third party. Therefore, do not allow unauthorized access to prevent data leakage.
2. Always make backups of data stored on the SD Memory Card. For details, refer to "2.6.2 Utility—File Transfer PC to PBX (SD Card)" and "2.6.3 Utility—File Transfer PBX (SD Card) to PC" in the PC Programming Manual.
3. To prevent illegal access from the Internet, activate a Firewall.
4. To avoid unauthorized access and possible abuse of the PBX, we strongly recommend:
    a. Keeping the password secret.
    b. Selecting a complex, random password that cannot be easily guessed.
    c. Changing your password regularly.
5. Perform the following when sending the PBX for repair or handing it over to a third party.
    a. Make a backup of data stored on the SD Memory Card.
    b. Using an SD formatter, format the SD Memory Card so that information cannot be retrieved from it.
6. To prevent data leakage, render the SD Memory Card physically unusable before disposal.
7. When user information is sent from the PBX to a PC or other external device, the confidentiality of that information becomes the responsibility of the customer. Before disposing of the PC or other external device, ensure that data cannot be retrieved from it by formatting the hard disk and/or rendering it physically unusable.

Notice

SAFETY REQUIREMENTS
For All Telephone Equipment
• Read and understand all instructions.

For the PBX
• Keep the unit away from heating appliances and devices that generate electrical noise such as fluorescent lamps, motors and televisions. These noise sources can interfere with the performance of the PBX.
• If you are having problems making calls to outside destinations, follow this procedure to test the CO lines:
    a. Disconnect the PBX from all CO lines.
    b. Connect known working SLTs to those CO lines.
    c. Make a call to an external destination using those SLTs.
If a call cannot be carried out correctly, there may be a problem with the CO line that the SLT is connected to. Contact your telephone company.
If all SLTs operate properly, there may be a problem with your PBX. Do not reconnect the PBX to the CO lines until it has been serviced by an authorized Panasonic Factory Service Center.

Precaution

<div style="border: 3px solid red; border-radius: 20px; padding: 20px;">

<u>WARNING</u>

DO NOT REMOVE SD MEMORY CARD WHILE POWER IS SUPPLIED TO THE PBX

Doing so may cause the PBX to fail to start when you restart the system.

</div>

Password Security

CAUTION

To the Administrator or Installer regarding the system password

1. Please provide all system passwords to the customer.
2. To avoid unauthorized access and possible abuse of the PBX, keep the passwords secret, and inform the customer of the importance of the passwords, and the possible dangers if they become known to others.
3. The PBX has default passwords preset. For security, change these passwords the first time that you program the PBX.
4. Change the passwords periodically.
5. It is strongly recommended that passwords of 10 numbers or characters be used for maximum protection against unauthorized access. For a list of numbers and characters that can be used in system passwords, refer to "1.1.2 Entering Characters" in the PC Programming Manual.
6. If a system password is forgotten, it can be found by loading a backup of the system data into a PC, and checking the password using the Maintenance Console software. If you do not have a backup of the system data, you must reset the PBX to its factory defaults and reprogram it. Therefore, we strongly recommend maintaining a backup of the system data. For more information on how to back up the system data, refer to "2.5.1 Tool—SD memory backup" in the PC Programming Manual.
   However, as system passwords can be extracted from backup copies of the system data file, do not allow unauthorized access to these files.

<u>Notice for users in California</u>

This product contains a CR coin cell lithium battery that contains perchlorate material—special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate

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Introduction

This Installation Manual is designed to serve as an overall technical reference for the Panasonic Hybrid IP-PBX, KX-TDA50. It provides instructions for installing the hardware, and programming the PBX using the Maintenance Console.

The Structure of this Manual

This manual contains the following sections:
Section 1 System Outline
Provides general information on the PBX, including the system capacity and specifications.
Section 2 Installation
Describes the procedures to install the PBX. Detailed instructions for planning the installation site, installing the optional service cards, and cabling of peripheral equipment are provided. Further information on system expansion and peripheral equipment installation is included.
Section 3 Guide for the PBX PC Programming Software
Explains the installation procedure, structure, and basic information of the Maintenance Console.
Section 4 Troubleshooting
Provides information on the PBX and telephone troubleshooting.

About the Other Manuals

Along with this Installation Manual, the following manuals are available:
Feature Manual
Describes all basic, optional and programmable features of the PBX.
PC Programming Manual
Provides step-by-step instructions for performing system programming using a PC.
PT Programming Manual
Provides step-by-step instructions for performing system programming using a PT.
Operating Manual
Provides operating instructions for end users using a PT, SLT, PS, or DSS Console.

About the software version of your PBX

The contents of this manual apply to PBXs with a certain software version, as indicated on the cover of this manual. To confirm the software version of your PBX, see "How do I confirm the software version of the PBX or installed cards?" in 2.7.1 Frequently Asked Questions (FAQ) of the PC Programming Manual, or "[190] Main Processing (MPR) Software Version Reference" in the PT Programming Manual.

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F.C.C. REQUIREMENTS AND RELEVANT INFORMATION

1. Notification to the Telephone Company
This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the side of this equipment is a label that contains, among other information, a product identifier in the format US: ACJMF03AKX-TDA50. If requested, this number must be provided to the telephone company. Installation must be performed by a qualified professional installer. If required, provide the telephone company with the following technical information:
  • Telephone numbers to which the system will be connected
  • Make: Panasonic
  • Model: KX-TDA50
  • Certification No.: found on the side of the unit
  • Ringer Equivalence No.: 0.3A
  • Facility Interface Code: 02LS2
  • Service Order Code: 9.0F
  • Required Network Interface Jack: RJ11

2. Ringer Equivalence Number (REN)
The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. The REN for this product is part of the product identifier that has the format US: ACJMF03AKX-TDA50. The digits represented by 03 are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

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

4. Changes in Telephone Company Communications Facilities, Equipment, Operations and Procedures
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.

5. Trouble with this equipment
If trouble is experienced with this equipment, for repair or warranty information, please see the attached warranty, which includes the Service Center Directory. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

6. Connection to Party Line
Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

7. Combined Use with Alarm Equipment
If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

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

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device.
- When programming emergency numbers and/or making test calls to emergency numbers:
  1. Remain on the line and briefly explain to the dispatcher the reason for the call before hanging up.
  2. Perform such activities in the off-peak hours, such as early morning hours or late evenings.
- The software contained in the ARS and TRS features 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 PBXs 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 to these codes.
  KEEP THE SOFTWARE UP-TO-DATE WITH THE LATEST DATA.

Table of Contents

Section 1

System Outline

This section provides general information on the PBX, including the system capacity and specifications.
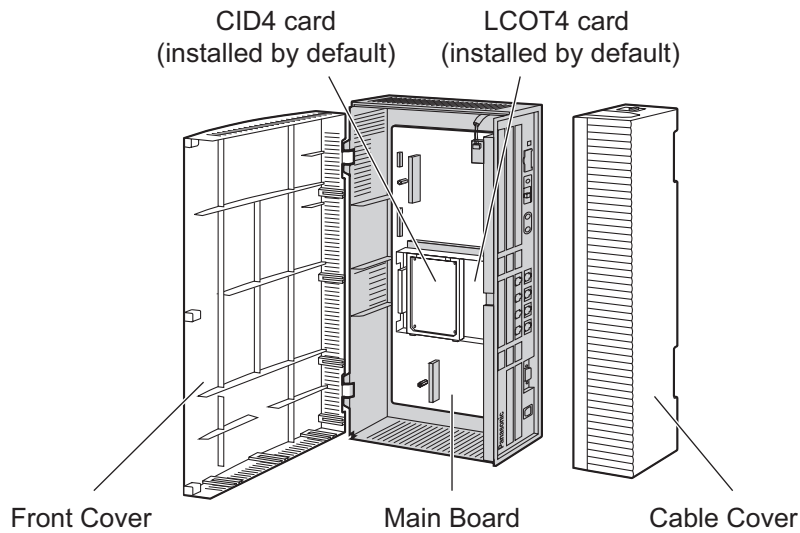
1.1 Basic System Construction

1.1.1 Main Unit

The main unit is equipped with 4 analog CO line ports (one LCOT4 card) and 4 extension ports (Super Hybrid Ports). For system expansion, optional service cards can be installed, and an additional AC adaptor can also be connected.
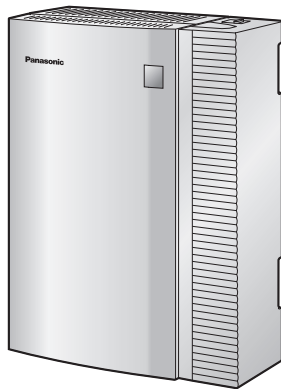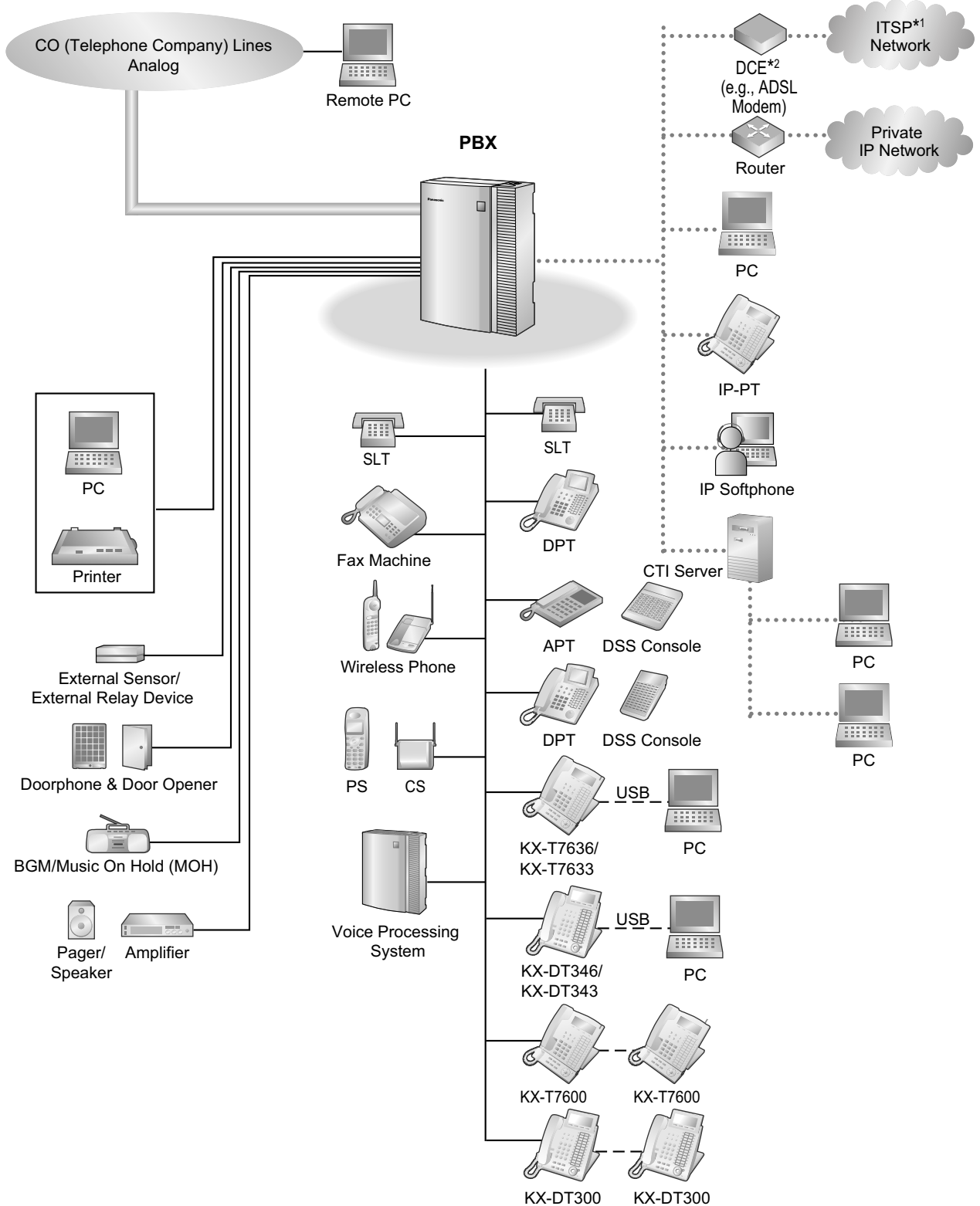
Construction of Main Unit

CID4 card
(installed by default)

LCOT4 card
(installed by default)

Front Cover

Main Board

Cable Cover

Note

Portions of this product contains software of Datalight, Inc. Copyright 1993–2000 Datalight,Inc., All Rights Reserved.

1.1.2 System Connection Diagram

*1   ITSP: Internet Telephony Service Provider
*2   DCE: Data Circuit Terminating Equipment

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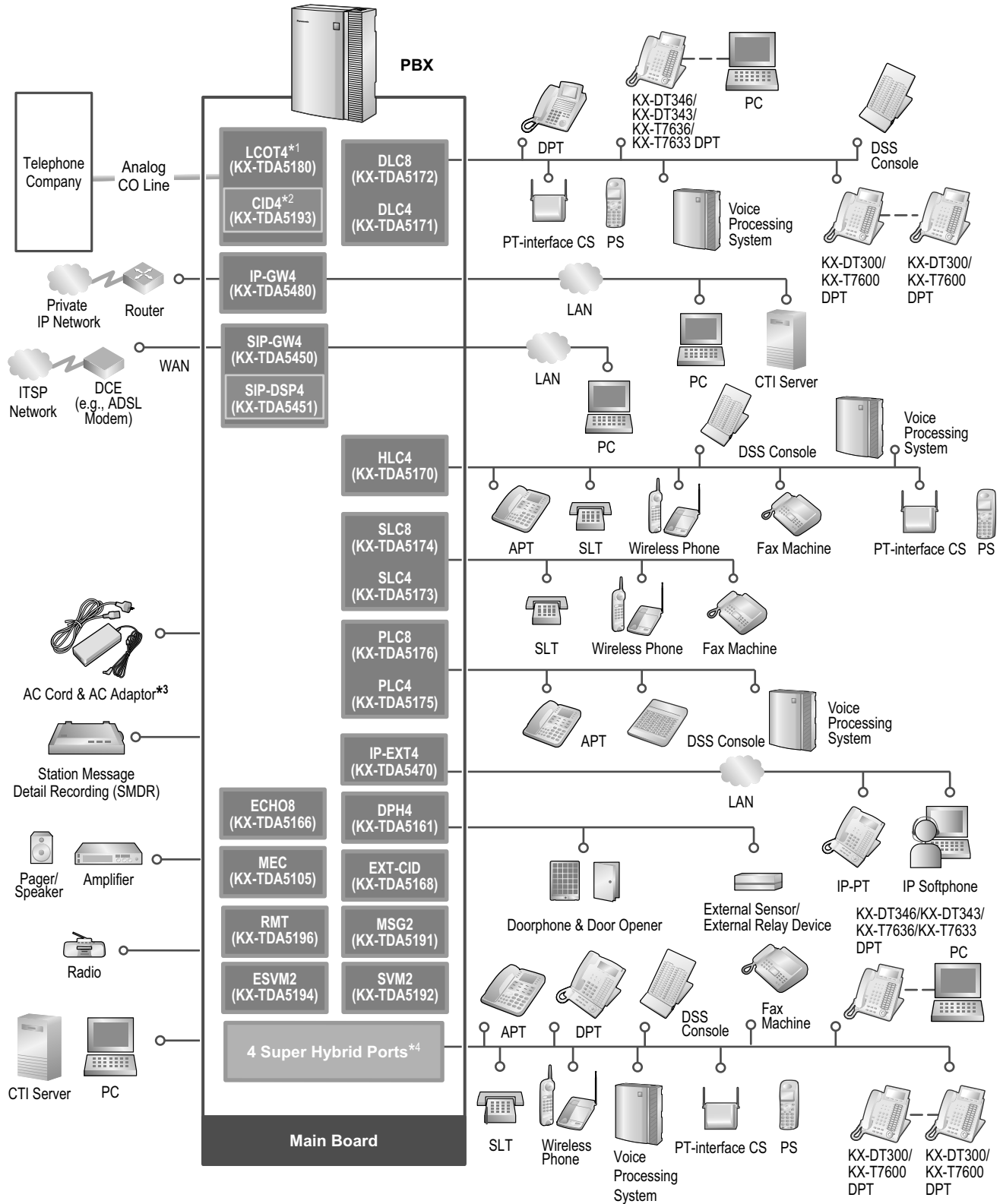
*1   One LCOT4 card is installed by default.
*2   One CID4 card is installed by default.
*3   In addition to the supplied AC adaptor, an additional AC adaptor can be connected to the PBX.
*4   The PBX has 4 Super Hybrid Ports pre-installed.

1.2 Optional Equipment

1.2.1 Optional Equipment

Model No.	Model Name	Description	Maximum Quantity
KX-TDA5105	Memory Expansion Card (MEC)	Memory expansion card to increase system data storage space, double the number of DPTs (using Digital XDP connection), and display language selection for VM Menu. To be installed in the MEC slot.	1
KX-TDA5161	4-Port Doorphone Card (DPH4)	4-port doorphone card for 4 doorphones, 4 door openers or external relays, and 4 external sensors.	1
KX-TDA5166	8-Channel Echo Canceller Card (ECHO8)	8-channel card for echo cancellation during conferences.	1
KX-TDA5168	Extension Caller ID Card (EXT-CID)	Sends Caller ID signals to extension ports.	1
KX-TDA5170	4-Port Hybrid Extension Card (HLC4)	4-port extension card for SLTs, APTs, DSS consoles, a Voice Processing System (VPS), and PT-interface CSs.[1]	1
KX-TDA5171	4-Port Digital Extension Card (DLC4)	4-port digital extension card for DPTs, DSS consoles, a VPS, and PT-interface CSs.[1]	1
KX-TDA5172	8-Port Digital Extension Card (DLC8)	8-port digital extension card for DPTs, DSS consoles, a VPS, and PT-interface CSs.[1]	2
KX-TDA5173	4-Port Single Line Telephone Extension Card (SLC4)	4-port extension card for SLTs.	1
KX-TDA5174	8-Port Single Line Telephone Extension Card (SLC8)	8-port extension card for SLTs.	2
KX-TDA5175	4-Port Proprietary Extension Card (PLC4)	4-port extension card for APTs, DSS consoles, and a VPS.	1
KX-TDA5176	8-Port Proprietary Extension Card (PLC8)	8-port extension card for APTs, DSS consoles, and a VPS.	2
KX-TDA5180	4-Port Analog Trunk Card (LCOT4)	4-port analog CO line card with 2 power failure transfer (PFT) ports.	2[2]
KX-TDA5191	2-Channel Message Card (MSG2)	2-channel message card.	2
KX-TDA5192	2-Channel Simplified Voice Message Card (SVM2)	2-channel simplified voice message card for Simplified Voice Message feature.	2

Model No.	Model Name	Description	Maximum Quantity
KX-TDA5193	4-Port Caller ID Card (CID4)	4-port Caller ID signal type FSK/FSK (with Call Waiting Caller ID [Visual Caller ID])/DTMF. To be mounted on the LCOT4 card.	2[*3]
KX-TDA5194	2-Channel Simplified Voice Message Card (ESVM2)	2-channel simplified voice message card for Simplified Voice Message feature. Also supports MSG card features.	4
KX-TDA5196	Remote Card (RMT)	Analog modem card for remote communication with the PBX. ITU-T V.90 support.	1
KX-TDA5450	4-Channel SIP Trunk Card (SIP-GW4)	4-channel SIP gateway card. Compliant with RFC 3261, 3262, 3264, 3311, and 4028 protocols, and ITU-T G.729A/B and G.711 codec methods.	1
KX-TDA5451	4-Channel VoIP DSP Card (SIP-DSP4)	4-channel VoIP DSP card. To be mounted on the SIP-GW4 card.	1
KX-TDA5470	4-Channel VoIP Extension Card (IP-EXT4)	4-channel VoIP extension card. Compliant with Panasonic proprietary protocol, and ITU-T G.729A and G.711 codec methods.	1
KX-TDA5480	4-Channel VoIP Gateway Card (IP-GW4)	4-channel VoIP gateway card. This card also enables CTI communication and system programming via a LAN. Compliant with VoIP H.323 V.2 protocol, and ITU-T G.729A, G.723.1, and G.711 codec methods. CSTA Phase 3 protocol compatible.	1
KX-TDA5920	SD Memory Card for Software Upgrade to Enhanced Version	Optional SD Memory Card to use enhanced features. For more details, refer to the SD Memory Card Installation/Upgrade Guide.	1
KX-A236	Additional AC Adaptor	AC adaptor and AC cord for system expansion.	1

[*1]   The PT-interface CS can be connected to the PBX using a cable like a PT.
[*2]   One LCOT4 card is installed by default. Two more LCOT4 cards can be optionally installed in the PBX.
[*3]   One CID4 card is installed by default. Two more CID4 cards can be optionally installed in the PBX.

1.3 Specifications

1.3.1 General Description

Switching		Non-blocking
AC Adaptor	AC Input	110 V AC to 240 V AC; 1.35 A; 50 Hz/60 Hz
	DC Output	40 V; 1.38 A (55.2 W)
DC Input		• DC IN 1: 40 V; 1.38 A (55.2 W) • DC IN 2: 40 V; 1.38 A (55.2 W)
Maximum Power Failure Tolerance		300 ms
Memory Backup Duration		7 years
Dialing	CO Line	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialing
	Extension	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialing
Connectors	CO Line	RJ11 (2 wire) × each CO ports
	Extension	RJ11 (4 wire) × each extension ports
	Paging Output	1 conductor jack
	External MOH (Music on Hold) Output	1 conductor jack
Mode Conversion		DP-DTMF, DTMF-DP
Ring Frequency		20 Hz/25 Hz (selectable)
Central Office Loop Limit		1600 Ω maximum
Operating Environment	Temperature	0 °C to 40 °C (32 °F to 104 °F)
	Humidity	10 % to 90 % (non-condensing)
Conference Call CO Line		From 10 × 3-party conference call to 4 × 8-party conference call
Music on Hold		1 port (Level Control: -11 dB to +11 dB in 1 dB steps) Selectable Tone/External Music Source port
Paging	Internal	Level Control: -15 dB to +6 dB in 3 dB steps
	External	1 port (Volume Control: -15 dB to +15 dB in 1 dB steps)
Serial Interface Port	RS-232C	1 (maximum 115.2 kbps)
	USB	1

Extension Connection Cable	SLT	1-pair wire (T, R)
	DPT	1-pair wire (D1, D2) or 2-pair wire (T, R, D1, D2)
	APT	2-pair wire (T, R, D1, D2)
	PT-interface CS (2-channel)	1-pair wire (D1, D2)
	PT-interface CS (8-channel)	4-pair wire (D1, D2)
	DSS Console and Add-on Key Module	1-pair wire (D1, D2)
Dimension	275 mm (W) × 376 mm (H) × 117 mm (D) (10-4/5 in × 14-4/5 in × 4-3/5 in)	
Weight (when fully mounted)	Under 3.5 kg (7.72 lb)	

1.3.2 Characteristics

Terminal Equipment Loop Limit	• PT: KX-DT300/KX-T7600 series DPT: 90 Ω; all other DPTs/APTs: 40 Ω • SLT: 600 Ω including set • Doorphone: 20 Ω • PT-interface CS: 65 Ω
Minimum Leakage Resistance	15 000 Ω minimum
Maximum Number of Extension Instruments per Line	1. for PT or SLT 2. by Parallel or eXtra Device Port connection of a PT and an SLT 3. by Digital eXtra Device Port connection of 2 DPTs and an SLT
Ring Voltage	75 Vrms at 20 Hz/25 Hz depending on the Ringing Load
Central Office Loop Limit	1600 Ω maximum
Hookswitch Flash Timing Range	24 ms to 2032 ms
Door Opener Current Limit	24 V DC/30 V AC, 1 A maximum
External Relay Current Limit	24 V DC/30 V AC, 1 A maximum
External Sensor Current Limit	Power to the external sensor is provided from the DPH4 card and must be grounded through the DPH4 card. For the connection diagram, refer to "2.5.1 DPH4 Card (KX-TDA5161)". The PBX detects input from the sensor when the signal is under 100 Ω.
Paging Terminal Impedance	600 Ω
MOH Terminal Impedance	10 000 Ω

1.3.3 System Capacity

Maximum CO Line and VoIP Line

The PBX supports the following number of CO lines and VoIP lines.

Line Type	Maximum Number
CO Line	12
VoIP Line (H.323)	4
VoIP Line (SIP)	8

Maximum Terminal Equipment

The following number of items of terminal equipment can be supported by the PBX. Depending on the type and total number of items of equipment to be connected, the MEC card may be required. To determine whether or not the MEC card is necessary, refer to "MEC Card Calculation".

Terminal Equipment Type		Without Additional AC Adaptor	With Additional AC Adaptor
SLT		24[1]	24[1]
KX-DT300 series DPT/KX-DT300 series DSS console/KX-T7600 series DPT/ KX-T7600 series DSS console		Total 24	Total 48
	KX-DT300/KX-T7600 series DPT	24	48
	KX-DT300/KX-T7600 series DSS console	4	4
Other DPT/Other DSS console and APT		Total 4	Total 24
	Other DPT	4	24
	Other DSS console	4	4
	APT	4	24
IP-PT		4	4
DSS console		4	4
VPS		4 ports (1 VPS)[2]	4 ports (1 VPS)[2]
SLT, PT, DSS console, and VPS		28	56
PT-interface CS (2-channel)		4	8
PT-interface CS (8-channel)		2	4
PS		28	28
Doorphone		4	4
Door Opener/External Relay		4	4

Terminal Equipment Type	Without Additional AC Adaptor	With Additional AC Adaptor
External Sensor	4	4

[*1] This number includes all ports of SLC cards, regardless of whether an SLT is connected or not.
[*2] A maximum of 4 ports (8 channels) of a single VPS can be connected to the PBX.

Note

Devices connected to the PBX that exceed the system capacity will not function.

MEC Card Calculation

Calculate the MEC figure from the type and total number of items of equipment to be connected. If the MEC figure exceeds 28, you need to install an MEC card. Note that you also need to connect an additional AC adaptor in this case.

MEC Card Calculation

Equipment Type		MEC Figure
PT	KX-DT300 series DPT/KX-DT300 series DSS console/KX-T7600 series DPT/KX-T7600 series DSS console	1
	Other DPT/Other DSS console	1
	APT	1
	IP-PT	1
Pre-installed 4 Super Hybrid Ports		4
Extension Card[*1]	SLC4	4
	SLC8	8
	HLC4	0
	PLC4	0
	PLC8	0
PT-interface CS (2-channel) (1 unit)		0
PT-interface CS (8-channel) (1 unit)		0
VPS (1 port)		1

[*1] Only the extension cards that can support SLTs count for the MEC figures.

Calculation Example

Equipment Type		MEC Figure
Pre-installed Super Hybrid Ports	4 ports	4
KX-DT300/KX-T7600 series DPT	16 units	16
SLC4	2 cards	8

Equipment Type		MEC Figure
VPS	4 ports	4
Total		32

The total MEC figure is 32. As this exceeds 28, you need to install an MEC card for this configuration.

AC Adaptor Selection

You must connect an additional AC adaptor in any of the following conditions:

- A total of more than 4 APTs, DPTs (except KX-DT300/KX-T7600 series), and DSS consoles (except KX-DT300/KX-T7600 series) are connected.
- More than 4 CSs are connected.
- An MEC card is required to support a configuration with a total MEC figure exceeding 28.

Note

For how to connect an AC adaptor or additional AC adaptor, refer to "2.10.1 Starting the PBX".

Section 2

Installation

This section describes the procedures to install the PBX. Detailed instructions for planning the installation site, installing the optional service cards, and cabling of peripheral equipment are provided. Further information on system expansion and peripheral equipment installation is included.

2.1 Before Installation

2.1.1 Before Installation

Please read the following notes concerning installation and connection before installing the PBX and terminal equipment.
Be sure to comply with all applicable laws, regulations, and guidelines.

Safety Installation Instructions

WARNING

> **When installing telephone wiring, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:**
>
> - **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 has been disconnected at the network interface.**
> - **Use caution when installing or modifying telephone lines.**
> - **Anti-static precautions should be taken during installation.**

Installation Precautions

This PBX is designed for wall mounting only, and should be installed in a location where it is accessible for inspections and maintenance.
To prevent malfunction, noise, or discoloration, follow the instructions below:

WARNING

> **Do not install the system in the following locations:**
> - **Areas where shocks or vibrations are frequent or strong. Such activity may lead to the product falling over and causing injury, or may impair the product's performance.**
> - **Areas with high amounts of dust. High amounts of dust can lead to fire or electric shock, and impair the performance of the product.**

CAUTION

> Do not install the system in the following locations:
> - In direct sunlight and hot, cold, or humid places. Temperature range: 0 °C to 40 °C (32 °F to 104 °F)
> - Areas where sulfuric gases may be present, such as near thermal springs.
> - Near devices that generate high frequencies, such as sewing machines or electric welders.
> - Locations where other objects will obstruct the area around the PBX. Be especially careful to leave at least 20 cm (8 in) of space above and 10 cm (4 in) to the sides of the PBX for ventilation.

Notice

> Do not install the system in the following locations:
> - On or near computers, telexes, or other office equipment, as well as microwave ovens or air conditioners. (It is preferable not to install the system in the same room as the above equipment.)
> - Within 1.8 m (6 ft) of radios and televisions. (Both the PBX and PTs should be at least 1.8 m (6 ft) away from such devices).
>
> Do not perform the following:
> - Do not block the openings of the PBX.

- Do not stack up the optional service cards. To avoid damage to the optional service cards, always use the extension bolts.

Wiring Precautions

Be sure to follow these instructions when wiring the unit:

CAUTION

- Avoid using the same AC outlet for computers, telexes, and other office equipment, as noise generated by such equipment may hamper system performance or interrupt the system.
- Unplug the system from its power source when wiring, and plug the system back in only after all wiring is completed.
- CO lines should be installed with surge protectors. For details, refer to "2.2.11 Surge Protector Installation".

Notice

- Use 2-pair telephone cables when connecting PTs.
  Use 1-pair telephone cables when connecting SLTs, data terminals, answering machines, computers, Voice Processing Systems, etc.
- Mis-wiring may cause the PBX to operate improperly. Refer to "Section 2 Installation" when wiring the system.
- If an extension does not operate properly, disconnect the telephone from the extension line and connect it again, or turn off the PBX using the power switch, then turn it on again.
- Use twisted pair cable for CO line connection.
- To prevent signal noise from interfering with the performance of the product, do not run unshielded telephone cables near AC power cables, computer cables, AC power sources, etc. When running cables near other noise-generating devices or cables, use shielded telephone cables or shield the telephone cables with metal tubing.
- To assure good quality telephone connection, it is recommended new and modifications to existing installation of customer premise wiring shall use solid twisted pair copper conductors with minimum 24 gauge that comply with the electrical specifications for Category 3 wiring as detailed in ANSI/EIA/TIA-570A Building Wiring Standards.

2.2 Installation of the PBX

2.2.1 Unpacking

Unpack the box and check the items below:

Main Unit	1
AC Cord	1
AC Adaptor	1
Screws for Wall Mounting	5
Washers for Wall Mounting	5
Mini Plug (for pager and music source)	2
SD Memory Card	1
Main Strap	1
Strap (for the pre-installed LCOT4 card)	1
Optional Card Label Sheet	1

2.2.2 Names and Locations
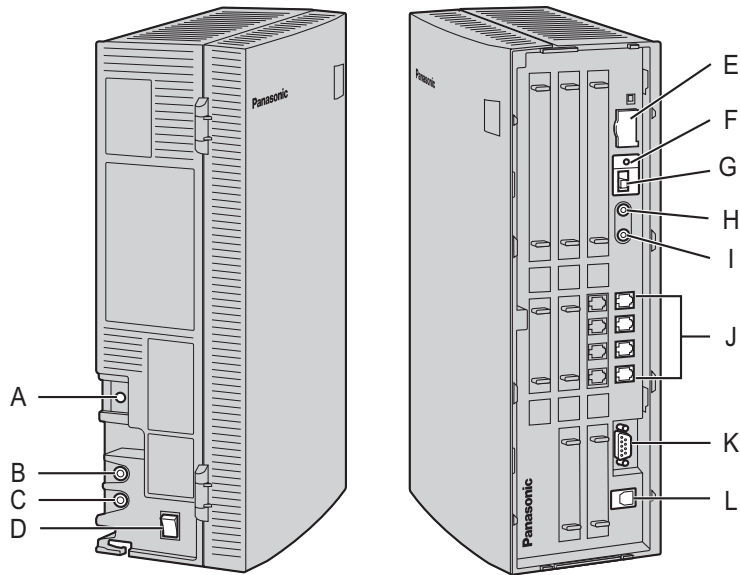
- **A.** Ground Terminal
- **B.** DC IN 2
- **C.** DC IN 1
- **D.** Power Switch
- **E.** SD Memory Card Slot Cover
- **F.** Reset Button
- **G.** System Initialize Switch
- **H.** MOH port
- **I.** Pager port
- **J.** Super Hybrid Ports
- **K.** RS-232C port
- **L.** USB port

2.2.3 Opening/Closing the Covers

Opening the Covers

1. Pull the slide button to the right and, holding it, slide the cable cover upwards. Then turn the cable cover slightly to remove it.

Slide Button

Cable Cover
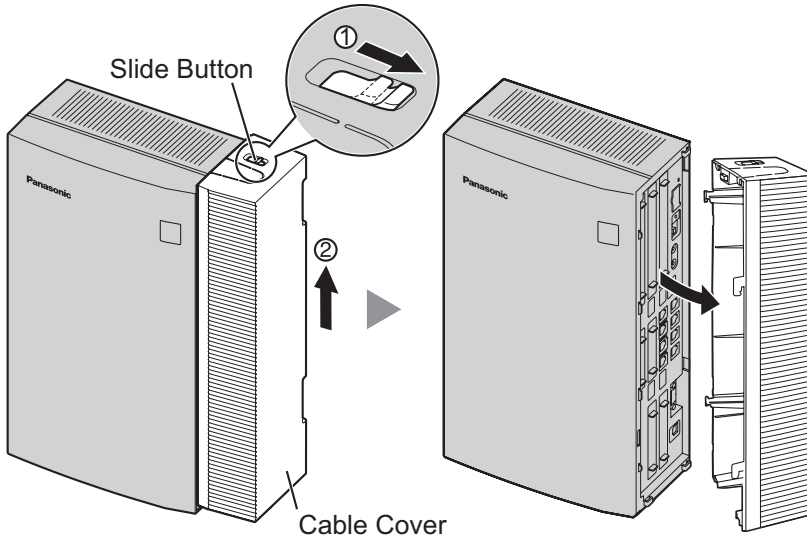
2. Remove the three screws.

Screw
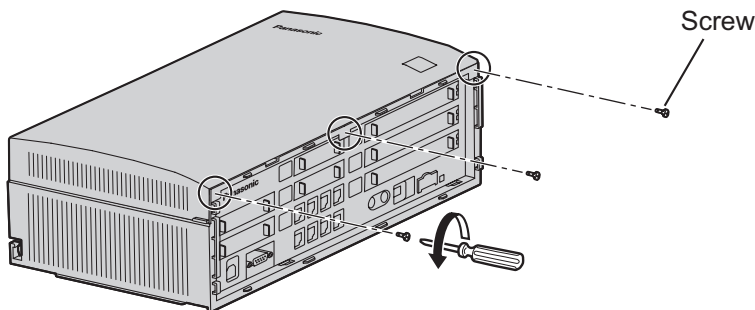
3. Holding the protrusions on both sides of the front cover, swing the cover open.
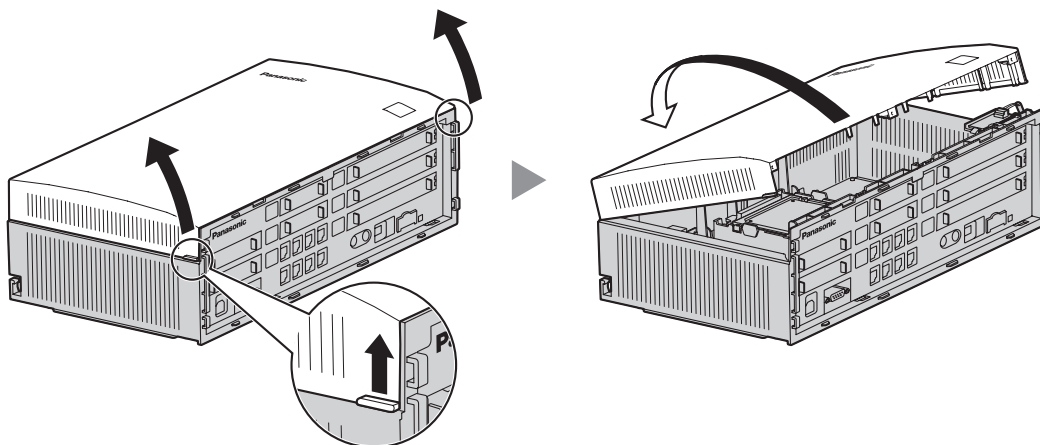
Removing/Attaching the Front Cover

If you prefer, you can remove the front cover.

Removing the Front Cover

Holding the front cover open at about a 45° angle, remove the front cover by pushing it in the direction of the arrow as shown below.
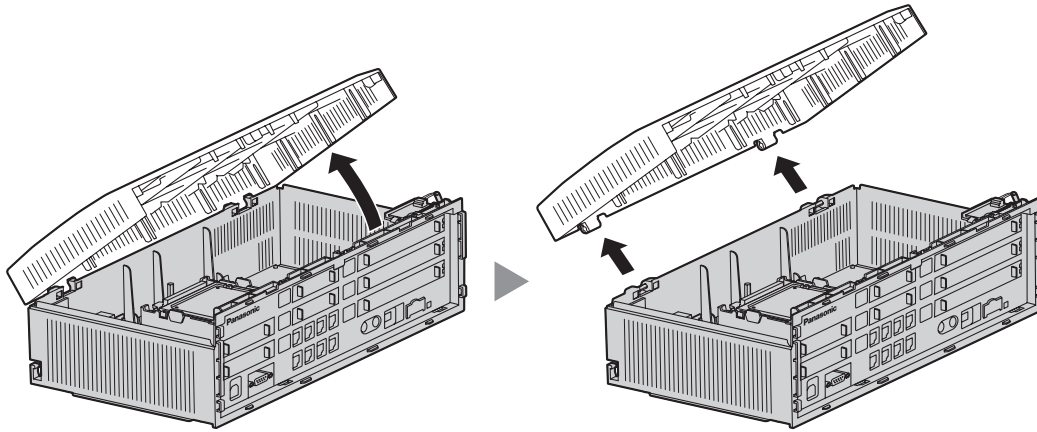
Attaching the Front Cover

Fit the front cover to the main unit as shown below, and then close the front cover.
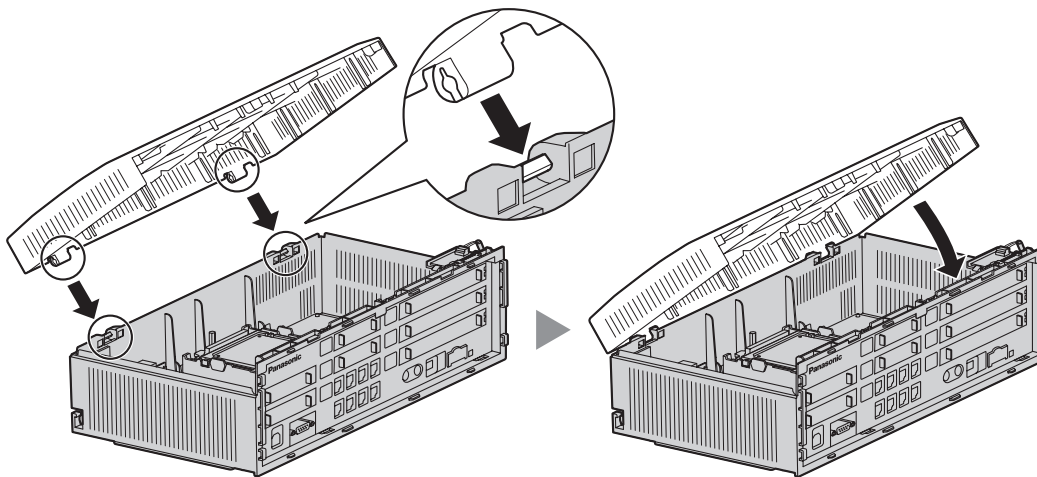
Closing the Covers

1. Close the front cover, then tighten the three screws.

Screw
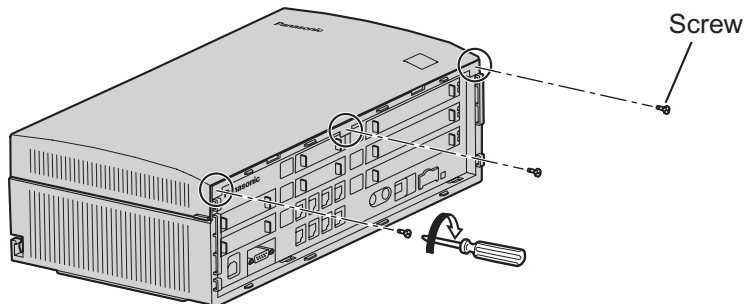
2. Attach the rear hooks on the cable cover to the main unit, then swing the cable cover closed so that the front hooks fit in place.
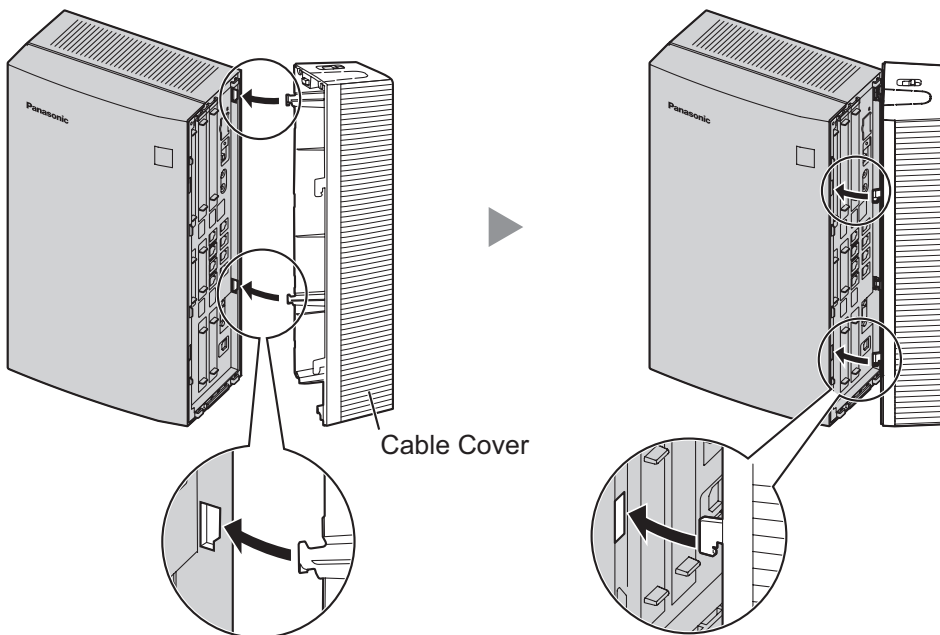
Cable Cover

3. Slide the cable cover down until it locks.
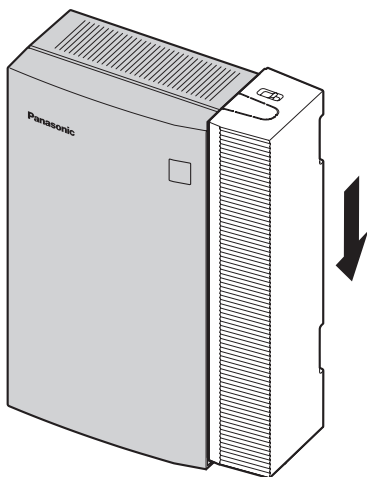
2.2.4 Installation of the SD Memory Card

LED

SD Memory Card Slot Cover   SD Memory Card
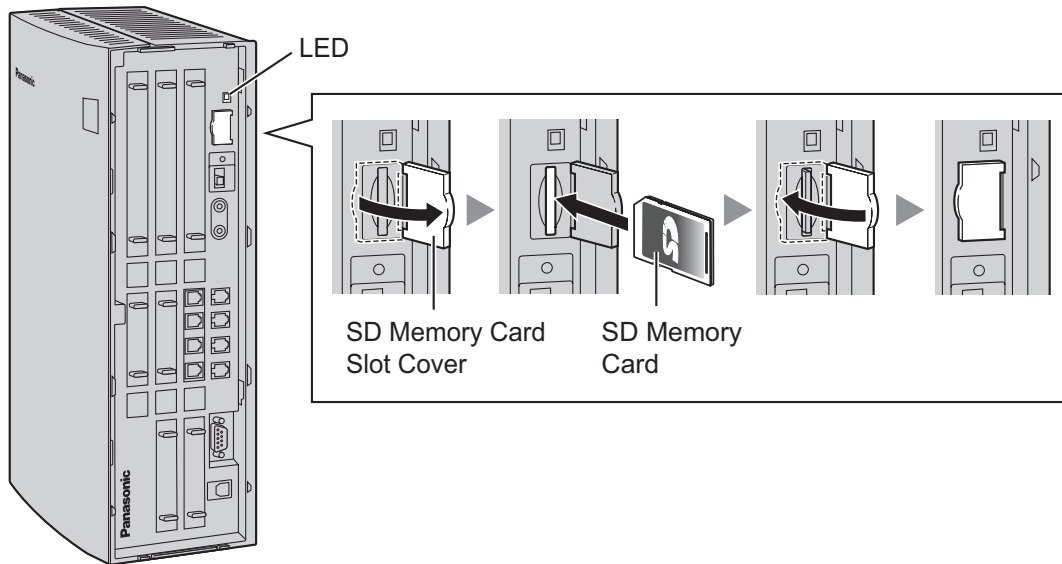
CAUTION

- The SD Memory Card contains software for all the processes of the PBX and all the customer data. It can be easily removed and taken away from the PBX by a third party. Therefore, do not allow unauthorized access to prevent data leakage.
- Do not remove the SD Memory Card while power is supplied to the PBX. Doing so may cause the PBX to fail to start when you try to restart the system.
- To prevent data leakage, render the SD Memory Card physically unusable before disposal.

Notice

- Use only the SD Memory Card included with the PBX, or a Panasonic optional upgrade SD Memory Card.
- The SD Memory Card must be inserted in the SD Memory Card slot of the PBX before startup.

Note

If you need to remove the SD Memory Card:
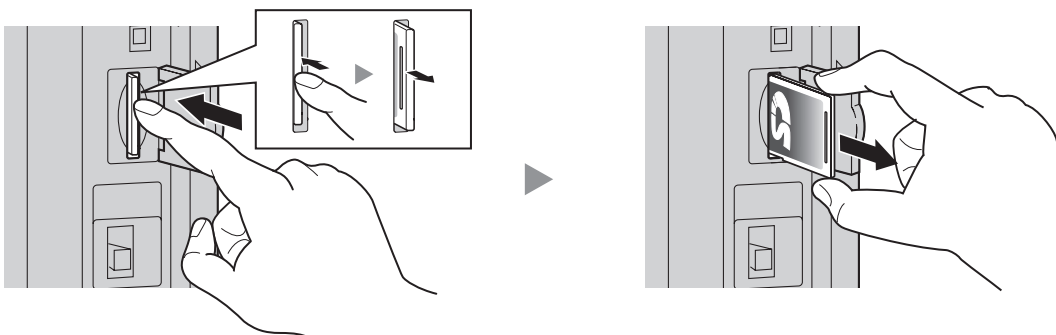
LED Indications

Indication	Color	Description
SD ACCESS	Green	SD memory card status • ON: Accessing

2.2.5 Frame Ground Connection

1. Loosen the screw.
2. Insert a grounding wire (user-supplied).
3. Tighten the screw.
4. Connect the grounding wire to ground.
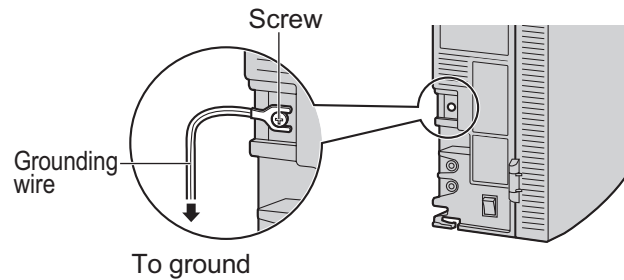
WARNING

- **Proper grounding (connection to ground) is very important to protect the PBX from the bad effects of external noise or to reduce the risk to the user of electrocution in the case of a lightning strike.**
- **The grounding wire of the AC cable has an effect against external noise and lightning strikes, but it may not be enough to protect the PBX. A permanent connection between ground and the ground terminal of the PBX must be made.**

CAUTION

For grounding wire, green-and-yellow insulation is required, and the cross-sectional area of the conductor must be more than 0.75 mm^2 or 18 AWG.

Notice

Be sure to comply with applicable local regulations (e.g., laws, guidelines).

In most of the continental United States, the ground provided by the "Third wire ground" at the commercial power outlet will be satisfactory. However, in a small percentage of cases this ground may be installed incorrectly. Therefore, the following test procedure should be performed.

Test Procedure

1. Obtain a suitable voltmeter and set it for a possible reading of up to 250 V AC.
2. Connect the meter probes between the 2 main AC voltage points on the wall outlet. The reading obtained should be 108 V AC to 132 V AC.
3. Move one of the meter probes to the 3rd prong terminal (GND).
   Either the same reading or a reading of 0 volt should be obtained.
4. If a reading of 0 volt at one terminal and a reading of 108 V AC to 132 V AC at the other terminal is not obtained, the outlet is not properly grounded.
   This condition should be corrected by a qualified electrician (per article 250 of the National Electrical Code).
5. If a reading of 0 volt at one terminal and a reading of 108 V AC to 132 V AC at the other terminal is obtained, then set the meter to the "OHMS/RX1" scale, place one probe at the GND Terminal and the other probe at the terminal which gave a reading of 0 volt.
   A reading of less than 1 ohm should be obtained. If the reading is not obtained, the outlet is not adequately grounded. See qualified electrician.

2.2.6 Installing/Removing the Optional Service Cards

Slot Position
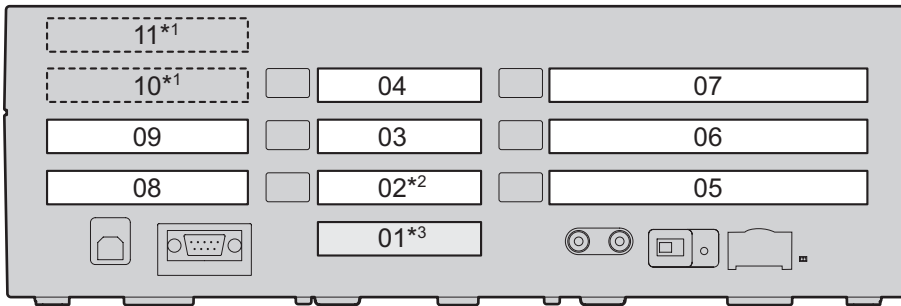
*1 Slots 10 and 11 accept only cards that do not have external ports. Therefore, these slots do not have removable cover plates.
*2 Slot 02 has an LCOT4 card pre-installed.
*3 Slot 01 contains the pre-installed Super Hybrid Ports. No optional service card can be installed.

Slot Restrictions

The following table shows the slot restrictions. "✓" indicates that the slot supports the optional service card.

Card		Slot Number									
Type	Max	02	03	04	05	06	07	08	09	10	11
LCOT4	3[*1]	✓	✓	✓							
HLC4		✓	✓	✓							
DLC4		✓	✓	✓							
SLC4	1[*2]	✓	✓	✓							
PLC4		✓	✓	✓							
SIP-GW4	1				✓	✓	✓				
IP-GW4	1 2				✓	✓	✓				
IP-EXT4	1				✓	✓	✓				
DLC8					✓	✓	✓				
SLC8	2[*3]				✓	✓	✓				
PLC8					✓	✓	✓				
DPH4	1							✓	✓		
ECHO8	1							✓	✓	✓	✓
EXT-CID	1							✓	✓	✓	✓

Card		Slot Number									
Type	**Max**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**
MSG2	2							✓	✓	✓	✓
SVM2	2	4						✓	✓	✓	✓
ESVM2	4							✓	✓	✓	✓

*1   Including one LCOT4 card that is installed by default.
*2   Only one of the HLC4, DLC4, SLC4 or PLC4 card can be installed.
*3   A maximum of two DLC8, SLC8 and PLC8 cards can be installed.

CAUTION
- To protect the main board from static electricity, do not touch parts on the main board or on the optional service cards. To discharge static electricity, touch ground or wear a grounding strap.
- When installing or removing the optional service cards, the power switch of the PBX must be in the off position.

Note
- For each card, the maximum number that can be installed in the PBX is listed in "1.2.1 Optional Equipment".
- Any card that exceeds the capacity of the PBX will be ignored.
- When the PBX starts up with an invalid configuration, some cards will be ignored.

Installing Optional Service Cards

1. Before installing the optional service cards, cut and remove the appropriate dummy cover plates from the main unit.
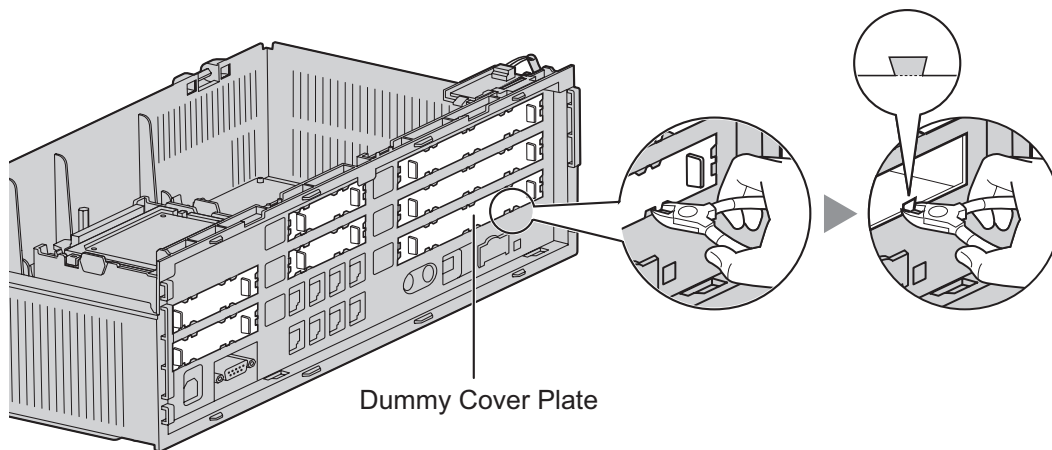
Dummy Cover Plate

CAUTION
For safety reasons, smooth the cut edges after removing the dummy cover plates.

2. Position the card in the open slot, making sure that the tabs on the both sides of the card fit into place. Then, holding the card firmly in place, lower the rear end so that the hole of the card fits over the extension bolt.

Optional Service Card
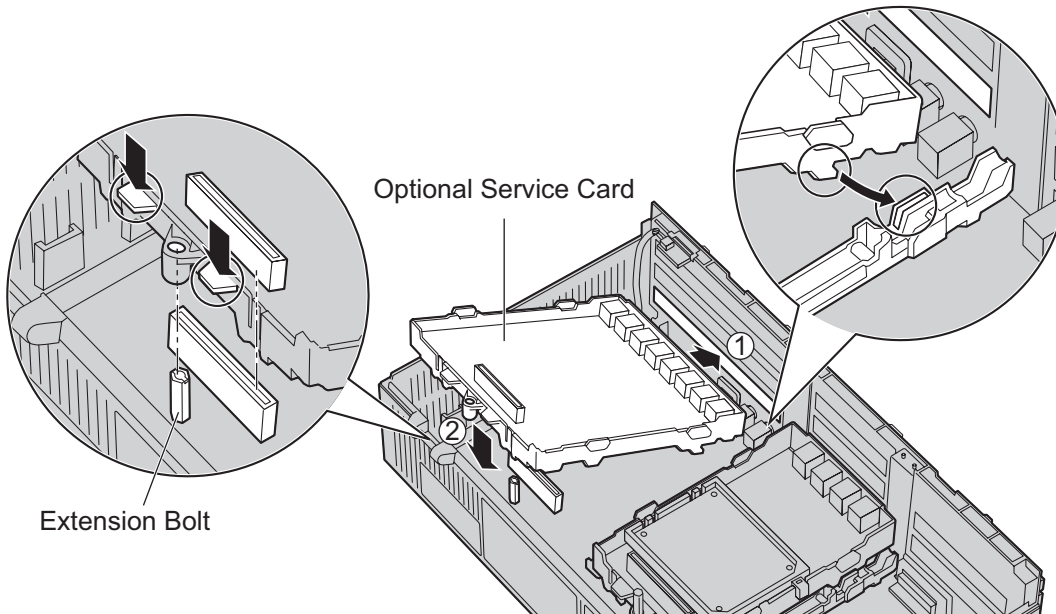
Extension Bolt

CAUTION

When installing the optional service cards, do not put pressure on any parts of the main board (e.g., tall capacitors). Doing so may result in damage to the PBX.

3. Insert the new extension bolt (included with the card) into the hole on the card, and tighten it to secure the card.

Extension Bolt
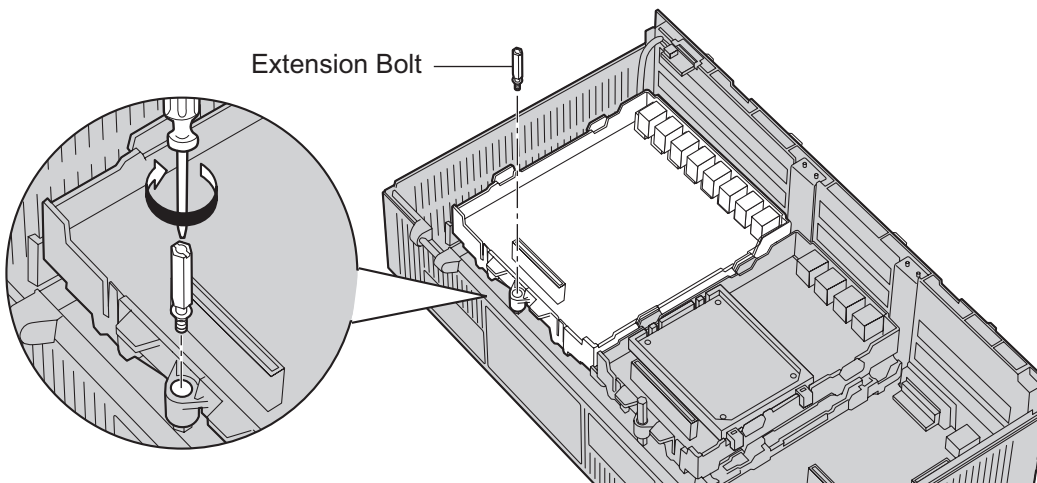
4. Stick an appropriate optional card label (included) to the left side of the corresponding card.

Optional Card Label
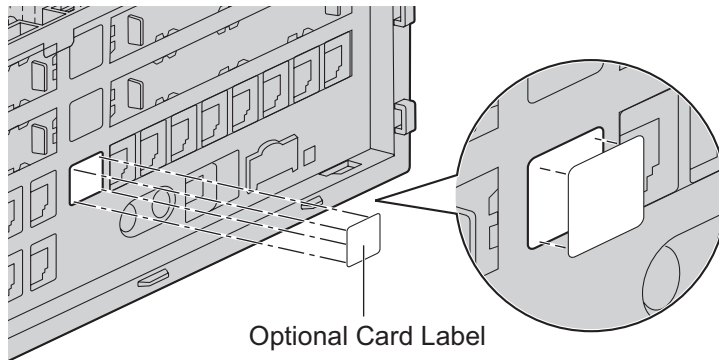
5. Connect a cable to an appropriate port of the card.
For details about pin assignments, refer to the appropriate section in "2.3 Information about the CO Line Cards" and "2.4 Information about the Extension Cards".
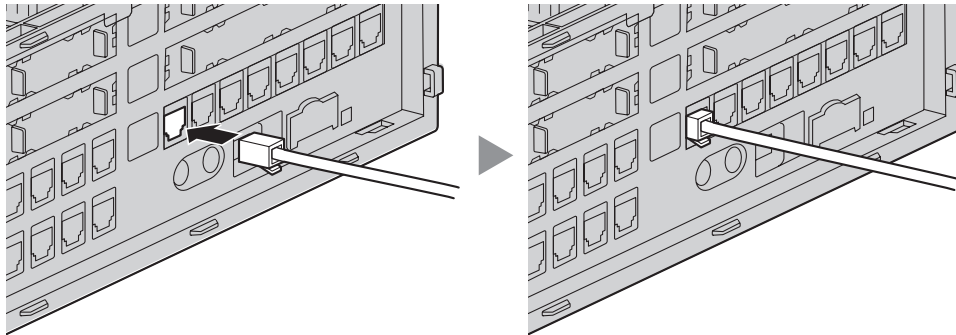
Note

Make sure to connect cables after installing the card in the PBX, not before.

6. Repeat the procedure for other cards.
A. When installing a card in Slot 07, make sure to detach the LED holder first. After installing the card, reattach the LED holder.

To detach the LED holder
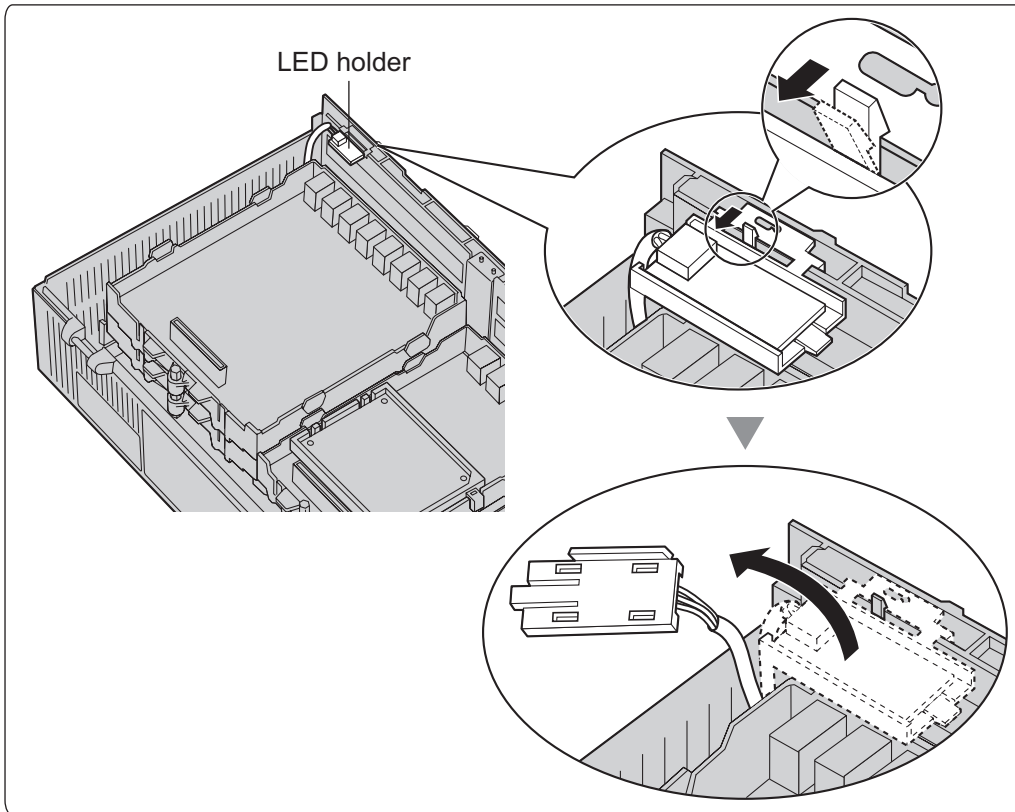
LED holder

To attach the LED holder
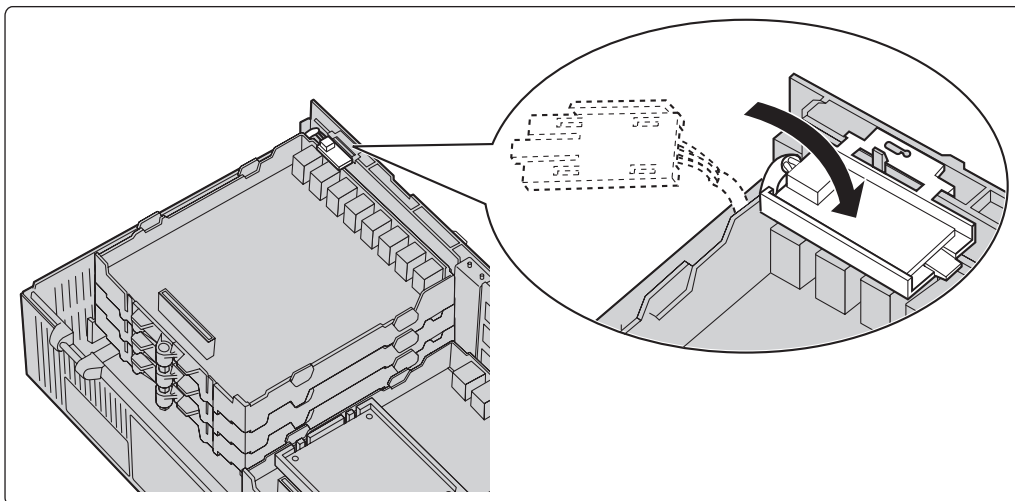
B. When installing a card in Slot 11, tighten the card using the screw included with the card, instead of the extension bolt.

Screw
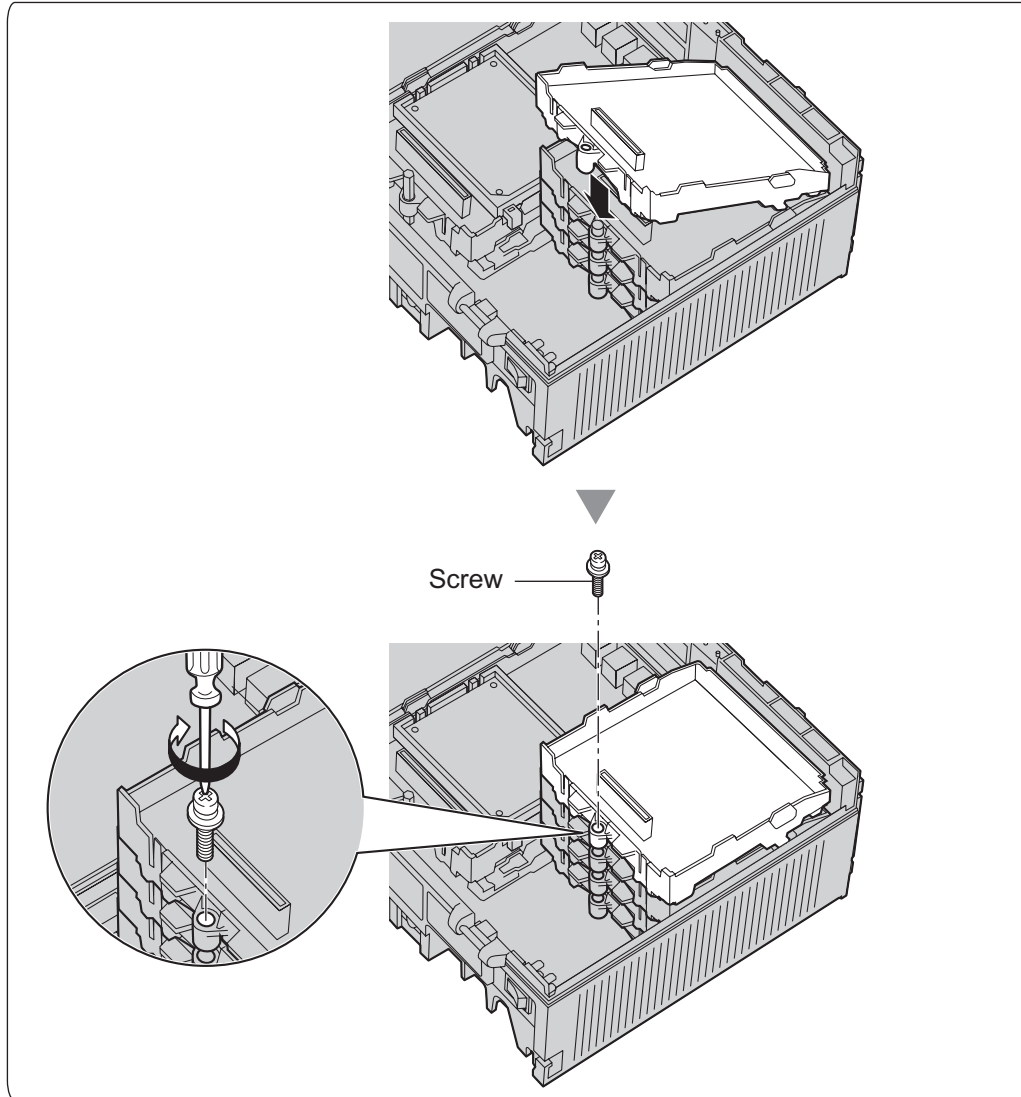
Cable Handling

1. Attach the strap included with the card to one of the connected cables.
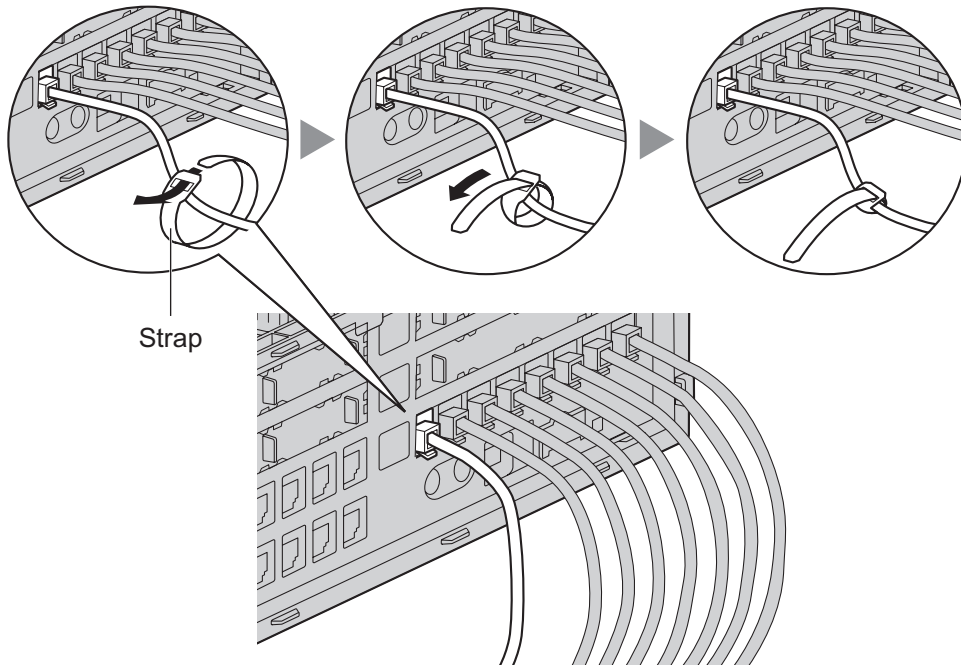
Strap

2. Bind all the connected cables together using the strap.
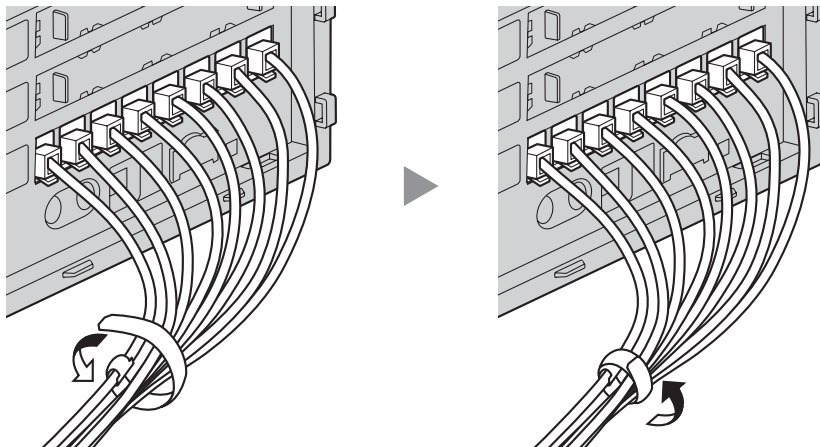
3. Repeat the procedure for other cards.

4. Attach the main strap (included with the PBX) to any of the 5 rails depending on your preference.
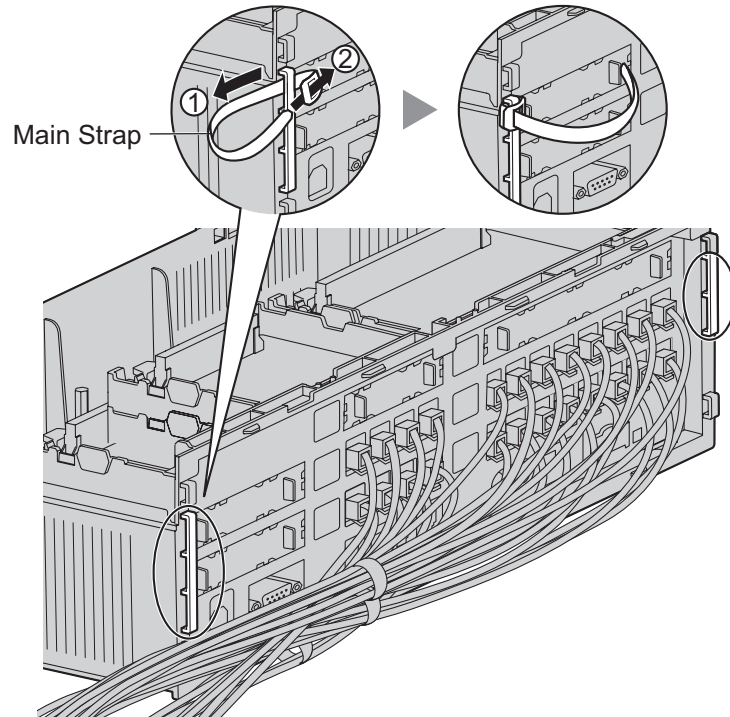
Main Strap

5. Bind all the connected cables together using the main strap, and then close the cable cover. For how to close the cable cover, refer to "2.2.3 Opening/Closing the Covers".

Cable Cover

Main Strap
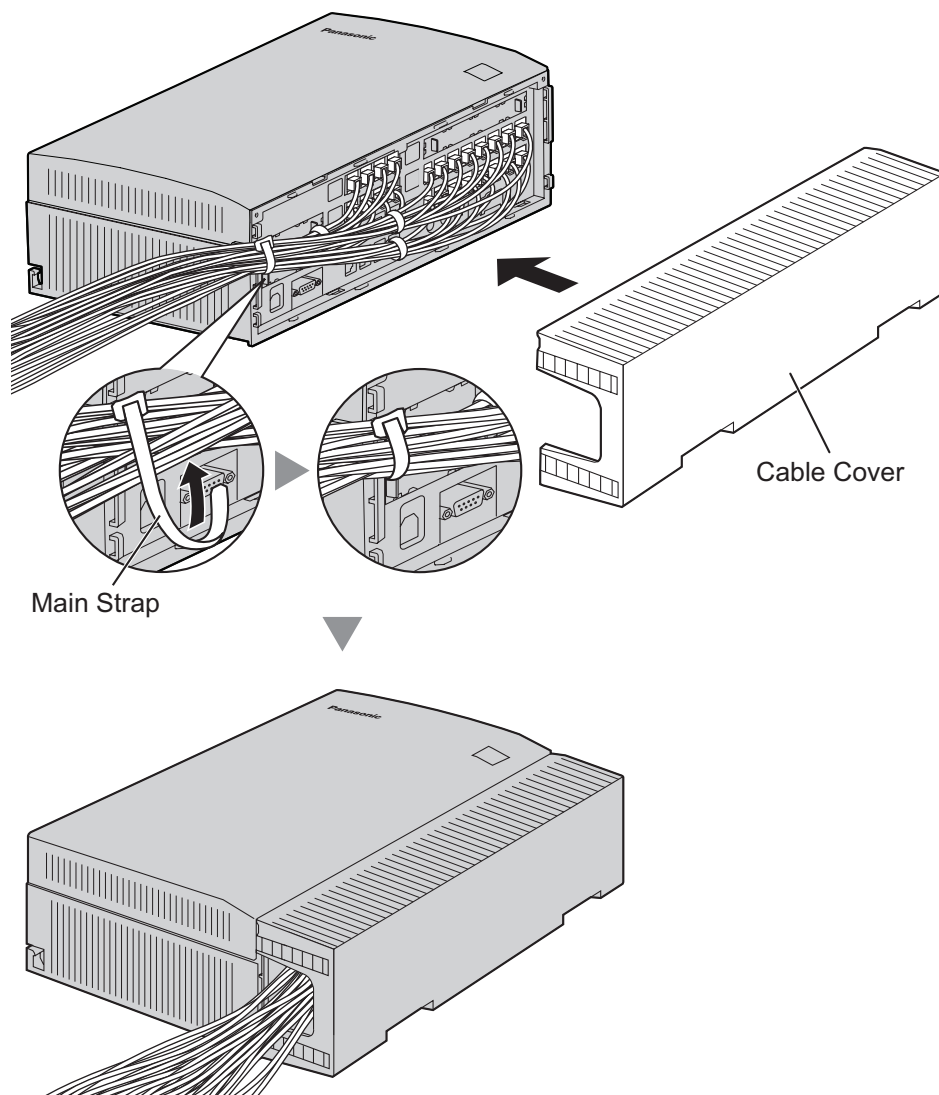
Note
- For safety reasons, do not stretch, bend, or pinch the cables.

- • If you prefer, you can cut the other side of the cable cover and run the cables through that opening. For safety reasons, smooth the cut edges.
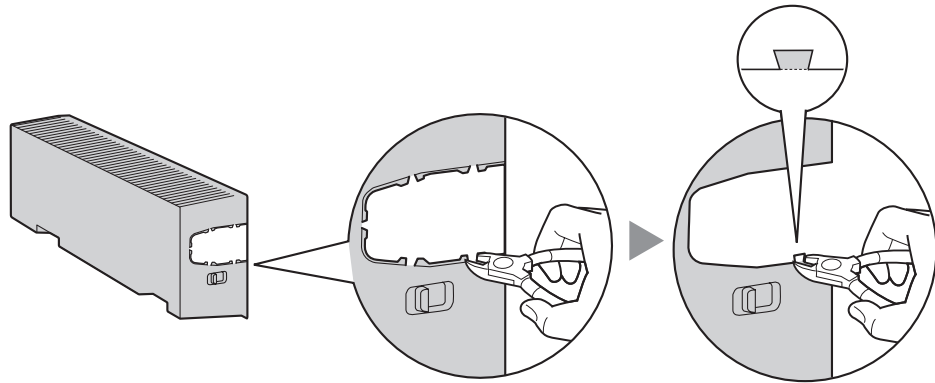
Removing the Optional Service Cards

1. Loosen the extension bolt.
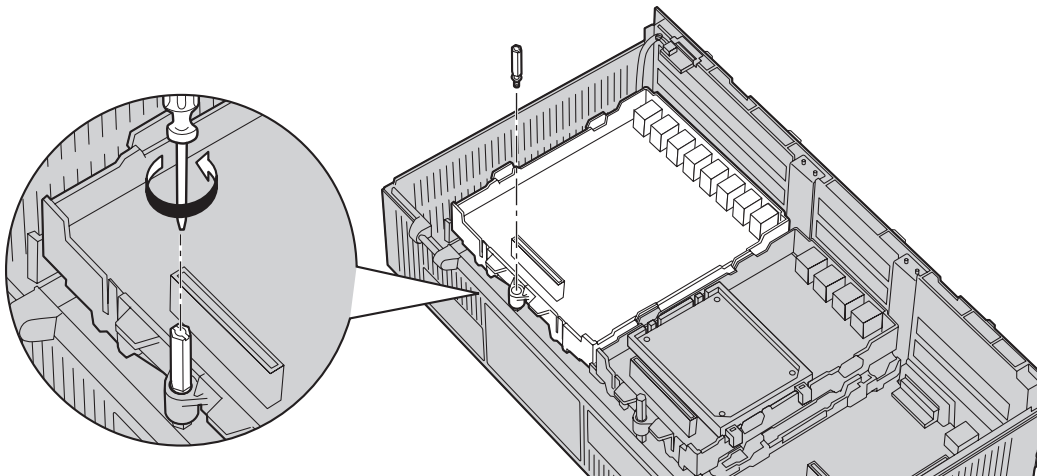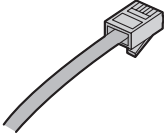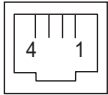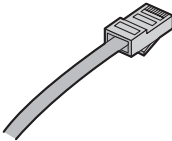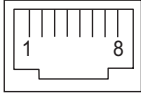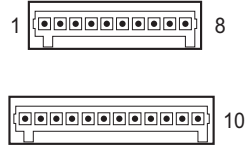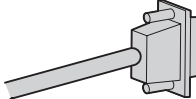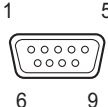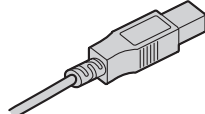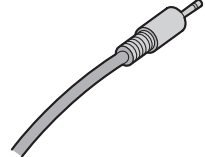
2. Holding the protrusions of the card, pull the card in the direction of the arrows.

Document Version 2010-11
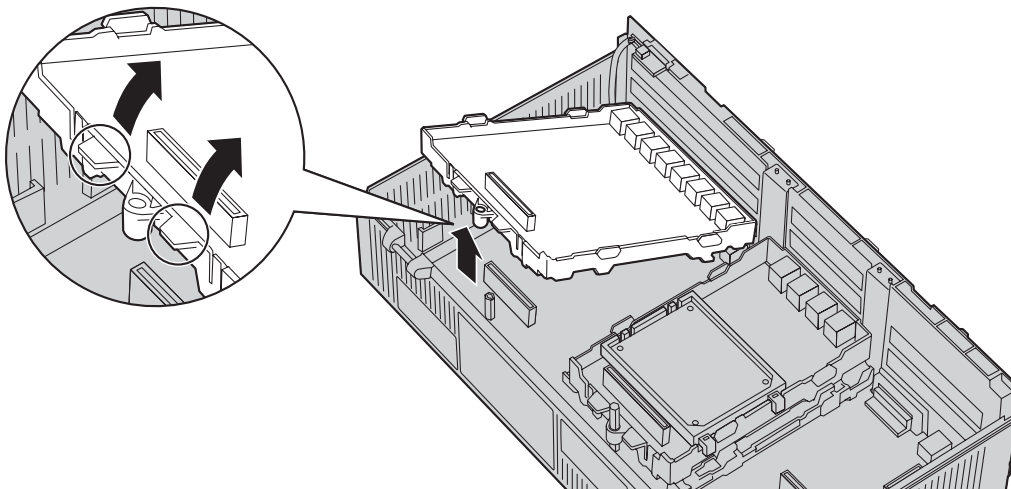
CAUTION

When removing the optional service cards, do not put pressure on any parts of the main board (e.g., tall capacitors). Doing so may result in damage to the PBX.

2.2.7 Types of Connectors

Connector Type	Pin Number	Used for
RJ11 (Twisted pair cable)	4 1	• DPH4 (KX-TDA5161) • HLC4 (KX-TDA5170) • DLC4 (KX-TDA5171) • DLC8 (KX-TDA5172) • SLC4 (KX-TDA5173) • SLC8 (KX-TDA5174) • PLC4 (KX-TDA5175) • PLC8 (KX-TDA5176) • LCOT4 (KX-TDA5180) • Super Hybrid Ports (Main Board)
RJ45 (Twisted pair cable)	1 8	• SIP-GW4 (KX-TDA5450) • IP-EXT4 (KX-TDA5470) • IP-GW4 (KX-TDA5480)
10-pin Terminal Block 8-pin Terminal Block	1 ... 8 1 ... 10	• DPH4 (KX-TDA5161)
RS-232C (Shielded cable)	1 5 6 9	• Main Board
USB	2 1 3 4	• Main Board
Mini Plug	+ −	• Main Board (Pager port, MOH port)

2.2.8 Attaching a Ferrite Core

A ferrite core must be attached when an RJ45 connector is connected to the SIP-GW4 or IP-EXT4 card.

Attaching to an RJ45 Connector

For SIP-GW4/IP-EXT4 Cards

Wrap the cable once around the ferrite core, then close the case of the ferrite core. Attach the ferrite core 5 cm (1-15/16 in) away from the connector. The ferrite core is included with the card.
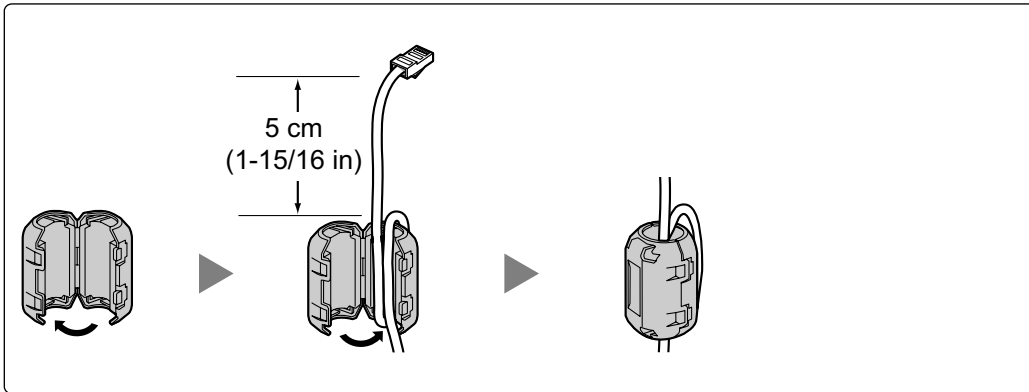
2.2.9 Wall Mounting (KX-TDA50)

Mounting on Wooden Wall

WARNING

- **Make sure that the wall that the cabinet will be attached to is strong enough to support the cabinet. If not, it is necessary for the wall to be reinforced.**
- **Only use the wall-mounting equipment (screws, washers) included with the PBX.**
- **Be careful not to drop any components. Dropping components may damage them or cause an injury.**

CAUTION

- Do not block the openings of the cabinet. Allow space of at least 20 cm (8 in) above and 10 cm (4 in) at the sides of the cabinet.
- Make sure that the surface behind the cabinet is flat and free of obstacles, so that the openings on the back of the cabinet will not be blocked.
- When driving the screws into the wall, be careful to avoid touching any metal laths, wire laths or metal plates in the wall.
- When this product is no longer in use, make sure to detach it from the wall.

<u>**Note**</u>

- For details about the dimensions and weight of the PBX, refer to "1.3.1 General Description".

1. Place the reference for wall mounting (on the last page of this manual) on the wall to mark the three screw positions.
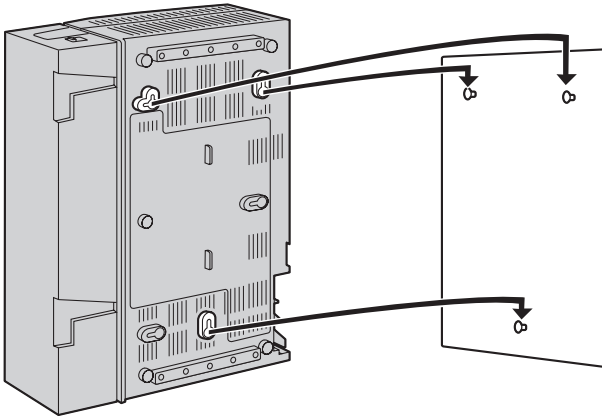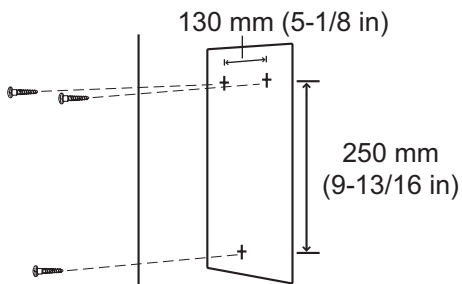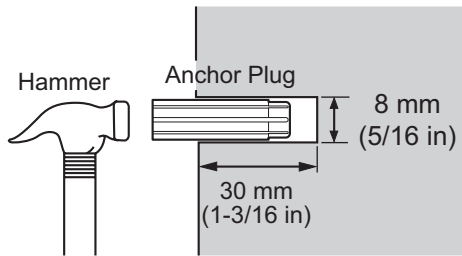
130 mm (5-1/8 in)

250 mm (9-13/16 in)

2. Install the screws and washers (included) in the wall.

Washer

Drive the screw to this position.

<u>**Note**</u>

- Make sure that the screw heads are at the same distance from the wall.
- Install the screws perpendicular to the wall.

3. Hook the main unit on the screw heads.

Mounting on Concrete or Mortar Wall

WARNING

- **Make sure that the wall that the cabinet will be attached to is strong enough to support the cabinet. If not, it is necessary for the wall to be reinforced.**
- **Only use the wall-mounting equipment (screws, washers) included with the PBX.**
- **Be careful not to drop any components. Dropping components may damage them or cause an injury.**

CAUTION

- Do not block the openings of the cabinet. Allow space of at least 20 cm (8 in) above and 10 cm (4 in) at the sides of the cabinet.
- Make sure that the surface behind the cabinet is flat and free of obstacles, so that the openings on the back of the cabinet will not be blocked.
- When driving the screws into the wall, be careful to avoid touching any metal laths, wire laths or metal plates in the wall.
- When this product is no longer in use, make sure to detach it from the wall.

Note

- For details about the dimensions and weight of the PBX, refer to "1.3.1 General Description".
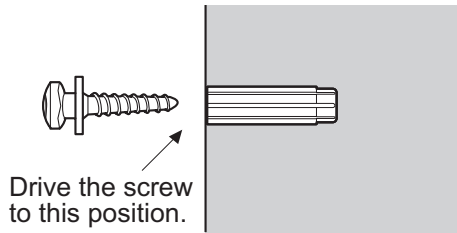
1. Place the reference for wall mounting (on the last page of this manual) on the wall to mark the three screw positions.
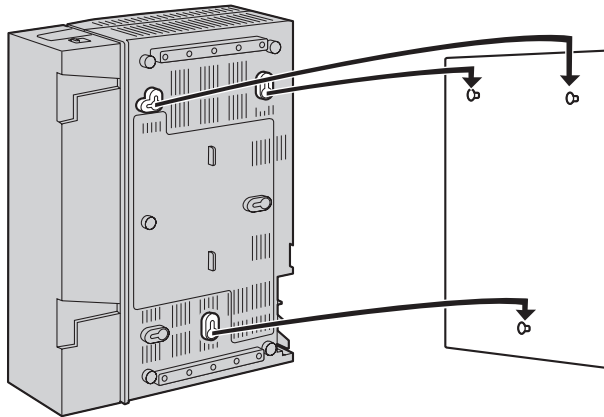

130 mm (5-1/8 in)

250 mm
(9-13/16 in)

2. Install three anchor plugs (user-supplied) in the wall.

Hammer Anchor Plug

8 mm
(5/16 in)

30 mm
(1-3/16 in)

3. Install the screws (included) in the wall.

Drive the screw
to this position.

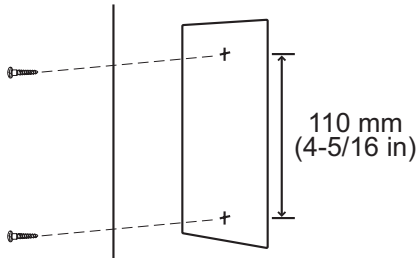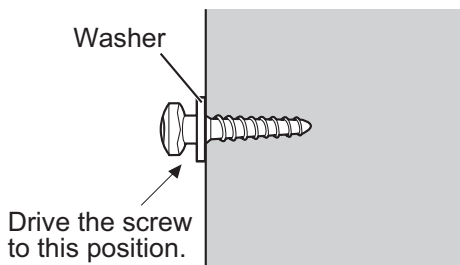**4.** Hook the main unit on the screw heads.

2.2.10 Wall Mounting (AC Adaptor)

Mounting on Wooden Wall

WARNING

- **Only use the wall-mounting equipment (screws, washers) included with the PBX.**
- **Be careful not to drop any components. Dropping components may damage them or cause an injury.**

1. Place the reference for wall mounting (on the following page) on the wall to mark the two screw positions.

110 mm
(4-5/16 in)

2. Install the screws and washers (included) in the wall.

Washer

Drive the screw
to this position.

Note

- Make sure that the screw heads are at the same distance from the wall.
- Install the screws perpendicular to the wall.

3. Hook the AC adaptor on the screw heads.
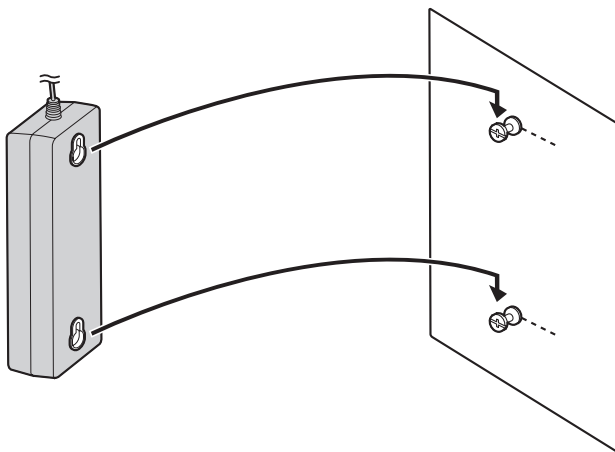
Mounting on Concrete or Mortar Wall

WARNING

- **Only use the wall-mounting equipment (screws, washers) included with the PBX.**
- **Be careful not to drop any components. Dropping components may damage them or cause an injury.**
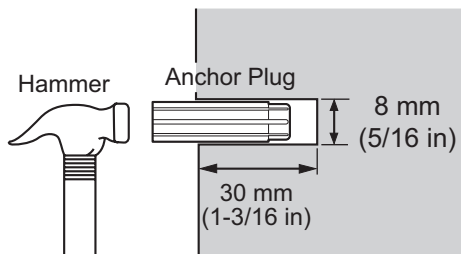
CAUTION

- When driving the screws into the wall, be careful to avoid touching any metal laths, wire laths or metal plates in the wall.
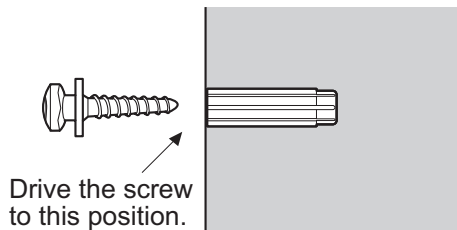
1. Place the reference for wall mounting (on the following page) on the wall to mark the two screw positions.

110 mm
(4-5/16 in)
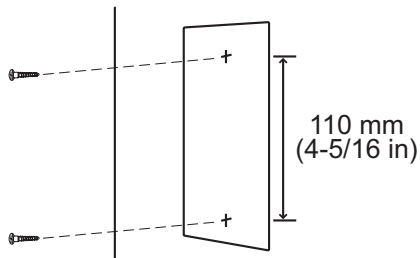
2. Install two anchor plugs (user-supplied) in the wall.

Hammer   Anchor Plug

8 mm
(5/16 in)

30 mm
(1-3/16 in)

3. Install the screws (included) in the wall.

Drive the screw
to this position.
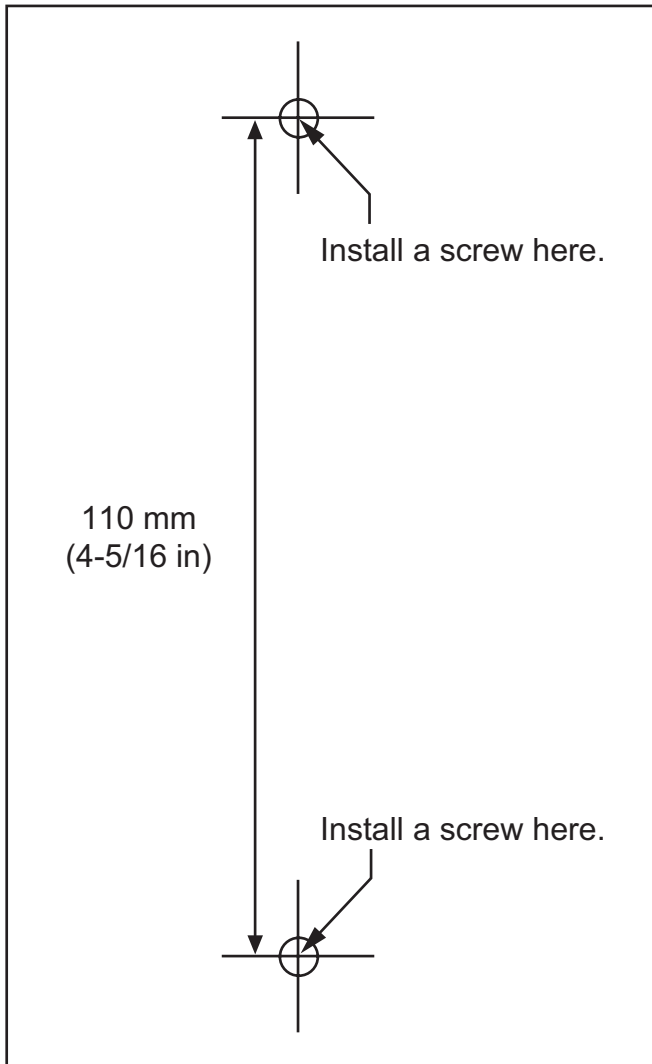
4. Hook the AC adaptor on the screw heads.

Reference for Wall Mounting

Please copy this page and use as a reference for wall mounting.

Install a screw here.

110 mm
(4-5/16 in)

Install a screw here.

<u>Note</u>

Make sure to set the print size to correspond with the size of this page. If the dimension of the paper output still deviates slightly from the measurement indicated here, use the measurement indicated here.

2.2.11 Surge Protector Installation

CAUTION

Performing surge protection is essential. Make sure to follow the instructions in this section.

Overview

A massive electrical surge can be caused if lightning strikes a telephone cable 10 m (33 ft) above ground, or if a telephone line comes into contact with a power line. A surge protector is a device that is connected to a CO line to prevent potentially dangerous electrical surges from entering the building via the CO line and damaging the PBX and connected equipment.

To protect the system from electrical surges, we strongly recommend connecting the system to a surge protector that meets the following specifications:
*   Surge arrestor type: 3-electrode arrestor
*   DC spark-over voltage: 230 V
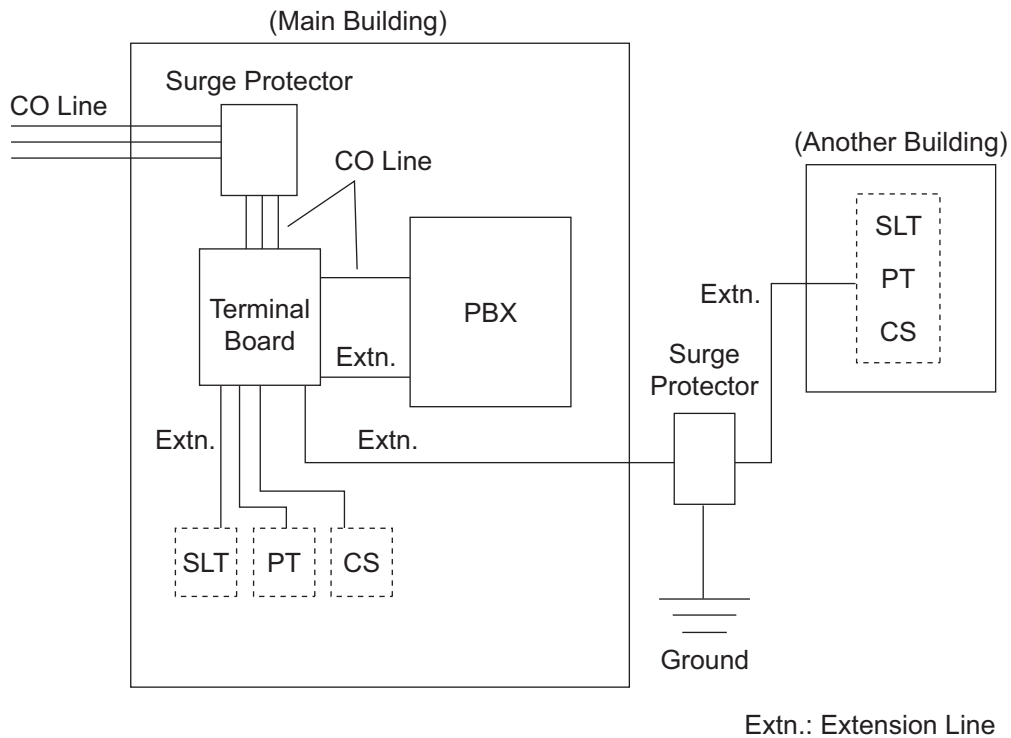*   Maximum peak current: at least 10 kA

Additionally, proper grounding is very important for the protection of the system (refer to "2.2.5 Frame Ground Connection").

Many countries/areas have regulations requiring surge protection. Be sure to comply with all applicable laws, regulations, and guidelines.
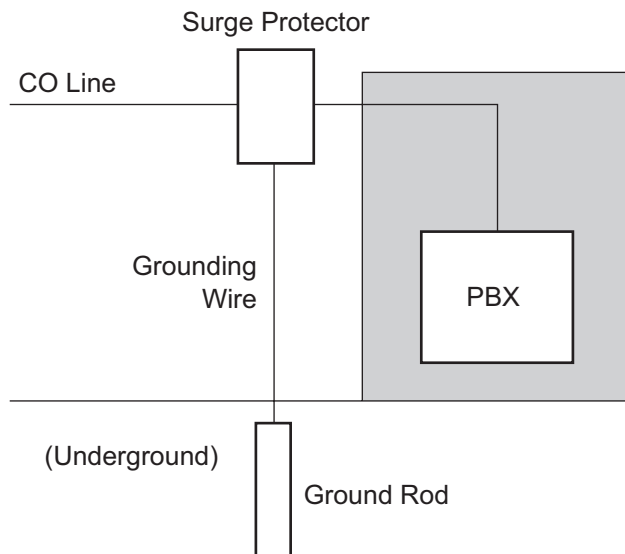
Installation
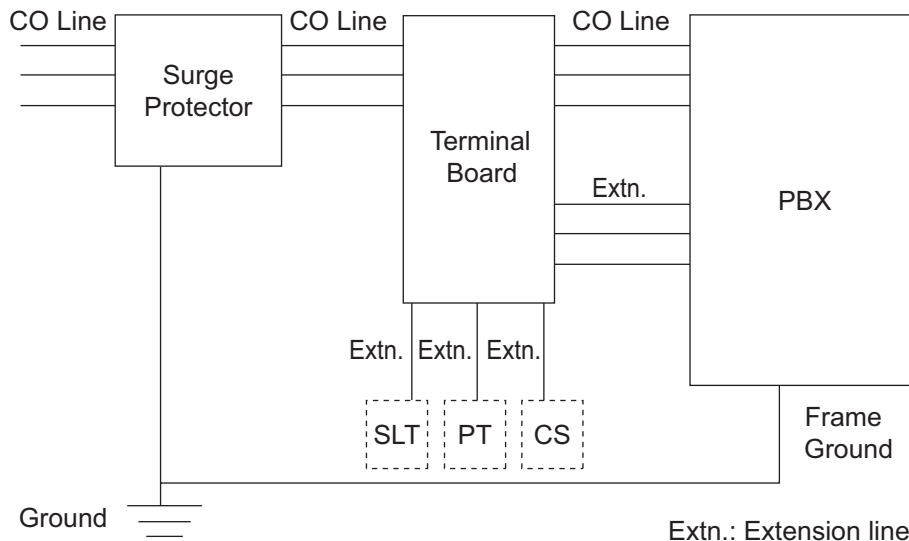
Outside Installation

Extn.: Extension Line

If you install an extension outside of the building, the following precautions are recommended:
a. Install the extension wire underground.
b. Use a conduit to protect the wire.

Note

The surge protector for an extension and CS is different from that for CO lines.

Installation of a Ground Rod

1. Connect the ground rod to the surge protector using a grounding wire with a cross-sectional area of at least 1.3 mm^2.
2. Bury the ground rod near the protector. The grounding wire should be as short as possible.
3. The grounding wire should run straight to the ground rod. Do not run the wire around other objects.
4. Bury the ground rod at least 50 cm (20 in) underground.
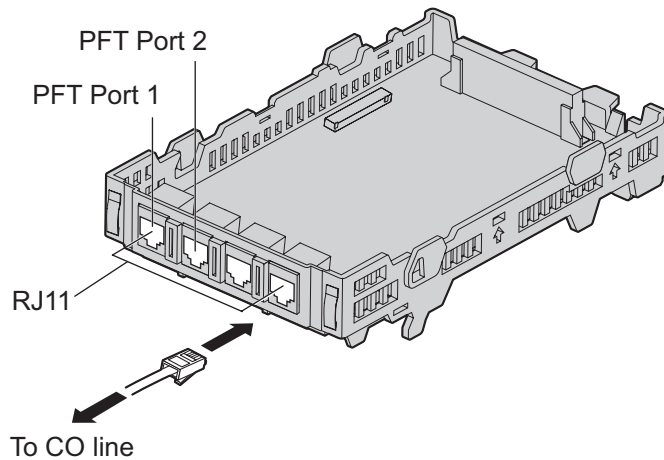
<u>Note</u>

- The above figures are recommendations only.
- The length of ground rod and the required depth depend on the composition of the soil.

2.3 Information about the CO Line Cards

2.3.1 LCOT4 Card (KX-TDA5180)

Function

4-port analog CO line card with 2 power failure transfer (PFT) ports. One CID4 card can be mounted on the LCOT4 card (refer to "2.3.2 CID4 Card (KX-TDA5193)").

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1
User-supplied (not included): RJ11 connector

<u>Note</u>

- For details about power failure transfer, refer to "2.9.1 Power Failure Connections".
- To confirm the CO line connection, refer to "Confirming the CO Line Connection" in "2.10.1 Starting the PBX".
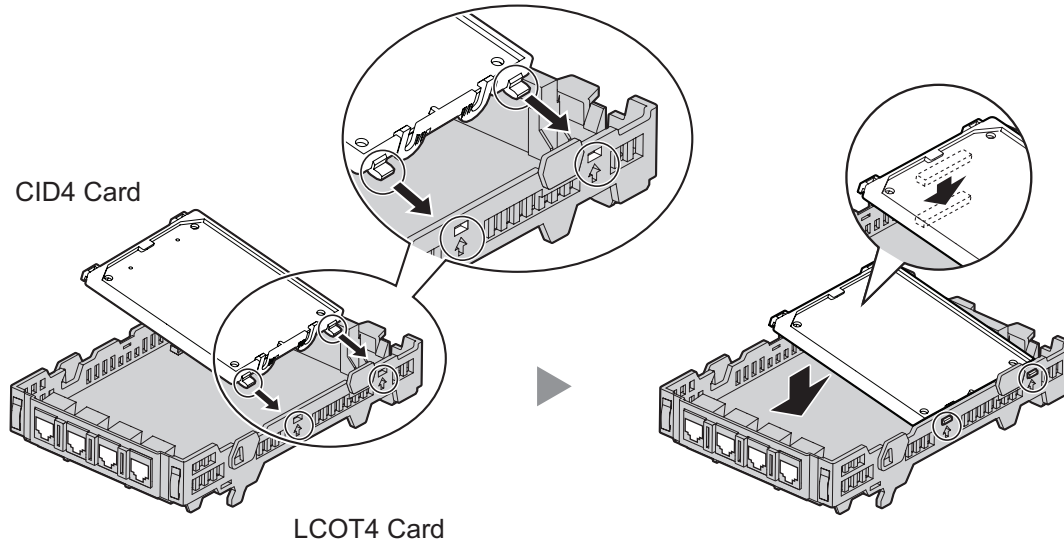
Pin Assignments

RJ11 Connector

	Signal Name	Function
T R 4 1	R	Ring
	T	Tip
	–	Reserved

2.3.2 CID4 Card (KX-TDA5193)

Function

4-port Caller ID signal type FSK/FSK (with Call Waiting Caller ID [Visual Caller ID])/DTMF. To be mounted on the LCOT4 card.
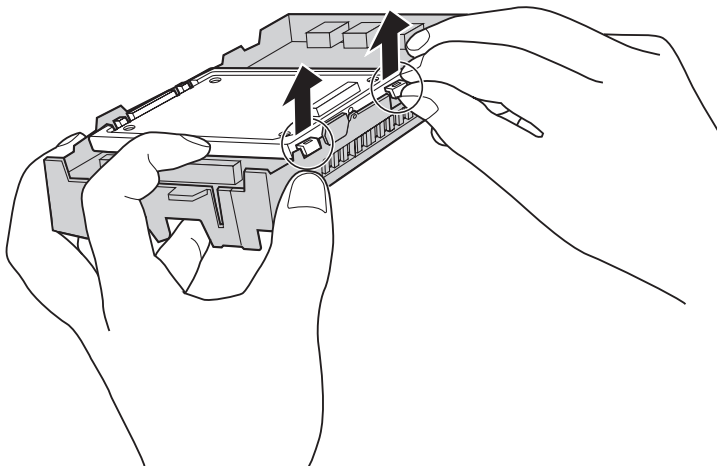
CID4 Card

LCOT4 Card

Accessories and User-supplied Items

Accessories (included): none
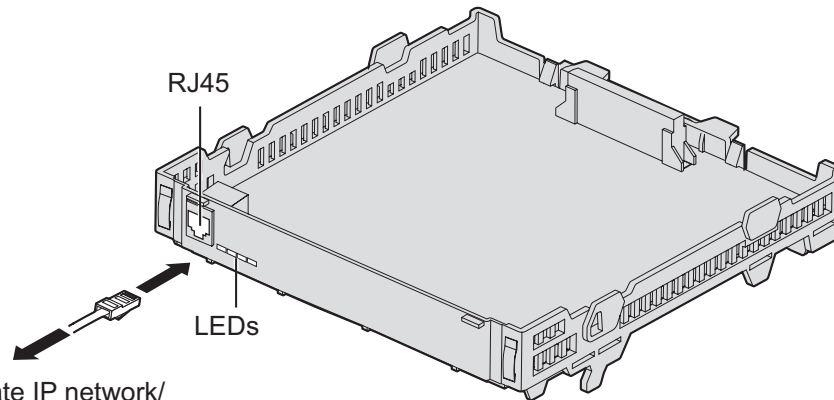**User-supplied (not included):** none

Note

If you need to remove the CID4 card:

2.3.3 IP-GW4 Card (KX-TDA5480)

Function

4-channel VoIP gateway card. This card also enables CTI communication and system programming via a LAN. Compliant with VoIP H.323 V.2 protocol, and ITU-T G.729A, G.723.1, and G.711 codec methods. CSTA Phase 3 protocol compatible.

RJ45

LEDs

To private IP network/
LAN/CTI Server

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1, CD-ROM (including documentation for web programming) × 1
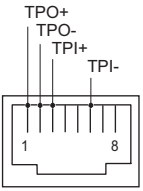**User-supplied (not included):** RJ45 connector

Note

- The maximum length of the cable to be connected to this optional service card is 100 m (328 ft).
- This optional service card can be connected to PCs on a LAN via a CTI server to provide third party call control CTI.
  The operating system of the PC or CTI server required for third party call control depends on your CTI application software. For details, refer to the manual for your CTI application software.
- For CTI communication and system programming, the firmware (not LPR software) of the card must be version 1.400 or later. For details about the firmware version, refer to the documentation for the IP-GW4 card.
- For programming instructions and other information about the IP-GW4 card, refer to the documentation for the IP-GW4 card. To program the IP-GW4 card, use the web programming designed for the IP-GW4 card.
- To confirm the CO line connection, refer to "Confirming the CO Line Connection" in "2.10.1 Starting the PBX".

Pin Assignments

RJ45 Connector (10BASE-T/100BASE-TX)

	Signal Name	Input (I)/Output (O)	Function
TPO+ TPO- TPI+ TPI- 1 8	TPO+	O	Transmit data+
	TPO-	O	Transmit data-
	TPI+	I	Receive data+
	TPI-	I	Receive data-
	–	–	Reserved

LED Indications

Indication	Color	Description
ON LINE	Green	On-line status indication • ON: On-line mode • OFF: Off-line mode • Flashing: Maintenance mode **Note** If the LINK indicator is OFF, the ON LINE indicator will also be OFF.
ALARM	Red	Alarm indication • ON: Alarm • OFF: Normal
LINK	Green	Link status indication • ON: Normal Connection • OFF: Connection Error
DATA	Green	Data transmission indication • ON: Data transmitting • OFF: No data transmitted

2.3.4 SIP-GW4 Card (KX-TDA5450)

Function

4-channel SIP gateway card. Compliant with RFC 3261, 3262, 3264, 3311, and 4028 protocols, and ITU-T G. 729A/B and G.711 codec methods.
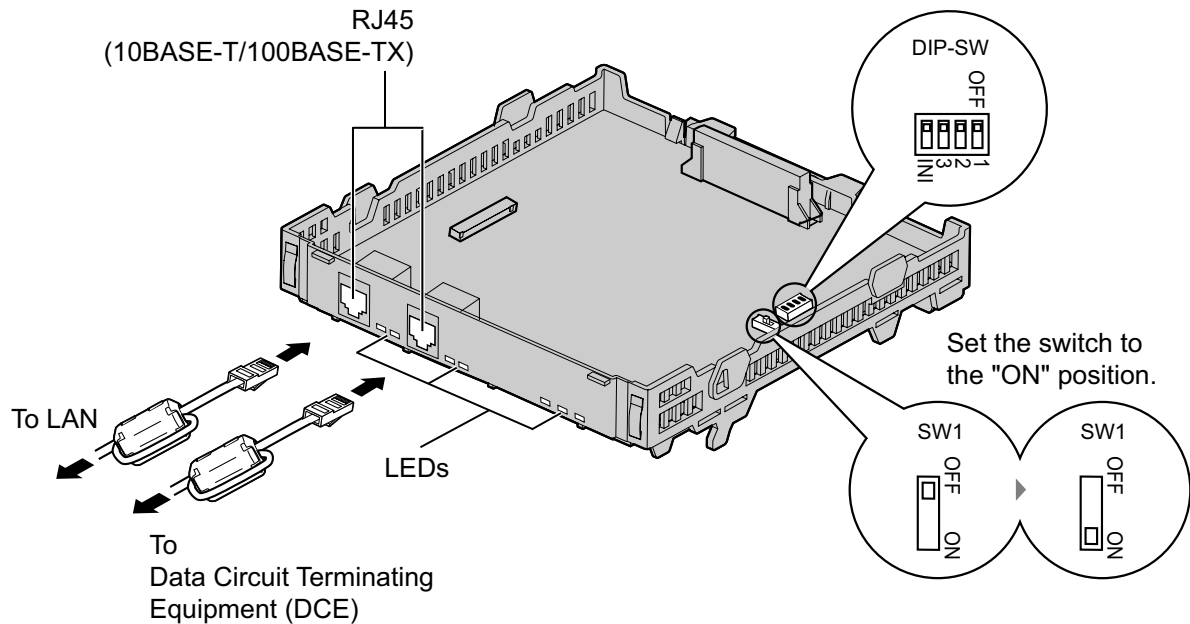
Accessories and User-supplied Items

Accessories (included): Ferrite core × 2, Extension Bolt × 1, Strap × 1, CD-ROM (including documentation for web programming) × 1
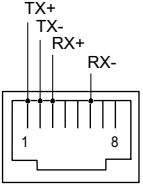**User-supplied (not included):** RJ45 connector

Note

- The maximum length of the cable to be connected to this optional service card is 100 m (328 ft).
- When connecting the RJ45 connector, attach the included ferrite core. Refer to "2.2.8 Attaching a Ferrite Core"
- For programming instructions and other information about the SIP-GW4 card, refer to the documentation for the SIP-GW4 card. To program the SIP-GW4 card, use the web programming designed for the SIP-GW4 card.
- To confirm the CO line connection, refer to "Confirming the CO Line Connection" in "2.10.1 Starting the PBX".

Switch Settings

Switch	Usage and Status Definition
SW1	Set the switch at "ON" position before installing the card in the PBX.
DIP-SW	Keep all DIP switches at default "OFF" positions.

Pin Assignments

RJ45 Connector (10BASE-T/100BASE-TX)

	Signal Name	Level [V]	Function
TX+ TX- RX+ RX- 1 8	TX+	(+)	Transmit data (+)
	TX-	(-)	Transmit data (-)
	RX+	(+)	Receive data (+)
	RX-	(-)	Receive data (-)
	–	–	Reserved

LED Indications

Indication		Color	Description
RUN		Green	Card status indication • ON: Normal • OFF: Power Off
VoIP		Green	Voice data transmission status indication • ON: Registered on a VoIP server • OFF: Not registered on a VoIP server • Flashing: During a conversation
PPP		Green	Indication of whether a PPPoE session has been established with the IP telephone company • ON: PPPoE session established • OFF: PPPoE session not established • Flashing: PPPoE session establishment in process
WAN	LINK	Green	Indication of link status with connected devices (e.g., ADSL modem) • ON: Normal connection • OFF: Connection error
	100	Green	Indication of transmission speed with connected devices (e.g., ADSL modem) • ON: Operating at 100 Mbps • OFF: Operating at 10 Mbps • Flashing: Data transmitting (only when operating at 100 Mbps)
LAN	LINK	Green	Indication of link status with connected devices (e.g., PC, hub) • ON: Normal connection • OFF: Connection error
	100	Green	Indication of transmission speed with connected devices (e.g., PC, hub) • ON: Operating at 100 Mbps • OFF: Operating at 10 Mbps • Flashing: Data transmitting (only when operating at 100 Mbps)

2.3.5 SIP-DSP4 Card (KX-TDA5451)

Function

4-channel VoIP DSP card. To be mounted on the SIP-GW4 card.
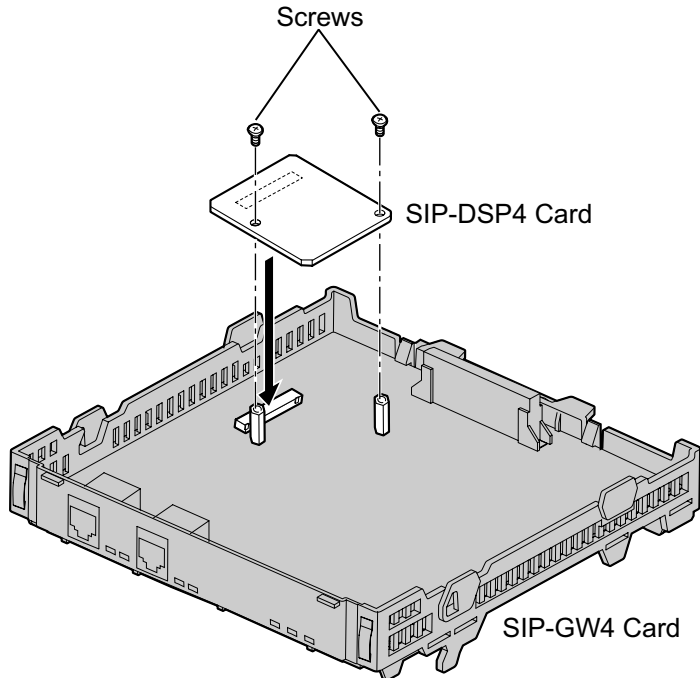
Accessories and User-supplied Items

Accessories (included): Screws × 2
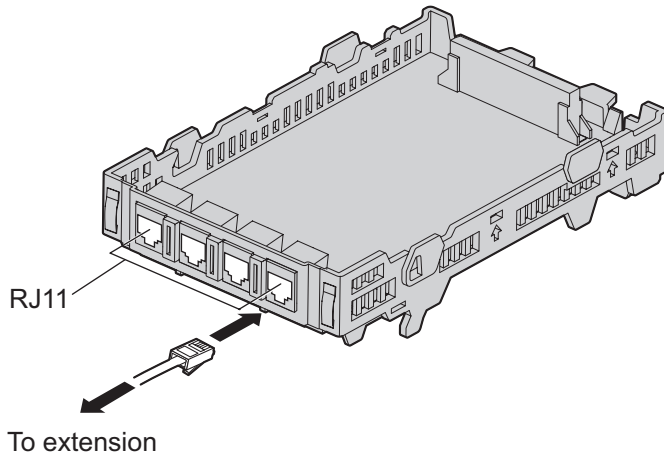**User-supplied (not included):** none

2.4 Information about the Extension Cards

2.4.1 HLC4 Card (KX-TDA5170)

Function

4-port extension card for SLTs, APTs, DSS consoles, a Voice Processing System (VPS), and PT-interface CSs.[1]

[1]   The PT-interface CS can be connected to the PBX using a cable like a PT.

RJ11

To extension

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1
User-supplied (not included): RJ11 connector

Note

For details about connecting CSs, refer to the Quick Installation Guide for the relevant CS.

Pin Assignments

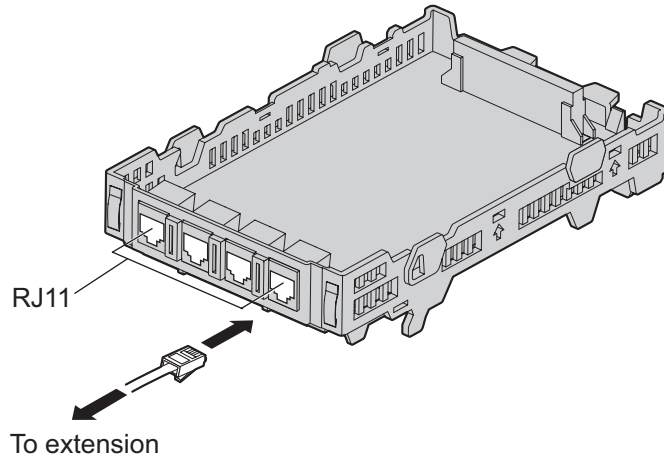#### RJ11 Connector

	Signal Name	Function
	D1	Data port (High)
	T	Tip
	R	Ring
	D2	Data port (Low)

2.4.2 DLC4 Card (KX-TDA5171)

Function

4-port digital extension card for DPTs, DSS consoles, a VPS, and PT-interface CSs.[1]

[1] The PT-interface CS can be connected to the PBX using a cable like a PT.

RJ11

To extension

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1
User-supplied (not included): RJ11 connector

Note

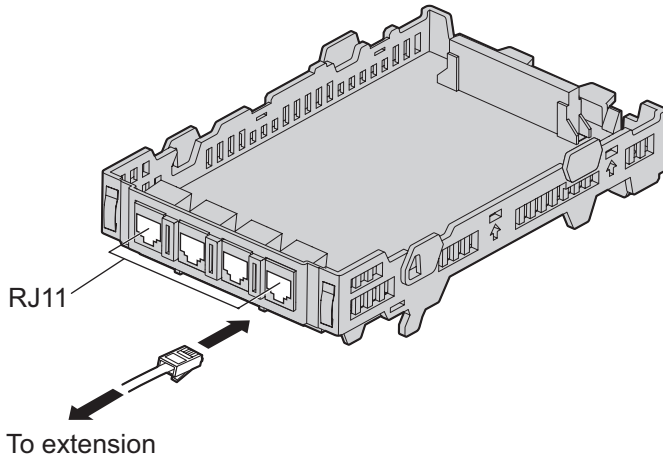For details about connecting CSs, refer to the Quick Installation Guide for the relevant CS.

Pin Assignments

RJ11 Connector

	Signal Name	Function
D2 D1 4 1	D1	Data port (High)
	D2	Data port (Low)
	–	Reserved

2.4.3 SLC4 Card (KX-TDA5173)

Function

4-port extension card for SLTs.

RJ11

To extension

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1
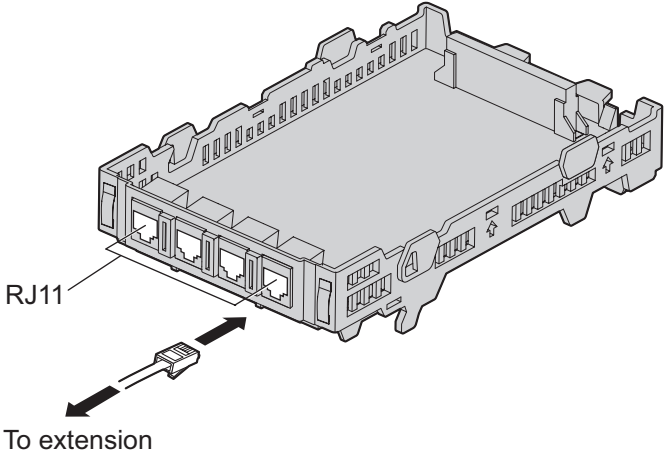**User-supplied (not included):** RJ11 connector

Pin Assignments

RJ11 Connector

	Signal Name	Function
R T 4 1	T	Tip
	R	Ring
	–	Reserved

2.4.4 PLC4 Card (KX-TDA5175)

Function

4-port extension card for APTs, DSS consoles, and a VPS.

RJ11

To extension

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1
User-supplied (not included): RJ11 connector
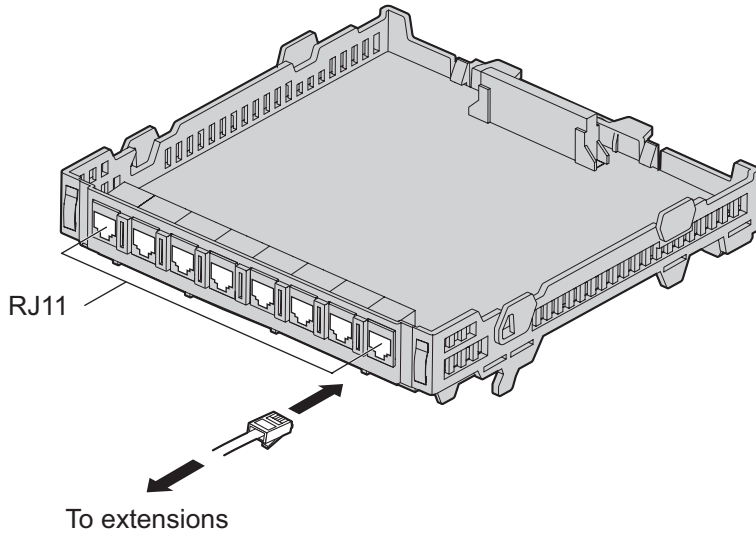
Pin Assignments

RJ11 Connector

	Signal Name	Function
D2 D1 R T 4 1	D1	Data port (High)
	T	Tip
	R	Ring
	D2	Data port (Low)

2.4.5 DLC8 Card (KX-TDA5172)

Function

8-port digital extension card for DPTs, DSS consoles, a VPS, and PT-interface CSs.[1]

[1] The PT-interface CS can be connected to the PBX using a cable like a PT.

RJ11

To extensions

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1
User-supplied (not included): RJ11 connector

Note

For details about connecting the CS, refer to the Quick Installation Guide for the relevant CS.
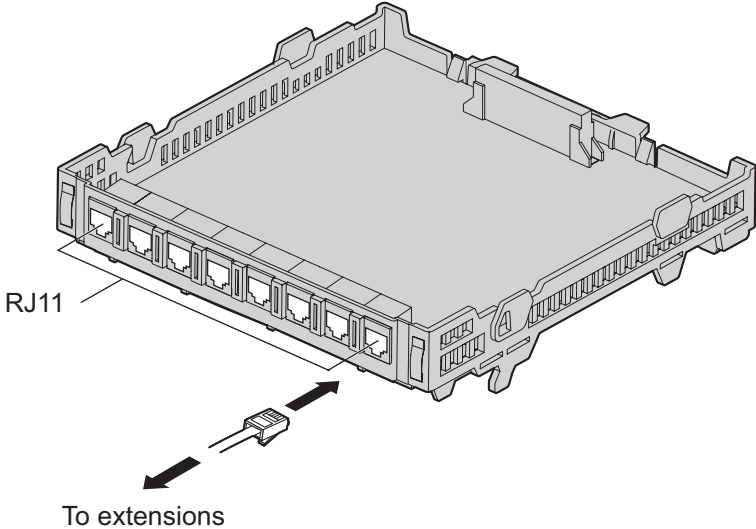
Pin Assignments

RJ11 Connector

	Signal Name	Function
D2 D1	D1	Data port (High)
	D2	Data port (Low)
4 1	–	Reserved

2.4.6 SLC8 Card (KX-TDA5174)

Function

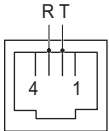8-port extension card for SLTs.

RJ11

To extensions

Accessories and User-supplied Items

Accessories (included): Extension Bolt ×1, Strap × 1
User-supplied (not included): RJ11 connector

Pin Assignments

RJ11 Connector

	Signal Name	Function
R T 4 1	T	Tip
	R	Ring
	–	Reserved

2.4.7 PLC8 Card (KX-TDA5176)

Function

8-port extension card for APTs, DSS consoles, and a VPS.

RJ11

To extensions

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1
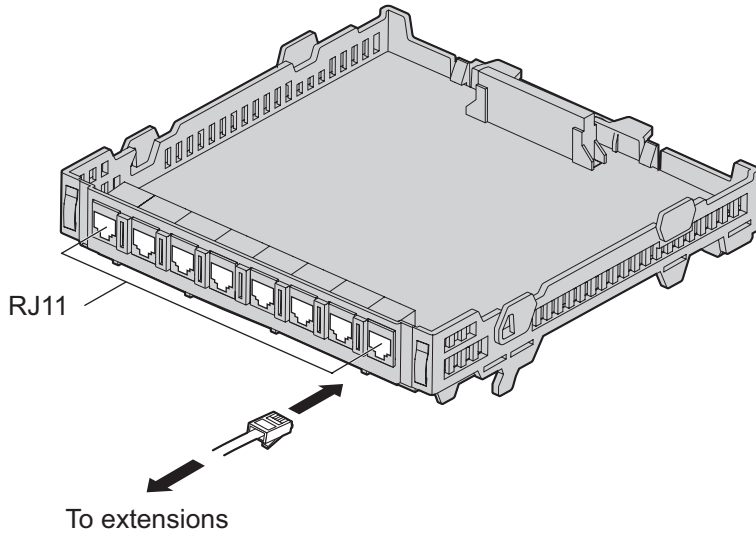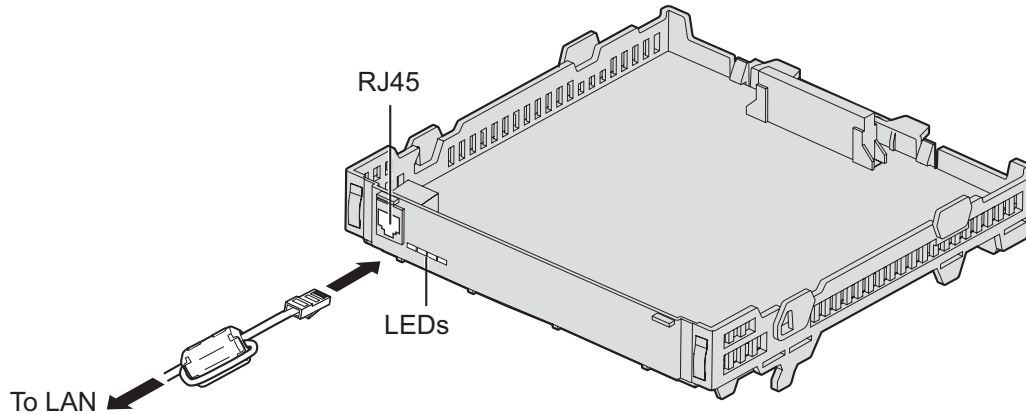**User-supplied (not included):** RJ11 connector

Pin Assignments

RJ11 Connector

	Signal Name	Function
	D1	Data port (High)
D2 D1 R T 4 1	T	Tip
	R	Ring
	D2	Data port (Low)

2.4.8 IP-EXT4 Card (KX-TDA5470)

Function

4-channel VoIP extension card. Compliant with Panasonic proprietary protocol, and ITU-T G.729A and G.711 codec methods.

Accessories and User-supplied Items

Accessories (included): Ferrite core × 1, Extension Bolt × 1, Strap × 1
User-supplied (not included): RJ45 connector

Note

- The maximum length of the cable to be connected to this optional service card is 100 m (328 ft).
- When connecting the RJ45 connector, attach the included ferrite core. Refer to "2.2.8 Attaching a Ferrite Core".
- Portions of this product contains software of Datalight, Inc. Copyright 1993-2000 Datalight,Inc., All Rights Reserved.

Pin Assignments

RJ45 Connector (100BASE-TX)

	Signal Name	Input (I)/Output (O)	Function
TPO+ TPO- TPI+ TPI- 1 8	TPO+	O	Transmit data+
	TPO-	O	Transmit data-
	TPI+	I	Receive data+
	TPI-	I	Receive data-
	–	–	Reserved

LED Indications

| Indication	Color	Description
ON LINE	Green	On-line status indication • ON: At least one port is in use (an IP-PT is connected) • OFF: No ports are in use (no IP-PTs are connected) **Note** If the LINK indicator is OFF, the ON LINE indicator will also be OFF.
ALARM	Red	Alarm indication • ON: Alarm • OFF: Normal
LINK	Green	Link status indication • ON: Normal connection • OFF: Connection error
DATA	Green	Data transmission indication • ON: Data transmitting • OFF: No data transmitted

2.5 Information about the Other Cards

2.5.1 DPH4 Card (KX-TDA5161)

Function

4-port doorphone card for 4 doorphones, 4 door openers or external relays, and 4 external sensors.
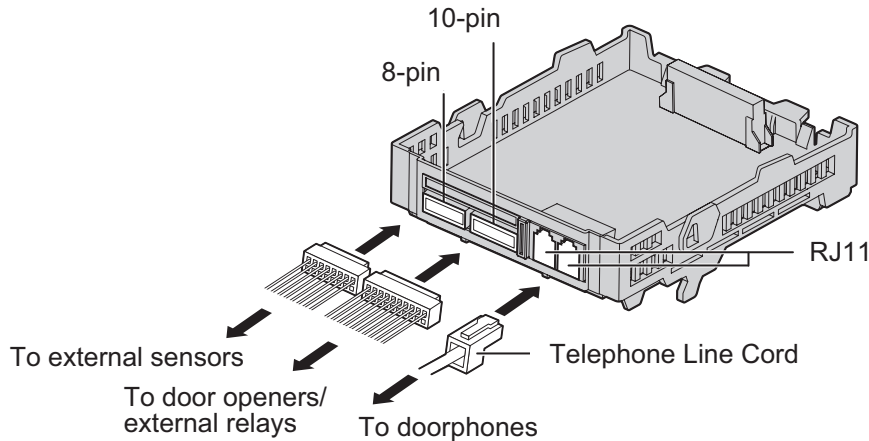
Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Strap × 1, 8-pin terminal block × 1, 10-pin terminal block × 1, Telephone Line Cord × 2, Terminal Box × 2

User-supplied (not included): Copper wire
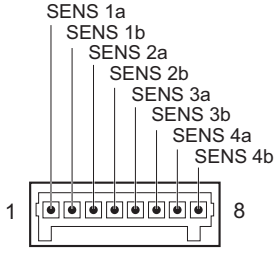
Note

For details about connection to doorphones, door openers, external sensors, and external relays, refer to "2.7.1 Connection of Doorphones, Door Openers, External Sensors, and External Relays".
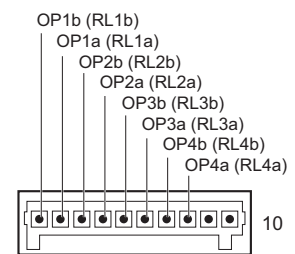
Pin Assignments

RJ11 Connector

	Signal Name	Function
	DP2	Doorphone 2 transmit
	DP1	Doorphone 1 transmit
	com1	Doorphone 1 receive
	com2	Doorphone 2 receive
	DP4	Doorphone 4 transmit
	DP3	Doorphone 3 transmit
	com3	Doorphone 3 receive
	com4	Doorphone 4 receive

8-pin Terminal Block

	Signal Name	Function
SENS 1a SENS 1b SENS 2a SENS 2b SENS 3a SENS 3b SENS 4a SENS 4b 1 8	SENS 1a	Sensor Input 1
	SENS 1b	com 1
	SENS 2a	Sensor Input 2
	SENS 2b	com 2
	SENS 3a	Sensor Input 3
	SENS 3b	com 3
	SENS 4a	Sensor Input 4
	SENS 4b	com 4

10-pin Terminal Block

	Signal Name	Function
OP1b (RL1b) OP1a (RL1a) OP2b (RL2b) OP2a (RL2a) OP3b (RL3b) OP3a (RL3a) OP4b (RL4b) OP4a (RL4a) 1 10	OP1b (RL1b)	Door opener 1 (Relay 1)
	OP1a (RL1a)	Door opener 1 com (Relay 1 com)
	OP2b (RL2b)	Door opener 2 (Relay 2)
	OP2a (RL2a)	Door opener 2 com (Relay 2 com)
	OP3b (RL3b)	Door opener 3 (Relay 3)
	OP3a (RL3a)	Door opener 3 com (Relay 3 com)
	OP4b (RL4b)	Door opener 4 (Relay 4)
	OP4a (RL4a)	Door opener 4 com (Relay 4 com)
	–	Reserved

## Connection Diagram for External Sensors and External Relays

Power to the external sensor is provided from the DPH4 card and must be grounded through the DPH4 card as indicated in the diagram below. A pair of "sensor" and "common" lines must be connected to the DPH4 card for each external sensor. The PBX detects input from the sensor when the signal is under 100 Ω.
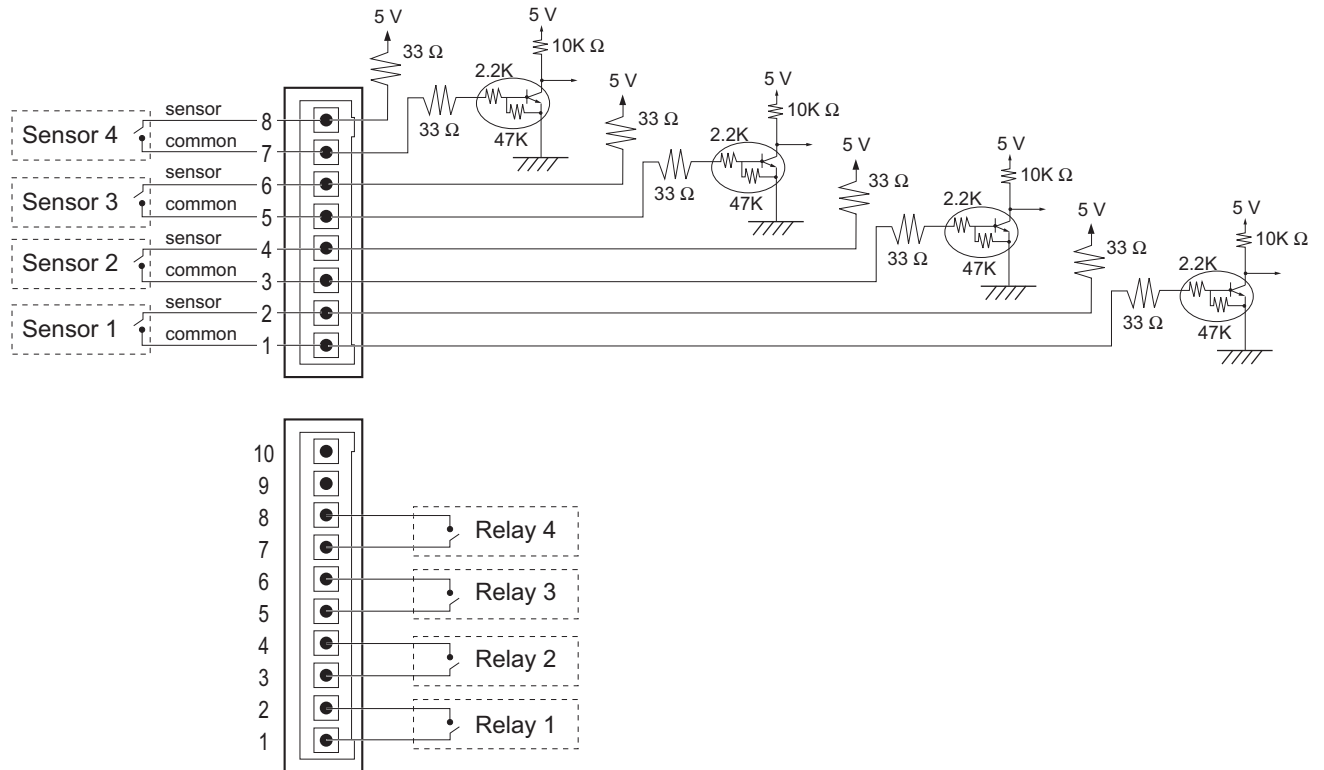
2.5.2 ECHO8 Card (KX-TDA5166)

Function

8-channel card for echo cancellation during conferences.
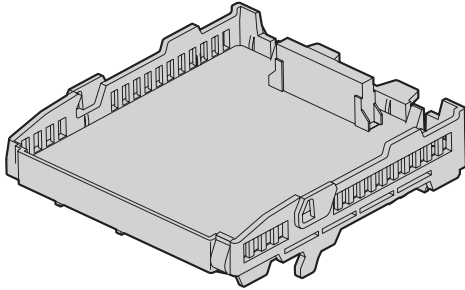
Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Screw × 1
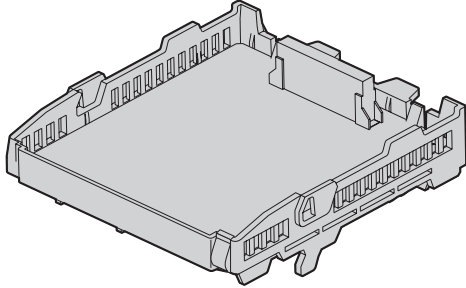**User-supplied (not included):** none

Note

To establish a conference call involving 6 to 8 parties, install an ECHO8 card and enable echo cancellation for conferences using the Maintenance Console. For details, refer to "◆ Echo Cancel—Conference" in "4.17 [2-9] System Options" of the PC Programming Manual.

2.5.3 MSG2 Card (KX-TDA5191)

Function

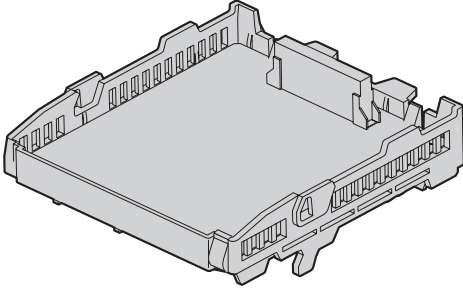2-channel message card.

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Screw × 1
User-supplied (not included): none

2.5.4 SVM2 Card (KX-TDA5192)

Function

2-channel simplified voice message card for Simplified Voice Message feature.
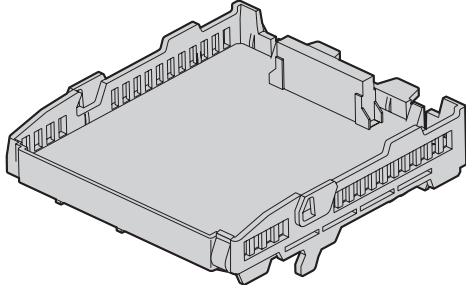

Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Screw × 1
User-supplied (not included): none

2.5.5 ESVM2 Card (KX-TDA5194)

Function

2-channel simplified voice message card for Simplified Voice Message feature. Also supports MSG card features.
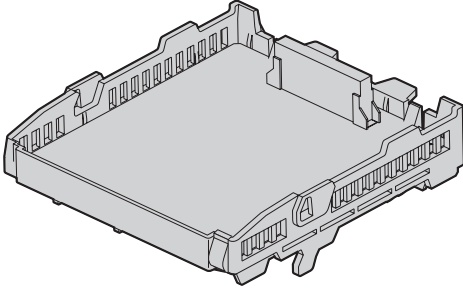
Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Screw × 1
User-supplied (not included): none

2.5.6 EXT-CID Card (KX-TDA5168)

Function

Sends Caller ID signals to extension ports.

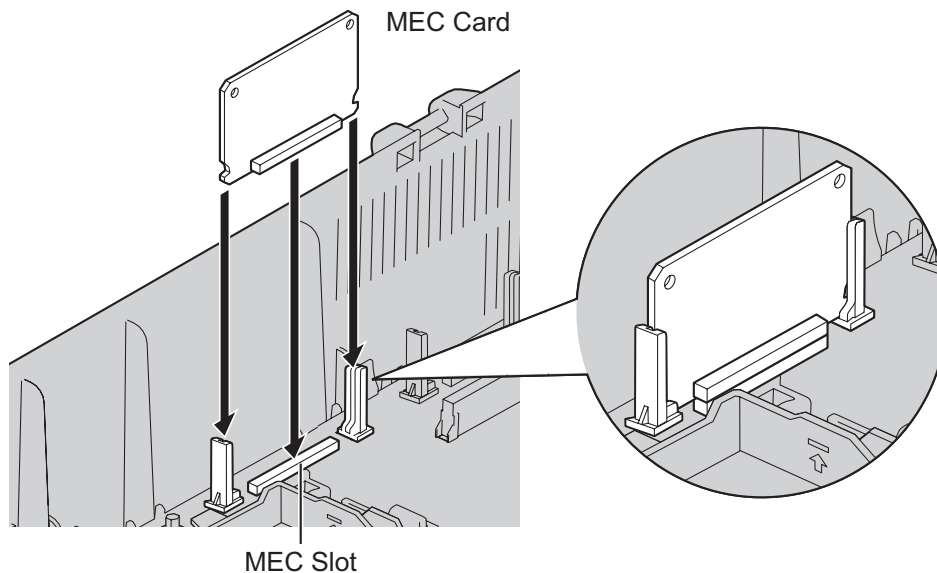### Accessories and User-supplied Items

Accessories (included): Extension Bolt × 1, Screw × 1
User-supplied (not included): none

2.5.7 MEC Card (KX-TDA5105)

Function

Memory expansion card to increase system data storage space, double the number of DPTs (using Digital XDP connection), and display language selection for VM Menu. To be installed in the MEC slot.

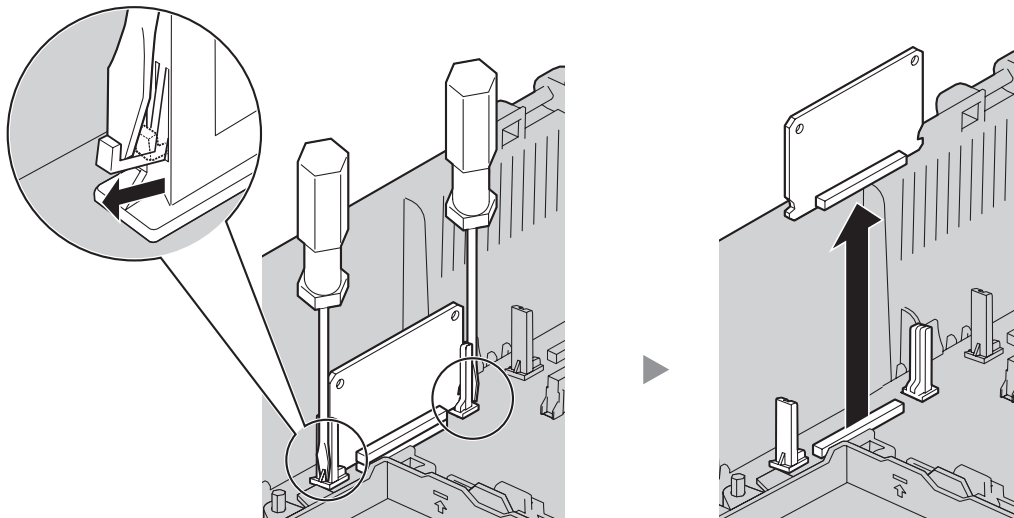### Accessories and User-supplied Items

Accessories (included): none
User-supplied (not included): none

CAUTION

Make sure to insert the MEC card between the guide rails until it locks into the MEC slot. Push the card firmly into place until you hear a clicking sound.
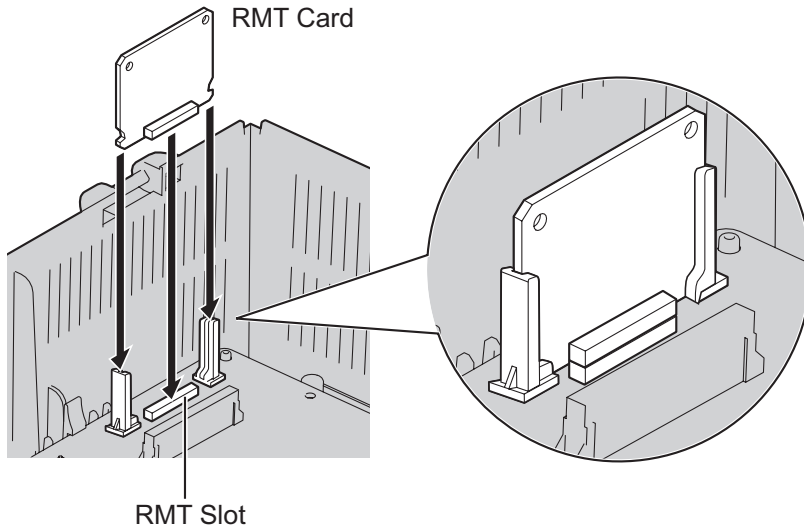
Removing the MEC Card

Pull open the guide rails using a flathead screwdriver and, while holding them open, remove the MEC card.

2.5.8 RMT Card (KX-TDA5196)

Function

Analog modem card for remote communication with the PBX. ITU-T V.90 support.

RMT Card

RMT Slot

### Accessories and User-supplied Items

Accessories (included): none
User-supplied (not included): none

CAUTION

Make sure to insert the RMT card between the guide rails until it locks into the RMT slot. Push the card firmly into place until you hear a clicking sound.
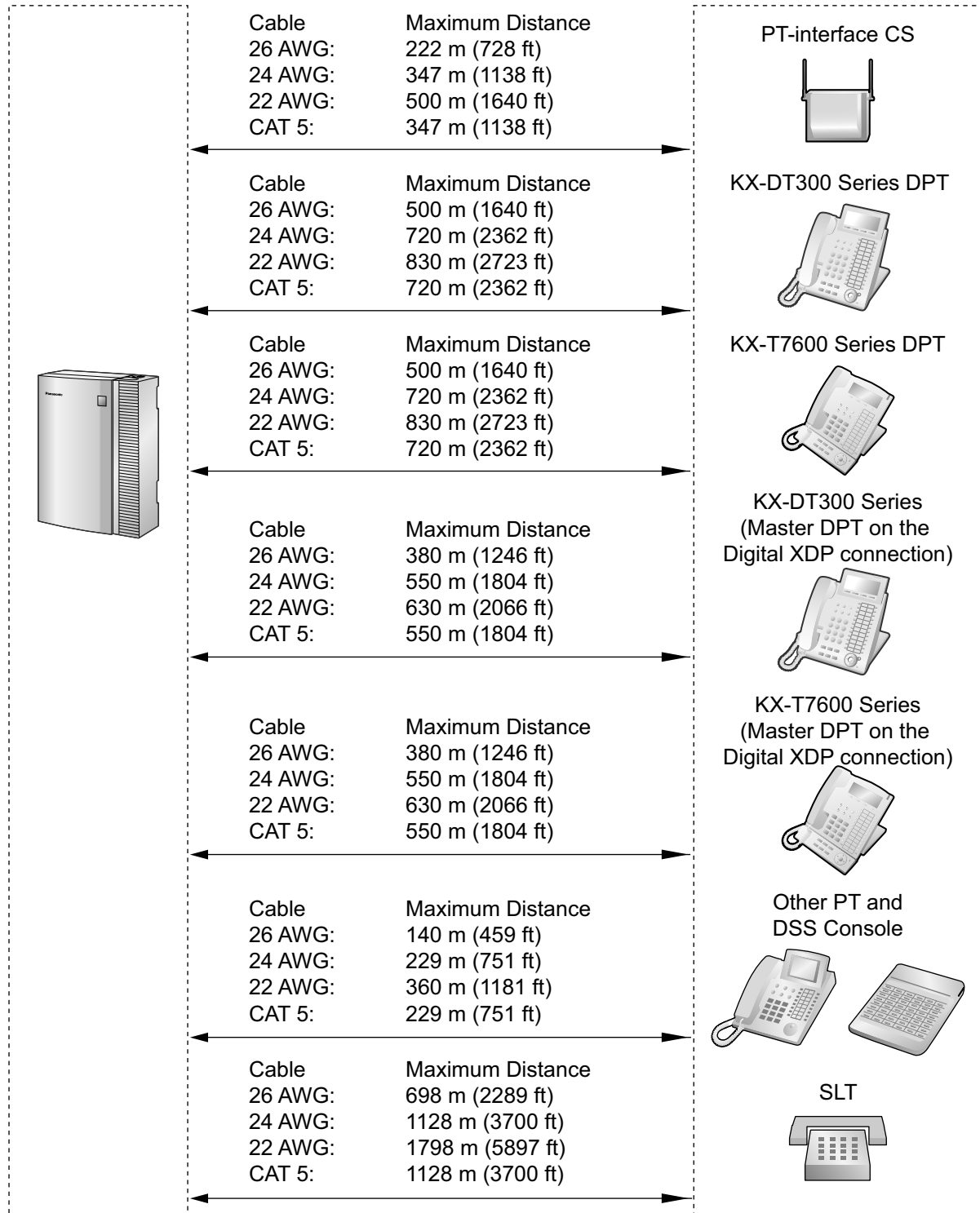
Removing the RMT Card

Pull open the guide rails using a flathead screwdriver and, while holding them open, remove the RMT card.
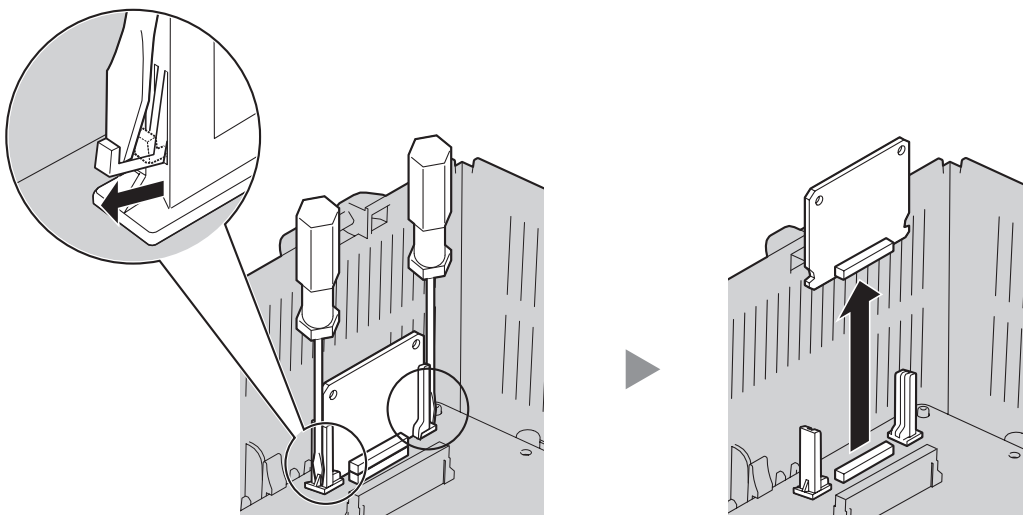
2.6 Connection of Extensions

2.6.1 Maximum Cabling Distances of the Extension Wiring (Twisted Cable)

Cable	Maximum Distance
26 AWG:	222 m (728 ft)
24 AWG:	347 m (1138 ft)
22 AWG:	500 m (1640 ft)
CAT 5:	347 m (1138 ft)

PT-interface CS

Cable	Maximum Distance
26 AWG:	500 m (1640 ft)
24 AWG:	720 m (2362 ft)
22 AWG:	830 m (2723 ft)
CAT 5:	720 m (2362 ft)

KX-DT300 Series DPT

Cable	Maximum Distance
26 AWG:	500 m (1640 ft)
24 AWG:	720 m (2362 ft)
22 AWG:	830 m (2723 ft)
CAT 5:	720 m (2362 ft)

KX-T7600 Series DPT

Cable	Maximum Distance
26 AWG:	380 m (1246 ft)
24 AWG:	550 m (1804 ft)
22 AWG:	630 m (2066 ft)
CAT 5:	550 m (1804 ft)

KX-DT300 Series
(Master DPT on the
Digital XDP connection)

Cable	Maximum Distance
26 AWG:	380 m (1246 ft)
24 AWG:	550 m (1804 ft)
22 AWG:	630 m (2066 ft)
CAT 5:	550 m (1804 ft)

KX-T7600 Series
(Master DPT on the
Digital XDP connection)

Cable	Maximum Distance
26 AWG:	140 m (459 ft)
24 AWG:	229 m (751 ft)
22 AWG:	360 m (1181 ft)
CAT 5:	229 m (751 ft)

Other PT and
DSS Console

Cable	Maximum Distance
26 AWG:	698 m (2289 ft)
24 AWG:	1128 m (3700 ft)
22 AWG:	1798 m (5897 ft)
CAT 5:	1128 m (3700 ft)

SLT

Note

The maximum cabling distance may vary depending on the conditions.

	PT-interface CS	DPT	APT	DSS Console		SLT
				KX-DT300/ KX-T7600 series	Other	
Super Hybrid Ports (Main Board)	✓	✓	✓	✓	✓	✓
SLC4, SLC8 Cards						✓
DLC4, DLC8 Cards	✓	✓		✓	✓	
PLC4, PLC8 Cards			✓		✓	
HLC4 Card	✓		✓	✓	✓	✓

"✓" indicates that the extension card or Super Hybrid Ports support the terminal.

2.6.2 Parallel Connection of the Extensions

Any SLT can be connected in parallel with an APT or a DPT as follows.

Note

In addition to an SLT, an answering machine, a fax machine or a modem (PC) can be connected in parallel with an APT and a DPT.
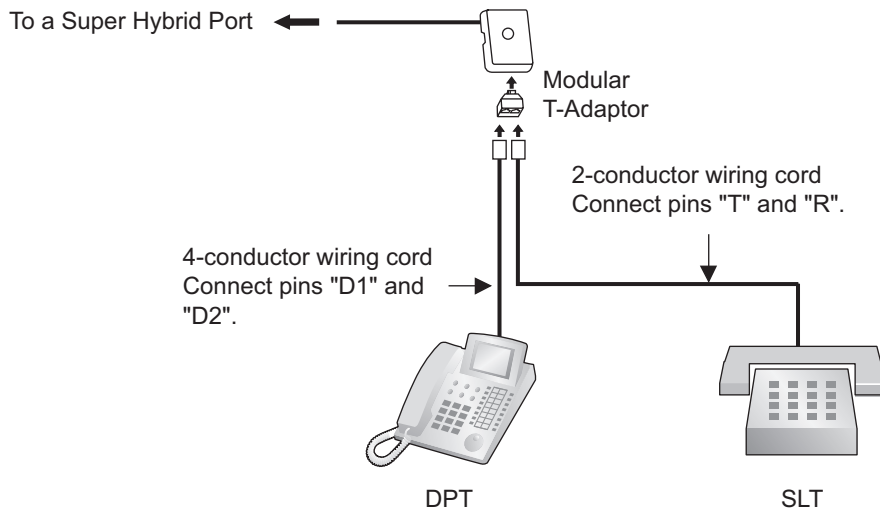
With APT

For parallel connection, eXtra Device Port (XDP) mode must be disabled for that port through system programming. Refer to "13.1.2 Paralleled Telephone" and "5.1.7 Extension Port Configuration" in the Feature Manual for further information.

To a Super Hybrid Port ←

Modular
T-Adaptor

2-conductor wiring cord
Connect pins "T" and "R".

4-conductor wiring cord
Connect pins "T", "R", "D1", →
and "D2".

APT   SLT
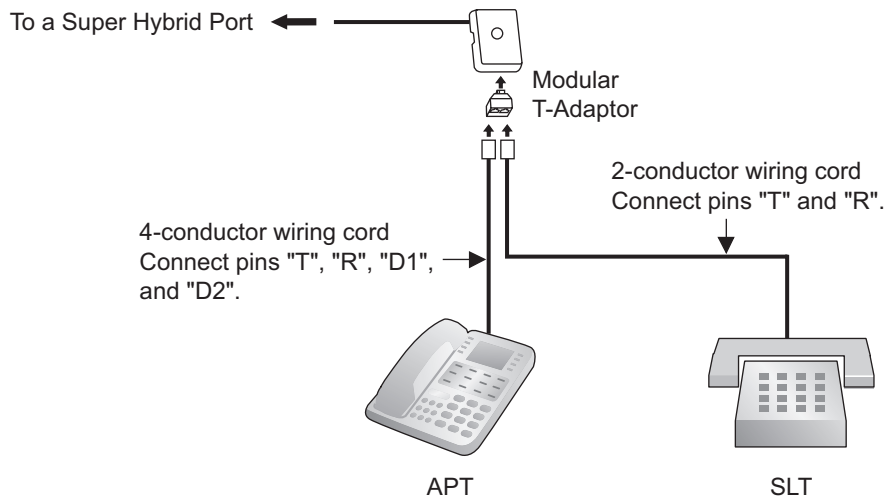
With DPT

Parallel mode or eXtra Device Port (XDP) mode can be selected through system programming.
If XDP mode is enabled through system programming, parallel connection is not possible. Refer to "13.1.2 Paralleled Telephone" and "5.1.7 Extension Port Configuration" in the Feature Manual for further information.
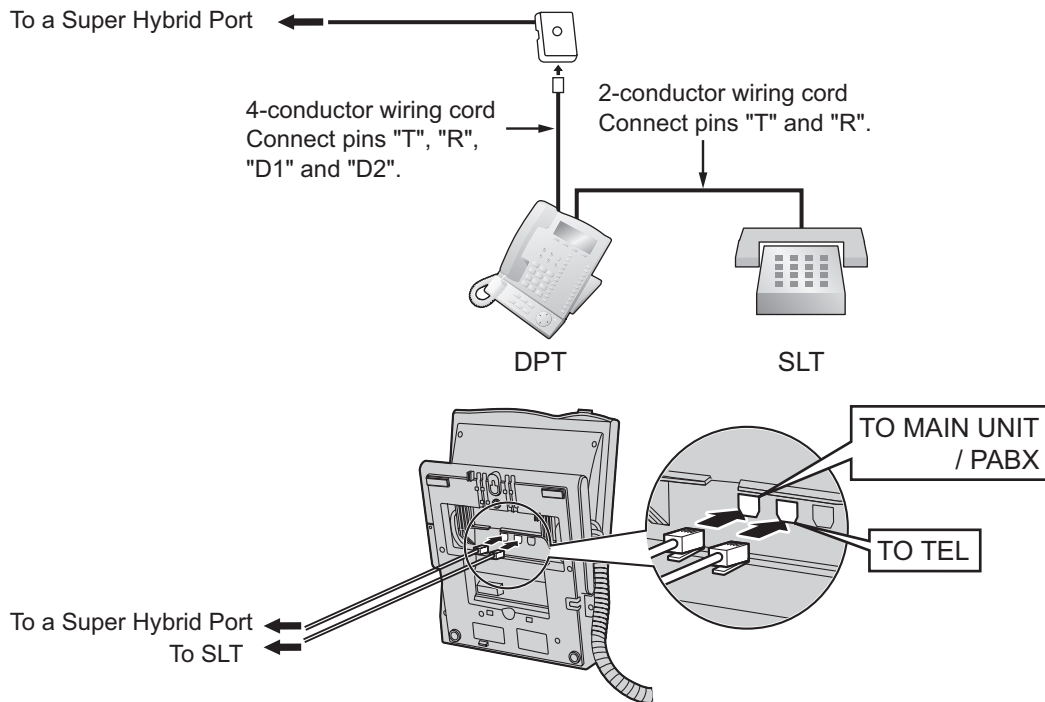
Using a Modular T-Adaptor

To a Super Hybrid Port ←
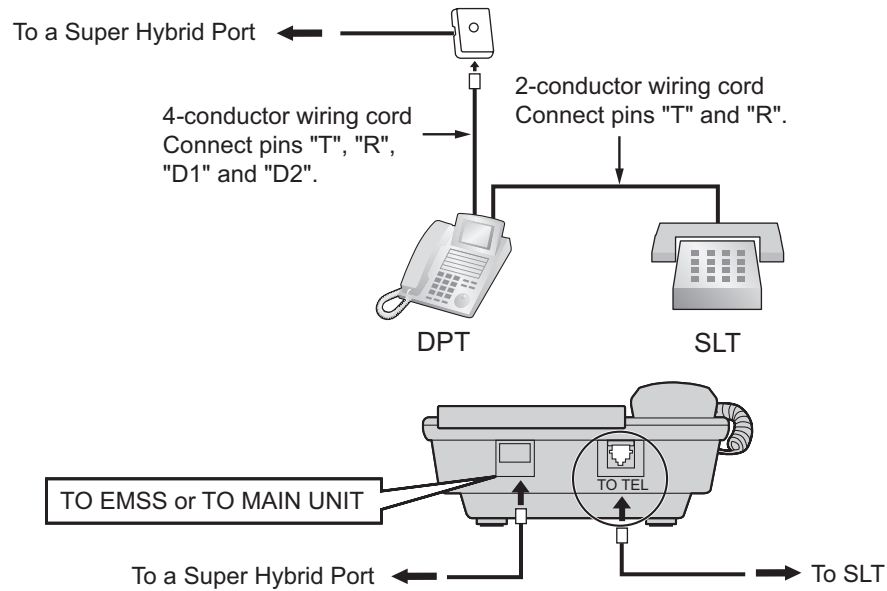
Modular
T-Adaptor

2-conductor wiring cord
Connect pins "T" and "R".

4-conductor wiring cord
Connect pins "D1" and
"D2".

DPT   SLT

Using an EXtra Device Port
With KX-DT300 Series DPT (except KX-DT321)

To a Super Hybrid Port ←

4-conductor wiring cord
Connect pins "T", "R",
"D1" and "D2".

2-conductor wiring cord
Connect pins "T" and "R".

DPT   SLT

TO MAIN UNIT   TO TEL
/ PABX

To a Super Hybrid Port ←
To SLT ←

With KX-T7600 Series DPT

To a Super Hybrid Port ←

4-conductor wiring cord
Connect pins "T", "R",
"D1" and "D2". →

2-conductor wiring cord
Connect pins "T" and "R".

DPT   SLT

TO MAIN UNIT / PABX

TO TEL

To a Super Hybrid Port ←
To SLT ←

With Other DPT

To a Super Hybrid Port ←

4-conductor wiring cord
Connect pins "T", "R",
"D1" and "D2". →

2-conductor wiring cord
Connect pins "T" and "R".

DPT   SLT

TO EMSS or TO MAIN UNIT

TO TEL

To a Super Hybrid Port ←   → To SLT

2.6.3 Digital EXtra Device Port (Digital XDP) Connection

A DPT can be connected to another DPT on the Digital XDP connection. In addition, if the DPT is connected to a Super Hybrid Port, it can also have an SLT connected in Parallel mode or XDP mode.

Note

- Both DPTs must be KX-DT300/KX-T7600 series DPTs (except KX-T7640). Note that the KX-T7667 can only be connected as a slave DPT.
- Bluetooth® Modules or USB Modules must not be connected to DPTs in the Digital XDP connection.
- Parallel mode or XDP mode can be selected through system programming.
- If XDP mode is enabled through system programming, parallel connection is not possible. Refer to "13.1.2 Paralleled Telephone" and "5.1.7 Extension Port Configuration" in the Feature Manual for further information.

With KX-DT300 Series DPT
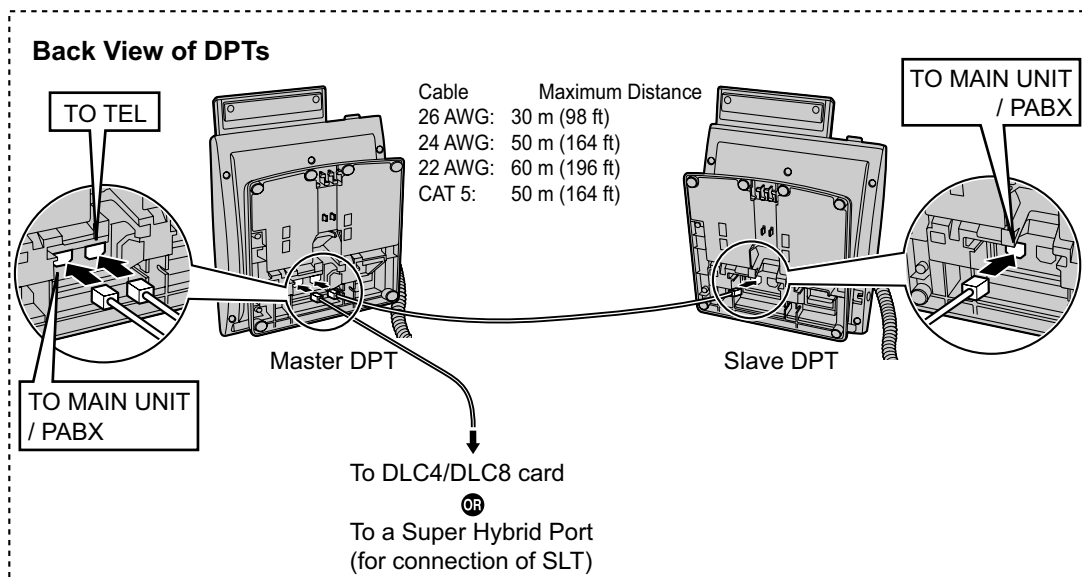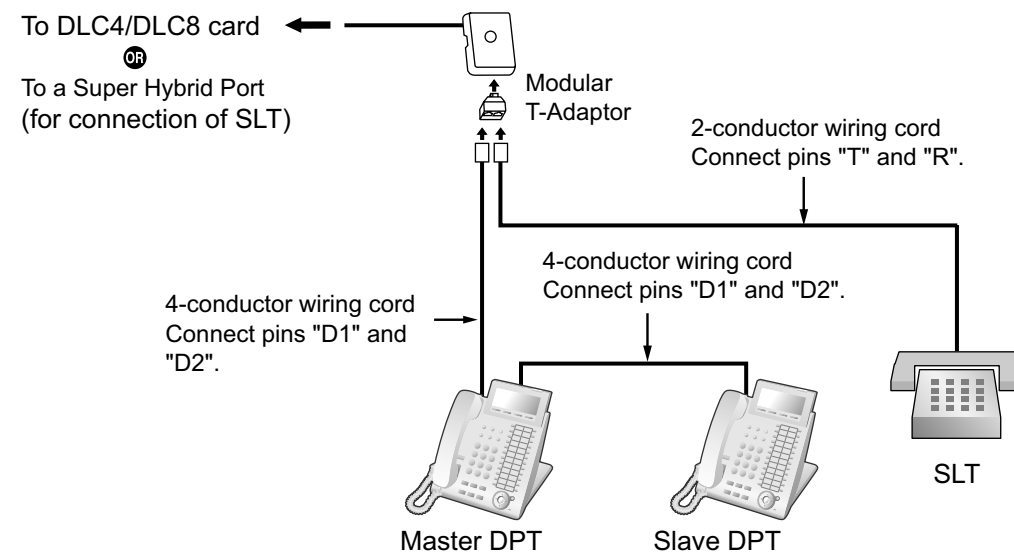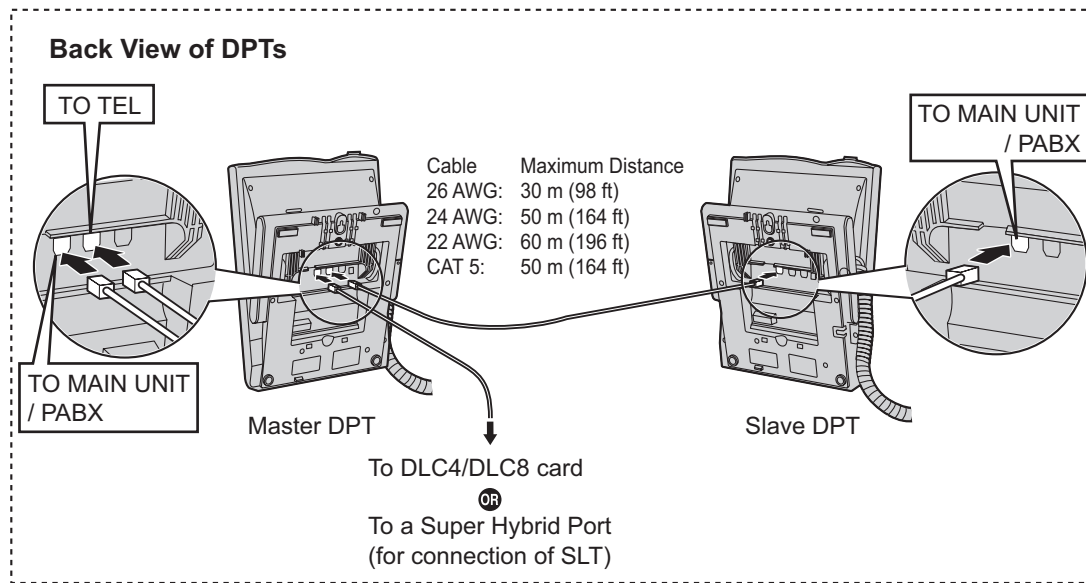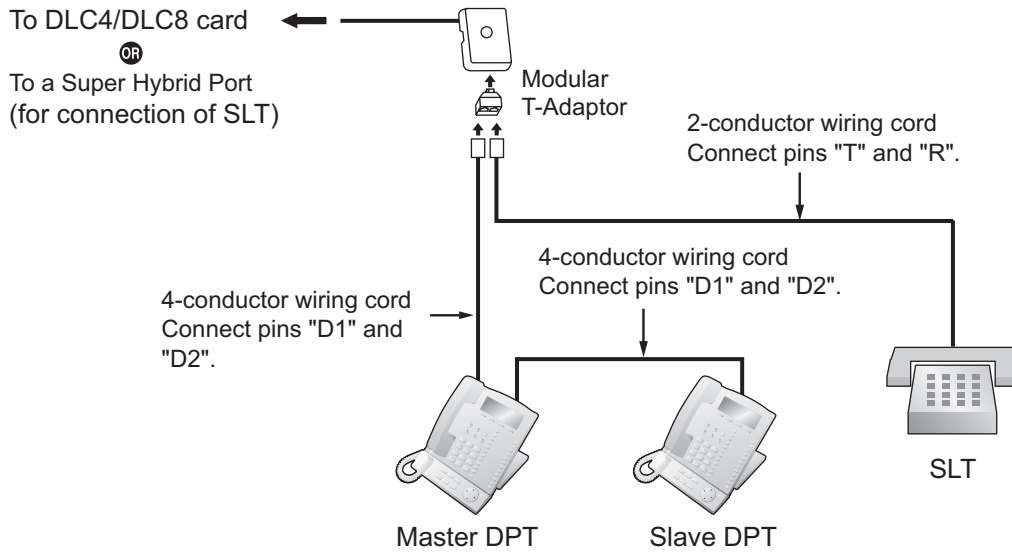
Using a Modular T-Adaptor
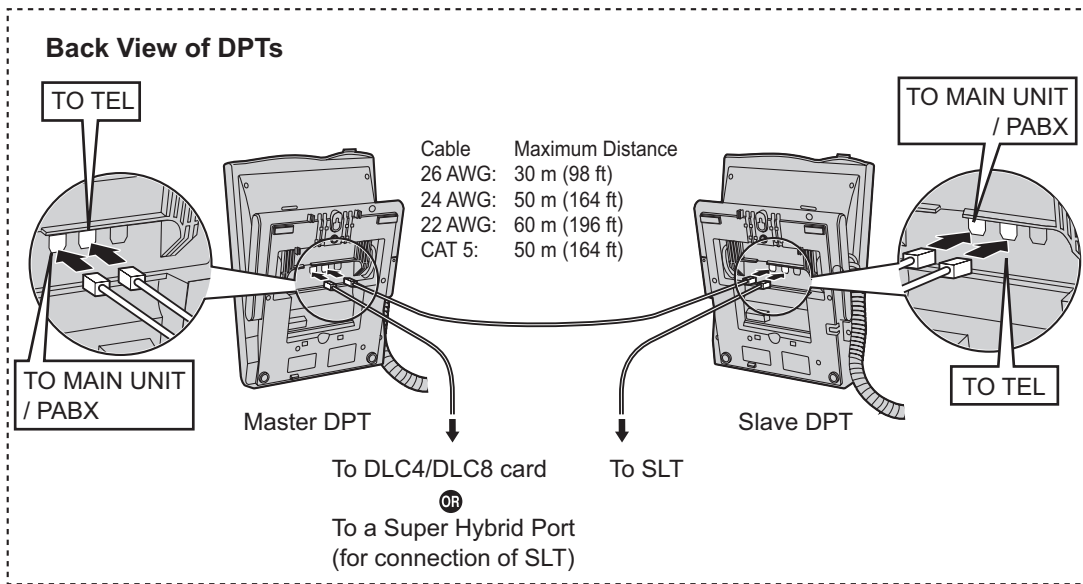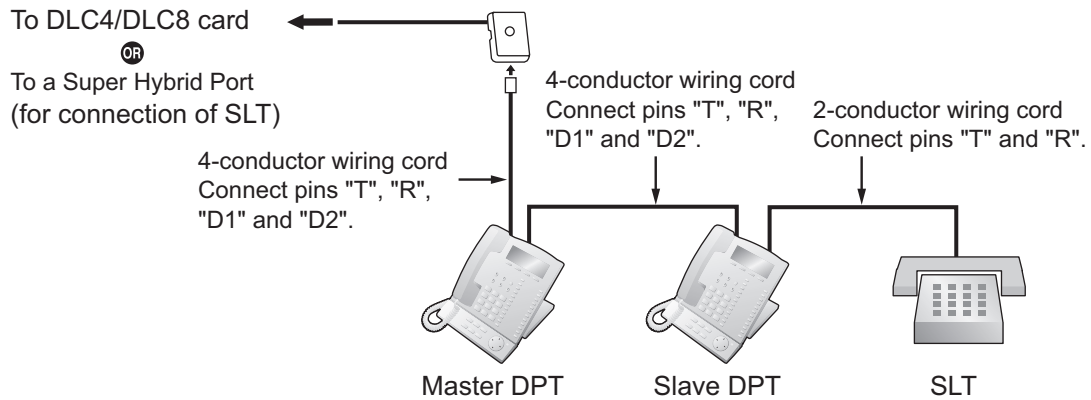
Using an EXtra Device Port

To DLC4/DLC8 card
OR
To a Super Hybrid Port
(for connection of SLT)

4-conductor wiring cord
Connect pins "T", "R",
"D1" and "D2".

4-conductor wiring cord
Connect pins "T", "R",
"D1" and "D2".

2-conductor wiring cord
Connect pins "T" and "R".

Master DPT   Slave DPT   SLT

Back View of DPTs

TO TEL

TO MAIN UNIT
/ PABX

Cable	Maximum Distance
26 AWG:	30 m (98 ft)
24 AWG:	50 m (164 ft)
22 AWG:	60 m (196 ft)
CAT 5:	50 m (164 ft)

TO MAIN UNIT
/ PABX

TO TEL

Master DPT   Slave DPT

TO MAIN UNIT
/ PABX

To DLC4/DLC8 card   To SLT
OR
To a Super Hybrid Port
(for connection of SLT)

With KX-T7600 Series DPT

Using a Modular T-Adaptor

To DLC4/DLC8 card
OR
To a Super Hybrid Port
(for connection of SLT)

Modular
T-Adaptor

2-conductor wiring cord
Connect pins "T" and "R".

4-conductor wiring cord
Connect pins "D1" and "D2".

4-conductor wiring cord
Connect pins "D1" and "D2".

Master DPT   Slave DPT   SLT

Back View of DPTs

TO TEL

TO MAIN UNIT
/ PABX

Cable	Maximum Distance
26 AWG:	30 m (98 ft)
24 AWG:	50 m (164 ft)
22 AWG:	60 m (196 ft)
CAT 5:	50 m (164 ft)

TO MAIN UNIT
/ PABX

TO MAIN UNIT
/ PABX

Master DPT   Slave DPT

To DLC4/DLC8 card
OR
To a Super Hybrid Port
(for connection of SLT)

Using an EXtra Device Port

To DLC4/DLC8 card
OR
To a Super Hybrid Port
(for connection of SLT)

4-conductor wiring cord
Connect pins "T", "R",
"D1" and "D2".

4-conductor wiring cord
Connect pins "T", "R",
"D1" and "D2".

2-conductor wiring cord
Connect pins "T" and "R".

Master DPT   Slave DPT   SLT

Back View of DPTs

TO TEL

TO MAIN UNIT
/ PABX

Cable	Maximum Distance
26 AWG:	30 m (98 ft)
24 AWG:	50 m (164 ft)
22 AWG:	60 m (196 ft)
CAT 5:	50 m (164 ft)

TO MAIN UNIT
/ PABX

TO TEL

Master DPT   Slave DPT

To DLC4/DLC8 card
OR
To a Super Hybrid Port
(for connection of SLT)

To SLT

2.6.4 First Party Call Control CTI Connection

CTI connection between a PC and a KX-DT343/KX-DT346/KX-T7633/KX-T7636 DPT provides first party call control. The CTI connection is made via a USB interface (version 2.0), and uses the TAPI 2.1 protocol.
A USB Module must be connected to the DPTs.

Note

The operating system of the PC required for first party call control depends on your CTI application software. For details, refer to the manual for your CTI application software.

KX-DT343/KX-DT346
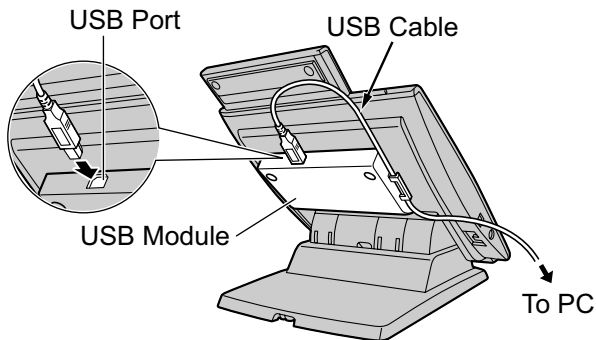
KX-T7633/KX-T7636
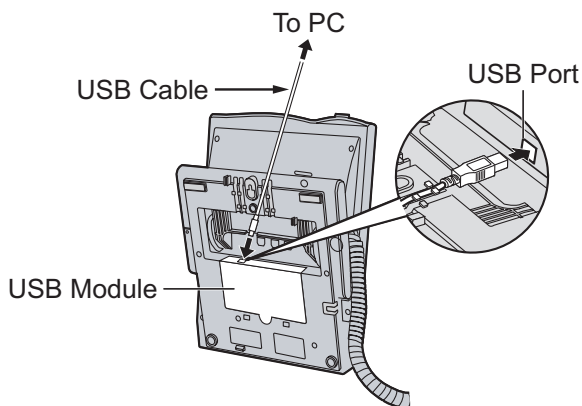
Note

- The maximum length of the USB cable is 3 m (9 ft 10 in).
- USB Modules must not be connected to DPTs in the Digital XDP connection. In a Digital XDP connection, the PC cannot be used. If a USB module is connected to a slave DPT, the DPT will not work properly.

2.7 Connection of Doorphones, Door Openers, External Sensors, and External Relays

2.7.1 Connection of Doorphones, Door Openers, External Sensors, and External Relays

A maximum of 4 doorphones, 4 door openers or external relays, and 4 external sensors can be connected to the PBX.

Note

Doorphones, door openers, external sensors, and external relays are user-supplied.

Maximum Cabling Distance

Cable	Maximum Distance
26 AWG:	70 m (230 ft)
24 AWG:	113 m (371 ft)
22 AWG:	180 m (590 ft)
CAT 5:	113 m (371 ft)

Doorphone

Door Opener

External Sensor/
External Relay Device
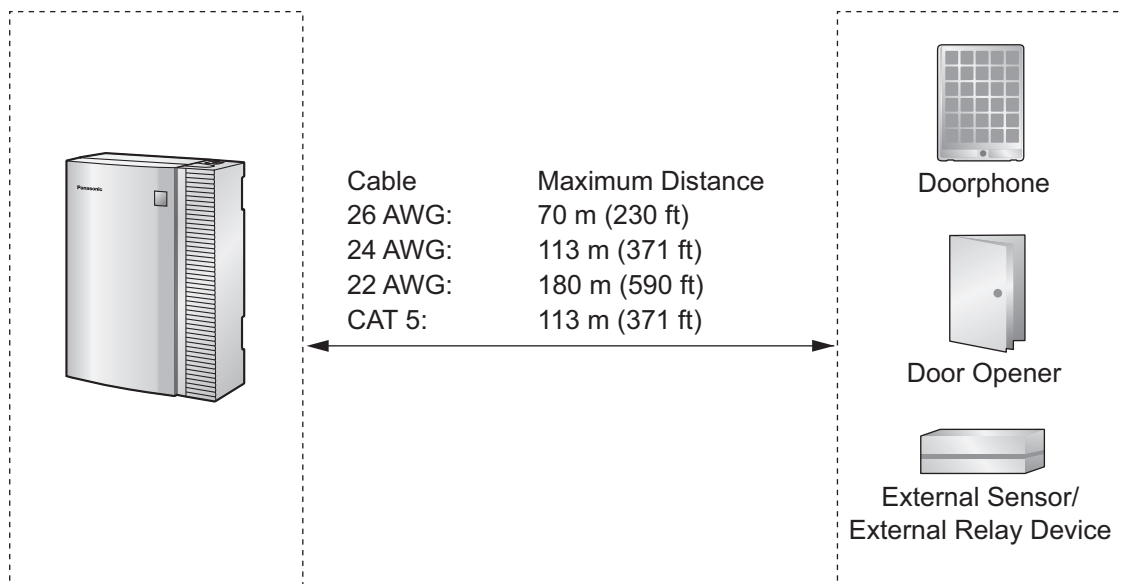
Installing the Doorphone (KX-T30865/KX-T7765/KX-T7775)

Note

- The illustrations shown in the installation procedure are based on the KX-T30865.
- For details about the installation of the KX-T7775, refer to the Operating Instructions of the KX-T7775.

1. Loosen the screw to separate the doorphone into 2 halves.
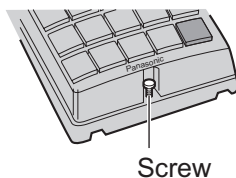
Screw

Note for KX-T7765 Users

When loosening/tightening the screw, do not scratch the cabinet wall with the driver shaft.

Cabinet Wall
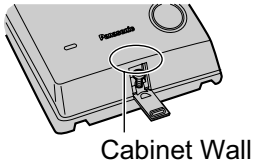
2. Pass the wires through the hole in the base cover, and attach the base cover to a wall using 2 screws.

Screw

➡ To 8-pin terminal block
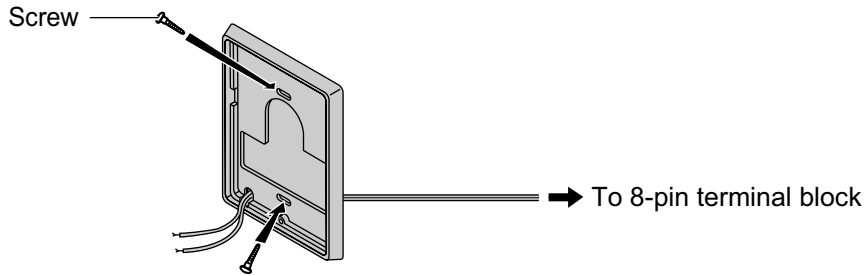
Note

Two kinds of screws are included with the doorphone. Please choose the appropriate kind for your wall type.

: when a doorphone plate has been fixed to the wall

: when you wish to install the doorphone directly to the wall

3. Connect the wires to the screws located in the back cover.

➡ To 8-pin terminal block
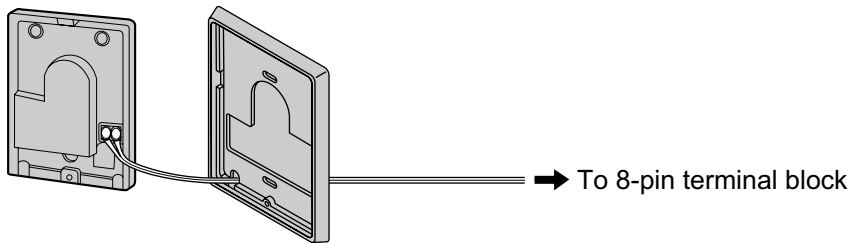
4. Re-attach the 2 halves and re-insert the screw.

Connection of Doorphones

1. Connect DPH4 card to the terminal boxes using telephone line cords. Refer to "2.5.1 DPH4 Card (KX-TDA5161)" for pin assignments.
2. Connect the wires of doorphones 1 and 3 to the red and green screws on the terminal box.
3. Connect the wires of doorphones 2 and 4 to the yellow and black screws on the terminal box.

To DPH4 card

Telephone Line Cord

Terminal Box

Yellow   Black
Red   Green

Doorphone 3   Doorphone 4

Telephone Line Cord

Yellow   Black
Red   Green

Doorphone 1   Doorphone 2
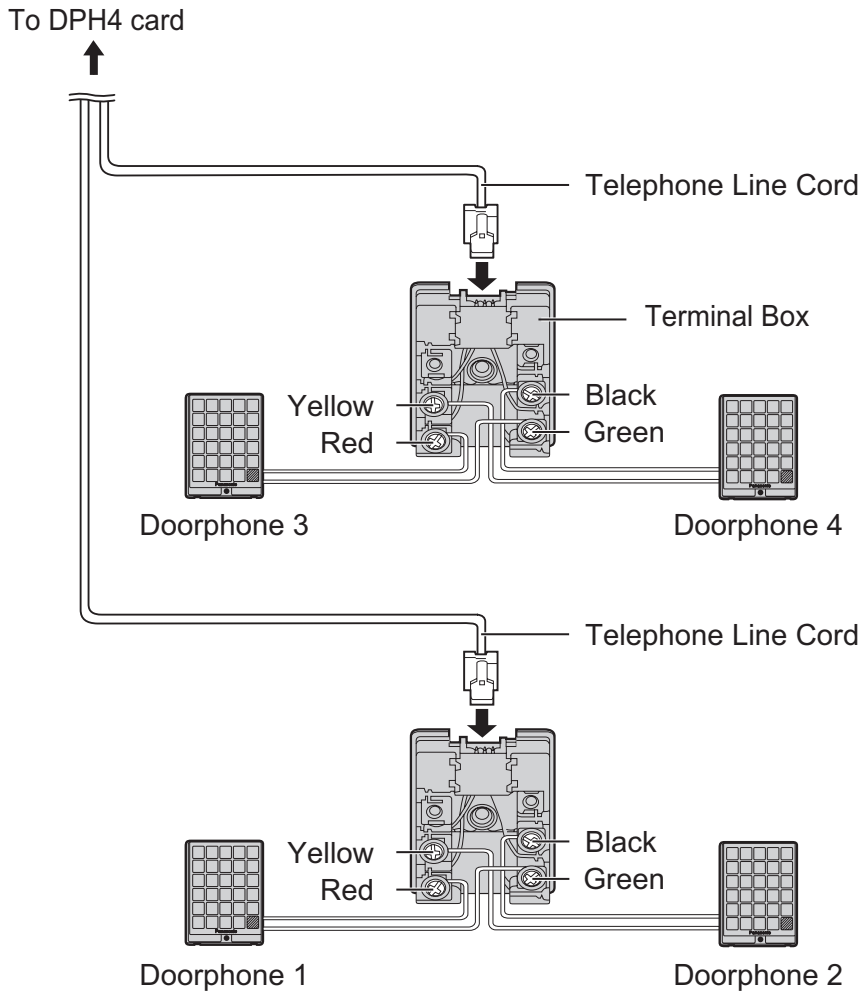
Connection of Door Openers, External Sensors, and External Relays

Use 8-pin and 10-pin terminal blocks (included with the card) for connection.

1. While pressing down on the hole at the top of the terminal block using a screwdriver, insert the wire into the side hole as shown below. Repeat this procedure for other door openers, external sensors, and external relays.
Refer to "2.5.1 DPH4 Card (KX-TDA5161)" for pin assignments.
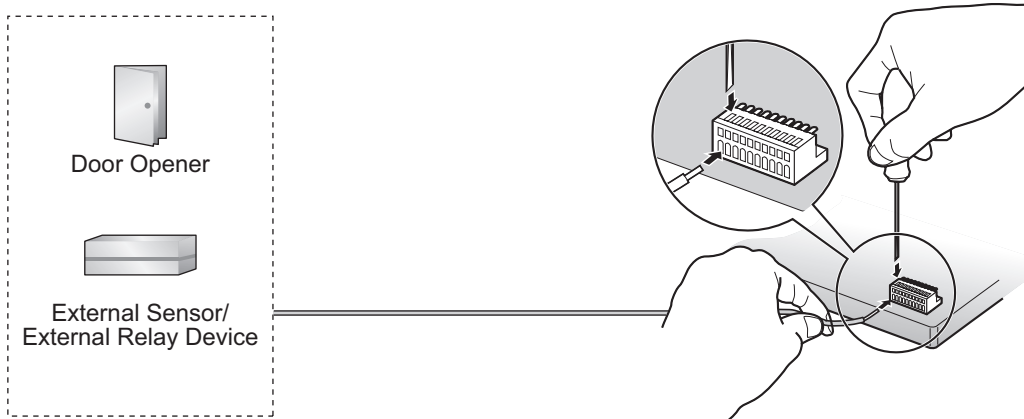
2. Attach the terminal blocks to the connectors of the DPH4 card in the PBX.

To door openers/
external relays

To external sensors
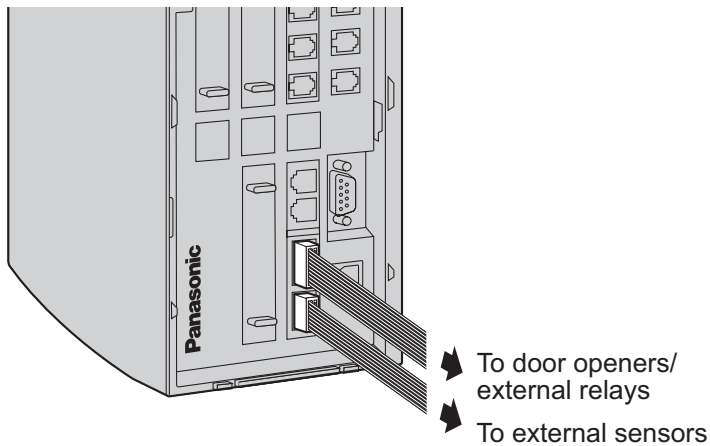
2.8 Connection of Peripherals

2.8.1 Connection of Peripherals
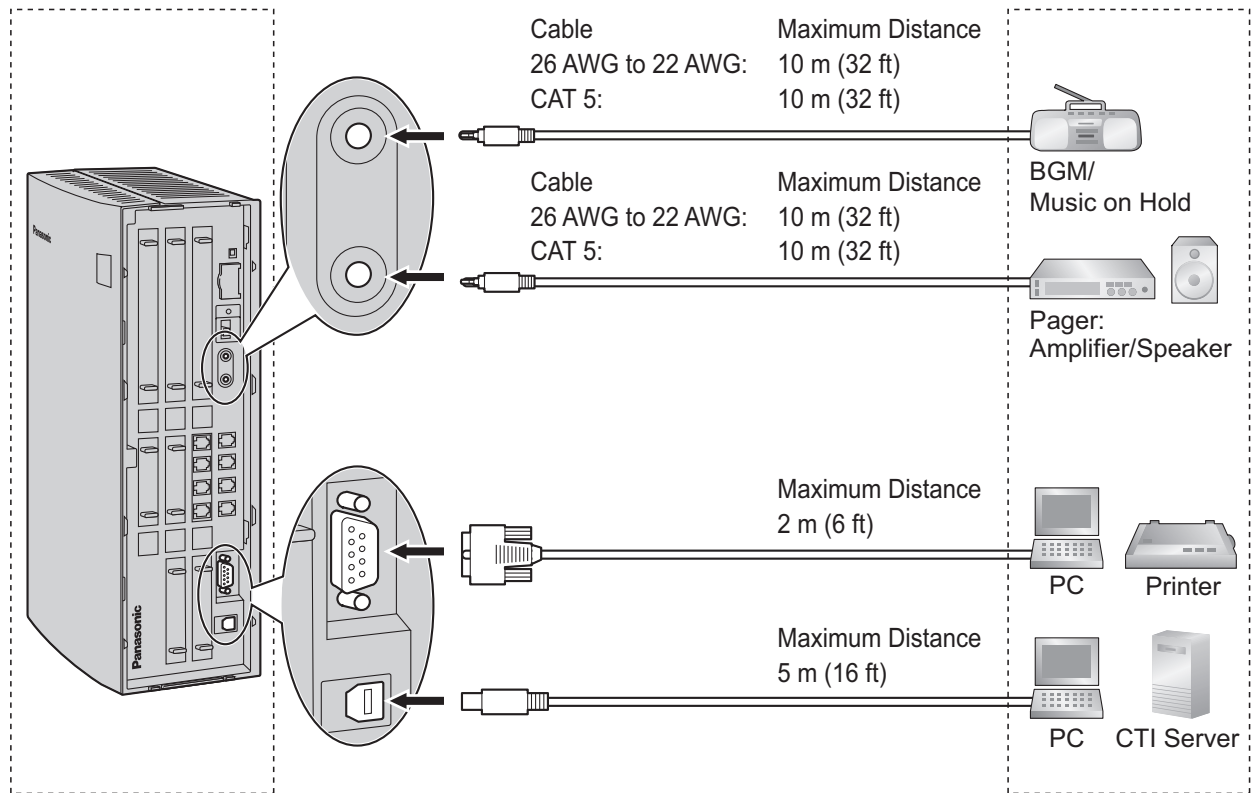
BGM/MOH

The PBX provides Background Music and Music on Hold. Only 1 external music source (e.g., a user-supplied radio) can be connected to the PBX.

CAUTION

- Wiring should be done carefully to prevent undue force being exerted on the plug. Otherwise, sound may only be heard intermittently.
- An External Music Jack is a SELV port and should only be connected to an approved SELV device.

Note

When the PBX and external music sources are not connected to the same ground, hum noise may be induced into Background Music and Music on Hold.

Pager

Only one paging device (user-supplied) can be connected to the PBX.

CAUTION

An External Paging Jack is a SELV port and should only be connected to an approved SELV device.

PC/Printer (via RS-232C)

The PBX is equipped with an RS-232C interface. This interface provides communication between the PBX and the user-supplied devices such as PC or line printers. The RS-232C port is used for system programming, SMDR, diagnostics and external system database storage (save/load) functions.
When using special accessories such as cable, the user should use those specified in this installation manual to comply with the limits for a Class B digital device pursuant to the FCC Rules.
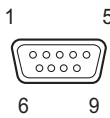
CAUTION

To protect the system, keep the following in mind:
1. Make sure that both connector cases (frame ground) of the RS-232C cross cable (shielded cable) are conductive. If they are not conductive, make sure that both connector cases of the cable are firmly connected.
2. If this is not possible, connect the frame of the PBX to the frame of the PC/Printer using a grounding wire in order to prevent difference in the electrical potentials.

Pin Assignments

	No.	Signal Name	Function	Circuit Type	
				EIA	CCITT
1 5 (connector) 6 9	2	RD (RXD)	Receive Data	BB	104
	3 4	SD (TXD) ER (DTR)	Transmit Data Data Terminal Ready	BA CD	103 108.2
	5 6	SG DR (DSR)	Signal Ground Data Set Ready	AB CC	102 107
	7 8	RS (RTS) CS (CTS)	Request To Send Clear To Send	CA CB	105 106

Connection Charts

For connecting a printer/PC with a 9-pin RS-232C connector

PBX (9-pin)   Printer/PC (9-pin)

Circuit Type (EIA)	Signal Name	Pin No.		Pin No.	Signal Name	Circuit Type (EIA)
BB	RD (RXD)	2		2	RD (RXD)	BB
BA	SD (TXD)	3		3	SD (TXD)	BA
CD	ER (DTR)	4		4	ER (DTR)	CD
AB	SG	5		5	SG	AB
CC	DR (DSR)	6		6	DR (DSR)	CC
CA	RS (RTS)	7		7	RS (RTS)	CA
CB	CS (CTS)	8		8	CS (CTS)	CB
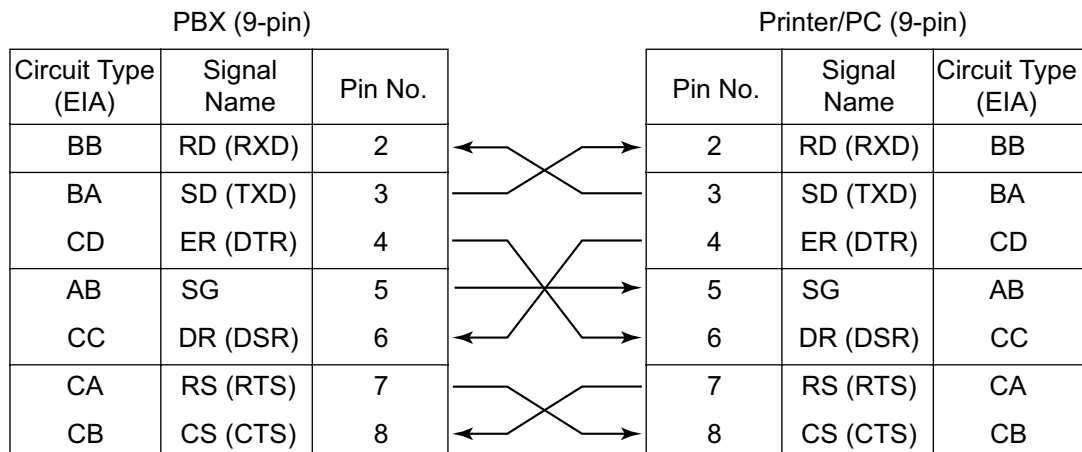
For connecting a printer/PC with a 25-pin RS-232C connector

PBX (9-pin)					Printer/PC (25-pin)		
Circuit Type (EIA)	Signal Name	Pin No.			Pin No.	Signal Name	Circuit Type (EIA)
BB	RD (RXD)	2			1	FG	AA
BA	SD (TXD)	3			3	RD (RXD)	BB
CD	ER (DTR)	4			2	SD (TXD)	BA
AB	SG	5			20	ER (DTR)	CD
CC	DR (DSR)	6			7	SG	AB
CA	RS (RTS)	7			5	CS (CTS)	CB
CB	CS (CTS)	8			6	DR (DSR)	CC
					4	RS (RTS)	CF
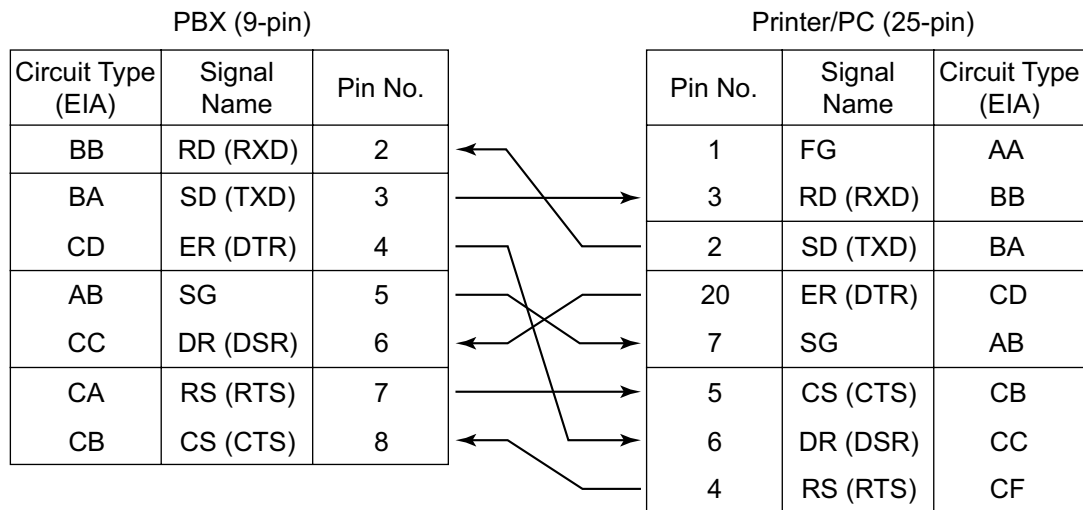
RS-232C Signals

- **Receive Data (RXD):**…(input)
  Conveys signals from the printer or the PC.
- **Transmit Data (TXD):**…(output)
  Conveys signals from the unit to the printer or the PC. A "Mark" condition is held unless data or BREAK signals are being transmitted.
- **Data Terminal Ready (DTR):**…(output)
  This signal line is turned ON by the unit to indicate that it is ON LINE. Circuit ER (DTR) ON does not indicate that communication has been established with the printer or the PC. It is switched OFF when the unit is OFF LINE.
- **Signal Ground (SG)**
  Connects to the DC ground of the unit for all interface signals.
- **Data Set Ready (DSR):**…(input)
  An ON condition of circuit DR (DSR) indicates the printer or the PC is ready. Circuit DR (DSR) ON does not indicate that communication has been established with the printer or the PC.
- **Request To Send (RTS):**…(output)
  This lead is held ON whenever DR (DSR) is ON.
- **Clear To Send (CTS):**…(input)
  An ON condition of circuit CS (CTS) indicates that the printer or the PC is ready to receive data from the unit. The unit does not attempt to transfer data or receive data when circuit CS (CTS) is OFF.
- **Frame Ground (FG)**
  Connects to the unit frame and the earth ground conductor of the AC power cord.

PC/CTI Server (via USB version 2.0)

The PBX is equipped with a USB interface. This interface provides communication between the PBX and a PC or a CTI server.
The PC is used for system programming, diagnostics and external system database storage (save/load) functions.
The CTI server is used for connecting PCs on a LAN to provide third party call control CTI. The CTI connection uses the CSTA Phase 3 or TAPI 2.1 protocol.

Note

The operating system of the PC or CTI server required for third party call control depends on your CTI application software. For details, refer to the manual for your CTI application software.

CAUTION

To protect the system, keep the following in mind:
1. Make sure that both connector cases (frame ground) of the USB cable are conductive. If they are not conductive, make sure that both connector cases of the cable are firmly connected.
2. If this is not possible, connect the frame of the PBX to the frame of the PC/CTI server using a grounding wire in order to prevent difference in the electrical potentials.

Pin Assignments

	No.	Signal Name
2 ☐ 1 / 3 ☐ 4	1	VBUS
	2	USB D-
	3	USB D+
	4	GND

2.9 Power Failure Connections

2.9.1 Power Failure Connections

When the power supply to the PBX fails, power failure transfer (PFT) will switch from the current connection to the Power Failure Connection. Refer to "13.1.9 Power Failure Transfer" in the Feature Manual for further information.

Using Analog CO Line Card and Super Hybrid Ports

In the event of power failure, SLTs connected to Ports 1 and 2 of the Super Hybrid Ports (on the Main Board) are automatically connected to PFT ports 1 and 2 of the first LCOT4 card (installed in the least slot number).

Note

Even when the power returns, the conversation established during power failure will be maintained.

2.10 Starting the PBX

2.10.1 Starting the PBX

Before Starting the PBX

Before starting the PBX, please pay attention to the following:

Notice

The SD Memory Card must be inserted in the SD Memory Card slot of the main board before startup.

Starting the PBX

CAUTION

- Before touching the System Initialize Switch, discharge static electricity by touching ground or wearing a grounding strap.
- Once you have started the PBX and if you unplug the PBX, do not perform the following procedures to start the PBX again. Otherwise, your programmed data is cleared. To restart the PBX, refer to "4.1.4 Using the Reset Button".
- The power supply cord is used as the main disconnect device. Ensure that the AC outlet is located near the equipment and is easily accessible.

Note

The PBX will continue to be powered even if the power switch is turned "OFF".

System Initialization Procedure

1. Slide the System Initialize Switch to the "SYSTEM INITIALIZE" position.
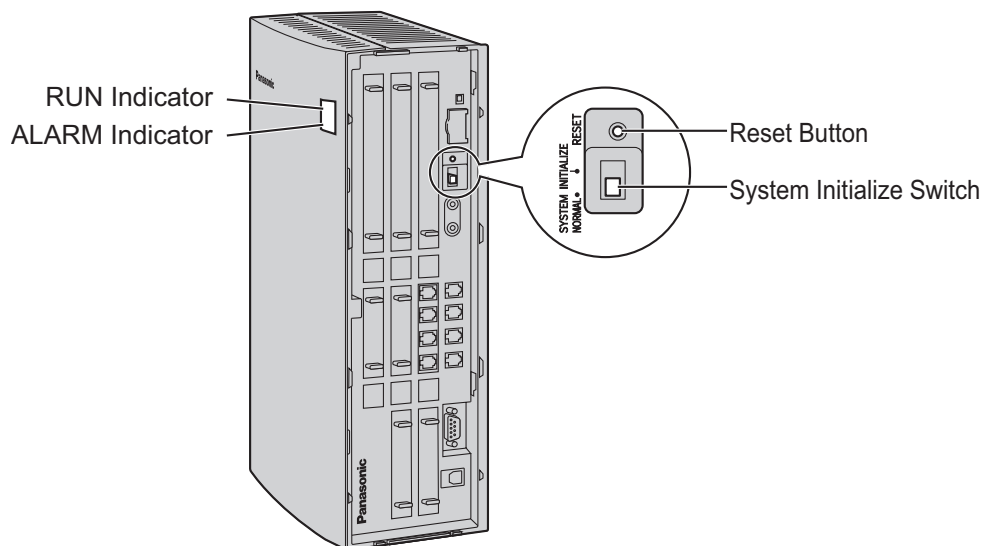
2. Plug the DC connector of the AC adaptor into DC IN 1.
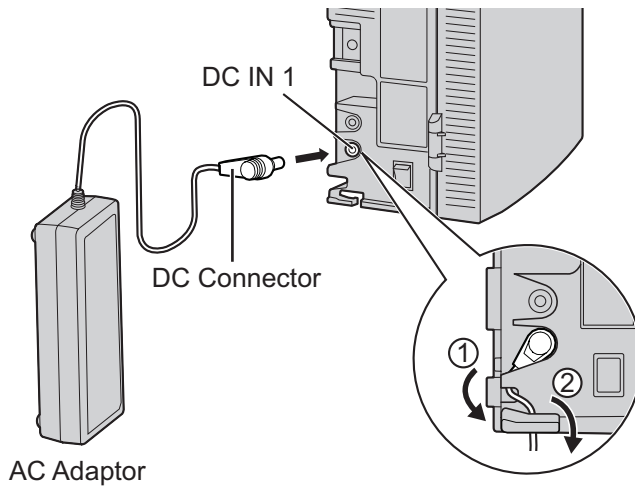
Note

- The AC adaptor supplied with the PBX must be connected to DC IN 1. If an AC adaptor is connected only to DC IN 2, the PBX will not start.
- If you need to connect an additional AC adaptor, plug the DC connector of the additional AC adaptor into DC IN 2.
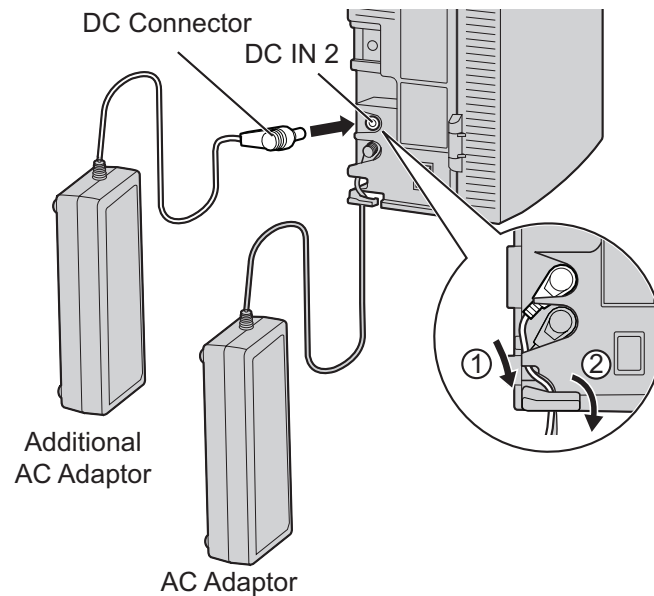
3. Plug the AC cord into the AC adaptor, and then plug the other end into an AC outlet.
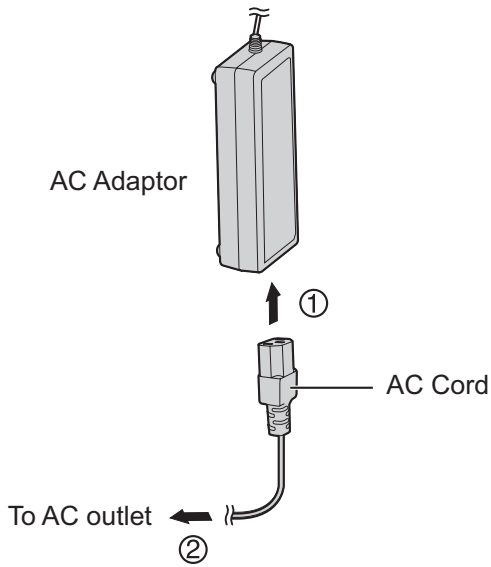
4. Turn on the power switch. The RUN indicator will flash.
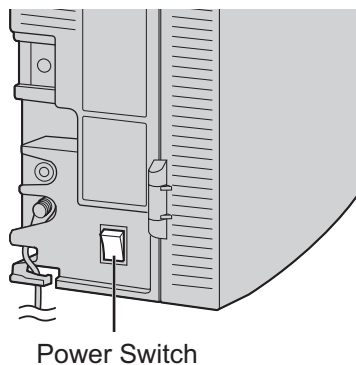
Note
- For safety reasons, follow the procedures as indicated when turning on the PBX.
- For safety reasons, do not stretch, bend, or pinch the AC cord and the DC cable of the AC adaptor.

5. While the RUN indicator is flashing, slide the System Initialize Switch back to the "NORMAL" position. Depending on the configuration, initialization takes about 1 min to 3 min. If successfully executed, the RUN indicator will stop flashing and stay lit.

All data will be cleared, and the PBX as well as all optional service cards (except for the IP-GW4 card) will be initialized to the default values. The DPTs should show the time as 01:00.
The data of the IP-GW4 card will not be initialized.

IMPORTANT

Use only the AC adaptor (Panasonic PSLP1434) and AC cord supplied with the PBX, or the Additional AC Adaptor (KX-A236).

LED Indications

Indication	Color	Description

RUN	Green	PBX status indication
		• OFF: Power off (includes normal reset)
		• ON: Power on and running (on-line)
		• Flashing (60 times per minute): Starting up
		• Flashing (120 times per minute): Starting up or resetting with:
		  • the System Initialize Switch in "SYSTEM INITIALIZE" position
		  • the SD Memory Card not inserted

ALARM	Red	Alarm detection status indication • OFF: Normal • ON: Alarm (CPU stop, alarm for each optional service card) • Flashing: Alarm (MPR file error in restarting)

Confirming the CO Line Connection

After initialization, program the PBX and connect CO lines to the PBX.

To confirm that the CO lines are successfully connected, dial [✻] [3] [7] + CO line number (3 digits) on a PT, or press the PT's S-CO button. You will hear a dial tone if the CO line is available and connected.

Turning off the PBX

For safety reasons, make sure to turn off the power switch before unplugging the PBX. To unplug, follow the reverse steps to plug it in.

2.10.1 Starting the PBX

Section 3

Guide for the PBX PC Programming Software

This section explains the installation and structure of the PBX PC Programming Software.

3.1 Overview

3.1.1 Overview

The Maintenance Console is designed to serve as an overall system programming reference for the PBX. To program and administer the PBX by PC, you need to install the Maintenance Console onto the PC.
This manual describes overview and installation of the Maintenance Console only.

Menu Bar

System Menu
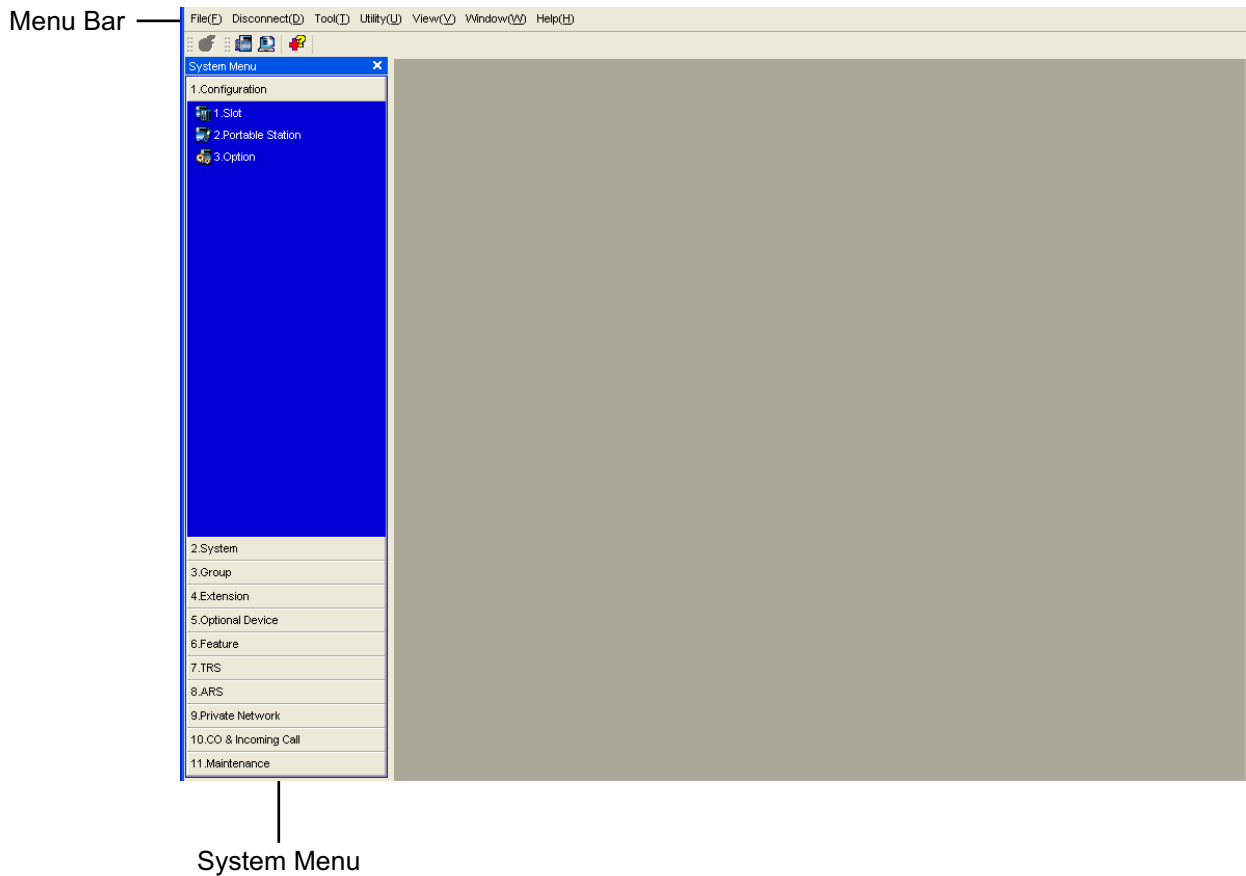
Note

The contents and design of the software are subject to change without notice.

3.2 PC Connection

3.2.1 PC Connection

Serial Interface Connection
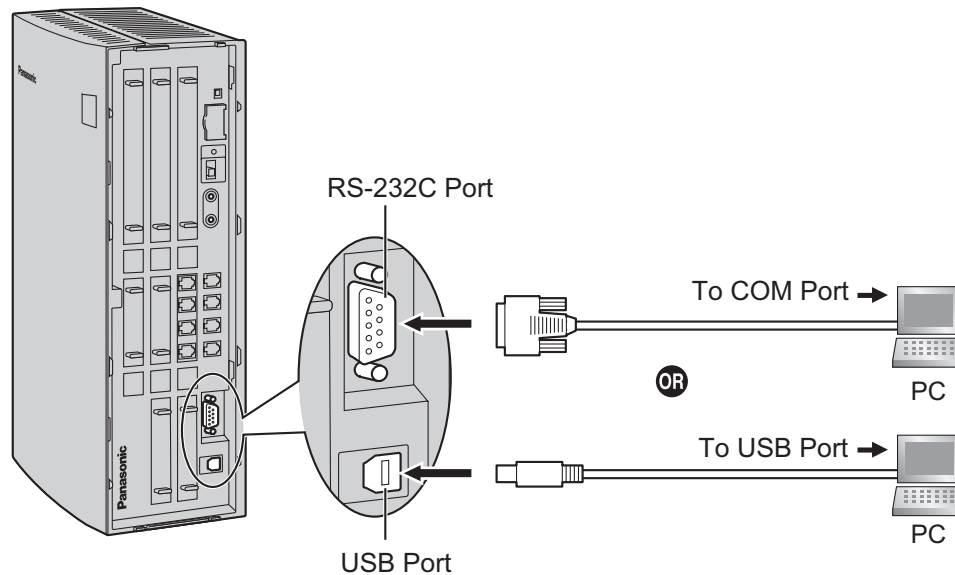
RS-232C Port

To COM Port →

PC

OR

To USB Port →

PC

USB Port

CAUTION

To protect the system, keep the following in mind:
1. Make sure that both connector cases (frame ground) of the RS-232C cross cable (shielded cable)/USB cable are conductive. If they are not conductive, make sure that both connector cases of the cable are firmly connected.
2. If this is not possible, connect the frame of the PBX to the frame of the PC using a grounding wire in order to prevent difference in the electrical potentials.

Note

For pin assignments and maximum cabling distance, refer to "2.8.1 Connection of Peripherals".

LAN Connection via IP-GW4 Card
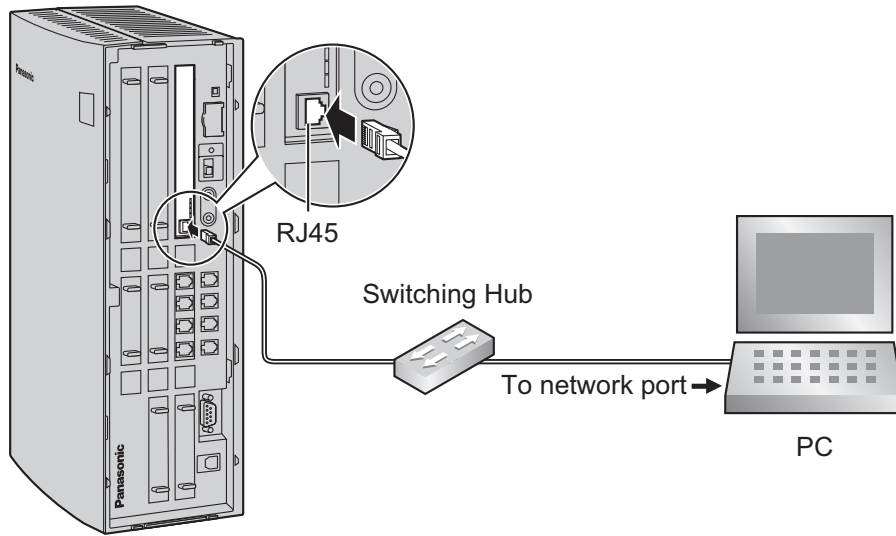
Note
> For pin assignments and maximum cabling distance, refer to "2.3.3 IP-GW4 Card (KX-TDA5480)".

External Modem Connection
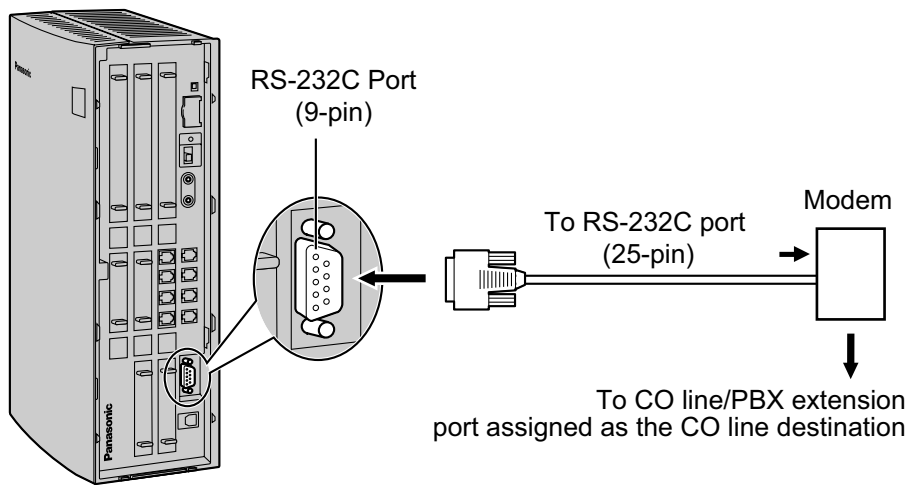
PBX (9-pin)			External Modem (25-pin)	
Signal Name	Pin No.		Pin No.	Signal Name
RD (RXD)	2	←	3	RD (RXD)
SD (TXD)	3	→	2	SD (TXD)
ER (DTR)	4	→	20	ER (DTR)
DR (DSR)	6	←	6	DR (DSR)

CAUTION

> To protect the system, keep the following in mind:

1. Make sure that both connector cases (frame ground) of the RS-232C straight cable (shielded cable) are conductive. If they are not conductive, make sure that both connector cases of the cable are firmly connected.
2. If this is not possible, connect the frame of the PBX to the frame of the PC using a grounding wire in order to prevent difference in the electrical potentials.

After connecting the PBX and the external modem, set the power switch of the external modem to "ON", then the external modem will be initialized with the default values.

The following AT command settings may be required for the modem:

- The Data Terminal Ready (DTR) signal should be ignored.
- The Data Terminal Equipment (DTE)/Modem flow control should be turned off.
- Data compression should be disabled.
- Error Correction is not necessary.

<u>Note</u>

- An AT command (for initialization, enabling automatic answer, etc.) can only be programmed by the Maintenance Console. "AT&F" is stored as the default value.
- For more information about the AT command, refer to the external modem's instructions.

3.3 Installation of the PBX PC Programming Software

3.3.1 Installing and Starting the Maintenance Console

System Requirements

Required Operating System

- Microsoft® Windows® XP, Windows Vista® Business, or Windows 7 Professional operating system

Minimum Hardware Requirements

- HDD: 100 MB of available hard disk space

Recommended Display Settings

- Screen resolution: XGA (1024 × 768)
- DPI setting: Normal size (96 DPI)

Installing the Maintenance Console

Note

- Make sure to install and use the latest version of the Maintenance Console.
- To install or uninstall the software on a PC running Windows XP Professional, you must be logged in as a user in either the "Administrators" or "Power Users" group.
- To install or uninstall the software on a PC running Windows Vista Business or Windows 7 Professional, you must be logged in as a user in the "Administrators" group.
- To connect the PC to the PBX via USB, the KX-TDA USB driver must be installed. Follow the instructions of the wizard to install the KX-TDA USB driver. When the PBX is first connected to the PC via USB, you may be asked to select the appropriate USB driver. Browse for and select the KX-TDA USB driver that was installed previously.

1. Copy the setup file of the Maintenance Console to your PC.

2. Double-click the setup file to run the installer.

3. Follow the on-screen instructions provided by the installation wizard.

Starting the Maintenance Console and Assigning the Basic Items (Quick Setup)

When you start the Maintenance Console with the Installer Level Programmer Code and connect to the PBX for the first time after initialization (with the factory default setting), Quick Setup will launch automatically. During Quick Setup, you will set up the basic items. For details about the basic items, refer to "14.1.2 Quick Setup" in the Feature Manual.

1. Connect the PC to the PBX with a USB cable.

2. Start the Maintenance Console from the Start menu.

3. "Information before programming" appears.
   a. Carefully read this important additional information, which includes updates to this and other manuals.
   b. Click **OK** to close this window.

4. **a.** Enter the Installer Level Programmer Code (default: **INSTALLER**).

> **Note**
>
> There are 2 other Programmer Codes with limited authorization: Administrator Level (default: **ADMIN**), and User Level (default: **USER**).

b. Click **OK**.

5. Click **Connect**.

6. **a.** Select **KX-TDA50** from **PBX Model**.

b. Select the **USB** tab.

> **Note**
>
> To connect to the PBX via USB, the KX-TDA USB driver must be installed on the PC, as explained above in "Installing the Maintenance Console".

c. Enter the system password for installer (default: **1234**).

d. Click **Connect**.

7. Follow the instructions of the Quick Setup wizard and assign the basic items (Quick Setup).
You may now begin programming the PBX.

Notice

- During a long programming session, it is highly recommended that you periodically save the system data to the SD Memory Card. If the PBX undergoes a sudden power failure or if the system is reset for some reason, all the system data in RAM will be lost. However, if system data has been saved to the SD Memory Card, it can be easily restored.
  To save the system data to the SD Memory Card, (1) click the "**SD Memory Backup**" icon before resetting the PBX or turning off the power, or (2) exit the Maintenance Console so that the PBX automatically saves the system data.
- When programming PBX data which can be displayed on a proprietary telephone (PT) (extension names, group names, System Speed Dialing names, etc.), it is possible to enter characters which

cannot be displayed on a KX-DT300/KX-T7600 series PT. Characters which can be displayed on a KX-DT300/KX-T7600 series PT are shown below in the white cells.

	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00																
10																
20		!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
80	€		‚	ƒ	„	…	†	‡	ˆ	‰	Š	‹	Œ		Ž	
90		'	'	"	"	•	–	—	~	™	š	›	œ		ž	Ÿ
a0		¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬		®	¯
b0	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
c0	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
d0	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
e0	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
f0	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

- The PC will not perform any shutdown operation, or enter the power-saving system standby mode while the Maintenance Console is connected to the PBX. To perform either of the operations above, first close the connection to the PBX.

CAUTION

Do not remove the SD Memory Card while power is supplied to the PBX. Doing so may cause the PBX to fail to start when you try to restart the system.

Section 4

Troubleshooting

This section provides information on the PBX and telephone troubleshooting.

4.1 Troubleshooting
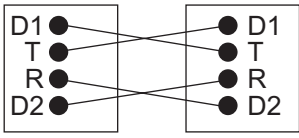
4.1.1 Installation

PROBLEM	PROBABLE CAUSE	SOLUTION
Extension does not operate.	Bad extension card.	• Exchange the card for a known working one.
	Bad connection between the PBX and telephone.	• Take the telephone and plug it into the same extension port using a short telephone cord. If the telephone works, then the connection between the PBX and the telephone must be repaired.
	A telephone with an A-A1 relay is connected.	• Use a 2-wire cord. • Set the A-A1 relay switch of the telephone to the "OUT" or "OFF" position.
	Bad telephone.	• Take the telephone and plug it into another extension port that is working. If the telephone does not work, replace the telephone.
	The number of terminal equipment exceeds the capacity of the PBX with the supplied AC adaptor only.	• Connect an additional AC adaptor.
The PBX does not operate properly.		• Press the Reset Button (refer to "4.1.4 Using the Reset Button"). • Turn off the power switch, and then turn it back on. • Turn off the power switch, and then unplug the PBX. After 5 minutes, plug the PBX back in and turn the power switch back on.
Noise on external paging.	Induced noise on the wire between the PBX and the amplifier.	• Use a shielded cable as the connection wire between the PBX and amplifier. A short shielded cable is recommended.
Distorted external music.	Excessive input level from external music source.	• Decrease the output level of the external music source by using the volume control on the music source.
Alternate Calling—Ring/Voice and Live Call Screening (LCS) do not function as set when using a Wireless Phone (KX-T7880/KX-T7885/ KX-TD7894/KX-TD7895).	Voice-calling mode and Hands-free mode with LCS are not available with Wireless Phones.	• Switch the calling mode to ring-calling. • Set the LCS mode to "Private".
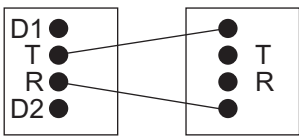
PROBLEM	PROBABLE CAUSE	SOLUTION
The ALARM indicator on the front of the cabinet turns on red.	A major system error occurs in the PBX.	• See the error log using the Maintenance Console (refer to "4.1.5 Troubleshooting by Error Log").

4.1.2 Connection
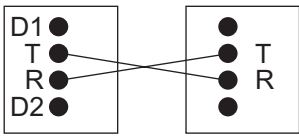
Connection between the PBX and a PT:

CAUSE	SOLUTION
The T/R is connected to the D1/D2.	Use the correct cord (the inner 2 wires are for T/R and the outer 2 wires are for D1/D2).

Connection between the PBX and an SLT:

CAUSE	SOLUTION
The T/R is connected to the D1/D2.	Use the correct cord (the inner 2 wires are for T/R). • If a telephone equipped with an A-A1 relay is connected to the PBX, set the A-A1 relay switch of the telephone to "OFF".

Connection between the PBX and an SLT that is polarity-sensitive:

CAUSE	SOLUTION
The "T" is connected to the "R".	Reverse the connections of the T/R.

Can you dial an extension?

No
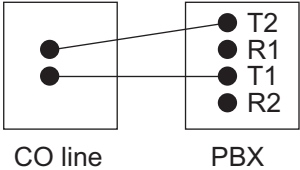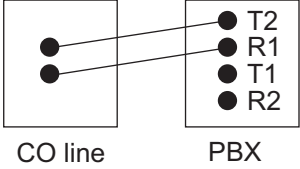
Yes

(Continued on the next page.)

Connection between the central office and the PBX:

(Continued from the previous page.)

Can you dial out on a CO line? — No →
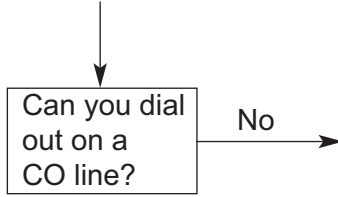
CAUSE	SOLUTION

CO line is connected to the T2/T1.
 	
CO line   PBX
      ● T2
      ● R1
      ● T1
      ● R2
 	
CO line is connected to the T2/R1.
 	
CO line   PBX
      ● T2
      ● R1
      ● T1
      ● R2
	Reconnect the CO line to the T1/R1 or T2/R2 of the telephone jack using 2-conductor wiring.

4.1.3 Operation

PROBLEM	PROBABLE CAUSE	SOLUTION
• When using the speakerphone on an APT, nothing is audible. • When using the speakerphone/monitor mode with a DPT, nothing is audible.	• The HANDSET/HEADSET selector is set to the "HEADSET" position. • The "HEADSET" mode is selected by Personal Programming, "Handset/Headset Selection".	• When the headset is not used, set the HANDSET/HEADSET selector to the "HANDSET" position. • When the headset is not used, select the "HANDSET" mode by Personal Programming.
• The PT does not ring.	• The ringer volume is off.	• Turn on the ringer volume.
• During a power failure, extensions connected to ports 1 and 2 of super hybrid ports do not operate.	• A DPT or APT is connected to the extension port. • The dialing mode (tone or pulse) is incorrect.	• Disconnect the DPT or APT and connect an SLT. • Set the Tone/Pulse switch to the other position.
• Originating an outside call, call transfer, or conference cannot be performed.	• The corresponding CO button does not exist on the PT.	• Program the CO button. Refer to "6.1.3 Flexible Buttons" in the Feature Manual.

4.1.4 Using the Reset Button

If the PBX does not operate properly, use the Reset Button. Before using the Reset Button, try the system feature again to confirm whether there definitely is a problem or not.

CAUTION

In order to avoid possible corruption of data on the SD Memory Card, please ensure that the "SD ACCESS" LED is off before pressing the Reset Button.

Note

- When the System Initialize Switch is set to "NORMAL", pressing the Reset Button causes the following:
    - Camp-on is cleared.
    - Calls on hold are terminated.
    - Calls on exclusive hold are terminated.
    - Calls in progress are terminated.
    - Call park is cleared.
    Other data stored in memory, except the above, are not cleared.
- Be aware that pressing the Reset Button with the System Initialize Switch in the "SYSTEM INITIALIZE" position clears all data stored in the PBX. Do not perform this operation unless you intend to delete all data from the PBX.

Operation

If the PBX does not operate properly:
1. Slide the System Initialize Switch to the "NORMAL" position.
2. Press the Reset Button for about 1 second.
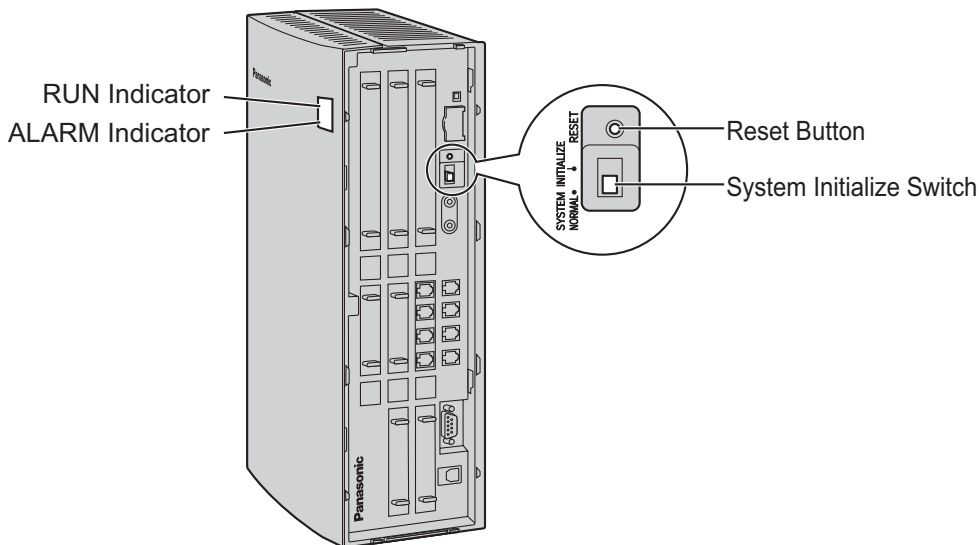
4.1.5 Troubleshooting by Error Log

When a major system error occurs in the PBX, the ALARM indicator on the front of the cabinet turns on red, and the system logs the error information.

Error Log Display Format

Below is the display format of the error log. For information about how to view the error log using the Maintenance Console, refer to "2.6.8 Utility—Error Log" in the PC Programming Manual.

Example: Maintenance Console
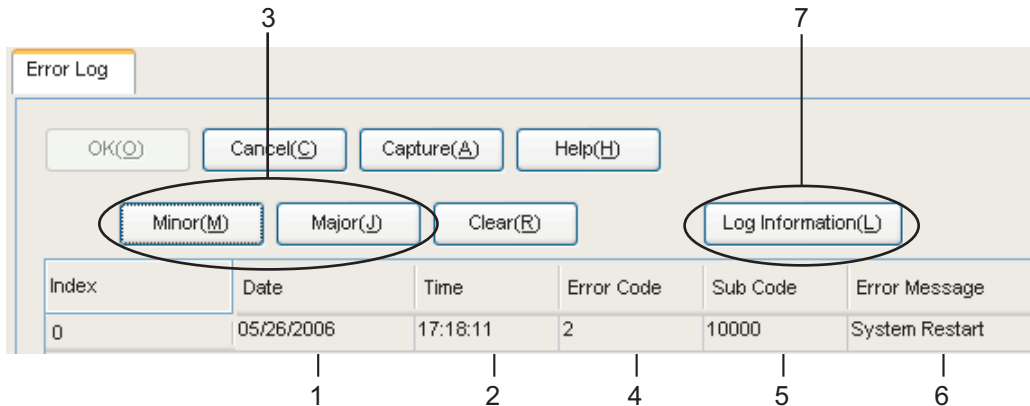
Example: Station Message Detail Recording (SMDR)

```
04/01/01 10:37AM  MJ  ALM #000 10000  MPR WDT overflow
04/01/01 11:07AM  MN ALM #010 10000  AC power down
04/01/01 03:55PM  MN ALM #392 10401  Clock master card selected
```

Description

	Item		Description
1	Date		The date of the error detection.
2	Time		The time of the error detection.
3	Level	Minor (MN ALM)	Displays minor errors, which affect only a certain part of system operation.
		Major (MJ ALM)	Displays major errors, which affect operation of the whole system, or result in system failure.
4	Error Code		The 3-digit error code assigned by the PBX.

	Item	Description

5	Sub Code	The 5-digit sub code of the relevant hardware (1XXYY).
		• 1: Cabinet number
		• XX: Slot number
		00 to 11
		(00: MPR card slot; 01: Super hybrid ports; 02 to 11: Slots for optional service cards)
		• YY: Physical port number
		  – For optional service cards:
		    Physical port number (01 to 16) will be displayed.
		  – For optional service cards that are installed in Slots 08 to 11:
		    Sub slot number 1 + port number (1 to 4) will be displayed as follows:
		    • Sub slot 1: 11 to 14
		
		Note
		When there are no parameters for the slot and physical port numbers, XX and YY will be displayed as "00".
		Example: Sub code for MPR card = 10000

6	Error Message	A description of the error.
7	Log Information	Displays probable causes of the errors and their solutions.

4.1.5 Troubleshooting by Error Log

Section 5

Appendix

5.1 Revision History

5.1.1 PSMPR Software File Version 1.1xxx

New Options

- System Components Table
    - KX-TDA5105　　Memory Expansion Card (MEC)

Changed Contents

- 1.3.3 System Capacity

5.1.2 PSMPR Software File Version 2.0xxx

New Options

- System Components Table

    – KX-TDA5920   SD Memory Card for Software Upgrade to Enhanced Version

Changed Contents

- 1.3.3 System Capacity
- 2.7.1 Connection of Doorphones, Door Openers, External Sensors, and External Relays

5.1.3 PSMPR Software File Version 3.0xxx

New Options

- System Components Table

    – KX-TDA5192   2-Channel Simplified Voice Message Card (SVM2)

5.1.4 PSMPR Software File Version 4.0xxx

New Options

- System Components Table
    - KX-TDA5470   4-Channel VoIP Extension Card (IP-EXT4)

Changed Contents

- 1.3.3 System Capacity
- 2.3.3 IP-GW4 Card (KX-TDA5480)
- 3.2.1 PC Connection

5.1.5 PSMPR Software File Version 5.0xxx

New Options

- System Components Table

  - KX-TDA5194   2-Channel Simplified Voice Message Card (ESVM2)
  - KX-TDA5450   4-Channel SIP Trunk Card (SIP-GW4)
  - KX-TDA5451   4-Channel VoIP DSP Card (SIP-DSP4)
  - KX-T0151   2-Channel Cell Station Unit Using a Super Hybrid Port or a HLC/DLC Card for 2.4 GHz Portable Station
  - KX-T0155   DECT 6.0 2-Channel Cell Station Unit Using a Super Hybrid Port or a HLC/DLC Card for DECT 6.0 Portable Station
  - KX-T0158   DECT 6.0 8-Channel Cell Station Unit Using a Super Hybrid Port or a HLC/DLC Card for DECT 6.0 Portable Station
  - KX-T7765   Doorphone
  - KX-T7775   Doorphone

New Contents

- 2.5.5 ESVM2 Card (KX-TDA5194)
- 2.7 Connection of Doorphones, Door Openers, External Sensors, and External Relays

Changed Contents

- 1.3.3 System Capacity
- 2.7.1 Connection of Doorphones, Door Openers, External Sensors, and External Relays
- 3.3.1 Installing and Starting the Maintenance Console

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Numerics

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Install a
screw here.

Install a
screw here.

130 mm (5-1/8 in)

120 mm (4-3/4 in)

250 mm (9-13/16 in)

240 mm (9-7/16 in)

Reference for Wall Mounting

Note

Make sure to set the print size to correspond
with the size of this page. If the dimensions of
the paper output still deviate slightly from the
measurements indicated here, use the
measurements indicated here.

Install a screw here.

65 mm (2-9/16 in)

When you ship the product

Carefully pack and send it prepaid, adequately insured and preferably in the original carton. Attach a postage-paid letter, detailing the symptom, to the outside of the carton. DO NOT send the product to the Executive or Regional Sales offices. They are NOT equipped to make repairs.

Product Service

Panasonic Factory Service Centers for this product are listed in the service center directory. Consult your certified Panasonic dealer for detailed instructions.

For Future Reference

Please print, record, and retain the following information for future reference.

Note

The serial number of this product can be found on the label affixed to the unit. You should record the model number and the serial number of this unit as a permanent record of your purchase to aid in identification in the event of theft.

MODEL NO.	
SERIAL NO.	
DATE OF PURCHASE	
NAME OF DEALER	
DEALER'S ADDRESS	
DEALER'S TEL. NO.	

Panasonic Corporation of North America

One Panasonic Way, Secaucus, New Jersey 07094

http://www.panasonic.com/csd

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