Panasonic®

Installation Manual

Hybrid IP-PBX

Model No. KX-NS700

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 "1.1 For Your Safety (Page 18)" before using this product.

KX-NS700: PFMPR Software File Version 004.20000 or later

Manuals and supporting information are provided on the Panasonic Web site at:
http://panasonic.net/pcc/support/pbx/

System Components

System Components for KX-NS700

Category	Model No.	Description
Main Unit	KX-NS700	Main Unit
Activation Key Codes[*1]	KX-NSE101	Activation Key for Mobile Extension for 1 User (1 Mobile User)
	KX-NSE105	Activation Key for Mobile Extension for 5 Users (5 Mobile Users)
	KX-NSE110	Activation Key for Mobile Extension for 10 Users (10 Mobile Users)
	KX-NSE120	Activation Key for Mobile Extension for 20 Users (20 Mobile Users)
	KX-NSE201	Activate 1 IP-CS for expansion to 8ch Distributed type of Activation key (1 IP-CS channel expansion)
	KX-NSE205	Activate 5 IP-CS for expansion to 8ch Distributed type of Activation key (5 IP-CS channel expansion)
	KX-NSE210	Activate 10 IP-CS for expansion to 8ch Distributed type of Activation key (10 IP-CS channel expansion)
	KX-NSE220	Activate 20 IP-CS for expansion to 8ch Distributed type of Activation key (20 IP-CS channel expansion)
	KX-NSM102	2-Channel IP Trunk Activation Key (2 IP Trunk)
	KX-NSM104	4-Channel IP Trunk Activation Key (4 IP Trunk)
	KX-NSM108	8-Channel IP Trunk Activation Key (8 IP Trunk)
	KX-NSM116	16-Channel IP Trunk Activation Key (16 IP Trunk)
	KX-NSM201	1-Channel IP Softphone/IP Proprietary Telephone/ P-SIP Extension Activation Key (1 IPSoftphone/IP PT/ SIP-MLT/P-SIP)
	KX-NSM205	5-Channel IP Softphone/IP Proprietary Telephone/ P-SIP Extension Activation Key (5 IPSoftphone/IP PT/ SIP-MLT/P-SIP)
	KX-NSM210	10-Channel IP Softphone/IP Proprietary Telephone/ P-SIP Extension Activation Key (10 IPSoftphone/IP PT/SIP-MLT/P-SIP)
	KX-NSM220	20-Channel IP Softphone/IP Proprietary Telephone/ P-SIP Extension Activation Key (20 IPSoftphone/IP PT/SIP-MLT/P-SIP)
	KX-NSM501	1-Channel IP Proprietary Telephone/P-SIP Extension Activation Key (1 IP PT/SIP-MLT/P-SIP)
	KX-NSM505	5-Channel IP Proprietary Telephone/P-SIP Extension Activation Key (5 IP PT/SIP-MLT/P-SIP)

Category	Model No.	Description
	KX-NSM510	10-Channel IP Proprietary Telephone/P-SIP Extension Activation Key (10 IP PT/SIP-MLT/P-SIP)
	KX-NSM520	20-Channel IP Proprietary Telephone/P-SIP Extension Activation Key (20 IP PT/SIP-MLT/P-SIP)
	KX-NSM701	1-Channel SIP Extension Activation Key (1 SIP Extension)
	KX-NSM705	5-Channel SIP Extension Activation Key (5 SIP Extension)
	KX-NSM710	10-Channel SIP Extension Activation Key (10 SIP Extension)
	KX-NSM720	20-Channel SIP Extension Activation Key (20 SIP Extension)
	KX-NSN001	Activation Key for One-look Network (One-look Network)
	KX-NSN002	Activation Key for QSIG Network (QSIG Network)
	KX-NSU002	Activation Key for Two-way Recording Control (Two-way REC Control)
	KX-NSU003	Activation Key for Message Backup (Message Backup)
	KX-NSU102	2-Channel Unified Messaging Activation Key (2 UM Port)
	KX-NSU104	4-Channel Unified Messaging Activation Key (4 UM Port)
	KX-NSU201	Activation Key for Unified Messaging E-mail Notification for 1 User (UM/E-mail 1 User)
	KX-NSU205	Activation Key for Unified Messaging E-mail Notification for 5 Users (UM/E-mail 5 Users)
	KX-NSU210	Activation Key for Unified Messaging E-mail Notification for 10 Users (UM/E-mail 10 Users)
	KX-NSU220	Activation Key for Unified Messaging E-mail Notification for 20 Users (UM/E-mail 20 Users)
	KX-NSU299	Activation Key for Unified Messaging E-mail Notification for All Users (UM/E-mail All Users)
	KX-NSU301	Activation Key for Two-way Recording for 1 User (2way REC 1 User)
	KX-NSU305	Activation Key for Two-way Recording for 5 Users (2way REC 5 Users)
	KX-NSU310	Activation Key for Two-way Recording for 10 Users (2way REC 10 Users)
	KX-NSU320	Activation Key for Two-way Recording for 20 Users (2way REC 20 Users)

Category	Model No.	Description
	KX-NSU399	Activation Key for Two-way Recording for All Users (2way REC All Users)
	KX-NSA010	Activation Key for CA Thin Client Server Connection (CA Thin Client)
	KX-NSA020	Activation Key for Multiple CSTA Connection (CSTA Multiplexer)
	KX-NSA201	Activation Key for CA PRO for 1 User (CA Pro 1 user)
	KX-NSA205	Activation Key for CA PRO for 5 Users (CA Pro 5 users)
	KX-NSA210	Activation Key for CA PRO for 10 Users (CA Pro 10 users)
	KX-NSA240	Activation Key for CA PRO for 40 Users (CA Pro 40 users)
	KX-NSA249	Activation Key for CA PRO for 128 Users (CA Pro 128 users)
	KX-NSA301	Activation Key for CA ACD Monitor for 1 ICD Supervisor (CA Supervisor)
	KX-NSA401	Activation Key for CA Operator Console (CA Console)
	KX-NSA901	Activation Key for CA Network Plug-in for 1 User (CA Network 1 user)
	KX-NSA905	Activation Key for CA Network Plug-in for 5 Users (CA Network 5 users)
	KX-NSA910	Activation Key for CA Network Plug-in for 10 Users (CA Network 10 users)
	KX-NSA940	Activation Key for CA Network Plug-in for 40 Users (CA Network 40 users)
	KX-NSA949	Activation Key for CA Network Plug-in for 128 Users (CA Network 128 users)
	KX-NSB0001	Activation Key for Poltys C. Bridge (Poltys C. Bridge)
	KX-NSB0002	Activation Key for PSDN Option-1 (PSDN Option-1)
	KX-NSB0003	Activation Key for PSDN Option-2 (PSDN Option-2)
	KX-NSB0004	Activation Key for Poltys CCAccounting
	KX-NSB0005	Activation Key for Poltys CCAccounting A.L.
	KX-NSB0006	Activation Key for Poltys CCAcc. Enterprise
	KX-NSB0007	Activation Key for Poltys CCAcc. Enterprise A.L.
	KX-NSB0008	Activation Key for Poltys CCView
	KX-NSB0009	Activation Key for Poltys CCView A.L.
	KX-NSB0010	Activation Key for Poltys CCView add. PBX
	KX-NSB0011	Activation Key for Poltys CCView add. PBX A.L.

Category	Model No.	Description
	KX-NSB0012	Activation Key for Poltys Number notice
	KX-NSB0013	Activation Key for Poltys Number notice A.L.
	KX-NSB0014	Activation Key for Poltys CCRecord SIP (4 Ports)
	KX-NSB0016	Activation Key for Poltys CCRecord SIP A.L. (4 Ports)
	KX-NSB0101	Activation Key for Poltys CA RCS-Start for 1 User (Poltys CA RCS-Start 1 user)
	KX-NSB0105	Activation Key for Poltys CA RCS-Start for 5 Users (Poltys CA RCS-Start 5 users)
	KX-NSB0110	Activation Key for Poltys CA RCS-Start for 10 Users (Poltys CA RCS-Start 10 users)
	KX-NSB0149	Activation Key for Poltys CA RCS-Start for 128 Users (Poltys CA RCS-Start 128 users)
	KX-NSB0201	Activation Key for Poltys CA RCS-Extend for 1 User (Poltys CA RCS-Extend 1 user)
	KX-NSB0205	Activation Key for Poltys CA RCS-Extend for 5 Users (Poltys CA RCS-Extend 5 users)
	KX-NSB0210	Activation Key for Poltys CA RCS-Extend for 10 Users (Poltys CA RCS-Extend 10 users)
	KX-NSB0249	Activation Key for Poltys CA RCS-Extend for 128 Users (Poltys CA RCS-Extend 128 users)
	KX-NSB0404	Activation Key for Poltys CCRecord Analogue (4 users)
	KX-NSB0408	Activation Key for Poltys CCRecord Analogue (8 users)
	KX-NSB0412	Activation Key for Poltys CCRecord Analogue (12 users)
	KX-NSB0416	Activation Key for Poltys CCRecord Analogue (16 users)
	KX-NSB0424	Activation Key for Poltys CCRecord Analogue (24 users)
	KX-NSB0504	Activation Key for Poltys CCRecord Analogue A.L. (4 users)
	KX-NSB0508	Activation Key for Poltys CCRecord Analogue A.L. (8 users)
	KX-NSB0512	Activation Key for Poltys CCRecord Analogue A.L. (12 users)
	KX-NSB0516	Activation Key for Poltys CCRecord Analogue A.L. (16 users)
	KX-NSB0524	Activation Key for Poltys CCRecord Analogue A.L. (24 users)
	KX-NSB0608	Activation Key for Poltys CCRecord Digital (8 users)
	KX-NSB0616	Activation Key for Poltys CCRecord Digital (16 users)

Category	Model No.	Description
	KX-NSB0624	Activation Key for Poltys CCRecord Digital (24 users)
	KX-NSB0708	Activation Key for Poltys CCRecord Digital A.L. (8 users)
	KX-NSB0716	Activation Key for Poltys CCRecord Digital A.L. (16 users)
	KX-NSB0724	Activation Key for Poltys CCRecord Digital A.L. (24 users)
	KX-NSB0801	Activation Key for Poltys CCRecord PRI (1 Port)
	KX-NSB0802	Activation Key for Poltys CCRecord PRI (2 Ports)
	KX-NSB0901	Activation Key for Poltys CCRecord PRI A.L. (1 Port)
	KX-NSB0902	Activation Key for Poltys CCRecord PRI A.L. (2 Ports)
	KX-NSB1001	Activation Key for Poltys CCView Supervisor
	KX-NSB1005	Activation Key for Poltys CCView Supervisor (5 user Bundle)
	KX-NSB1101	Activation Key for Poltys CCView Supervisor A.L.
	KX-NSB1105	Activation Key for Poltys CCView Supervisor A.L. (5 user Bundle)
	KX-NSB1201	Activation Key for Poltys CCView CRM P-up
	KX-NSB1205	Activation Key for Poltys CCView CRM P-up (5 user Bundle)
	KX-NSB1301	Activation Key for Poltys CCView CRM P-up A.L.
	KX-NSB1305	Activation Key for Poltys CCView CRM P-up A.L. (5 user Bundle)
	KX-NSB1401	Activation Key for Poltys CCAgent
	KX-NSB1405	Activation Key for Poltys CCAgent (5 user Bundle)
	KX-NSB1501	Activation Key for Poltys CCAgent A.L.
	KX-NSB1505	Activation Key for Poltys CCAgent A.L. (5 user Bundle)
	KX-NSF101	Activation Key for CTI interface (CTI interface)
	KX-NSF201	Activation key for Built-in ACD Report, Announcement of waiting number for Queuing (Call Centre Feature Enhancement)
	KX-NSF991	Expansion Capacity for KX-NS700 (Expansion Capacity)
Physical Cards		
DSP Card Slot	KX-NS5110	VoIP DSP Card (S Type) (DSP S)

Category		Model No.	Description
		KX-NS5111	VoIP DSP Card (M Type) (DSP M)
		KX-NS5112	VoIP DSP Card (L Type) (DSP L)
	SD Memory Cards Slot	KX-NS3134	SD Memory Card (XS Type) (SD XS)
		KX-NS3135	SD Memory Card (S Type) (SD S)
		KX-NS3136	SD Memory Card (M Type) (SD M)
		KX-NS5134	SD Memory Card (XS Type) (SD XS)
		KX-NS5135	SD Memory Card (S Type) (SD S)
		KX-NS5136	SD Memory Card (M Type) (SD M)
		KX-NS7134	SD Memory Card (XS Type) (SD XS)
		KX-NS7135	SD Memory Card (S Type) (SD S)
		KX-NS7136	SD Memory Card (M Type) (SD M)
	Expansion Master Slot	KX-NS7130	Expansion Master Card (EXP-M)
	Remote Card Slot	KX-TDA0196	Remote Modem Card (RMT)
	Trunk/Doorphone Slot	KX-NS5162	Doorphone Interface Card (DPH2)
		KX-NS5180	6-port Analogue Trunk Card (LCOT6)
		KX-NS5282*2	2-Port BRI Card (BRI2)
		KX-NS5284	4-Port BRI Card (BRI4)
		KX-NS5290	PRI Card (PRI23)
		KX-NS5290CE	PRI30/E1 Card (PRI30/E1)
	Extension Slot	KX-NS5170	4-Port Digital Hybrid Extension Card (DHLC4)*3
		KX-NS5171	8-Port Digital Extension Card (DLC8)*3
		KX-NS5172	16-port Digital Extension Card (DLC16)*3
		KX-NS5173	8-Port SLT Card (MCSLC8)
		KX-NS5174	16-Port SLT Card (MCSLC16)

*1 Note that the types of activation keys are subject to change without notice. For CA activation keys, refer to the documentation for CA.
*2 This card is not available in some countries/areas.
*3 When installing a DLC8, DLC16 or DHLC4 card, the LPR software version must be 2.0 or later.

System Components for Expansion Unit

Category	Model No.	Description
SPR	KX-NS720	Expansion Unit

Category	Model No.	Description
Trunk/Doorphone Slot	KX-NS5162	Doorphone Interface Card (DPH2)
	KX-NS5180	6-port Analogue Trunk Card (LCOT6)
	KX-NS5282*1	2-Port BRI Card (BRI2)
	KX-NS5284	4-Port BRI Card (BRI4)
	KX-NS5290	PRI Card (PRI23)
	KX-NS5290CE	PRI30/E1 Card (PRI30/E1)
Extension Slot	KX-NS5170	4-Port Digital Hybrid Extension Card (DHLC4)*2
	KX-NS5171	8-Port Digital Extension Card (DLC8)*2
	KX-NS5172	16-port Digital Extension Card (DLC16)*2
	KX-NS5173	8-Port SLT Card (MCSLC8)
	KX-NS5174	16-Port SLT Card (MCSLC16)

*1 This card is not available in some countries/areas.
*2 When installing a DLC8, DLC16 or DHLC4 card, the LPR software version must be 2.0 or later.

Equipment Compatibility for Main Unit

The PBX supports the following equipment:

Cell Stations

DECT

- DECT 2-Channel Cell Stations Unit Using DLC Card for DECT Portable Station (KX-TDA0155CE)
- DECT 8-Channel Cell Stations Unit Using DLC Card for DECT Portable Station (KX-TDA0158CE)
- DECT 8-Channel IP Cell Station Unit Using a V-IPCS4 Card for DECT Portable Station (KX-NCP0158CE)
- DECT 4-Channel IP Cell Station Unit Using a V-IPCS4 Card for DECT Portable Station (KX-NS0154CE)

DECT 6.0

- DECT 6.0 2-Channel Cell Station Unit Using a DHLC/DLC Card (PT-interface CS) for DECT 6.0 Portable Station (KX-T0155)
- DECT 6.0 8-Channel Cell Station Unit Using a DHLC/DLC Card (PT-interface CS) for DECT 6.0 Portable Station (KX-T0158)
- DECT 6.0 8-Channel IP Cell Station Unit Using a V-IPCS4 Card for DECT 6.0 Portable Station (KX-NCP0158)
- DECT 6.0 4-Channel IP Cell Station Unit Using a V-IPCS4 Card for DECT 6.0 Portable Station (KX-NS0154)

Doorphones

- Doorphone (KX-T30865, KX-T7765)

Telephones

Panasonic Proprietary Telephones

- IP proprietary telephones (e.g., KX-NT300 series, KX-NT500 series)
- Digital proprietary telephone (e.g., KX-DT300 series, KX-DT500 series, KX-T7600 series)
- Analogue proprietary telephone (e.g., KX-T7700 series)
- DSS Console (e.g., KX-DT390, KX-DT590, KX-T7640)

- IP softphones (e.g., KX-NCS8100)
- Portable stations (e.g., KX-TCA364, KX-WT115)

SIP Phones

- KX-UT series SIP phones (e.g., KX-UT133, KX-UT248, KX-UT670)
- KX-HDV series SIP phones
- KX-TGP600 SIP cordless phones
- IP conferencing phones (e.g., KX-NT700)
- Third party SIP phones (SIP hardphones/SIP softphones)

Other

- Single line telephones

Note

- For the equipment (e.g., Add-on Key Module, USB Module, Headset) 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 "2.1.2 System Connection Diagram".
- The PBX does not support the following Panasonic proprietary telephones:
  - KX-NT136 IP proprietary telephone
  - KX-NT400 IP proprietary telephone
  - KX-HGT100 SIP telephone
  - KX-TDA0300 PC Console
  - KX-TDA0350 PC Phone
  - KX-T7000 series proprietary telephone
  - KX-T7200 series proprietary telephone
  - KX-T7300 series proprietary telephone
  - KX-T7400 series proprietary telephone
  - KX-T7500 series proprietary telephone
- Operation of the KX-NS0154 depends on the PBX software file version and the firmware version of the KX-NS0154. You can confirm the compatibility on the Panasonic Web site: http://panasonic.net/pcc/support/pbx

Equipment Compatibility for Expansion Unit

You can connect supported Expansion Units to expand the usage of legacy terminals and trunks.
If an Expansion Unit is connected to the Main Unit, the following equipment is also supported.

Cell Stations

DECT

- 2-Channel Cell Station Unit Using a DHLC/DLC Card (PT-interface CS) for DECT Portable Station (KX-TDA0155CE)
- 8-Channel High-density Cell Station Unit Using a DHLC/DLC Card (PT-interface CS) for DECT Portable Station (KX-TDA0158CE)

Telephones

Panasonic Proprietary Telephones

- Digital Proprietary Telephone (e.g., KX-DT300 series, KX-DT500 series, and KX-T7600 series)
- Portable Station (e.g., KX-TD7600 series, KX-TCA series)
- DSS Console (e.g., KX-DT390, KX-DT590, KX-T7640)
- Analogue Proprietary Telephone (e.g., KX-T7700 series)

Note

The following Panasonic proprietary telephones are not available even if an expansion unit is connected:

- KX-TDA0300 PC Console

- KX-TDA0350 PC Phone
- KX-T7000 series proprietary telephone
- KX-T7200 series proprietary telephone
- KX-T7300 series proprietary telephone
- KX-T7400 series proprietary telephone
- KX-T7500 series proprietary telephone

Voice Processing System

Voice Processing System (e.g., KX-TVM series)

Notice

- This PBX supports SIP extensions. However, some PBX features may not be available depending on the type of telephone.
- 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

- Some optional hardware, software, and features are not available in some countries/areas. Please consult your certified Panasonic dealer for more information.
- In this manual, the suffix of each model number (e.g., KX-NS700**NE**) is omitted unless necessary.

List of Abbreviations

- CA → Communication Assistant
- IP-PT → IP Proprietary Telephone
- PS → Portable Station
- SIP Extension → Extensions of the PBX which use Session Initiation Protocol for communication.
- SLT → Single Line Telephone
- APT → Analogue Proprietary Telephone
- DPT → Digital Proprietary Telephone
- IP-CS → IP Cell Station unit
- P-SIP → Panasonic SIP Phones (KX-HDV series/KX-TGP600)

Introduction

This Installation Manual is designed to serve as an overall technical reference for the Panasonic IP-PBX, KX-NS700. It provides instructions for installing the hardware, and programming the PBX using Web Maintenance Console. This PBX can also be programmed by using PT. Refer to the PT Programming Manual for more information.

The Structure of this Manual

This manual contains the following sections:

Section 1 Safety Precautions
Provides important information intended to prevent personal injury and property damage.

Section 2 System Outline
Provides general information on the PBX, including the system capacity and specifications.

Section 3 Information about the Activation Keys
Provides information on activation keys, including how to obtain activation keys.

Section 4 Installation
Describes the procedures to install the PBX. Detailed instructions for planning the installation site, optional service cards, and cabling of peripheral equipment are provided. Further information on system expansion and peripheral equipment installation is included.

Section 5 Programming Information
Describes the installation procedure, structure, and functions of the Web Maintenance Console for programming IP telephones and the PBX. Further information on programming the PBX for use with SIP trunks and a VoIP network is included.

Section 6 Methods of Stacking Expansion Units
Provides information about stacking Expansion Unit.

Section 7 Troubleshooting
Provides information on the PBX and telephone troubleshooting.

Section 8 Networking Information
Provides information about topics such as using the PBX in a VoIP network, and the TCP ports used by the PBX.

Section 9 Appendix
Provides information about System Prompt Languages and the revision history.

About the Other Manuals

Along with this Installation Manual, the following manuals are available:

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.

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

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 "2.3 Frequently Asked Questions (FAQ)" of the PC Programming Manual.

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Section 1

Safety Precautions

This section provides important information intended to prevent personal injury and property damage.

1.1 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.

Notice

Panasonic assumes no responsibility for injuries or property damage resulting from failures arising out of improper installation or operation inconsistent with this documentation.

⚠ WARNING

For All Telephone Equipment

- Do not install the product in any other way than described in relevant manuals.
- 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.
- Do not install the system in the following locations:
  - **a.** 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.
  - **b.** Areas with high amounts of dust. High amounts of dust can lead to fire or electric shock, and impair the performance of 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.
- 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.

- 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.
- Follow all warnings and instructions marked on the product.
- Small objects, such as the hook clip and SD card pose a choking hazard. Keep small objects out of reach of children.
- 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 office/home, consult your dealer or local power company.
- For safety purposes some products are equipped with an earthed plug. If you do not have an earthed outlet, please have one installed. Do not bypass this safety feature by tampering with the plug.
- 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:
  - **a.** Never install telephone wiring during a lightning storm.
  - **b.** Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
  - **c.** Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
  - **d.** Use caution when installing or modifying telephone lines.
  - **e.** Anti-static precautions should be taken during installation.
- 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

- Do not insert foreign 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.
- Do not pull, bend, rest objects on, or chafe the power cord and plug. Damage to the power cord or plug can cause fire or electric shock.
- Do not attempt to repair the power cord or plug. If the power cord or plug is damaged or frayed, contact an authorised Panasonic Factory Service Centre for a replacement.
- Do not leave the slot open if an option service card is not installed after removing a dummy cover plate. Make sure to insert the slot cover included with the option service card into the slot.

- When mounting the PBX on a 19-inch rack, only use the 19-inch rack mounting equipment (attachment bracket, screws) made for use with 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 authorised Panasonic Factory Service Centre.
- Make sure that the wall that the unit will be attached to is made of concrete, and is strong enough to support the unit (approx. 30 kg). Do not attach the unit to walls made from plasterboard or thin plywood. Attaching the unit to areas where there are strong winds, or where shocks or vibrations are frequent or strong, may lead to the product falling over.
- Only use the wall-mounting equipment (anchor plugs, screws, metal brackets) included with the PBX and the wall mounting kit.
- 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.
- 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. (See "4.2.4 Frame Earth Connection".)
- Plug the power cord firmly into an AC outlet. Otherwise, it can cause fire or electric shock.
- Be careful not to drop any components. Dropping components may damage them or cause an injury.

- Make sure that the AC outlet is properly earthed, then securely connect the 3-pin AC plug including the earthed pin.
- A lithium battery is used in the main unit. There is a risk of explosion if the battery is replaced with an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

⚠ CAUTION

For All Telephone Equipment

- The product should be kept free of dust, moisture, high temperature (more than 40 °C) 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 benzine or thinner. Do not use liquid cleaners or aerosol cleaners.

For the PBX

- Do not install the system in the following locations:
  - **a.** In direct sunlight and hot, cold, or humid places. (Temperature range: 0 °C to 40 °C)
  - **b.** Areas where sulphuric gases may be present, such as near thermal springs.
  - **c.** Near devices that generate high frequencies, such as sewing machines or electric welders.
  - **d.** Locations where other objects will obstruct the area around the PBX. Be especially careful to leave at least 5 cm to the sides of the PBX for ventilation.
  - **e.** Locations where condensation can occur.
- Do not block the openings of the PBX. Allow space of at least 20 cm above and 10 cm at the sides of the PBX.
- When the PBX is mounted on a 19-inch rack, do not block the openings of the PBX. Allow space of at least 10 cm around the PBX's fan.
- When the PBX is placed on a desktop, make sure that the PBX is placed as indicated in "4.2.10 Placing the PBX on a Desktop". Do not place it on its side or upside down.
- When installing or removing the SD Memory Card, do not put pressure on any parts of the mother board. Doing so may result in damage to the PBX.
- 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. To restart the PBX, refer to "7.1.5 Restarting 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 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 plug of power supply cordset is used as the main disconnect device. Ensure that the AC outlet is located near the equipment and is easily accessible.
- 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.
- Make sure that the surface behind the PBX is flat and free of obstacles, so that the openings on the back of the PBX will not be blocked.
- Make sure that the surface behind the PBX is not made of wood.
- When this product is no longer in use, make sure to detach it from the rack or wall.
- Use only the AC power cord included with the PBX. A certified power supply cord has to be used with this equipment. The relevant national installation and/or equipment regulations shall be considered. A certified power supply cord not lighter than ordinary polyvinyl chloride flexible cord according to IEC 60227 (designation H05VV-F 3G 0.75 mm^2) shall be used.
- When the PBX is mounted on a 19-inch rack, make sure that the installation of the unit does not cause the temperature of the rack to exceed its limit.
- Make sure to install all necessary optional service cards in the PBX before performing the wall mounting procedure. If it is necessary to install or remove a card, make sure to detach the PBX from the wall before installing or removing the card.
- When placing the PBX onto the wall, make sure that the arrows on the metal brackets are pointing upward. If the arrows are not pointing upward, the PBX may fall, resulting in injury.
- When driving the screws into the wall, be careful to avoid touching any metal laths, wire laths or plates in the wall.
- Before opening the top cover, the AC power cord must be removed from the AC inlet.
- For safety reasons, close the top cover and tighten the screws before operating the PBX.
- If the PBX is not installed properly using the securing correct methods, the PBX may fall causing serious damage.
- Performing surge protection is essential. Make sure to follow the instructions in "4.2.11 Surge Protector Installation".
- It is strongly recommended to use TLS encrypted communication when the PC is accessing the PBX via the Internet. To use TLS encryption, routers must have a port set up for https communication.
- Avoid using the same AC outlet for computers 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.
- Trunks should be installed with surge protectors. For details, refer to "4.2.11 Surge Protector Installation".
- When installing or removing the optional service cards, the power switch must be turned off.
- 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.
- When connecting a PRI30/E1, PRI23, BRI2 or BRI4 card to the trunk, connect through an NT1; do not connect to the U interface of the trunk directly.
- PRI ports of PRI30/E1 and PRI23 cards are SELV ports and should only be connected to SELV services.
- The MOH port and Pager port are SELV ports and should only be connected to approved SELV devices, or via a Line Isolation Unit with a Telecommunications Compliance Label.

Notice

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 trunks:
  a. Disconnect the PBX from all trunks.
  b. Connect known working SLTs to those trunks.
  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 trunk 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 trunks until it has been serviced by an authorised Panasonic Factory Service Centre.

1.2 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.
- Rack Mount Instructions—The following or similar rack-mount instructions are included with the installation instructions:
  a. Elevated Operating Ambient—If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
  b. Reliable Earthing—Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

SAVE THESE INSTRUCTIONS

1.3 Precautions

For users in the European Union only

Information for Users on Collection and Disposal of Old Equipment and used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.
For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.
By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.
For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union
These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Note for the battery symbol (bottom two symbol examples):
This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

For users in Germany only

- Machine Noise Information Ordinance, 3rd GPSGV: The highest sound pressure level is 70 dB (A) or less according to EN ISO 7779.
- This equipment is not for use at video display work stations according to BildscharbV.

For users in New Zealand only

- This equipment shall not be set to make automatic calls to the Telecom '111' Emergency Service.
- The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.
- This equipment is not capable, under all operating conditions, of correct operation at the higher speeds for which it is designed. Telecom will accept no responsibility should difficulties arise in such circumstances.
- Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PBX) associated with this modem. In order to operate within the limits for compliance with

Telecom's Specifications, the associated PBX equipment shall be set to ensure that modem calls are answered between 3 and 30 seconds of receipt of ringing.

- Using the toll services of a company other than Telecom:
  If the PBX is set up to use the toll services of a company other than Telecom, the telephone numbers dialled from the Caller Display listings within the PBX will be directed through the toll services of the other company because the telephone numbers include the toll access digit and area code digit. A toll charge may be incurred. Please check with the toll carrier concerned.
- APPLICABLE ONLY TO TELECOM CUSTOMERS WHO HAVE AUTOMATIC ACCESS TO OTHER CARRIERS FOR TOLL CALLS
  When calling back a number from the Caller ID list, all numbers prefixed with "0 + AREA CODE" will be automatically forwarded to your toll carrier. This includes numbers in your local calling area. The zero + area code should either be removed when calling back local numbers, or check with your toll carrier that a charge will not be levied.
- All persons using this device for recording telephone conversations shall comply with New Zealand law. This requires that at least one party to the conversation is to be aware that it is being recorded. In addition, the principles enumerated in the Privacy Act 1993 shall be complied with in respect to the nature of the personal information collected, the purpose for its collection, how it is used, and what is disclosed to any other party.
- The SLT ports are not specifically designed for 3-wire-connected equipment. 3-wire-connected equipment might not respond to incoming ringing when attached to these ports.

For users in Australia only

- No External TRC Terminal is provided due to an Internal Link between PE and TRC.
- Incoming trunk calls cannot be transferred to another trunk using an unscreened call transfer.
- To prevent noise, do not bundle trunk line (LCOT/PRI/BRI) cables with extension line (DHLC/DLC/SLC/DPH) cables. Where necessary, bundle trunk line cables and extension line cables separately.
- For cabling, use products certified under Australian standards.

For users in Taiwan only

- Lithium batteries can be found in the circuit boards of the mother board and optional service cards of the PBX.

Notice

Regarding removing or replacing a battery in the circuit board, consult your dealer.

Note

- When disposing of any of the above products, all batteries must be removed. Follow the applicable laws, regulations, and guidelines in your country/area regarding disposal of batteries.
- When replacing a battery, use only the same battery type, or an equivalent recommended by the battery manufacturer.

廢電池請回收

CE

The KX-NS700NE and KX-NS700UK are designed to interwork with the:

- Analogue Public Switched Telephone Network (PSTN) of European countries
- Pan-European Integrated Services Digital Network (ISDN) using ISDN basic rate access
- Pan-European Integrated Services Digital Network (ISDN) using ISDN primary rate access

Panasonic System Networks Co., Ltd. declares that the KX-NS700NE and KX-NS700UK are in compliance with the essential requirements and other relevant provisions of Radio & Telecommunications Terminal Equipment (R&TTE) Directive 1999/5/EC.
Declarations of Conformity for the relevant Panasonic products described in this manual are available for download by visiting:
http://www.ptc.panasonic.eu

Contact to Authorised Representative:
Panasonic Testing Centre
Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg, Germany

1.4 Data Security

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:
   Sound files for UM feature and call charge data.
2. Information sent from the PBX to a PC or a USB memory device:
   System data, sound files for MOH (Music on Hold) and OGM (Outgoing Messages), and activation key files.

Requirements

1. Always make backups of data stored on the System memory and/or perform regular system data backups to a USB memory device.
   For details about making backups of data stored on the System memory, refer to "7.2.2 Utility—File—File Transfer PBX to PC" in the PC Programming Manual.
   For details about backing up the system data to a USB memory device, refer to "6.1 Tool—System Data Backup" in the PC Programming Manual.
2. To prevent illegal access from the Internet, activate a Firewall.
3. To avoid unauthorised 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.
4. 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 System memory.
5. When user information is sent from the PBX to a PC or a USB memory device, the confidentiality of that information becomes the responsibility of the customer. Before disposing of the PC or the USB memory device, ensure that data cannot be retrieved from it by formatting the hard disk and/or rendering it physically unusable.

Section 2

System Outline

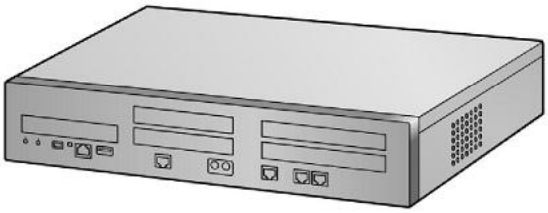
This section provides general information on the PBX, including the system capacity and specifications.

2.1 Basic System Construction

2.1.1 System Configurations

Main Unit

The main unit contains a mother board for controlling PBX functions.

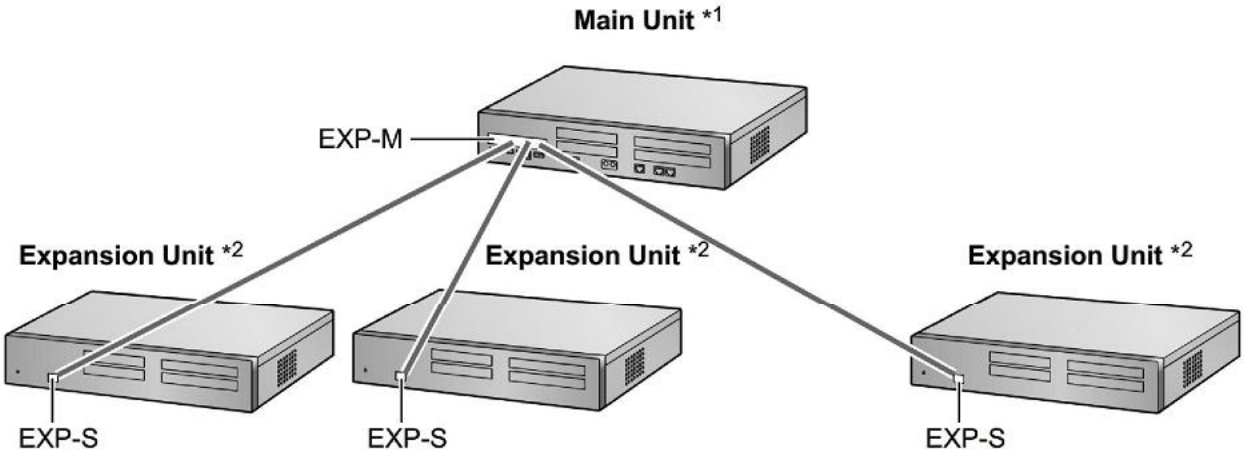


Stacking Expansion Unit KX-NS720

Up to 3 Expansion Units can be connected to a Main Unit to expand the usage of legacy terminals and trunks. An Expansion Unit connected to the Main Unit will be controlled by the Main Unit. To connect an Expansion Unit, install an EXP-M card in the Main Unit. Then, connect the EXP-M card and the EXP-S which is in Expansion Unit directly with Category 5e cable.
For details about connecting KX-NS700 and Expansion Unit KX-NS720, see "4.6.1 EXP-M Card (KX-NS7130)".

Note

This PBX requires an activation key Expansion Capacity for KX-NS700 (KX-NSF991) to use the Expansion Unit.



*1 KX-NS700
*2 KX-NS720

One-Look Network with NS-Net*1

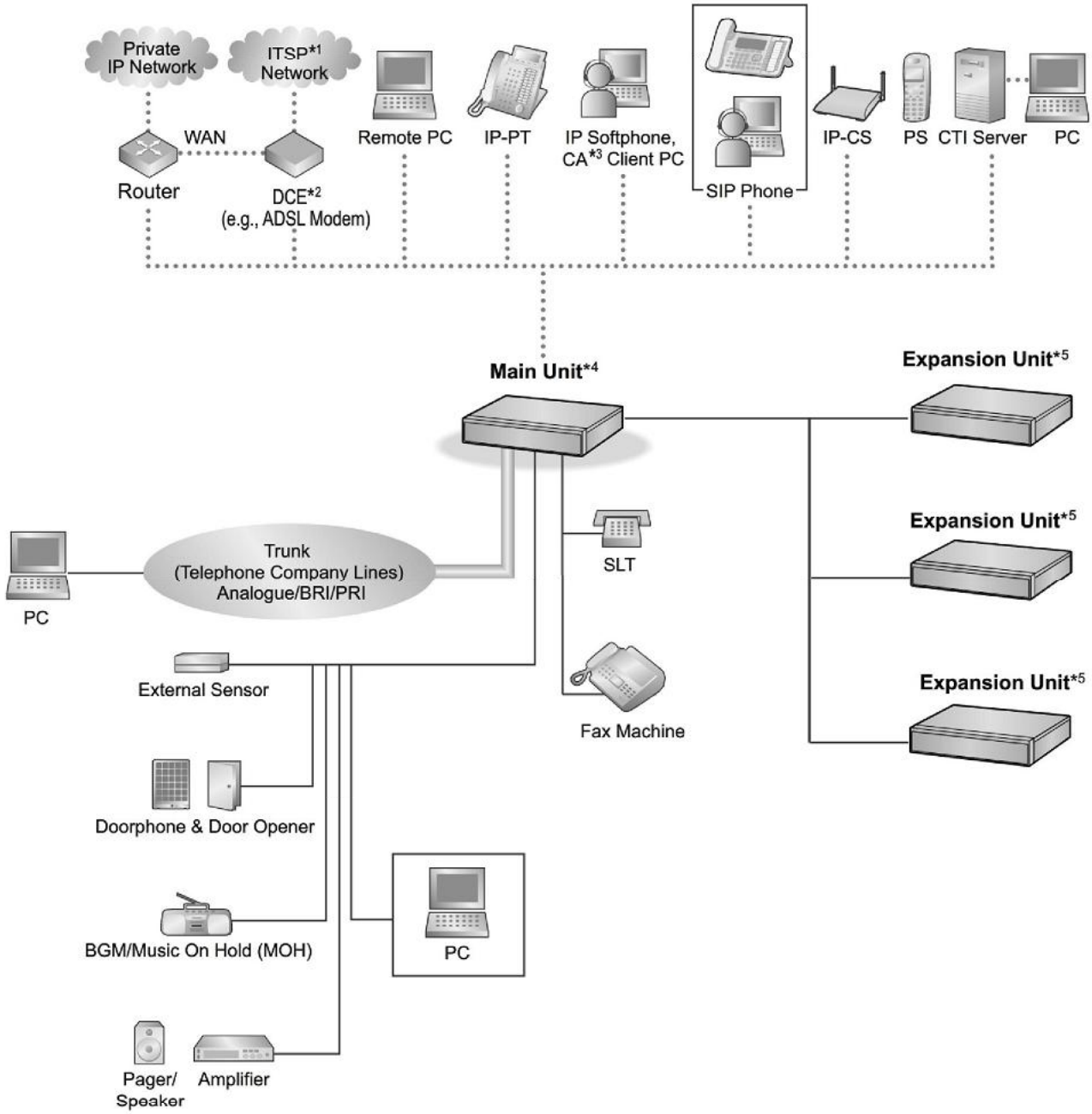
Multiple KX-NS series PBXs can be connected as a distributed networked system using a private IP network.

The networked system is called a One-look network. In a One-look network, a KX-NS1000 PBX serves as the Master unit, which controls the other PBXs, known as Slave units.
For more information about One-look network, refer to "8.2 Information about Using One-look Network".
*1 NS-Net is a network protocol only used for Panasonic products.

H.323 QSIG network

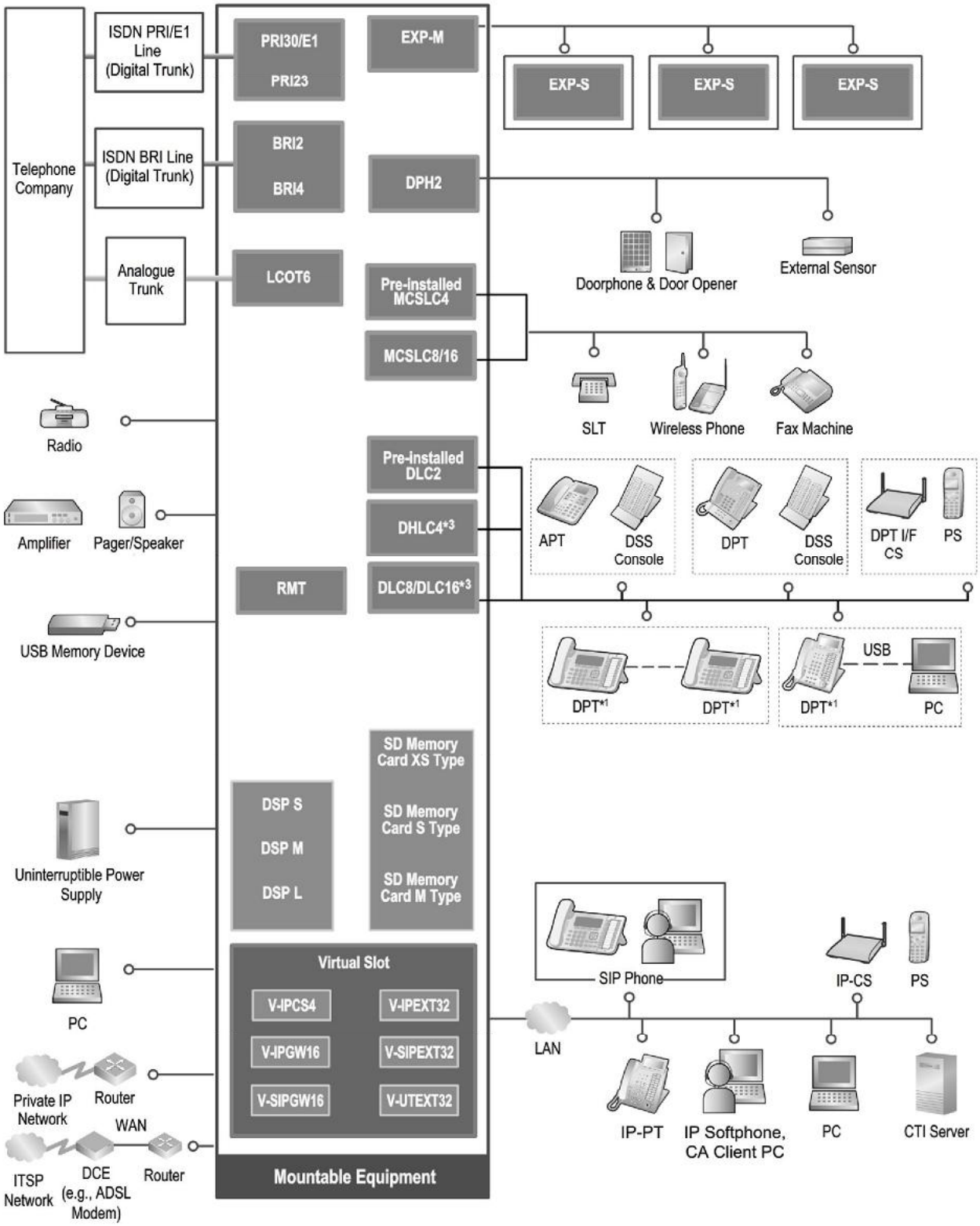
If the network will include non-KX-NS700 PBXs (e.g., KX-TDE200, KX-NCP500), then an H.323 QSIG network is necessary.
An H.323 QSIG network is preferable if strict resource separation between sites is necessary. In a QSIG network, resources are not available to extension users of other PBXs without explicit programming.
For details about programming the H.323 QSIG network, refer to "5.5 Programming an H.323 QSIG Network".

2.1.2 System Connection Diagram



*1 ITSP: Internet Telephony Service Provider
*2 DCE: Data Circuit Terminating Equipment
*3 CA: Communication Assistant
*4 KX-NS700
*5 KX-NS720

Main Unit*2 System Connection Diagram



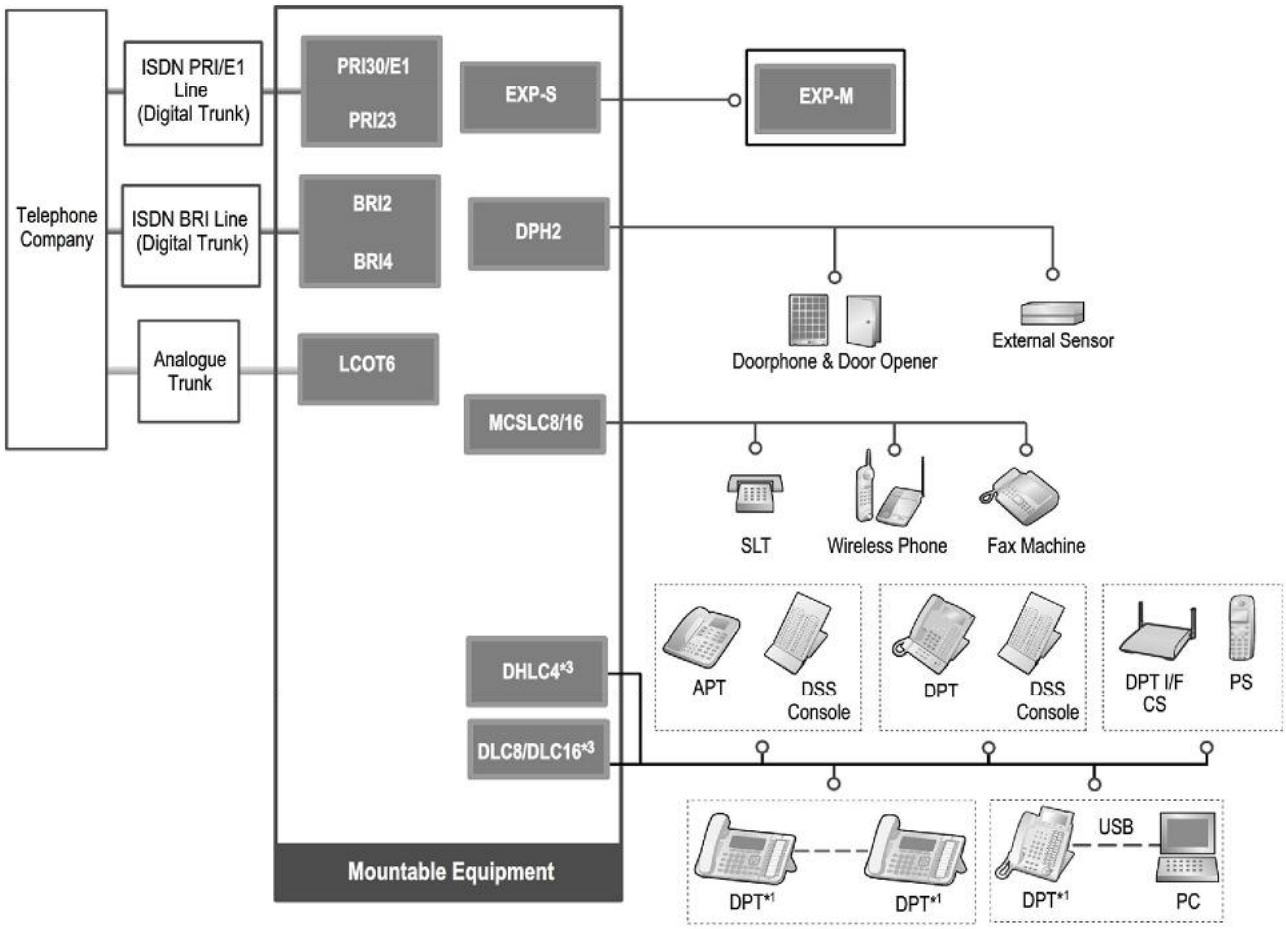
*1 Some DPTs are not available for this connection.

*2 KX-NS700

*3 When using a DLC8, DLC16 or DHLC4 card, the LPR software version must be 2.0 or later.

2.1.2 System Connection Diagram

Expansion Unit*2 System Connection Diagram



*1 Some DPTs are not available for this connection.
*2 KX-NS720
*3 When using a DLC8, DLC16 or DHLC4 card, the LPR software version must be 2.0 or later.

2.2 Optional Equipment

2.2.1 Optional Equipment

KX-NS700

Model No.	Model Name	Description
KX-NS5110	VoIP DSP Card (S Type) (DSP S)	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 cards are compliant with ITU-T G.729A and G.711 codec methods. Depending on the amount of your DSP resource needs, DSP S, DSP M, or DSP L cards can be installed. The number of resources provided by each type of DSP card is as follows: • DSP S card: 63 • DSP M card: 127 • DSP L card: 254 One of DSP cards can be installed on the motherboard. To operate VoIP or Unified Messaging, one of DSP S, DSP M or DSP L card must be installed in the DSP card slot.
KX-NS5111	VoIP DSP Card (M Type) (DSP M)	
KX-NS5112	VoIP DSP Card (L Type) (DSP L)	
KX-NS3134	SD Memory Card (XS Type) (SD Memory XS)	A combination card with the following characteristics: • Memory with maximum of 40 hours Voice Mail recording time. • Memory with Maximum of 40,000 SMDR data and 10,000 Hotel Billing Data • Store 300,000 ACD report data • Announces the number of calls in the waiting queue ahead of the caller and the estimated waiting time. • You cannot install commercially available SD card.
KX-NS5134		
KX-NS7134		
KX-NS3135	SD Memory Card (S Type) (SD Memory S)	A combination card with the following characteristics: • Memory with maximum of 200 hours Voice Mail recording time. • Memory with Maximum of 40,000 SMDR data and 10,000 Hotel Billing Data • Store 300,000 ACD report data • Announces the number of calls in the waiting queue ahead of the caller and the estimated waiting time. • You cannot install commercially available SD card.
KX-NS5135		
KX-NS7135		

Model No.	Model Name	Description
KX-NS3136 KX-NS5136 KX-NS7136	SD Memory Card (M Type) (SD Memory M)	A combination card with the following characteristics: • Memory with maximum of 400 hours Voice Mail recording time. • Memory with Maximum of 40,000 SMDR date and 10,000 Hotel Billing Data • Store 300,000 ACD report data • Announces the number of calls in the waiting queue ahead of the caller and the estimated waiting time. • You cannot install commercially available SD card.
KX-NS5162	Doorphone Interface Card (DPH2)	2-port doorphone card for 2 doorphone, 2 door opener, and 2 external sensor.
KX-NS7130	Expansion Master Card (EXP-M)	A stacking card to be installed in a Main Unit. Up to 3 Expansion Units can be connected.
KX-NS5180	6-port Analogue Trunk Card (LCOT6)	6 analogue trunk ports with Caller ID (FSK/FSK with Call Waiting Caller ID [Visual Caller ID]/ DTMF). Two ports are power failure transfer (PFT) ports.
KX-NS5290	PRI Card (PRI23)	1-port ISDN Primary Rate Interface card (23B channels). NI (North American standard ISDN protocol) compliant.
KX-NS5290CE	PRI30/E1 Card (PRI30/E1)	A combination card including: • 1 ISDN Primary Rate Interface port (30B channels). EURO-ISDN/ETSI compliant. • 1 E1 port (30B channels). ITU-T standard compliant.
KX-NS5282	2-Port BRI Card (BRI2)	2-port ISDN Basic Rate Interface card. EURO-ISDN/ETSI compliant.
KX-NS5284	4-Port BRI Card (BRI4)	4-port ISDN Basic Rate Interface card. EURO-ISDN/ETSI compliant.
KX-NS5170	4-Port Digital Hybrid Extension Card (DHLC4)	4-port digital hybrid extension card with Caller ID (FSK) for DPTs, APTs, SLTs, DSS consoles, and PT-interface CSs. When installing DHLC4 card in KX-NS700, LPR software version must be 2.0 or later.
KX-NS5171	8-Port Digital Extension Card (DLC8)	8-port digital extension card for DPTs, DSS consoles, and PT-interface CSs. When installing DLC8 card in KX-NS700, LPR software version must be 2.0 or later.

Model No.	Model Name	Description
KX-NS5172	16-port Digital Extension Card (DLC16)	16-port digital extension card for DPTs, DSS consoles, and PT-interface CSs. When installing DLC16 card in KX-NS700, LPR software version must be 2.0 or later.
KX-NS5173	8-Port Single Line Telephone Extension Card (MCSLC8)	8-port extension card for SLTs with Caller ID (FSK), Message Waiting Lamp control.
KX-NS5174	16-Port Single Line Telephone Extension Card (MCSLC16)	16-port extension card for SLTs with Caller ID (FSK), Message Waiting Lamp control.

Note

For the maximum number of optional service cards that can be installed in the PBX, refer to "2.3.3 System Capacity".

KX-NS720

Model No.	Model Name	Description
KX-NS5162	Doorphone Interface Card (DPH2)	2-port doorphone card for 2 doorphone, 2 door opener, and 2 external sensor
KX-NS5180	6-port Analogue Trunk Card (LCOT6)	6 analogue trunk ports with Caller ID (FSK/FSK with Call Waiting Caller ID [Visual Caller ID]/ DTMF). Two ports are power failure transfer (PFT) ports.
KX-NS5282	2-Port BRI Card (BRI2)	2-port ISDN Basic Rate Interface card. EURO-ISDN/ETSI compliant.
KX-NS5284	4-Port BRI Card (BRI4)	4-port ISDN Basic Rate Interface card. EURO-ISDN/ETSI compliant.
KX-NS5290	PRI Card (PRI23)	1-port ISDN Primary Rate Interface card (23B channels). NI (North American standard ISDN protocol) compliant.
KX-NS5290CE	PRI30/E1 Card (PRI30/E1)	A combination card including: • 1 ISDN Primary Rate Interface port (30B channels). EURO-ISDN/ETSI compliant. • 1 E1 port (30B channels). ITU-T standard compliant.
KX-NS5170	4-Port Digital Hybrid Extension Card (DHLC4)	4-port digital hybrid extension card with Caller ID (FSK) for DPTs, APTs, SLTs, DSS consoles, and PT-interface CSs. When installing DHLC4 card in KX-NS700, LPR software version must be 2.0 or later.
KX-NS5171	8-Port Digital Extension Card (DLC8)	8-port digital extension card for DPTs, DSS consoles, and PT-interface CSs. When installing DLC8 card in KX-NS700, LPR software version must be 2.0 or later.
KX-NS5172	16-port Digital Extension Card (DLC16)	16-port digital extension card for DPTs, DSS consoles, and PT-interface CSs. When installing DLC16 card in KX-NS700, LPR software version must be 2.0 or later.
KX-NS5173	8-Port Single Line Telephone Extension Card (MCSLC8)	8-port extension card for SLTs with Caller ID (FSK), Message Waiting Lamp control.
KX-NS5174	16-Port Single Line Telephone Extension Card (MCSLC16)	16-port extension card for SLTs with Caller ID (FSK), Message Waiting Lamp control.

2.3 Specifications

2.3.1 General Description

KX-NS700

Main CPU		Cortex A8 600 MHz	
Power Input		100 V AC to 130 V AC: 2.2 A/200 V AC to 240 V AC: 1.3 A; 50 Hz/60 Hz	
Power Consumption (when fully mounted)		Normal rated power 104 VA	
Memory Backup Duration		7 years	
Dialling	**Trunk**	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialling with Caller ID (FSK/DTMF) 1600 Ω Maximum	
	Extension	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialling with Caller ID (FSK) Port 1-2 (on pre-installed MCSLC4) support PFT in combination with the port 1-2 (on an LCOT6) connected to an analogue trunk respectively.	
Mode Conversion		DP-DTMF, DTMF-DP	
Ring Frequency		20 Hz/25 Hz (selectable)	
Operating Environment	**Temperature**	0 °C to 40 °C	
	Humidity	10 % to 90 % (non-condensing)	
Conference Call Trunk		32 parties (Default) / 96 parties (DSP card installed) (10 × 3-party conference call, 12 × 8-party conference call, etc.)	
Music on Hold (MOH)		Internal MOH port: 8 ports (Level Control: 31.5 dB to +31.5 dB per 0.5 dB) External MOH port: 2 ports (Available exclusively with EPG [External Paging]) MOH: Selectable Internal/External Music Source Port	
External Paging		Maximum 2 Ports (Volume Control: -15.5 dB to per 0.5 dB) (Available exclusively with MOH)	
LAN Port		1 (for LAN connection)	10BASE-T/100BASE-TX (Auto MDI/MDI-X)
Extension Connection Cable		SLT	1-pair wire (T, R)
		DPT	1-pair wire (D1, D2)
		APT	2-pair wire (T, R, D1, D2)
		PT-interface CS	1-pair wire (D1, D2)
		PT-interface CS (High-density)	4-pair wire (D1, D2)
		DSS Console and Add-on Key Module	1-pair wire (D1, D2)

Air-cooling method	FAN
Dimension	430 mm (W) × 88 mm (H) × 335 mm (D)
Weight (when fully mounted)	Under 5.0 kg[*1]

[*1] Except the 19-inch rack mounting equipment

KX-NS720

Main CPU		Cortex A8 300 MHz	
Power Input		100 V AC to 130 V AC: 2.2 A/200 V AC to 240 V AC: 1.3 A; 50 Hz/60 Hz	
Power Consumption (when fully mounted)		Normal rated power 104 VA	
Memory Backup Duration		7 years	
Dialling	**Trunk**	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialling with Caller ID (FSK/DTMF) 1600 Ω Maximum	
	Extension	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialling with Caller ID (FSK)	
Mode Conversion		DP-DTMF, DTMF-DP	
Ring Frequency		20 Hz/25 Hz (selectable)	
Operating Environment	**Temperature**	0 °C to 40 °C	
	Humidity	10 % to 90 % (non-condensing)	
Extension Connection Cable		SLT	1-pair wire (T, R)
		DPT	1-pair wire (D1, D2)
		APT	2-pair wire (T, R, D1, D2)
		PT-interface CS	1-pair wire (D1, D2)
		PT-interface CS (High-density)	4-pair wire (D1, D2)
		DSS Console and Add-on Key Module	1-pair wire (D1, D2)
Air-cooling method		FAN	
Dimension		430 mm (W) × 88 mm (H) × 335 mm (D)	
Weight (when fully mounted)		Under 5.0 kg[*1]	

[*1] Except the 19-inch rack mounting equipment

2.3.2 Characteristics

KX-NS700

Terminal Equipment Loop Limit	• SLT: 600 Ω including set • Doorphone: 20 Ω
Minimum Leakage Resistance	15 000 Ω minimum
Maximum Number of Extension Instruments per Line	1 for SLT
Ring Voltage	75 Vrms at 20 Hz/25 Hz depending on the Ringing Load
Trunk Loop Limit	1600 Ω maximum
Hookswitch Flash/Recall Timing Range	24 ms to 2032 ms
Door Opener Current Limit	24 V DC/30 V AC, 1 A maximum
External Sensor Current Limit	Power to the external sensor is provided from the DPH2 card and must be grounded through the DPH2 card. For the connection diagram, refer to "4.7.1 DPH2 Card (KX-NS5162)". The PBX detects input from the sensor when the signal is under 100 Ω.
Paging Terminal Impedance	600 Ω
MOH (Music on Hold) Terminal Impedance	10 000 Ω

KX-NS720

Terminal Equipment Loop Limit	• SLT: 600 Ω including set • Doorphone: 20 Ω
Minimum Leakage Resistance	15 000 Ω minimum
Maximum Number of Extension Instruments per Line	1 for SLT
Ring Voltage	75 Vrms at 20 Hz/25 Hz depending on the Ringing Load
Trunk Loop Limit	1600 Ω maximum
Hookswitch Flash/Recall Timing Range	24 ms to 2032 ms
Door Opener Current Limit	24 V DC/30 V AC, 1 A maximum
External Sensor Current Limit	Power to the external sensor is provided from the DPH2 card and must be grounded through the DPH2 card. For the connection diagram, refer to "4.7.1 DPH2 Card (KX-NS5162)". The PBX detects input from the sensor when the signal is under 100 Ω.
Paging Terminal Impedance	600 Ω
MOH (Music on Hold) Terminal Impedance	10 000 Ω

2.3.3 System Capacity

Type and Maximum Number of Slots

The PBX supports the following type and number of slots.

Mother Board (Main Unit)

Slot Type		Maximum Number
Physical Slot	DSP Card Slot	1
	SD Card Slot	1
	EXP-M Card Slot	1
	Trunk/Doorphone Slot	2*1
	Extension Free Slot	2
	Remote Card Slot	1
Virtual Slot	Virtual Trunk Card	4
	Virtual Extension Card	4
	Virtual IP-CS Card	8

*1 For details about the available installation combination of cards, see "Trunk Option Card Installing Restrictions".

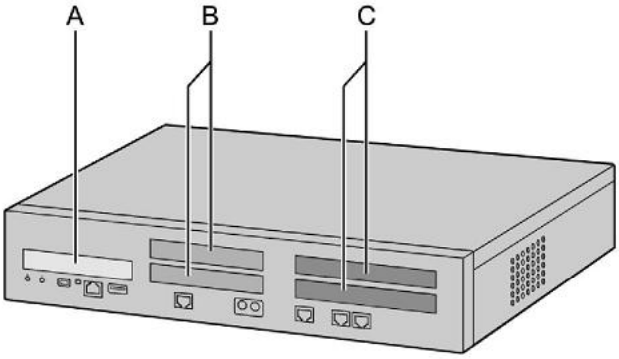
Mother Board (Expansion Unit)

Slot Type		Maximum Number
Physical Slot	Trunk/Doorphone Slot	2*1
	Extension Free Slot	2

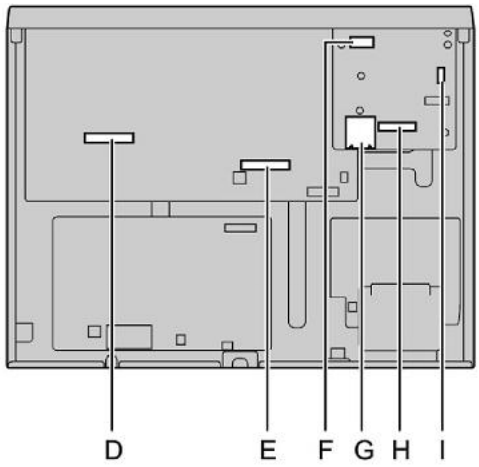
*1 For details about the available installation combination of cards, see "Trunk Option Card Installing Restrictions".

Main Unit

Front View



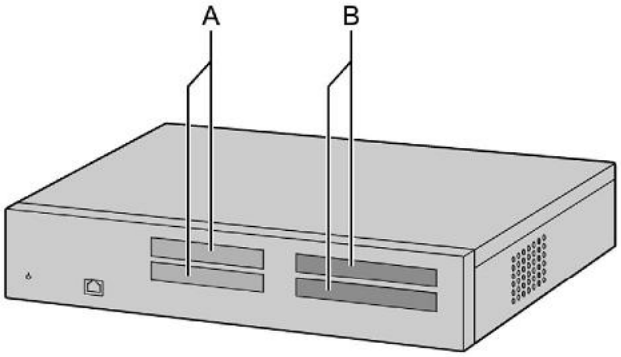
Inside View (The top cover is removed.)



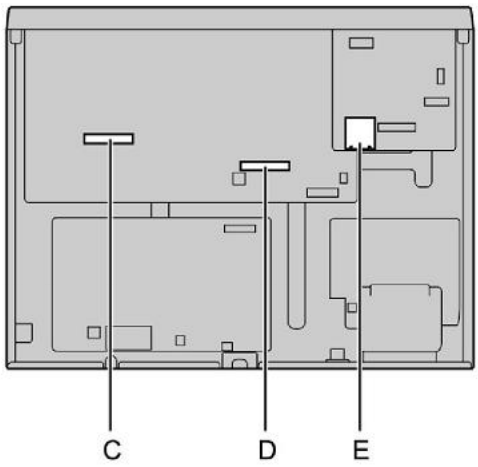
A. Front cover plate for the EXP-M Slot
B. Front cover plates for Trunk/Doorphone Card Slots
C. Front cover plates for the Extension Card Slots
D. Extension Card Slot
E. Trunk/Doorphone Card Slot
F. EXP-M Card Slot
G. SD Card Slot
H. DSP Card Slot
I. RMT Card Slot

Expansion Unit

Front View



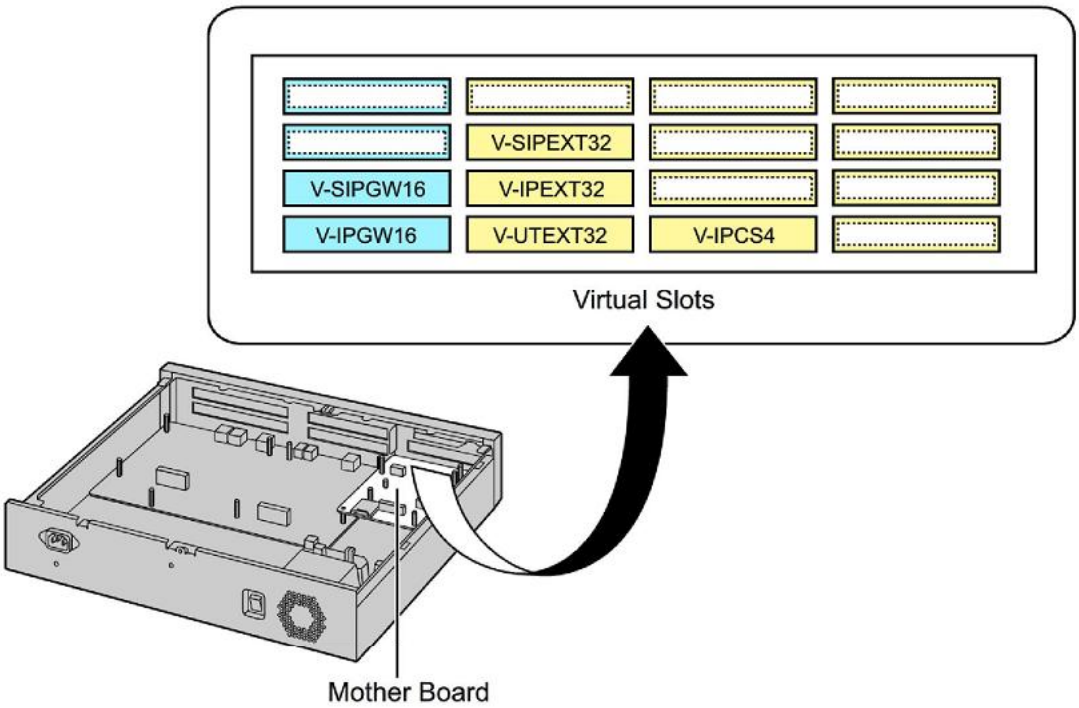
Inside View (The top cover is removed.)



A. Front cover plates for Trunk/Doorphone Card Slots
B. Front cover plates for the Extension Card Slots
C. Extension Card Slot
D. Trunk/Doorphone Card Slot
E. SD Card Slot (not available)

Virtual Slots of the Mother Board

Example:



Maximum Optional Service Cards

The following number of card can be installed in the Physical Slots or Virtual Slots of the PBX.

Note

- 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.

For KX-NS700 Physical Slot

Slot type	Card Name	Maximum Number
Pre-installed	MCSLC4	1
	DLC2	1
DSP Card Slot		1
	DSP S	1
	DSP M	1
	DSP L	1
SD Card Slot		1
	SD XS	1
	SD S	1
	SD M	1
Remote Card Slot	RMT	1
EXP-M Card Slot	EXP-M	1
Trunk/Doorphone Slot		2
	LCOT6	2
	BRI2	2
	BRI4	2
	PRI23	1
	PRI30/E1	1
	DPH2	1
Extension Slot	DHLC4*1	2
	DLC8*1	2
	MCSLC8	2
	MCSLC16	2
	DLC16*1	2

*1 When installing a DLC8, DLC16 or DHLC4 card, the LPR software version must be 2.0 or later.

Cards Installed in Virtual Slots

Card Type	Card Name	Maximum Number
Virtual Trunk Card		4
	V-IPGW16	2
	V-SIPGW16	4
Virtual Extension Card		4
	V-IPEXT32	4
	V-SIPEXT32	4
	V-UTEXT32	4
Virtual IP-CS Card	V-IPCS4	8

For KX-NS720 Physical Slot

Slot type	Card Name	Maximum Number
Trunk/Doorphone Slot	DPH2	1
	LCOT6	2
	BRI4	2
	BRI2	2
	PRI23	1
	PRI30/E1	1
Extension Slot	MCSLC16	2
	MCSLC8	2
	DLC16*1	2
	DLC8*1	2
	DHLC4*1	2

*1 When installing a DLC8, DLC16 or DHLC4 card, the LPR software version must be 2.0 or later.

Trunk Option Card Installing Restrictions

The following tables show which combinations of optional trunk cards can be installed.
✓: Available
—: Not available

KX-NS700

		2nd Slot					
		LCOT6	BRI4	BRI2	PRI23	PRI30/E1	DPH2
1st Slot	LCOT6	✓	✓	✓	✓	✓	✓
	BRI4	✓	✓	✓	✓	✓	✓
	BRI2	✓	✓	✓	✓	✓	✓
	PRI23	✓	✓	✓	—[*1]	—[*1]	✓
	PRI30/E1	✓	✓	✓	—[*1]	—[*1]	✓
	DPH2	✓	✓	✓	✓	✓	—[*1]

*1 This installation combination is not available due to software restrictions.

KX-NS720

		2nd Slot					
		LCOT6	BRI4	BRI2	PRI23	PRI30/E1	DPH2
1st Slot	LCOT6	✓	✓	✓	✓	✓	✓
	BRI4	✓	✓	✓	—[*1]	—[*1]	✓
	BRI2	✓	✓	✓	—[*1]	—[*1]	✓
	PRI23	✓	—[*1]	—[*1]	—[*1]	—[*1]	✓
	PRI30/E1	✓	—[*1]	—[*1]	—[*1]	—[*1]	✓
	DPH2	✓	✓	✓	✓	✓	—[*1]

*1 This installation combination is not available due to software restrictions.

Extension Option Card Installing Restrictions

There are no restrictions on the available combinations of optional extension cards, so long as the maximum number of cards for the extension type is not exceeded.

Maximum Trunks, Extensions, VMs, PFT ports and MOHs/Pagers

The PBX supports the following number of trunks and extensions.

Trunk	KX-NS700 (Pre-Installed)	KX-NS700 (Maximum)	KX-NS700 w/1 KX-NS720	KX-NS700 w/2 KX-NS720s	KX-NS700 w/3 KX-NS720s
Total Number of Trunks	0	102	138	174	210
Trunk (Physical Trunk Card)	0	38	74	110	146
LCOT	0	12	24	36	48
BRI	0	16	32	48	64
PRI23	0	23	46	69	92
PRI30	0	30	60	90	120
E1	0	30	60	90	120
Trunk (Virtual Trunk Card)	0	64			
H.323 Trunks	0	32			
SIP Trunks	0	64			
Total Number of Extensions*1	6*1	166*1	198*1	230*1	262*1
Extension (Physical Extension Card)*1	6*1	38*1	70*1	102*1	134*1
SLT	4	36	68	100	132
DPT*1	2*1	34*1	66*1	98*1	130*1
APT	0	8	16	24	32
Extension (Virtual Extension Card)	0	32*2/128*3			
IP-PT and Softphone	0	32*2/128*3			
SIP Extension	0	32*2/128*3			
SIP Phone	0	32*2/128*3			

Trunk	KX-NS700 (Pre-Installed)	KX-NS700 (Maximum)	KX-NS700 w/1 KX-NS720	KX-NS700 w/2 KX-NS720s	KX-NS700 w/3 KX-NS720s
P-SIP	0	32*2/128*3			
KX-UT Series	0	32*2/128*3			
Total Number of CS	2	40	48	56	64
DPT-CS (2ch)	2	8	16	24	32
DPT-CS (8ch)	0	4	8	12	16
IP-CS (8ch)	0	16			
IP-CS (4ch/8ch)	0	32			
Total Number of PS	128				
Total Number of Doorphone	0	2	4	6	8
Doorphone	0	2	4	6	8
Door Opener	0	2	4	6	8
Sensor	0	2	4	6	8
VM					
SVM (ch)	2				
Built-In UM (ch)	0	24			
TVM unit	2				
DSS Console	2	8			
PFT	2				
MOH/BGM/EPG	2				
MOH/BGM	2*4				
EPG	2*5				

*1 This number does not include Digital XDP connections. For details about the maximum number of DPTs including Digital XDP connections, see "Digital EXtra Device Port (Digital XDP) Connection Capacity" in "2.3.3 System Capacity".
*2 If optional activation key KX-NSF991 is not activated.
*3 If optional activation key KX-NSF991 is activated.
*4 Available exclusively with EPG.
*5 Available exclusively with MOH/BGM.

Digital EXtra Device Port (Digital XDP) Connection Capacity

The number of Digital XDP ports that can be assigned depends on the following:

– the number of connected DPTs

– the maximum number of DPTs the PBX can support

The table below shows examples of how many Digital XDP ports can be assigned with different configurations. For details about the Digital XDP connection, refer to "4.8.3 Digital EXtra Device Port (Digital XDP) Connection".

	KX-NS700 w/ o option	KX-NS700 max.	KX-NS700 w/ 1 KX-NS720	KX-NS700 w/ 2 KX-NS720	KX-NS700 w/ 3 KX-NS720
No. of DPT ports	2	34 (16×2+2)	66 (16×4+2)	98 (16×6+2)	130 (16×8+2)
No. of Digital XDP ports	2	24	50 (24+26)	76 (24+26×2)	102 (24+26×3)
Total No. of DPTs	4	48 (24+24)	101 (48+27+26)	154 (48+53×2)	207 (48+53×3)

Power Supply Unit Capacity

The pre-installed power supply unit (PSU) in each PBX supports a different load figure.

PBX Model	Maximum Load Figure
KX-NS700	40
KX-NS720	40

Load Figure Calculation

Equipment Type	Item	Load Figure
PT	DPT	1
	DSS Console	1
	D-XDP	0.5
	APT	1.5
	IP-PT	0
	SIP-EXT	0
CS	DPT I/F CS (2ch)	2
	DPT I/F CS (8ch)	8
SLT	DHLC4	4
	SLC8	8
	SLC16	16
	KX-NS700 (Preinstalled SLC)	4

Calculation Example of KX-NS700

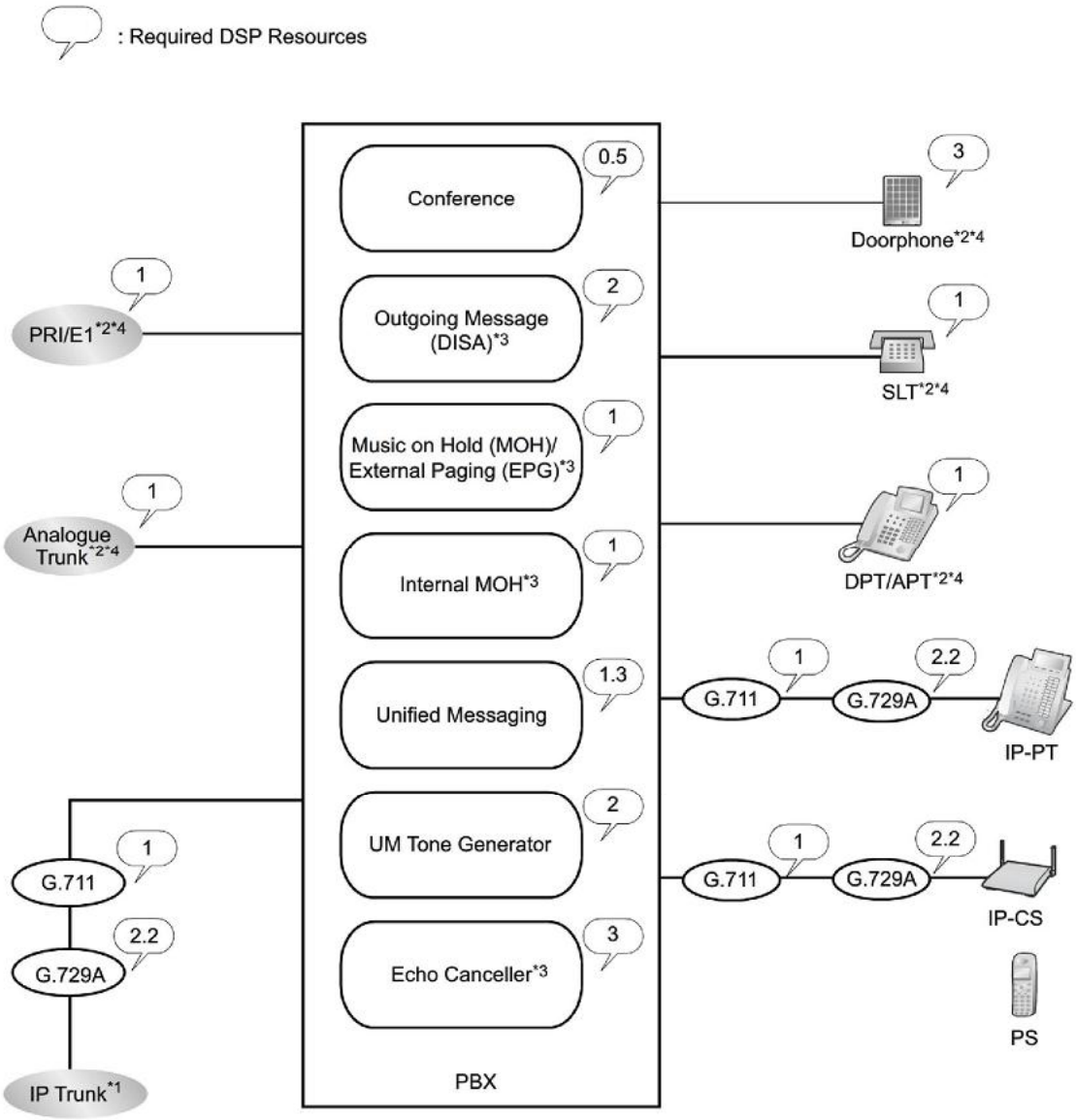
Item	Units	Load Figure
DPT (KX-DT series)	24	24
D-XDP	24	12
SLT	4	4
IP-PT (KX-NT series)	5	0
SIP-EXT	2	0
Total Load Figure		40

Calculation Example of KX-NS720

Item	Units	Load Figure
DPT (KX-DT series)	27	27
D-XDP	26	13
SLT	0	0
Total Load Figure		40

DSP Resources

DSP cards provide digital signal processor (DSP) resources, and the PBX uses the resources to perform various PBX operations. The following illustration shows the concept of DSP resource usage. More complex situations may require additional resources, and in some cases the amount of DSP resources required may be less than expected.



*1 Connections that arrive over a stacking connection require the same amount of DSP resources as shown in this example.
*2 DSP resources are used during conversations between legacy trunks/extensions/Doorphones and IP trunks/extensions.
*3 DSP resources are used when IP trunks or IP extensions access these devices.
*4 DSP resources are not used during conversations between legacy trunks and legacy gateways.

Required DSP Resources Assessment

The maximum number of simultaneous calls, operations and features using IP protocols is determined by the DSP card installed in the PBX.
To decide how much resources are required for the PBX, the DSP Resource Advisor can be useful.

Note

- Calls cannot be made or received when all of the DSP resources are being used.
- The number of required resources must not exceed the DSP resources installed to the PBX.
- For details about the DSP Resource Advisor, refer to "9.39.1.1 PBX Configuration—[1-5-1] Configuration—DSP Resource—Setting—DSP Resource Advisor" in the PC Programming Manual.
- For information about installing DSP cards, refer to "4.3.3 DSP Cards".
- The number of available DSP resources is not restricted by any activation keys.

DSP Resource Reservation

DSP resources can be reserved for certain operations to avoid lack of resources for particular operations. The following examples show cases of allocating and reserving DSP resources.

Note

For details about reserving DSP resources, refer to "5.4.4.1 DSP Resource Reservation" and "5.4.4.2 DSP Resource Advisor" in the Feature Guide, and "9.39.1.1 PBX Configuration—[1-5-1] Configuration—DSP Resource—Setting—DSP Resource Advisor" in the PC Programming Manual.

Example

In this example, the DSP M (127 DSP resources) is installed and resources are reserved for the following operations:

Operation		Required Resources
VoIP (G.711) Calls		40
Conference Trunks		10
Unified Messaging		8
	Two-way Recording Operations	3
OGM Operations		10
UM Tone (Fixed)		2*1

*1 Because the system reserves 2 resources for internal system functions, the total amount of available resources indicated will be 2 less than the total resources of the installed card.

Reserved Resources
(40 x 1) + (10 x 0.5) + {(8-3) x 1.3} + (3 x 2.3) + (10 x 2) + 2
= 80.4

Free Resources
= 127 - 80.4
= 46.6

Note

This is an example for a PBX without any stacking Expansion Unit.

Expandable Resources with Expansion Unit

The following table shows the types of resources that are available when an Expansion Unit used with the Main Unit.

Notice

When Expansion Units are used with the Main Unit, all IP-PTs and IP-CSs are registered to the Main Unit.

Type	Resource	Availability
Optional Service Card	Physical Card for Legacy Trunks and Extensions	✓
	Virtual Card	–[*1]
	RMT Card	–
	DPH Card	✓
	DSP Card	–
Terminal	DPT/APT/SLT	✓
	PT-interface CS	✓
	PS	✓
	IP-CS/IP-PT/KX-UT Series SIP Phone	–[*1]
	Doorphone	✓
	IP Softphone	–[*1]
Activation Key	Any Activation key	–

[*1] IP terminals, except for KX-NT265 (software version 2.00 or later only), are registered and controlled by the Main Unit.

Section 3

Information about the Activation Keys

This section provides information on activation keys, including how to obtain activation keys.

3.1 Information about the Activation Keys

Activation keys are required to use IP trunks and IP telephones on a private IP network with the PBX. Also, to upgrade the software to use enhanced features, the corresponding activation keys for that feature are required. Some activation keys are provided by default, some are provided free for a limited period, and others are provided separately as activation key files.

3.1.1 Type and Maximum Number of Activation Keys

The PBX supports the following type and number of 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.

Note

- Store the downloaded activation key files in your PC or a memory device. They can then be reinstalled in an emergency situation.
- For information about how to obtain the additional activation keys, refer to "3.1.2 Activation Key Code and Key Management System".
- For information about how to install the activation key files using Web Maintenance Console, refer to "5.4.4 Installing Additional Activation Keys".

System

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSF991	Expansion Capacity	Increases the IP extension capacity from 32 to 128 extensions, and allows the connection of up to 3 Expansion Units.	1 activation key

IP Trunks

Model No.	Activation Key Type	Description	Maximum IP Trunks
KX-NSM102	2 IP Trunk	Allows the use of 2 IP trunks (H. 323/SIP).	64 IP trunks (H.323/SIP)*1*2
KX-NSM104	4 IP Trunk	Allows the use of 4 IP trunks (H. 323/SIP).	
KX-NSM108	8 IP Trunk	Allows the use of 8 IP trunks (H. 323/SIP).	
KX-NSM116	16 IP Trunk	Allows the use of 16 IP trunks (H. 323/SIP).	

*1 You need to set the number of installed activation keys to be used for H.323 trunks through system programming. By default, all installed activation keys will be used for SIP trunks.
*2 The maximum number of IP trunks for H.323 is 32.

IP Telephone Capacity

Model No.	Activation Key Type	Description	Maximum IP Telephones
KX-NSM201	1 IPSoftphone/IP PT/ SIP-MLT/P-SIP	Allows the use of 1 IP-PT/IP softphone/KX-UT series SIP phone/P-SIP Extension.	Total 128 IP-PTs/IP softphones/KX-UT series SIP phones/ P-SIP Extensions*1
KX-NSM205	5 IPSoftphone/IP PT/ SIP-MLT/P-SIP	Allows the use of 5 IP-PTs/IP softphones/KX-UT series SIP phones/P-SIP Extensions.	
KX-NSM210	10 IPSoftphone/IP PT/ SIP-MLT/P-SIP	Allows the use of 10 IP-PTs/IP softphones/KX-UT series SIP phones/P-SIP Extensions.	
KX-NSM220	20 IPSoftphone/IP PT/ SIP-MLT/P-SIP	Allows the use of 20 IP-PTs/IP softphones/KX-UT series SIP phones/P-SIP Extensions.	
KX-NSM501	1 IP PT/SIP-MLT/ P-SIP	Allows the use of 1 IP-PT/ KX-UT series SIP phone/P-SIP Extension.	Total 128 IP-PTs/ KX-UT series SIP phones/P-SIP Extensions [4 IP-PTs/KX-UT series SIP phones/ P-SIP Extensions]*2
KX-NSM505	5 IP PT/SIP-MLT/ P-SIP	Allows the use of 5 IP-PTs/ KX-UT series SIP phones/P-SIP Extensions.	
KX-NSM510	10 IP PT/SIP-MLT/ P-SIP	Allows the use of 10 IP-PTs/ KX-UT series SIP phones/P-SIP Extensions.	
KX-NSM520	20 IP PT/SIP-MLT/ P-SIP	Allows the use of 20 IP-PTs/ KX-UT series SIP phones/P-SIP Extensions.	
KX-NSM701	1 SIP Extension	Allows the use of 1 IP Conferencing Phone/third party SIP phone.	Total 128 IP Conferencing Phones/ third party SIP phones
KX-NSM705	5 SIP Extension	Allows the use of 5 IP Conferencing Phones/third party SIP phones.	
KX-NSM710	10 SIP Extension	Allows the use of 10 IP Conferencing Phones/third party SIP phones.	
KX-NSM720	20 SIP Extension	Allows the use of 20 IP Conferencing Phones/third party SIP phones.	

*1 You can set how many IP softphones can be used with the installed activation keys through system programming. By default, only IP softphones can be used with the installed activation keys.

*2 The capacity given in [square brackets] shows the number of activation keys preinstalled on the mother board.

Note

- When using a KX-TGP600, depending on the registration status of the wireless handsets, up to 8 activation keys for IP PT/SIP-MLT/P-SIP may be required.

IP-CS Channel Expansion

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSE201	1 IP-CS channel expansion	Increases the number of communication channels from 4 to 8 for 1 IP-CS (KX-NS0154 only).	32
KX-NSE205	5 IP-CS channel expansion	Increases the number of communication channels from 4 to 8 for 5 IP-CSs (KX-NS0154 only).	
KX-NSE210	10 IP-CS channel expansion	Increases the number of communication channels from 4 to 8 for 10 IP-CSs (KX-NS0154 only).	
KX-NSE220	20 IP-CS channel expansion	Increases the number of communication channels from 4 to 8 for 20 IP-CSs (KX-NS0154 only).	

Note

- When performing channel expansion for IP-CSs (KX-NS0154 only), change the status of the IP-CS port to OUS, then enable the channel expansion setting. (See "9.18 PBX Configuration—[1-1] Configuration—Slot—Port Property—V-IPCS—Main—◆ Channel expansion" in the PC Programming Manual.)
- To apply the channel expansion, the IP-CSs (KX-NS0154 only) must be reset by changing their port status from OUS to INS. (See "9.18 PBX Configuration—[1-1] Configuration—Slot—Port Property—V-IPCS—Main—◆ Connection" in the PC Programming Manual.)

Feature Guide References for Related Features of Activation Keys

5.2.7 IP-CS (KX-NS0154)

Networking

Model No.	Activation Key Type	Description	Maximum Activation Keys	
			Stand-alone System	One-look Network
KX-NSN001	One-look Network	Allows the use of multi-site connections using One-look network feature.	–	16 activation keys[*1]
KX-NSN002	QSIG Network	Allows the use of enhanced QSIG network features (NDSS, Centralised Voice Mail, etc.).	1 activation key	

[*1] This activation key must be installed to each PBX in the One-look network.

Feature Guide References for Related Features of Activation Keys

One-look Network

- 4.2.1 One-look Networking Overview

QSIG Network

- 4.3.1.4 Common Extension Numbering for 2 PBXs
- 4.3.2.2 Common Extension Numbering for Multiple PBXs
- 4.3.5 QSIG Enhanced Features
- 4.3.5.1 Network Direct Station Selection (NDSS)
- 4.3.5.2 Centralised Voice Mail

Unified Messaging System (Features)

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSU002	Two-way REC Control	Allows a manager/administrator to use the Automatic Two-way Recording feature to record other users.	1 activation key
KX-NSU003	Message Backup	Allows the automatic backup of messages.	1 activation key

Feature Guide References for Related Features of Activation Keys

Two-way REC Control

3.2.1.4 Automatic Two-way Recording for Manager

Message Backup

3.1.2.5 System Backup/Restore

Unified Messaging System (Unified Messaging Ports)

Model No.	Activation Key Type	Description	Maximum Unified Messaging Ports
KX-NSU102	2 UM Port	Allows the use of 2 Unified Messaging ports.	24 Unified Messaging ports [2 Unified Messaging ports][*1]
KX-NSU104	4 UM Port	Allows the use of 4 Unified Messaging ports.	

*1 The capacity given in [square brackets] shows the number of activation keys preinstalled on the mother board.

Feature Guide References for Related Features of Activation Keys

3.1.1 Unified Messaging System Overview

Unified Messaging System (Mailbox)

Model No.	Activation Key Type	Description	Maximum Mailboxes
KX-NSU201	UM/E-mail 1 User	Allows the use of an e-mail (IMAP4) client and e-mail notification (voice) for 1 user.	500 mailboxes
KX-NSU205	UM/E-mail 5 Users	Allows the use of an e-mail (IMAP4) client and e-mail notification (voice) for 5 users.	
KX-NSU210	UM/E-mail 10 Users	Allows the use of an e-mail (IMAP4) client and e-mail notification (voice) for 10 users.	
KX-NSU220	UM/E-mail 20 Users	Allows the use of an e-mail (IMAP4) client and e-mail notification (voice) for 20 users.	
KX-NSU299	UM/E-mail All Users	Allows the use of an e-mail (IMAP4) client and e-mail notification (voice) up to the system's limit.	

Feature Guide References for Related Features of Activation Keys

- 3.2.1.28 Message Waiting Notification—E-mail Device
- 3.3.1 Integration with Microsoft Outlook
- 3.3.2 IMAP Integration

Unified Messaging System (Two-way Recording/Two-way Transfer Users)

Model No.	Activation Key Type	Description	Maximum Users
KX-NSU301	2way REC 1 User	Allows the use of Two-way Recording/Two-way Transfer for 1 user.	The same number as the maximum number of allowable extensions
KX-NSU305	2way REC 5 Users	Allows the use of Two-way Recording/Two-way Transfer for 5 users.	
KX-NSU310	2way REC 10 Users	Allows the use of Two-way Recording/Two-way Transfer for 10 users.	
KX-NSU320	2way REC 20 Users	Allows the use of Two-way Recording/Two-way Transfer for 20 users.	
KX-NSU399	2way REC All Users	Allows the use of Two-way Recording/Two-way Transfer up to the system's limit.	

Feature Guide References for Related Features of Activation Keys

3.2.2.30 Two-way Record/Two-way Transfer

Cellular Phone Extension

Model No.	Activation Key Type	Description	Maximum Cellular Phone Extensions
KX-NSE101	1 Mobile User	Allows the use of 1 cellular phone extension.	The same number as the maximum number of allowable extensions
KX-NSE105	5 Mobile Users	Allows the use of 5 cellular phone extensions.	
KX-NSE110	10 Mobile Users	Allows the use of 10 cellular phone extensions.	
KX-NSE120	20 Mobile Users	Allows the use of 20 cellular phone extensions.	

Feature Guide References for Related Features of Activation Keys

- 2.2.2.3 Outside Destinations in Incoming Call Distribution Group
- 2.3.2 Call Forwarding (FWD)
- 2.16.1 Direct Inward System Access (DISA)
- 2.27.1 Cellular Phone Features—SUMMARY
- 4.3.6 Network ICD Group
- 4.3.6.1 PS Roaming by Network ICD Group

Communication Assistant (CA) User

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSA010	CA Thin Client	Allows the use of CA Client in a thin-client environment.	1
KX-NSA020	CSTA Multiplexer	Allows the use of CSTA Multiplexer.	4

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSA201	CA Pro 1 user	Allows the use of CA Client Pro for 1 user.*1	The same number as the maximum number of allowable extensions
KX-NSA205	CA Pro 5 users	Allows the use of CA Client Pro for 5 users.*1	
KX-NSA210	CA Pro 10 users	Allows the use of CA Client Pro for 10 users.*1	
KX-NSA240	CA Pro 40 users	Allows the use of CA Client Pro for 40 users.*1	
KX-NSA249	CA Pro 128 users	Allows the use of CA Client Pro for 128 users.*1	
KX-NSA301	CA Supervisor	Allows the use of CA Client Supervisor for 1 user.	
KX-NSA401	CA Console	Allows the use of CA Client Operator Console for 1 user.	
KX-NSA901	CA Network 1 user	Allows the use of CA Server network features for 1 user.	
KX-NSA905	CA Network 5 users	Allows the use of CA Server network features for 5 users.	
KX-NSA910	CA Network 10 users	Allows the use of CA Server network features for 10 users.	
KX-NSA940	CA Network 40 users	Allows the use of CA Server network features for 40 users.	
KX-NSA949	CA Network 128 users	Allows the use of CA Server network features for 128 users.	

*1 A maximum of 416 CA users can be registered. However, CA Server is necessary to register more than 240 CA users.

CTI Licence

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSF101	CTI interface	Allows the use of the 3rd Party CTI interface.	1

Feature Guide References for Related Features of Activation Keys

2.26.1 Computer Telephony Integration (CTI)

Partner Licence

Activation keys for partner devices are stored in the PBX. Partner devices refer to the activation keys in the PBX and determine whether they are enabled or disabled. A maximum number of 16 partner devices can refer to the activation keys and operate simultaneously. However, limitations on partner devices connected through

devices connected directly to the PBX depend on the specifications of the directly connected devices. The PBX does not limit these devices.

Note

- For information about purchasing licences, consult the partner entity or your dealer.
- To use devices by connecting them to CA Server, use a version of CA Server that corresponds to the partner licence feature.

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSB0001	Poltys C. Bridge	Allows the use of the Poltys Communication Bridge.	16
KX-NSB0101	Poltys CA RCS-Start 1 user	Allows the use of the Poltys CA RCS for 1 user.	Combined total for licences: 350/system
KX-NSB0105	Poltys CA RCS-Start 5 users	Allows the use of the Poltys CA RCS for 5 users.	
KX-NSB0110	Poltys CA RCS-Start 10 users	Allows the use of the Poltys CA RCS for 10 users.	
KX-NSB0149	Poltys CA RCS-Start 128 users	Allows the use of the Poltys CA RCS for 128 users.	
KX-NSB0201	Poltys CA RCS-Extend 1 user	Allows the extension to use of the Poltys CA RCS for 1 user.	
KX-NSB0205	Poltys CA RCS-Extend 5 users	Allows the extension to use of the Poltys CA RCS for 5 users.	
KX-NSB0210	Poltys CA RCS-Extend 10 users	Allows the extension to use of the Poltys CA RCS for 10 users.	
KX-NSB0249	Poltys CA RCS-Extend 128 users	Allows the extension to use of the Poltys CA RCS for 128 users.	

(Continued)

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSB0004	Poltys CCAccounting	Allows the use of Poltys CCAccounting.	Combined total for licences: 350/system
KX-NSB0005	Poltys CCAccounting A.L.	Allows the use of Poltys CCAccounting A.L.	
KX-NSB0006	Poltys CCAcc. Enterprise	Allows the use of Poltys CCAcc. Enterprise.	
KX-NSB0007	Poltys CCAcc. Enterprise A.L.	Allows the use of Poltys CCAcc. Enterprise A.L.	
KX-NSB0008	Poltys CCView	Allows the use of Poltys CCView.	
KX-NSB0009	Poltys CCView A.L.	Allows the use of Poltys CCView A.L.	
KX-NSB0010	Poltys CCView add. PBX	Allows the use of Poltys CCView add. PBX.	
KX-NSB0011	Poltys CCView add. PBX A.L.	Allows the use of Poltys CCView add. PBX A.L.	
KX-NSB0012	Poltys Number notice	Allows the use of Poltys Number notice.	
KX-NSB0013	Poltys Number notice A.L.	Allows the use of Poltys Number notice A.L.	
KX-NSB0014	Poltys CCRecord SIP (4 Ports)	Allows the use of Poltys CCRecord SIP (4 Ports).	
KX-NSB0016	Poltys CCRecord SIP A.L. (4 Ports)	Allows the use of Poltys CCRecord SIP A.L. (4 Ports).	

(Continued)

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSB0404	Poltys CCRecord Analogue (4 users)	Allows the use of Poltys CCRecord Analogue (4 users).	Combined total for licences: 350/system
KX-NSB0408	Poltys CCRecord Analogue (8 users)	Allows the use of Poltys CCRecord Analogue (8 users).	
KX-NSB0412	Poltys CCRecord Analogue (12 users)	Allows the use of Poltys CCRecord Analogue (12 users).	
KX-NSB0416	Poltys CCRecord Analogue (16 users)	Allows the use of Poltys CCRecord Analogue (16 users).	
KX-NSB0424	Poltys CCRecord Analogue (24 users)	Allows the use of Poltys CCRecord Analogue (24 users).	
KX-NSB0504	Poltys CCRecord Analogue A.L. (4 users)	Allows the use of Poltys CCRecord Analogue A.L. (4 users).	
KX-NSB0508	Poltys CCRecord Analogue A.L. (8 users)	Allows the use of Poltys CCRecord Analogue A.L. (8 users).	
KX-NSB0512	Poltys CCRecord Analogue A.L. (12 users)	Allows the use of Poltys CCRecord Analogue A.L. (12 users).	
KX-NSB0516	Poltys CCRecord Analogue A.L. (16 users)	Allows the use of Poltys CCRecord Analogue A.L. (16 users).	
KX-NSB0524	Poltys CCRecord Analogue A.L. (24 users)	Allows the use of Poltys CCRecord Analogue A.L. (24 users).	
KX-NSB0608	Poltys CCRecord Digital (8 users)	Allows the use of Poltys CCRecord Digital (8 users).	
KX-NSB0616	Poltys CCRecord Digital (16 users)	Allows the use of Poltys CCRecord Digital (16 users).	
KX-NSB0624	Poltys CCRecord Digital (24 users)	Allows the use of Poltys CCRecord Digital (24 users).	
KX-NSB0708	Poltys CCRecord Digital A.L. (8 users)	Allows the use of Poltys CCRecord Digital A.L. (8 users).	

(Continued)

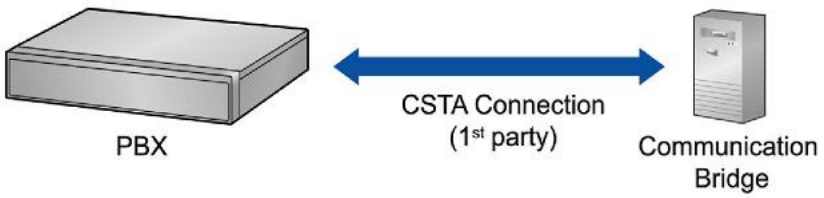
Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSB0716	Poltys CCRecord Digital A.L. (16 users)	Allows the use of Poltys CCRecord Digital A.L. (16 users).	Combined total for licences: 350/system
KX-NSB0724	Poltys CCRecord Digital A.L. (24 users)	Allows the use of Poltys CCRecord Digital A.L. (24 users).	
KX-NSB0801	Poltys CCRecord PRI (1 Port)	Allows the use of Poltys CCRecord PRI (1 Port).	
KX-NSB0802	Poltys CCRecord PRI (2 Ports)	Allows the use of Poltys CCRecord PRI (2 Ports).	
KX-NSB0901	Poltys CCRecord PRI A.L. (1 Port)	Allows the use of Poltys CCRecord PRI A.L. (1 Port).	
KX-NSB0902	Poltys CCRecord PRI A.L. (2 Ports)	Allows the use of Poltys CCRecord PRI A.L. (2 Ports).	
KX-NSB1001	Poltys CCView Supervisor	Allows the use of Poltys CCView Supervisor.	
KX-NSB1005	Poltys CCView Supervisor (5 user Bundle)	Allows the use of Poltys CCView Supervisor (5 user Bundle).	
KX-NSB1101	Poltys CCView Supervisor A.L.	Allows the use of Poltys CCView Supervisor A.L.	
KX-NSB1105	Poltys CCView Supervisor A.L. (5 user Bundle)	Allows the use of Poltys CCView Supervisor A.L. (5 user Bundle).	
KX-NSB1201	Poltys CCView CRM P-up	Allows the use of Poltys CCView CRM P-up.	
KX-NSB1205	Poltys CCView CRM P-up (5 user Bundle)	Allows the use of Poltys CCView CRM P-up (5 user Bundle).	
KX-NSB1301	Poltys CCView CRM P-up A.L.	Allows the use of Poltys CCView CRM P-up A.L.	
KX-NSB1305	Poltys CCView CRM P-up A.L. (5 user Bundle)	Allows the use of Poltys CCView CRM P-up A.L. (5 user Bundle).	

(Continued)

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSB1401	Poltys CCAgent	Allows the use of Poltys CCAgent.	Combined total for licences: 350/system
KX-NSB1405	Poltys CCAgent (5 user Bundle)	Allows the use of Poltys CCAgent (5 user Bundle).	
KX-NSB1501	Poltys CCAgent A.L.	Allows the use of Poltys CCAgent A.L.	
KX-NSB1505	Poltys CCAgent A.L. (5 user Bundle)	Allows the use of Poltys CCAgent A.L. (5 user Bundle).	
KX-NSB0002	PSDN Option-1	Allows the use of the option feature of PSDN (Panasonic System Development Network).	16
KX-NSB0003	PSDN Option-2		

System connection diagram for the integration with the Communication Bridge

[Without CA server]



Max. users without CA Server: 240*1

[With CA server]

Max. users with CA server: 416*1

*1 Combined with number of CA Client users.

Feature Guide References for Related Features of Activation Keys

2.26.3 Integration with Communication Bridge

Call Centre Feature Enhancement

Model No.	Activation Key Type	Description	Maximum Activation Keys
KX-NSF201	Call Centre Enhance	Allows the use of queuing information announcement, ICD group monitor by ACD supervisor, and creation of ACD reports.	1

Preinstalled Activation Keys in the Mother Board

Preinstalled activation keys with no expiration date

The following type and number of activation keys are preinstalled on the mother board.

Activation Key	Activated Features
CA Basic-Express	No Limit
IP Proprietary Telephone/P-SIP Extension (ch)	4 IP-PTs/KX-UT series SIP phones/P-SIP Extensions
UM Port (ch)	2 Unified Messaging ports

Example: Preinstalled Activation Keys in the Mother Board

Preinstalled activation keys for free trial

The following activation keys are preinstalled on the mother board for the 60-days free trial. They will expire 60 days after pressing the **Activate Pre-installed Activation key** button to begin the free trial.

Activation Key	Activated Features
Mobile Extension (30 users)	30 cellular phone extensions
CA PRO (128 users)	128 CA Pro users