OfficeServ 7030

Installation Manual

SAMSUNG
ELECTRONICS

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Declaration of Conformity

For the following

    Product : Digital Keyphone System
    Model(s) : OfficeServ 7030

Manufactured at:

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    F2: Samsung Electronics Co., Ltd.

        259, Gongdan-dong, Gumi-si, Gyeongbuk, 730,030, Korea

    (Factories name and address)

We hereby declare, that the product above is in compliance with the essential requirements of the R&TTE Directive (1995/5/EC) by application of:

EN 60950-1:2001+A11:2004	EN 55022: 2006
IEC60950-1 :2001	EN 61000-3-2:2006
EN 61000-3-3:1995+A1:2001	EN55024:1998+A1:2001+A2:2003
EN 61000-4-3:1996	EN 61000-4-4:1995
EN61000-4-5: 1995	EN 61000-4-6:1996
EN61000-4-11:1994	EN 61000-4-2:1995

C E

The Technical documentation is kept at the below Manufacturer's address.

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INTRODUCTION

Purpose

The Samsung OfficeServ 7030 is a modern cost effective telephone system for small offices with 10 to 20 users. This manual describes the requirements for the installation of the OfficeServ 7030 system as well as how to install, inspect and operate the system.

Document Content and Organization

This document consists of 7 chapters and abbreviations as follows:

CHAPTER 1. Before Installing

This chapter describes the checklists (installation site, grounding & power conditions etc.) which should be inspected before installing the OfficeServ 7030 system. This chapter also describes the items included in the OfficeServ 7030 package and the installation procedure.

CHAPTER 2. Mounting and Replacing the Boards

This chapter describes how to mount/replace various boards to/from the OfficeServ 7030 system.

CHAPTER 3. Installing the System

This chapter describes how to install an OfficeServ 7030 on the wall, if necessary, depending on the installation environment.

CHAPTER 4. Connecting the Power

This chapter describes how to connect the power to the OfficeServ 7030 system.

CHAPTER 5. Connecting the C.O. Line

This chapter describes how to connect the C.O. lines to the OfficeServ 7030 system.

CHAPTER 6. Connecting the Stations and Additional Equipment

This chapter describes how to connect various stations and additional equipment (analog/digital phones, door phones, door locks etc.) to the OfficeServ 7030 system.

CHAPTER 7. Starting the System

This chapter describes the items to check before starting the OfficeServ 7030 system, as well as the procedure for starting the system and the procedure for testing whether the system is operating normally after startup.

ABBREVIATION

Describes the abbreviations frequently used in this document.

Conventions

The following types of paragraphs contain special information that must be carefully read and thoroughly understood. Such information may or may not be enclosed in a rectangular box, separating it from the main text, but is always preceded by an icon and/or a bold title.

WARNING	**WARNING** Provides information or instructions that the reader should follow in order to avoid personal injury or fatality.

CAUTION	**CAUTION** Provides information or instructions that the reader should follow in order to avoid a service failure or damage to the system.

CHECK	**CHECKPOINT** Provides the operator with checkpoints for stable system operation.

NOTE	**NOTE** Indicates additional information as a reference.

Reference Documents

OfficeServ 7030 System Description

This manual introduces the OfficeServ 7030 and describes the system information (hardware configuration, specification, functions etc.) necessary for this system.

OfficeServ 7030 Programming Manual

This manual describes how to use the MMC program to change the setting of the OfficeServ 7030 system from the phone.

Revision History

EDITION	DATE OF ISSUE	REMARKS
00	06. 2008.	First Draft
01	07. 2008.	- Functions of BRI/MEM/LAN LED are changed. - Cautions are added. .Turning off power switch after dismounting MEM .Checking MEM LED before power off .Checking LAN Port LED .Caution for using extension cable
02	01. 2009	Australian Release Version
03	02. 2009	Addition of Dual cabinet installation procedure

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SAFETY CONCERNS

For product safety and correct operation, the following information must be given to the operator/user and shall be read before the installation and operation.

Symbols

	Caution
⚠️	Indication of a general caution

	Restriction
🚫	Indication for prohibiting an action for a product

	Instruction
❗	Indication for commanding a specifically required action

⚠ WARNING

⚠ **Caution for grounding**

The OfficeServ 7030 system is designed to be earthed through the Power cord, and an external earth connection is not required for operation.

⚠ **Using double-pole/neutral fusing**

Do not attempt to repair the system after only removing the fuse from the neutral line, doing so may cause electric shock. If the repair is required, unplug the system's power cord before proceeding.

🚫 **AC power connection restriction**

Connect the system's AC power to a separated AC outlet. If the AC power is used together with other equipment, a system failure may occur due to static electricity and/or voltage drop.

🚫 **Caution for using expansion cabinet**

Do not place the expansion cabinet directly on top of the basic cabinet. Doing so may cause a system failure due to rising internal heat from the basic cabinet.

ℹ **Caution for power supply when mounting the board**

Check if the cabinet power is turned off when mounting the board. Inserting or removing a board while the power is turned on may damage the board.

⚠ CAUTION

⚠ **Caution for installation**

Only trained service staff may install the OfficeServ 7030 system.

Telephone line cord

To reduce the risk of fire, use only No. 26 AWG or larger (e.g., 24 AWG), UL Listed or CSA Certified Telecommunication Line Cord.

Prohibition of metal accessories

Do not wear metal accessories such as rings and watches while working on the system to prevent electric damage to the system.

AC power connection restriction

Do not share the AC power of the OfficeServ 7030 system or the AC power of the external UPS with other devices.

Checking MEM LED before power off

Don't turn off the power while the MEM LED is flashing. This may cause data corruption and malfunction of system. If you want to turn off power, dismount the memory of the system with 'Key MMC 817 MEM UMOUNT'.

Board reset

New settings are applied only after the board is reset. The system may malfunction if the board is not properly initialized.

Checking LAN operation

Note that fitting an expansion EMP board can cause the LAN LED lights to flash, even if a LAN cable is not present.

Caution for using two cabinet systems

When installing a two cabinet system, check that the extension cable is connected during operation.
The expansion cabinet may malfunction if extension cable is not connected during operation. In that case, you should connect extension cable again and restart expansion cabinet.

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CHAPTER 1. Preparation

This chapter describes the checklists (installation site, grounding & power conditions etc.) which should be inspected before installing the OfficeServ 7030 system. This chapter also describes the items included in the OfficeServ 7030 package and the installation procedure.

1.1 Site Information

Select a site that satisfies the following safety, temperature and humidity conditions.

1.1.1 Safety Conditions

- OfficeServ 7030 system should not be installed near materials that can cause fire, such as explosive gas and inflammable objects.
- OfficeServ 7030 system should not be installed near equipment that generates electromagnetic waves, such as monitors or copying machines.
- The installation location should be easily accessible for trunk line and extension line deployment, for power and grounding wire connection, and for maintenance and repair.
- OfficeServ 7030 system should not be installed in populated aisles/passageways or in areas used for moving equipment.
- Keep the area clean. Prevent dust from damaging the cabinet's connectors.
- Before installing the OfficeServ 7030 system, check items such as the electric wiring status, grounding status, voltage and frequency.

1.1.2 Temperature and Humidity Conditions

- The temperature and humidity conditions are as follows:
  - Operation Temperature: 0~30°C
  - Storage temperature: -10~50°C
  - Humidity: 10~90%
- Cool area protected from direct sunlight.
- Ventilators should be installed to remove dust.

1.2 Grounding Conditions

The Protective Earth (PE) connection to the OfficeServ 7030 cabinet is provided via the three core mains lead.

Ensure that the AC power point, which the OfficeServ 7030 system is connected to, is suitably grounded.

⚠️ WARNING	Hazardous telecommunications network voltages may be present if analogue trunks are connected! Earth connection is essential before connecting analogue (PSTN) trunks. These trunks must be removed, then mains and battery power disconnected, before the top panel is removed for ANY reason.

1.3 Power Conditions

The Power Supply Unit (PSU) of the OfficeServ 7030 system receives an AC input power and supplies an output power of -54 V, +5 V, and +12 V to the system cabinet.
The power condition is as follows:

Table 1.1   Power Condition

Power Supply		Standards
PSU	Input Power	AC 200~240 V
	Output Power	- DC -54 V, 0.5 A - DC +5 V, 3 A - DC +12 V, 1.8 A

1.4 Checking the Package

The list of the items included in the OfficeServ 7030 package is as follows:

Table 1.2   Package Items

Item	Name	Quantity	Remark
Cabinet	Basic Cabinet	1	-
Cable	Power Cable	1	-
Template	Wall Mount Template	1	-
Cover	Cable guide / Connector cover	1	-
Bushing	Wall mount Bushing	4	-
Screw	Wall mount Screw	4	-
Lug	Lug for connecting FGND	1	
Manual	Installation Manual	-	Supplied as PDF

NOTE

UTP Cable Types

Two types of UTP cable are available: Straight-through UTP cable and Crossover UTP cable. The Straight-through UTP cable is used to connect the OfficeServ 7030 system's 4LM module to another system.

1.5 Cabinet Configuration

Left Side View

Figure 1.1   Left Side View of the OfficeServ 7030 Cabinet

The descriptions of each part located on the left of the cabinet are listed in the table below.

Table 1.3   Parts on the left side of the cabinet

Part	Function
① Power Switch	Turns the power of the OfficeServ 7030 system on/off.
② Power I/O Connector	Connector for the power cable connection

⚠ **CAUTION**	**Turning off power switch after dismounting MEM** You should dismount MEM before turning off power switch. Use 'Key MMC 817 MEM UMOUNT' when dismounting MEM.

Figure 1.2   Top Side View of the OfficeServ 7030 Cabinet

The descriptions of each part located on the top of the cabinet are listed in the table below.

Table 1.4   Parts on the top side of the cabinet

Part	Function
① RUN LED	Main CPU operation status - Off: Idle - On (Green): Booting - Blink (Green): Normal Operation of the Program - ON (Red): Clearing the Flash Memory (Database)

② LAN LED	LAN operation status
	- Off: LAN is not connected
	- On (Green)
	  - LAN is connected
	  - EPM is connected
	- Blink (Green): Tx/Rx of data through LAN port

③ MEM LED	MEM operation status - Off: Flash memory not loaded. - On (Green): Flash memory loaded and normal operation. - Blink (Green): Memory being accessed by application and Read/Write/Erase operation in process.
④ BRI LED	The port status - Off: Not used - On (Green) : In use - Blink (Green) : BRI line is activated

	Checking MEM LED before power off
⚠ CAUTION	Don't turn off the power while the MEM LED is flashing. This may cause data corruption and malfunction of system. If you want to turn off power, dismount the memory of the system with 'Key MMC 817 MEM UMOUNT'.

	Checking LAN cable during lighting LAN LED on
⚠ CAUTION	Note that fitting an expansion EMP board can cause the LAN LED lights to flash, even if a LAN cable is not present.
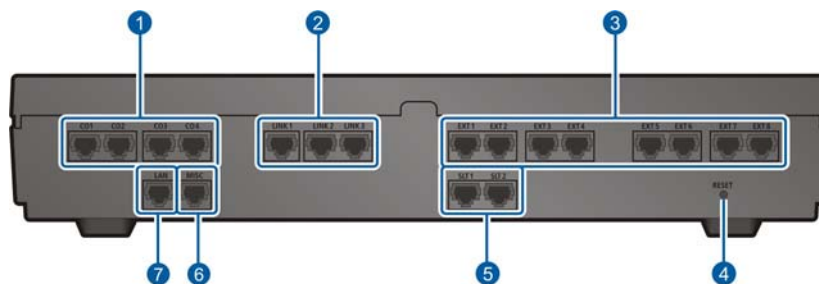
Figure 1.3   Right Side View of the OfficeServ 7030 Cabinet

The descriptions of each part located on the right of the cabinet are listed in the table below.

Table 1.5   Parts on the right panel of the cabinet

Part	Function
① C.O 1-4	Trunk ports
② LINK1-3	Ports that connect the base cabinet with the expansion cabinet
③ EXT1-8	Station ports for subscribers (i.e analog phone, digital phone, LAN)
④ Reset	Button for resetting the system
⑤ SLT1, 2	Station ports for analog phones
⑥ MISC	Ports that connect external audio devices, paging device, loud bell, common bell, or door bell
⑦ LAN	LAN port

1.6 Card types available with the system

The following cards can be fitted to the OS7030 system, depending on customer requirements.

Table 1.6   Mountable Boards

Part	Max qty per cabinet	Description
4TM	1	4 port analogue trunk
2BM	1	2 port (4 channel) Basic Rate ISDN card
4DM	2	4 port Digital extension
4SM	2	4 port analogue extension
4LM	2	4 port LAN switch (requires EPM)
EPM	1	System expansion card
Modem	1	Analogue Modem card (OS7000 type)

Details of the installation of these cards are shown in the next Chapter.

1.7 System Installation Procedure

The system installation procedure is as follows:
1) Open the cabinet.
2) Remove the cabinet's blanking panels to insert the daughter boards.
3) Insert the daughter boards into the universal slots (slot 2, 3 and 4).
4) Install the cabinet on a wall, if necessary, depending on the installation environment
5) Connect and tie the cables with the cable ties.
6) Connect the AC 200~240 V input power. If necessary, connect Uninterruptible Power Supply (UPS).

These items are described in detail in Chapter 2.

1.8 Dual Cabinet Installation Procedure

When installing a two cabinet system, the basic procedure is the same as for a one cabinet system, described above. However, because both cabinets are identical when delivered, the IP addresses of the second cabinet needs to be changed before they can be connected together.

The Default IP addresses of each new cabinet are as follows:

Master IP address: 10.0.2.10
Gateway Address: 10.0.2.1
NetMask 255.255.255.0
Slave IP address: 10.0.2.12

When adding a second cabinet these need to be modified as described in Chapter 2.4

In addition the switch settings on the EPM module needs to be set.

CHAPTER 2. Mounting and Replacing the Boards

This chapter describes how to mount/replace various boards to/from the OfficeServ 7030 system.

2.1 Working on the system

This section describes how to open the cabinet and how to fit optional boards and check the settings of switches on those boards.

⚠ CAUTION	**Caution: Remove mains cable before starting work.** Always switch of the unit and remove the mains cable before opening the cabinet. Hazardous voltages can exist inside the cabinet even when the unit is switched off.

2.1.1 Opening the cabinet

1) Make sure the system is not connected to the mains supply.

2) Hold the cable duct cover and push upward as shown in the following picture.

Figure 2.1   Removing the cable duct cover (1)

3)   Separate the cable duct cover.
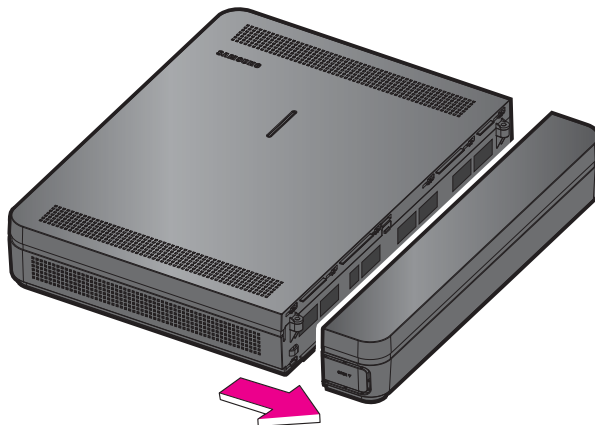
Figure 2.2   Removing the cable duct cover (2)

4)   Remove the two screws.
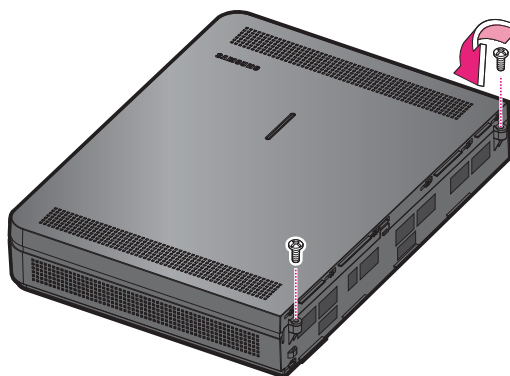
Figure 2.3   Removing the screws

5)   Push and lift the top cover to open the case. Take care not to damage the light guide fitted to the underside of the top cover.
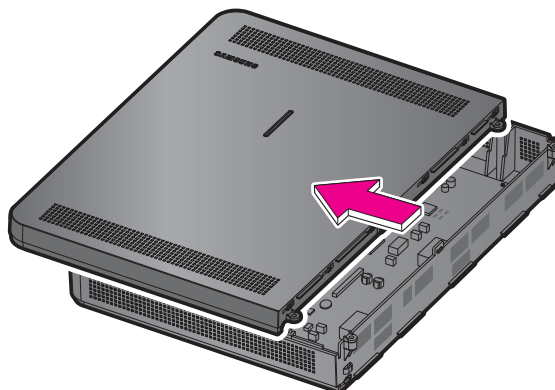
Figure 2.4   Removing the top cover

2.2 Mounting the Boards

This section describes how to set the base board switches and mount the optional boards.

2.2.1 Removing Blanking Panels

Depending on daughter boards, remove the cabinet's blanking panels with a cutter.
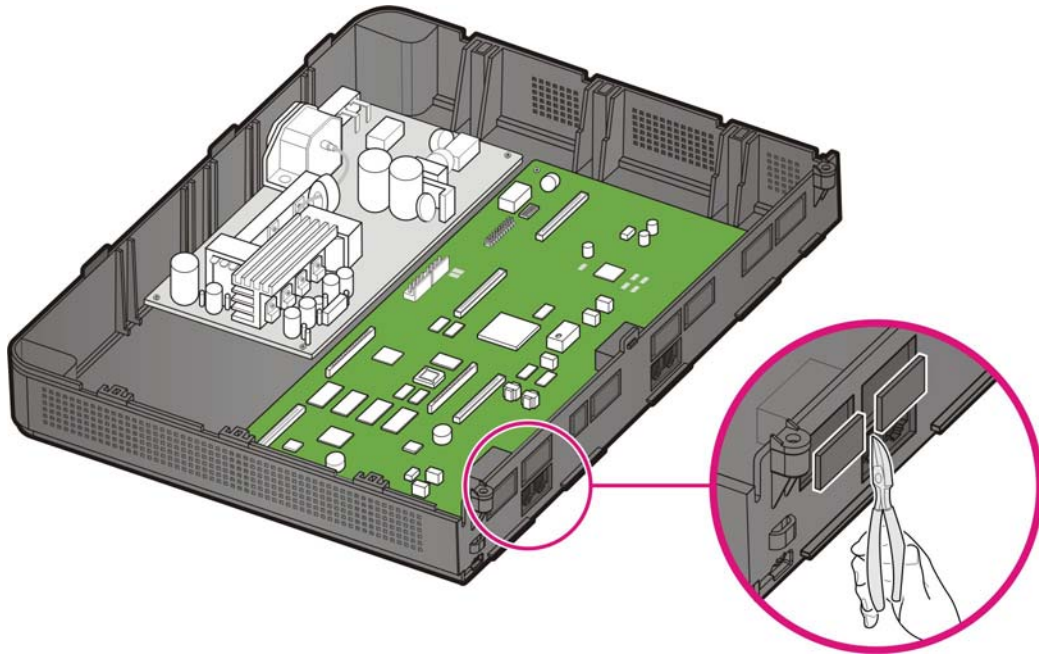
Figure 2.5   Removing the blanking panels

2.2.2 Setting Switches

The base board and the EPM board are both fitted with switches that might need to be set by the installer depending on user requirements, as follows:

Table 2.1   Jumpers/Switches of the Base/EPM Board

Board	Switch	Description
Base	S1 (1~8)	Sets the country code
EPM	S1 (1~2)	Sets whether to use the 4LM daughter board and whether to use the Expansion cabinet.

Setting switches on base board

Locate Switch 1 on the base board as shown below.

SW1 to SW4 are used to set the country code and will usually be preset to Australia.

SW6 is used to default the IP address if required, this is usually set to off

SW5, SW7 and SW8 are reserved for future use and are set to off
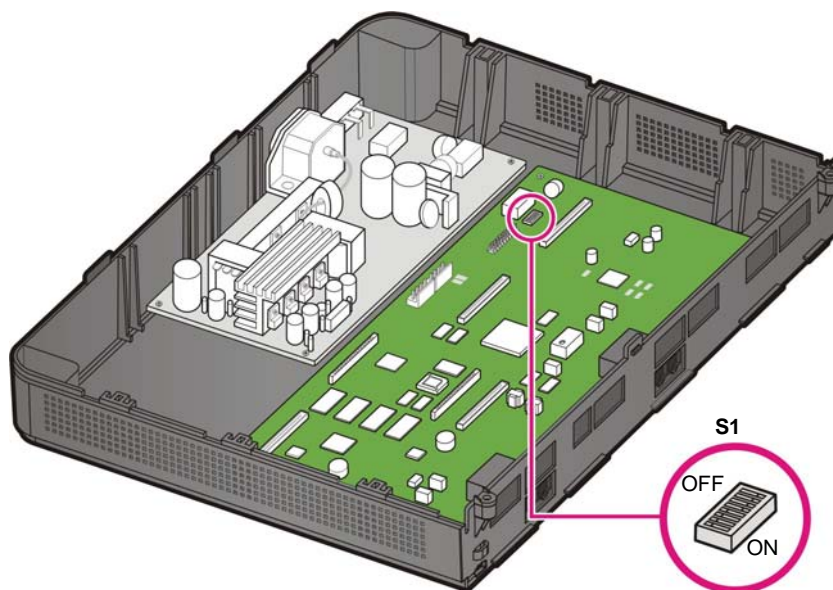
Figure 2.6   Setting the Base Board Switches

Table 2.2   Base Board Switches

Switch		Description	
S1	SW1	Off	These switches set the system's country code.
	SW2	Off	
	SW3	On	
	SW4	Off	
	SW5	Reserved for future use	
	SW6	IP address Setting Mode When On : Forces Default factory address setting When Off : Allows user to choose personal IP address setting Note: The default for a new system is OFF.	
	SW7~SW8	Reserved for future use	

2.2.3 Mounting Optional Boards

When mounting the optional board, align the base board connectors to the optional board (EPM or MODEM) connectors, and press the optional board firmly downward with both hands

1) Mount the MODEM board to the base board's P7 and P8 connectors.
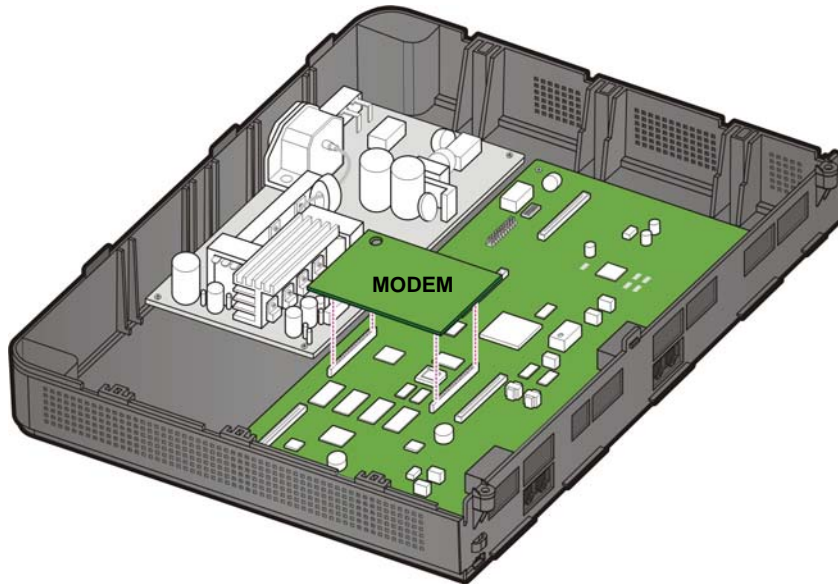
Figure 2.7   Mounting a MODEM Board on the Base Board

2) Mount the EPM board to the base board's P2 connector.
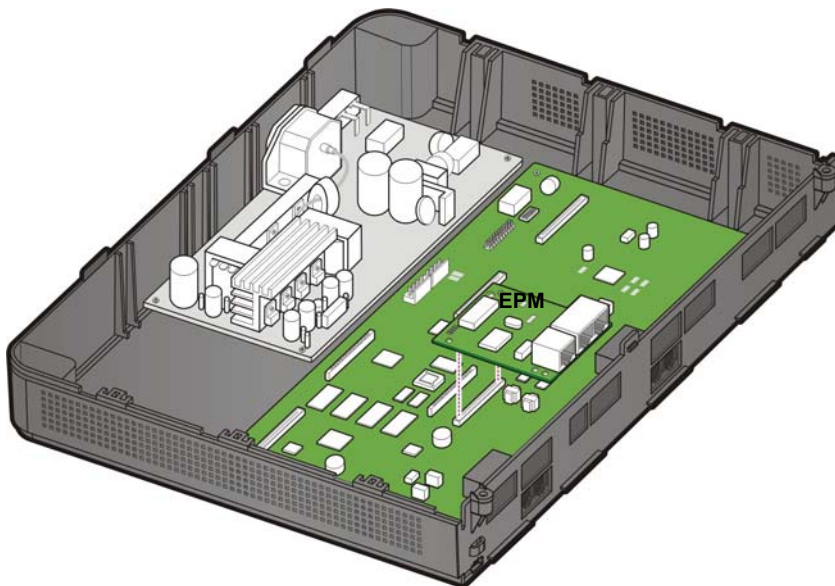
Figure 2.8   Mounting an EPM Board on the Base Board

3) Secure the EPM Board with the supplied screw.
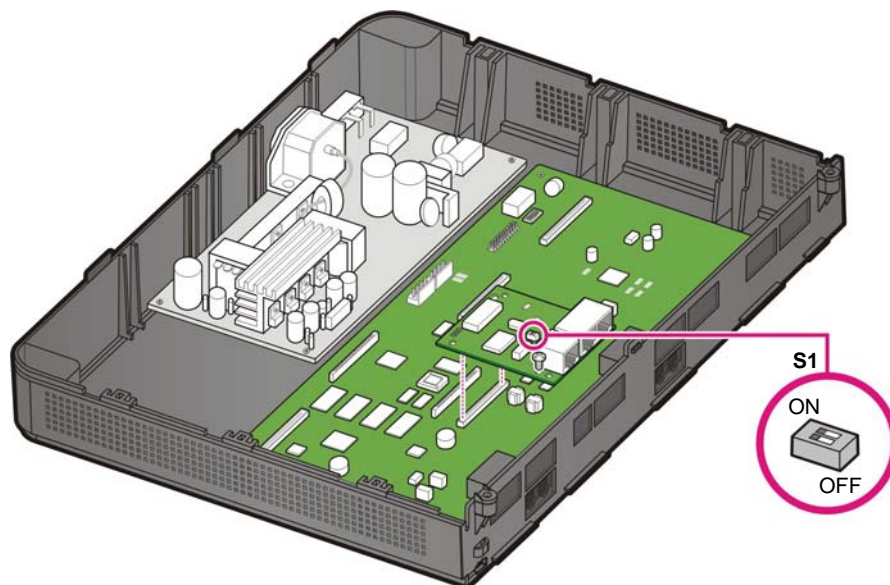
Figure 2.9   Setting Switches on the EPM Board

4) Locate S1 on the EPM board and Set SW1 and SW2 as required. (see below)

Table 2.3   EPM board switches

Switch		Description
S1	SW1	- ON: Master cabinet - Off: Slave cabinet.
	SW2	- ON: Standalone - Off: Master and slave

Note: Always check the EPM switch settings before installing the card, as an invalid setting may prevent the system from starting.

2.2.4 Mounting the daughter Boards

The following daughter boards can be mounted on the system card slots according to the OfficeServ 7030 configuration.

Table 2.4   Mountable Boards

Part	Slot	Mountable Board
Trunk Part	Slot 4	4TM, 2BM
Extension Part	Slot 2 and Slot 3	4DM, 4SM, 4LM
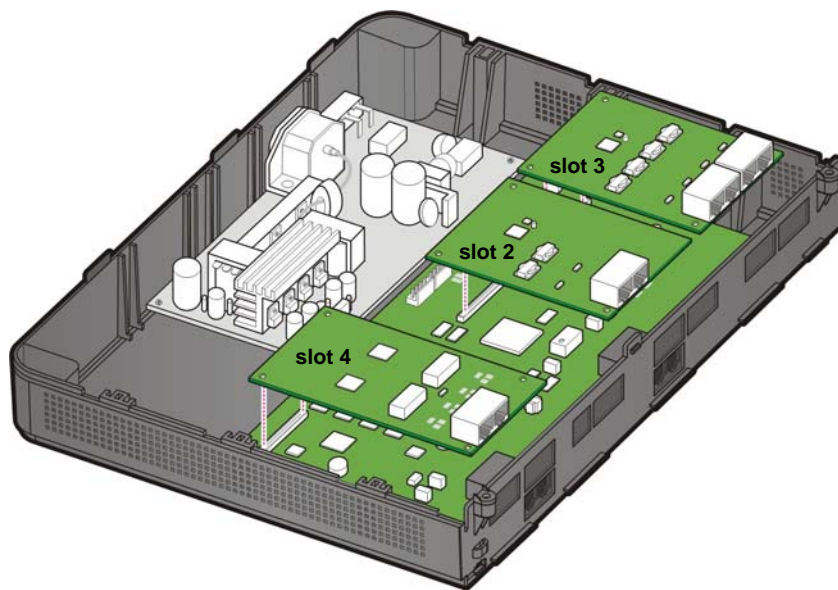
Figure 2.10   Location of the Base Board Slots

	The 4TM Module board does not support Dial Pulse dialing, but it supports DTMF dialing.
NOTE	

	The 4LM (LAN card) requires that an EPM card is also installed to operate correctly.
NOTE	

	Caution for the power supply when mounting the boards
CAUTION	Check if the cabinet power is turned off when mounting the board. Inserting or removing a board while the power is turned on may damage the board or cause fire.

---

1)   2BM or 4TM can be mounted to the base board's P3 connector.
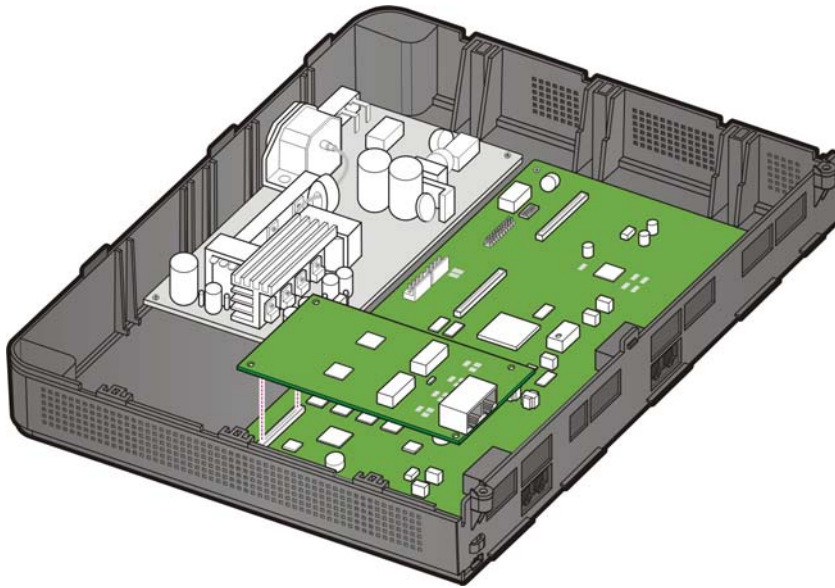
Figure 2.11   Mounting 2BM/4TM on the Base Board

2)   4DM, 4SM or 4LM can be mounted to the base board's P1 and P4 connector.
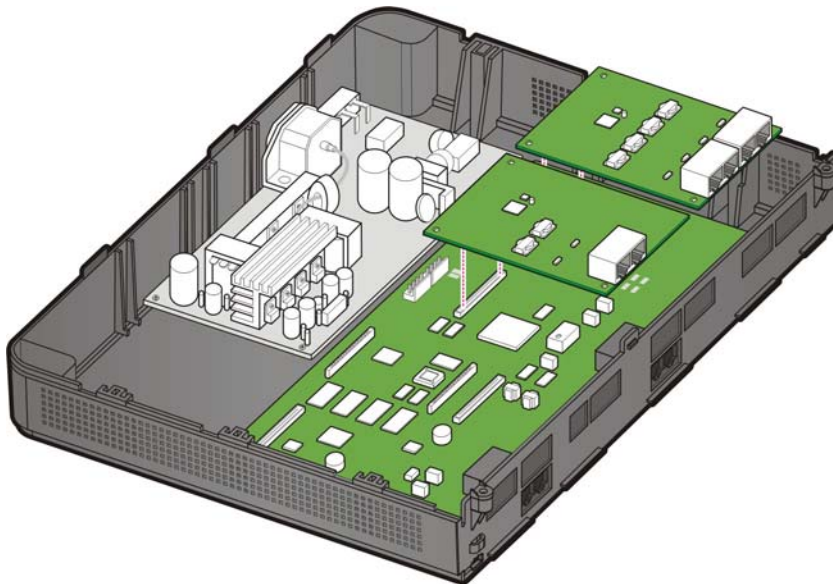
Figure 2.12   Mounting 4DM/4SM/4LM on the Base Board

3) Secure the boards with the supplied screws.
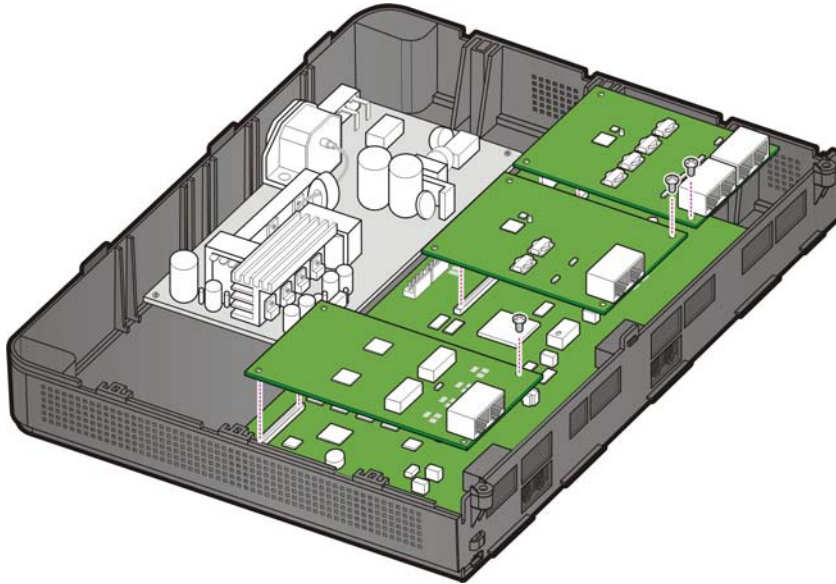
Figure 2.13   Tightening screws to install the daughter boards

2.2.5 Closing/Cabling

1) Push and align the top cover to close the case.

Figure 2.14   Installing the top cover (1)

2)   Tighten two screws to install the top cover.
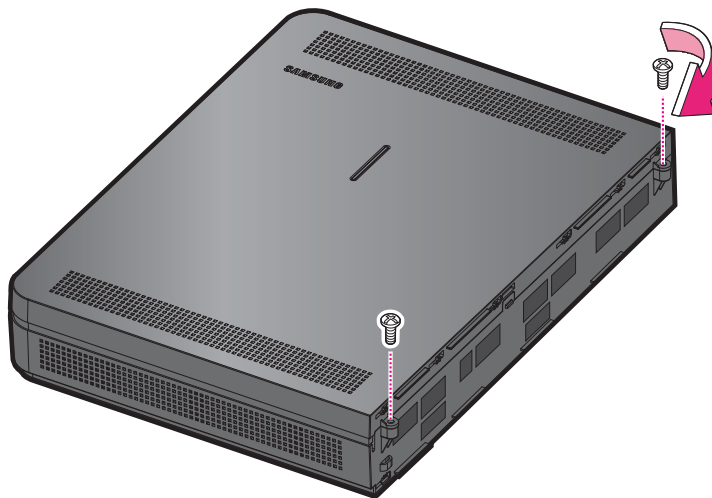
Figure 2.15   Installing the top cover (2)

3)   Fasten the cables to the cabinet with a cable tie.
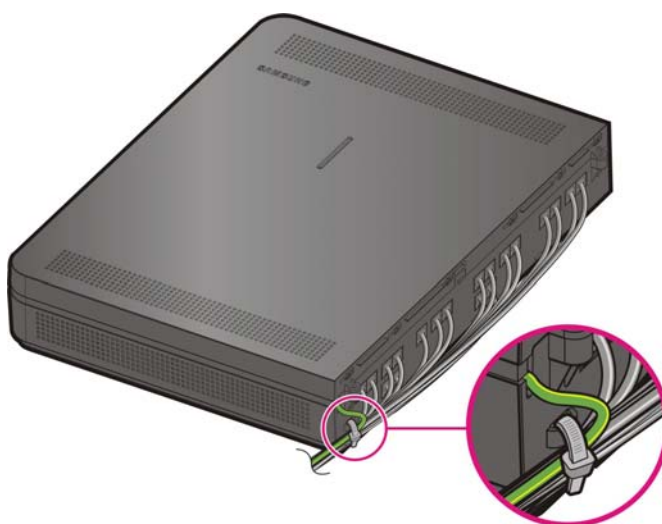
Figure 2.16   Cabling

4)   Align and install the cable duct cover as follows.
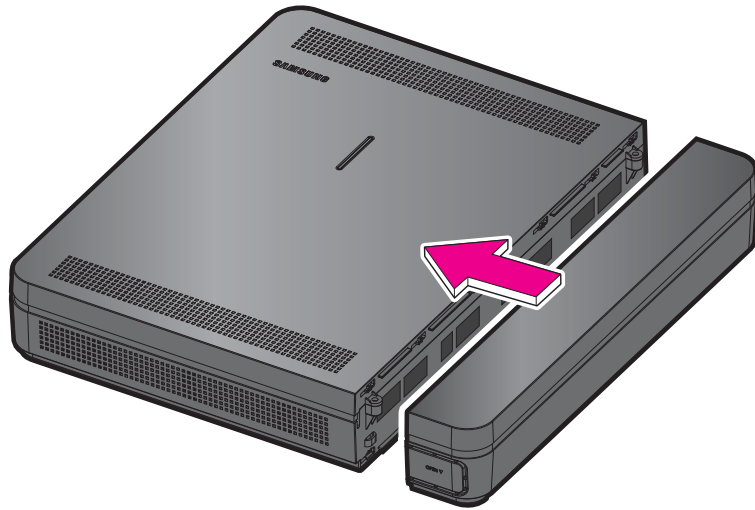
Figure 2.17   Installing the duct cover (1)

5)   Hold the cable duct cover and push downward as shown in the following picture.

Figure 2.18   Installing the duct cover (2)

2.3 Replacing the Boards

If the OfficeServ 7030 system fails to operate normally due to an error on the power supply board, base board or daughter board, replace the board with a new one.

> ⚠ **CAUTION**
>
> **Removing the Cables**
>
> Before replacing a daughter board, remove all cables connected to the board.

To replace a board mounted in the slot of a cabinet, proceed as follows:

1) Turn off the power to the cabinet in which the board is mounted and remove the mains cable.
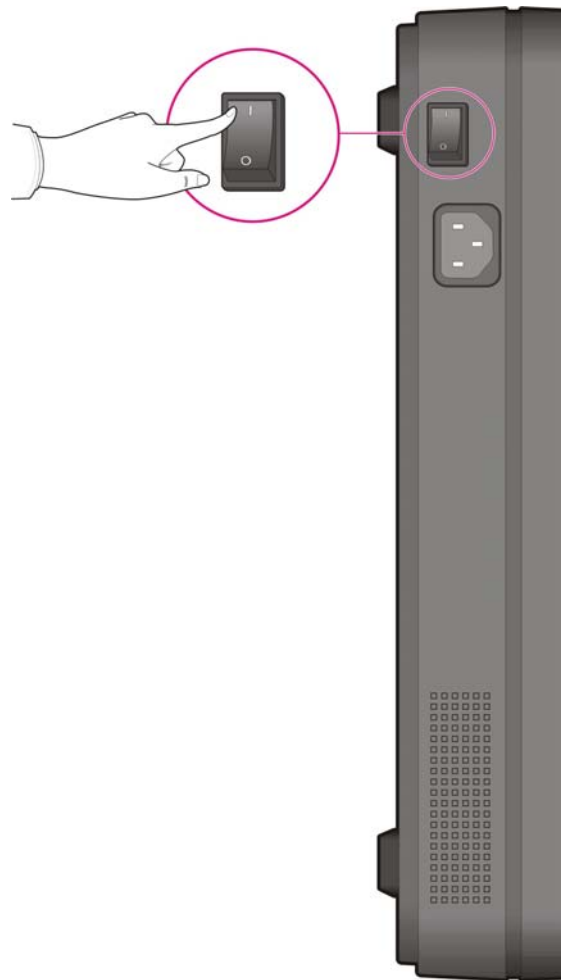
Figure 2.19   Turning Off the Cabinet Power

2) Remove the cable duct cover and open the upper case. Refer to section '2.1.1 Opening'.

3) Remove the screw and extract the board carefully.
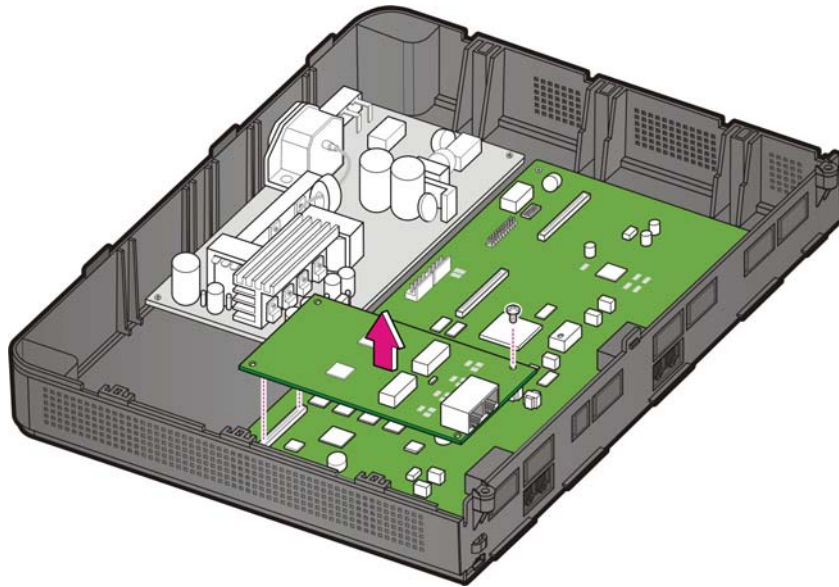
Figure 2.20   Removing the boards

4) Align the new board to the connector of the slot, and press the daughter boards firmly downward with two hands. Tighten the screw.
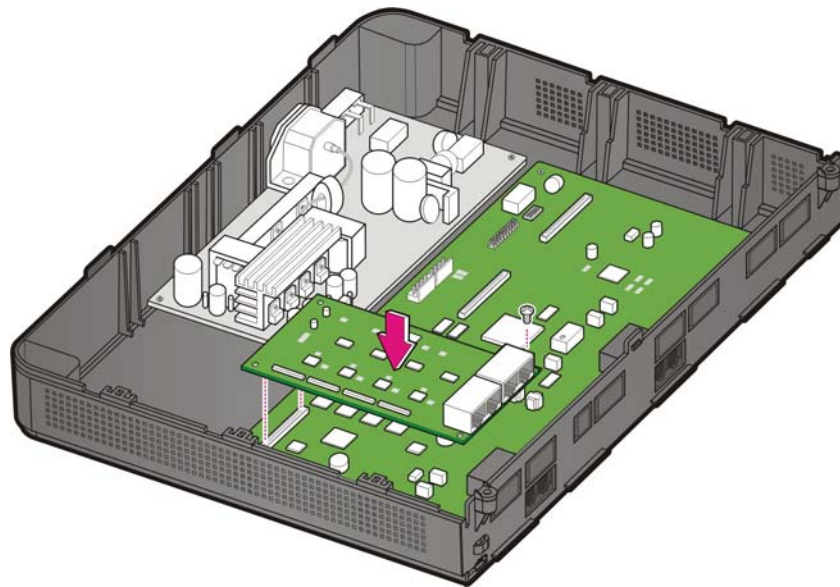
Figure 2.21   Replacing the daughter boards

5) Close the cabinet. Refer to section '2.2.5 Closing/Cabling'.

2.4 Dual Cabinet installation.

A Dual Cabinet installation consists of the following items.

Table 2.5   Dual Cabinet Items

Description	Qty
OS7030 Cabinet	2
OS7030 Expansion Module (EPM)	2
OS7030 Expansion Cable	1

When installing a two cabinet system, the basic procedure is the same as for a one cabinet system, described above. Each Cabinet in a two cabinet system requires an EPM card to be fitted as described in section 2.2.3 above, and the switches need to be set as described below.

Table 2.6   Dual Cabinet Settings

Cabinet	EPM Switch	Switch Settings	Default IP Address
Basic	S1	SW1 - ON SW2 – OFF	Master IP: 10.0.2.10 Slave IP: 10.0.2.12
Expansion	S1	SW1 - OFF SW2 - OFF	Master IP: 10.0.2.12 Slave IP: 10.0.2.10

However, because both cabinets are identical when delivered, the IP addresses of the second cabinet needs to be changed before they can be connected together.

By default each system has a Master address and a Slave address, configurable through MMC 830, the IT Tool, or the Web Browser. (See Chapter 6 for instructions on how to use these tools).

Use these tools to connect to the slave cabinet and change the Master and Slave address as shown above. (I.e. reverse the addresses, so Master becomes Slave and Slave becomes Master), save the changes, then connect the expansion cable between the cabinets and restart both systems.

If Custom IP addresses are to be used, the same process applies.

Note: If the cabinets have been used before, setting the Master and Slave IP addresses to 0.0.0.0 and resetting will force the system to revert to the factory defaults.

CHAPTER 3. Installing the System

This chapter describes how to install an OfficeServ 7030 on the wall, if necessary, depending on the installation environment.

3.1 Installing on a Wall

This section describes how to install the OfficeServ 7030 cabinet on a wall.

3.1.1 Required Tools

- Mid-sized Phillips screw driver
- Electric drill
- Hammer
- Wall Mount Template
- Four plastic Bushings
- Four cross-type screws
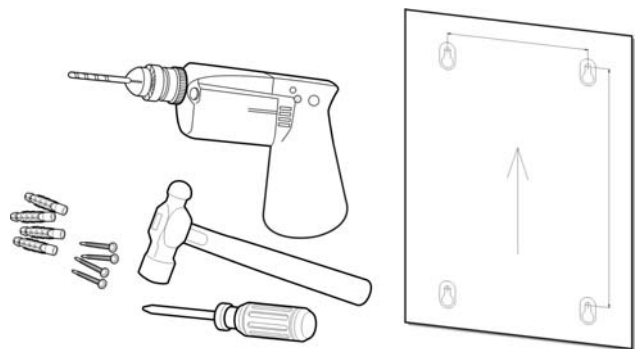
Figure 3.1   Required Tools for the Installation on a Wall

3.1.2 Installing on a Wall

To install the OfficeServ 7030 cabinet with a wall mount template, proceed as follows:

1) Drill holes on the marked position of the Wall Mount Template. Drill holes with a minimum of 33 mm depth and approx. 6 mm width to ease the insertion of the plastic bushings.
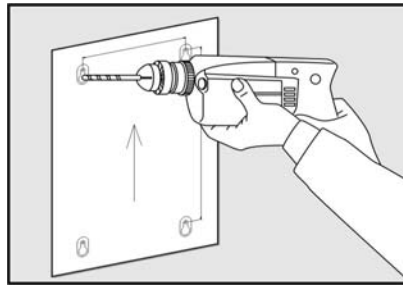
Figure 3.2   Installation on a Wall (1)

2) Fix plastic anchors into the drilled holes with a hammer.
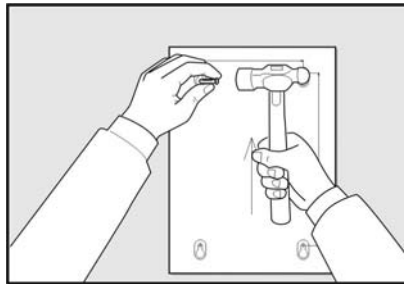
Figure 3.3   Installation on a Wall (2)

3) Align the screw holes of the wall-type bracket to the fixed plastic anchors' positions. Insert the screws to each hole and tighten the screws with a Philips screw driver.
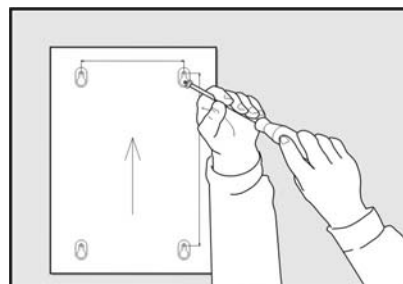
Figure 3.4   Installation on a Wall (3)

4) Align the holes of the OfficeServ 7030 cabinet to the bracket screws, and then pull down the cabinet to secure in place.
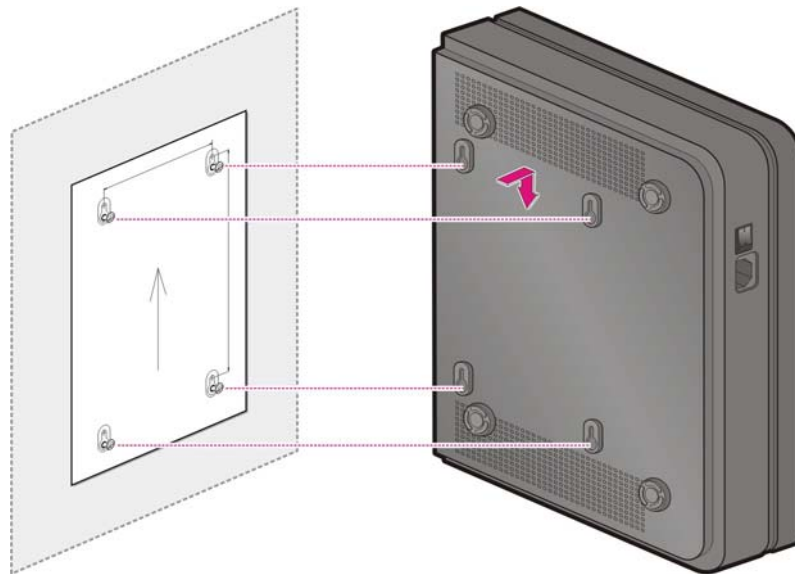
Figure 3.5   Installation on a Wall (4)

3.2 Connecting Basic and Expansion Cabinets

If the OfficeServ 7030 system is a dual cabinet installation, connect the Basic cabinet to the expansion cabinet using the extension cables to allow signal transmissions between the base boards.

1) Three extension cables are needed to connect the Basic cabinet to the expansion cabinet. These are provided as a labeled cable set.

Figure 3.6   Extension cable

2) With an extension cable, connect the basic cabinet's 'Link1' port to the extension cabinet's 'Link1' port.

3) With another extension cable, connect the 'Link2' port to the 'Link2' port.

4) With the third cable, connect the 'Link3' to the 'Link3'.
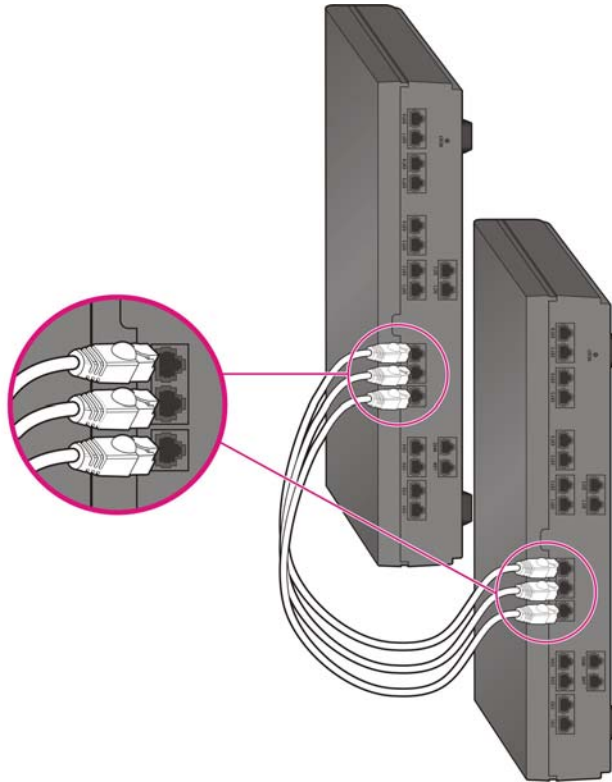
Figure 3.7   Connecting the basic cabinet to the expansion cabinet

---

⚠️ **WARNING**

Caution for using expansion cabinet

Do not place the expansion cabinet directly on top of the basic cabinet. Doing so may cause a system failure due to rising internal heat from the basic cabinet.

⚠️ **CAUTION**

Caution for using extension cable

Check if extension cable is connected during operation. The expansion cabinet may malfunction if extension cable is not connected during operation. In that case, you should connect extension cable again and restart expansion cabinet.

Ensure that the EPM switches and IP address are correct as shown in section 2.4. Incorrect setting may prevent the system from starting.

CHAPTER 4. Connecting the Power

This chapter describes how to connect the power to the OfficeServ 7030 system and how to connect the external UPS.

4.1 Connecting the Power

4.1.1 Cautions when Connecting the Power

When the input power is normally supplied, AC current is supplied to the Power Supply Unit (PSU). If the input power is interrupted, the system can be operated using the external UPS.

When connecting the power to the OfficeServ 7030 system, pay attention to the following criteria:

- The system supports 200~240 V AC power.

- A single AC outlet should be used solely for the system's AC power. Sharing the AC power with other devices can cause static and/or voltage drop, resulting in system malfunction.

- Use a stable power source that can supply continuous AC power; instantaneous power failures may cause malfunctions.

4.1.2 Connecting the Power

Single cabinet configuration

Use the power cable provided with the OfficeServ 7030 system to connect the input power terminal located on the right panel of the basic cabinet to a grounded outlet.
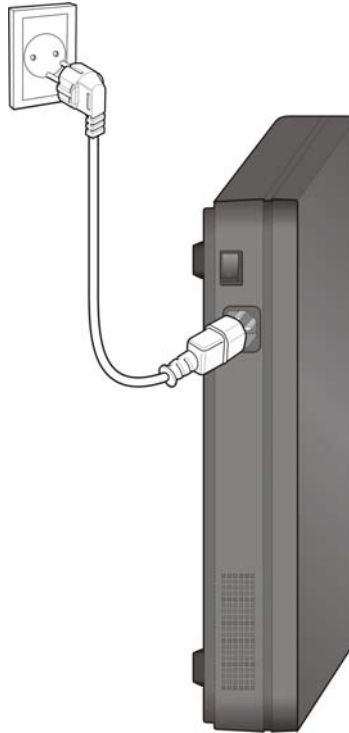
Figure 4.1   Connecting the Power (use of a cabinet)

Basic and Expansion Cabinet Configuration

Connect each input power cable of the cabinet to a grounded outlet.
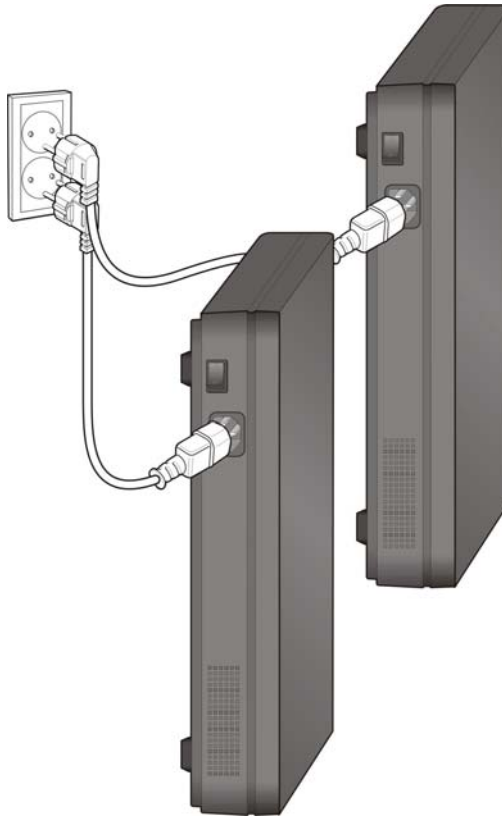
Figure 4.2   Connecting the Power (using Power cable)

4.2 Connecting the External UPS

An optional external Uninterruptible Power Supply (UPS) is required to ensure stable operation of the OfficeServ 7030 system in case of a power failure. The rated capacity of an external UPS is AC 200~240 V per cabinet. The UPS should be connected to each cabinet to guarantee safety.

To connect an external UPS to the OfficeServ 7030 system, proceed as follows:

1) Prepare the UPS as specified in the documentation supplied with the product.

2) Connect each cabinet.
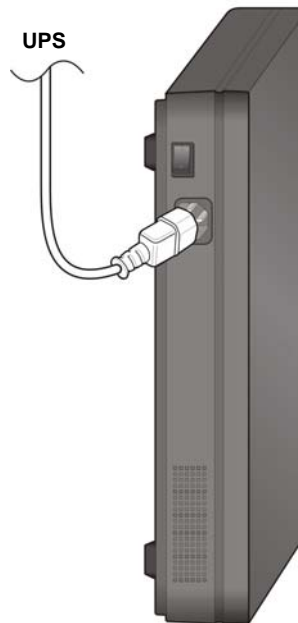
Figure 4.3   Connecting an External UPS

CHAPTER 5. Connecting the C.O. Line

This chapter describes how to connect the C.O. line to the OfficeServ 7030 system after installation.

5.1 Line Conditions

When connecting the C.O. lines, pay attention to the following criteria:

- Use an AWG #24 or AWG #26 cables.

- When wiring the cables in humid areas, remove the moisture before wiring.

- The cables should be handled carefully to prevent any distortions or damages.

- The subscriber lines should be kept indoors if at all possible.

- Do not cable the subscriber lines around any high-voltage power line.

The leak resistance of the C.O. line connected to the OfficeServ 7030 system is as follows:.

Table 5.1   Line condition of the OfficeServ 7030

Line Condition	Leak Resistance
Leak Resistance between Lines	20 kΩ or higher
Leak Resistance Between Grounds	20 kΩ or higher

5.2 Connecting the C.O. Line

This section describes how to connect a common C.O. line (4TM and 2BM)

5.2.1 Cautions When Connecting the C.O. Line

When connecting the C.O. line, pay attention to the following criteria to prevent bodily injuries and system damages:

- Do not connect the C.O. line in extreme weather conditions such as storm and lightning.
- Do not connect the C.O. line in humid areas.

5.2.2 Connecting Common C.O. Line

Use a pair of AWG #24 (or AWG #26) cable to connect a common C.O. line to the terminal pin of a terminal box connected to the OfficeServ 7030 system equipped with a 4TM or 2BM board.

Connecting to the 4TM Board
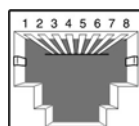
P1 ~P4-Port
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	C.O TIP	C.O RING	-	-	-

Figure 5.1   P1~P4 (RJ-45) Port of the 4TM Board

Connecting to the 2BM Board
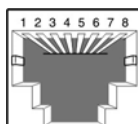
P1, P2 Port
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	TX +	RX +	RX -	TX -	-	-

Figure 5.2   RJ-45 Port (T-Mode only) of the 2BM Board

CHAPTER 6. Connecting the Stations and Additional Equipment

This chapter describes how to connect various stations and additional equipment (analog/digital phones, door phones, door locks etc.) to the OfficeServ 7030 system.

6.1 Connecting the Stations

6.1.1 Cautions when Connecting the Stations

When connecting the stations, pay attention to the following criteria:

- Do not connect the stations in extreme weather conditions such as storm and lightning.
- Do not connect the stations in humid areas.
- Comply with the manual of the station as well as with this document when reconnecting the stations or changing the connections.
- Connect the stations with a pair of #24 AWG or #26 AWG cables.

The maximum distances between the stations and the OfficeServ 7030 system are as follows:

Table 6.1   Distance Between Stations and the System

Installation Distance	Standards
Digital Phone	Maximum 400 m (AWG #24)
Analog Phone	Maximum 1 km (AWG #24)
Door Phone	Maximum 400 m (AWG #24)
SMT-R2000	Maximum 100 m (Ethernet cable)

6.1.2 Connecting Analog Phones

Connect an analog phone to the base board's SLT, or to the 4SM board mounted on the OfficeServ 7030 system.

Connecting to the Base Board's SLT

Connect an analog phone to the ports of the base board's SLT with a pair of AWG #24 or AWG #26 cables.
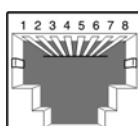
SLT1 and SLT2
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
Function			-	SLI TIP	SLI RING	-	-	-

Figure 6.1   SLT1 (RJ-45) Port of the Base Board

Connecting to the 4SM Board

Connect an analog phone to the port of the 4SM board with a pair of AWG #24 or AWG #26 cables.
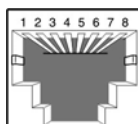
P1~ P4 Port
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI TIP	SLI RING	-		

Figure 6.2   P1~P4(RJ-45) Port of the 4SM Board

6.1.3 Connecting Digital Phones

Connect a digital phone to the base board's 4DM.

Connecting to the 4DM Board

Connect a digital phone to the ports of the base board's 4DM with a pair of AWG #24 or AWG #26 cables.
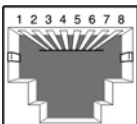
P1~ P4 Port
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
Function			-	DLI TIP	DLI RING	-	-	-

Figure 6.3   P1~P4(RJ-45) Port of the 4DM Board

6.1.4 Connecting IP Phones

An IP phone is a phone that provides calls through the Ethernet LAN. The base board can support up to four MGI channels which enables the use of the IP phones. These ports are enabled by adding a Licence key to the system.

The interface between a digital phone connected to the OfficeServ 7030 system and an IP phone connected to the LAN is as follows.

1) The connection between a digital phone and an IP phone is established/released using the IP address of the LAN connected to the OfficeServ 7030 system.
2) The digital phone connected to the OfficeServ 7030 system converts the analog voice data to PCM voice data and transmits the data to the base board through the 4DM board.
3) The PCM voice data is converted to packet data by the base board and transferred to the IP phone.
4) The IP phone converts the packet voice data to analog voice signals and displays the signals through a handset or speaker.
5) The Voice signals coming from the IP phone are converted to packet data and transmitted to the base board in the same way. The base board converts the packet voice data to PCM voice data and transmits the data to the digital phone through the 4DM board. The digital phone converts and sends the PCM voice data to analog data.

Configure the MMC setting to suit the system before use.
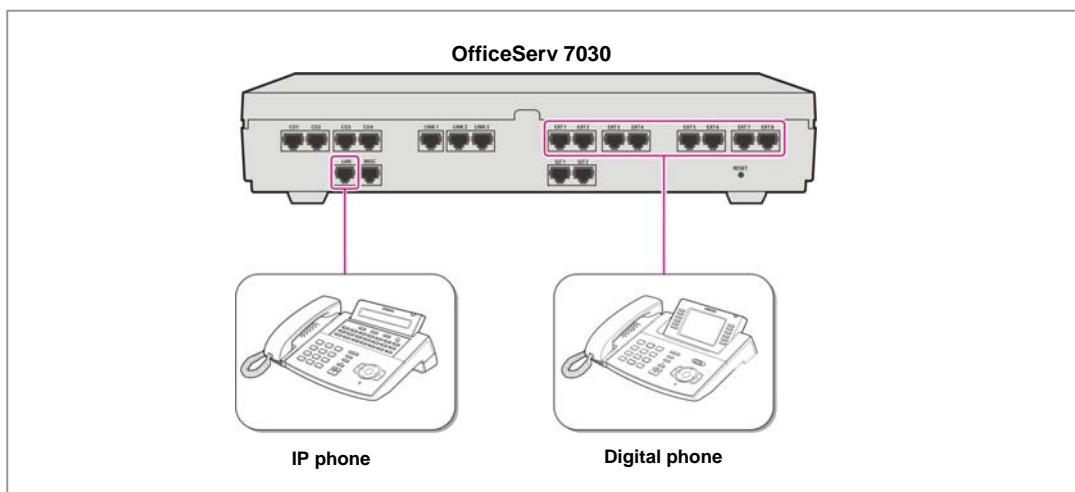
Figure 6.4   IP/Digital Phone Layout

6.1.4.1 Connecting Boards to the Ethernet LAN

4LM/LAN port of the base board can be connected to the Ethernet with an Ethernet cable.

- 4LM Board-Line Ports (P1~P4)
- Base Board-LAN Port
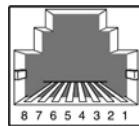
P1~P4 Port
/LAN Port
(RJ-45)

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

Figure 6.5   RJ-45 Port of the Ethernet Connection Board

6.1.5 Connecting to a Door Phone and Door Lock

Connect a door phone and a door lock to the OfficeServ 7030 system with a Door Phone Interface Module (DPIM). Connect a pair of #24 AWG or #26 AWG cables to the LINE port of the DPIM and the ports of the OfficeServ 7030 system's 4DM board.

Connecting to the 4DM Boards
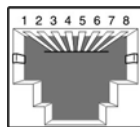
P1~ P4 Port
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI TIP	DLI RING	-	-	-

Figure 6.6   RJ-45 Port of the 4DM Boards (for Door Phone)

1) Connect the Door port of the DPIM and the line port of the DOOR BOX.
2) When using an automatic door lock, connect the Lock port of the DPIM and the door phone contact point to the door lock.

The door lock contact point is designed to control the low-voltage relay and is operated with a 12 VDC, 100 mA current.

	MMC
	MMC 211 is used to assign call numbers to the door phones.
NOTE	

6.1.6 Connecting a Wireless LAN Access Point

The wireless LAN service offered by the OfficeServ 7030 system requires the following equipment:

- SMT-R2000: Wireless LAN Access Point (AP)
- SMT-W5100: Wireless LAN IP phone

Table 6.2   Specification for the Wireless LAN Connection

Item	OfficeServ 7030 System (Basic Cabinet)
Maximum number of users	16
Number of simultaneous users	MMC845 setting

	For information on how to install and use the SMT-R2000 and SMT-W5100, refer to the 'VoWLAN Administration Guide'.
NOTE	

Connect the 4LM board and the SMT-R2000 WAN port with a RJ-45 Ethernet cable (maximum distance:100m).

Note: The SMT-R2000 cannot get power from the 4LM and needs to be connected to an external power source.

6.2 Connecting Additional Equipment

This section describes how to connect optional equipment (Music on Hold (MOH)/Background Music (BGM) sources, external page devices, common bells etc.) to the OfficeServ 7030 system.

6.2.1 Connecting the MOH/BGM Equipment

The OfficeServ 7030 system offers music while on hold.
The system provides internal tone/music and external music sources from the C.O. or extension line music sources. The selection of internal/external music sources is performed through MMC 861. One external music source is provided while on hold; the external music source is connected to the MISC port.
A pair of MOH/BGM source lines is connected to Pin4 and Pin5 of the base board's MISC port.

The user's MOH/BGM source
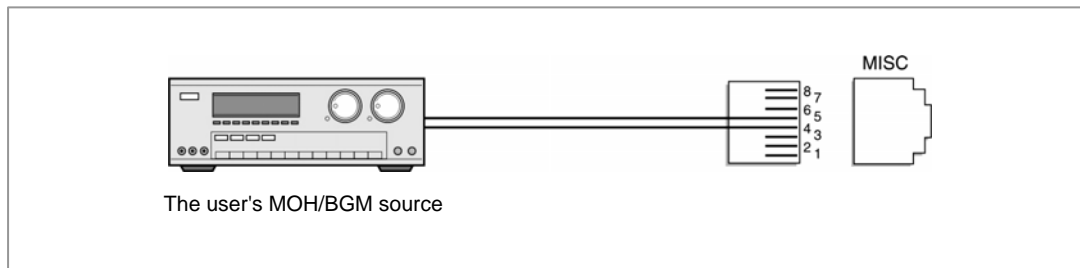
Figure 6.7   Connecting MOH/BGM Sources

> **MMC**
> Select music sources for the C.O. lines through MMC 408; select music sources for extensions through MMC 308. To use the external music source, select this option through MMC 861 (default is internal).
>
> **NOTE**

6.2.2 Connecting External/Additional Page Equipment

Instead of an internal speaker, external broadcasting equipment (amps or speakers) and additional equipment that can broadcast page/ring signals outside the building can be connected to the OfficeServ 7030 system. Connect the external/additional page equipment to the MISC port of the base board mounted on the OfficeServ 7030 system. The power cord of the external/additional page equipment should be connected separately.

The OfficeServ 7030 system supports several channels for external broadcasting and one dry contact. If a pair of External Page Equipment lines is connected to Pin3 and Pin6, the Dry Contact 1 line is connected to Pin1 and Pin2, and the Dry Contact 2 line is connected to Pin7 and Pin8 of the base board's MISC port.
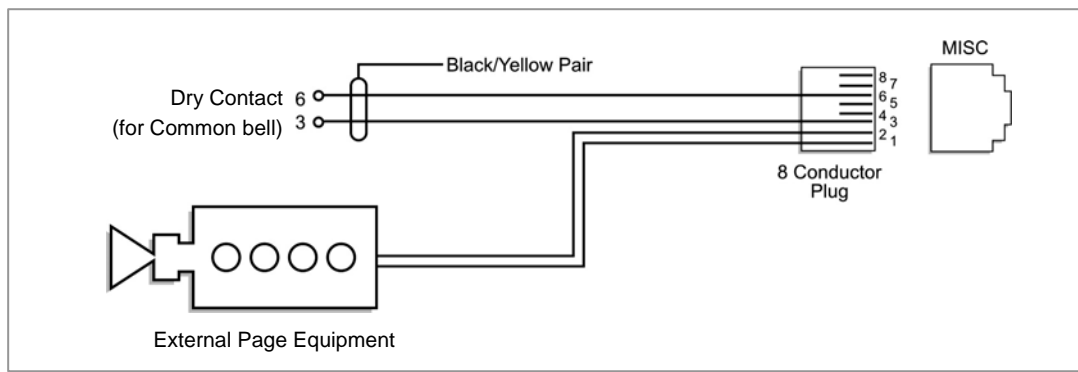
Figure 6.8   Connecting External/Additional Page Equipment

> **Dry Contact**
>
> A Dry Contact is a switch that can establish or release a power/line connection of an external equipment.

6.2.3 Connecting Common Bells

A Common Bell is a type of ring service. When a ring is received by an extension of a group, all extensions of the given group also receive the ring.

To use the common bell, connect the common bell to the MISC port mounted on the OfficeServ system. The OfficeServ 7030 system supports only one dry contact for the common bell.
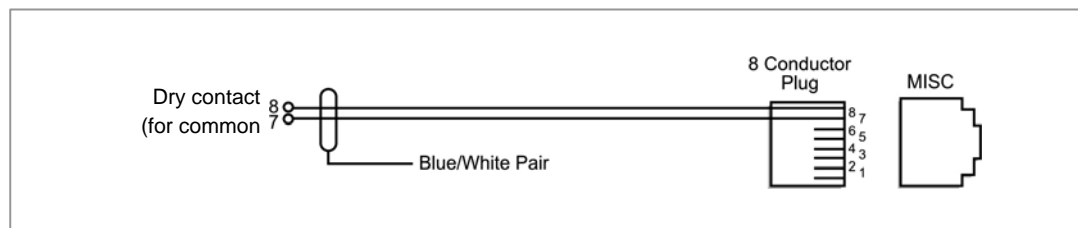
Figure 6.9   Connecting Common Bells

6.2.4 Connecting Installation Tool

The system maintenance software is installed on a PC for programming. The Installation Tool is an application that provides various functions necessary for system maintenance. You can use the Installation Tool when you need to install a new system component or change a system component or modify the database.

Below are the specifications required for the PC for programming where the Installation Tool is to be installed.

Table 6.3   Specifications for the PC for Programming

Item		Specification
PC	CPU	Pentium 4 or faster
	Main Memory	512 MBytes or more
	HDD Drive	At least 30 MBytes of free space
	OS	Microsoft Windows XP or newer
Modem		1,200~115,200 baud rate

6.2.4.1 Connecting a PC for Programming Using a LAN Port

You can connect a PC where the Installation Tool is installed to the OfficeServ 7030 system using a LAN port. The Installation Tool allows you to manage the OfficeServ 7030 system remotely. This section describes how to connect a PC for programming to the OfficeServ 7400 system and how to configure the software to use that PC.

If a LAN is configured in your company, connect it to the LAN port of the Base board and the PC for programming to it. If no LAN is configured in your company, connect the PC for programming to the LAN port of the 4LM/Base board.
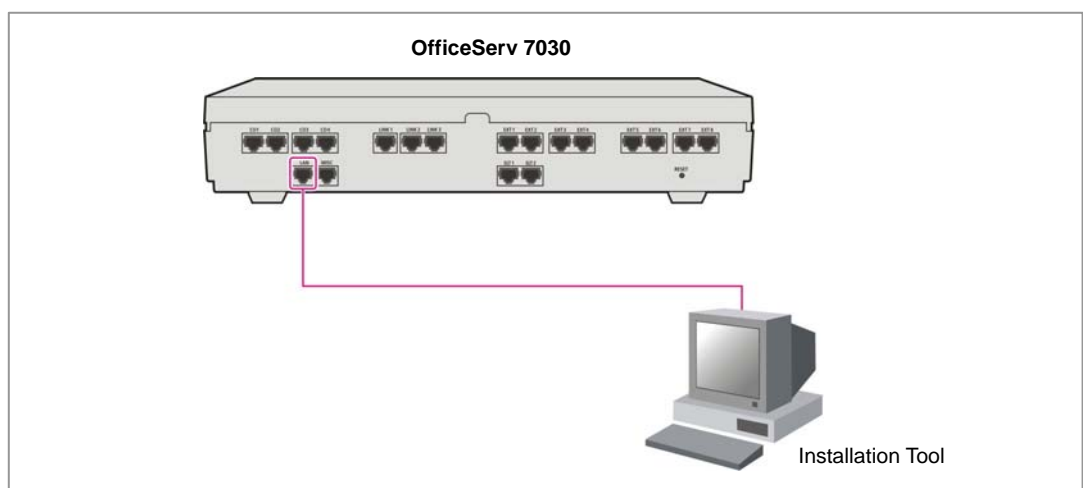
Figure 6.10   Connecting Installation Tool

Below are the steps for connecting a PC for programming to the system.

1) Configure the network parameters using MMC 830.
2) Configure the Installation tool parameters.

6.2.5 Configuring the network parameters using the MMC 830

This step configures the network parameters of the OfficeServ 7030 system. Consult your network administrator for the network parameter values. (See also section 2.4)

1) Set the IP addresses of the OfficeServ 7030 system. (Master and Slave)
2) Set the subnet mask of the OfficeServ 7030 system.
3) Set the gateway IP address of the OfficeServ 7030 system.
4) Reset the board.

⚠️ **CAUTION**

Resetting the Board

You have to reset the board to apply the new settings. If the board is not reset correctly, it may cause product malfunction.

6.2.6 Configuring the Installation Tool parameters

1) Run the Installation Tool.
2) On the main screen of the Installation Tool, select **[System]** → **[Link Control]** or click the Port Basic icon.
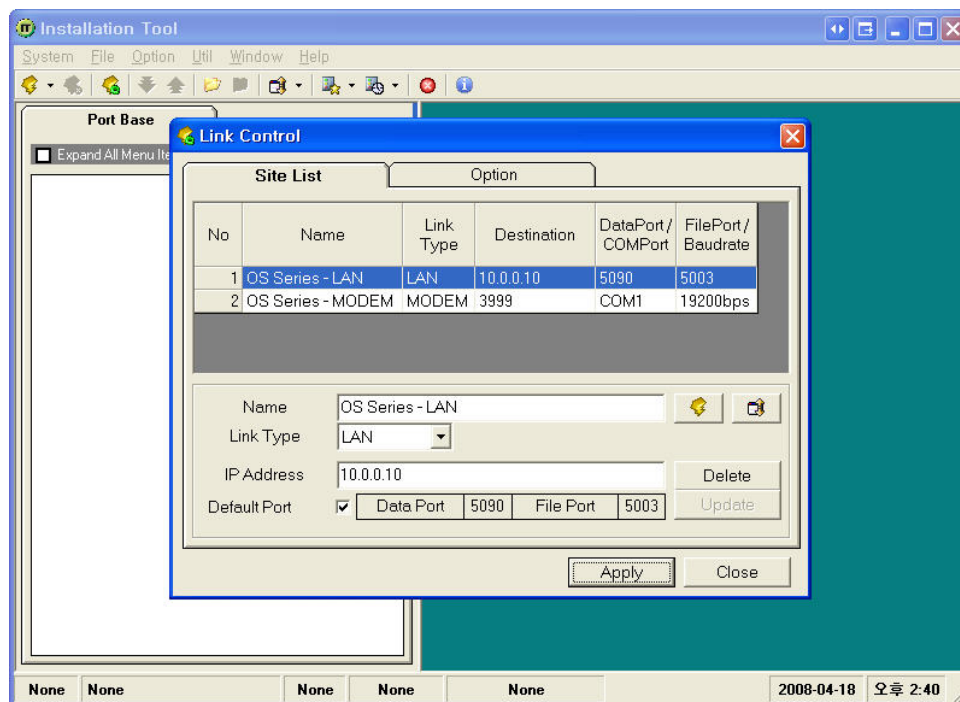

Figure 6.11   Installation Tool

3) When the <Link Control> is displayed, enter the name of the system in the **[Name]** field.

4) If the Link Type is LAN, enter the IP address of the OfficeServ 7030 system in the **[IP Address]** field.

If the Link Type is MODEM, enter the internal modem number of the OfficeServ 7030 system in the **[Telephone]** field.

6.2.7 Connecting Web Management

The OfficeServ 7030 system is equipped with the Web Management web server, and supports remote access through the network. The system administrator can change the system setting by accessing the Web Management screens with an internet browser. This section describes how to access the OfficeServ 7030 system.

To use within an in-house network, connect LAN to the LAN port of the base board and try accessing from a client PC.

Setting the Network parameter through MMC830

Set the network parameter of the OfficeServ 7030 system. The required setting for this address will be determined by the network administrator. (see also section 2.4)

1) Set the IP addresses of the OfficeServ 7030 system. (Master and Slave)
2) Set the subnet mask of the OfficeServ 7030 system.
3) Set the gateway address of the OfficeServ 7030 system.
4) Reset the board.

CHECK	**Resetting the Board** To apply the new setting, the board must be reset.

NOTE	**Default IP Address** The default IP addresses for a new System are as follows Basic Cabinet: 10.0.2.10 Expansion Cabinet: 10.0.2.12

Getting access to the Web Management from a client PC

1) Execute your browser. (Internet Explorer 5.5 or higher)

2) Access the Web Management through the LAN IP address.
   Access address: https://[System LAN IP Address]
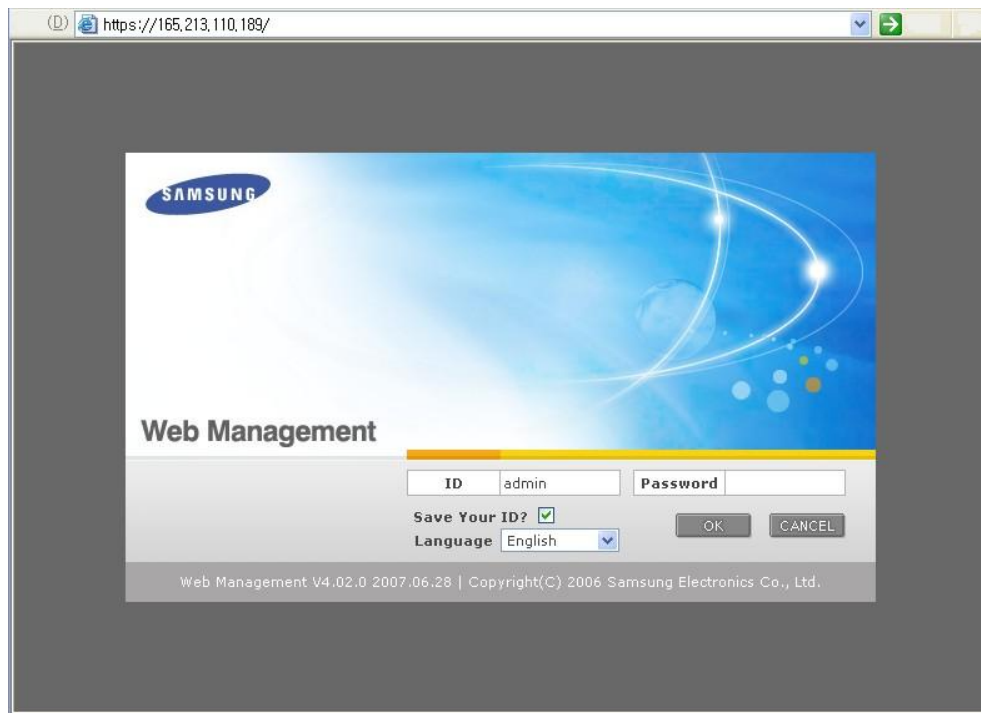
Figure 6.12   Web Management Initial Screen

3) Enter your ID and password on the Web Management initial screen, and click the **[OK]** button to log in.

Note:

The default ID is admin
The default password is samsung

6.2.8 Connecting the SMDR

The Station Message Detail Recording (SMDR) computer is used for recording call information, calculating phone bills and/or displaying various analysis data based on the call data provided by the system.

The SMDR computer can be connected via the LAN port of the 4LM board or the base board built in the OfficeServ 7030 system.

The SMDR system specification is as follows:

Table 6.4   Specification of the SMDR System

Item	Specification
Platform	IBM PC
CPU	Pentium 4 or higher
Operating System	Windows XP or later
Main Memory	512 MByte or more

To use within the company's LAN network, connect LAN to the LAN port of the Base board, and connect a SMDR computer to the LAN.
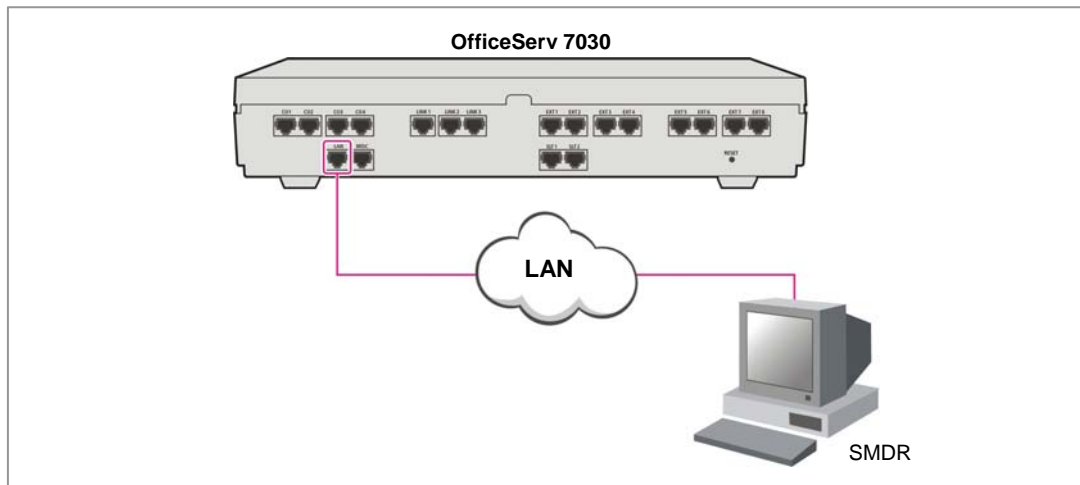
Figure 6.13   Connecting the SMDR

NOTE	**MMC**
	Refer to the programming manual for details of how to configure the system for SMDR and/or Printer operation.

6.2.9 Connecting Printers

The OfficeServ 7030 system can be connected to printers. The system can print various call information or event information created by the system in real time whenever an event occurs.

To use within the company's LAN network, connect LAN to the LAN port of the Base board, or the 4LM if fitted, and connect a printer to the LAN.

Figure 6.14   Connecting Printers

	MMC
NOTE	Refer to the programming manual for details of how to configure the system for SMDR and/or Printer operation.

CHAPTER 7.   Starting the System

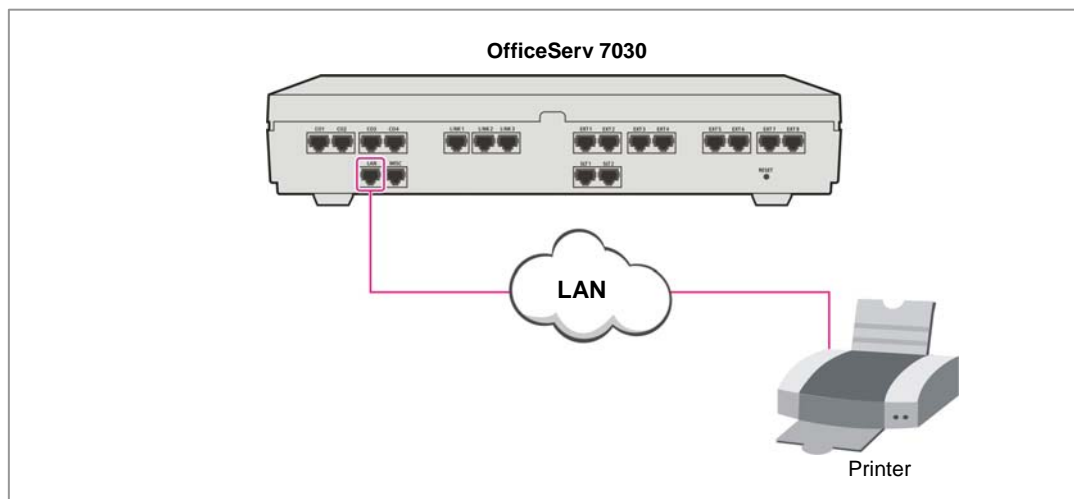This chapter describes the items to check before starting the OfficeServ 7030 system, as well as the procedure for starting the system and the procedure for testing whether the system is operating normally after startup.

7.1 Pre-Check

This section describes the items to check before starting the OfficeServ 7030 system.

7.1.1 Environment

- Temperature
  Check if the room temperature is between 0°C and 30°C. If the room temperature is above or below the operational temperature, install a heating/cooling device to maintain the operational temperature.

- Humidity
  Check if the humidity of the room is between 10% and 90%. Take special caution since the humidity affects the electric components and the connectors of the system.

- Direct Sunlight and Dust
  The room where the OfficeServ 7030 system is installed should be protected from direct sunlight and should have ventilation systems to prevent the system from malfunctioning due to dusts.

7.1.2 Safety Conditions

The building where the OfficeServ 7030 system is installed should have lightning rods and groundings to protect the system from lightning and electric leakage.

- Check if the OfficeServ 7030 system is not inclined and is in level position.

- Do not place devices that may cause electromagnetic interference near the system.

- Place a fire extinguisher near the system. Since spring coolers can seriously damage the system, use extinguishers such as Halor 1301 and Carbon Dioxide.

- Ensure that the input power of the OfficeServ 7030 system is AC 200~240 V. Do not share the power with other electric devices, such as motors and compressors.

7.2 **Starting the System**

To start the OfficeServ 7030 system, proceed as follows:

1) Check if the boards and cables are properly mounted and connected to the OfficeServ 7030 cabinet.
2) Turn on the power of the OfficeServ 7030 basic cabinet, and turn on the power of the expansion cabinet.
3) Check the LEDs from the base boards mounted on the OfficeServ 7030 cabinet.
   - The RUN LED of the base board turns green and the MEM LED flashes when the system starts the booting process normally.
   - Once the booting is completed, the RUN LED of the base board flashes green, and the MEM LED stops flashing
4) The MEM LED of the base board flashes green when the Flash Memory is accessed.

7.3 **Numbering Extensions and C.O. Lines**

Once the OfficeServ 7030 system is booted, the base board verifies the boards mounted in each slot and saves this information as the default configuration of the system.

The C.O. line numbers from 701 are sequentially assigned to the C.O. line board mounted on Slot 4 of the basic cabinet, and the subsequent numbers are respectively assigned to the expansion cabinet. This numbering process continues until the C.O. line numbers are assigned to all C.O. lines
The extension numbers from 201 are sequentially assigned to the extension board mounted on Slot 1 of the basic cabinet, and the subsequent numbers are respectively assigned to the next extension board of the next slot. This numbering process continues until the extension numbers are assigned to all extensions. However, only the numbers from 201 to 349 are assigned when using 3 digits.

By default, the first port of the first 4DM board is assigned to the attendant group. All C.O. lines will ring this attendant extension unless the default value is changed. Thus, a phone with an LCD panel should be connected to the first port of the first 4DM board.

The numbers between 500~549 are assigned to extension groups.

The numbers of C.O. lines, extensions, or extension groups can be changed using the MMC 724 program.

7.4 Checking the System's Operation

After starting the OfficeServ 7030 system, check if the system is operating normally.

Check if the basic functions of the OfficeServ 7030 system (Station Call, Station Camp-On, C.O. Line Call, C.O. Line Camp-On etc.) are properly executed.

7.4.1 Station Call Function

Follow the procedure below and check if the calls between the stations are enabled:

1) Lift the handset of a station.
   Verify the intercom dial tone.
2) Press an extension number.
   Check if the dial tone stops.
3) Press all extension numbers.
   Verify the ring back tone.
4) Once the recipient answers the call, check the call status.
5) Hang up the phone and call a busy station.
   Verify the busy tone.

7.4.2 Station Camp-On Function

If a caller dials a number and the recipient is busy, this function automatically connects the recipient and the caller right after the recipient hangs up the call.

Follow the procedure below and check the Station Camp-On function:

1) Lift the handset of the test phone and dial a busy station.
   Verify the busy tone.
2) Upon checking the dial tone, press the hook flash button.
   Check if the busy tone stops.
3) Press the reservation code.
   Verify the confirmation tone.
4) Lift the handset of the test phone and dial a busy station.
   Check if the test phone rings.
5) Lift the handset of the test phone.
   Check if the ring stops. Confirm the ring-back tone.
   Check if the other phone rings.
6) Lift the handset of the other phone.
   Check if the other phone stops ringing, if the ring-back tone of the test phone stops, and if the parties are normally connected.

7.4.3 C.O. Line Call Function

Follow the procedure below and check if the external calls are connected normally.

1) Lift the handset of the test phone.
   Verify the intercom dial tone.
2) Press the C.O. line call code.
   Verify the C.O. line dial tone.
3) Check if an error tone is activated on the phones that do not support C.O. line calls.
4) Press an external number.
   Verify the ring back tone.
5) Once the call is connected, check the call status.

7.4.4 C.O. Line Camp-On Function

If a caller presses a C.O. line code to make an external call and all C.O. lines are busy, this function reserves a C.O. line and notifies the caller if the C.O. line becomes available.

Follow the procedure below and check the C.O. Line Camp-On function.

1) Lift the handset of the test phone and press a C.O. line code.
   Verify the C.O. line dial tone.
2) Check if a busy tone rings when all C.O. lines are busy.
3) Upon verifying the busy tone, press the hook flash switch of the test phone.
   Check if the busy tone stops.
4) Press the code number of the C.O. line Camp-On function.
   Verify the confirmation tone.
5) Hang up the test phone and make the C.O. line idle.
   Check if the test phone rings and if the C.O. line becomes busy.
6) Lift the handset of the test phone.
   Check if the test phone stops ringing. Verify the intercom dial tone and the C.O. line dial tone.

ABBREVIATION

2

2BM	2 port BRI Module

4

4DM	4 port DLI Module
4LM	4 port LAN Module
4SM	4 port SLI Module
4TM	4 port Trunk Module

A

AC	Alternating Current
AFT	Automatic Function Test
AP	Access Point
AWG	American Wire Gauge

B

BGM	Background Music

D

DC	Direct Current
DLI	Digital Line Interface
DPIM	Door Phone Interface Module
DSL	Digital Subscriber Line

G

GND	Ground

I

IP	Internet Protocol

L

LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode

M

MOH	Music on Hold
MGI	

P

PCM	Pulse Code Modulation
PSU	Power Supply Unit

S

SLI	Single Line Interface
SMDR	Station Message Detail Recording

T

TEPRI2	T1E1PRI
TRK	Trunk
UTP	Unshielded Twisted Pair

U

UPS	Uninterruptible Power Supply
UTP	Unshielded Twisted Pair

OfficeServ 7030

Installation Manual

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