Panasonic®

Getting Started

Hybrid IP-PBX

Model No. KX-NS300

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Thank you for purchasing this Panasonic product.
Please read this manual carefully before using this product and save this manual for future use.
In particular, be sure to read "1.2 For Your Safety (Page 5)" before using this product.

KX-NS300: PFMPR Software File Version 001.00000 or later.

Table of Contents

Section 1
Before Installation

1.1 Outline

This manual provides basic information about starting the PBX and using IP telephones.

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

- In this manual, the suffix of each model number (e.g., KX-NS300**BX**) is omitted unless necessary.
- In this manual, terms are defined as follows:

    IP-PT
    IP Proprietary Telephone

    SIP extension
    Extensions of the PBX which use Session Initiation Protocol for communication.

    SIP phone
    KX-UT series SIP phone
    IP conferencing phone (e.g., KX-NT700)
    Third party SIP phone (SIP hardphones/SIP softphones)

About the Other Manuals

User Manual

Provides operating instructions for end users using IP-PTs, SIP phones, SLTs, PSs, or DSS Consoles.

Installation Manual

Provides instructions for installing the hardware and maintenance of the PBX.

Feature Guide

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.

Open Source Software

This product uses Open Source Software. For details, click the Information button in Web Maintenance Console.

1.2 For Your Safety

To prevent personal injury and/or damage to property, be sure to observe the following safety precautions.

The following symbols classify and describe the level of hazard and injury caused when this unit is operated or handled improperly.

⚠ **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.

The following types of symbols are used to classify and describe the type of instructions to be observed.

🚫 This symbol is used to alert users to a specific operating procedure that must not be performed.

❗ This symbol is used to alert users to a specific operating procedure that must be followed in order to operate the unit safely.

⚠ WARNING

- Proper earthing (connection to earth) is very important to reduce the risk to the user of electrocution or to protect the PBX from the bad effects of external noise in the case of a lightning strike.
- The earthing wire of the AC cable has an effect against external noise and lightning strikes, but it may not be enough to protect the PBX and to ensure electromagnetic compatibility. A permanent connection between earth and the earth terminal of the PBX must be made.
- Make sure that the AC outlet is properly earthed, then securely connect the 3-pin AC plug including the earthed pin.

⚠ CAUTION

- When installing or removing the optional service cards, do not put pressure on any parts of the mother board. Doing so may result in damage to the PBX.
- Once you have started the PBX, if you unplug the PBX, do not initialise it again as described in "System Initialisation Procedure". Otherwise, your programmed data will be cleared.

- When opening the top cover, the power switch must be turned off.
- For safety reasons, close the top cover and tighten the screws before operating the PBX.
- For earthing wire, green-and-yellow insulation is required, and the cross-sectional area of the conductor must be more than 0.75 mm² or 18 AWG.
- Use only the AC power cord included with the PBX.
- Before touching the product (PBX, cards, etc.), discharge static electricity by touching ground or wearing an earthing strap. Failure to do so may cause the PBX to malfunction due to static electricity.
- When installing or removing the optional service cards, the power switch must be turned off.
- 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.

WARNING

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

1.3 Unpacking

Check the package contents.

KX-NS300

Main Unit × 1
CD-ROM[1] (including manuals, etc.) × 1
AC power cord
Hook clip
Screw x 3 (For Wall Mounting)
Washer x 3 (For Wall Mounting)
[1]   The number of included CD-ROMs varies according to the country/area.

KX-NS320

Expansion unit
CD-ROM(s)[1]
AC power cord
Hook clip
Ferrite core x 2
Screw x 3 (For Wall Mounting)
Washer x 3 (For Wall Mounting)
[1]   The number of included CD-ROMs varies according to the country/area.

Necessary items (not supplied):

- Earthing wire for PBX earth connection.
- Ethernet straight cables[1] for the LAN and PC connections.
- RJ45 connectors for the LAN and PC connections by Ethernet straight cables.
- Switching hubs and routers for VoIP network configuration.

[1]   The cables should be 10BASE-T/100BASE-TX CAT 5 (Category 5) or higher, or 1000BASE-T CAT 5e (Enhanced Category 5) or higher.

1.3 Unpacking

Getting Started

Section 2
Installation

2.1 Opening/Closing the Top Cover

Opening the Top Cover

KX-NS300/KX-NS320

CAUTION

When opening the top cover, the power switch must be turned off.

1. Confirm that the power switch is turned off and pull the power cable.

Power Switch
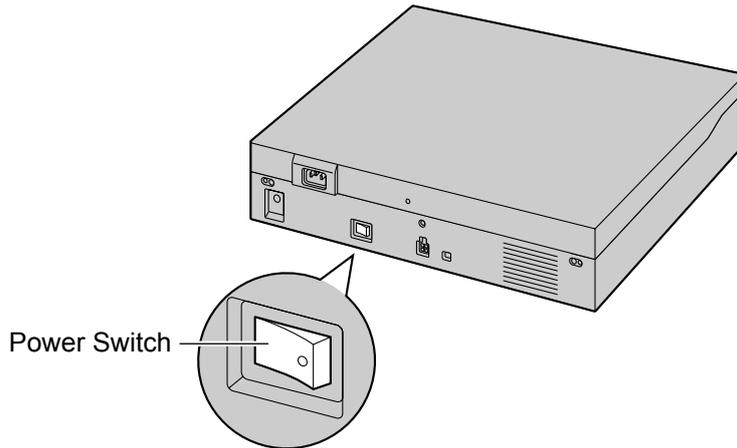
Note

In order to turn off the PBX's power, a system shutdown using Web Maintenance Console must first be performed. For details, refer to "5.4 System Control—System Shutdown" in the PC Programming Manual.

2. Turn the screws anticlockwise to loosen.
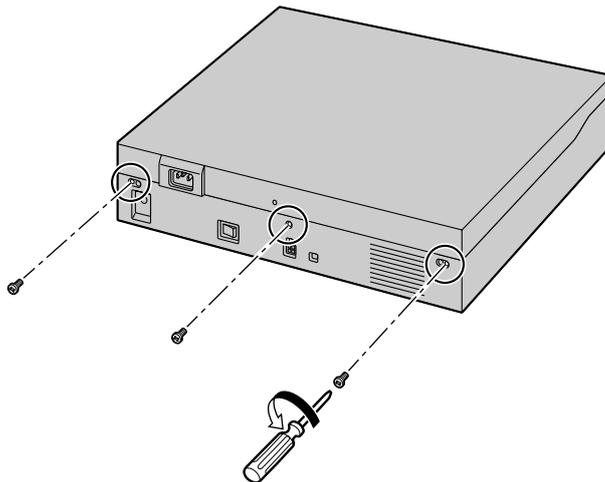
3. Slide the top cover then lift it off.
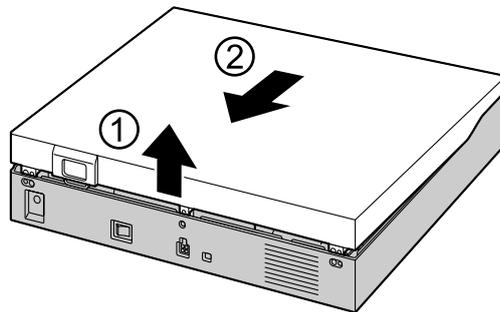
Closing the Top Cover

1. Place the top cover onto the PBX. Then slide the top cover until it closes properly.
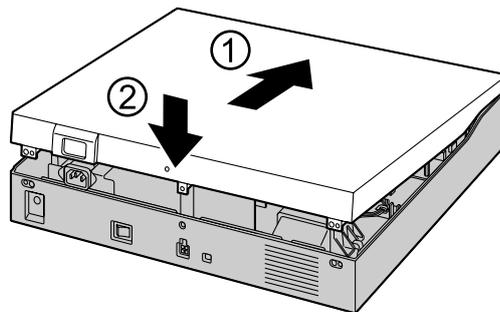
2. Turn the screws clockwise to tighten.
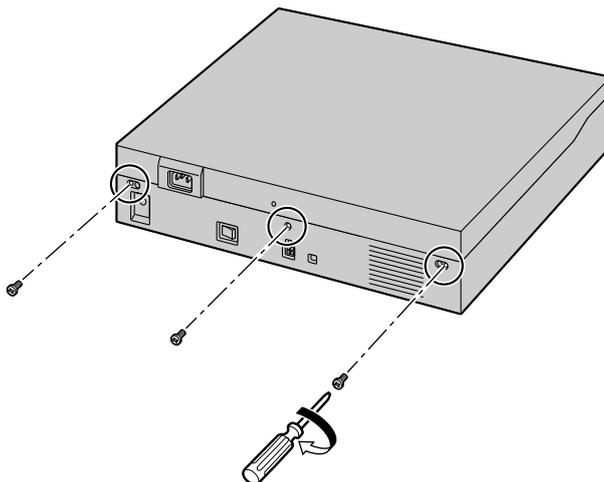
For safety reasons, close the top cover and tighten the screws before operating the PBX.

2.2 Installing DSP Cards

CAUTION

- Before touching the product (PBX, cards, etc.), discharge static electricity by touching ground or wearing an earthing strap. Failure to do so may cause the PBX to malfunction due to static electricity.
- When installing or removing the optional service cards, the power switch must be turned off.
- When installing or removing the optional service cards, do not put pressure on any parts of the mother board. Doing so may result in damage to the PBX.

Note

Make sure the AC power cord is not connected to the AC inlet of the PBX.

A DSP card is a digital signal processor card with DSP resources that can be used for VoIP calls, conferences, the Unified Messaging feature, and the DISA/OGM feature. The DSP card is compliant with ITU-T G. 729A and G.711 codec methods.

DSP S card can be installed on the mother board. To operate the PBX with VoIP features, DSP S card must be installed in DSP card slot.
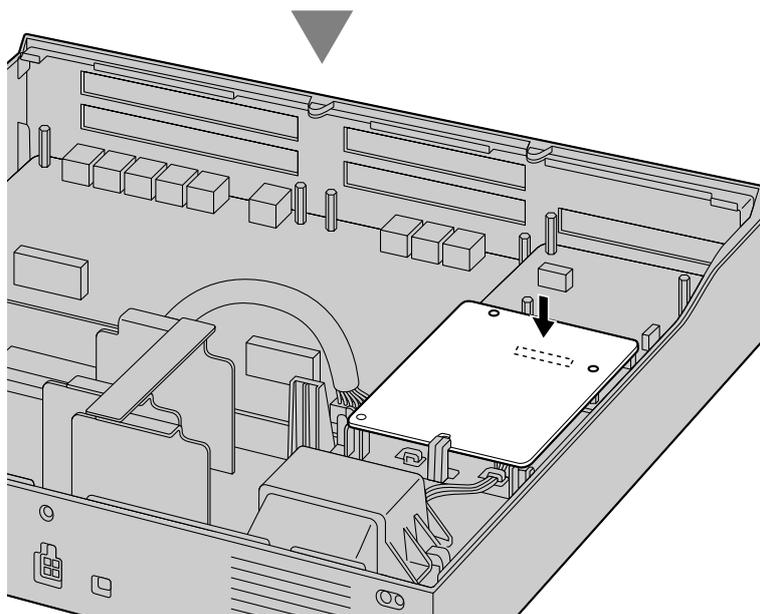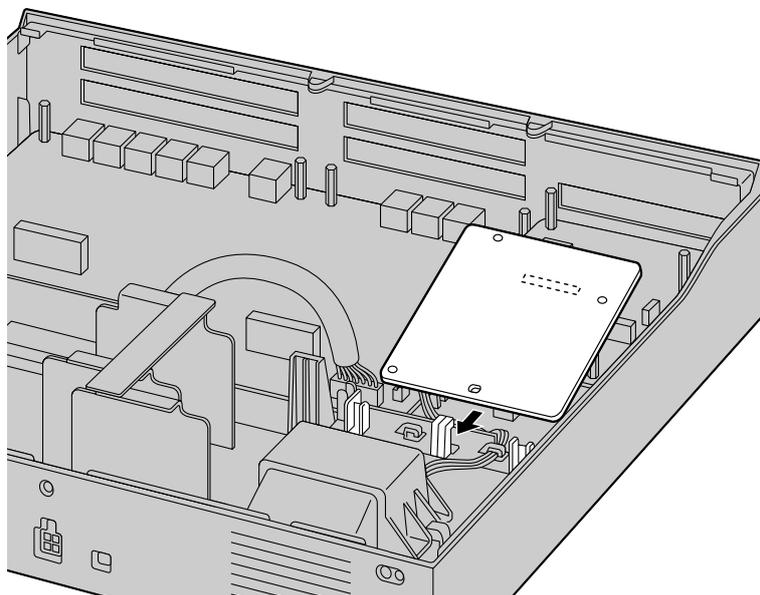
Note
- The DSP Resource Advisor can be used to calculate DSP resource usage easily. For details, refer to "9.37.1.1 PBX Configuration—[1-5-1] Configuration—DSP Resource—Setting—DSP Resource Advisor" in the PC Programming Manual.
- For information about installing other optional service cards, refer to the Installation Manual.

2.3 Frame Earth Connection

KX-NS300/KX-NS320

1. Loosen the screw.
2. Insert an earthing wire (user-supplied).
3. Tighten the screw.
4. Connect the earthing wire to earth.
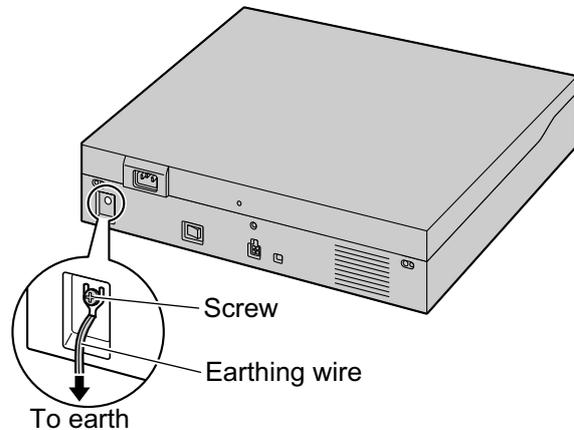
Screw

Earthing wire

To earth

WARNING

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

CAUTION

For earthing 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).

2.4 LAN Connection

2.4.1 LAN Connection for the Main Unit

Connecting the Main Unit to the LAN

When the PBX is connected to the LAN for the first time, you must assign IP addressing information to the PBX. Refer to "4.1 Programming the PBX" for instructions.

Note

Make sure to set the port of the switching hub that connects to the PBX to operate under "Auto Negotiation" mode.

Connecting the PBX to a Switching Hub

1. Connect the cable to the LAN port of the PBX.

2. Connect the other end of the cable to the switching hub.
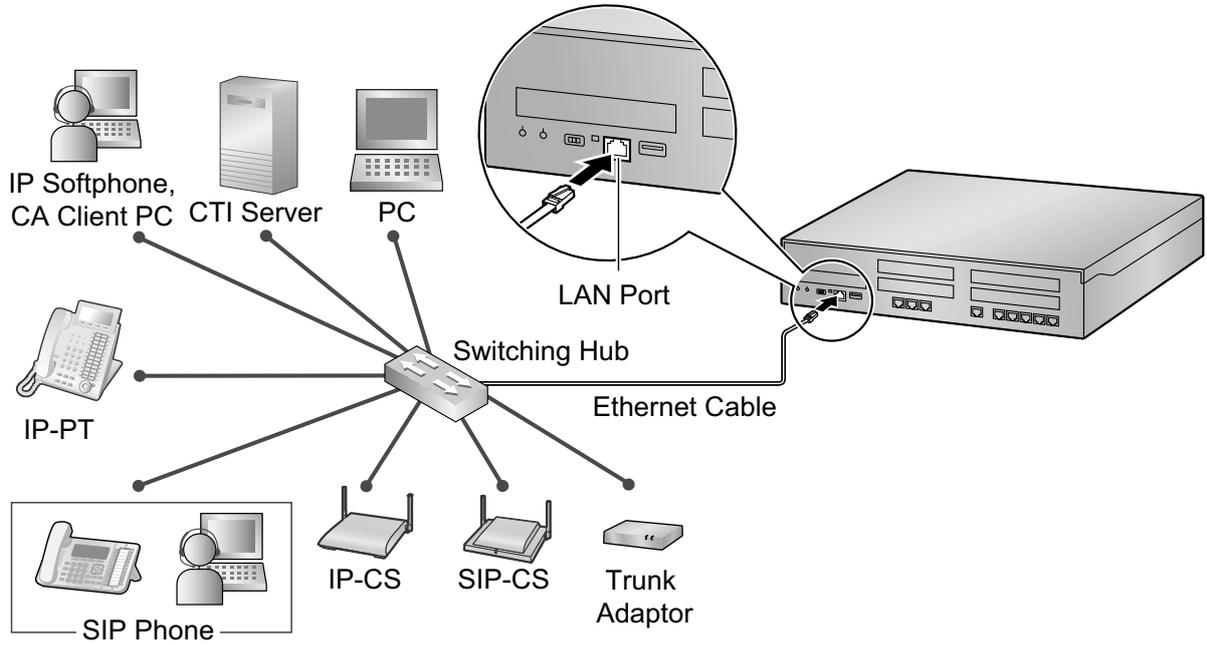
Connection for 10BASE-T/100BASE-TX

Switching Hub			PBX (LAN Port)	
Signal Name	Pin No.		Pin No.	Signal Name
TX+	1	→	1	RX+
TX-	2	←	2	RX-
RX+	3	←	3	TX+
RX-	6	→	6	TX-

2.4.2 LAN Connections for IP Telephones

When an IP telephone is connected to the LAN and power is supplied for the first time, you will be prompted to set network parameters. The network parameters must be set for the IP telephone before it can be used. Refer to "4.3 Assigning Networking Information to IP Telephones" for instructions.

Connecting an IP Telephone to a Switching Hub

When connecting an IP telephone to the LAN, connect it to a switching hub.

Note

> Since an IP softphone is installed and operates on a PC, the PC must be connected to the LAN to use the IP softphone on the network.

The diagram below is for connecting an IP-PT to a switching hub. For SIP phones, refer to the documentation of your SIP phone.

Example: KX-NT346

To a Switching Hub

Ethernet Straight Cable →

LAN
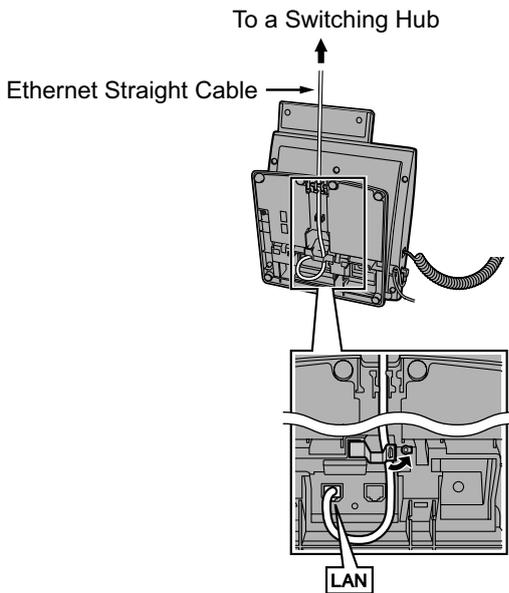
Connecting an AC Adaptor to an IP Telephone

IP-PTs and some SIP phones comply with the IEEE 802.3af Power-over-Ethernet (PoE) standard. If PoE is available on your network, these IP telephones can receive the necessary power supply from the network through the network cable. In this case, no AC adaptor is needed for the IP telephones.
However, if PoE is not available, you will need to connect an AC adaptor to the IP telephone.

Note

Use only the specified type of AC adaptor for each IP telephone. For details, refer to the documentation of your IP telephone.

Example: KX-NT346
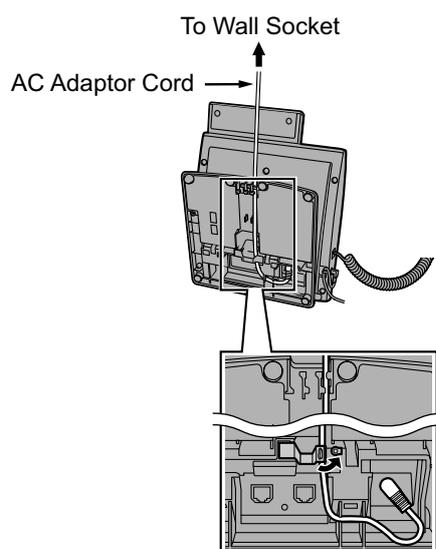
2.5 Connecting Extension

To DPT   To SLT
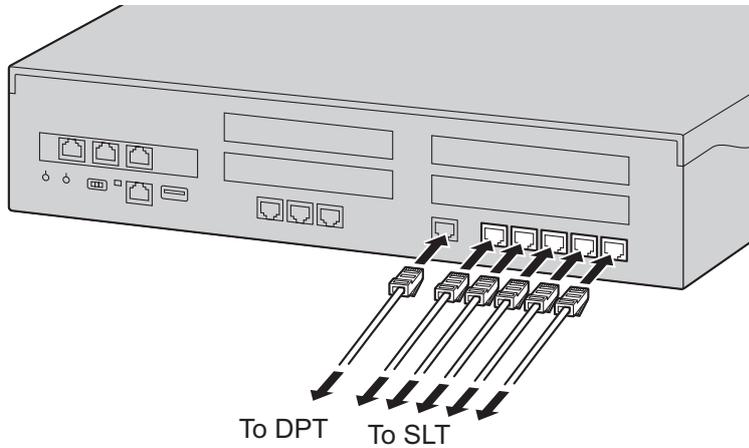
Regarding of the PIN assignment of RJ45(PBX side), refer to the Installation Manual.

Example: KX-DT300 Series DPT	Pin Assignments
	DPT and DSS Console H L **OR** H L KX-T7000 Series SLT T R

Section 3

Before Programming

3.1 Starting the KX-NS300

WARNING

Make sure that the AC outlet is properly earthed, then securely connect the 3-pin AC plug including the earthed pin.

CAUTION

- Use only the AC power cord included with the PBX.
- Before touching the product (PBX, cards, etc.), discharge static electricity by touching ground or wearing an earthing strap. Failure to do so may cause the PBX to malfunction due to static electricity.
- Once you have started the PBX, if you unplug the PBX, do not initialise it again as described in "System Initialisation Procedure". Otherwise, your programmed data will be cleared.
- 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

An Uninterruptible Power Supply (UPS) can be connected to the PBX. A UPS provides temporal power to the PBX in the event of power failure.

Installing the Hook Clip for the AC Power Cord

1. Insert the hook clip into the hook clip hole.
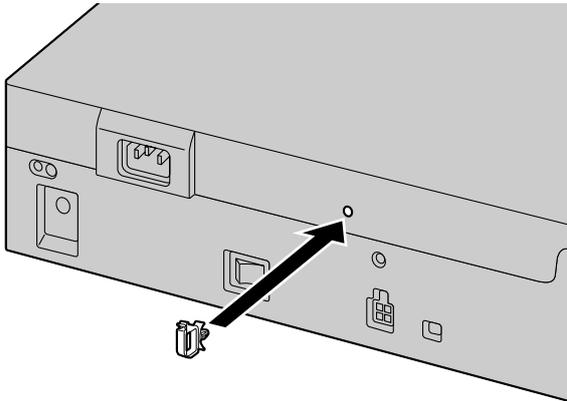
Note

Use only the hook clip included with the PBX.

Connecting the AC Power Cord

1. Plug the AC power cord into the PBX and pass the cord through the hook clip as indicated. Push the hook clip in the direction of the arrow until it clicks.

> **Note**
>
> For safety reasons, do not stretch or pinch the AC power cord.

To UPS
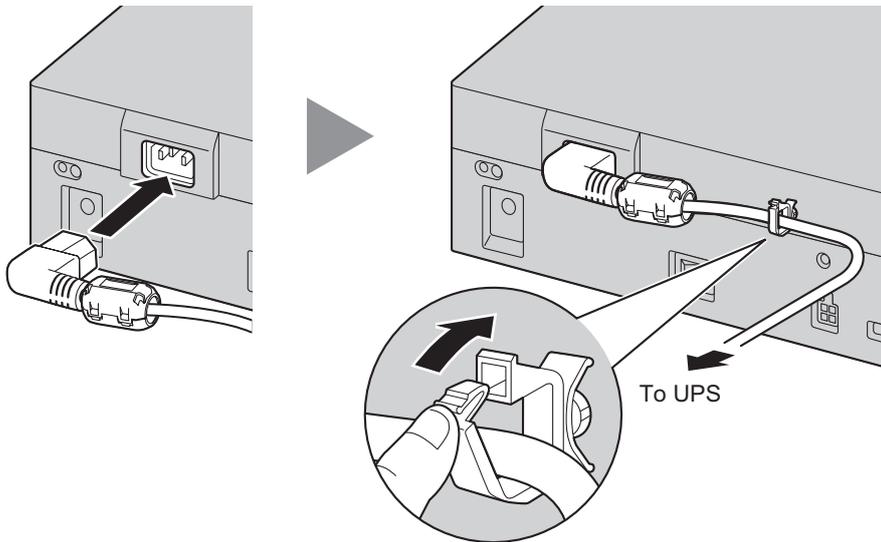
2. Plug the other end of the cord into an AC outlet.

System Initialisation Procedure

1. Slide the System Mode Switch to the "SYSTEM INITIALIZE" position.

STATUS Indicator   System Mode Switch
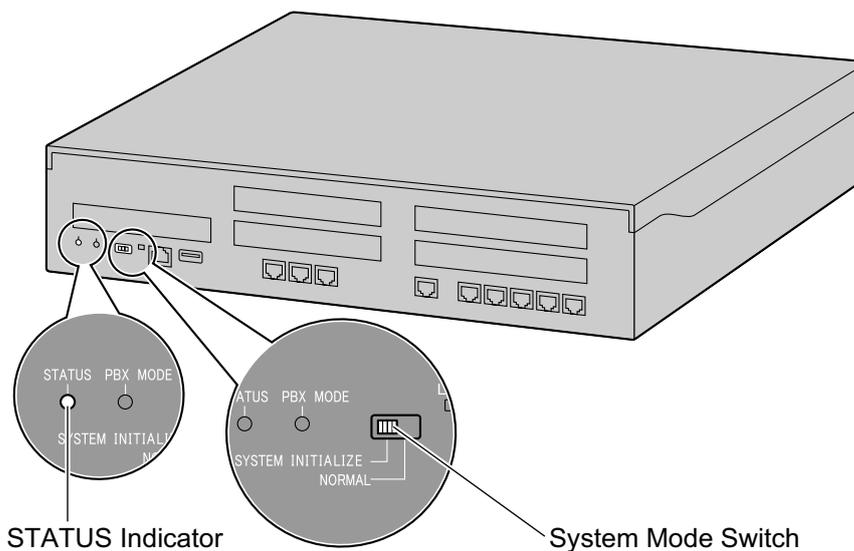
2. Turn on the power switch of the PBX. The STATUS indicator will flash green.

3. While the STATUS indicator is flashing green, slide the System Mode Switch back to the "NORMAL" position. Depending on the configuration, initialisation takes about 2.5 minutes. If successfully executed, the STATUS indicator will stop flashing and remain lit up.

Note

For details about LED indications, refer to "4.3.1 Mother Board" in the Installation Manual.

All data, except for system prompts and activation key files, will be erased. Data that is erased includes Unified Messaging data, call logs, etc. The settings for the PBX as well as all optional service cards will be initialised to their default values.

3.2 PC Connection

Web Maintenance Console serves as an overall system programming tool for the PBX. The Web Maintenance Console's Easy Setup Wizard lets you easily configure the PBX to apply installation settings to enable communication on an IP network.
To programme the PBX, connect it to the PC via the LAN port.
When connecting the PBX via a Virtual Private Network or the Internet, refer to "5.2 PC Connection" in the Installation Manual.

Connection via LAN
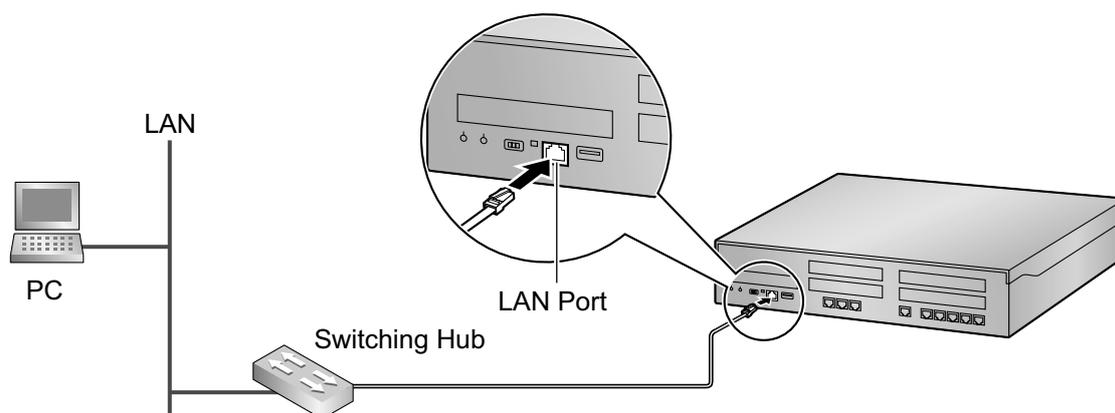
Note

For details about LAN connection, refer to "4.11.1 LAN Connection for the Main Unit" in the Installation Manual.

3.3 Starting Web Maintenance Console

System Requirements

For the system requirements of the PC (operating system, hardware specifications, supported browsers etc.), refer to "5.3 Starting Web Maintenance Console" in the Installation Manual.

Connecting to Web Maintenance Console

Note

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

1. Connect the PC to the PBX:
   - Connect the PBX to a network with the LAN port and access the PBX from a PC in your LAN. For details, refer to "4.11.1 LAN Connection for the Main Unit" in the Installation Manual.
2. Access Web Maintenance Console:

   LAN Connection:

   Launch your Web browser and input the IP address of the PBX followed by the Web Maintenance Console port number into the address bar. The input method will differ according to the PC's connection to the PBX. The default IP address for the LAN port of the PBX is 192.168.0.101, and the default Web Maintenance Console port number is 80. Therefore the address to enter to connect to the PBX for the first time will be as follows (enter the address exactly as shown):
   http://192.168.0.101

   ### Note

   The default subnet mask for the LAN port is 255.255.255.0.

3. The Web Maintenance Console login screen is displayed. Log in with the Installer level account name and the default Installer level account password to launch the Easy Setup Wizard. For details about the Easy Setup Wizard, see "4.1.1 Easy Setup Wizard".

Using Web Maintenance Console in Off-line Mode

You can connect a PC to the PBX to programme the PBX using Web Maintenance Console (On-line mode), or you can programme the PBX without connecting the PC to the PBX (Off-line mode).
Off-line mode programming is performed using the Off-line version of Web Maintenance Console, which you install on your PC. The changes made during Off-line mode are saved as local data on the PC, and then later uploaded to the PBX.
The following procedures outline how to install the Web Maintenance Console for Off-line mode programming.

Installation

Note

- Be sure to install the latest version of KX-NS Unified Web Maintenance Console.
- Before beginning the installation of Off-line Web Maintenance Console, the following software must be installed on the PC:
  - Microsoft .NET Framework 2.0
  - Microsoft .NET Framework 4
  This software can be downloaded from Microsoft's online Download Centre.
- 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, Windows 7, Windows 7 Professional, Windows 8, Windows 8 Professional, you must be logged in as a user in the "Administrators" group.

1. Copy the KX-NS Unified Web Maintenance Console setup file to your PC.
2. Double-click the setup file to run the installer.
3. Follow the on-screen instructions provided by the installation wizard.

Note

For information about programming the PBX in Off-line mode, refer to the PC Programming Manual.

Section 4
Programming

4.1 Programming the PBX

4.1.1 Easy Setup Wizard

In the Easy Setup Wizard, you will set up the mandatory settings required for the PBX.
When you log in to Web Maintenance Console for a PBX that is in its initialised, factory default state, the Easy Setup Wizard for that PBX will launch automatically. You must log in using the Installer level account name and password.

– The Installer level account name is "INSTALLER".
– The default Installer level account password is "1234".

1. After Easy Setup Wizard launches, the **Easy Setup Wizard** screen appears:
   a. In **WebMC Language Setting**, select a language from the drop-down list.
   b. In **Location Setting**, select a location from drop-down list.
   c. In **Password Setting**, enter a password for the Installer level account. In **Re-enter**, enter the same password.
   d. Click **Start Setup Wizard**.

   Note

   If the location is changed from its default value, a notice about restarting the PBX is displayed. Click **OK** to restart the PBX. After the PBX restarts, start Web Maintenance Console again (refer to "Connecting to Web Maintenance Console" in "3.3 Starting Web Maintenance Console"). When you start the Easy Setup Wizard again, you will start from step **1**, below.
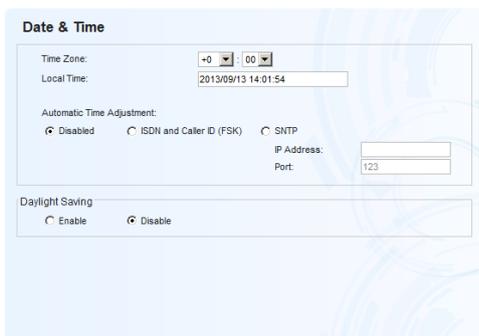
2. In the **Date & Time** Settings:
   a. Select a time zone from the drop-down list.
   b. Click the **Local Time** box, and then select the date and time from the menu.
   c. In **Automatic Time Adjustment**, enter information as necessary.
   d. In **Daylight Saving**, select the appropriate option.
   e. Click **Next**.

3. In the **Numbering** settings:
   a. In **Feature Number**, select the appropriate option.
   b. In **CO Access/Operator Number**, select the appropriate options.
   c. Select one of the following options for **Select the default value of numbering plan**:
      – 3 digits Extension Number
      – 4 digits Extension Number
   d. Click **Next**.

   Note

   Depending on the value selected above, the numbering plan of the PBX will vary as follows. Select this value with care.

4. In the **Manager/Operator** settings:
   a. Select an extension number for the manager from the drop-down list.
   b. Select an extension number for the operator from the drop-down list.
   c. Click **Next**.

5. In the **Trunk** settings:
   a. In **CO Dialing Mode**, select the appropriate option.
   b. In **Selection for PRI30/E1**, select the appropriate option.
   c. Select an option for **Incoming Call Distribution Group**. You can select "**Yes**" or "**No**". Refer to the information on this screen for details.
   d. Click **Next**.

LAN

IP Address for main unit

○ Obtain an IP address automatically
⦿ Use the following IP address

IP Address:	192.168.0.101
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0

IP Address for DNS server

○ Obtain DNS server address automatically
⦿ Use the following DNS server address

Preferred DNS IP Address:	0.0.0.0
Alternative DNS IP Address:	0.0.0.0

IP Address for DSP

⦿ Obtain DSP IP address automatically
○ Use the following DSP IP address

DSP 1 IP Address:	192.168.0.102
DSP 2 IP Address:	192.168.0.103

6. In the **LAN** settings:
    The IP addresses for the PBX, DNS server, and DSP cards can be assigned automatically through a DHCP server or entered manually.

    When using a DHCP server:
    a. Select **Obtain an IP address automatically**.
    b. Select **Obtain DNS server address automatically**.
    c. Select **Obtain DSP IP address automatically**.

    > **Notice**
    >
    > The boxes will turn grey and the IP address information will be assigned automatically. Write down the address information assigned to the PBX for future reference.

    d. Click **Next**.

    When not using a DHCP server:
    a. Select **Use the following IP address**.
    b. Enter an IP address[*1], subnet mask[*2], and default gateway[*1]. (You may not need to specify the default gateway, depending on your network configuration.)
    c. Select **Use the following DNS server address**.
    d. Enter the preferred and alternative DNS IP addresses[*1].
    e. Select **Use the following DSP IP address**.
    f. Enter IP address[*1] for installed DSP card.
    g. Click **Next**.
    [*1] Valid IP address range: "1.0.0.1" to "223.255.255.254"
    [*2] Valid subnet mask address range: "0–255.0–255.0–255.0–255" (except "0.0.0.0" and "255.255.255.255")

7. In the **VoIP (Ext)** settings:
In **Number of IP Extensions**:
   a. In **IP-PT(NT)**, specify the number of IP-PT extensions.
   b. In **UT/UDT**, specify the number of UT/UDT extensions.
   c. In **SIP-Phone**, specify the number of SIP extensions.

      Note
      You can confirm the required number of virtual IP extension cards, total IP extensions and total virtual IP extension cards.

   d. In **IP Terminal Registration Mode**, select one of the following options:
      • **Manual**: Manually register IP terminal information.
      • **Full Automatic**: Automatically register IP terminal information.
      • **Extension Number Input**: Automatically register IP terminal information except the extension number. The extension number can then be registered from the IP telephone manually.

      Note
      • The **Full Automatic** and Extension Number Input registration modes may not be available for certain types of IP terminals. In such cases, select Manual as the registration mode.
      • For more information about the IP terminal registration modes, refer to "4.3.2 Registering IP Telephones".

   e. In **DHCP Server**, select either **Disable** or **Enable**.
   f. If you select **Enable** in **DHCP Server**, enter valid settings for the automatic assignment of IP addresses.
   g. Click **Finish**.

8. Follow the prompts of the Easy Setup Wizard. If LAN settings were changed from their default values in step **6**, you will be prompted to restart the PBX after the Easy Setup Wizard is complete. Click **OK** to restart the PBX. The login screen will be displayed. Click **Skip** to finish the Easy Setup Wizard and continue the configuration from the home screen without restarting the PBX.

   Notice
   If you select **Skip**, restart the PBX after completing the settings.

9. Log in with the Installer level account using the password entered during Easy Setup Wizard.The Home Screen is displayed. You may now begin programming the PBX.

Notice

If an external DHCP server is in use, it must be able to use the "client identifier" option specified by RFC 213.

4.1.2 Installing the Virtual IP Cards to the PBX

1. Click **Setup → PBX Configuration → Configuration → Slot**.

2. Place the mouse cursor over the **Virtual Slot**, and in the menu that appears, click **Select Shelf**.

3. Click on the name of the virtual card to install in the list on the right. An image of the virtual card will be displayed to the left of the list, and information about the card will be shown below.

4. Click and drag the image of the virtual card to the free virtual slot it is to be installed in, and release it. The virtual card will move into the virtual slot space.

5. Click **OK** to confirm.

4.1.3 Installing Additional Activation Keys

When the number of preinstalled activation keys is not enough for the desired configuration or when you wish to use enhanced features, additional activation keys in the form of activation key files can be installed using Web Maintenance Console.

Activation Key Code and Key Management System

To obtain additional activation keys, you need to purchase the appropriate activation key codes and access the Key Management System. You can download the activation keys as an activation key file from the Key Management System. To download the activation keys, enter the MPR ID number shown on the back of the main unit, and activation key number and registration ID provided on each activation key code.

Note

For information about the types of activation keys, refer to "3.1 Information about the Activation Keys" in the Installation Manual.

Installing the Activation Key Files

1. Log in to Web Maintenance Console using the Installer level account.
2. Click **Maintenance → Utility → Activation Key Installation**.
   Activation Key Installation window will be displayed.
3. Click **Browse** and specify the directory where the activation key files are stored, and click **Open**.
4. A list of activation key files stored in the specified directory is displayed. Check the boxes next to the activation keys to install to the PBX, and click **Install**.
5. When installation is complete, the message, "The activation key has been installed and activated successfully!" is displayed.
6. Click **OK**.

Notice

The activation key file can only be installed in the PBX with the MPR ID number entered when the activation key file was downloaded. The activation key file cannot be reissued unless the mother board crashes.

Note

> You can click the provided link to directly access activation key information and programme the number of activated IP trunks and IP softphones.

Configuration of the Activation Keys

Depending on your configuration, it may be necessary to programme the number of provided IP Trunk channels to be used for H.323 trunks. By default, all of the provided IP Trunk channels will be used for SIP trunks. Similarly, you can programme how many IP softphone(s) can be used through the IP Softphone/IP Proprietary Telephone activation key. By default, only IP softphone(s) can be used through the IP Softphone/IP Proprietary Telephone activation key.
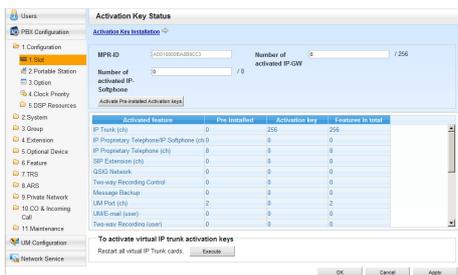
1. **a.** Click **Setup** → **PBX Configuration** → **Configuration** → **Slot**.
   b. Click **Activation Key**.

2. **a.** In **Number of activated IP-GW**, type the number of IP Trunk channels to be used for H.323 trunks.

   Note

   > If you have changed the value for **Number of activated IP-GW**, you must click **Execute** to restart the V-IPGW cards for the change to take effect.

   b. In **Number of activated IP-Softphone**, type the number of IP softphones to be used through the IP Softphone/IP Proprietary Telephone activation key.

3. Click **OK**.

Note

> For a detailed explanation about activation keys, refer to "3.1 Information about the Activation Keys" in the Installation Manual.

4.2 Programming SIP Trunks

The Virtual 16-Channel SIP Trunk Card (V-SIPGW4) is a virtual trunk card which is designed to be easily integrated into an Internet Telephony Service provided by an ITSP (Internet Telephony Service Provider). For information about SIP trunks, refer to "8.3 SIP Trunks" in the Installation Manual.

Accessing Port Properties
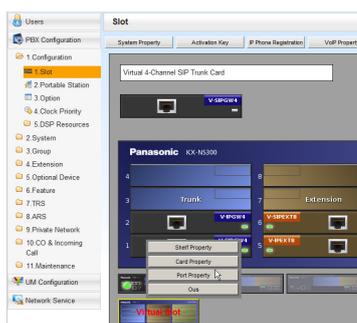
1. Click **Setup** → **PBX Configuration** → **Configuration** → **Slot**.

2. Place the mouse cursor over the **Virtual Slot**, and in the menu that appears, click **Select Shelf**.

3. Move the mouse pointer over the V-SIPGW4 card to display the menu of options, and then click **Ous**.

4. Move the mouse pointer over the V-SIPGW4 card to display the menu of options again, and then click **Port Property**.

Programming Port Properties

Automatic Programming

Some of the parameters can be automatically programmed by selecting the desired SIP provider for each virtual SIP gateway port. Available SIP providers can be selected, and a different SIP provider can be assigned to each virtual SIP gateway port.

Note

It is necessary to import a SIP provider list file (comma-separated value [CSV] file) in advance to use the automatic programming feature.

Follow the steps below to configure a SIP provider.
1. Click **Select Provider**.
   A dialogue box will appear. Available virtual SIP gateway port numbers are displayed in the list.
2. From the **Provider** drop-down list, select the desired SIP provider.

   Note

   If the desired SIP provider is not shown in the drop-down list, it is necessary to programme the desired parameters manually. For information about the manual programming procedure, refer to "Manual Programming" below.

3. Highlight the desired port numbers or click **Select All** to select all the virtual SIP gateway port numbers to be assigned to the SIP provider selected in step **2**.
4. Click **Execute**.
   Appropriate setting values designated by the SIP provider will be set in the parameters for the virtual SIP gateway ports.

Manual Programming

Manual programming is compulsory for the following parameters:
Follow the steps below to programme the parameters which are not automatically programmed by selecting a provider.
1. Click the desired tab.
2. Enter information or select settings from the drop-down list for each parameter.

Parameters that Require Manual Programming

Manual programming is compulsory for the following parameters:
- **User Name**: Specifies the user name (SIP Account) provided by the SIP provider. (Max. 64 characters)
- **Authentication ID**: Specifies the authentication ID required for registration with the SIP server. (Max. 64 characters)
- **Authentication Password**: Specifies the authentication password used for registration with the SIP provider. (Max. 32 characters)

Follow the steps below to programme these 3 parameters.

1. Click an **Account** tab.

2. In the **User Name** column, enter the user name provided by the SIP provider.

3. In the **Authentication ID** column, enter the authentication ID required for registration with the SIP server.

4. In the **Authentication Password** column, the authentication password used for registration with the SIP provider.

5. Click **OK**.

Adding Settings to Provider Profiles

Follow the steps below to add the settings to provider profiles.
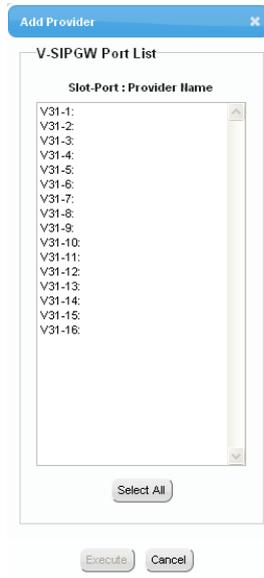
1. Click **Add Provider**.
   A dialogue box will appear. Available virtual SIP gateway port numbers are displayed in the list.

2. Highlight the desired port numbers or click **Select All** to select all the virtual SIP gateway port numbers to add the settings to provider profiles.

3. Click **Execute**.

Note

For more details about SIP gateway port settings, refer to the PC Programming Manual.

4.3 Assigning Networking Information to IP Telephones

4.3.1 Assigning IP Addressing Information

The IP address of an IP telephone, the subnet mask address, the default gateway address, and the PBX's IP address must be assigned to the IP telephone before it can be used on the network. These IP addressing information can be assigned in the following ways;

For IP-PTs

- **Using a DHCP server (DHCP Server feature or an external DHCP server) when the IP-PT is on the same LAN as the PBX**
  The DHCP server automatically assigns the IP address of the IP-PT, the subnet mask address, and the default gateway address to the IP-PT.
  The PBX's IP address can also be assigned automatically to the IP-PT in the process of being registered to the PBX. For details about registering the IP-PT, refer to "4.3.2 Registering IP Telephones".

  Note

  > For information about the DHCP Server feature, refer to "8.1.2 DHCP (Dynamic Host Configuration Protocol) Server" in the Installation Manual.

- **Using a DHCP server (DHCP Server feature or an external DHCP server) when the IP-PT is on a remote office LAN**
  While the DHCP server automatically assigns the IP address of the IP-PT, the subnet mask address, and the default gateway address to the IP-PT, the PBX's IP address must be assigned manually.
  Follow the procedure below to assign the PBX's IP address.

  Note

  - By assigning the PBX's IP address to one IP-PT, it is possible to assign the PBX's IP address to other IP-PTs or IP Cell Station Units (IP-CSs) on the same LAN through system programming. For details, refer to "9.14 PBX Configuration—[1-1] Configuration—Slot—V-IPEXT—Port Property—Option—◆ Announce Mode" in the PC Programming Manual.
  - IP-PTs can only receive IP addressing information from a DHCP server on its own LAN. Therefore, when IP-PTs are located on several LANs, a DHCP server is required on each LAN.
  - Since the default setting of the DHCP client function is enabled for IP-PTs, simply connect the IP-PTs to the LAN to use the DHCP server.
  - **For KX-NT511 Users**
    Since there is no PROGRAM button on a KX-NT511, press flexible button 1, 2, or 3 instead. Also, there is no Navigator key either. To select items on the LCD, use flexible button 1 for left-arrow operation and flexible button 3 for right-arrow operation.

KX-NT300 series (except KX-NT321) and KX-NT500 series (except KX-NT511 and KX-NT551)

To start programming

Supply power to the IP-PT.　　▶　　SETUP　　▶▶

Press "SETUP"
when it is displayed.

To enter the IP address of the PBX

For KX-NT300 series: Software version 2.00 or later only
For KX-NT500 series: Software version 1.00 or later only

▶▶　ENTER　▶　ENTER　▶　ENTER　▶　ENTER　▶　ENTER　▶▶

Select "PBX".　　ENTER　　Select "PBX IP Address".　　ENTER　　Select "Primary PBX".

▶▶　ENTER　▶　| PBX IP Address |　▶　ENTER　▶▶

ENTER　　　　　　　　　　　　　　　ENTER

To enter the IP address of the Secondary PBX
(optional for KX-NT300 series [Software version 2.00 or later only] and
KX-NT500 series [Software version 1.00 or later only])

▶▶　ENTER　▶　ENTER　▶　| PBX IP Address |　▶　ENTER　▶▶

Select "Secondary PBX".　　ENTER　　　　　　　　　　　　ENTER

To end programming

▶▶　⊙　▶　STORE　▶　The IP-PT will reboot and can then be registered to the PBX.

Return to the
Menu screen.　　Press "STORE".

Note

The illustrations may differ from the buttons on your telephone.

KX-NT321/KX-NT511/KX-NT551

To start programming

Supply power to the IP-PT. ▶ [PROGRAM] ▶▶

Press PROGRAM
while "Searching" is displayed.

To enter the IP address of the PBX

▶▶ (navigation) ▶ SP-PHONE ▶ (navigation) ▶ SP-PHONE ▶ (navigation) ▶▶

Select "PBX".   Press SP-PHONE.   Select "PBX IP Address".   Press SP-PHONE.   Select "Primary PBX".

▶▶ SP-PHONE ▶ **PBX IP Address** ▶ SP-PHONE ▶▶

Press SP-PHONE.   Press SP-PHONE.

To enter the IP address of the Secondary PBX (If required)

▶▶ (navigation) ▶ SP-PHONE ▶ **PBX IP Address** ▶ SP-PHONE ▶▶

Select "Secondary PBX".   Press SP-PHONE.   Press SP-PHONE.

▶▶ [HOLD] ▶▶

Press HOLD twice to return
to the Menu screen.

To end programming

▶▶ [AUTO DIAL / STORE] ▶ (The IP-PT will reboot and can then be registered to the PBX.)

Press STORE.

Note

- **For KX-NT511 users**
  For details about operating the PROGRAM button and other buttons, refer to "For IP-PTs" in
  "**4.3.1 Assigning IP Addressing Information**".
- To confirm the connection to the secondary PBX after assigning IP addressing information, (1) turn
  the IP-PT's power off, and (2) hold the STORE button and **2** key while turning the power on.

KX-NT265 (Software version 2.00 or later only)

To start programming

Supply power to the IP-PT. ▶   *PROG.*
                              PROGRAM
                                 ◎   ▶▶

Press PROGRAM
while "Searching" is displayed.

To enter the IP address of the PBX

▶▶   *VOL*   ▶   *SP-PHONE*   ▶   **PBX IP**   ▶   *SP-PHONE*   ▶   *HOLD*   ▶▶
     VOLUME   **Address**

Press VOLUME   Press SP-PHONE   Press SP-PHONE.   Press HOLD to return
to select "PBX".   twice.   to the Menu screen.

To end programming

▶▶   *AUTO DIAL*   ▶   The IP-PT will reboot
     ○   and can then be
     STORE   registered to the PBX.

Press STORE.

- **Not using a DHCP server (DHCP Server feature or an external DHCP server) when the IP-PT is on the same LAN as the PBX**
  Only the PBX's IP address can be assigned automatically to the IP-PT in the process of being registered to the PBX. For details about registering the IP-PT, refer to "4.3.2 Registering IP Telephones".
  Follow the procedure below to assign the IP address of the IP-PT, the subnet mask address, and the default gateway address manually.

KX-NT300 series (except KX-NT321) and KX-NT500 series (except KX-NT511 and KX-NT551)

To start programming

Supply power to the IP-PT. ▶ SETUP ▶▶

Press "SETUP" when it is displayed.

To set the IP address of the IP-PT

▶▶ Select "Network". ▶ ENTER ▶ Select "Disable" for DHCP setting. ▶ Select "IP Address". ▶ ENTER ▶▶

▶▶ **IP Address*1** ▶ ENTER ▶▶

To set the subnet mask address

▶▶ Select "Subnet Mask". ▶ ENTER ▶ **Subnet Mask Address*2** ▶ ENTER ▶▶

To set the default gateway address (if required)

▶▶ Select "Default Gateway". ▶ ENTER ▶ **Default Gateway Address*3** ▶ ENTER ▶▶

To enter the IP address of the Secondary PBX
(optional for KX-NT300 series [Software version 2.00 or later only] and
KX-NT500 series [Software version 1.00 or later only])

▶▶ Return to the Menu screen. ▶ Select "PBX". ▶ ENTER ▶ Select "PBX IP Address". ▶ ENTER ▶ Select "Secondary PBX". ▶▶

▶▶ ENTER ▶ **PBX IP Address** ▶ ENTER ▶▶

To end programming

▶▶ Return to the Menu screen. ▶ STORE Press "STORE". ▶ The IP-PT will reboot and can then be registered to the PBX.

*1 Valid IP address range: "1.0.0.0" to "223.255.255.255"
*2 Valid subnet mask address range: "0–255.0–255.0–255.0–255" (except 0.0.0.0 and 255.255.255.255)
*3 Valid IP address range: "1.0.0.0" to "223.255.255.255"

Note

The illustrations may differ from the buttons on your telephone.

KX-NT321/KX-NT511/KX-NT551

To start programming

Supply power to the IP-PT. ▶
PROGRAM
▶▶

Press PROGRAM
while "Searching" is displayed.

To set the IP address of the IP-PT

▶▶ (navigation keys) ▶ SP-PHONE ▶ (navigation keys) ▶ SP-PHONE ▶▶

Select "Network". Press SP-PHONE. Select "DHCP (Disable)". Press SP-PHONE twice.

▶▶ IP Address*1 ▶ SP-PHONE ▶▶

Press SP-PHONE.

To set the subnet mask address

▶▶ (navigation keys) ▶ SP-PHONE ▶ Subnet Mask Address*2 ▶ SP-PHONE ▶▶

Select "Subnet Mask". Press SP-PHONE. Press SP-PHONE.

To set the default gateway address (if required)

▶▶ (navigation keys) ▶ SP-PHONE ▶ Default Gateway Address*3 ▶ SP-PHONE ▶▶

Select "Default GW". Press SP-PHONE. Press SP-PHONE.

To enter the IP address of the Secondary PBX (if required)

▶▶ HOLD ▶ (navigation keys) ▶ SP-PHONE ▶ (navigation keys) ▶ SP-PHONE ▶ (navigation keys) ▶▶

Press HOLD to return to the Menu screen. Select "PBX". Press SP-PHONE. Select "PBX IP Address". Press SP-PHONE. Select "Secondary PBX".

▶▶ SP-PHONE ▶ PBX IP Address ▶ SP-PHONE ▶▶

Press SP-PHONE. Press SP-PHONE.

To end programming

▶▶ HOLD ▶ AUTO DIAL STORE ▶ The IP-PT will reboot and can then be registered to the PBX.

Press HOLD twice to return to the Menu screen. Press STORE.

*1 Valid IP address range: "1.0.0.0" to "223.255.255.255"
*2 Valid subnet mask address range: "0–255.0–255.0–255.0–255" (except 0.0.0.0 and 255.255.255.255)
*3 Valid IP address range: "1.0.0.0" to "223.255.255.255"

Note

- **For KX-NT511 users**
  For details about operating the PROGRAM button and other buttons, refer to "For IP-PTs" in "**4.3.1 Assigning IP Addressing Information**".
- To confirm the connection to the secondary PBX after assigning IP addressing information, (1) turn the IP-PT's power off, and (2) hold the STORE button and **2** key while turning the power on.

KX-NT265 (Software version 2.00 or later only)

To start programming

Supply power to the IP-PT. ▶

PROG.
PROGRAM

▶▶

Press PROGRAM
while "Searching" is displayed.

To set the IP address of the IP-PT

▶▶

VOL
VOLUME

Press VOLUME to
select "Network".

▶

SP-PHONE

Press SP-PHONE.

▶

VOL
VOLUME

Press VOLUME to
select "DHCP (Disable)".

▶

SP-PHONE

Press SP-PHONE
twice.

▶

▶▶ **IP Address*1** ▶

SP-PHONE

▶▶

Press SP-PHONE.

To set the subnet mask address

▶▶

VOL
VOLUME

Press VOLUME to
select "Subnet Mask".

▶

SP-PHONE

Press SP-PHONE.

▶ **Subnet Mask Address*2** ▶

SP-PHONE

▶▶

Press SP-PHONE.

To set the default gateway address (if required)

▶▶

VOL
VOLUME

Press VOLUME to
select "Default GW".

▶

SP-PHONE

Press SP-PHONE.

▶ **Default Gateway Address*3** ▶

SP-PHONE

▶▶

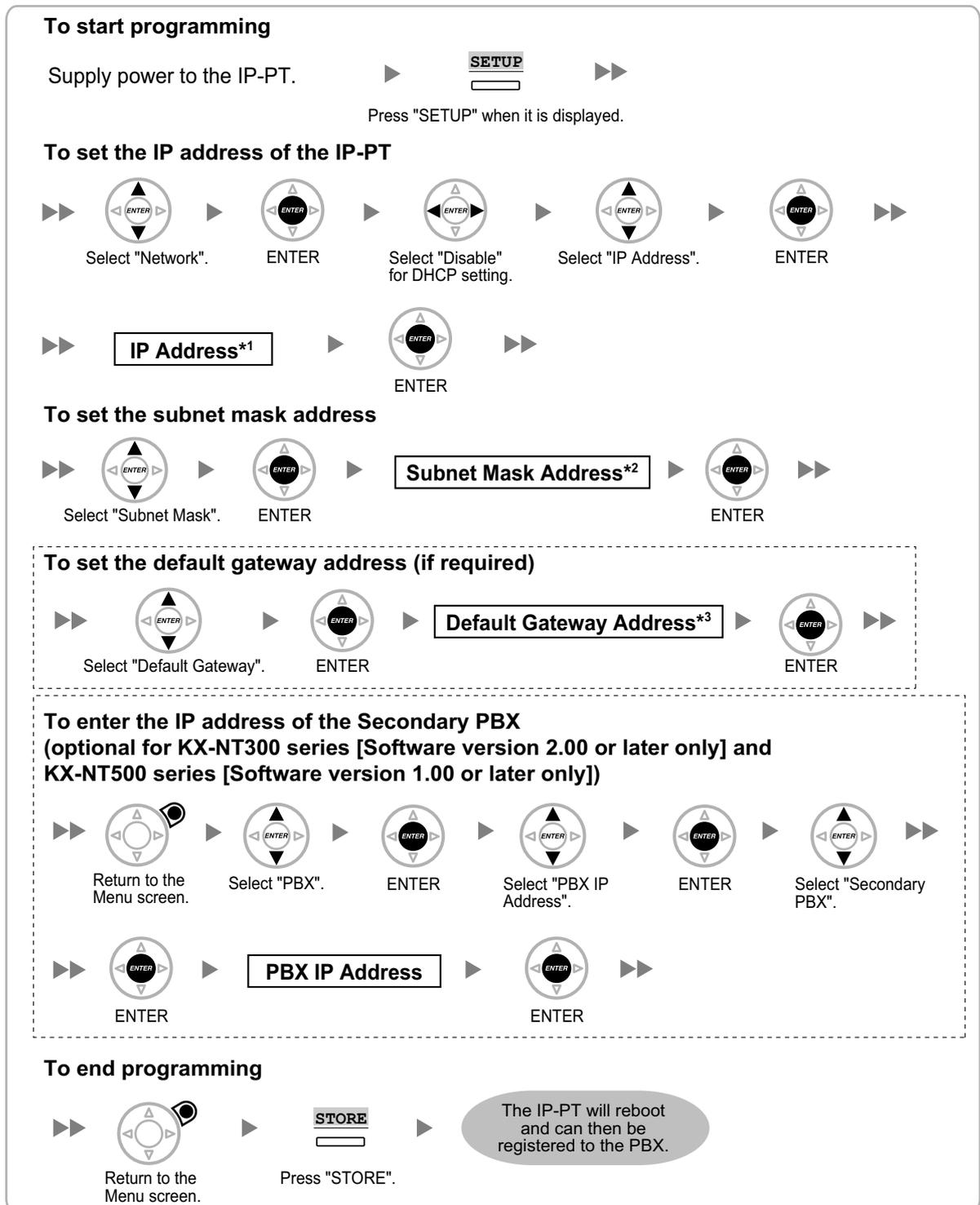Press SP-PHONE.

To end programming

▶▶

HOLD

Press HOLD to return
to the Menu screen.

▶

AUTO DIAL
STORE

Press STORE.

▶

The IP-PT will reboot
and can then be
registered to the PBX.

*1 Valid IP address range: "1.0.0.0" to "223.255.255.255"
*2 Valid subnet mask address range: "0–255.0–255.0–255.0–255" (except 0.0.0.0 and 255.255.255.255)
*3 Valid IP address range: "1.0.0.0" to "223.255.255.255"

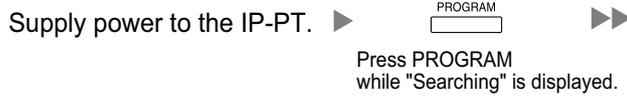- **Not using a DHCP server (DHCP Server feature or an external DHCP server) when the IP-PT is on a remote office LAN**
  All of the IP addressing information must be assigned manually.
  Follow the procedure below to assign the IP addressing information.

Note

By assigning the PBX's IP address to one IP-PT, it is possible to assign the PBX's IP address to other IP-PTs or IP-CSs on the same LAN through system programming. For details, refer to "9.14 PBX Configuration—[1-1] Configuration—Slot—V-IPEXT—Port Property—Option—◆ Announce Mode" in the PC Programming Manual.

KX-NT300 series (except KX-NT321) and KX-NT500 series (except KX-NT511 and KX-NT551)

To start programming

Supply power to the IP-PT.   ▶   **SETUP**   ▶▶

Press "SETUP" when it is displayed.

To set the IP address of the IP-PT

▶▶ Select "Network". ▶ ENTER ▶ Select "Disable" for DHCP setting. ▶ Select "IP Address". ▶ ENTER ▶▶

▶▶ **IP Address*1** ▶ ENTER ▶▶

To set the subnet mask address

▶▶ Select "Subnet Mask". ▶ ENTER ▶ **Subnet Mask Address*2** ▶ ENTER ▶▶

To set the default gateway address

▶▶ Select "Default Gateway". ▶ ENTER ▶ **Default Gateway Address*3** ▶ ENTER ▶▶

To enter the IP address of the PBX

For KX-NT300 series: Software version 2.00 or later only
For KX-NT500 series: Software version 1.00 or later only

▶▶ Return to the Menu screen. ▶ Select "PBX". ▶ ENTER ▶ Select "PBX IP Address". ▶ ENTER ▶ Select "Primary PBX". ▶▶

▶▶ ENTER ▶ **PBX IP Address** ▶ ENTER

▶▶ **Continued on next page**

Continued from previous page ▶▶

To enter the IP address of the Secondary PBX (optional for KX-NT300 series [Software version 2.00 or later only] and KX-NT500 series [Software version 1.00 or later only])

▶▶ [ENTER] ▶ [ENTER] ▶ | PBX IP Address | ▶ [ENTER] ▶▶

Select "Secondary PBX".   ENTER   ENTER

To end programming

▶▶ [STORE] ▶ The IP-PT will reboot and can then be registered to the PBX.

Press "STORE".

---

*1   Valid IP address range: "1.0.0.0" to "223.255.255.255"
*2   Valid subnet mask address range: "0–255.0–255.0–255.0–255" (except 0.0.0.0 and 255.255.255.255)
*3   Valid IP address range: "1.0.0.0" to "223.255.255.255"

Note

The illustrations may differ from the buttons on your telephone.

KX-NT321/KX-NT511/KX-NT551

To start programming

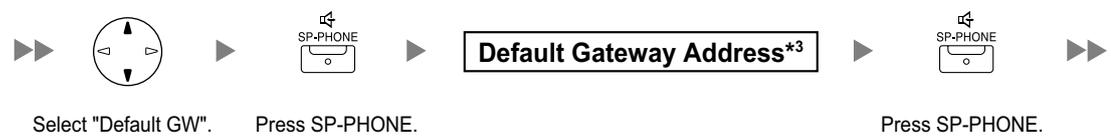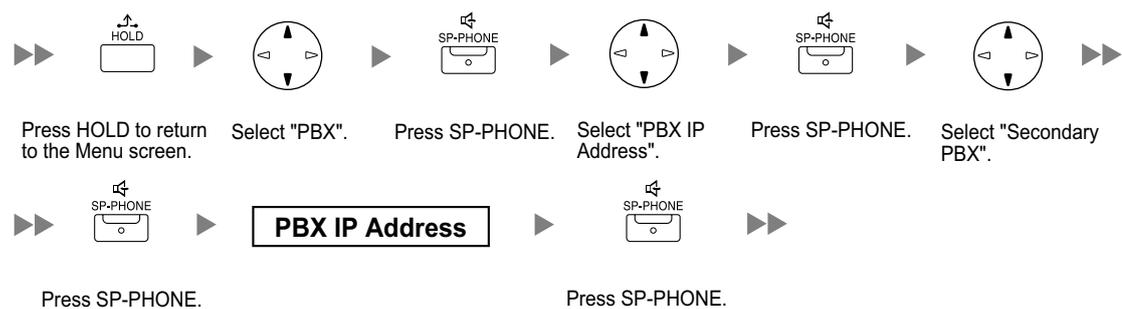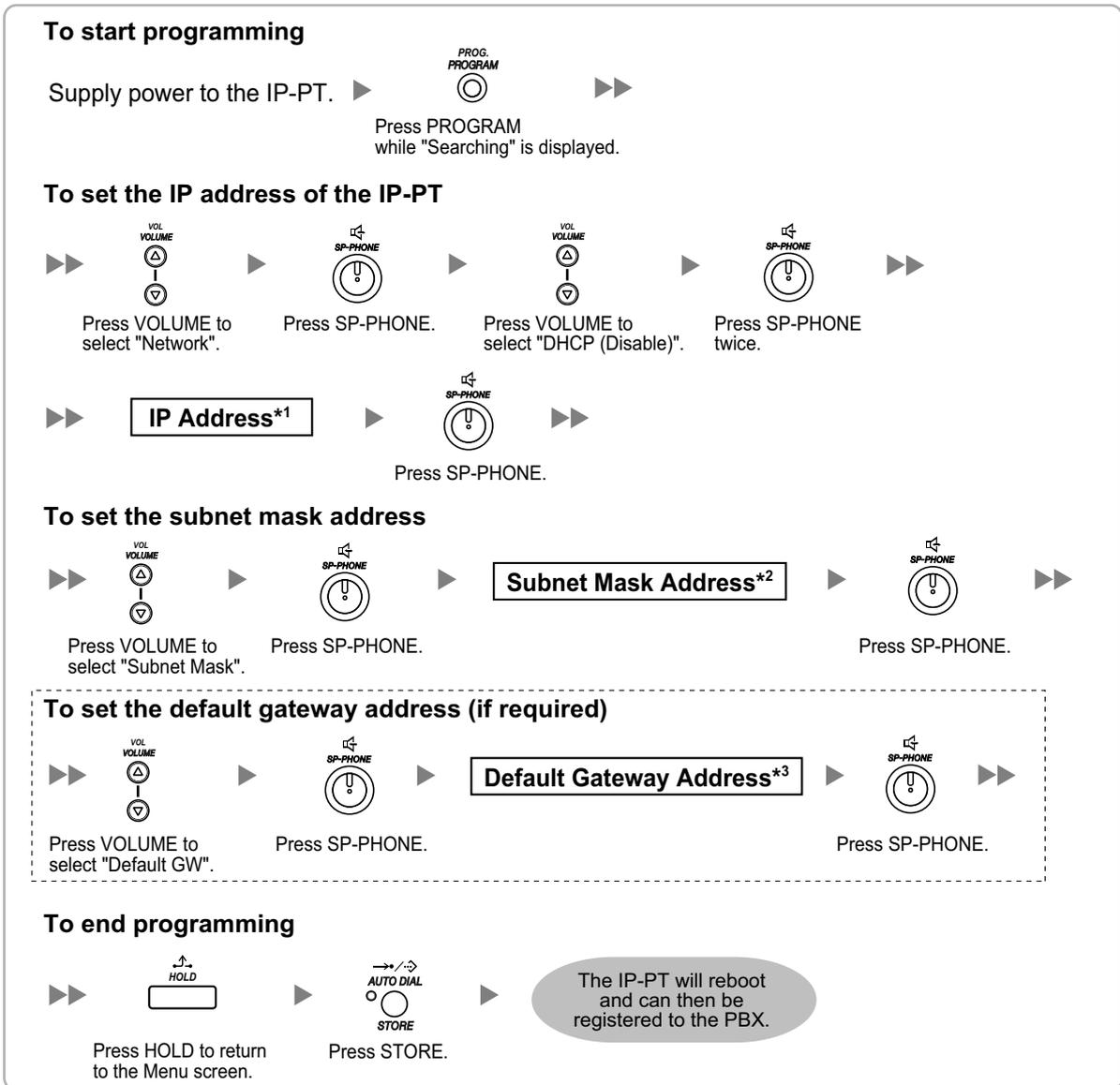Supply power to the IP-PT. ▶   [PROGRAM]   ▶▶

Press PROGRAM
while "Searching" is displayed.

To set the IP address of the IP-PT

▶▶ (navigator key) ▶ [SP-PHONE] ▶ (navigator key) ▶ [SP-PHONE] ▶▶

Select "Network".   Press SP-PHONE.   Select "DHCP (Disable)".   Press SP-PHONE
twice.

▶▶ **IP Address*1** ▶ [SP-PHONE] ▶▶

Press SP-PHONE.

To set the subnet mask address

▶▶ (navigator key) ▶ [SP-PHONE] ▶ **Subnet Mask Address*2** ▶ [SP-PHONE] ▶▶

Select "Subnet Mask".   Press SP-PHONE.   Press SP-PHONE.

To set the default gateway address

▶▶ (navigator key) ▶ [SP-PHONE] ▶ **Default Gateway Address*3** ▶ [SP-PHONE] ▶▶

Select "Default GW".   Press SP-PHONE.   Press SP-PHONE.

To enter the IP address of the PBX

▶▶ [HOLD] ▶ (navigator key) ▶ [SP-PHONE] ▶ (navigator key) ▶ [SP-PHONE] ▶ (navigator key) ▶▶

Press HOLD to return   Select "PBX".   Press SP-PHONE.   Select "PBX IP   Press SP-PHONE.   Select "Primary
to the Menu screen.   Address".   PBX".

▶▶ [SP-PHONE] ▶ **PBX IP Address** ▶ [SP-PHONE] ▶▶

Press SP-PHONE.   Press SP-PHONE.

To enter the IP address of the Secondary PBX (if required)

▶▶ (navigator key) ▶ [SP-PHONE] ▶ **PBX IP Address** ▶ [SP-PHONE] ▶▶

Select "Secondary   Press SP-PHONE.   Press SP-PHONE.
PBX".

▶▶   **Continued on next page**

Continued from previous page ▶▶

To end programming

▶▶   HOLD   ▶   AUTO DIAL / STORE   ▶   The IP-PT will reboot and can then be registered to the PBX.

Press HOLD twice to return to the Menu screen.   Press STORE.

*1   Valid IP address range: "1.0.0.0" to "223.255.255.255"
*2   Valid subnet mask address range: "0–255.0–255.0–255.0–255" (except 0.0.0.0 and 255.255.255.255)
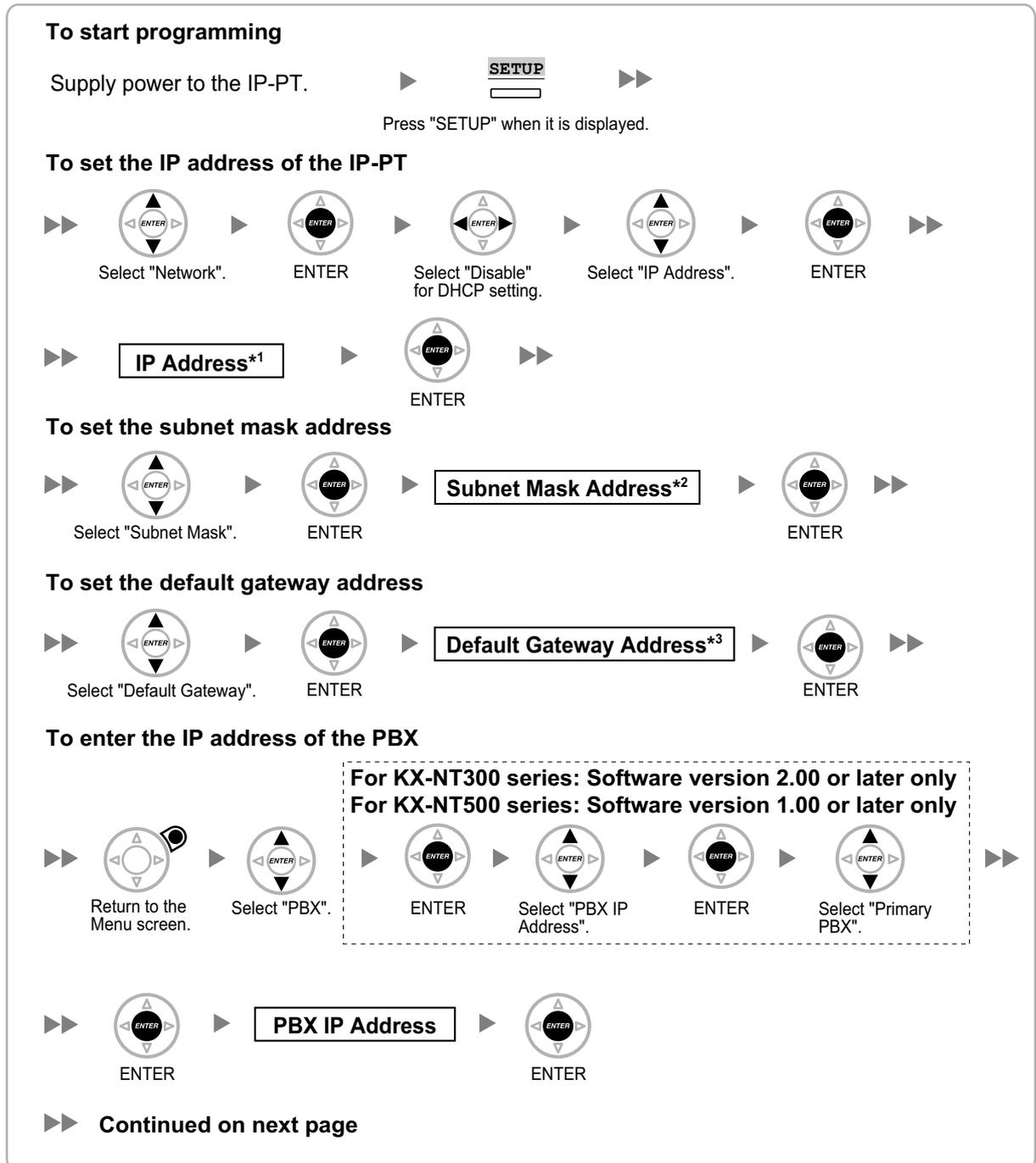*3   Valid IP address range: "1.0.0.0" to "223.255.255.255"

Note

- **For KX-NT511 users**
  For details about operating the PROGRAM button and other buttons, refer to "For IP-PTs" in "**4.3.1 Assigning IP Addressing Information**".
- To confirm the connection to the secondary PBX after assigning IP addressing information, (1) turn the IP-PT's power off, and (2) hold the STORE button and **2** key while turning the power on.

KX-NT265 (Software version 2.00 or later only)

To start programming

Supply power to the IP-PT. ▶

PROG.
PROGRAM
◎

▶▶

Press PROGRAM
while "Searching" is displayed.

To set the IP address of the IP-PT

▶▶

VOL
VOLUME
△
▽

▶

SP-PHONE

▶

VOL
VOLUME
△
▽

▶

SP-PHONE

▶▶

Press VOLUME to
select "Network".

Press SP-PHONE.

Press VOLUME to
select "DHCP (Disable)".

Press SP-PHONE
twice.

▶▶

| IP Address*1 |

▶

SP-PHONE

▶▶

Press SP-PHONE.

To set the subnet mask address

▶▶

VOL
VOLUME
△
▽

▶

SP-PHONE

▶

| Subnet Mask Address*2 |

▶

SP-PHONE

▶▶

Press VOLUME to
select "Subnet Mask".

Press SP-PHONE.

Press SP-PHONE.

To set the default gateway address

▶▶

VOL
VOLUME
△
▽

▶

SP-PHONE

▶

| Default Gateway Address*3 |

▶

SP-PHONE

▶▶

Press VOLUME to
select "Default GW".

Press SP-PHONE.

Press SP-PHONE.

To enter the IP address of the PBX

▶▶

HOLD

▶

VOL
VOLUME
△
▽

▶

SP-PHONE

▶

| PBX IP
Address |

▶

SP-PHONE

▶

HOLD

▶▶

Press HOLD
twice to return
to the Menu screen.

Press VOLUME
to select "PBX".

Press SP-PHONE
twice.

Press
SP-PHONE.

Press HOLD
to return to the
Menu screen.

To end programming

▶▶

AUTO DIAL
○
STORE

▶

The IP-PT will reboot
and can then be
registered to the PBX.

Press STORE.

---

*1   Valid IP address range: "1.0.0.0" to "223.255.255.255"
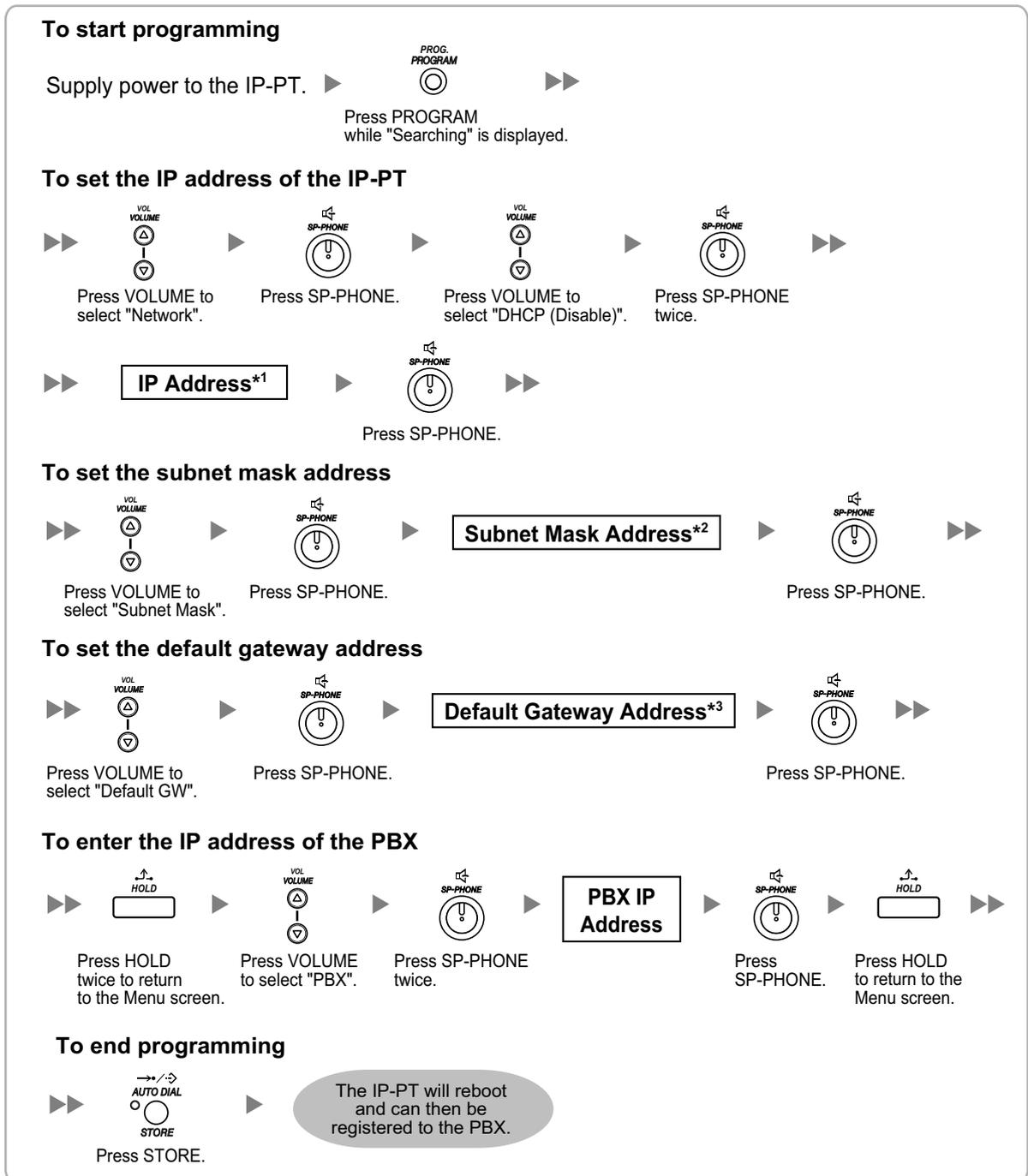*2   Valid subnet mask address range: "0–255.0–255.0–255.0–255" (except 0.0.0.0 and 255.255.255.255)
*3   Valid IP address range: "1.0.0.0" to "223.255.255.255"

For KX-UT Series SIP Phones

- **Using a DHCP server (DHCP Server feature or an external DHCP server) to automate the assignment of IP addressing information**
  The DHCP server automatically assigns the IP address of the SIP phone, the subnet mask address, and the default gateway address to the SIP phone.
  The PBX's IP address can also be assigned automatically to the SIP phone in the process of being registered to the PBX. For details about registering the SIP phone, refer to "4.3.2 Registering IP Telephones".

  Note

  For information about the DHCP Server feature, refer to "8.1.2 DHCP (Dynamic Host Configuration Protocol) Server" in the Installation Manual.

- **Not using a DHCP server (DHCP Server feature or an external DHCP server) when assigning IP addressing information**
  Only the PBX's IP address can be assigned automatically to the SIP phone in the process of being registered to the PBX. For details about registering the SIP phone, refer to "4.3.2 Registering IP Telephones".
  The IP address of the SIP phone, the subnet mask address, and the default gateway address must be assigned manually.
  For instructions, refer to the documentation of the SIP phone.

  Note

  - When the PBX is not in the same network as the SIP phone, the IP address of the PBX must be assigned manually. For instructions on manually setting PBX network information, refer to "Assigning the IP address of the PBX to a SIP phone" in "5.7.1 Assigning IP Addressing Information" in the Installation Manual.
  - When assigning IP addressing information to the SIP phone, do not use the phone's Web user interface programming.

For Non-KX-UT Series SIP Phones

- **Using a DHCP server (DHCP Server feature or an external DHCP server) to automate the assignment of IP addressing information**
  The IP address of the SIP phone, the subnet mask address, and the default gateway address can be assigned to the SIP phone automatically by the DHCP server.
  The PBX's IP address must be assigned manually on the SIP phone side.
  For instructions, refer to the documentation of the SIP phone.

- **Not using a DHCP server (DHCP Server feature or an external DHCP server) when assigning IP addressing information**
  All of the IP addressing information must be assigned manually.
  For instructions, refer to the documentation of the SIP phone.

  Note

  - A SIP phone can only receive IP addressing information from a DHCP server on its own LAN. Therefore, when SIP phones are located on several LANs, a DHCP server is required on each LAN.
  - When the DHCP client function is enabled for SIP phones, simply connect them to the LAN to use the DHCP server. For details about the DHCP client function setting, refer to the documentation of the SIP phone.

4.3.2 Registering IP Telephones

After the programming of the PBX and IP telephones is finished (refer to "4.3.1 Assigning IP Addressing Information"), the IP telephones must be registered to the PBX. The procedure for registering IP telephones differs according to the IP terminal registration mode specified during the Easy Setup Wizard. This setting can also be changed in the **Site Property—Main** screen of the Web Maintenance Console (refer to "9.2.2 PBX Configuration—[1-1] Configuration—Slot—System Property—Site—Main" in the PC Programming Manual). Refer to the following table:

IP Terminals	IP Terminal Registration Mode		
	Full Automatic Mode	**Extension Number Input Mode**	**Manual Mode**
IP-PTs	✓	✓	✓
KX-UT Series SIP Phones	✓	✓[*1]	✓
Non-KX-UT series SIP phones	✓[*2]	✓[*2]	✓
IP-CSs[*3]			✓

✓: Available

[*1] KX-UT series SIP phones will be registered automatically, in the same way as Full Automatic mode.
[*2] Non-KX-UT series SIP phones must always be registered to the PBX manually, even if Full Automatic mode or Extension Number Input mode is selected.
[*3] IP-CSs must always be registered to the PBX manually. For details about registering IP-CSs, refer to the Quick Installation Guide for the IP-CS.

Notice

You can specify an air sync group for IP-CSs after registration only when IP Terminal Registration Mode is set to "Manual Mode".

Note

- For KX-UT series SIP phones, the SIP extension password is automatically set to "1234".
- For IP softphones, follow the same registration procedure as IP-PTs.

Full Automatic Mode

If networking settings have been completed, when IP-PTs or KX-UT series SIP phones are connected to the same network as the PBX, they will be registered automatically. No registration procedure is required.

Extension Number Input Mode

For IP-PTs

If networking settings have been completed, when IP-PTs are connected to the same network as the PBX, they will be registered automatically, but extension numbers for the IP-PTs will not be set. Follow the procedure below to register an extension number to complete registration.

1. After completing networking settings, connect the IP-PT to the same network as the PBX. The screen to enter the extension number is displayed on the IP-PT.

2. Enter an extension number.

> **Note**
>
> When no extension number is entered in this step, the process will time out and the IP-PT will be registered without an extension number.

3. Press **[ENTER]** on the IP-PT.
4. Press **[PAUSE]** or "`EXIT`" on the IP-PT.

For KX-UT Series SIP Phones

If networking settings have been completed, when KX-UT series SIP phones are connected to the same network as the PBX, they will be registered automatically as same as when they are registered in Full Automatic mode. No registration procedure is required.

> **Note**
>
> * No more than 64 IP-PTs can register extension numbers at the same time.
> * If an extension number that is input for an IP-PT has already been set to another extension, registration by this mode will fail.
>   Note that some extension numbers are pre-configured to other extensions by default. Avoid using such numbers, or delete them before starting the registration process.

Manual Mode

For IP-PTs or KX-UT Series SIP Phones

After connecting IP-PTs or KX-UT series SIP phones to the PBX over a network, register those IP terminals to the PBX manually.
Follow the procedure below for registration.

1.
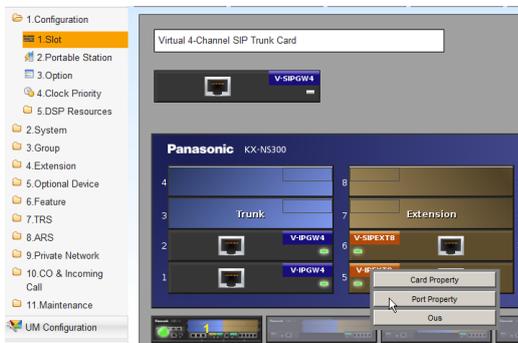
   a. Click **Setup** → **PBX Configuration** → **Configuration** → **Slot**.

   b. Place the mouse cursor over the **Virtual Slot**, and in the menu that appears, click **Select Shelf**.

   c. **For IP-PTs**:
Move the mouse pointer over the **V-IPEXT8** card (Virtual 8-Channel VoIP Extension Card).
For KX-UT series SIP phones:
Move the mouse pointer over the **V-IPEXT8** card (Virtual UT Extension Card).
A menu will be shown under the mouse pointer.
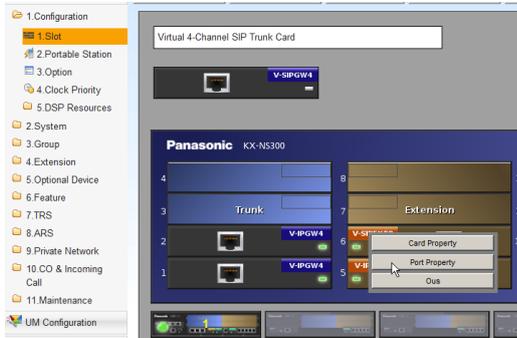
   d. Click **Port Property**.

To register the IP-PT or KX-UT series SIP phone by entering the MAC address directly:

2. If the **Connection** column for the port is **INS**, click **INS**, and then click **OUS** on the dialogue box to change the port's status.

3. Enter the MAC address of the IP-PT or SIP phone in the **IP Phone Registration ID (MAC Address)** box.

4. Click **Apply**.
Once the IP-PT or SIP phone is successfully registered, its status will update to show "Registered".

5. In the **Connection** column for the port, click **OUS**, and then click **INS** on the dialogue box to change the port's status.

6. For KX-UT series SIP phones only:
Follow the procedure below to change the **IP Terminal Registration Mode** from **Manual** to **Full Automatic**.
   a. Click **Setup** → **PBX Configuration** → **Configuration** → **Slot** → **System Property** →**Site Property** → **Main**.
   b. In the **Main** tab, select **Full Automatic** for **IP Terminal Registration Mode**.
   c. Click **OK**.

To register the IP-PT or KX-UT series SIP phone using the wizard:

2. Click **Registration**.
A dialogue box will appear. Non-registered (available) extension numbers and names are displayed on the left.

3. **a.** Highlight numbers and names and click the right arrow to select them for registration, and then click **Next**.
   b. Click **Next**. A screen will appear with information on the current IP-PT or SIP phone extension number and name, and index number for programming.

   Note
   • If the IP-PT or SIP phone has been connected to the LAN and power has been turned on, the IP address of the PBX will be assigned automatically.
   • If not, connect the IP-PT or SIP phone to the LAN and turn the power on within 15 minutes after this operation is done. The IP address of the PBX will then be assigned automatically.

   c. If the registration is still in progress, the dialogue box will show "Registration Executing".
   If the registration is successful, the dialogue box will show "Registration Completed". Click **Close**.
   Once the IP-PT or SIP phone is successfully registered, its status will update to show "Registered".

For Non-KX-UT Series SIP Phones

After connecting non-KX-UT series SIP phones to the PBX over a network, register those IP terminals to the PBX manually.
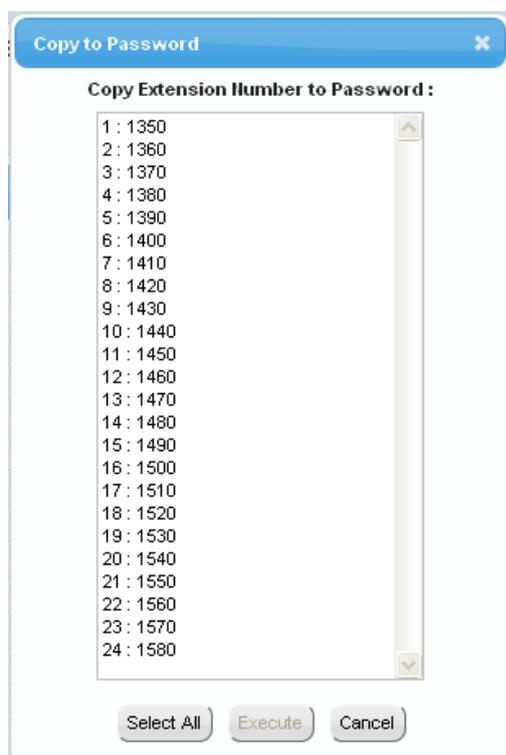Follow the procedure below for registration.

1.
   a. Click **Setup → PBX Configuration → Configuration → Slot**.
   b. Place the mouse cursor over the **Virtual Slot**, and in the menu that appears, click **Select Shelf**.
   c. Move the mouse pointer over the **V-SIPEXT8** card (Virtual 8-Channel SIP Extension Card). A menu will be shown under the mouse pointer.
   d. Click **Port Property**.

2. Assign extension numbers to the SIP extensions.
   - If the Automatic Extension Number Set for Extension Card feature is enabled, the extension numbers of SIP extension are automatically assigned. To programme this feature, refer to "9.35 PBX Configuration—[1-3] Configuration—Option—◆ New Card Installation—Automatic Extension Number Set for Extension Card" in the PC Programming Manual.
   - If not, enter the extension number for each SIP extension manually.

3. Set passwords for the SIP extensions.
   a. Click the cell in the **Connection** column for each SIP extension you wish to register. The Command Connection screen appears.
   b. Click **OUS**.
   c. Enter a password in the Password box for each SIP extension.
   d. Click **Apply**.
   e. Click the cell in the **Connection** column for each SIP extension to which a password has been assigned. The Command Connection screen appears.
   f. Click **INS**.
   g. Click **OK**.

Copy to Password

Copy Extension Number to Password :

```
1 : 1350
2 : 1360
3 : 1370
4 : 1380
5 : 1390
6 : 1400
7 : 1410
8 : 1420
9 : 1430
10 : 1440
11 : 1450
12 : 1460
13 : 1470
14 : 1480
15 : 1490
16 : 1500
17 : 1510
18 : 1520
19 : 1530
20 : 1540
21 : 1550
22 : 1560
23 : 1570
24 : 1580
```

Select All   Execute   Cancel

Note

Alternatively, it is possible to set an extension number as a password for each SIP extension automatically.

- In order to set the password automatically, do the following in substitution for step **c** of the procedure above.
  a. Click **Copy to**. A screen will appear with information on assigned extension numbers for SIP extensions.
  b. Click **Select All**.
  c. Click **Execute** to copy each Extension Number to Password.
  d. Click **Yes**.
  e. Click **OK** to return to the Port Property screen.
- When copying extension numbers to passwords, you can also use the 📄 icon on the bottom left of the Virtual SIP Extension Port Property screen.

4. Programme the SIP extension you wish to register.

a. Set the IP address of the PBX, extension number, and password in the corresponding fields for your SIP extension.
b. Send a request from the SIP extension to the PBX for registration.
   - If the authentication information of the SIP extension and the PBX match, the registration is successful.

Note

- When programming the SIP extension, the names of the corresponding fields may differ depending on the type of SIP phone you are using.
- For details about the actual operation of SIP phones, refer to the documentation of the SIP phone.
- For certain SIP phones, you may need to set a Sign-in name, which should consist of the extension number and the IP address of the PBX (e.g., 350@192.168.0.101).
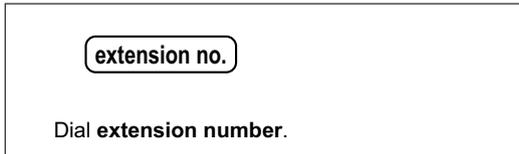
Section 5

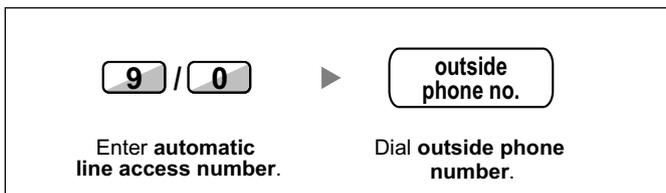# Confirming the Connection

5.1 Making and Receiving Calls

Making Calls

To call another extension

You can call another extension registered with the PBX by simply dialling the extension number.

extension no.
Dial **extension number**.

To call an outside party

9 / 0	▶	outside phone no.
Enter **automatic line access number**.		Dial **outside phone number**.

Receiving Calls

Off-hook.	▶	Talk.