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OfficeServ 7200

Installation Manual

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EU Declaration of Conformity (RTTE)

Samsung Electronics Co., Ltd.

259 Gongdan-Dong, Gumi-City Kyungbuk, Korea, 730-030

(factory name, address)

declare under our sole responsibility that the product

Digital Keyphone System model "OfficeServ 7200"

to which this declaration relates is in conformity with

RTTE Directive 1999/5/EC (Annex II)
Low Voltage Directive 73/23/EEC:93/68/EEC
EMC Directive 89/336/EEC:92/31/EEC

By application of the following standards

TBR3 November 1995 as amended by TBR3 A1 December 1997
EN55022: 1998 +A1:2000+A2:2003
EN55024: 1998 +A1:2001+A2:2003
EN61000-3-2: 2000
EN61000-3-3: 1995+A1:2001
EN60950-1: 2001 and A11 (IEC60950-1: 2001)

(Manufacturer)

Samsung Electronics Co., Ltd
259, Gongdan-Dong, Gumi-City
Kyungbuk, Korea, 730-030

2005-08-01 **TE Jang** **Tae-eok Jang/General Manager**

....

(place and date of issue) (name and signature of authorized person)

(Representative in the EU)

Samsung Electronics Euro QA Lab.
Blackbushe Business Park
Saxony Way, Yateley, Hampshire
GU46 6GG, UK

2005-08-01 **Peter Park** **Peter Park/Manager**

....

(place and date of issue) (name and signature of authorized person)

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INTRODUCTION

Purpose

This manual provides information (installing cabinets, mounting and replacing boards, connecting external batteries, power, C.O. lines, stations and additional equipment, starting the system) required for installing the Samsung OfficeServ 7200.

Audience

This manual is intended for personnel who install the Samsung OfficeServ 7200.

Document Content and Organization

This manual consists of eight Chapters and an abbreviation as follows:

CHAPTER 1. Before Installing

Describes items to check when inspecting the installation site and the grounding and power conditions before installing the OfficeServ 7200.
This chapter also describes the items included in the OfficeServ 7200 package and the installation procedure.

CHAPTER 2. Installing Cabinets

Describes how to install an OfficeServ 7200 cabinet on the ground, inside rack or on a wall, depending on the installation environment, and how to connect the grounding wire.

CHAPTER 3. Mounting and Replacing Boards

Describes how to mount and replace various boards of the OfficeServ 7200.

CHAPTER 4. Connecting External Batteries

Describes how to connect external batteries to the OfficeServ 7200.

CHAPTER 5. Connecting Power

Describes how to connect power to the OfficeServ 7200.

CHAPTER 6. Connecting C.O. Lines

Describes how to connect C.O. lines to the OfficeServ 7200.

CHAPTER 7. Connecting Stations and Additional Equipment

Describes how to connect various stations and additional equipment, such as analog/digital phones, door phones and door locks, to the OfficeServ 7200.

CHAPTER 8. Starting the System

Describes items to check before starting the OfficeServ 7200, the procedure for starting the system, and the procedure for testing whether the system is normally operating after startup.

ABBREVIATION

Introduces the acronyms and their full terms.

Conventions

The following special paragraphs are used in this manual to point out information that must be read. This information may be set-off from the surrounding text, but is always preceded by a bold title in capital letters.

WARNING

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

CAUTION

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

CHECKPOINT

Provides the operator with checkpoints for stable system operation.

NOTE

Indicates additional information as a reference.

Reference

OfficeServ 7200 System Description

This guide introduces the Samsung OfficeServ 7200 and describes the hardware configuration, specifications, and functions of the OfficeServ 7200, which are required for understanding the OfficeServ 7200.

OfficeServ 7200 Service Manual

Describes the programming for the system overview, specification, hardware circuit configuration and feature, troubleshooting, maintenance.

OfficeServ 7200 Data Server User Guide

Describes the data server, which is the OfficeServ 7200 application software and describes the installation and operation procedure.

OfficeServ 7200 Data Server Operation Manual

Describes to set the data server according to the OfficeServ 7200 function.

OfficeServ 7000 series Call Server Programming Manual

Describes programming methods for the OfficeServ 7000 series systems.

Installation Tool User Guide

Describes the Installation Tool which is MMC programming tool for PC.

Revision History

EDITION	DATE OF ISSUE	REMARKS
00	12. 2003.	Original
01	05. 2005.	- Modifying the brand name (Before: OfficeServ SME Installation Guide, After: OfficeServ 7200 Installation Manual) - Modifying edit format (Deleting ED at page header) - Modifying cover page design and overall edit format and improving sentence expression - Introduction: Modifying the related documents **Chapter 1**: Change of power supply standard, change of package product, addition of external rectifier. **Chapter 2**: Changed method of Installing cabinets on the wall, additional update of grounding connection **Chapter 3**: Change of jumper setting for interface board, change of cabinet configuration and specification, WIM board correction, additional update for LIM-P board, update for connecting Power Fail Transfer **Chapter 4**: Additional update for connecting external rectifier **Chapter 6**: Additional update for C.O line connection **Chapter 7**: Changed function for RJ-45 pin for TEPRI, 16SLI, 8HYB, and 16DLI board, change of connection diagram of IP phone, change of wireless LAN equipment connection, additional update of terminal connection **Chapter 8**: Additional checking update for fan operation Addition of Abbreviation
02	11. 2008.	- Changed the name of the LIM-P board to ‘PLIM’. - Boards added: PLIM2, 8TRK2, 16TRK, TEPRIa, 4HTRK, MGI16, 8SLI2, 8COMBO2, GPLIM, GPLIMT, GSIM, GSIMT - 4DSL, WBS24, 4WLI, WIP-5000M are deleted. - Added SMT-R2000 and SMT-W5100 - Added MP20
03	11. 2009.	- Added MP20S, UNI, 2BRM, 4TRM , 4DLM, 4SL2, 4SLM, 4SWM, and OAS - Deleted MCP, TEPRI and MGI due to product discontinuity
04	05. 2010.	- Deleted 8SLI, 16DLI, 16SLI, 8HYB, 8HYB2, 8COMBO, GPLIM, GSIM, 4SWM, MFM, RCM due to product discontinuity - Added CNF24, IRM

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

Cautions for grounding

- Do not connect the grounding wire of the OfficeServ 7200 to a power conduit of a building.
- The standards for power and grounding should comply with the country standard and the pertinent work should be conducted according to the country standard.
- External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.
- Plug the AC power cable out before connecting a ground wire. If not, it may cause deadly risk.
- Connect the OfficeServ 7200 to the outlet with the safety ground.
- The GND in the back of the OfficeServ 7200 must be grounded.

External Grounding

External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.
The ground line should be a copper line with a cross section of 4.0 mm^2 or larger.
Do not use a general AC grounding. If you use a general AC grounding, the system may have an abnormal symptom due to noise generated from other devices which use the AC power grounding.

Connecting the trunk line

Do not connect the office circuit lines in lightening day or during rainstorm. Momentary high-voltage may cause bodily damage or system damage.

AC power connection inhibited

Use only the AC power of the system in the AC outlet. If the AC power is used together with other equipment, a system failure or a fire may occurs because of noise or voltage drop.

CAUTION

Caution for Mounting a Board

This product uses an air flow method by a forced air cooling with a fan. Therefore, an empty slot may have a bad influence on the system operation by lowering cooling efficiency. To avoid this problem, stiffeners should be mounted on all the slots during the system installation.

Connecting external batteries

Do not connect external AC power to the system before completing the connection between batteries and the system. If so, it may cause electric shock Check the specified polarity (+ or -) to connect external batteries.

Connecting a Rectifier

Do not connect the battery for power failure protection to a PoE connecting terminal.

Use of External Rectifiers against Power Failure

Since an external rectifier for power failure operation is used along with PoE and the system, the capacity of the external rectifier should be bigger than 20 A. When the rectifier is used for power failure operation, restrictions occur in the terminal connected to PoE. For more detailed information, refer to ‘Cautions for Connecting Stations’.

Connecting a Power Line

When connecting an AC power line to the system, the Ferrite-core enclosed in the package should be attached to that power line in advance to minimize the Electro-Magnetic Compatibility (EMC) effect.

Metal Accessories Prohibited

Do not wear metal accessories such as rings and watches to prevent electrical damages to the system.

Non-allowed AC Power Connection to Other Equipment

Do not use the AC power of the OfficeServ 7200 or the DC power of an external battery to operate other equipment.

Caution for Installation

Only a trained service staff can install the OfficeServ 7200.
The equipment intended only for installation in a RESTRICTED ACCESS LOCATION.

Check the power when mounting or dismounting boards

Mount/Dismount a board to/from the slot of the cabinet after powering off the cabinet. If not, it may cause damage in the board or a fire.

Mounting the GSIMT board

Only one GSIMT board can be mounted per the cabinet. If you mount boards more than the capacity limit, it may cause malfunction of the PSU due to overload.

Mounting the GPLIMT Board

Only one GPLIMT board can be mounted per the cabinet. When using an external rectifier, up to two boards can be mounted. If you mount boards more than the capacity limit, it may cause malfunction of the PSU due to overload.

Mounting the OAS in 16 channels slot

If the OAS is mounted on one of 16 channels slot, no board can be mounted on the other slot. If any board is mounted on the other slot, the board will not work. (If the slot 1 is occupied with the OAS, the slot 2 should be empty. And if the slot 2 is occupied with the OAS, the slot 1 should be empty.)

Removing Cables

Replace a board after removing all cables connected to the board.

Resetting the Board

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

AC Power

Use the stable power for the AC power of the system.
Temporary power failure caused by the unstable power supply may cause system fault or battery failure.

Mounting or Dismounting a Board

Before replacing a board which can be mounted or dismounted while the system is operating, make sure to disconnect the cables connected at the front of the system. Make sure to mount a new board into the slot 10 seconds after dismounting the old one.

Caution for PoE Power Supplying When Operating the System with Battery Power due to a Power Failure

When the system is operated with an external battery power due to a power failure, the battery voltage drops gradually as time goes on.
If it drops below -45 V, the PoE power supplied to IP phones become blocked. But other cards operate normally until the battery power drops to -42 V.

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LIST OF TABLES

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CHAPTER 1. Before Installing

This chapter describes items to check when inspecting the installation site and the grounding and power conditions before installing the OfficeServ 7200.
This chapter also describes the items included in the OfficeServ 7200 package and the installation procedure.

1.1 Location Conditions

Select a location that satisfies the following conditions for safety, temperature and humidity:

1.1.1 Safety Conditions

- The OfficeServ 7200 should not be installed near materials that can cause a fire, such as explosive gas and inflammables. The OfficeServ 7200 should not be near equipments that generate electromagnetic waves, such as monitors or copying machines.
- The installation location should be convenient for distributing trunk lines and extension lines, for connecting power and grounding wires, and for maintenance and repair.
- The OfficeServ 7200 should not be installed in aisles or passageways that are populated or used for moving equipment.
- Always maintain cleanliness to prevent dust from damaging the board-connecting part of the cabinet.
- Before installing the OfficeServ 7200, check items such as the electrical wiring status, grounding status, voltage and frequency.

1.1.2 Temperature/Humidity Conditions

The conditions for temperature and humidity are as follows:

- Operation temperature: 0~45 ℃
- Storage temperature: -10~+50 ℃
- Humidity: 10~90 %

The system should be maintained in a cool area with no direct sunlight, and ventilators should be installed to remove dust.

1.2 Grounding Conditions

The following cautions should be taken when grounding the OfficeServ 7200:

- The grounding wire of the OfficeServ 7200 should be grounded to the earth using a proper material.
- The flow of electric current between the grounding wire of the power plug and the exposed metal surface of the system should be satisfactory.
- When connecting grounding of external additional equipments to the grounding of the system, the groundings should be connected through a single connection point.

Cautions for Grounding

- Do not connect the grounding wire of the OfficeServ 7200 to a power conduit of a building.
- The standards for power and grounding should comply with the country standard and the pertinent work should be conducted according to the country standard.
- External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.
- Unplug the AC power code before connecting the ground line. Failure to do so may cause bodily damage.
- OfficeServ 7200 should be connected to a wall outlet with a protective ground.
- The GND in the back of the OfficeServ 7200 should be grounded.

1.3 Power Conditions

The power supply unit of the OfficeServ 7200 receives AC input power or battery power, and supplies -48 V, -5 V, +3.3 V, +5 V, +12 V, and -54 V (for backup) to the system cabinet. The rating is as follows.

- RATING: AC 220~240 V, 6 A; 50/60 Hz or DC48 V 3 A
- RATING: AC100~120 V, 6 A; 50/60 Hz or DC48 V 3 A

Table 1.1 Power Specifications

Power Supply Unit (PSU)		Specification
PSU	Input power	AC 220~240 V (Other country) AC100~120 V (USA)
	Output power	- DC - 48 V, 2.2 A - DC -5 V, 1.0 A - DC +3.3 V, 10 A - DC +5 V, 8.0 A - DC +12 V, 0.4 A - DC -54 V, 0.4 A (for backup)
External rectifier (OfficeServ 7150)	Input power	AC 110~220 V (Free Volt)
	Output power	DC -54 V, 15 A (Installed 2 Power unit, USA) DC -54 V, 20 A (Installed 2 Power unit, Other country)

1.4 Checking the Package

The list of items included in the OfficeServ 7200 package is as follows.

Table 1.2 Packages

Category	Name	Quantity	Remark
Basic Chassis	Basic Chassis	1	-
	Ringer	1	Option
Installation Materials	Battery Cable	1	-
	PFC	1	Only Europe
	Power Cable	1	Option
	FERRITE -CORE	2	-
Items for 19-inch Rack Installation	Bracket for Chassis	1	Option
	Screw for Chassis	3	Option
	Bracket for Rack	2	Option
	Screw for Rack	6	Option
	Other clamp Screws	2	Option
Items for Wall Mount Installation	Wall bracket	1	-
	Plastic Anchor	4	-
	Cross Screw	4	-
	Mount Lock Screw	4	-
Others	Blank stiffener	1	-

NOTE

UTP cable types

Available UTP cables are straight-through UTP cable and Crossover UTP cable. The straight-through UTP cable is used for connecting the LIM/PLIM module of the OfficeServ 7200 to other modules such as MP20/MP20S, MGI16, and WIM. The Crossover UTP cable is used only to connect between LIM/PLIM modules.

NOTE

Use of Ferrite-core

The Ferrite-core is used in system power line and MP20/MP20S LAN cable to minimize the Electro-Magnetic Compatibility (EMC) effect in the system.

CHAPTER 2. Installing Cabinets

This chapter describes how to install an OfficeServ 7200 cabinet on the floor, inside rack or on a wall depending on the installation environment.

2.1 Procedure for the System Installation

The procedure of system installation is as follows. (Refer to ‘Figure 3.1 Front Panel Configuration’)

1) Install the OfficeServ 7200 cabinet on the floor, inside rack or on the wall depending on the installation environment.
2) Earth to the ground lug behind the basic cabinet.
3) Put the MP20/MP20S board into the slot 0 of the basic cabinet. If there is an expansion cabinet, mount the LCP board into the slot 0 of the expansion cabinet.
4) Mount interface boards into the universal slots (slot 1 through slot 5).
5) Connect an external battery with proper capacity.
6) Connect AC 220~240 V input power.

2.2 Selecting Installation Method

The OfficeServ 7200 cabinet can be installed on the floor, inside a 19-inch rack or on a wall depending on the number of cabinets and environment of the installation area.

Caution for Installation

Only a trained service staff can install the OfficeServ 7200.
The equipment intended only for installation in a RESTRICTED ACCESS LOCATION.

2.3 Installing in a Rack

This section describes how to install the OfficeServ 7200 cabinet inside a 19-inch rack.

2.3.1 Cautions for Installation

Take the following cautions when installing the OfficeServ 7200 cabinet inside a rack:

- The 19-inch rack should be a standard electric equipment rack.
- When using an enclosed-type rack, check if the rack is properly ventilated. Vents should be equipped on the side of the rack and fans should be attached to ventilate cool air into the rack.
- Take special caution with an enclosed-type rack that has vents on top of the rack since hot air coming out of the vent may enter the intake vent of a system installed above the rack.
- When using an open rack, do not block the entrance of a port or fan of the OfficeServ 7200.

2.3.2 Required Tools

- A middle-sized cross screwdriver
- A bracket and three screws for attaching cabinet
- Two brackets and six screws for attaching rack
- Two screws for fastening

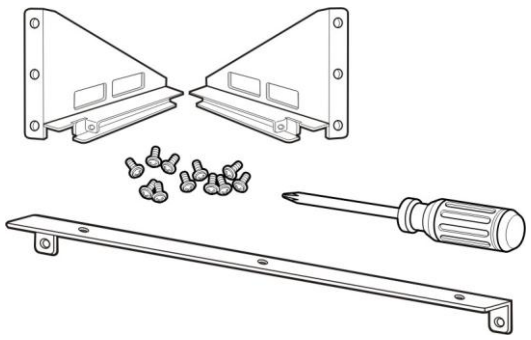

Figure 2.1 Tools Required for Rack Installation

2.3.3 Installing in a Rack

The procedure for installing the OfficeServ 7200 cabinet inside a 19-inch rack is as follows:

1) Attach the cabinet bracket to the bottom surface of the OfficeServ 7200 cabinet and fasten the bracket firmly with the three screws.

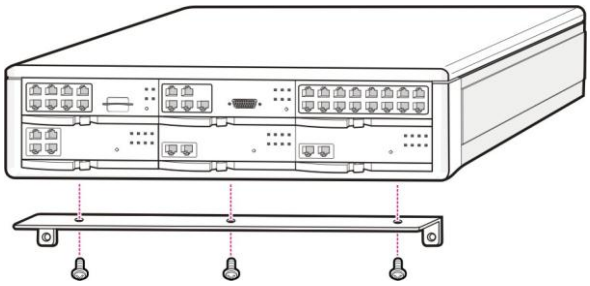

Figure 2.2 Rack Installation (1)

2) Attach the rack brackets to both sides of the rack and fasten the brackets firmly with the six screws.

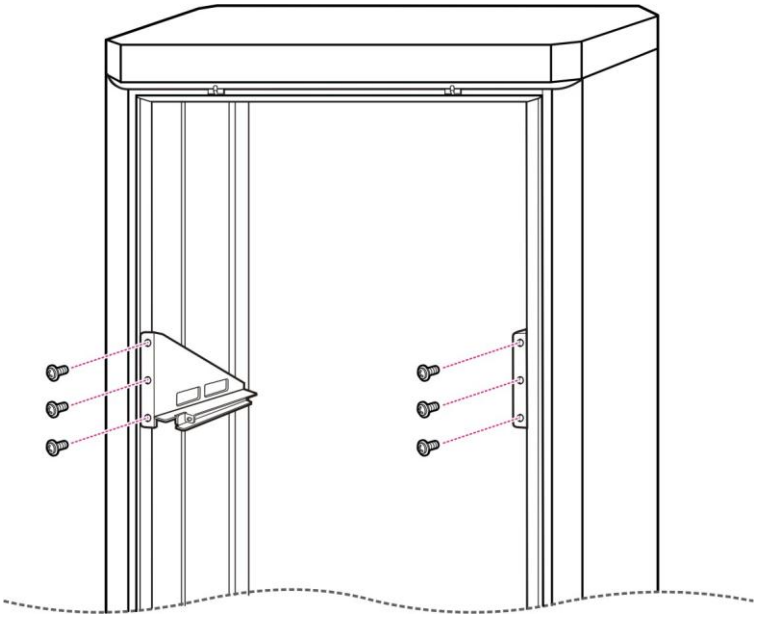

Figure 2.3 Rack Installation (2)

3) Align the cabinet to the guardrails of the rack and slide the cabinet into the rack.

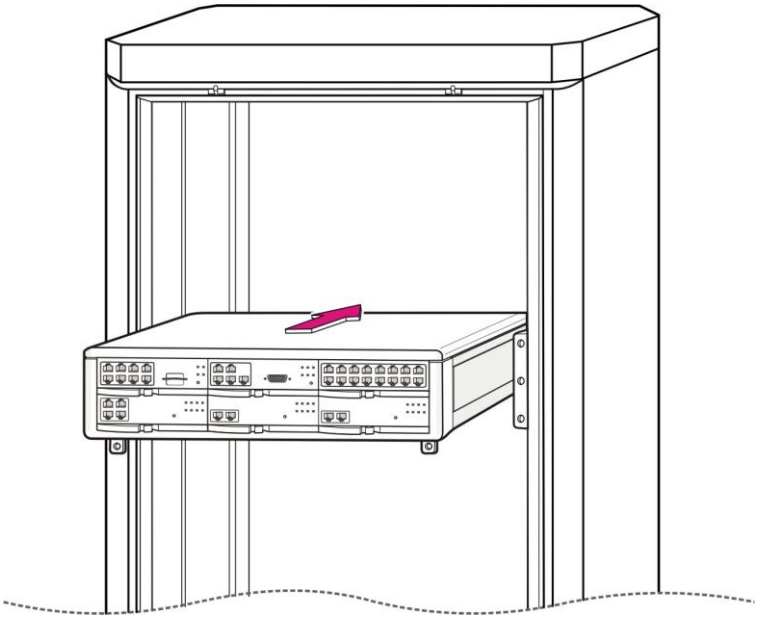

Figure 2.4 Rack Installation (3)

4) Align the two holes of the cabinet bracket and the holes of the rack brackets, and fasten the cabinet to the rack with the two screws.

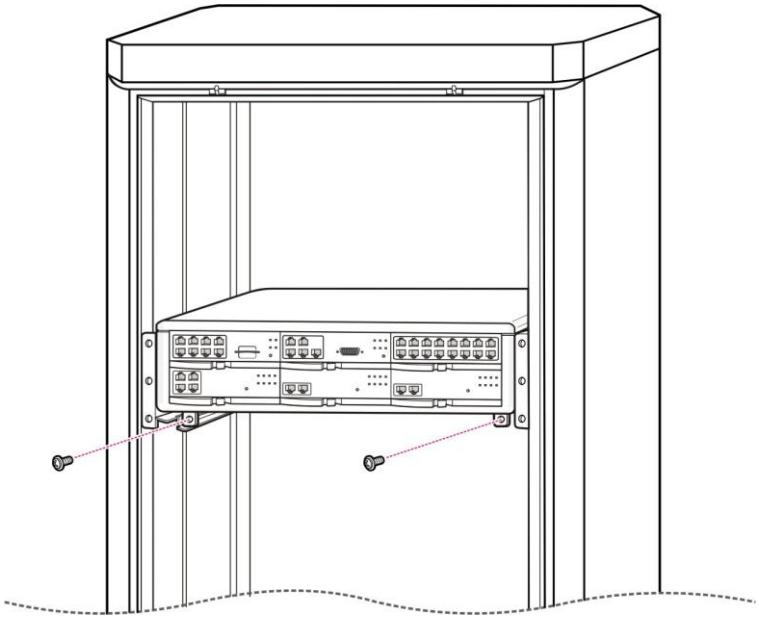

Figure 2.5 Rack Installation (4)

5) The above steps 1)~4) also apply to expansion cabinets.

2.4 Installing on a Wall

This section describes how to install the OfficeServ 7200 cabinet on a wall.

2.4.1 Required Tools

- A middle-sized cross screwdriver
- An electric drill
- A hammer
- A wall bracket
- Four plastic anchors
- Four cross screws
- Four mount lock screws
- Two screws are assembled in a rack.

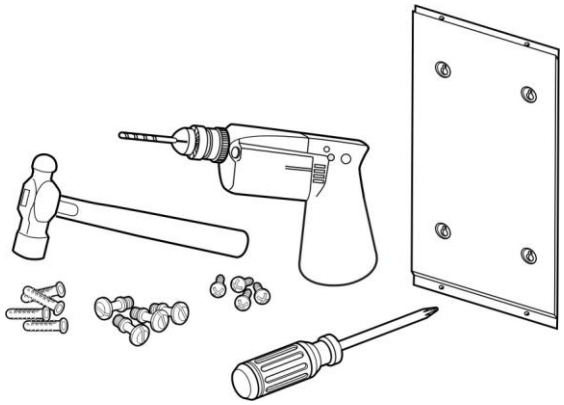

Figure 2.6 Tools Required for Wall Installation

2.4.2 Wall Installation

The procedure for installing the OfficeServ 7200 cabinet on a wall by using a wall bracket is as follows:

1) There are four screw holes (A in Figure 2.7) on the wall bracket as shown below. Mark the four screw holes where the wall bracket should be installed.

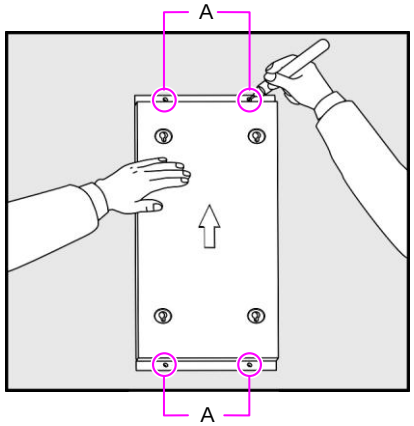

Figure 2.7 Wall Installation (1)

2) Use the electrical drill to make holes where the screw holes were marked. The depth of the hole should be over 35 mm and the diameter should be about 5.5 mm so that the plastic anchor can be easily inserted.

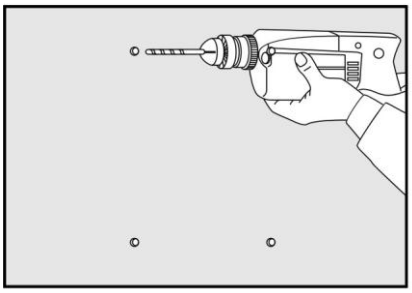

Figure 2.8 Wall Installation (2)

3) Using a hammer, insert the plastic anchor into the hole.

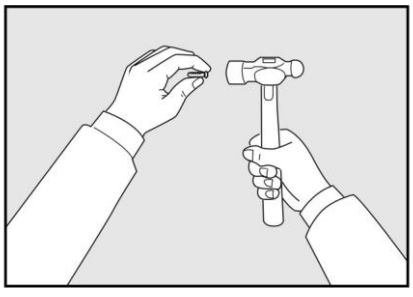

Figure 2.9 Wall Installation (3)

4) Once the wall bracket is fixed to the wall, put a cross screw into the plastic anchor and tighten the screw with the screwdriver.

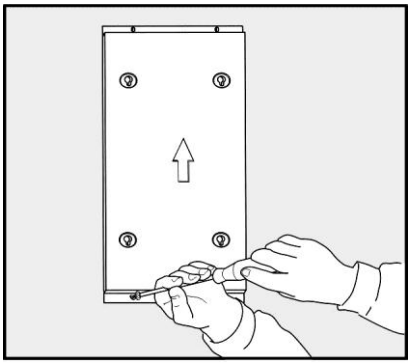

Figure 2.10 Wall Installation (4)

5) There are two screws inside of two holes among four holes at the bottom of OfficeServ 7200 cabinet as shown below. To install on the wall, loosen the two screws for about 2 mm as shown in the figure.

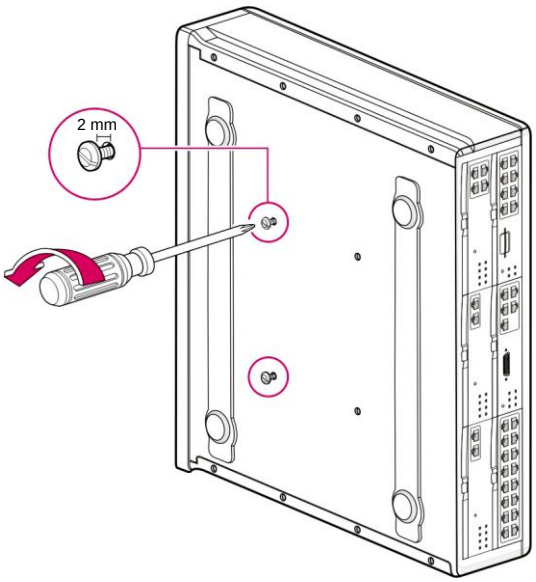

Figure 2.11 Wall Installation (5)

6) Tighten the mounting screws on two holes which do not have screws like at the bottom of OfficeServ 7200 cabinet. Do not tighten the screws to the end but leave about 2 mm space.

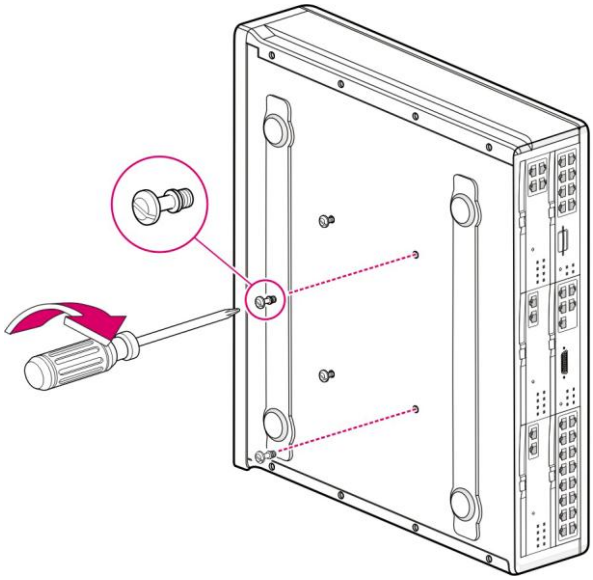

Figure 2.12 Wall Installation (6)

7) Hang the screws on the bottom surface of the OfficeServ 7200 cabinet to the holes of wall bracket and push the cabinet downward to fix the cabinet.

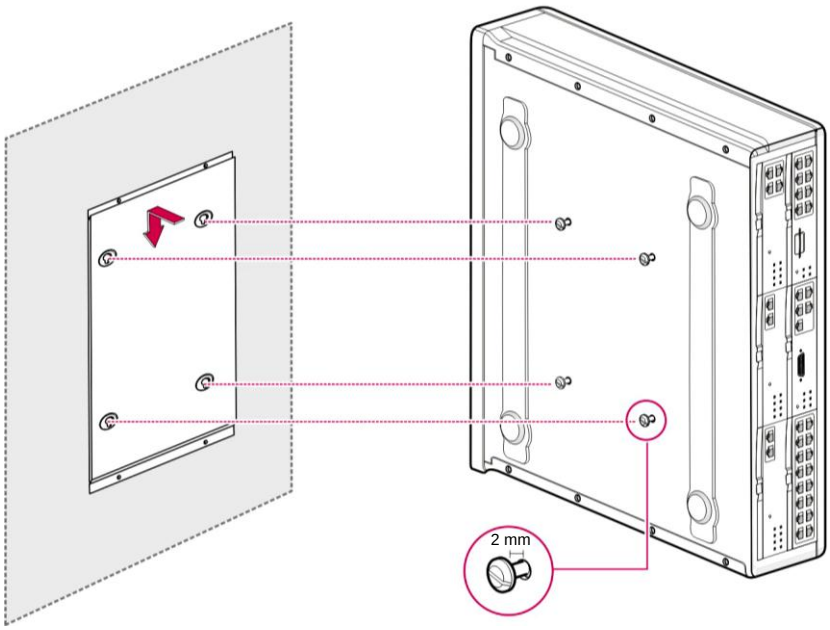

Figure 2.13 Wall Installation (7)

2.5 Connecting Grounding Wires

This section describes how to connect an external grounding wire to the OfficeServ 7200.

WARNING

External Grounding

External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.
The ground line should be a copper line with a cross section of 4.0 mm^2 or larger.
Do not use a general AC grounding. If you use a general AC grounding, the system may have an abnormal symptom due to noise generated from other devices which use the AC power grounding.

As shown in the figure below, earth to the ground lug behind the OfficeServ 7200. For an extension cabinet, connect and ground the external ground wire between the extension cabinet and a basic cabinet.

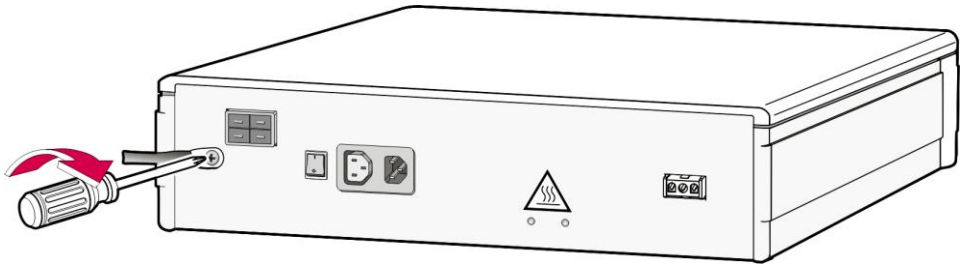

Figure 2.14 Grounding

CHECK

Checking the External Grounding

Before starting your OfficeServ 7200 after installation, make sure to check whether the grounding terminal at the back of the system cabinet is connected to an external grounding.

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CHAPTER 3. Mounting and Replacing Boards

This chapter describes how to mount and replace various boards of the OfficeServ 7200.

3.1 Cabinet Configuration

The basic and expansion cabinets of the OfficeServ 7200 have six slots.

Figure 3.1 Front Panel Configuration

Below are the system configuration and the capacities of the system.

Table 3.1 System Configuration

Category	OfficeServ 7200 with MP20	OfficeServ 7200 with MP20S
Cabinet	Basic Cabinet & Expansion Cabinet	Basic Cabinet Only
Media Card	MMC/SD	SD
Slot	10 (5 per one cabinet)	5
Highway Channel	1st cabinet: two 16 ch., three 32 ch. 2nd cabinet: four 16 ch., one 32 ch.	Two 16 ch. slot, three 32 ch. slot
Control Board	MP20, LCP	MP20S
Control board Connector	Link1~3 (HDLC with 2nd), MISC1, MISC2, LAN, SIO	P1~P4: Unmanaged Layer2 Switch Port, MISC, LAN, SIO
Web Management	No	Yes
Installation Tool	Yes	Yes
SNMP	No	Yes

Table 3.2 System Resources

Category	OfficeServ 7200 with MP20	OfficeServ 7200 with MP20S	
Option Board	RCM2/CRM/MISC/IRM	None	
MFR Ch.	16 (CRM 1) 16 (IRM 1)	8 (Embedded)	14
Mobex Ch.	96 (OAS 3)	8 (Embedded)	
CID Ch.	14 (RCM2/CRM 1) 16 (IRM 1)	6 (Embedded)	
R2MFC Ch.	8 (RCM2 1) 14 (CRM 1) 16 (IRM 1)	None	

In OfficeServ 7200 with MP20S, the total number of MFR & Mobex is fixed at 14.
The minimum of each channels are 6, and can be expanded to 8. If the user wants to use 8 MFR channels, the Mobex channels will be 6 channels, and vice versa.

Table 3.3 System VM/MGI/MPS/CONF Capacity

Category	OfficeServ 7200 with MP20	OfficeServ 7200 with MP20S
Voice Mail	20 (SVMi-20E)	6 (Embedded)
MGI	96 (6 MGI16)*/96 (6 OAS)**	54 (Embedded 6 & 3 OAS 48)
MPS	192 (6 OAS)	104 (Embedded 8 & 3 OAS 96)
Meet-me Conference	24Party x 2 (2xCNF24 per system)	24Party x 1 (1xCNF24 per system)

NOTE

- * The MGI16 can be used in any slot include expansion cabinet, and the OfficeServ 7200 have 10 universal slot. (Max. 6 cards)
- ** OAS can be used any in slot include expansion cabinet. (Max. 6 cards)

Table 3.4 System Maximum Capacity

Category		OS7200 with MP20		OS7200 with MP20S	
STN	PCM STN	128		64	
	ITP Phone	128		64	64
	Wi-Fi Phone				
	SIP Phone				
	IP-UMS/IVR			*	
	STN Total	128		64	
TRK	PCM TRK	64		60 (48**)	
	SIP TRK	64	64	32	32
	H.323 TRK	32		24	
	SPnet TRK	64		32	
	TRK Total	64		60	
Total	STN+TRK	192		124	
Etc.	Virtual Cabinet	6		5	
	MOBEX standard	120		60	
	MOBEX executive	64		60	
BHCA (0.45 erl, 90 sec)		3,200		2,100	
Condition		In case of the unconditional group ring, ring group or paging, each member has one call.			

NOTE

- * In OfficeServ 7200 with MP20S, the IP-UMS, IVR and ACD features are not supported.
- ** The capacity for the PCM trunk is considered that two TEPRIa are used. So, in case of U.S.A, the PCM trunk number is 48, and the others are 60.

Following boards are mounted on the slots according to the configuration of the OfficeServ 7200.

Table 3.5 Functional Boards

Function	Control Board	Boards
Main Control Part	MP20	- Basic cabinet: MP20 (Option Board: RCM2, MIS, CRM, IRM, MODEM) - Expansion cabinet: LCP
	MP20S	- Basic cabinet: MP20S (Option Board: MODEM)
Voice Trunk Line	MP20	TEPRIa, 8TRK, 8TRK2, 16TRK, 4HTRK (only China) 4BRI (except USA)
	MP20S	TEPRIa, 8TRK, 8TRK2, 16TRK, 4HTRK (only China) UNI (Option Board: 2BRM and 4TRM)
Voice Station	MP20	8SLI2, 8DLI, 8COMBO2, 16SLI2, 16MWSLI, 16DLI2
	MP20S	8SLI2, 8DLI, 8COMBO2, 16SLI2, 16MWSLI, 16DLI2 and UNI (Option Board: 4DLM, 4SL2 and 4SLM)
Data	MP20	WIM (option board: WIMD), LIM, PLIM, PLIM2, GPLIMT, GSIMT
	MP20S	LIM, PLIM, PLIM2
Voice Application	MP20	MGI16 (no option board), OAS, CNF24
	MP20S	OAS, CNF24
VMS	MP20	SVMi-20E
Common Resource (MFR, CID, R2)	MP20	CRM, RCM2, IRM
	MP20S	Embedded
Power, Fan	MP20, MP20S	PSU, Fan, Ringer (Italy, Australia only)

Checking Slots

The WIM can only be mounted on slot 1 of the basic and expansion cabinets, and the 4BRI, and TEPRIa can only be mounted on slots 3, 4 and 5 of the basic cabinet and slot 3 of the expansion cabinet. The 2BRM can only be mounted on slots 1, 2 of the basic cabinet.

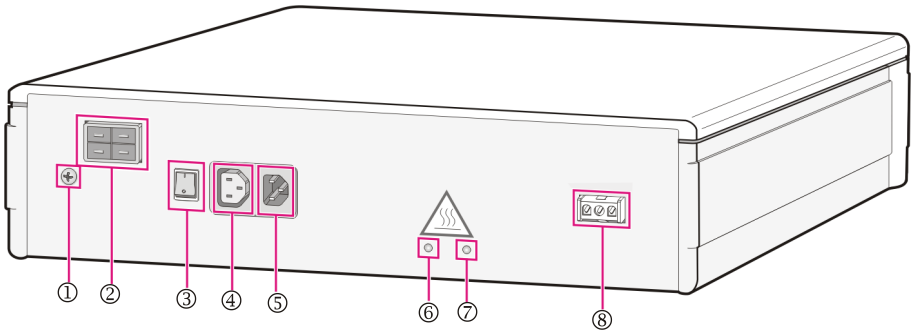


Figure 3.2 Back Panel Configuration

Functions of the back panel parts of the cabinet are as follows:

Table 3.6 Back Panel Parts

Parts	Description
① Ground Lug	Lug for grounding system communication.
② External rectifier socket	Supplies an external power to Power over Ethernet (PoE).
③ Power switch	Switches the power of OfficeServ 7200 on/off.
④ Power connector between a basic cabinet and an extension cabinet	Supplies the power supplied to the basic cabinet an extension cabinet.
⑤ Power I/O connector	Connects the power cables composed of three inlets/ outlets.
⑥ AC LED	Is lit for the AC input power.
⑦ DC LED	Is lit for the DC output power.
⑧ Backup socket	Connects an external battery.

3.2 Mounting Control Boards

This section describes the procedures for setting switches, mounting optional boards, mounting the boards on a slot, and how to connect between the MP20/MP20S and LCP.

3.2.1 Setting Switches and Mounting Optional Boards

MP20

The MP20 features switches used for optimizing the board to the user requirements and system configuration. The procedure for setting switches and mounting optional boards is as follows:

1) Set the SW1 through SW4 of the S2 switch to Off.

2) Set the SW6 through SW8 of the S2 switch according to user requirements.

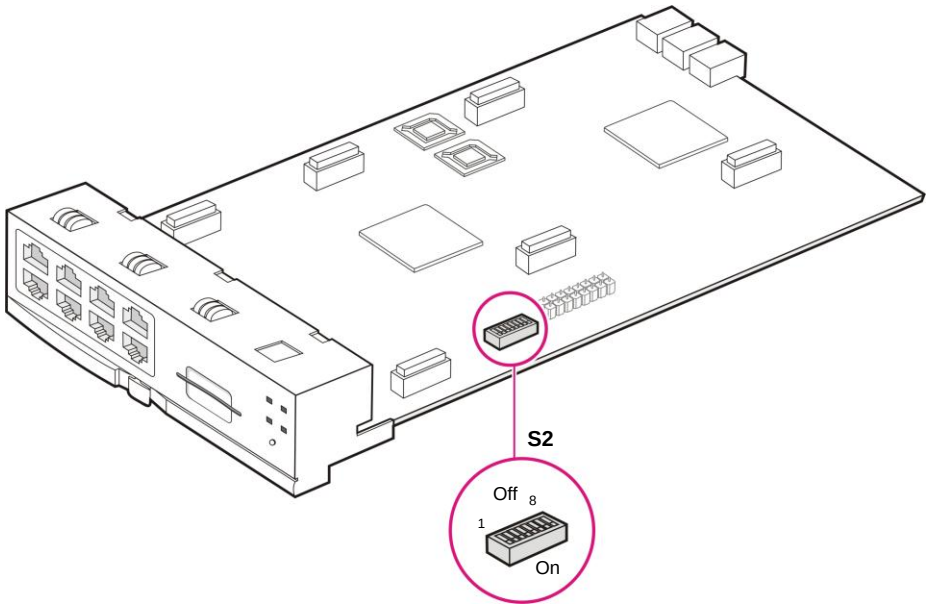


Figure 3.3 MP20 Switch Setting

Table 3.7 MP20 Switches

Switch	Description for setting switches	
S2	SW1~SW4	For domestic use, set all switches to Off.
	SW6~SW8	Sets the number of digits for C.O./extension lines and extension groups. SW6-On: 4 digits for C.O. line Off: 3 digits for C.O. line SW7-On: 4 digits for an extension group Off: 3 digits for an extension group SW8-On: 4 digits for an extension number Off: 3 digits for an extension number

3) Align the connectors of the MP20 to that of the optional boards (MIS, RCM2, CRM, IRM and MODEM), and firmly press the optional boards downward with two hands.

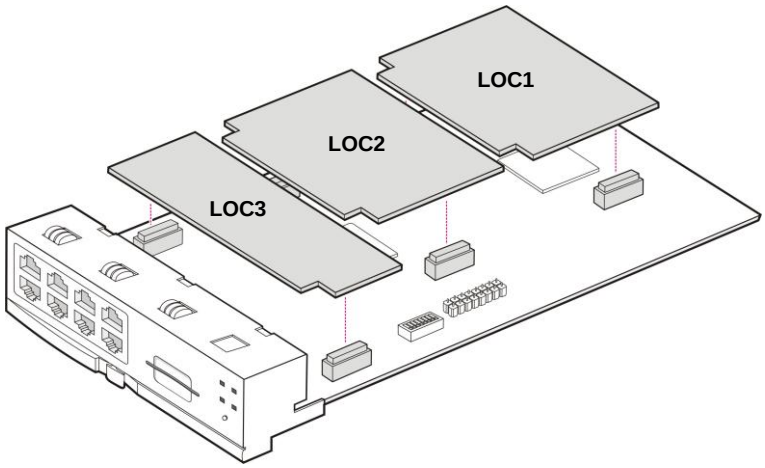


Figure 3.4 MP20 Mounting Optional Boards

Table 3.8 MP20 Mounting Locations of Optional Boards

Mounting Locations of Optional Board	Optional Boards
LOC1	CRM, MODEM
LOC2	RCM2, CRM, IRM
LOC3	MIS

Table 3.9 MP20 maximum resource capabilities with Optional Boards

Option Card		BASE	# of resources of Loc #1			# of resources of Loc #2			TOTAL RESOURCE			Remark Loc #1
Loc #1	Loc #2	MFR	MFR	R2	CID	MFR	R2	CID	MFR	R2	CID	
NONE	NONE	4	-	-	-	-	-	-	4	-	-	-
	RCM2 (R2)	4	-	-	-	-	8	-	4	8	-	-
	RCM2 (CID)	4	-	-	-	-	-	14	4	-	14	-
	RCM2 (R2/CID)	4	-	-	-	-	4	6	4	4	6	-
	IRM (MFR/R2 /CID)	4				4 + 16			8 + 16			IRM provides additional 4 ch.
	CRM (MFR)	4	-	-	-	4+12	-	-	20	-	-	CRM-provides-additional-4-DTMF-Receivers-because-Engine-has-4MFR
	CRM (R2)	4	-	-	-	4	14	-	8	14	-	
	CRM (CID)	4	-	-	-	4	-	14	8	-	14	
	CRM (R2/CID)	4	-	-	-	4	8	6	8	8	6	
MODEM	NONE	4	-	-	-	-	-	-	4	-	-	-
	RCM2 (R2)	4	-	-	-	-	8	-	4	8	-	Modem does not work
	RCM2 (CID)	4	-	-	-	-	-	14	4	-	14	
	RCM2 (R2/CID)	4	-	-	-	-	4	6	4	4	6	
	CRM (MFR)	4	-	-	-	4+12	-	-	20	-	-	CRM provides additional 4 DTMF Receivers because Engine has 4MFR
	CRM (R2)	4	-	-	-	4	14	-	8	14	-	
	CRM (CID)	4	-	-	-	4	-	14	8	-	14	
	CRM (R2/CID)	4	-	-	-	4	8	6	8	8	6	
	IRM (MFR)	4	-	-	-	20	-	-	24	-	-	
	IRM (R2)	4	-	-	-	4	16	-	8	16	-	
	IRM (CID)	4	-	-	-	4	-	16	8	-	16	

Table 3.9 MP20 maximum resource capabilities with Optional Boards(Continued)

Option Card		BASE	# of resources of Loc #1			# of resources of Loc #2			TOTAL RESOURCE			Remark Loc #1
Loc #1	Loc #2	MFR	MFR	R2	CID	MFR	R2	CID	MFR	R2	CID	
CRM (MFR)	NONE	4	12	-	-	-	-	-	16	-	-	-
	RCM2 (R2)	4	12	-	-	-	8	-	16	8	-	-
	RCM2 (CID)	4	12	-	-	-	-	14	16	-	14	-
	RCM2 (R2/CID)	4	12	-	-	-	4	6	16	8	6	-
	CRM (MFR)	4	12	-	-	12	-	-	28	-	-	-
	CRM (R2)	4	12	-	-	-	14	-	16	14	-	-
	CRM (CID)	4	12	-	-	-	-	14	16	-	14	-
	CRM (R2/CID)	4	12	-	-	-	8	6	16	8	6	-

MP20S

MP20S has the switches to set the board operation for the user's purpose and fitting with the system configuration. The ways to set the switches and mount the boards are as follows:

1) Pin 1 to pin 4 of S2 switch on MP20S are already set depending on the country. Pin 6 to pin 8 are set depending on the user's purpose.

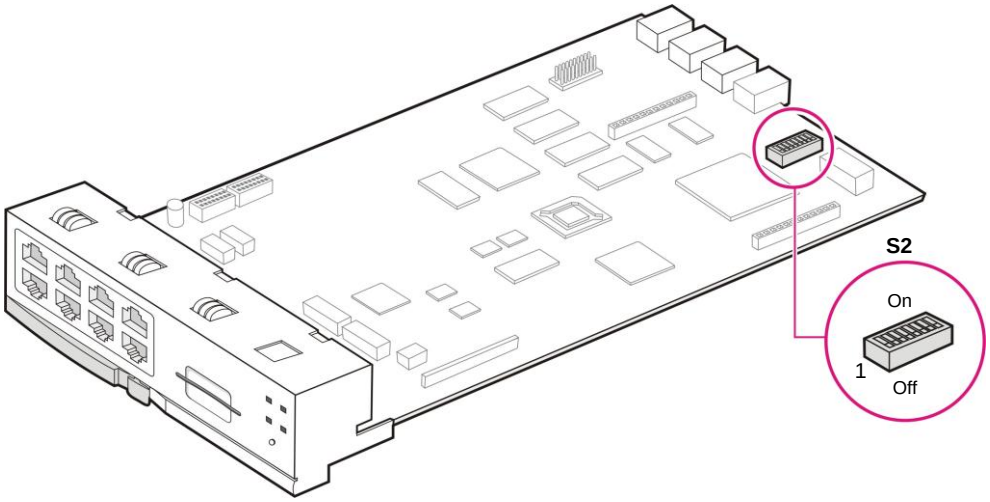


Figure 3.5 MP20S Switch Setting

Table 3.10 MP20S Switches

Switch	Description	
S2	SW1~SW4	the pins are set the country code that the system will be used.
	SW6~SW8	Sets the number of digits for C.O./extension lines and extension. SW6-On: 4 digits for C.O. line Off: 3 digits for C.O. line SW7-On: 4 digits for an extension group Off: 3 digits for an extension group SW8-On: 4 digits for an extension number Off: 3 digits for an extension number

2) A modem board is mounted to connector P7/P8 of MP20S.
When mounting a modem board, the holes on the corners of the modem should be aligned fitting with the spacer.

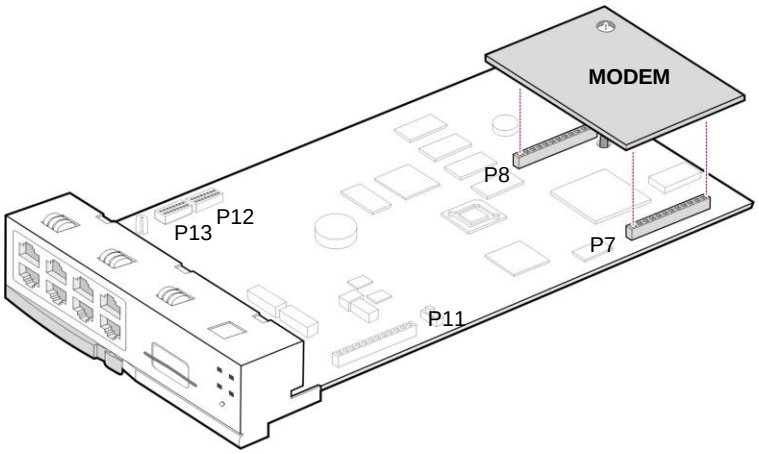


Figure 3.6 Mounting a MODEM on P7, P8 of MP20S

Table 3.11 MP20S Mounting Locations of Optional Boards

Mounting Locations of Optional Board	Optional Boards
P7, P8	MODEM

3.2.2 Mounting Control Boards

Mount control boards on slot 0 of the basic cabinet and the expansion cabinet.
The locations of slot 0 through slot 5 are described in the '3.1. Cabinet Configuration' section of this chapter.

Table 3.12 Types of Control Boards

Control Board	Applicable Slot
MP20/MP20S	Slot 0 of the basic cabinet
LCP	Slot 0 of the expansion cabinet

The procedure for mounting the MP20/MP20S and the LCP to each slot is as follows:

1) Check the exterior of the MP20/MP20S and the LCP for any damages.

> **CAUTION**
>
> **Check the power when mounting or dismounting boards**
>
> Check if the cabinet power is off when mounting boards on slots. Inserting or ejecting a board while the power is on may damage the board.

2) Align the MP20/MP20S to the guardrails of slot 0 of the basic cabinet, and slide the MP20/MP20S into the slot.

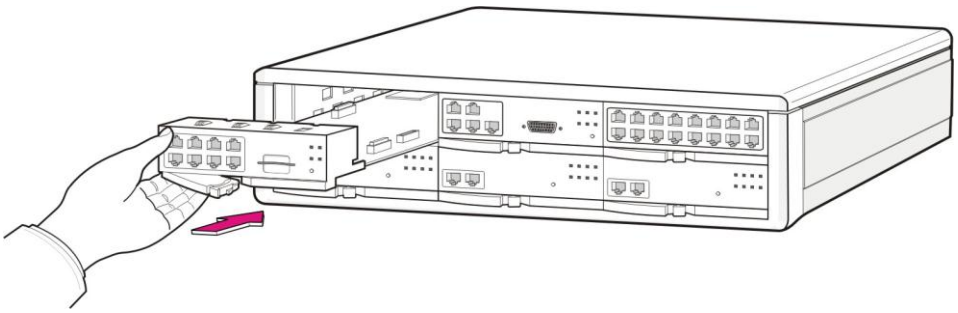


Figure 3.7 Mounting the Control Board (1)

3) Push the front panel lever until the board is completely inserted into the OfficeServ 7200 main board port.

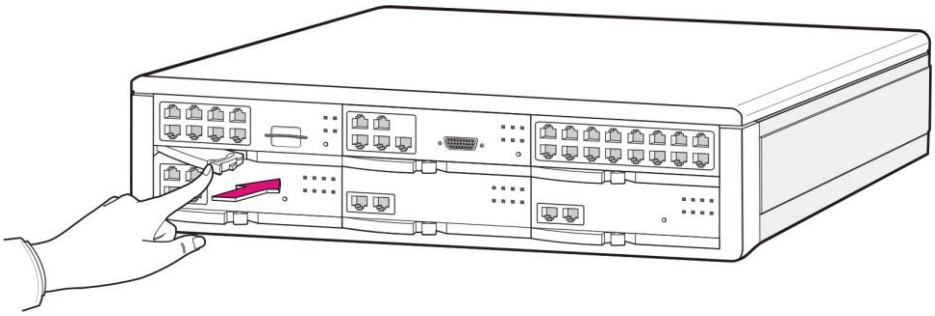


Figure 3.8 Mounting the Control Board (2)

4) The above steps 2)~3) also apply to mounting the LCP to slot 0 of the expansion cabinet.

3.2.3 Connecting MP20 to LCP

If the OfficeServ 7200 consists of a basic cabinet and an extension cabinet, connect the MP20 to the LCP using extension cables to transmit and receive signals between the control boards.

1) Three extension cables are needed to connect the MP20 to the LCP.

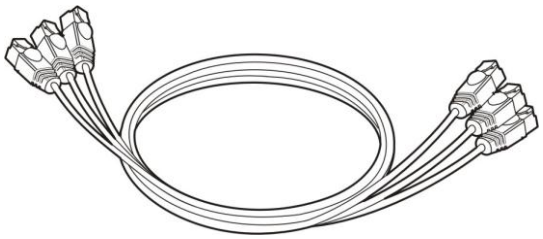


Figure 3.9 Extension Cables

2) With an extension cable, connect the 'Link1' port in MP20 mounted on the basic cabinet and the 'Link1' port in LCP mounted on an extension cabinet.

3) With another extension cable, connect the 'Link2' port in the MP20 and 'Link2' port in the LCP.

4) With other cable, connect the 'Link3' in the MP20 and the 'Link3' in the LCP.

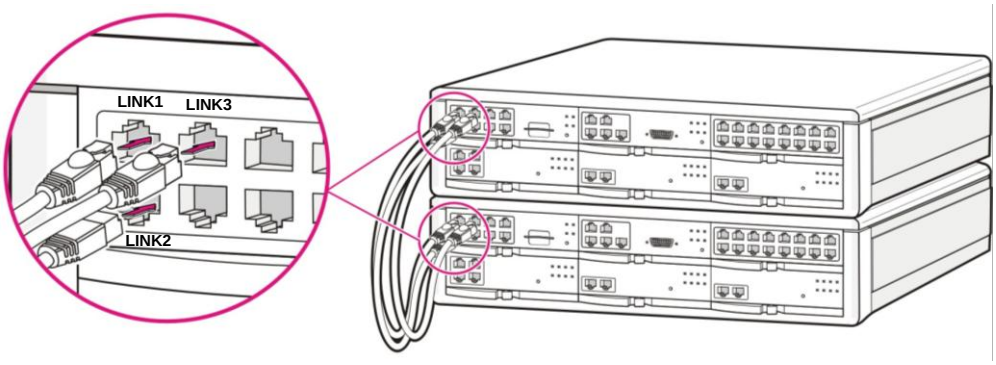


Figure 3.10 Connecting MP20 to LCP

3.3 Mounting Interface Board

This section describes how to set jumpers and switches of an interface board, how to mount optional boards to an interface board, and how to mount interface boards into slots.

3.3.1 Setting Switches and Mounting Optional Boards

Interface boards that are equipped with switches/jumpers used for accommodating user requirements or system configuration, and those with connectors for optional boards are as follows:

Table 3.13 Interface Boards with Jumpers/Switches

Control Board	Interface board	Jumpers/Switches	Description
MP20 only	WIM	JP1~JP4	Sets whether to use the Ethernet port of the front panel or the back panel when connecting to the LIM board.
MP20, Mp20S	TEPRIa	S2 (1~4)	Setup of T1, E1, T1/E1, PRI, 24B+D/24B, User/Network, 13H
MP20, Mp20S	PLIM	J1, 2, 3	Determines if you use an internal PSU or an external rectifier.
MP20, Mp20S	PLIM2	J2, 3, 4	Determines if you use an internal PSU or an external rectifier.
MP20, MP20S	GPLIMT	J1~J4	Selects a -54 V power source for the PoE. - EXT: -54 V is supplied from an external PoE power module. - INT: -54 V is supplied from the system power device.
MP20 only	GSIMT	J13~J14	Selects a -54 V power source. - EXT: -54 V is supplied from an external PoE power module. - INT: -54 V is supplied from the system power device.
MP20 only	4BRI	SW1~SW8	Sets OFF for NT mode or ON for S0 mode
MP20S only	2BRM	S1 (1~4)	Sets OFF for NT mode or ON for S0 mode
MP20	4HTRK	P101, P201, P301, P401	Set E & M type for Korea or USA - Type 5 for Korea: connect 2-3, 4-5 - Type 1 for USA: connect 1-2, 5-6

You have to set the same jumper selection for all the GSIMT, GPLIMT, and PLIM cards. That is, set all of them to either ‘EXT’ mode or ‘INT’ mode.

Table 3.14 Interface Boards Accommodating Optional Boards

Control Board	Interface Board	Optional Board
MP20 only	WIM	WIMD
MP20S only	UNI	4TRM, 2BRM, 4DLM, 4SLM, 4SL2

NOTE

4TRM supports not Dial Pulse dialing but DTMF dialing. 8TRK supports DTMF and Dial Pulse dialing.

3.3.1.1 UNI

UNI has three connectors to mount option boards 4TRM, 2BRM, 4DLM, 4SLM and 4SL2. For user's purpose, up to three boards can be mounted regardless of the type of the option board. Module1, Module2, and Module3 are positioned on the basis of the front panel of UNI, and the interface of the corresponding board is marked on the front panel of UNI.

Align the option board to the top connector (16-pin connector). After that, match the bottom connector (100-pin connector). Mount two connectors grasping both connectors. Lock the supporter between the grooves and the top of each option board with screws.

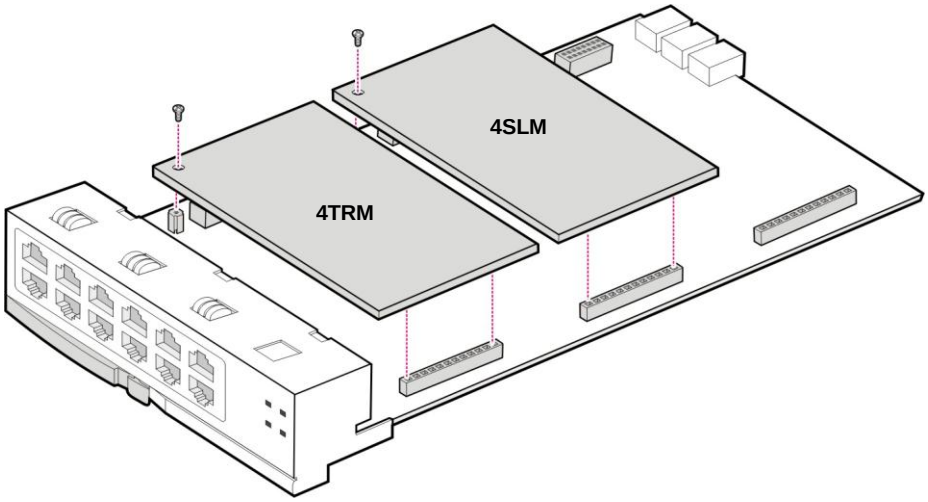


Figure 3.11 Mounting UNI

Table 3.15 Installable Optional Boards of UNI

Control Board	Interface Board	Optional Board
MP20S only	UNI	4TRM, 2BRM, 4DLM, 4SLM, 4SL2

3.3.1.2 WIM

The procedure for setting the jumpers and mounting optional boards on the WIM (WAN Interface Module) is as follows:

1) Set jumpers JP1 through JP4 of the WIM.

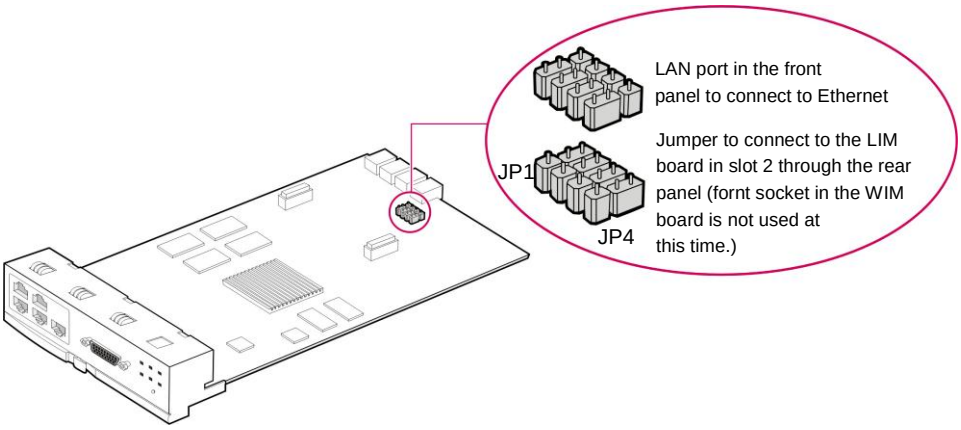


Figure 3.12 Jumper Setting of WIM

NOTE

Managed LIM function

The Managed LIM is controlled by the WIM and provides the extension functions related to the Layer 2 QoS management such as 802.1p (packet priority), 802.1q (VLAN) and IGMP Snooping, etc besides Layer 2 switch functions.
To perform the Managed LIM function to manage the LIM in the WIM, the WIM and the LIM must be mounted on slot 1 and slot 2, respectively.

2) Align the connector of the WIM to that of the WIMD and firmly press the board downward.

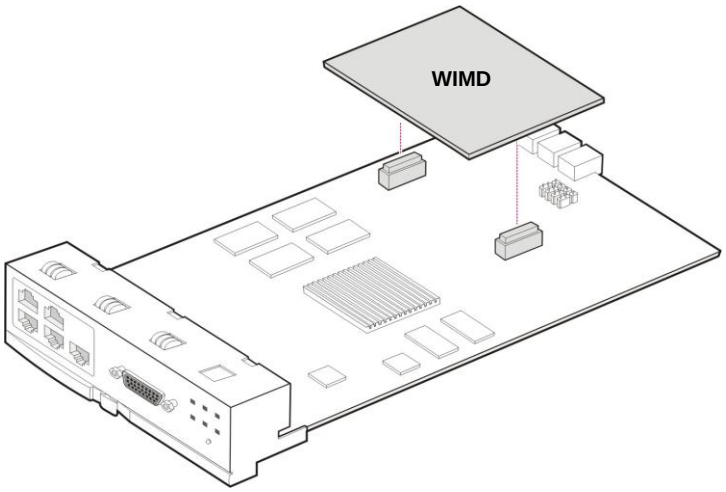


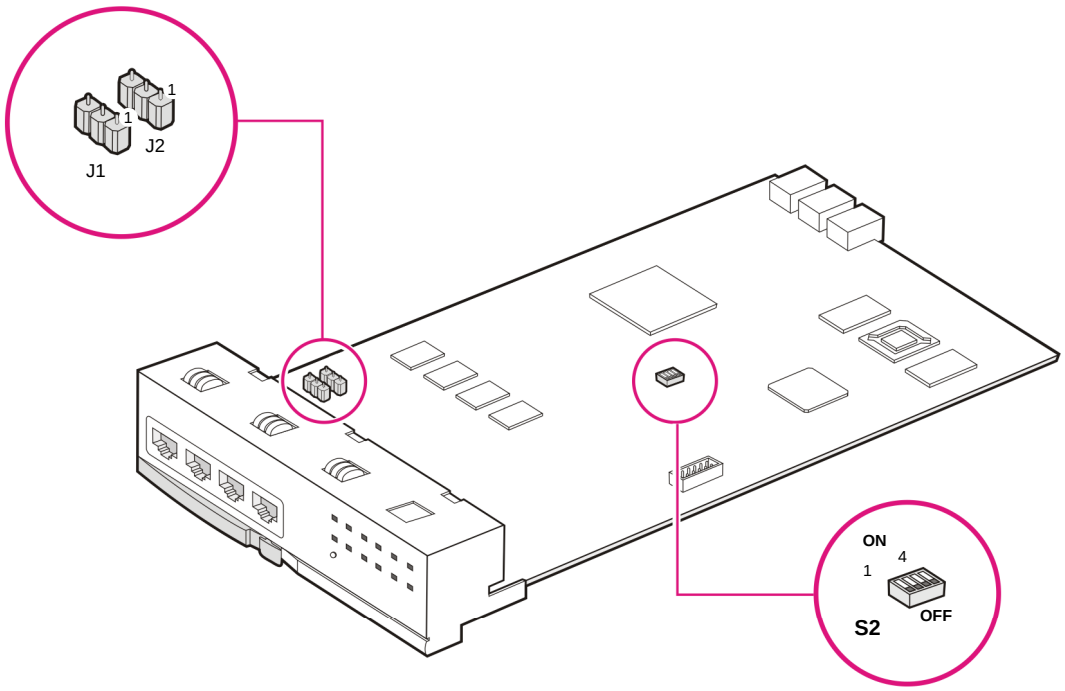
Figure 3.13 Mounting WIMD on WIM

3.3.1.4 TEPRIa

TEPRIa (T1E1Primary Rate Interface advanced), which provides a digital C.O. line, supports E1, T1 and ISDN PRI port, and provides the Q-SIG function.

Set S2 switch and jumpers of the TEPRIa as follows:

Setting Switch



S2	OFF	ON
1	E1	T1
2	T1/E1	PRI
3	24B + D	24B
4	User	Network

Figure 3.14 Setting Switch of the TEPRIa

Setting Jumpers

J1 and J2: Connect #1 and #2 for E1 cable, #2 and #3 for T1 cable.

3.3.1.3 PLIM

PLIM (PoE LAN Interface Module) can use an internal rectifier or an external rectifier. Select the power supply source via shunt pins.

Jumper Setting

- For Internal Rectifier
  Connect shunt pins (J1, 2 and 3) between pin 1 and 2.
  Since the capacity is limited to the capacity of the PSU, up to 16-port are available and the use of digital phones is also limited. (For details about the limitation of digital phone under the PLIM port, contact to After-Sales service center).
- For External Rectifier
  Connect shunt pins (J1, 2 and 3) between pin 2 and 3.
  Since the external rectifier can supply 10 A via a module, the use of the rectifier is not limited.
  Limit the PLIM port current and the PLIM board current to 0.1 A and 1.6 A respectively.

Each jumper is named as 1, 2 and 3 from the pin with the mark of '1' in turn.

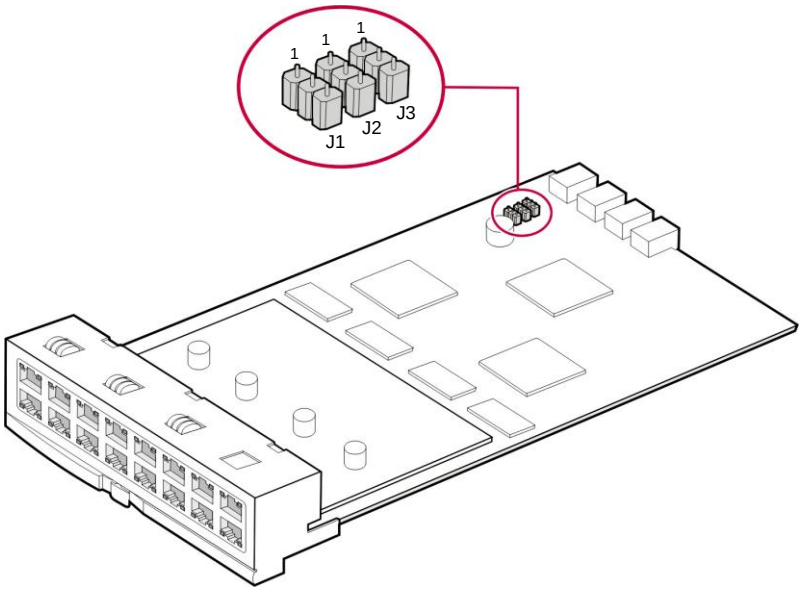


Figure 3.15 Setting the jumpers of PLIM

Pin No.	1	2	3	4	5	6	7	8
RJ-45	Rx+	Rx-	Tx+	RTN	RTN	Tx-	-48 V	-48 V

-48 V and RTN are the return ground of -48 V.

NOTE

Interlocking with IP phones via PLIM

If the system interworks with IP phones from the internal power via the PLIM, up to 16 IP phone can be interworked and the remained Digital Phone (DGP) can be interworked up to 24 DGP on the basis of 2-line LCD.

3.3.1.4 PLIM2

PLIM2 (PoE LAN Interface Module) can use PSU (Power Supply Unit) or an external rectifier and selects the power supply source by using shunt pins.

Jumper Setting

- When using the internal rectifier
  The shunt pins (J2, J3 and J4) are connected between pin1 and pin2.
  Since the available capacity is limited to PSU, the use of ports is limited to 16 ports and the use of digital phones is, also, limited. (For more information on the limitation about the use of digital phone phones in accordance with the use of PLIM2 port, contact your dealer.)
- For the use of an external rectifier: The shunt pins (J2, J3 and J4) are connected between pin2 and pin3. There is no restriction on the use of an external rectifier because each of them can supply the current of 10 A. Limit each current running through PLIM2 ports below 0.1 A and in the module below 1.6 A.

Each jumper is numbered in ascending order from the marked ‘1’ in the following figure.

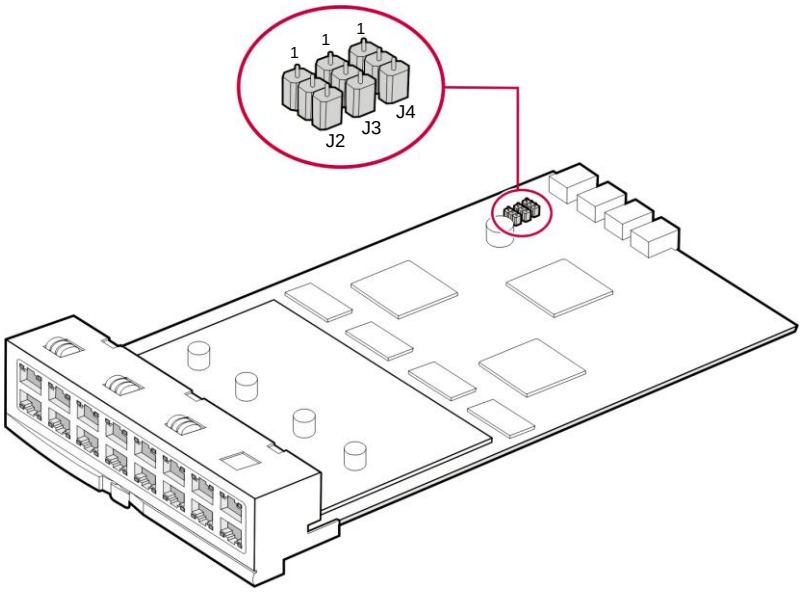


Figure 3.16 Setting the jumpers of PLIM2

3.3.1.5 GPLIMT

GPLIMT (Gigabit PoE LAN Interface Module TX) is a board which sends/receives the data from the intranet, and provides 12 ports of 10/100 BASE-T interface and 2 ports of 1000 BASE-TX/SX/LX. The GPLIMT only operates as a simple switching for the hub.

Jumper Setting

- When using the internal rectifier: Connect the shunt pins (J2, J3, J4) to pins 1 and 2.
- When using an external rectifier: Connect the shunt pins (J2, J3, J4) to pins 2 and 3.

Set jumpers J1~J4 in the GPLIMT.

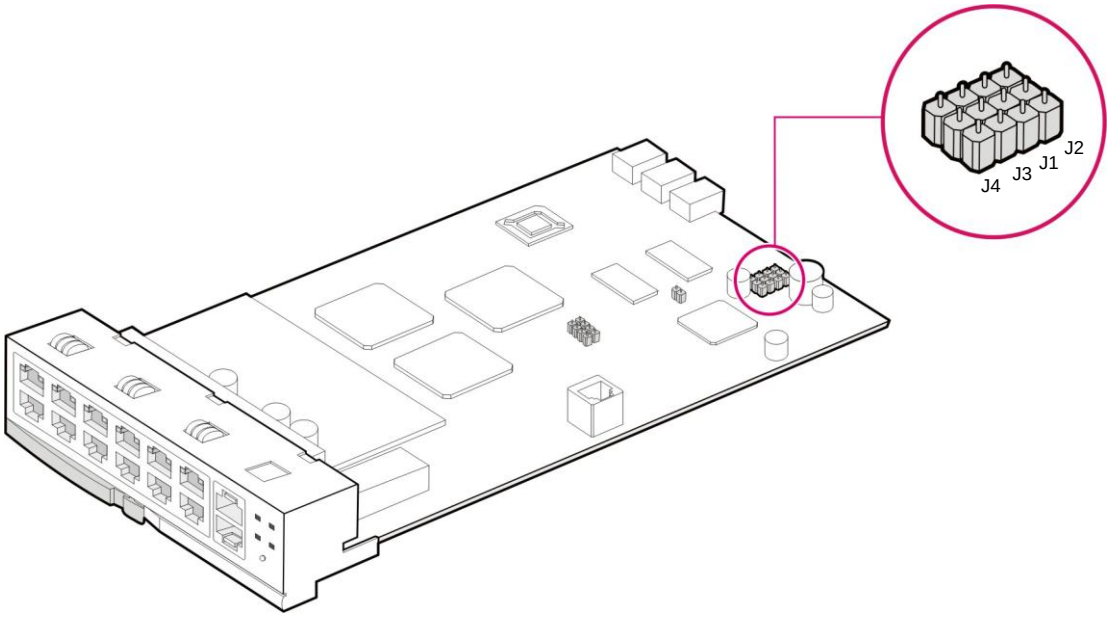


Figure 3.17 Setting the jumpers of the GPLIMT

3.3.1.6 GSIMT

GSIMT (Gigabit Switch Interface Module TX) provides the Giga bit LAN interface of Layer 2 and Layer 3 to support data network.

Set the jumper of the GSIMT.

Jumper Setting

- When using the internal rectifier: Connect the shunt pins (J3, J4) to pins 1 and 2.
- When using an external rectifier: Connect the shunt pins (J3, J4) to pins 2 and 3.

Set jumpers J3 and J4 in the GSIMT.

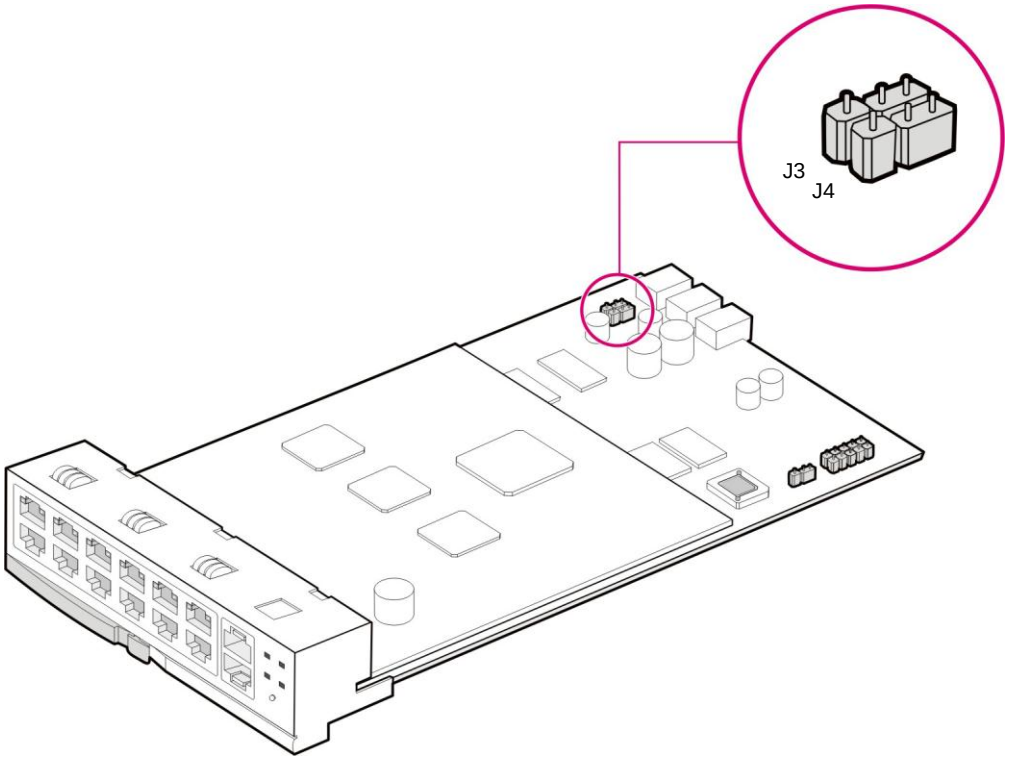


Figure 3.18 Setting the Jumpers of the GSIMT

3.3.1.7 4BRI

The 4BRI (Basic Rate Interface) provides the digital trunk line. A 4BRI provides 2B + D ISDN BRI and functions as the Q-SIG. This board transmits voice via the trunk line and a channel transmits the voice data of 64 Kbps.

Switch Setting

There are SW1~8 switches setting for S0 circuit on/off termination 100 ohm resistor within the board

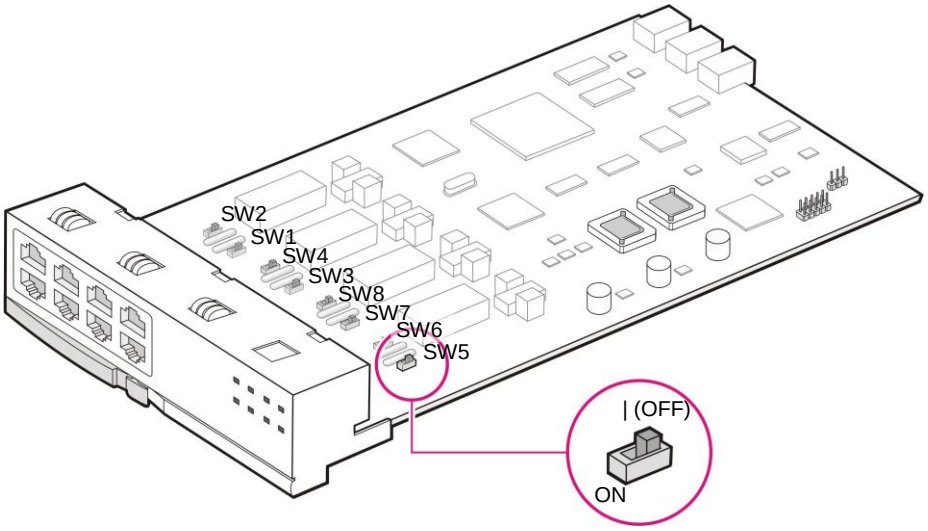


Figure 3.19 Setting the Jumpers of the 4BRI

Table 3.16 Setting Switch of the 4BRI

SWITCH	OFF	ON
SW1~SW8	No connection	Connect termination resister

3.3.1.8 2BRM

The 2BRM (Basic Rate interface Module) is mounted on UNI and provides two 2B + 1D digital trunk ports. This module is connected to 4 channel ISDN trunk in S and T mode. In S mode do not support DC power feeding

Jumper Setting

There is a S1 switch setting for S0 circuit on/off termination 100 ohm resistor within the board

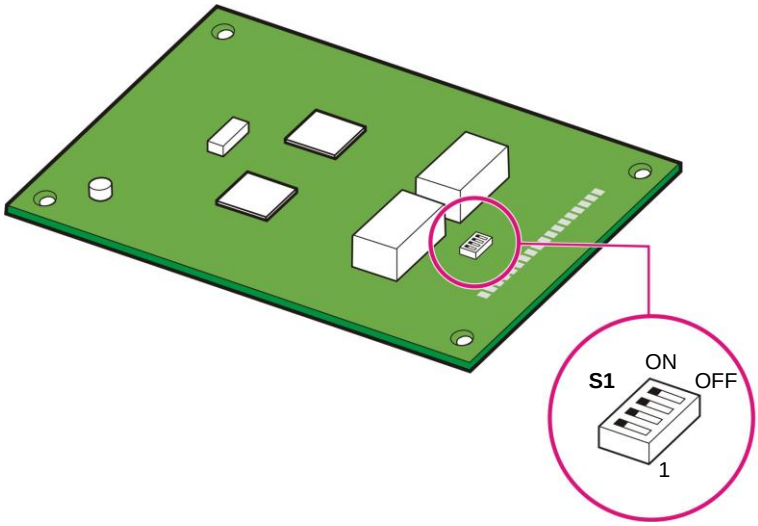


Figure 3.20 Setting Switch of the 2BRM

Switch Setting

Table 3.17 Setting Switch of the 2BRM

SWITCH	OFF	ON
S1 (1)~S1 (4)	No connection	Connect termination resister

NOTE

The 2BRM can only be mounted on slots 1, 2 of the basic cabinet.

2BRM cab be mounted 4 ea (Maximum) per cabinet.

3.3.1.9 4HTRK

The 4HTRK (Hybrid Trunk) provides 4 Port E & M, DID, and R/D leased lines to the 4HTRK through the RJ-45 port. And the 4HTRK supports 2type of E & M for Korea and USA.

Set the jumper of the 4HTRK.

Jumper Setting

- When using type 5 for Korea: Connect the shunt pins (P101, P201, P301, P401) to pins 2 and 3, pin 4 and 5 respectively.
- When using type 5 for Korea: Connect the shunt pins (P101, P201, P301, P401) to pins 1 and 2, pin 5 and 6 respectively

Set jumpers P101, P201, P301 and P401 in the 4HTRK.

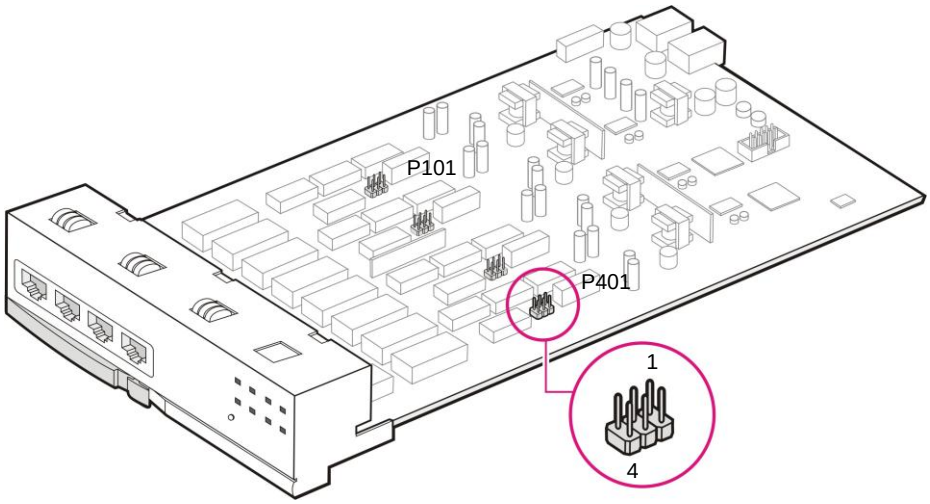


Figure 3.21 Setting the Jumpers of the 4HTRK

3.3.2 Mounting Interface Board to Slot

Interface boards are mounted on slot 1 through slot 5 of each cabinet. The following table describes the slots locations for interface boards. The locations of Slot 0 through slot 5 of the cabinet are described in '3.1 Cabinet Configuration'.

Table 3.18 Types of Interface Board and Applicable Slots

Category	Interface Board	Control Board	Applicable Slot
Voice C.O. line	TEPRIa, 4BRI	MP20	Slot 3 through slot 5 of the basic cabinet Slot 3 of the expansion cabinet
	TEPRIa	MP20S	Slot 3 through slot 5 of the basic cabinet
	2BRM	MP20S	Slot 1, slot 2 of basic cabinet MOD 1 through MOD 3 of UNI Board
	8TRK, 8TRK2, 16TRK	MP20	Slot 1 through slot 5 of the basic cabinet Slot 1 through slot 5 of the expansion cabinet
	8TRK, 8TRK2, 16TRK	MP20S	Slot 1 through slot 5 of the basic cabinet
	4TRM	MP20S	Slot 1 through slot 5 of basic cabinet MOD 1 through MOD 3 of UNI Board
Voice extension	8DLI, 8SLI2, 16SLI2, 16DLI2, 8COMBO2, 16MWSLI	MP20	Slot 1 through slot 5 of the basic cabinet Slot 1 through slot 5 of the expansion cabinet
		MP20S	Slot 1 through slot 5 of the basic cabinet
	4DLM, 4SLM, 4SL2	MP20S	Slot 1 through slot 5 of basic cabinet MOD 1 through MOD 3 of UNI Board
Data & voice application	WIM	MP20	Slot 1 of the basic cabinet Slot 1 of the expansion cabinet
	LIM, PLIM, PLIM2, GPLIMT, GSIMT	MP20	Slot 2 through slot 5 of the basic cabinet Slot 2 through slot 5 of the expansion cabinet
	LIM, PLIM, PLIM2, GPLIMT	MP20S	Slot 1 through slot 5 of the basic cabinet
	MODEM	MP20	Slot of MP20 Board
		MP20S	Slot of MP20S Board
	MGI16	MP20	Slot 1 through slot 5 of the basic cabinet Slot 1 through slot 5 of the expansion cabinet
	OAS, CNF24	MP20	Slot 1 through slot 5 of the basic cabinet Slot 1 through slot 5 of the expansion cabinet
		MP20S	Slot 1 through slot 5 of the basic cabinet
VMS	SVMi-20E	MP20	Only 1 card is used slot 1 through slot 5 of basic/extension cabinet

Reference

For detail information on functions and characteristics of each Interface board, refer to ‘OfficeServ 7200 System Description’.

Mounting the GSIMT

Only one GSIMT can be mounted per the cabinet. If you mount boards more than the capacity limit, it may cause malfunction of the PSU due to overload.

Mounting the GPLIMT

Only one GPLIMT can be mounted per the cabinet. When using an external rectifier, up to two boards can be mounted. If you mount boards more than the capacity limit, it may cause malfunction of the PSU due to overload.

Mounting the OAS in 16 channels slot

If the OAS is mounted on one of 16 channels slot, no board can be mounted on the other slot. If any board is mounted on the other slot, the board will not work. (If the slot 1 is occupied with the OAS, the slot 2 should be empty. And if the slot 2 is occupied with the OAS, the slot 1 should be empty.)

The Procedure for mounting the interface board to each slot is as follows:

1) Check the exterior of the interface board for any damages.

2) Align each Interface board to the guardrails of the universal slot of the OfficeServ 7200 basic cabinet or expansion cabinet, and slide the Interface board into the slot.

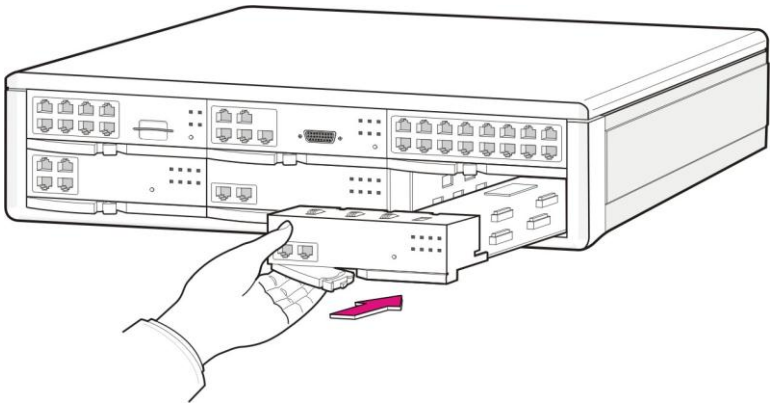


Figure 3.22 Mounting Interface Board to Slot

3) Push the front panel lever of the interface board until the board is completely inserted into the OfficeServ 7200 main board port.

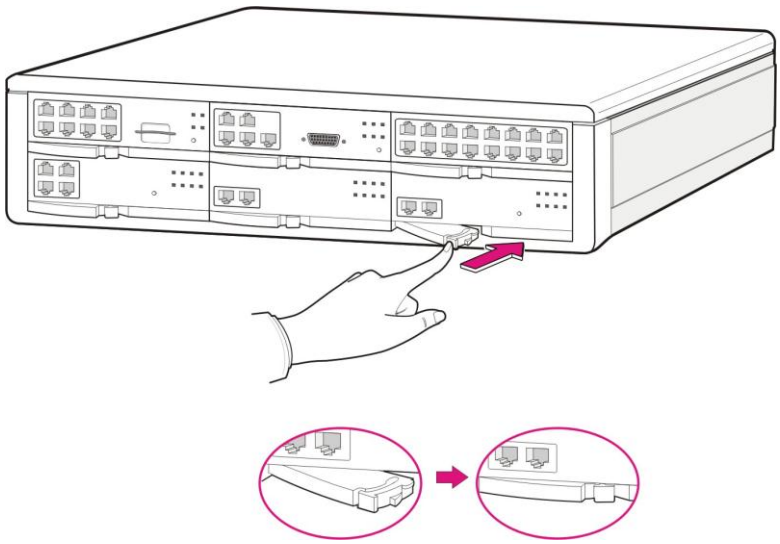


Figure 3.23 Inserting Control Board into the Main Board port

3.4 Connecting Power Fail Transfer

If AC power fails while battery is not connected, connect a power fail transfer circuit by connecting C.O. lines to extensions.
When using the 8TRK2/16TRK for the trunk board and the 8SLI2/16SLI2 for the local board, connect pins 7 and 8 of the first port of the 8TRK2/16TRK to pins 7 and 8 of the 8SLI2/16SLI2, as shown in the figure below. Then the line is connected to a general telephone through pins 7 and 8 of the 8TRK2/16TRK. If a power failure occurs, the trunk line is connected directly to the telephone connected to pins 4 and 5 through pins 7 and 8 of the 8SLI2/16SLI2 by the operation of an internal relay and thus emergency calls can be made.

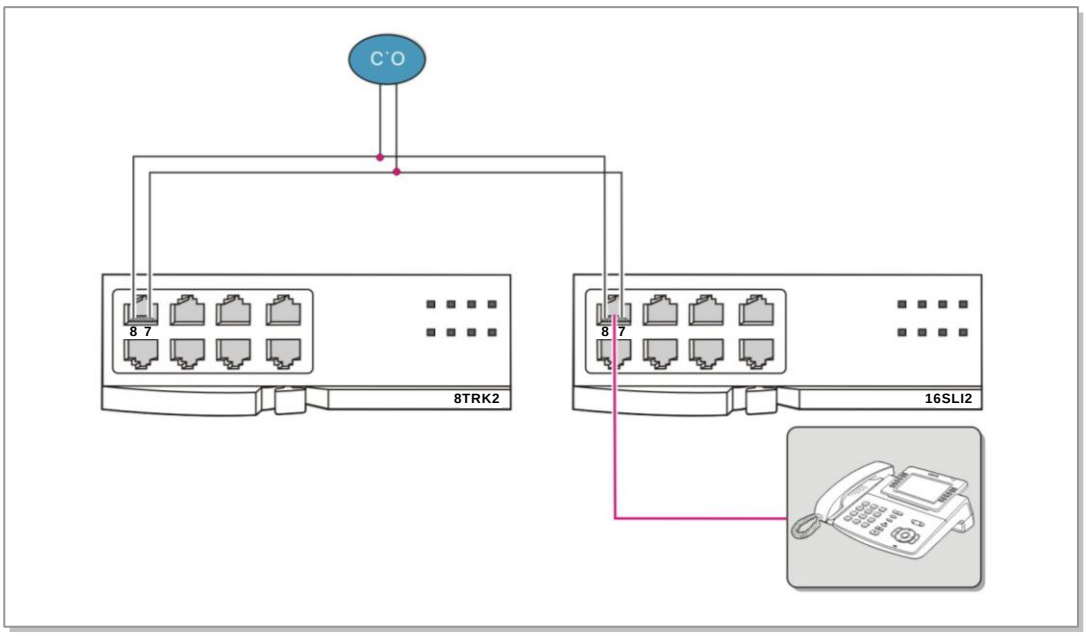


Figure 3.24 Connecting a Shunting Phone Line for Power Failure Protection to the 16SLI2

3.5 Replacing Boards

If the OfficeServ 7200 fails to operate normally due to an error on the power supply board, control board, or interface board, replace the board to a new one.

> **CAUTION**
>
> **Removing Cables**
>
> Replace a board after removing all cables connected to the board.

The procedure for replacing a board mounted in a slot of a cabinet is as follows:

1) Turn off the power of the cabinet.

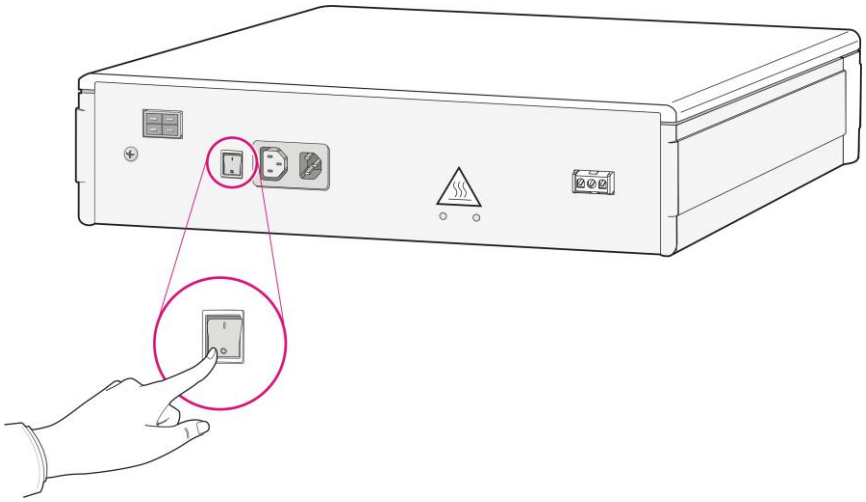


Figure 3.25 Turning the Cabinet Power Off

2) When replacing a control board, first, remove the extension cable connecting the MP20 to the LCP. Also, remove all cables connected to the board to be replaced.

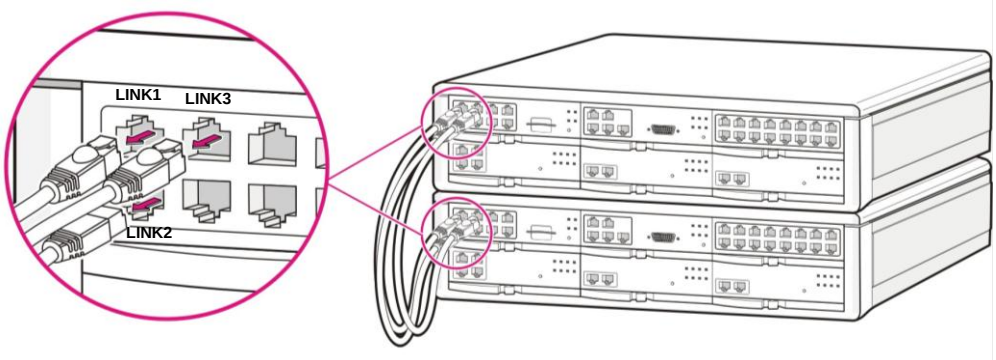


Figure 3.26 Removing Cable

3) Pull the lever of the board and pull out the target board slowly.

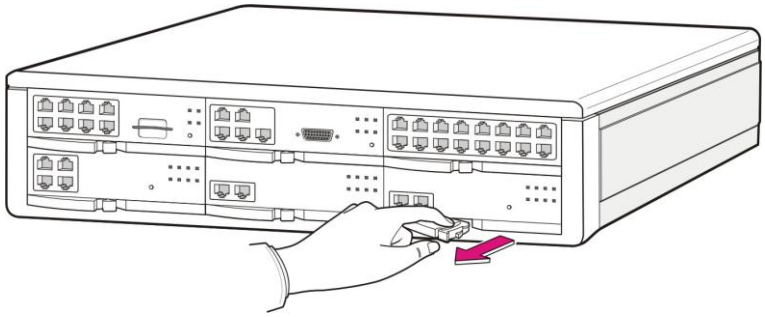


Figure 3.27 Removing Board

4) Align the new board to the guardrails of the slot, and slide the new board into the slot. Push the front panel lever of the MP20/MP20S until it is completely inserted into the OfficeServ 7200 main board port.

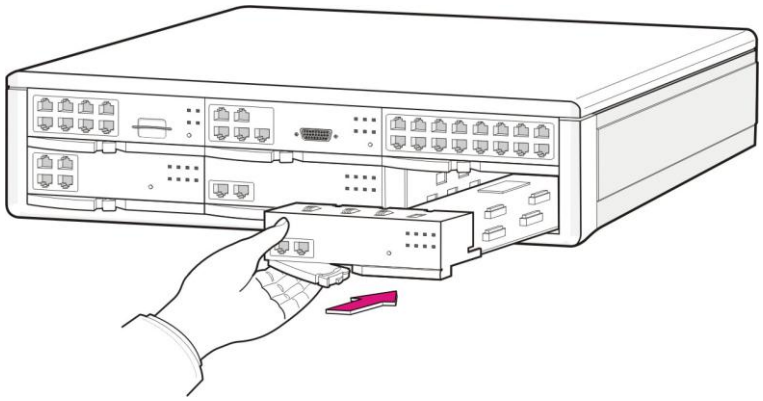


Figure 3.28 Replacing to New Board

CAUTION

Mounting or Dismounting a Board

Before replacing a board which can be mounted or dismounted while the system is operating, make sure to disconnect the cables connected at the front of the system. Make sure to mount a new board into the slot 10 seconds after dismounting the old one.

CHAPTER 4. Connecting External Batteries

This chapter describes how to connect external batteries to the OfficeServ 7200.

4.1 Connecting External Batteries

Cautions for connecting external batteries

External batteries are required to ensure stable operation of the OfficeServ 7200 in case a power failure occurs. Rated capacity of an external battery is DC 48 V and 45 AH per cabinet. Batteries should be connected to each cabinet to guarantee safety and a fuse (125 VAC, 5 Amp) should be positioned between the output terminal of the battery and the cabinet.

Connecting external batteries

Do not connect external AC power to the system before completing the connection between batteries and the system. If so, it may cause electric shock Check the specified polarity (+ or -) to connect external batteries.

Procedure for connecting external battery

The procedure for using a battery cable to connect an external battery to the OfficeServ 7200 is as follows:

1) Prepare the battery cable that was provided with the OfficeServ 7200.
An end of this battery cable consists of a white line and a black line.

2) Connect the white line of the battery cable to the (+) terminal, and the black line to the (-) terminal of the battery. Then, connect the other end of the battery cable to the external battery socket on the rear panel of the OfficeServ 7200 cabinet. When using two or more OfficeServ cabinets, prepare as much external batteries as the number of cabinets and connect the batteries to each cabinet.

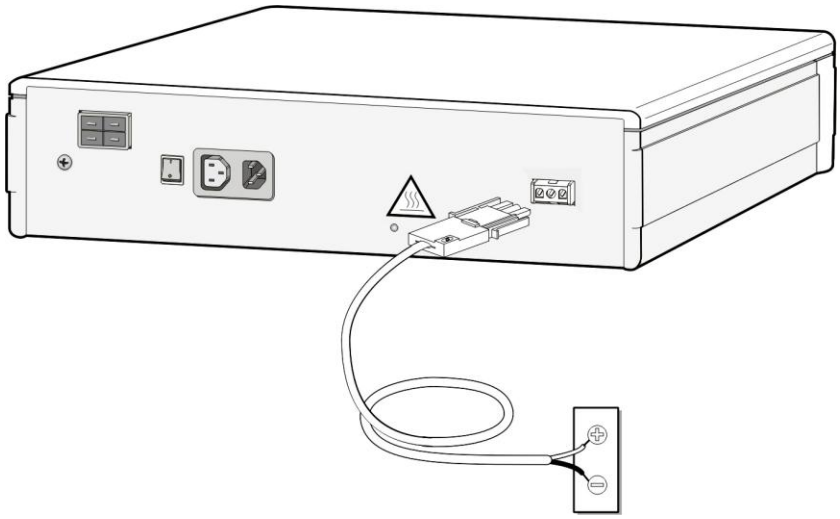


Figure 4.1 Connecting an External Battery

4.2 Connecting External Rectifier

The external rectifier is an external power supply that provides the power to IP phones connected to the OfficeServ 7200 when the PLIM, PLIM2, or GPLIMT board is used. Since the capacity of the internal power is not sufficient for external equipment, additional power supply is required.

The procedure to connect an external rectifier is as follows:

1) Switch off all powers for the OfficeServ 7200 and the external rectifier.

2) There are 3 screws to connect power cables to A and B (GND and -54 V) in the rear of external rectifier. Prepare the power cables as shown in the figure below.
The power cables consists of a red line and a blue line and each end of the cables is marked as GND (red cable) or -48 VDC (blue cable). The other ends are attached to connectors to connect to the sockets of the external rectifier in the OfficeServ 7200.

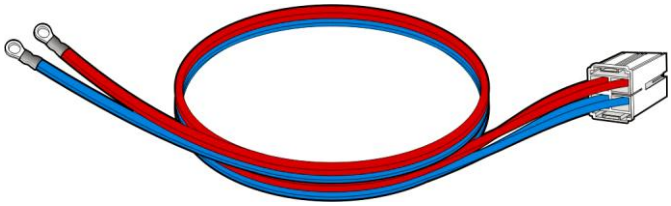


Figure 4.2 Power Cable

3) Connect the power cables as shown in the figure below.
Connect GND (red cable) and 48 VDC (blue cable) of the power cables to A area (GND) and B area (-54 V) separately. Any screw in an area can be available for the connection.

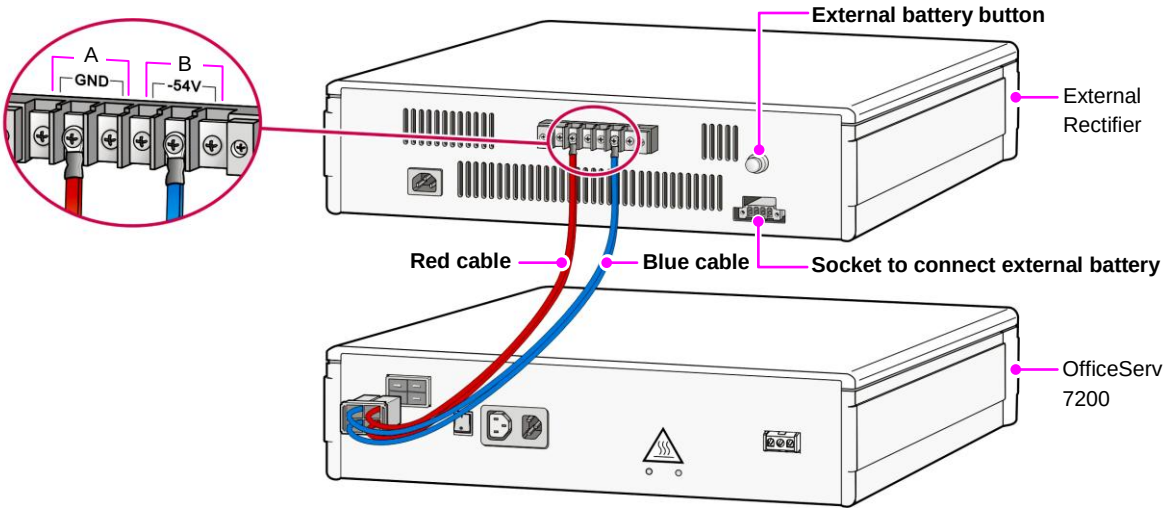


Figure 4.3 Connecting an External Rectifier

4) Connect the connector sides of the power cables to the socket in the external rectifier of the OfficeServ 7200.

5) Power on the system.

6) Power on the external rectifier.

NOTE

External batteries to be connected to an external rectifier

The external battery to be connected to an external rectifier has the same capacity as the external battery used in the OfficeServ 7200. In addition, it is handled in the same way and with the same cautions. For details about the capacity of the external battery, refer to '4.1 Connecting external battery'.

CAUTION

Connecting a Rectifier

Do not connect the battery for power failure protection to a PoE connecting terminal.

CAUTION

Use of External Rectifiers against Power Failure

Since an external rectifier for power failure operation is used along with PoE and the system, the capacity of the external rectifier should be bigger than 20 A. When the rectifier is used for power failure operation, restrictions occur in the terminal connected to PoE. For more detailed information, refer to 'Cautions for Connecting Stations'.

CHAPTER 5. Connecting Power

This chapter describes how to connect power to the OfficeServ 7200.

5.1 Cautions when Connecting Power

When input power is normally supplied, the AC power is supplied to the Power Supply Unit (PSU), which charges the external battery. If the input power is interrupted, the system can be operated using the charged power of the external battery.
Cautions to be taken when connecting power to the OfficeServ 7200 are as follows:

- The AC power of the system is designed for 220 V and is set to 220 V when manufactured (110 V for U.S.A.).
- Make sure that the input power of the OfficeServ 7200 is AC 220 V (110 V for U.S.A.) and other electric devices, such as motors and compressors, do not use the same input power.
- A single AC outlet should be used solely for the system's AC power. Sharing the AC power with other devices can cause noise or a voltage drop, resulting in a system malfunction or fire.
- Use a stable power source that can always supply AC power since instantaneous power failures can cause malfunctions or battery failures.

Connecting a Power Line

When connecting an AC power line to the system, the Ferrite-core enclosed in the package should be attached to that power line in advance to minimize the Electro-Magnetic Compatibility (EMC) effect.

5.2 Procedure for Connecting Power

Single Cabinet Configuration

Use the power cable provided with the OfficeServ 7200 to connect the input power terminal on the rear panel of the cabinet to a grounded outlet.

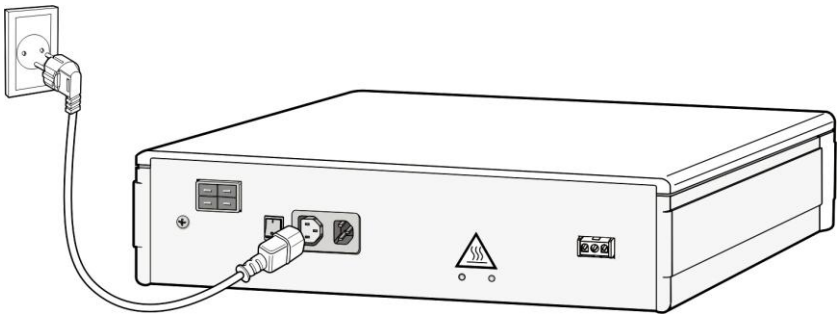


Figure 5.1 Connecting Power (for Single Cabinet)

Basic and Expansion Cabinet Configuration

The connection procedure depends on the environment of the installation area as shown below. Select a procedure according to your environment.

- Connect each input power cable of the cabinets to a grounded outlet.

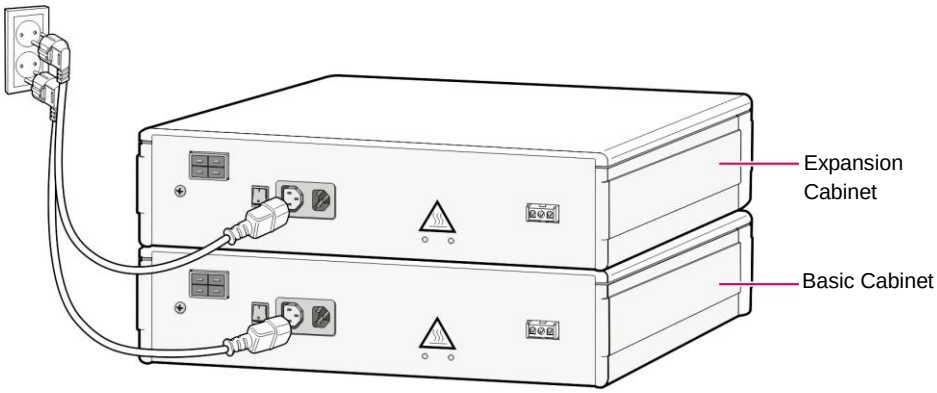


Figure 5.2 Connecting Power (using Power cable)

- Or, connect the input power terminal of the basic cabinet to the grounded outlet, and use an power extension cable to connect the power connectors of the basic and expansion cabinet.

Figure 5.3 Connecting Power (using Power Extension Cable)

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CHAPTER 6. Connecting C.O. Lines

This chapter describes how to connect C.O. lines to the OfficeServ 7200 after installation.

6.1 Line Conditions

Cautions for connecting C.O. lines are as follows:

- Cables with AWG #24 or AWG #26 should be used as subscriber lines.
- When wiring cables in high-humidity areas, remove moisture before wiring.
- Cables should be handled carefully to prevent any changes or damages.
- Subscriber lines should be kept indoors if possible.
- High voltage power lines should not be wired near a subscriber line.

Leak resistance for C.O. lines connected to the OfficeServ 7200 is as follows:

Table 6.1 OfficeServ 7200 Line Conditions

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

6.2 Connecting C.O. Lines

This section describes how to connect a common C.O. line (4TRM, 8TRK, 8TRK2, and 16TRK), Leased line (4HTRK), BRI C.O lines (2BRM and 4BRI) and T1/E1/PRI C.O. lines (TEPRIa).

6.2.1 Cautions when Connecting C.O. Lines

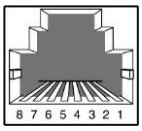
Take care of followings to prevent bodily injuries and system damages when connecting C.O. lines:

- Do not connect C.O. lines in extreme weather conditions such as storm and lightning.
- Do not connect C.O. lines in areas with moisture.

6.2.2 Connecting Common C.O. Lines

Connecting to the 8TRK Board and 4TRM Daughter Board

Use a pair of cable with AWG #24 (or AWG #26) width to connect a common C.O. line to the terminal pin of a terminal box connected to the OfficeServ 7200 equipped with an 8TRK.



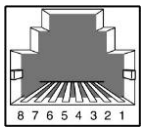
P1-P8 Port
(RJ-45)

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

Figure 6.1 RJ-45 Port of the 8TRK and 4TRM

Connecting to the 8TRK2

Connect a general trunk line to a pin of the terminal block connected to the OfficeServ 7200 where the 8TRK2 is mounted using a pair of AWG #24 (or AWG #26) cables.



P1-P8 Port
(RJ-45)

Figure 6.2 RJ-45 Port of the 8TRK2

P1 Port

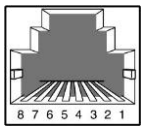
Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	C.O TIP	C.O RING	-	PFT TIP	PFT RING

P2-P8 Ports

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

Connecting to the 16TRK

Connect a general trunk line to a pin of the terminal block connected to the OfficeServ 7200 where the 16TRK is mounted using a pair of AWG #24 (or AWG #26) cables.



P1-P16 Port
(RJ-45)

Figure 6.3 RJ-45 Port of the 16TRK

P1 Port

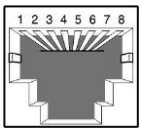
Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	C.O TIP	C.O RING	-	PFT TIP	PFT RING

P2-P16 Ports

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

6.2.3 Connecting T1/E1/PRI

TEPRIa can be connected to a T1/E1 C.O. line through a RJ-45 port.
As shown below, connect a T1 C.O. line or an E1 type PRI C.O. line to the T1/E1/PRI port of the OfficeServ 7200.



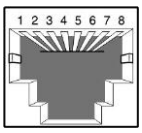
T1/E1/PRI Port
(RJ-45)

Figure 6.4 RJ-45 Port of TEPRIa

Pin No.	1	2	3	4	5	6	7	8
T1 Function	Rx+	Rx-	-	Tx+	Tx-	-	-	-
E1/PRI Function	-	-	-	Tx+	Tx-	-	Rx+	Rx-

6.2.4 Connecting a Leased Line

You can connect E & M, DID, and R/D leased lines to the 4HTRK through the RJ-45 port.
As shown below, connect the E & M, DID, and R/D ports in the OfficeServ 7200.



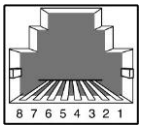
E & M/DID/R/D Port
(RJ-45)

Figure 6.5 RJ-45 Port of the 4HTRK

Pin No.	1	2	3	4	5	6	7	8
E & M Function	E (-54 V)	-	-	Tip	Ring	-	-	M (GND)
DID Function	-	-	-	Tip	Ring	-	-	-
R/D Function	-	-	-	Tip	Ring	-	-	-

6.2.5 Connecting a BRI

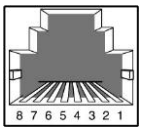
4BRI and 2BRM can be connected to BRI lines through a RJ-45 port. As shown below, connect BRI lines to the 4BRI and 2BRM port of the OfficeServ 7200.



P1-T~P4-T port
(RJ-45)

Figure 6.6 RJ-45 Port of the 4BRI

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



P1~P2 port
(RJ-45)

Figure 6.7 RJ-45 Port of the 2BRM

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

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CHAPTER 7. Connecting Stations and Additional Equipment

This chapter describes how to connect various stations and additional equipment, such as analog/digital phones, door phones and door locks, to the OfficeServ 7200.

7.1 Connecting Stations

7.1.1 Cautions for Connecting Stations

Take the following cautions when connecting stations.

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

The distances between stations and the OfficeServ 7200 are as follows:

Table 7.1 Distance Between Stations and the System

Station	Distance
Digital phone	Maximum 400 m (for AWG #24)
Analog phone	Maximum 1 km (for AWG #24)
Door phone	Maximum 400 m (for AWG #24)
AOM	Maximum 400 m (for AWG #24)
SMT-R2000	Maximum 100 m (for Ethernet cable)

Below are the power consumptions of the terminals that can be connected to the OfficeServ 7200.

Table 7.2 Power Consumption by Terminal Type

Terminal Type	Power Consumption
Analog Phone	1.44 W
Digital Phone 2-Line LCD Keyset (DS-5038S, DS-5021D, DS-5014D, DS-5007S, DS-5014S)	1.68 W
Digital Phone Large LCD Keyset (DS-5012L)	4.08 W
IP Phone 2-Line LCD Keyset (ITP-5114D, ITP-5107S, ITP-5121D)	4.8 W
IP Phone LCD (128 x 64 pixels) Keyset (SMT-i3100)	3 W
IP Phone 2-Line LCD IP Keyset (ITP-5112L)	5.7 W

Below are the maximum capacities of the terminals which can be connected when only the built-in power of the OfficeServ 7200 is used.

Table 7.3 Maximum Mountable Capacities When Only the Built-in Power Is Used

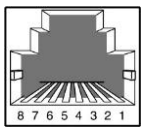
Terminal Type	Maximum Mountable Capacity
Analog Phone/Digital Phone 2-Line LCD Keyset	52 EA
Digital Phone Large LCD Keyset	22 EA
IP Digital Phone 2-Line LCD Keyset	16 EA
IP Phone LCD (128 x 64 pixels) Keyset (SMT-i3100)	25 EA
IP Digital Phone Large LCD Keyset	10 EA

7.1.2 Connecting an Analog Phone

Connect an analog phone to the 8SLI2, 16SLI2, 16MWSLI, 8COMBO2, 4SLM, 4SL2 mounted on the OfficeServ 7200.

Connecting to the 8SLI2

Connect a general analog phone to a port of the 8SLI2 using a pair of AWG #24 (or AWG #26) cables.



P1-P8 Port
(RJ-45)

Figure 7.1 RJ-45 Port of the 8SLI2

P1 Port

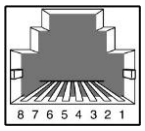
Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI 1 TIP	SLI 1 RING	-	PFT TIP	PFT RING

P2-P8 Ports

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

Connecting to the 16SLI2/16MWSLI

Connect an analog phone to the 16SLI2/16MWSLI by using a pair of AWG #24 or AWG #26 cables.



P1-P16 port
(RJ-45)

Figure 7.2 RJ-45 port of the 16SLI2/16MWSLI

P1 Port

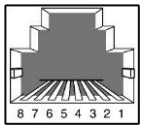
Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI 1 TIP	SLI 1 RING	-	PFT TIP	PFT RING

P2-P16 Port

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

Connecting to the 8COMBO2

Connect a general analog phone to a port of the 8COMBO2 using a pair of AWG #24 (or AWG #26) cables.



S1-S8 Port
(RJ-45)

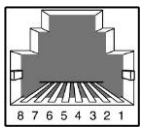
Figure 7.3 RJ-45 Port of the 8COMBO2

S1-S8 Ports

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

Connecting to the 4SLM and 4SL2 of UNI

Connect an analog phone to the ports of 4SLM and 4SL2 of UNI by using a pair of AWG #24 or AWG #26 cables.



P1~P4
(RJ-45)

Figure 7.4 RJ-45 Port of the 4SLM and 4SL2

P1-P4 port

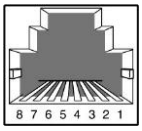
Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI TIP	SLI RING	-	-	-

7.1.3 Connecting a Digital Phone

Connect a digital phone to 8DLI, 16DLI2, 8COMBO2, 4DLM.

Connecting to the 8DLI

Connect a digital phone to the 8DLI by using a pair AWG #24 or AWG #26 cables.



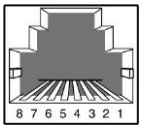
P1~P8
(RJ-45)

Figure 7.5 RJ-45 Port of the 8DLI

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

Connecting to the 16DLI2

Connect a digital phone to the 16DLI2 by using a pair of AWG #24 or AWG #26 cables.



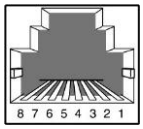
P1-P16 Port
(RJ-45)

Figure 7.6 RJ-45 Port of the 16DLI2

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

Connecting to the 8COMBO2

Connect a general analog phone to a port of the 8COMBO2 using a pair of AWG #24 (or AWG #26) cables.



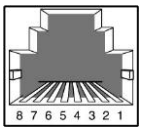
D1-D8 Port
(RJ-45)

Figure 7.7 RJ-45 Port of the 8COMBO2

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

Connecting to 4DLM of UNI

Connect an analog phone to the ports of 4DLM of UNI by using a pair of AWG #24 or AWG #26 cables.



P1-P4 Ports
(RJ-45)

Figure 7.8 RJ-45 Port of 4DLM

P1-P4 Ports

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

CHECK

Maximum number of DS-5012L phones connectable

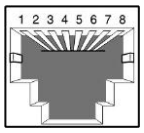
Up to eight DS-5012L phones can be connected to each DLI board (8DLI) of the OfficeServ 7200. If nine or more DS-5012L phones are connected to the DLI board, the power provided to all digital phones connected to the same board is turned off automatically. Up to 24 DS-5012L phones can be connected to the basic cabinet or the expansion cabinet.

7.1.4 Connecting a ISDN Phone

Connect an ISDN phone to 4BRI and 2BRM.

Connecting to the 4BRI and 2BRM

Connect an ISDN phone to the 4BRI and 2BRM using two pair AWG #24 or AWG #26 cables.



P1-S~P4-S port
(RJ-45)

Figure 7.9 RJ-45 Port of the 4BRI and 2BRM

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

7.1.5 Connecting an IP Phone

IP phone enables calls through the Ethernet LAN.
The interface between a digital phone connected to the OfficeServ 7200 and an IP phone connected to LAN is as follows:

1) The connection between a digital phone and an IP phone is established or released using the IP address of the LAN connected to the OfficeServ 7200.
2) The digital phone connected to the OfficeServ 7200 converts the analog voice data to PCM voice data and transmits the data to the MGI16 and OAS via through 16 DLI.
3) PCM voice data is converted to packet data by the MGI16 and OAS, and transmitted to the IP phone.
4) The IP phone converts packet voice data to analog voice signals and displays the signals through a phone receiver or a speaker.
5) Voice signals from the IP phone is converted to packet data and transmitted to the MGI16 and OAS in the same way. The MGI16 converts the packet voice data to PCM voice data and transmits the data to the digital phone through the 16DLI2.
   The digital phone converts the PCM voice data to analog data.

To make calls to digital phones of extension line subscribers by using IP phones, the OfficeServ system equipped with a MGI16 and OAS should be accessed to LAN.
Use the IP phone after the MMS setting proper for the system.

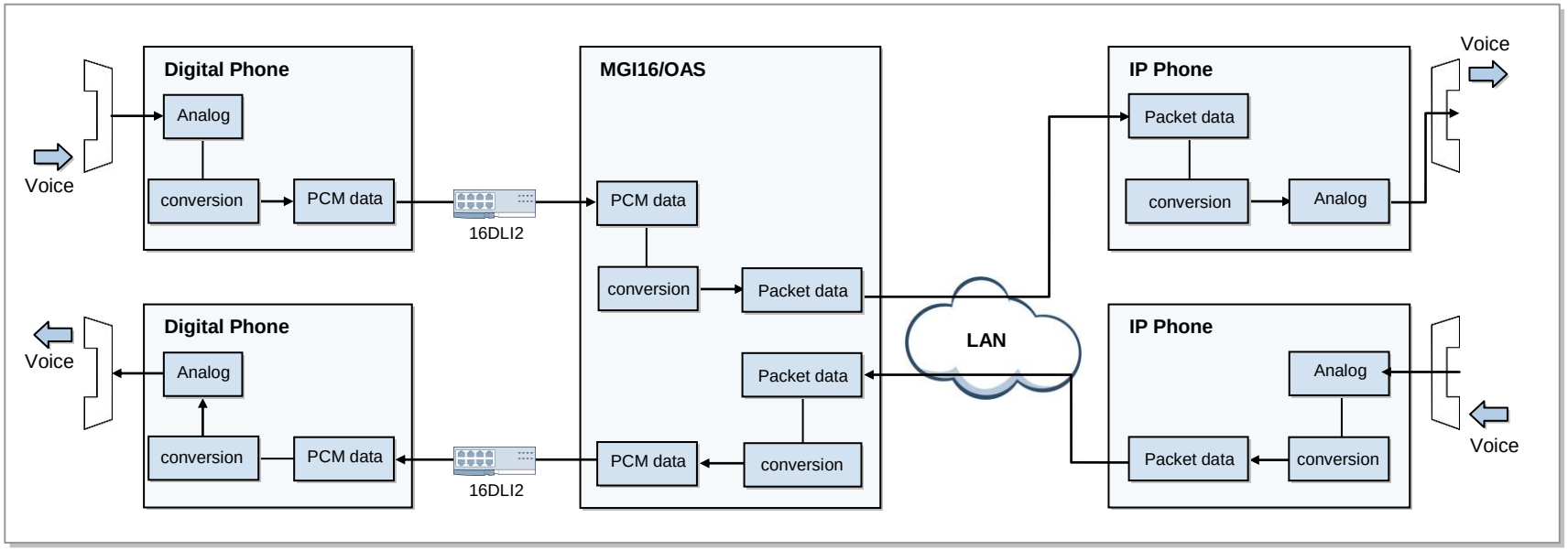


Figure 7.10 Signal Transfer of IP Phones

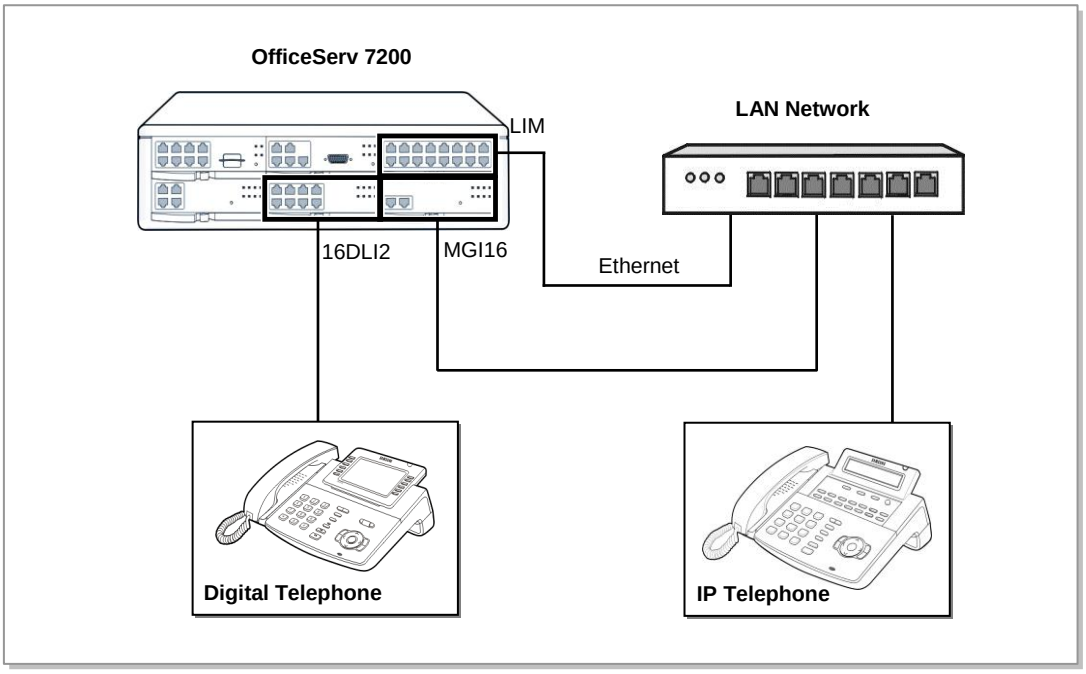
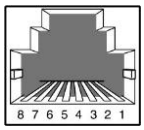


Figure 7.11 IP Phone Connection Diagram

7.1.5.1 Connecting Boards to Ethernet

WIM/LIM/PLIM/PLIM2/GPLIMT/GSIMT/MGI16/MP20/MP20S/TEPRIa /SVMi-20E/OAS/CNF24 can be connected to Ethernet by using an Ethernet cable.



RJ-45 port

Figure 7.12 RJ-45 Port of Boards for Ethernet

- WIM-P1, P2, P3 and P4 port
- LIM, PLIM, PLIM2-all ports (P1~P16)
- GSIMT-all ports (P1~P10)
- GPLIMT-all ports (P1~P14)
- MP20, MP20S, MGI16, TEPRIa, OAS, CNF24 and SVMi-20E-LAN port

Pin No.	1	2	3	4	5	6	7	8
WIM/MP20/MP20S/MGI16/SVMi-20E/OAS	Tx+	Tx-	Rx+	-	-	Rx-	-	-
LIM	Rx+	Rx-	Tx+	-	-	Tx-	-	-
PLIM	Rx+	Rx-	Tx+	RTN	RTN	Tx-	48-	48-
CNF24	M0+	M0-	M1+	M2+	M2-	M1-	M3+	M3-

7.1.6 Connecting a Wireless LAN Access Point

Wireless LAN service offered by the OfficeServ 7200 requires the following equipment:

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

Table 7.4 Specification for Wireless LAN Connection

Item	OfficeServ 7200	
	Basic Cabinet (MP20, MP20S)	Basic and Expansion Cabinets (MP20 only)
Maximum number of users	32	32
Number of simultaneous users	MMC 845 setting (32)	MMC 845 setting (32)

Installation and Use of the SMT-R2000 and SMT-W5100

For the information on installation and use of the SMT-R2000 and SMT-W5100, refer to the 'VoWLAN Administrator Guide'.

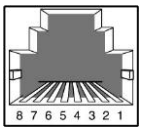
Connect the WAN ports of the PLIM/PLIM2 and the SMT-R2000. As the PoE is supported, you don't need to connect an additional adapter to the SMT-R2000.

7.1.7 Connecting to a Door Phone and a Door Lock

Connect a door phone and a door lock to the OfficeServ 7200 by using a Door Phone Interface Module (DPIM).

1) Connect a pair of #24 AWG or #26 AWG cables to the LINE port of DPIM and to P1 through P8 of 8DLI/16DLI2, D1 through D8 of 8COMBO2 and P1 through P4 of 4DLM of the OfficeServ 7200.

Connecting to the 8DLI and 4DLM

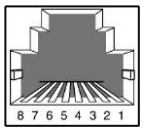


P1~P8
(RJ-45)

Figure 7.13 RJ-45 Port of 8DLI and 4DLM

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

Connecting to the 16DLI2

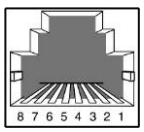


P1-P16 Port
(RJ-45)

Figure 7.14 RJ-45 Port of 16DLI2

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

Connecting to the 8COMBO2



D1~D8 Port

Figure 7.15 RJ-45 Port of the 8COMBO2

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

2) Connect the DOOR BOX port of DPIM and the Line port of the door phone.

3) 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 low-voltage relay and uses 24 VDC and 100 mA.

MMC

MMC 211 is used to assign call numbers to door phones.
For full and detailed instruction on the MMC program, refer to 'OfficeServ 7200 Programming Manual' in http://www.samsungdocs.co.kr.

7.1.8 Connecting KDB-D/KDB-S

KDB-D and KDB-S are modules installed on a digital phone connected to the OfficeServ 7200. The KDB module enhances the functions of the phone and increases the number of local ports according to module types.

> NOTE
>
> **Connecting KDB module**
>
> KDB-D and KDB-S is only for a digital phone connected to the 8DLI board, not for a digital phone connected to the 16DLI2/8COMBO2 board.

The following example shows how a KDB module is installed on a DS-5000D series digital phone:

1) Take off the plastic cover on the bottom surface of the phone.

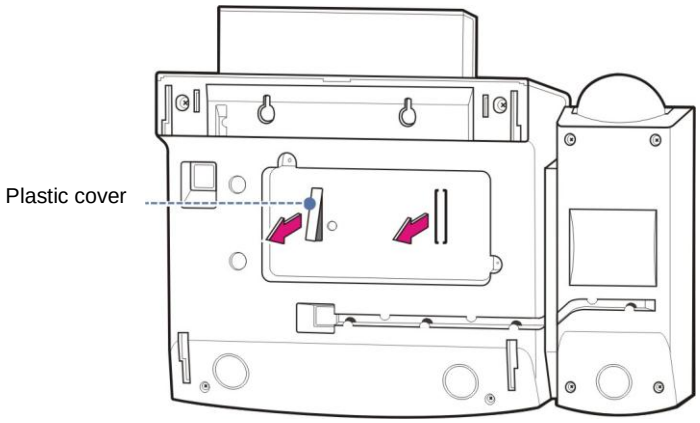


Figure 7.16 Installing KDB Module (1)

2) Insert the KDB module into the expansion module connector, and fasten the KDB with screws.

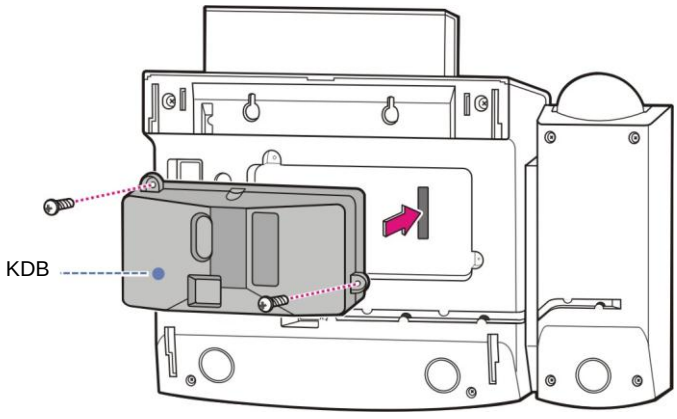


Figure 7.17 Installing KDB Module (2)

7.2 Connecting Additional Equipment

This section describes how to connect optional equipment, such as Music on Hold (MOH)/Background Music (BGM) sources, external page devices, common bells, and PCs for PCMMC/SMDR/CTI, to the OfficeServ 7200.

7.2.1 Connecting MOH/BGM Equipment

The OfficeServ 7200 offers music when while on hold. The system provides internal tone/music and external music sources per C.O. or extension lines as the music source. The selection of internal/external music sources is performed through MMC 861.

Two external music sources are offered while on hold. Connect the music sources to the MISCI port of the MP20. The MIS optional board should have been mounted on the MP20.

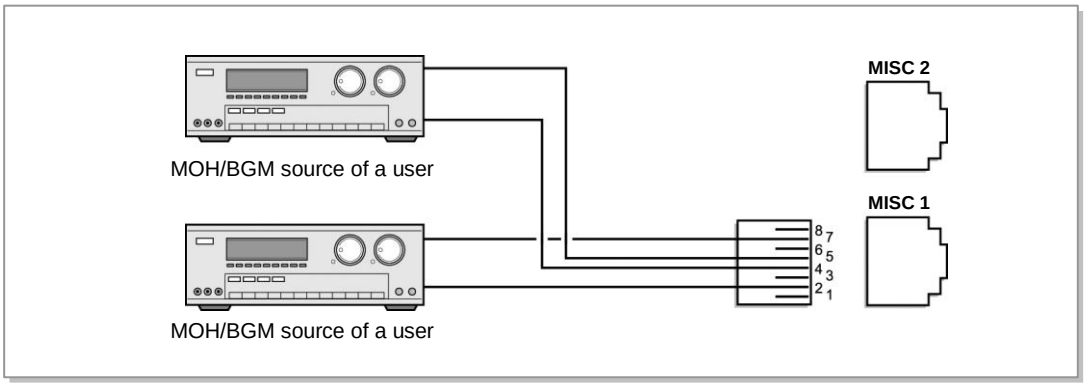


Figure 7.18 Connecting MOH/BGM Sources with MP20

One external music source is provided while on hold, and the external music source is connected to the MISC port.
If a pair of MOH/BGM Source lines is connected to pin4 and pin5 of the MISC port in MP20S.

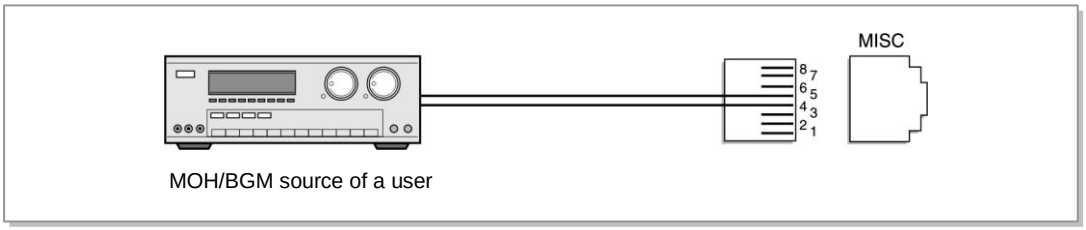


Figure 7.19 Connecting MOH/BGM Sources with MP20S

NOTE

MMC Related

Select music sources for C.O. lines through MMC 408 and music sources for extensions through MMC 308.
For full and detailed instruction on the MMC program, refer to 'OfficeServ 7200 Programming Manual' in http://www.samsungdocs.co.kr.

7.2.2 Connecting External/Additional Page Equipment

Instead of an internal speaker, external broadcasting equipment, such as amps or speakers, and additional equipment that can broadcast page (ring) signals outside a building can be connected to the OfficeServ 7200.

Connect external/additional page equipment to the MISC1 and MISC2 ports of the MP20. The MIS optional board should have been mounted on the MP20. The power of the external/additional page equipment should be separately connected.

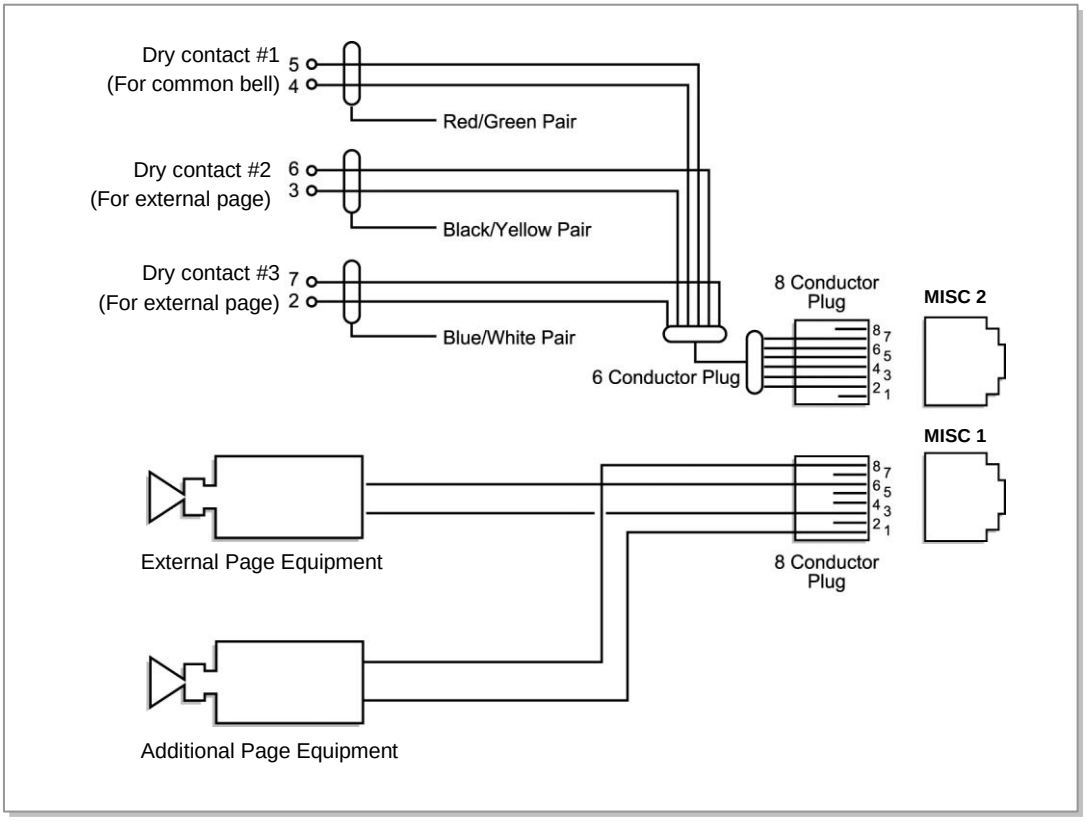


Figure 7.20 Connecting External/Additional Page Equipment with MP20

MP20S supports the channels for external broadcasting and one dry contact.
If a pair of External Page Equipment lines is connected to pin3 and pin6, Dry Contact 1 lines is connected to pin1 and pin2, Dry Contact 2 lines is connected to pin7 and pin8 of the MISC port in MP20S.

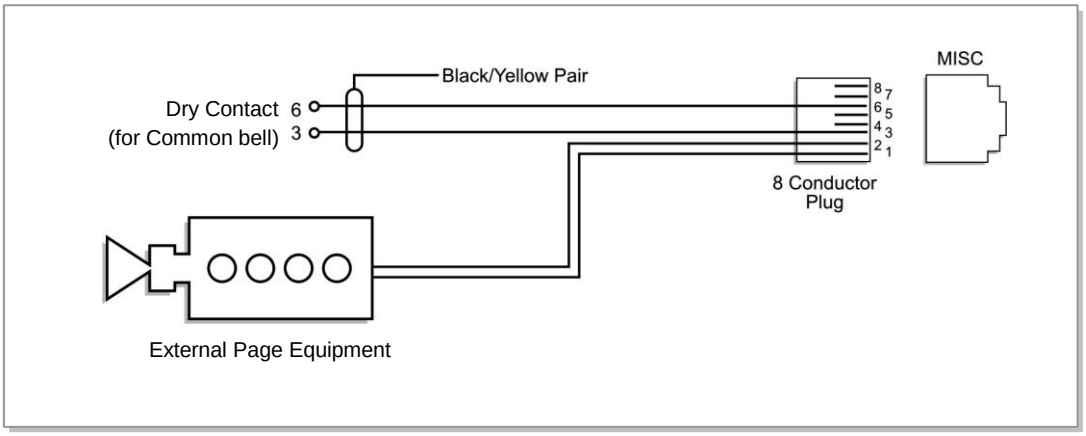


Figure 7.21 Connecting External/Additional Page Equipment with MP20S

NOTE

Dry Contact

Dry Contact is a switch that can connect or cut the power or line to external equipment.

7.2.3 Connecting Common Bell

Common Bell is the ring type. So, when a ring is received through an extension of a group, all extensions of the group also receive the ring.

Using common bell is required to connect the common bell to the MISC1 and MISC2 ports of the MP20. MIS optional board should be already mounted on the MP20.

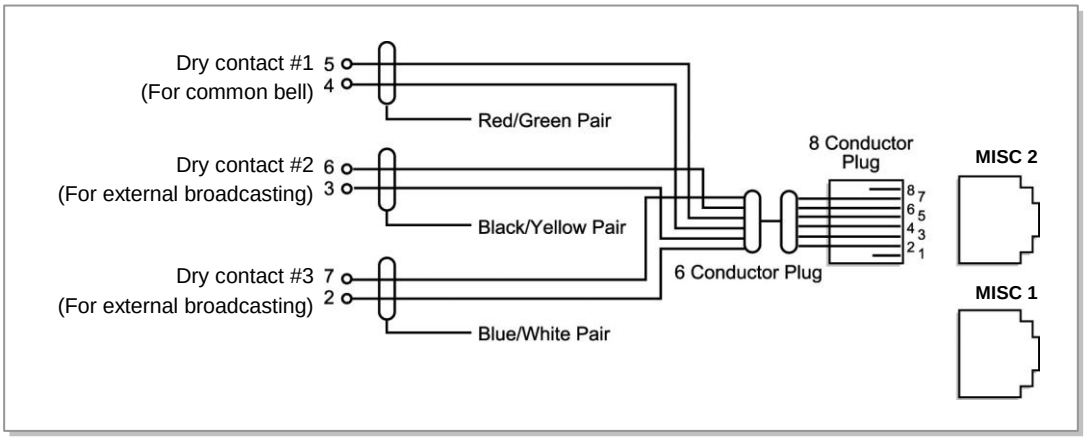


Figure 7.22 Connecting Common Bell with MP20

MP20S supports only one dry contact for the common bell.

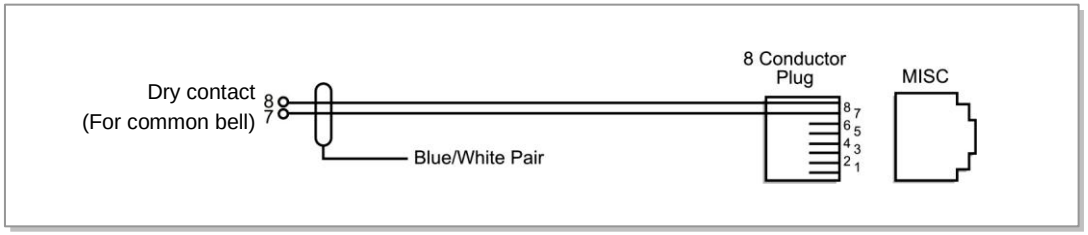


Figure 7.23 Connecting Common Bells with MP20S

7.2.4 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 7.5 Specifications for the PC for Programming

Item		Specification
PC	CPU	Pentium III or faster
	Main Memory	256 MB or more
	HDD Drive	At least 30 MB of free space
	OS	Microsoft Windows 98 or newer
Modem		1,200~115,200 baud rate

7.2.4.1 Connecting a PC for Programming Using a LAN Port

You can connect a PC where the Installation Tool is installed to the OfficeServ 7200 using a LAN port. The Installation Tool allows you to manage the OfficeServ 7200 remotely. This section describes how to connect a PC for programming to the OfficeServ 7200 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 MP20/MP20S 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 LIM/PLIM/PLIM2.

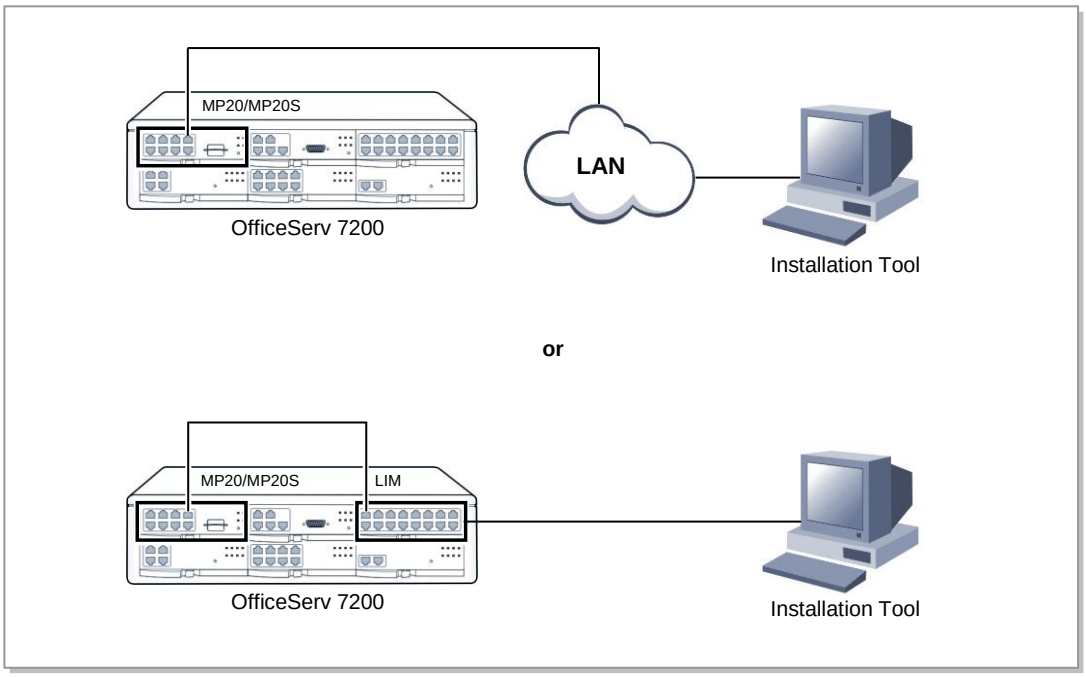


Figure 7.24 Connecting Installation Tool

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

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

Below is the description of each of the steps mentioned above.

Configuring the network parameters using the MMC 830 program

This step configures the network parameters of the OfficeServ 7200.
Consult your network administrator for the network parameter values.

1) Set the IP address of the OfficeServ 7200.
2) Set the subnet mask of the OfficeServ 7200.
3) Set the gateway IP address of the OfficeServ 7200.
4) Reset the board.

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

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.

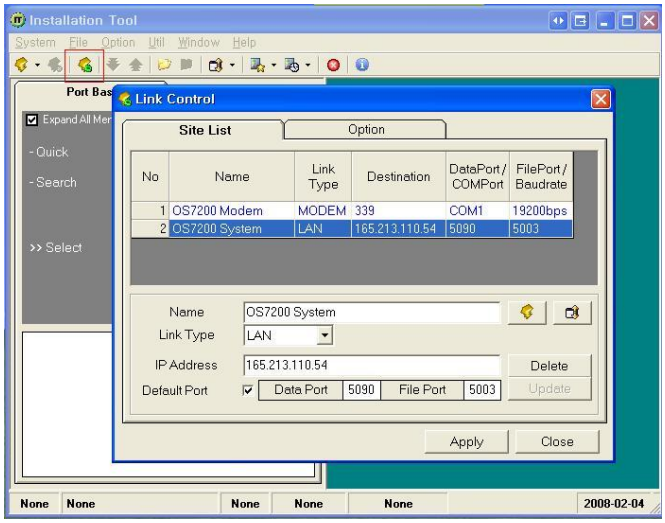


Figure 7.25 Installation Tool

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 7200 in the **[IP Address]** field.

If the Link Type is MODEM enter the internal modem number of the OfficeServ 7200 in the **[Telephone]** field.

7.2.4.2 Receiving alarm information with NMS Server

Set equally with 'Configuring the network parameters using the MMC 830 program' of '7.2.4.1 Connecting a PC for Programming Using a LAN Port'. If already set, execute 'Configuring the network parameter of NMS Server to send alarm using MMC 830 program'.

Configuring the network parameters using the MMC 830 program

This step configures the network parameters of the OfficeServ 7200.
Consult your network administrator for the network parameter values.

1) Set the IP address of the OfficeServ 7200.
2) Set the subnet mask of the OfficeServ 7200.
3) Set the gateway IP address of the OfficeServ 7200.
4) Reset the board.

Configuring the network parameter of NMS Server to send alarm using MMC 830 program

Set IP address of NMS Server to send alarm in NMS Trap Server field. (Default port information is 11162.)

7.2.5 Connecting Web Management

Since OfficeServ 7200 with MP20S is equipped with the web server of Web Management, it supports the remote access through the network. The system administrator can change the system setting after getting access to Web Management by using a browser.
This section describes how to access OfficeServ 7200 with MP20S.

If the in-housing network is established, connect LAN to the LAN port of MP20S and attempt the access in a client PC.

Setting Network parameter by using the MMC830 program

Set the network parameter of OfficeServ 7200 with MP20S. For the setting value of the network parameter, contact the network administrator.

1) Set the IP address of OfficeServ 200 with MP20S.
2) Set the subnet mask of OfficeServ 200 with MP20S.
3) Set the gateway address of OfficeServ 200 with MP20S.
4) Reset the board.

About the board reset

To apply new setting, the board should be reset.

Getting access to Web Management from a client PC

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

2) Access Web Management by using the LAN IP address.
Access address: https://[System IP Address]

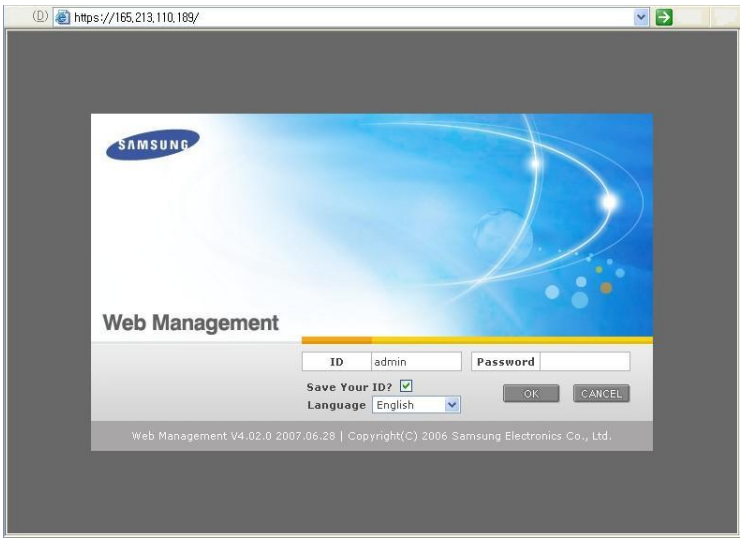


Figure 7.26 Web Management Initial Screen

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

7.2.6 Connecting SMDR

The Station Message Detail Recording (SMDR) computer is used for recording call information and for calculating phone bills or displaying various analysis data based on the call data provided by the system. The SMDR computer can be connected to the system through the LAN port of the LIM board or the WIM board.
SMDR system specification is as follows:

Table 7.6 SMDR System Specification

Category	Specification
Platform	IBM PC
CPU	Pentium or higher
OS	Windows 95/98
Main memory	32 MB or higher

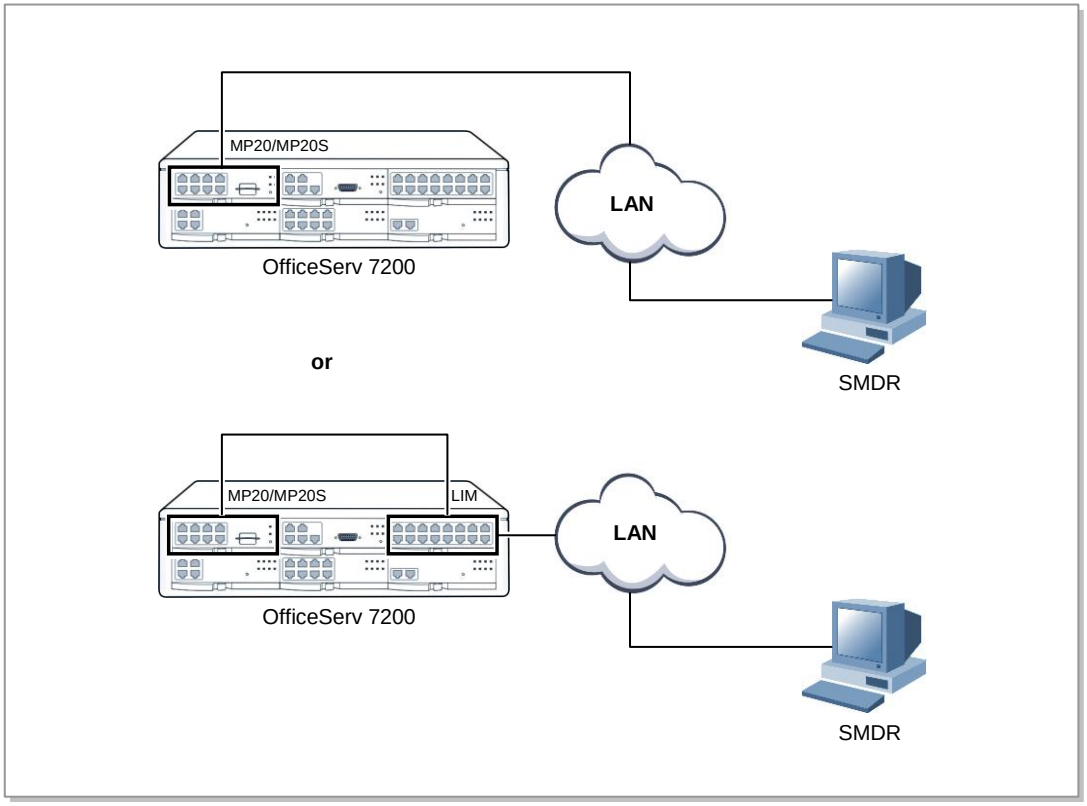


Figure 7.27 Connecting SMDR to the LAN port

7.2.7 Connecting a Printer

The OfficeServ 7200 can connect to a printer. The system can print various call information or event information created by the system.

A printer can be connected through the LAN port of the LIM board or the WIM.

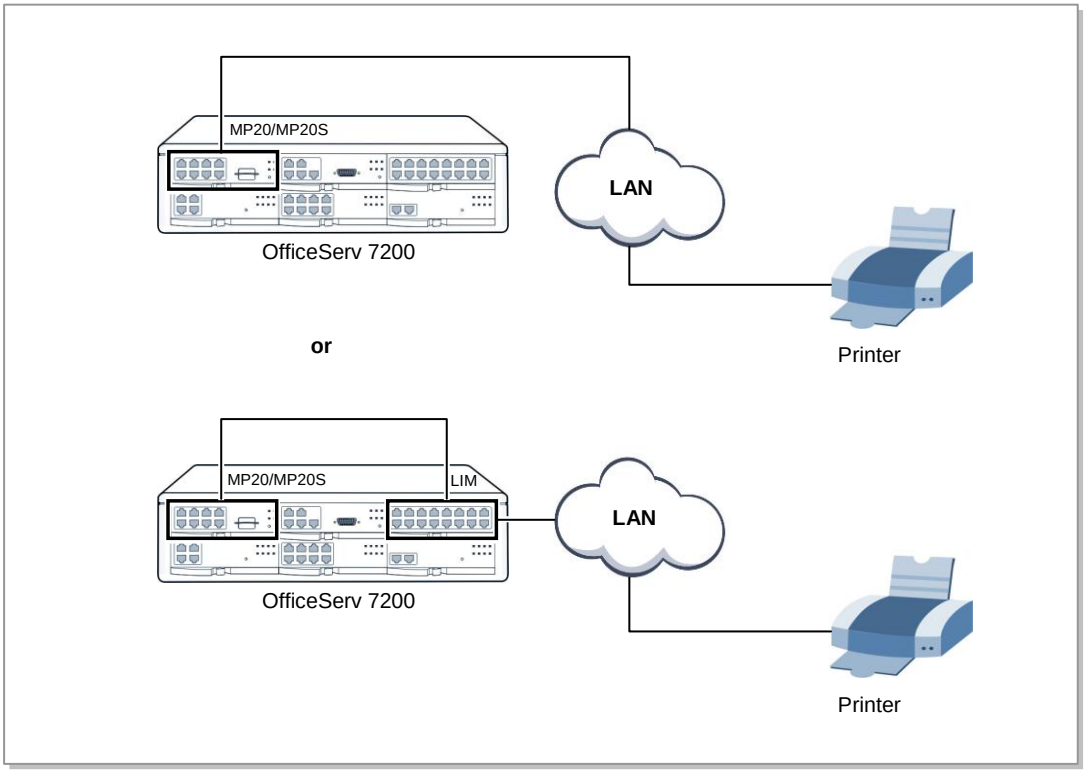


Figure 7.28 Connecting Printer to the LAN port

NOTE

MMC

After connecting a printer, execute MMC 804 and enter the I/O port through which the printer is connected.
For full and detailed instruction on the MMC program, refer to 'OfficeServ 7200 Programming Manual' in http://www.samsungdocs.co.kr.

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CHAPTER 8. Starting the System

This chapter describes items to check before starting the OfficeServ 7200, the procedure for starting the system, and the procedure for testing whether the system is normally operating after startup.

8.1 Pre-Check

This section describes items to check before starting the OfficeServ 7200.

8.1.1 Atmospheric Conditions

- Temperature
  Check if the temperature of the room where the system is installed is between 0°C and 45°C. If the room temperature is higher or lower than the normal operation temperature, install a heating/cooling device to maintain normal temperature.
- Humidity
  Check if the humidity of the room where the system is installed is between 10% and 90%. Take special caution since humidity affects the electrical components and connectors of the system.
- Direct sunlight and dust
  The room where the OfficeServ 7200 is installed should be protected from direct sunlight and should have ventilation systems to prevent the system from malfunctioning due to dusts.

8.1.2 Safety Conditions

The building where the OfficeServ 7200 is installed should have lightning rods and grounding to protect the system against lightning and electric leakage.

- Check if the OfficeServ 7200 is not inclined and is maintained horizontally.
- 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.
- The input power should be between AC 220 V and 240 V/110 V (for USA). Motors or compressors should not be used.
- Check if the AC voltage switch of the PSU is properly set according to the voltage of the input power, 220 VAC/110 V (for USA).
- Check if the grounding terminal on the rear panel of the system is properly connected to the external grounding.

8.2 Starting the System

The procedure for starting the OfficeServ 7200 is as follows:

1) Check if the boards and cables are properly mounted and connected to the OfficeServ 7200 cabinet.
2) Turn on the power of the OfficeServ 7200 basic cabinet, and turn on the power of the expansion cabinet.
3) Check the LEDs of the MP20/MP20S and LCP.
4) The RUN LED of the MP20/MP20S lights green and the MC LED flashes when the system normally starts the booting process.
5) Once the booting is complete, the RUN LED of the MP20/MP20S flashes green, and the MC LED stops flashing and remains lighted.
6) The RUN LED of the LCP flashes when the power supply and processor status of the expansion rack is normal.


NOTE

If the SD card is not detected

If the system cannot detect the SD card, the MC LED of the MP20/MP20S board might not light or flash. In such cases, turn off the power of the basic cabinet, replace the SD card and turn the power on again. If the SD card is still not detected, turn off the power of the basic cabinet and eject the MP20/MP20S board.

7) Check if the LED statuses of other interface boards are normal.
8) If the LED status of a MP20/MP20S, LCP, or interface board is abnormal, turn off the power of the cabinet and turn the power on again.


NOTE

LED Status & Shut-down

- Refer to the 'OfficeServ 7200 General Description Guide' for LED statuses of each board.
- Shut-down is hardly required while operating the OfficeServ 7200. However, when shutting down the system due to reasons such as moving the system, turn off the power of the expansion cabinet, and turn off the power of the basic cabinet.

8.3 Numbering Extensions and C.O. Lines

Once the OfficeServ 7200 is booted, the MP20/MP20S /LCP verifies the boards mounted on each slot and saves this information as the default configuration of the system.

According to the setting of the S3 switch (SW6, SW7, SW8) of the MP20/MP20S /LCP, the OfficeServ 7200 assigns 3 or 4 digits to C.O. lines, extensions, and extension groups. Refer to 'Chapter 4. Mounting and Replacing Boards' of this manual for details on setting the S3 switch.

C.O. line numbers from 701 or 7001 are sequentially assigned to the C.O. line board mounted on Slot 1 of the basic cabinet, and following numbers are continuously assigned to the next C.O. line board of the next slot. However, only the numbers from 701 to 799 are assigned when using 3 digits. For example, if an 8TRK is mounted on Slot 1 and an 8TRK is mounted on slot2, 701 is assigned to the C1/S1/P1 port and 712 is assigned to the C1/S2/P4 port. (Twelfth C.O. line is assigned to the fourth port of the second slot of the first cabinet.)

Extension numbers from 201 or 2001 are sequentially assigned to the extension board mounted on slot 1 of the basic cabinet, and following numbers are continuously 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.

The last port of the first 8DLI is assigned to the attendant group as default. All C.O. lines ring this attendant extension unless the default value is changed. Thus, a phone with an LCD panel should be connected to the last port of the first 8DLI.

500-549 or 5001-5049 is assigned to an extension group.

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

8.4 Checking System Operation

After starting the OfficeServ 7200, check if the system is operating normally.
Check if the basic functions of the OfficeServ 7200, such as Station Call, Station Camp-On, C.O. Line Call, and C.O. Line Camp-On are properly executed.

8.4.1 Station Call Function

First, follow the procedure below and check if calls between stations are enabled:

1) Lift the handset of a station.
   Verify the 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.

8.4.2 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 verifying the busy tone, press the hook flash button.
   Check if the busy tone stops.
3) Press the reservation code.
   Verify a confirmation tone.
4) Replace the handsets of the test phone and the busy station.
   Check if the test phone rings.
5) Lift the handset of the test phone.
   Check if the ring stops and 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 to ring, if the ring-back tone of the test phone stops, and if the parties are normally connected.

8.4.3 C.O. Line Call Function

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

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 for 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.

8.4.4 C.O. Line Camp-On Function

If a caller presses a C.O. line code to make an outside 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) Replace the handset of 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 to ring and verify the intercom dial tone and the C.O. line dial tone.

8.4.5 Checking if the fan is in normal operation

When the fan connected to the system is not operating, the 48 DC power and the system operation will be turned off to prevent the system overheating.
This function is set in the program to manage sending the internal alarm notification in 24 hours.
The function can be set with following methods.

1) Designate SYSALM key in the MMC722 and the designated key will be set in the manager's digital phone.
2) When the alarm is generated in the phone, the cause of alarm can be checked in the MMC851.
   The MJA08 message generation means an abnormal fan operation, and the system will be turned off after 24 hours.

When this alarm occurs, the fan must be replaced immediately.

8.4.6 Using the Reset Button

The system has one reset buttons. It is the 'RST' button on the front panel.
The reset button has the following functions.

- If the reset button is pressed, the system is restarted while the power is still being supplied.
- At this time, if the user holds down the button for less than 7 seconds, the system is just restarted. If the user presses the button for more than 7 seconds, all database information in the system is removed and the system is then restarted.
- To initialize the system, hold down the reset button for more than 7 seconds. All database information stored currently in the system is removed and the system is then restarted in its initial status. As a result of this, the reset button can be used for easy initialization of the system.

8.4.7 Checking the System IP Address

To use the IP Phone and SIP Trunk, and other functions in this system, the system IP address must be set. Therefore, when installing the system, the IP address must be checked using a PC or digital phone.

8.4.8 Setting the VM/AA Function

The MP20S supports the VM/AA function without SVMi-20E. Up to six (6) VM/ AA ports are supported. There is no additional optional item to use this function. But the license key must be entered.

VM Function

Up to six (6) channels can be used. The maximum recording time is about 50 hours.
During installation, the license key must be entered in accordance with the number of the channels to use.
If you want to use AA function not VM, there is no need to enter license key.

8.4.9 Clock Chip Backup

The clock chip of the OfficeServ 7200 is designed to back itself up even while the power is turned off.
The maximum backup time of the clock chip is ten (10) days. If ten (10) days pass, the system time should be reset (MMC5050) because the time information of the system may be erased.

ABBREVIATION

A

AFT	Automatic Function Test
AOM	Add On Module
AP	Access Point
AWG	American Wire Gauge

B

BRI	Basic Rate Interface
BRM	Basic Rate interface Module

C

CNF	Conference
CTI	Computer Telephony Integration

D

DGP	Digital Phone
DLI	Digital Line Interface
DLM	Digital Line interface Module
DPIM	Door Phone Interface Module

G

GND	Ground
GSIMT	Gigabit Switch Interface Module TX
GPLIMT	Gigabit PoE LAN Interface Module TX

H

HTRK	Hybrid Trunk

I

IGMP	Internet Group Management Protocol
IP	Internet Protocol
IRM	Integrated Resource Module
ISDN	Integrated Services Digital Network

K

KDB	Keyset Daughter Board

L

LAN	Local Area Network
LCD	Liquid Crystal Display
LCP	Local Control Processor
LED	Light Emitting Diode
LIM	LAN Interface Module

M

MP20	Main Control Processor
MP20S	Main Control Processor for Single cabinet
MGI	Media Gateway Interface
MMC	Man Machine Command
MOH	Music On Hold
MIS	Miscellaneous

O

OAS	OfficeServ Application Server

P

PCM	Pulse Code Modulation
PCMMC	PC based Man Machine Communication
PPPoE	Point to Point Protocol over Ethernet
PRI	Primary Rate Interface
PSU	Power Supply Unit

Q

Q-SIG	Q-Signaling
QoS	Quality of Service

R

RCM	R2 CID Module

S

SL2	Subscriber Line interface module 2
SLI	Subscriber Line Interface
SLM	Subscriber Line interface Module
SMDR	Station Message Detail Recording
SWM	Switch Module

T

TEPRIa	T1E1 Primary Rate Interface advanced
TRK	Trunk
TRM	Trunk Module

U

UNI	Universal
UTP	Unshielded Twisted Pair

V

VLAN	Virtual Local Area Network
VMS	Voice Mailing System

W

WAN	Wide Area Network
WIM	WAN Interface Module
WIMD	WAN Interface Module Daughter board

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WEEE SYMBOL INFORMATION

Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g., charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

EEE Yönetmeliğine Uygundur (This EEE is compliant with RoHS)

BATTERY SYMBOL INFORMATION

Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

OfficeServ 7200

Installation Manual

SAMSUNG ELECTRONICS