Enterprise IP Solutions

OfficeServ 7400

Installation Guide

SAMSUNG

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SAMSUNG ELECTRONICS

EU Declaration of Conformity

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 7400"

to which this declaration relates is in conformity with

Low Voltage Directive 73/23/EEC
EMC Directive 89/336/EEC:92/31/EEC

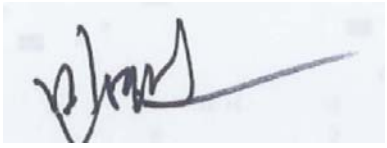
CE

By application of the following standards

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 (1st Edition) and/or EN60950-1: 2001

(Manufacturer)

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



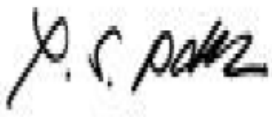
2005-12-23 **YJ Min** **YoungJin Min / General Manager**

....

(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



2005-12-23 **Peter Park** **Peter Park / Manager**

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

Intended Use

This telephone system is intended to provide the user with voice communication between the system extensions and connection to the public switched telephone network by digital or analogue links.

The telephone system may be provided with the ability to communicate with local computer networks to provide CTI functions and features. In this case, it is capable of passing information to the computer network via a specified link.

The system is powered by mains voltage and can optionally be powered by batteries. Details of all connections and power arrangements are provided in the instructions for use. It should not be used in any other way.

INTRODUCTION

Purpose

The OfficeServ 7400 keyphone system is designed for offices with 500 subscribers or less. It provides both voice call and data transfer functions. This guide describes the requirements for OfficeServ 7400 system installation, the installation procedures, and maintenance and operational requirements.

Content and Organisation of the Guide

This guide has eight chapters and a section listing the most common abbreviations used when referring to Samsung systems. Each is summarized below.

CHAPTER 1. Before Installing

Describes the checks to be carried out before installing the OfficeServ 7400 system, such as the installation site conditions and the grounding and power conditions. This chapter also describes the items included in the OfficeServ 7400 package you receive.

CHAPTER 2. Installing Chassis

Describes how to install OfficeServ 7400 chassis inside a rack and how to connect the grounding wire.

CHAPTER 3. Mounting and Replacing Modules

Describes how to mount or replace modules in the system.

CHAPTER 4. Connecting External Batteries and Rectifiers

Describes how to connect an external battery and a rectifier to the system.

CHAPTER 5. Connecting the Power

Describes how to connect power to the system.

CHAPTER 6. Connecting C.O. lines

Describes how to connect C.O. lines to the system.

CHAPTER 7. Connecting Stations and Additional Equipment

Describes how to connect stations and additional equipment, such as analogue/digital phones, door phones and door locks, to the system.

CHAPTER 8. Starting the System

Describes checks to be carried out before starting the system, the procedure for starting the system, and the procedure for testing whether the system is operating normally after startup.

ABBREVIATIONS

Abbreviations frequently used in this and related documents are listed.

Conventions

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

WARNING

Provides information or instructions you should follow in order to avoid personal injury or fatality.

CAUTION

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

CHECKPOINT

Provides checkpoints for stable system operation.

NOTE

Indicates additional information as a reference.

Related Guides

OfficeServ 7400 General Description

This guide provides essential information for the OfficeServ 7400, such as hardware configurations, specifications and system functions.

OfficeServ 7400 Programming Guide

This guide provides MMC programming procedures for configuring and maintaining the system for the user's specific requirements.

SAFETY CONCERNS

For product safety and correct operation, the following information must be read before you begin installing your system.

Symbols

Caution

Indicates a general caution

Restriction

Indicates a prohibited action

Instruction

Indicates a command for a specifically required action

WARNING

Cautions for Grounding

- Do not connect the grounding wire of the OfficeServ 7400 system 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 personal injury or system damage caused by lightning, static electricity, or voltage surge.
- Unplug the AC power cord before connecting the grounding wire. Failure to do so may cause personal injury.
- The OfficeServ 7400 system should be connected to an outlet with a protective ground.
- The GND on the rear panel of the OfficeServ 7400 system should be grounded.

Caution for AC Power Connection

A single AC outlet should be used solely for the system's AC power. Sharing the AC power with other devices may cause noise or a voltage drop, resulting in a system malfunction or fire.

Caution for C.O. line Connection

Do not connect C.O. lines in extreme weather conditions such as storms and lightning.
Voltage surges may cause system damage or personal injury.

Use of External Grounding

External grounding is required to prevent personal injury or system damage caused by lightning, static electricity, or voltage surge.

Caution when mounting/removing modules

Check that the chassis power is **off** when mounting/removing modules. Inserting or ejecting a module while the power is on may damage the module.

CAUTION

Caution When Connecting External Batteries

Do not connect external AC power until the battery and the system are completely disconnected. To do so may give you an electric shock or damage the system.

Make sure that the specified polarities (+, -) are correct when connecting external batteries.

Prohibition of Metal Accessories

Do not wear metal accessories such as rings and watches during installation (to prevent electrical damage to the system).

Use of Selector Switch

The OfficeServ 7400 system uses only 220V input power. Do not use the selector switch to change this value.

AC Power Connection

Do not operate other devices with the AC power of the OfficeServ system or with the DC power of external batteries

Caution When Connecting Rectifier

It is for the PoE connecting terminal, do not connect the emergency battery.

Module Reset

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

Trained Personnel

Only trained service staff should be employed to install the OfficeServ 7400 system.

Use of Stable AC Power

The system should always use a stable AC power supply. Any momentary power failure due to an unstable supply may cause system malfunction or battery failure.

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CHAPTER 1. Before Installing

This chapter describes checks to be carried out when inspecting the installation site, and the grounding and power conditions required for installing the OfficeServ 7400 system. It also describes the items included in the OfficeServ 7400 package.

1.1 Site Information

Select an installation site that satisfies the following conditions for safety, temperature and humidity:

Safety Conditions

- The system should not be installed near materials that can cause a fire, such as explosive gas and inflammables.
- The system should not be near equipment that generates electromagnetic radiation, such as monitors or copying machines.
- The location should be convenient for distributing trunk lines and extension lines, for connecting power and grounding wires, and for maintenance and repair.
- The system 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 module connections in the chassis.
- Before installing the system, check items such as the electrical wiring status, grounding status, voltage and frequency.

Temperature and Humidity

- The conditions for temperature and humidity are as follows:
  - Operation Temperature: 0~45°C
  - Storage temperature: -10~50°C
  - Humidity: 10~90%
  - Cool area out of direct sunlight
- Ventilators should be installed to remove dust.

1.2 Grounding Conditions

The following precautions should be taken when grounding the OfficeServ 7400 system:

- The grounding wire should be correctly grounded to the earth.
- 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 for additional external equipment to the system grounding, it should be made through a single connection point.

Cautions for Grounding

- Do not connect the grounding wire of the OfficeServ 7400 system 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 personal injury or system damage caused by lightning, static electricity, or voltage surge.
- Unplug the AC power code before connecting the ground line. Failure to do so may cause personal injury.
- The system should be connected to a wall outlet with a protective ground.
- The GND lug on the back of the OfficeServ 7400 chassis should be grounded.

1.3 Power Conditions

The system power supply module receives AC input power or battery power, and supplies -54 V, -5 V, +5 V, +3.3 V, +12 V, and -56 V to the system chassis. The power condition is as follows:

- AC 100~240 V, 3 A, 50/60 Hz, or DC 48 V, 10 A

Table 1.1 I/O Voltage of Power Supply Module

Power Supply		Specification
Power Supply Unit (PSU)	Input Power (AC)	AC 110V, 220V (Free Voltage)
	Input Power (DC)	- DC -54 V, 6.6 A - DC +5 V, 16 A - DC -5.3 V, 2 A - DC +3.3 V, 30 A - DC +12 V, 1 A - DC -56 V, 0.4 A (for Backup)
External Rectifier (Model: OfficeServ 7150)	Input Power	AC 110V, 220V (Free Voltage)
	Output Power	DC -54 V, 10 A

1.4 Checking the Package

The list of items included in the OfficeServ 7400 package is as follows.

Table 1.2 Package Items

Category	Name	Quantity	Remark
Basic Chassis	Basic Chassis	1	-
	Main Control Module (MP40) Sub-control Module (LP40)	1 1	- -
	Power Cable	1	-
	Battery Cable	1	-
	Smart Media Card	1	-
	Installation Guide	1	-
Items for 19" Rack Installation	Bracket for Chassis	1	Option
	Screw for Chassis	3	Option
	Bracket for Rack	2	Option
	Screw for Rack	6	Option
	Nut for Rack	6	
	Other Clamp Screws	2	Option
Others	Blank stiffener	-	Option
Expansion Chassis	Expansion Chassis	1	-
	Sub-control Module (LP40)	1	-
	Extension Cable	1	-
	MP40, LP40 Extension Cable	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 or GPLIM module to other modules such as MP40, LP40, MGI, GWIM, and 4DSL.

CHAPTER 2. Installing Chassis

This chapter describes how to install an OfficeServ 7400 chassis in a rack.

2.1 Overview of System Installation Procedure

The general installation procedure is as follows (each step is described in detail later):

1) Install the OfficeServ chassis inside a rack.
2) Earth to the ground lug behind the basic chassis.
3) Insert the LP40 module into slot 0 of the basic chassis. If there is an expansion chassis, insert the LP 40 module into slot 0 of that.
4) Insert the MP40 module into slot 3 of the basic chassis
5) Mount interface modules in the universal slots (1 to 11).
6) Connect an external battery.
7) Connect AC input power.

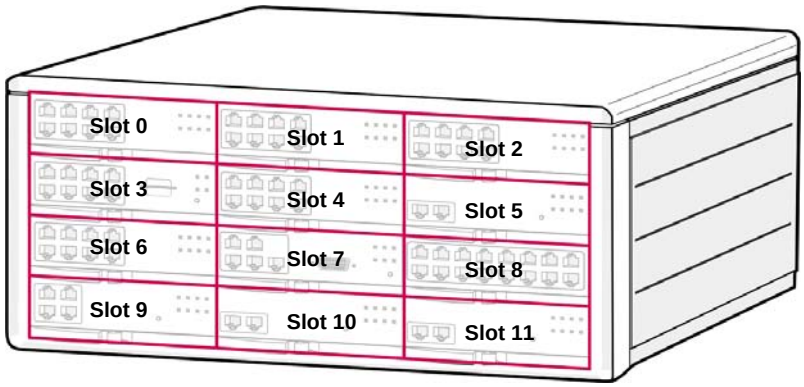

Figure 2.1 Chassis Front Panel

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2.2 Installing Chassis in a Rack

This section describes how to install the OfficeServ 7400 chassis inside a 19-inch rack.

> **Caution**
>
> Only trained service staff should install the OfficeServ 7400 system.

2.2.1 Precautions to Follow

Take the following precautions when installing the OfficeServ 7400 chassis inside a rack:

- Use a standard 19-inch 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.
- When using an open rack, do not block the entrance of a port or fan on the OfficeServ 7400 system.

2.2.2 Tools Required

- A mid-sized cross-head screwdriver
- A bracket and three screws for attaching to chassis
- Two brackets, six screws, and six nuts for attaching to rack
- Two clamp screws

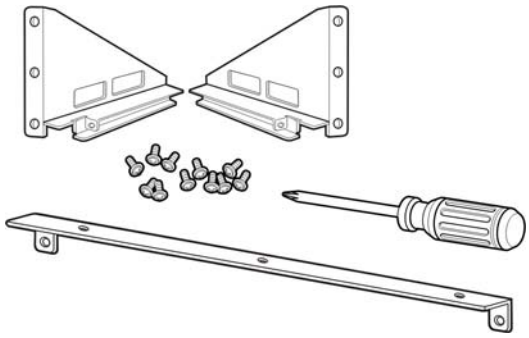


Figure 2.2 Tools for Installation Inside a Rack

2.2.3 Installation

The procedure for installing the chassis inside a rack is as follows:

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

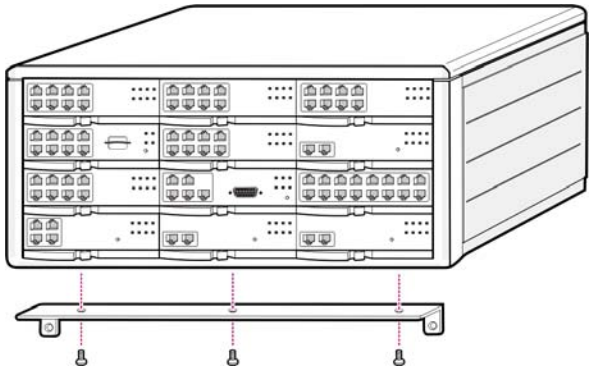


Figure 2.3 Rack Installation (1)

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

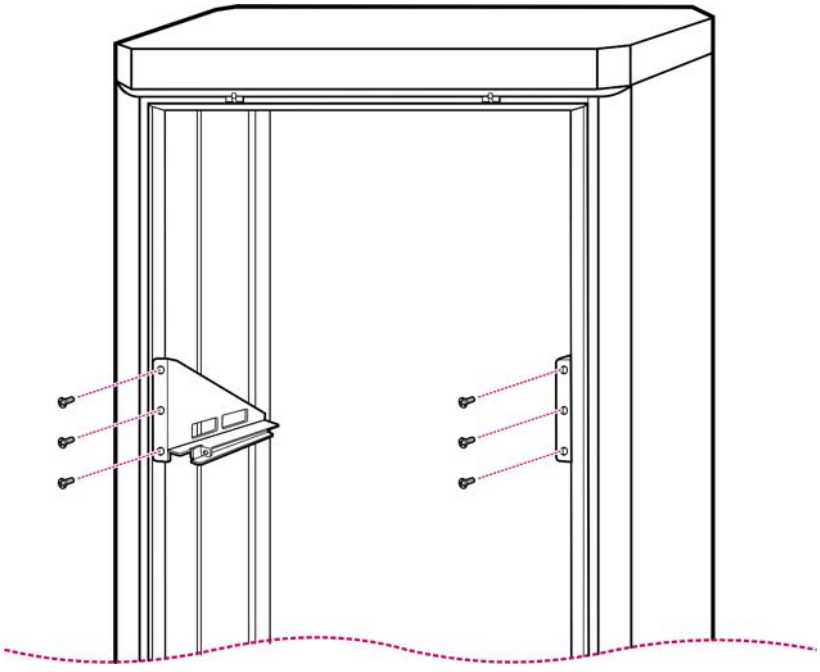


Figure 2.4 Rack Installation (2)

3) Align the chassis with the rack brackets and slide the chassis into the rack.

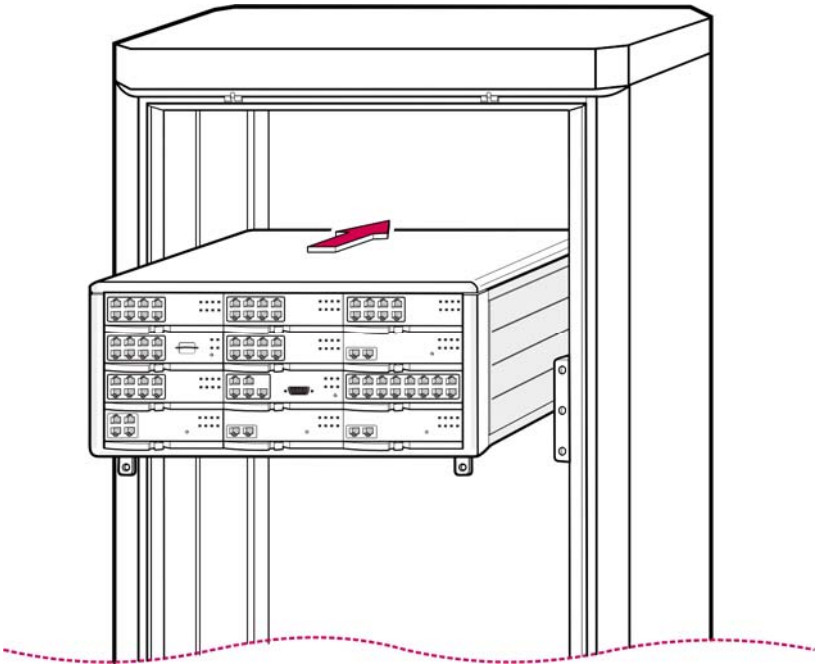


Figure 2.5 Rack Installation (3)

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

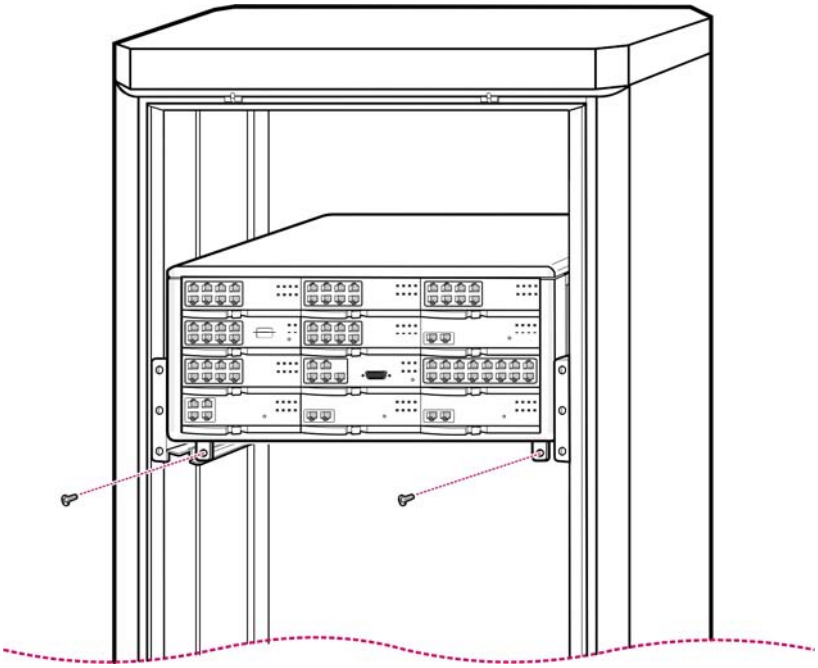


Figure 2.6 Rack Installation (4)

5) Steps 1 to 4 also apply to expansion chassis.

2.3 Connecting the Grounding Wire

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

WARNING

External Grounding

External grounding is required to prevent personal injury or system damage caused by lightning, static electricity, or voltage surge.

As shown in the Figure 2.7, connect an earth to the ground (GND) lug on the back of the basic chassis.
To use expansion chassis, earth the external grounding wire between the basic chassis and the expansion chassis.

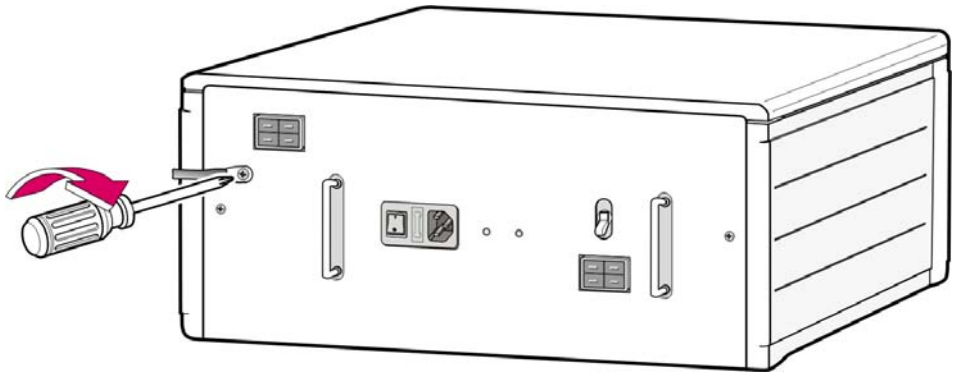


Figure 2.7 Grounding the Basic Chassis

CHECK

Checking external grounding

Before starting the OfficeServ 7400 system, check that the GND at the rear of the chassis is firmly connected to the external ground.

CHAPTER 3. Installing and Replacing Modules

This chapter describes how to install and uninstall modules in the OfficeServ 7400 system.

3.1 Chassis Configuration

The system can be configured with a basic chassis and one or two expansion chassis (Figure 3.1). The basic and expansion chassis of the OfficeServ 7400 system each have 12 slots (Figure 3.2).

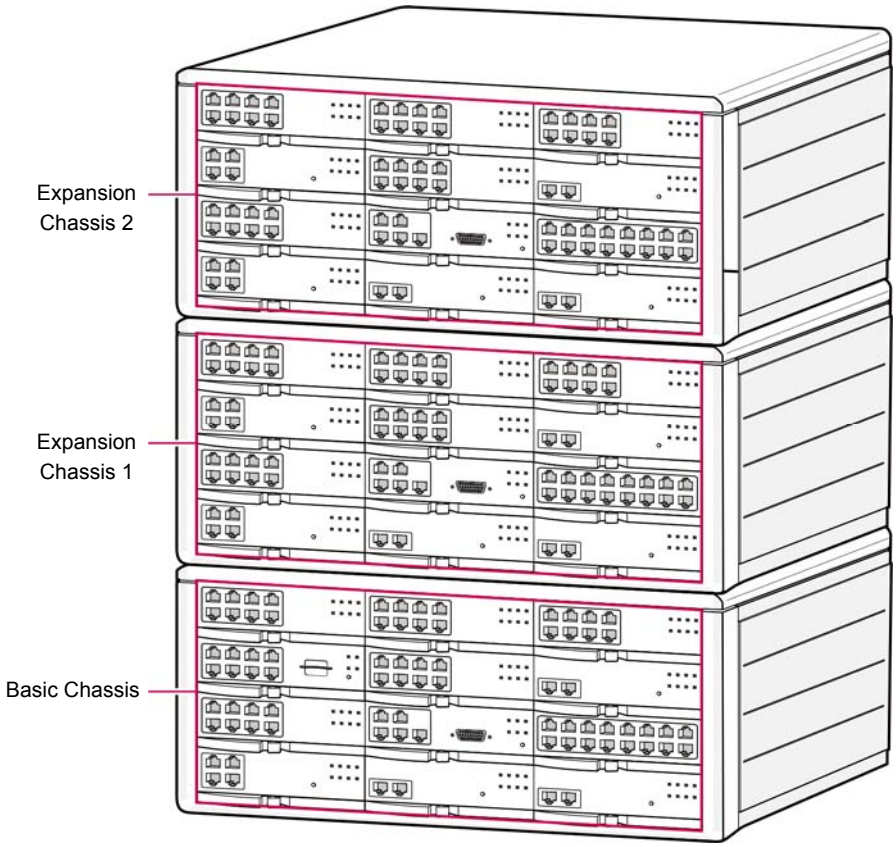


Figure 3.1 Front Panels of OfficeServ 7400 Chassis

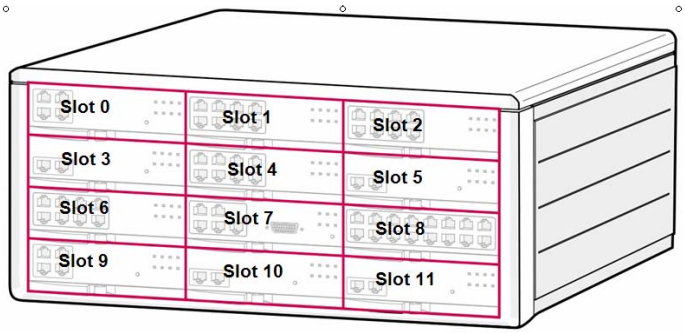


Figure 3.2 Slot Numbers for OfficeServ 7400 Chassis

Modules are mounted in the slots according to the required configuration of the OfficeServ 7400.

Table 3.1 Mounting Modules in Slots

Chassis	Slot	Module
Basic Chassis (OfficeServ Access)	Slot 0	LP40
	Slot 1, 2	Any Module Except LP40 and MP40
	Slot 3	MP40
	Slot 4~11	Any Module Except LP40 and MP40
Expansion Chassis (OfficeServ Expansion)	Slot 0	LP40
	Slot 1~11	Any Module Except LP40 and MP40

CHECK

Position of Slots Equipped with Modules

The MG164 and TEPRI2 modules should be mounted in any universal slot of the basic chassis (except 0 or 3) in order to use the whole capacity of module channels (64).

Rear Panel of Basic Chassis

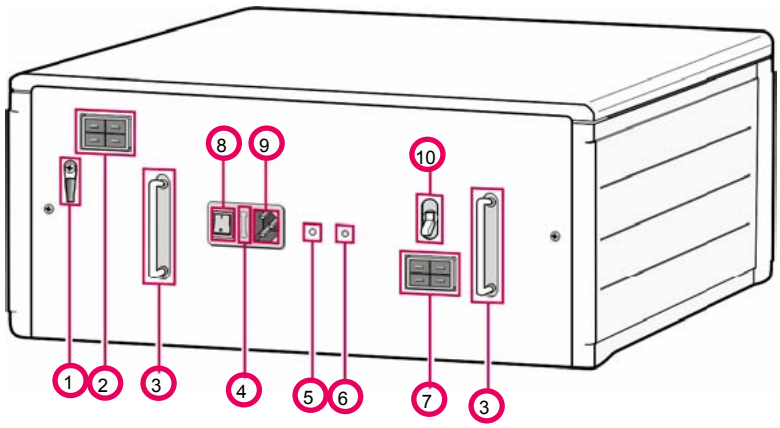


Figure 3.3 Rear Panel of OfficeServ 7400 Basic Chassis

Functions of components on the rear panel of the chassis are shown in Table 3.2.

Table 3.2 Components on the Rear Panel of Chassis

No.	Component	Function
1	Ground Lug	Lug for grounding system communication
2	Connector for External Rectifier	To supply external power for PoE (Power over Ethernet)
3	Handle	To use while mounting/removing a power module
4	Fuse Holder	Fuse for AC input power
5	AC LED	The LED turns on while applying AC power.
6	DC LED	The LED turns on while the DC power is operating.
7	Battery Socket	Socket to connect an external battery
8	Power I/O Connector	Connector for power cable
9	Power Switch	System power switch
10	Battery Switch	Switch to supply battery power to the OfficeServ 7400 or charge the battery.

3.2 Mounting Control Modules

This section describes the procedures for setting switches, adding optional modules, mounting modules in slots, and connecting MP40 and LP40 modules.

Check all modules carefully for damage before you mount them. If damage is evident, do not continue with the installation and contact your dealer for advice.

3.2.1 Setting MP40 Module Switches and Mounting Optional Modules

The MP40 module has switches for optimizing the module for users' requirements. The procedure for setting switches and mounting optional modules is as follows:

1) Set the S1 switch of the MP40 module to 'on'.

2) Set SW1 to SW5 of the S2 switch to 'off'.

3) Set SW6 to SW8 of the S2 switch as required (see Table 3.3).

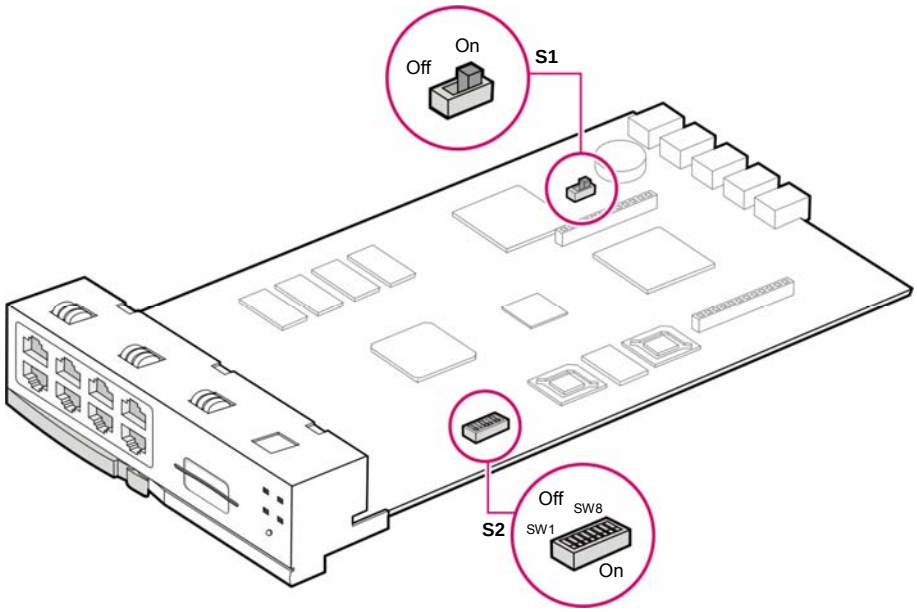


Figure 3.4 Setting Switches on MP40 Module

Table 3.3 Switches on MP40 Module

Switch	Setting	
S1	Set S1 switch to 'On' before mounting in a slot to back up memory.	
S2	SW1~SW5	For domestic use, set all switches to 'Off'.
	SW6~SW8	Sets the number of digits for C.O./extension lines and extensions. 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

4) Align the connectors and holes of the MP40 module and the optional module (Modem), and firmly press the optional module downward with two hands.

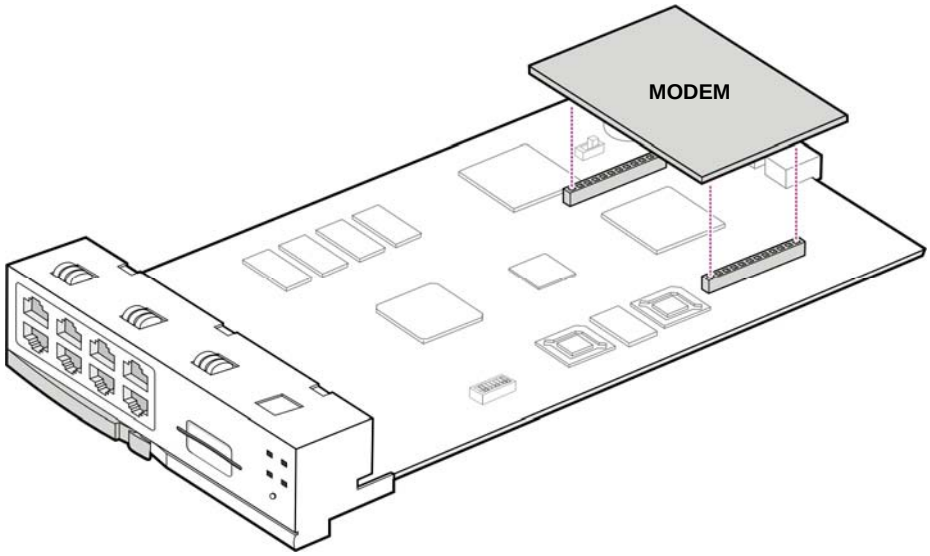


Figure 3.5 Mounting Optional Modem Module

3.2.2 Setting LP40 Module Switches and Mounting Optional Modules

The LP40 module can be equipped with a number of optional modules (SCM, MFM, MIS, RCM2, CRM) depending on your requirements. Mount optional modules as follows:

1) Set the switches on the RCM2 optional modules depending on the system configuration (Table 3.4).

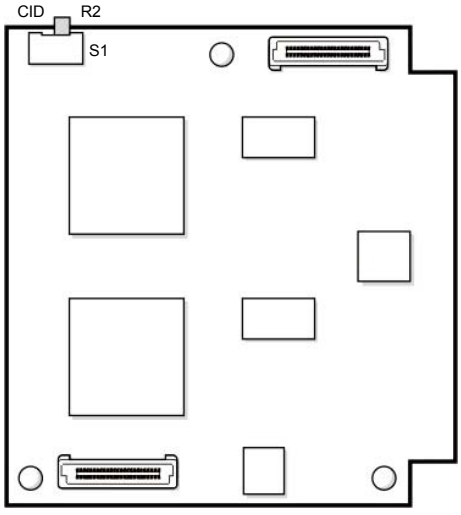


Figure 3.6 Setting Switches on RCM2 Module

Table 3.4 Switches on RCM2 Module

Switch	Setting	
S1	Select R2 or CID function.	
	R2	R2 (R2 Signalling): 30-channel
	CID	CID (Caller ID): Receiver 14-channel (default state)

3) To mount optional modules on the LP40, refer to Table 3.5 for the allowed positions. Align the connectors of the optional module and the LP40, and press the optional module firmly downward with both hands.

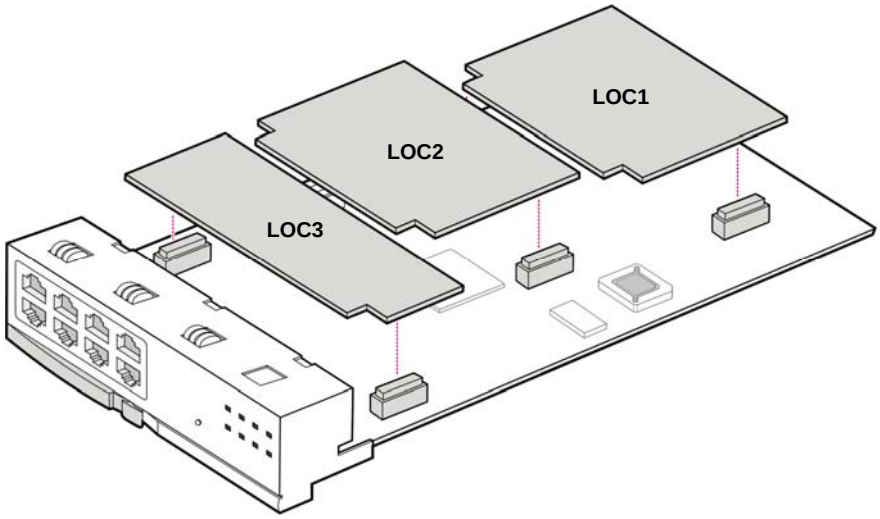


Figure 3.7 Mounting an Optional Module on the LP40

Table 3.5 Position of Optional Modules

Position	Optional Module
LOC1	SCM, MFM, RCM2, CRM
LOC2	SCM, MFM, RCM2, CRM
LOC3	MIS

CAUTION

Ensure a module is allowed in a position before attempting to mount it (e.g. SCM cannot be mounted in LOC3).

3.2.3 Mounting Control Modules

Mount LP40 and MP40 control modules in slots 0 and 3, respectively, of the basic chassis. For an expansion chassis, LP40 is mounted in slot 0. For slot numbers, see Figure 3.2.

Table 3.6 Mounting Control Modules

Control Module	Slot / Chassis
MP40	Slot 3 of the basic chassis
LP40	Slot 0 of the basic/expansion chassis

The procedure for mounting the MP40 module and the LP40 module in each slot is as follows:

> **CAUTION**
>
> Make sure the chassis power is OFF before mounting modules. Inserting or ejecting a module while the power is on may damage the module or cause a fire.

1) Align the MP40 module to the guardrail of slot 3 of the basic chassis and slide the module into the slot.

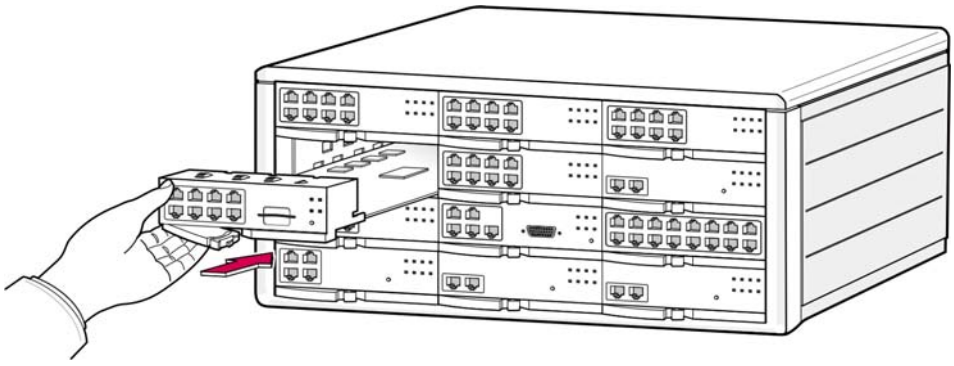


Figure 3.8 Mounting the MP40 Control Module in Slot 3

2) Push the front panel lever of the MP40 module until it is completely inserted into the connector on the OfficeServ 7400 main board.

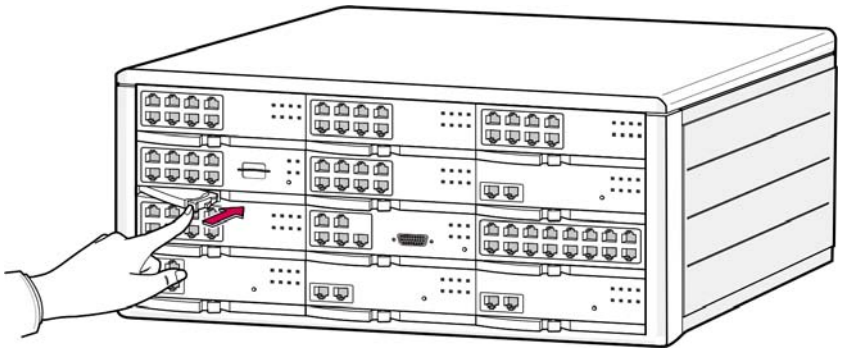


Figure 3.9 Inserting the MP40 Control Module into the Connector on the Main Board

3) Align the LP40 module to the guardrail of slot 0 of the basic chassis and slide the module into the slot.

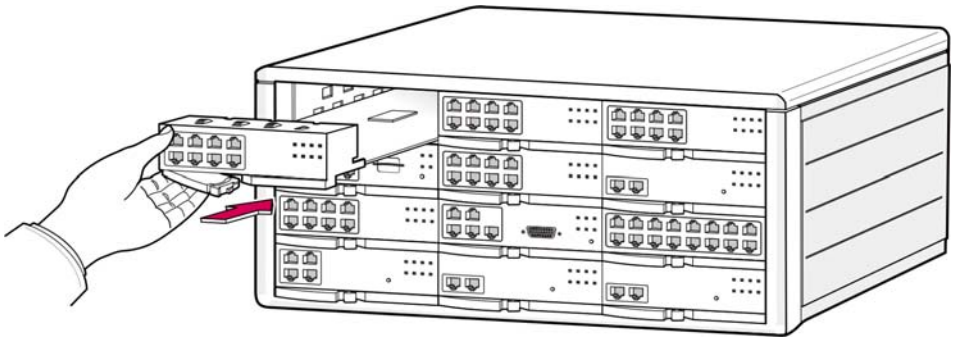


Figure 3.10 Mounting the LP40 Control Module in Slot 0

4) Push the front panel lever of the LP40 module until the module is completely inserted into the connector of the OfficeServ 7400 main board.

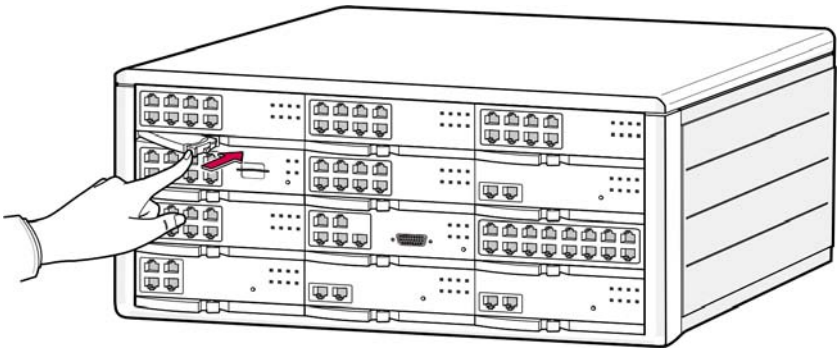


Figure 3.11 Inserting the LP40 Control Module into the Connector on the Main Board

5) Follow steps 3 and 4 to mount the LP40 module into a slot in the OfficeServ 7400 expansion chassis.

3.2.4 Connecting an MP40 Module and an LP40 Module

If the OfficeServ 7400 system consists of a basic chassis and an expansion chassis, connect the MP40 module to the LP40 module in the expansion chassis using extension cables to transmit and receive signals between the control modules.

1) Three extension cables are needed to connect the MP40 module to the LP40 module. If you have two expansion chassis, six cables are required.

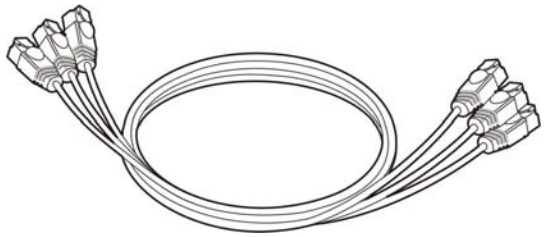


Figure 3.12 Extension Cables

2) With an extension cable, connect the ‘LINK21’ port of the MP40 module in the basic chassis and the ‘LINK1’ port of the LP40 module in the expansion chassis.

3) With a second extension cable, connect the ‘LINK22’ port of the MP40 module and the ‘LINK2’ port of the LP40 module.

4) With the third extension cable, connect the ‘LINK23’ port of the MP40 module and the’LINK3’ port of the LP40 module.

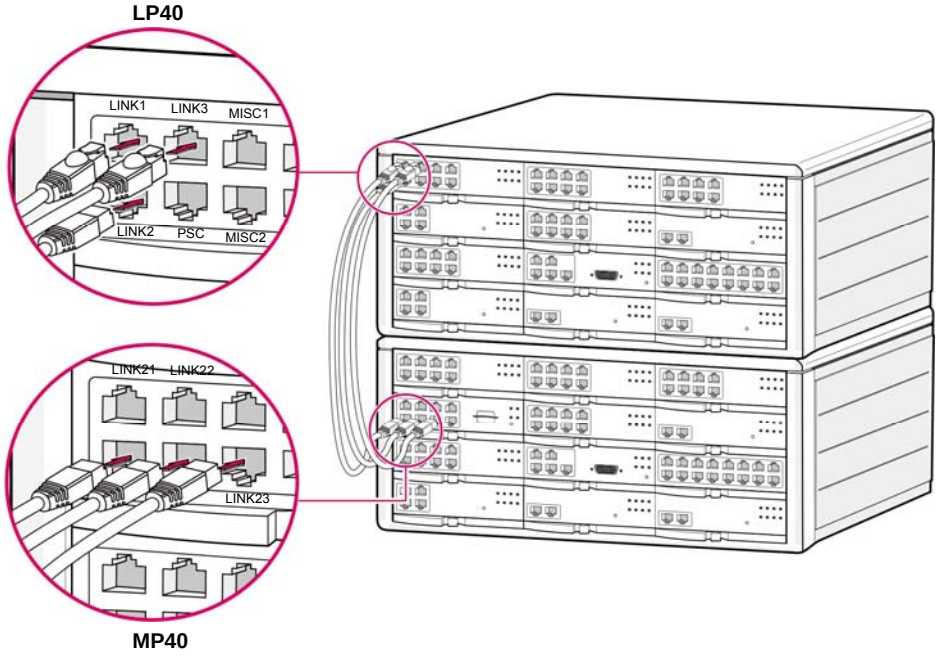


Figure 3.13 Connecting the MP40 and LP40 Modules

5) For two expansion chassis, connect the ‘LINK31’, ‘LINK32’ and ‘LINK33’ port of the MP40 module with extension cables in the same way as described above.

3.2.5 Connecting an MP40 Module to an OfficeServ 7200 Expansion Chassis

With the OfficeServ 7400 system as the basic chassis, the expansion chassis of an existing OfficeServ 7200 system can be connected. To do so, the MP40 module in the 7400 system and the LCP module in the 7200 system should be connected with an extension cable.

1) Three extension cables are needed to connect the MP40 module to the LCP module.

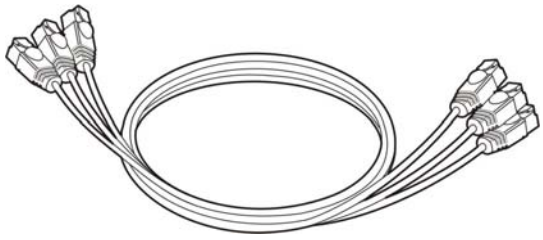


Figure 3.14 Extension Cable

2) With an extension cable, connect the ‘LINK21’ port of the MP40 module and the ‘LINK1’ port of the LCP module.

3) With a second expansion chassis, connect the ‘LINK22’ port of the MP40 module and the ‘LINK2’ port of the LCP module.

4) With the third cable, connect the ‘LINK23’ port of the MP40 module and the’LINK3’ port of the LCP module.

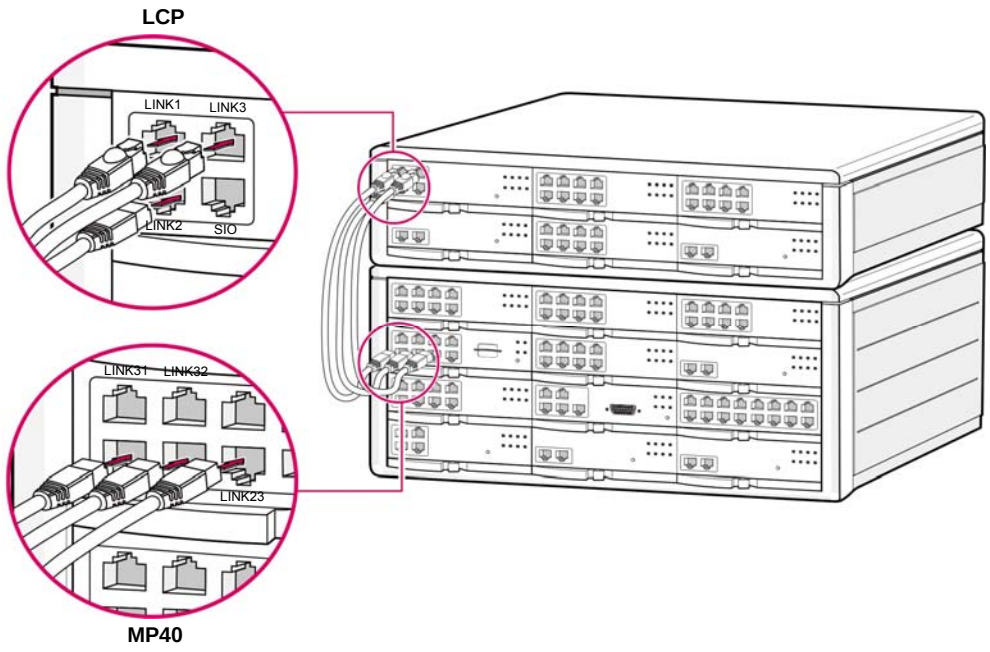


Figure 3.15 Connecting the MP40/LCP Module

3.3 Mounting Interface Modules

This section describes how to set jumpers and switches on interface modules, how to mount optional modules onto interface modules, and how to mount interface modules into slots.

3.3.1 Setting Switches and Mounting Optional Modules

Interface modules used depend on the configuration required by the user.

Table 3.7 Interface Modules with Switches/Jumpers

Interface Module	Jumpers/Switches	Functions
GWIM	J1~J2	Selection of power source (-54 V) - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply
MGI	Memory Backup Switch	Setup of memory setup
TEPRI	S1(SW1~SW8)	Setup of T1, E1, T1/E1, PRI, 24B+D/24B, User/Network, 17H/13H
TEPRI2	S2(1~4) S3(1~4)	Setup of T1, E1, T1/E1, PRI, 24B+D/24B, User/Network, 1AH
PLIM	J1~J3	Selection of power source (-54 V) for PoE - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply
GPLIM	J1~J4	Selection of power source (-54 V) for PoE - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply
GSIM	J13~J14	- Selection of power source (-54 V) - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply

Table 3.8 Interface Modules for Optional Modules

Interface module	Optional Module
GWIM	GWIMS
MGI	MGI2D

3.3.1.1 GWIM Module

The Gigabit WAN Interface Module (GWIM), for external Internet and data communication, provides various external interfaces and ports for connection to the internal network.

Set jumpers on the GWIM module and mount a GWIMS extension module as follows:

1) Set jumpers J1 and J2.

PoE	J1	J2
Provided from system PSU	1 – 2 (INT)	1 – 2 (INT)
Provided from external rectifier (7150)	2 – 3 (EXT)	2 – 3 (EXT)

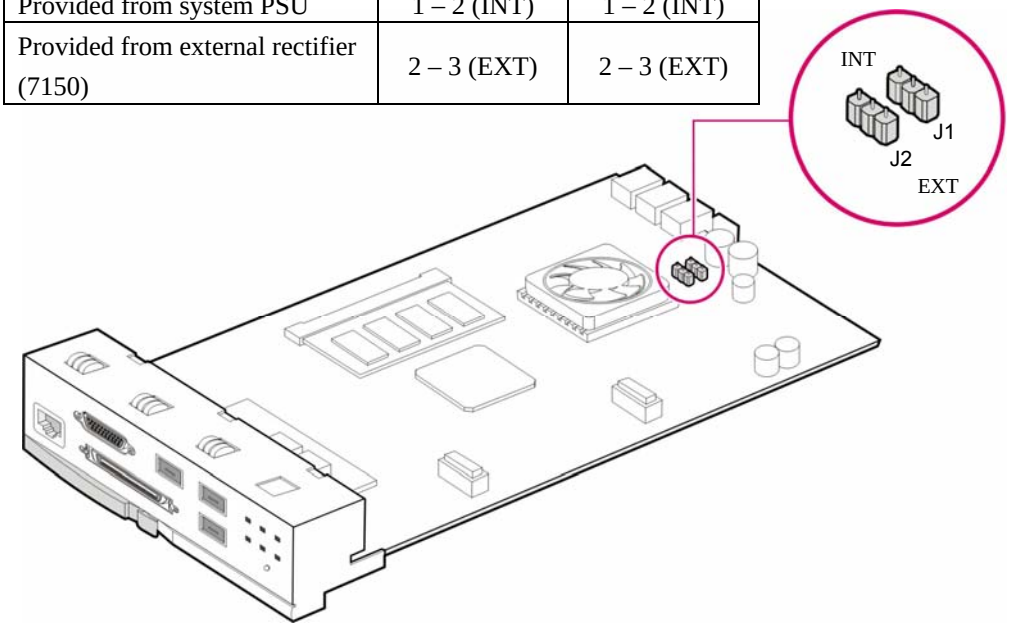


Figure 3.16 Setting GWIM Module Jumpers

2) Align the connectors on the GWIMS module and the GWIM module and firmly press the GWIMS module downward.

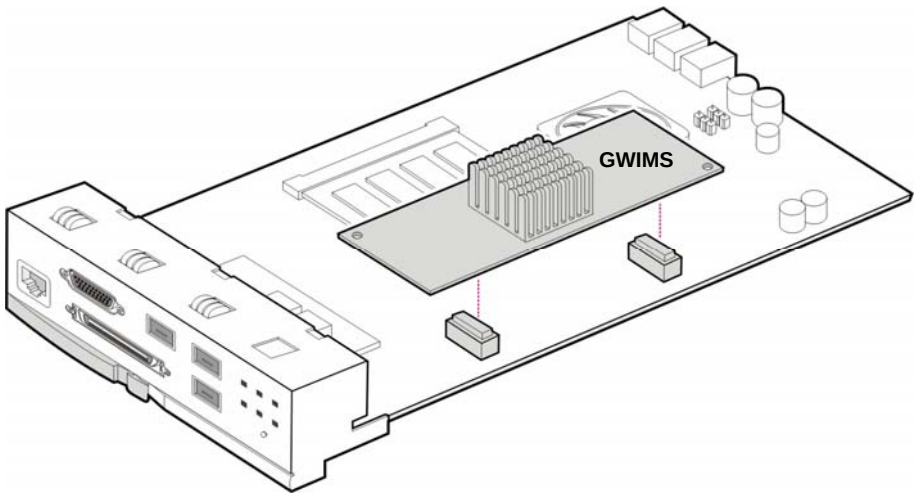


Figure 3.17 Mounting a GWIMS Extension Module on the GWIM Module

3.3.1.2 MGI Module

The Media Gateway Interface (MGI) module converts voice to data and transfers the data through the data network. It provides up to 16 channels and uses the voice compression / de-compression standards G.729, G.723, G.726 and G.711. In addition, the module supports the fax function (T.38 standard).

The procedure for setting the MGI module switches and mounting optional modules is as follows:

1) Set the memory backup switch on the MGI module.

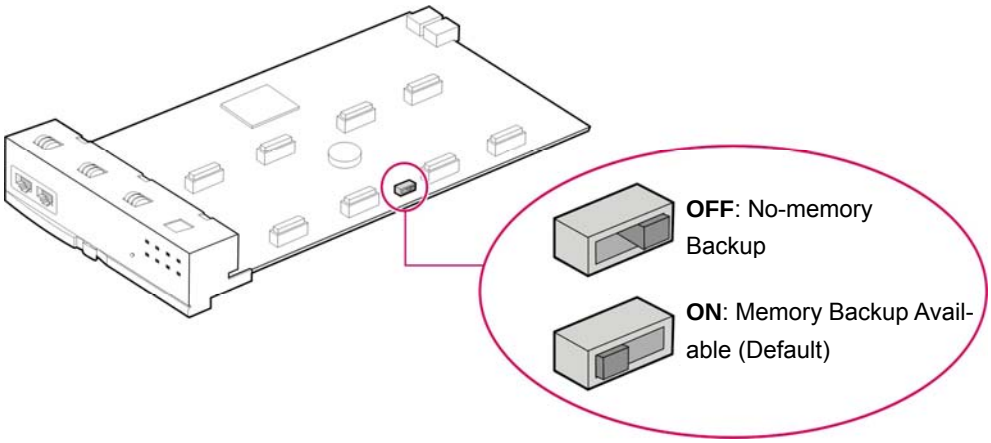


Figure 3.18 Setting the MGI Module Switch

2) Align a connector on the MGI module to the connector on the optional module (MGI2D) and press the optional module firmly downward. Up to four optional modules can be mounted.

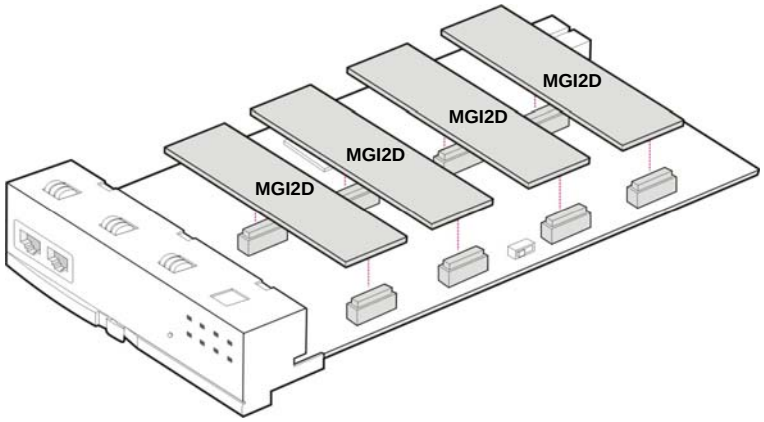


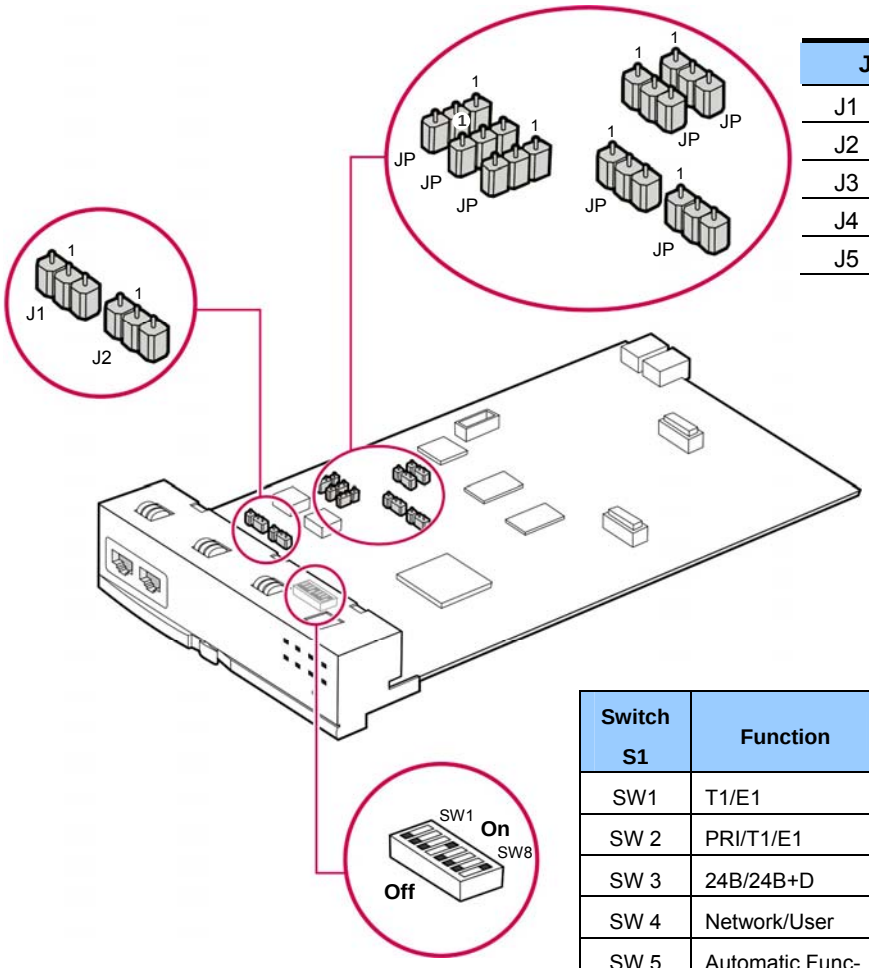
Figure 3.19 Mounting an MGI2D Optional Module on the MGI Module

3.3.1.3 TEPRI Module

The TEPR1 module provides a digital C.O. line, supports E1, T1 and ISDN PRI and provides the Q-SIG function.

Setting S1 Switch

Set the S1 switch and jumpers on the TEPRI module as follows:



Jumper Defaults (EU)			
J1	2-3	J6	2-3
J2	2-3	J7	2-3
J3	1-2	J8	2-3
J4	2-3	J9	2-3
J5	2-3		

Switch S1	Function	ON	OFF	PRI (EU)
SW1	T1/E1	T1	E1	Off
SW 2	PRI/T1/E1	PRI	T1/E1	On
SW 3	24B/24B+D	24B	24B+D	Off
SW 4	Network/User	Network	User	Off
SW 5	Automatic Function Test (AFT)	On	Not used	Off
SW 6	Not Used	-	-	Off
SW 7	Not Used	-	-	Off
SW 8	Card ID	On	Not used	On

Figure 3.20 Setting Jumpers and Switches on the TEPRI Module

Setting Jumpers

Jumpers are numbered in ascending order from that marked '1' above.

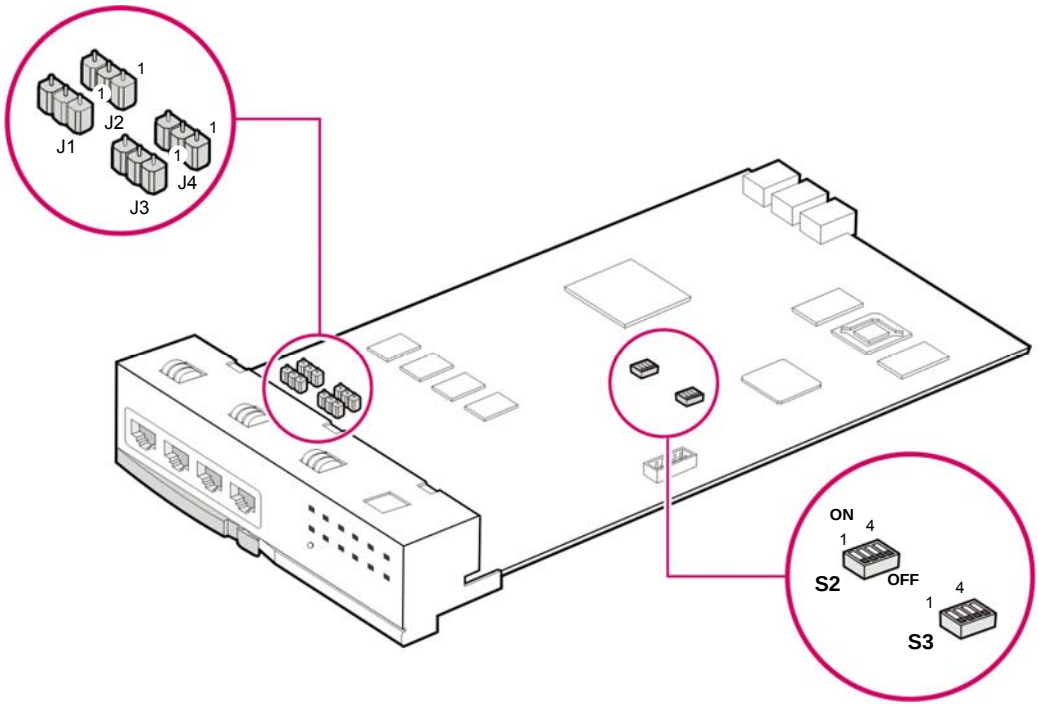
- J1 and J2: Connect #1 and #2 for E1 cable, or #2 and #3 for T1 cable.
- JP3, 4, 5, 6, 7, 8, 9: Connect #2 and #3 for E1/PRI, or #1 and #2 for T1

3.3.1.4 TEPRI2 Module

The TEPRI2 module provides a digital C.O. line, supports E1, T1 and two ISDN PRI ports, and provides the Q-SIG function.

Setting Switches

Set S2 and S3 switches and jumpers on the TEPRI2 module as follows:



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

S3	OFF	ON
1	Not used	Not used
2	T1/E1	PRI
3	24B + D	24B
4	User	Network

Figure 3.21 Setting Jumpers and Switches on the TEPRI2 Module

Setting Jumpers

J1, J2, J3 and J4: Connect #1 and #2 for E1 cable, or #2 and #3 for T1 cable.

3.3.1.5 PLIM Module

The LAN Interface Module with PoE (PLIM) can use the Power Supply Unit (PSU) or an external rectifier by selecting the power source using jumpers.

- To use the PSU: jumpers J1, J2 and J3 are connected between pin1 and pin2. Since the capacity of the PSU is limited, the number of ports is limited to 16 and the use of digital phones is also limited. (For more information on these limitations, contact your dealer.)
- To use an external rectifier: jumpers J1, J2 and J3 are connected between pin2 and pin3. Since the external rectifier can supply 10A current per module, there is no limitation on the use of ports or digital phones.

  Limit the current running through the PLIM ports to below 0.1A , and in the module to below 1.6 A.

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

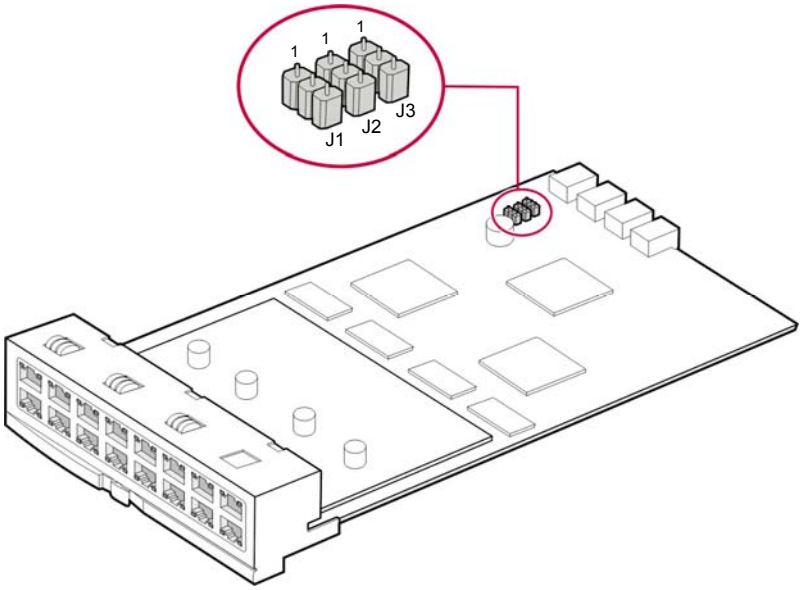


Figure 3.22 Setting the Jumpers on the PLIM Module

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

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

3.3.1.6 GSIM Module

The Gigabit Switch Interface Module (GSIM) provides the Gigabit LAN interface of Layer 2 and Layer 3 to support the data network.

Setting Jumpers

Set jumpers J13 and J14 on the GSIM module.

PoE	J13	J14
Provided from system PSU	1 – 2 (INT)	1 – 2 (INT)
Provided from external rectifier (7150)	2 – 3 (EXT)	2 – 3 (EXT)

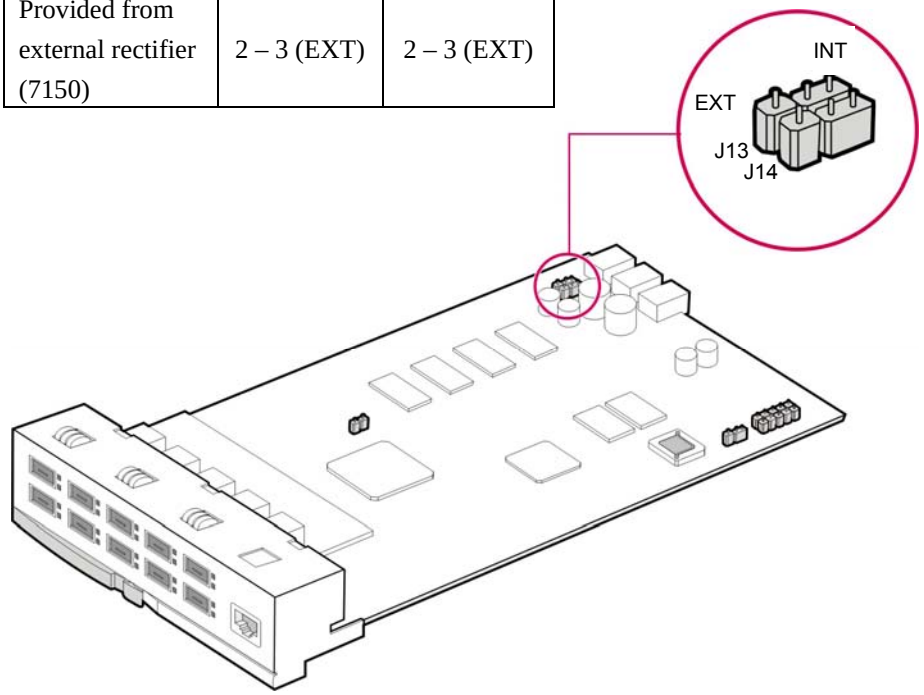


Figure 3.23 Setting the Jumpers on the GSIM Module

3.3.1.7 GPLIM Module

The Gigabit LAN Interface Module with PoE (GPLIM) sends and receives data to/from the intranet, and provides 12 x 10/100 BASE-T ports and 2 x 1000 BASE-TX/SX/LX ports. The GPLIM only operates as a simple switch for the hub, and interfaces with GWIM to provide VLAN function for supporting QoS.

Setting Jumpers

Set jumpers J1~J4 on the GPLIM module.

PoE	J4	J3	J1	J2
Provided from system PSU	1 – 2 (INT)	1 – 2 (INT)	1 – 2 (INT)	1 – 2 (INT)
Provided from external rectifier (7150)	2 – 3 (EXT)	2 – 3 (EXT)	2 – 3 (EXT)	2 – 3 (EXT)

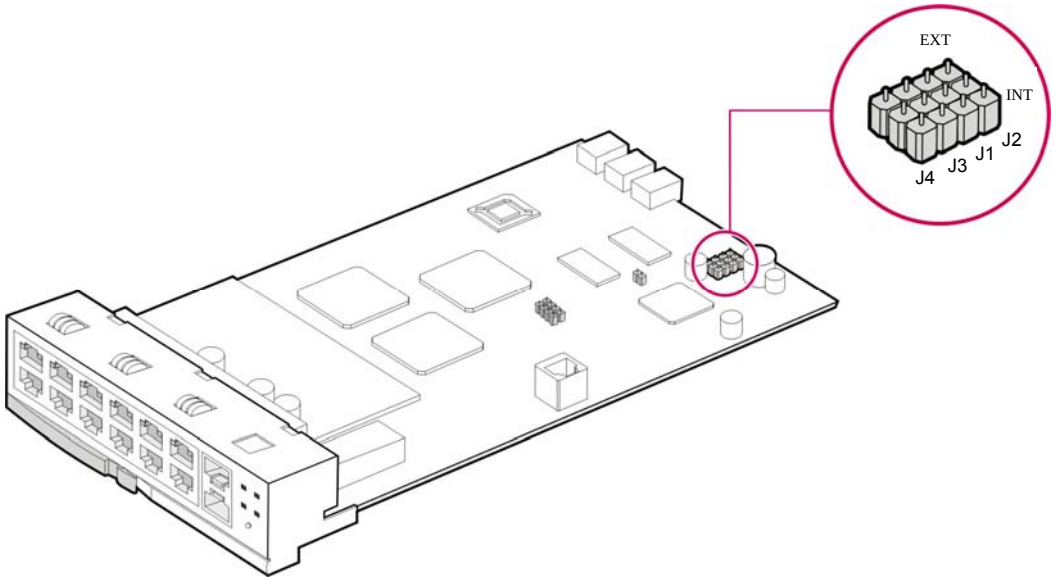


Figure 3.24 Setting the Jumpers on the GPLIM Module

3.3.2 Mounting Interface Modules in Slots

Interface modules are mounted in slot 1 to slot 11 of each chassis. (For the basic chassis, slot 3 is reserved for the MP40 module). Table 3.9 shows which slots can be mounted with which modules. For the locations of slots, refer to **3.1. Chassis Configuration**.

Table 3.9 Types of Interface Modules and Slots Available

Category	Interface Module	Slots Available
Voice C.O. line	TEPRI, 8TRK	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis
	TEPRI2	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis (if mounting in the expansion chassis, gives limited use of 32 channels)
Voice extension	8DLI, 16DLI2, 16MWSLI, 8COMBO	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis
Data voice application	GWIM,GSIM	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis
	LIM, PLIM, GPLIM	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis
	4DSL	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis
	4WLI, MGI	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis
	MGI64	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis (When mounting to the expansion chassis, only limited use of 32 channels)
VMS	SVMi-20E	Slot 1, 2, 4~11 of the basic chassis Slot 1 to 11 of the expansion chassis

Functions and Characteristics of Each Interface

For details on the functions and characteristics of each Interface module, refer to the *Samsung OfficeServ 7400 General Description.*

The procedure for mounting an interface module in a slot is as follows:

1) Check the interface module for any damage. If any is evident, do not continue with the installation and contact your dealer.

2) Align the module with the guardrail of the slot of the basic or expansion chassis, and slide the module into the slot.

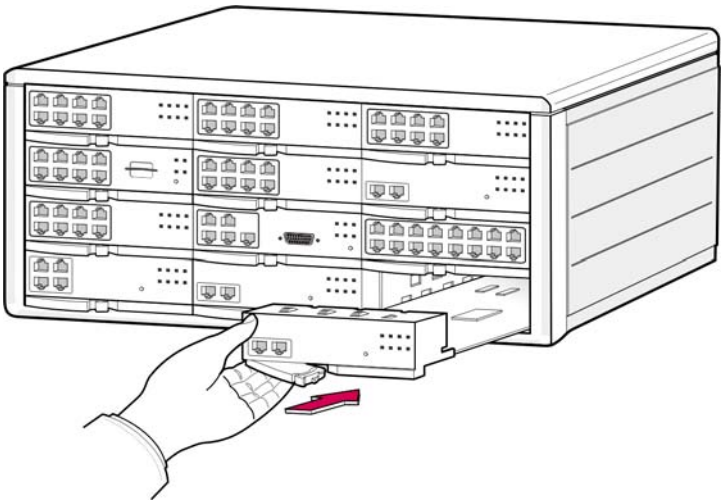


Figure 3.25 Mounting an Interface Module in a Slot

3) Push the front panel lever of the module until the module is completely inserted into the connector on the OfficeServ 7400 main board.

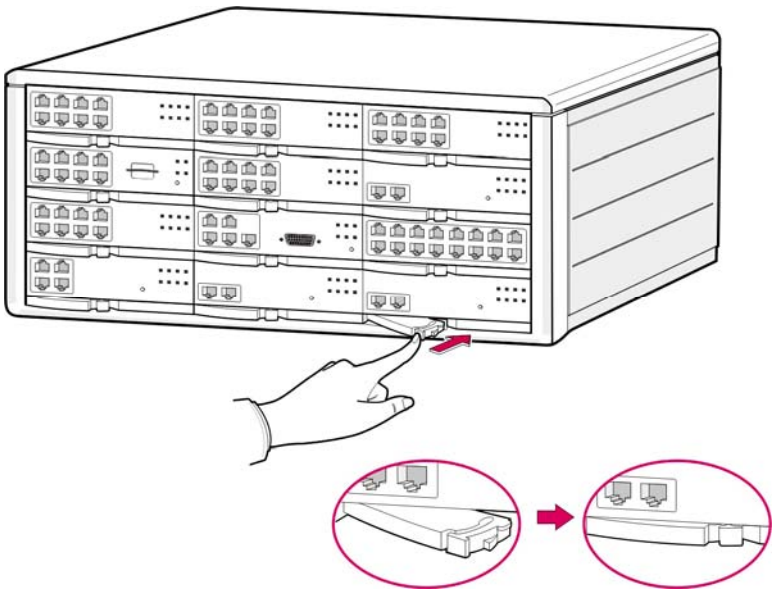


Figure 3.26 Locking the Front Panel Lever of the Interface Module

3.4 Connecting Power Backup Lines

If AC power fails while no battery is connected, connect a power backup circuit by connecting C.O. lines to extensions.

If a pair of C.O. lines (8TRK) is connected to pin1 and pin2 of the first port of the 16SLI module, lines are connected to phones through pins 4 and 5 of the 8TRK module. If power fails, emergency calls can still be made.

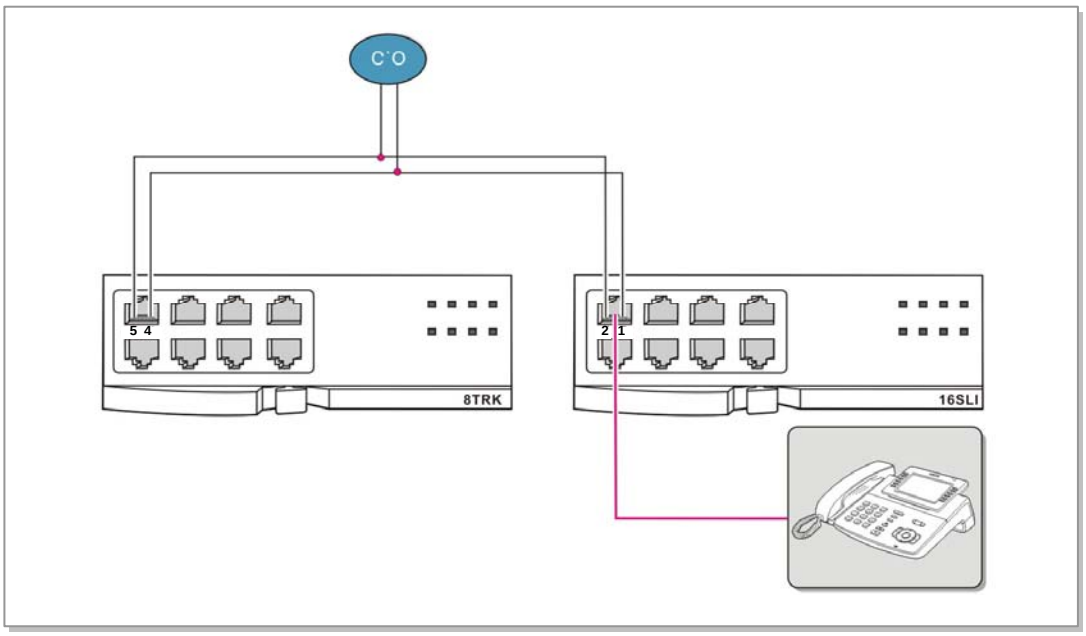


Figure 3.27 Connecting Power Backup Line to a 16SLI Module

3.5 Replacing Modules

If the OfficeServ 7400 system fails to operate normally due to an error on the power supply module, control module, or interface module, replace the module with a new one.

> **CHECK**
>
> **Removing Cables**
>
> Remove all cables connected to the module before replacing it.

The procedure for replacing a module mounted in a slot is as follows:

1) Switch off the power to the chassis.

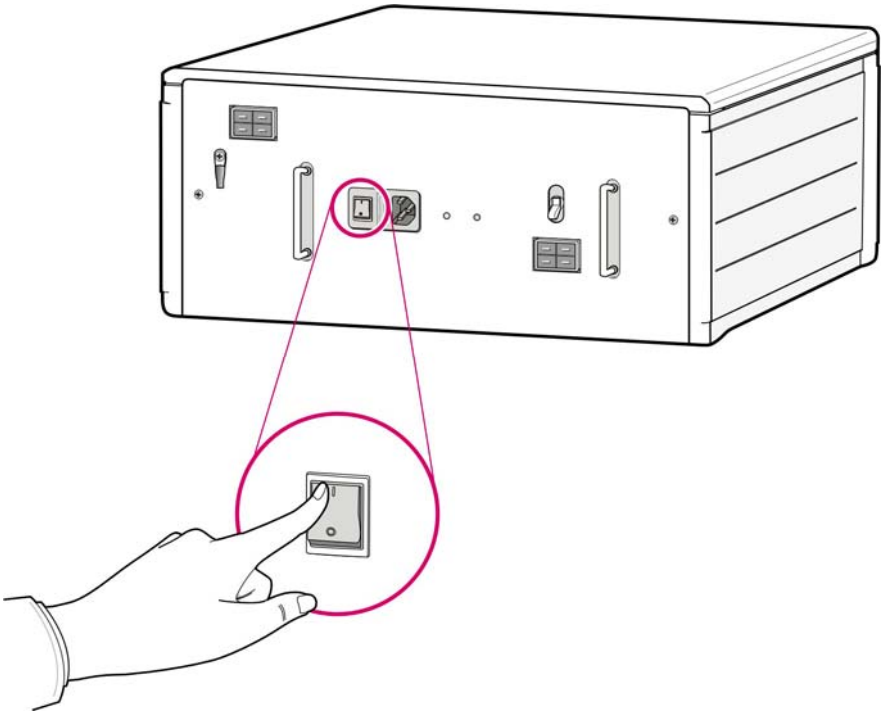


Figure 3.28 Switching Off the Chassis Power

2) If replacing a control module, first remove the extension cables connecting the MP40 module to the LP40 module. For other modules, remove any cable connections.

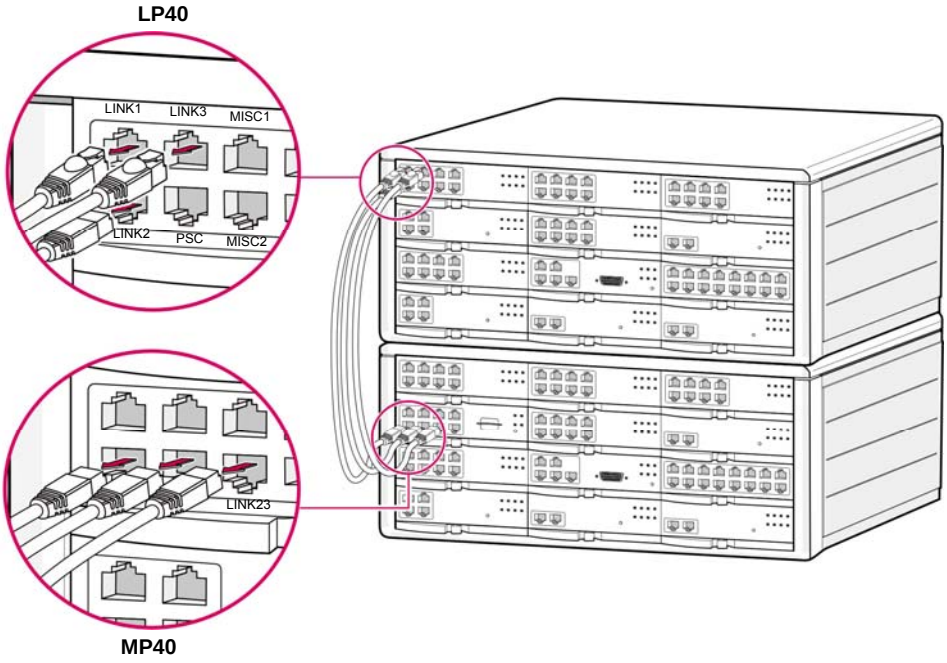


Figure 3.29 Removing Cables to Control Module

3) Pull the lever of the module carefully and extract the module.

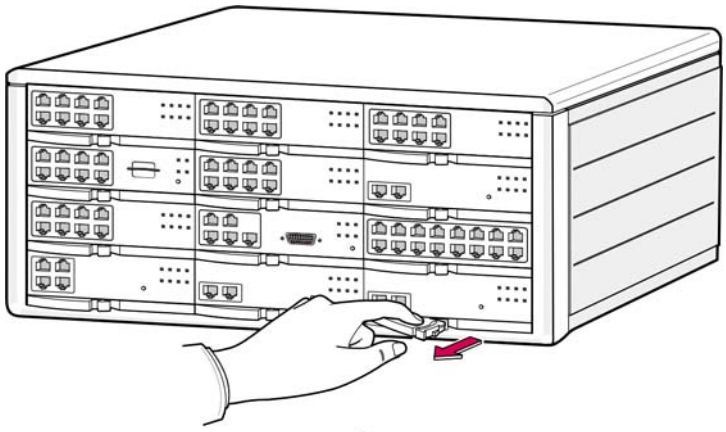


Figure 3.30 Removing a Module

4) Align the new module to the guardrail of the slot and slide it into the slot. Then, push the lever on the front panel of the module to fully insert it into the connector on the OfficeServ 7400 main board.

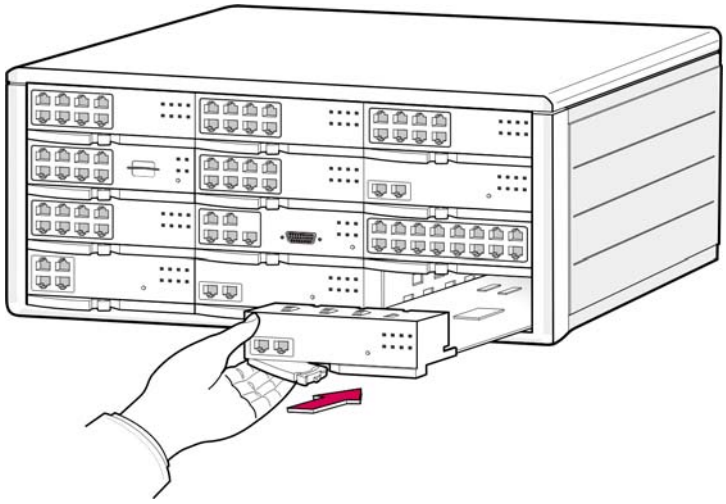


Figure 3.31 Mounting a Replacement Module

CHAPTER 4. Connecting External Batteries and Rectifiers

This chapter describes how to connect external batteries and rectifiers to the OfficeServ 7400 system.

4.1 Connecting External Batteries

Caution When Connecting External Batteries

External batteries are required to ensure stable operation of the OfficeServ 7400 system in case of a power failure. The rated capacity of an external battery is DC 48V per chassis. Batteries should be connected to each chassis.

Do not connect external AC power to the system before connecting an external battery. To do so may cause electric shocks.

Make sure that the polarities (+/-) between the external battery and the system are equal.

The procedure for using a battery cable to connect an external battery to the OfficeServ 7400 system is as follows:

1) The battery cable is provided with the OfficeServ 7400 system. It consists of a red line and a blue line labelled GND (red line) and -48VDC (blue line) at one end. It has a connector for the battery socket of the OfficeServ 7400 system at the other end.

2) Connect the red line (GND) of the battery cable to the (+) terminal of the battery, and the blue line (-48 VDC) to the (-) terminal.

   Connect the other end of the battery cable to the external battery socket on the rear panel of the OfficeServ 7400 basic chassis. If using expansion chassis, prepare as many external batteries as the number of chassis and connect the batteries to each chassis in the same way.

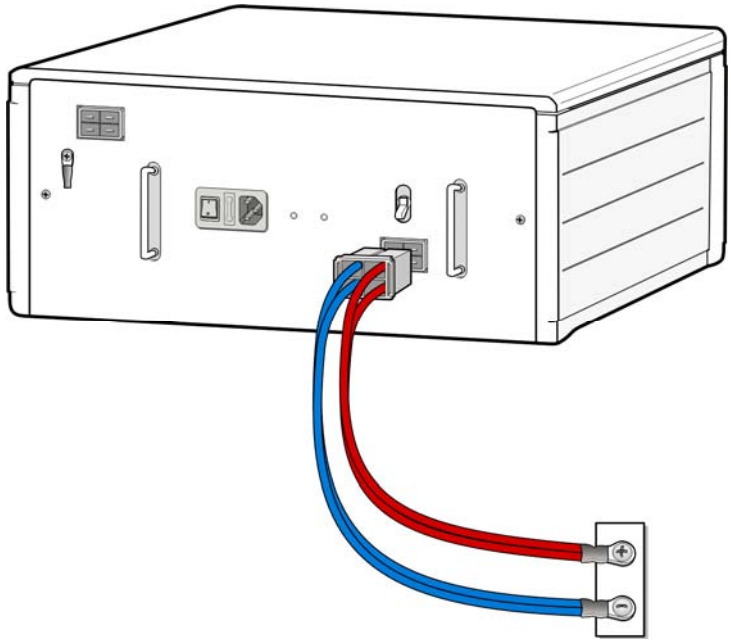


Figure 4.1 Connecting an External Battery

4.2 Connecting an External Rectifier

The external rectifier supplies power to IP phones or a WBS24 when a PLIM module is used. The internal power source has insufficient capacity.

The procedure to connect an external rectifier is as follows:

1) Switch off the power to the OfficeServ 7400 and external rectifier.

2) There are three screws to connect the power cable (Figure 4.2) to connectors A and B (GND and -54 V) on the rear panel of the external rectifier (Figure 4.3)

   The power cable comprises a red and a blue line and the ends of the lines are marked GND (red), and -48VDC (blue).

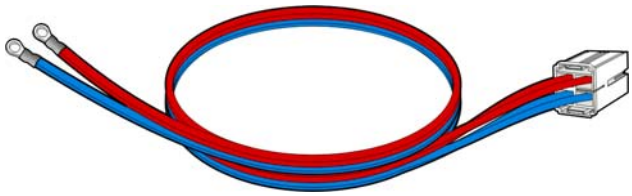


Figure 4.2 Power Cable

Loosen the screws and connect the power cable as shown in Figure 4.3. Connect the red line to A (GND) and the blue line to B (-54V) on the rear of the external rectifier and tighten the screws.

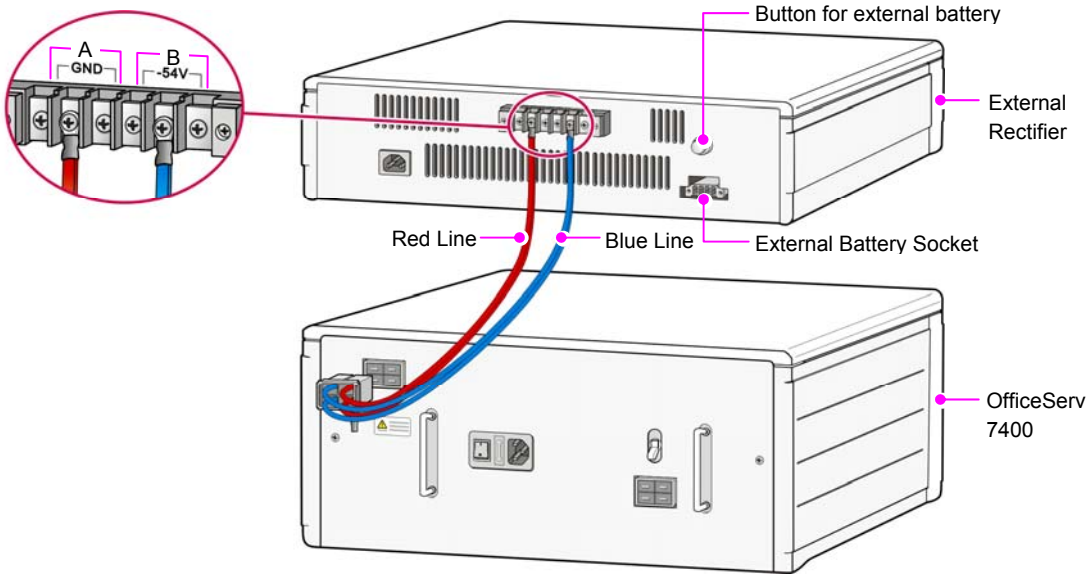


Figure 4.3 Connecting an External Rectifier

3) Connect the other ends of the power cable to the external rectifier socket of the OfficeServ 7400 chassis (Figure 4.3).

4) Switch on the power to the system chassis.

5) Switch on the power to the external rectifier.

NOTE

External Battery Connected to an External Rectifier

An external battery connected to an external rectifier should have the same capacity as that of the OfficeServ 7400 system. In addition, the procedure and the precautions to take are the same. For details of the capacity of the external battery, refer to **4.1 Connecting External Batteries**.

CAUTION

Caution when Connecting Rectifier

This terminal is for the connection of the external power source for PoE only.

CHAPTER 5. Connecting Power Cables

This chapter describes how to connect power cables to the OfficeServ 7400 system.

5.1 Caution When Connecting Power

Input AC power is supplied to the Power Supply Unit (PSU), which charges the external battery. If the power is interrupted, the system can be operated using the external battery.

- AC power of the system supports 110V, 220 V (Free Voltage).
- Make sure that the input power of the OfficeServ 7400 is within the range 100~240 V (AC) 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 electrical interference or a voltage drop, resulting in a system malfunction or fire.
- Use a stable power source that can continuously supply AC power since power failures can cause malfunctions or battery failure.

5.2 Connecting Power Cables

Follow the procedure for a basic chassis only or for a basic plus expansion chassis configuration. However, do not switch on the power until you have completed the installation and are ready to begin operation (see Chapter 8).

Single Chassis Configuration

Use the power cable provided with the OfficeServ 7400 system to connect the input power terminal on the rear panel of the basic chassis to a grounded outlet

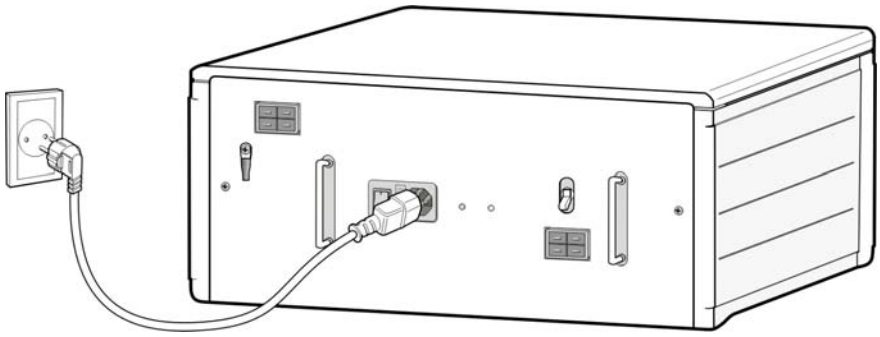


Figure 5.1 Connecting the Power to a Basic Chassis

Basic Plus Expansion Chassis Configuration

Connect the input power cable for each chassis to a grounded outlet.

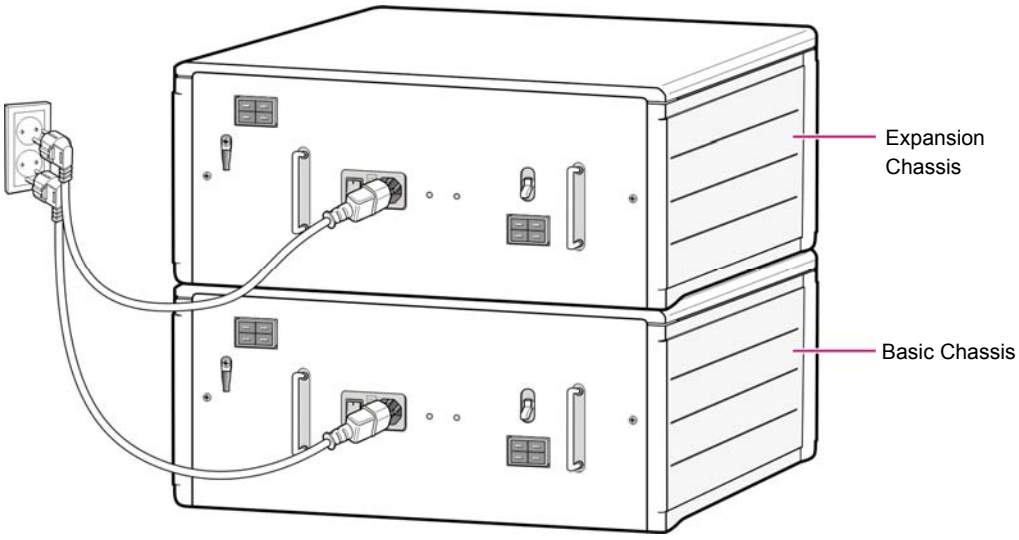


Figure 5.2 Connecting the Power to a Basic and Expansion Chassis

CHAPTER 6. Connecting C.O. Lines

This chapter describes how to connect C.O. lines to the OfficeServ 7400 system.

6.1 Line Conditions

Precaution to take when connecting C.O. lines are as follows:

- Use cables with AWG #24 or AWG #26 width for subscriber lines.
- When wiring cables in high-humidity areas, put in place remedies for removing moisture before wiring.
- Cables should be handled carefully to prevent any damage.
- Subscriber lines should be kept routed indoors if possible.
- Do not route subscriber lines around high-voltage power lines.

The leak resistance of C.O. lines connected to the OfficeServ 7400 system are shown in Table 6.1.

Table 6.1 Leak Resistance of OfficeServ 7400 Lines

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

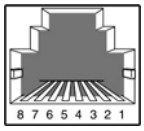
This section describes how to connect a common C.O. line (8TRK module) and T1/E1/PRI C.O. lines (TEPRI/TEPRI2 module).

6.2.1 Caution when Connecting C.O. Lines

- Do not connect C.O. lines in extreme weather conditions such as storms and lightning.
- Do not connect C.O. lines in areas of high humidity.

6.2.2 Connecting Common C.O. Lines

Use a pair of AWG #24 (or AWG #26) cable to connect a C.O. line to the terminal pin of a terminal box connected to the OfficeServ 7400 system equipped with an 8TRK module.



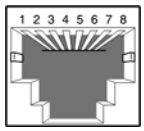
P1-P8 Ports
(RJ-45)

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

Figure 6.1 RJ-45 Port of 8TRK Module

6.2.3 Connecting T1/E1/PRI

TEPRI/TEPRI2 modules can be connected to a T1/E1 C.O. line through an RJ-45 port. As shown below, connect a T1 type C.O. line or an E1 type PRI C.O. line to the T1/E1/PRI port of the TEPRI/TEPRI2 module.



T1/E1/PRI Port
(RJ-45)

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

Figure 6.2 RJ-45 Port of TEPRI/TEPRI2 Module

CHAPTER 7. Connecting Stations and Additional Equipment

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

7.1 Connecting Stations

7.1.1 Caution When Connecting Stations

- Do not connect stations in extreme weather conditions such as storms and lightning.
- Do not connect stations in areas of high humidity.
- Comply with the station user guide, this guide and other relevant guides when reconnecting stations or changing connections.
- Connect stations with a pair of #24 AWG or #26 AWG cables.

The maximum distances between stations and the OfficeServ system are shown in Table 7.1.

Table 7.1 Maximum Distance between Stations and the System

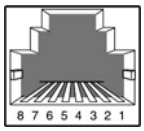
Station	Maximum Distance
Digital Phone	400 m (for AWG #24)
Analogue Phone	1000 m (for AWG #24)
Door Phone	400 m (for AWG #24)
AOM	400 m (for AWG #24)
WBS24	600 m (for 0.64 twisted cable) 400 m (for 0.40 twisted cable)

7.1.2 Connecting Analogue Phones

Connect an analogue phone to the 16SLI or 8COMBO module mounted in the system.

Connecting to a 16SLI Module

Use a pair of AWG #24 or AWG #26 cables.



P1-P8 Ports
(RJ-45)

Figure 7.2 RJ-45 Port of 16SLI Module

P1 Port

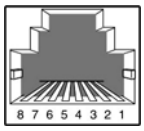
Pin No.	1	2	3	4	5	6	7	8
Function	PFT TIP	PFT RING	-	SLI 1 TIP	SLI 1 RING	-	SLI 9 TIP	SLI 9 RING

P2-P8 Ports

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI 2 TIP	SLI 2 RING	-	SLI 10 TIP	SLI 10 RING

Connecting to an 8COMBO Module

Use a pair of AWG #24 or AWG #26 cables.



P1-P8 Ports
(RJ-45)

Figure 7.4 RJ-45 Port of 8COMBO Module (for Analogue Phone)

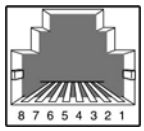
Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI TIP	SLI RING	-	-	-

7.1.3 Connecting Digital Phones

Connect a digital phone to the 8DLI, 16DLI2, or 8COMBO module.

Connecting to an 8DLI Module

Use a pair of AWG #24 or AWG #26 cables.



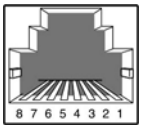
P1-P8 Ports
(RJ-45)

Figure 7.6 RJ-45 Port of 8DLI Module (for Digital Phone)

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

Connecting to a 16DLI2 Module

Use a pair of AWG #24 or AWG #26 cables.



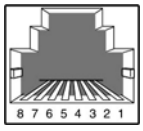
P1-P16 Ports
(RJ-45)

Figure 7.8 RJ-45 Port of 16DLI2 Module (for Digital Phone)

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

Connecting to an 8COMBO Module

Use a pair of AWG #24 or AWG #26 cables.



D1-D8 Ports
(RJ-45)

Figure 7.10 RJ-45 Port of 8COMBO Module (for Digital Phone)

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

CHECK

Maximum number of DS-5012L / LE phones connectable

Up to eight DS-5012L / LE phones can be connected to each DLI module. If more than eight are connected, the power to all digital phones is blocked automatically. Up to 24 DS-5012L / LE phones can be connected to the basic chassis or the expansion chassis.

7.1.4 Connecting IP Phones

IP phones provide calls through the Ethernet LAN. A digital phone connected to the OfficeServ 7400 system and an IP phone connected to the LAN communicate as follows:

1) The connection a digital phone and an IP phone is established or released using the IP address of the LAN connected to the OfficeServ 7400 system.
2) The digital phone converts analogue voice data to PCM voice data and transmits the data to the MGI module through the DLI or 8COMBO module.
3) PCM voice data is converted to packet data by the MGI/MGI64 module and transferred to the IP phone.
4) The IP phone converts packet voice data to analogue voice signals and plays the signals through a phone receiver or a speaker.
5) Voice signals from the IP phone are converted to packet data and transmitted to the MGI module.
6) The MGI/MGI64 module converts the packet voice data to PCM voice data and transmits the data to the digital phone through the DLI or 8COMBO module.
7) The digital phone converts the PCM voice data to analogue data.

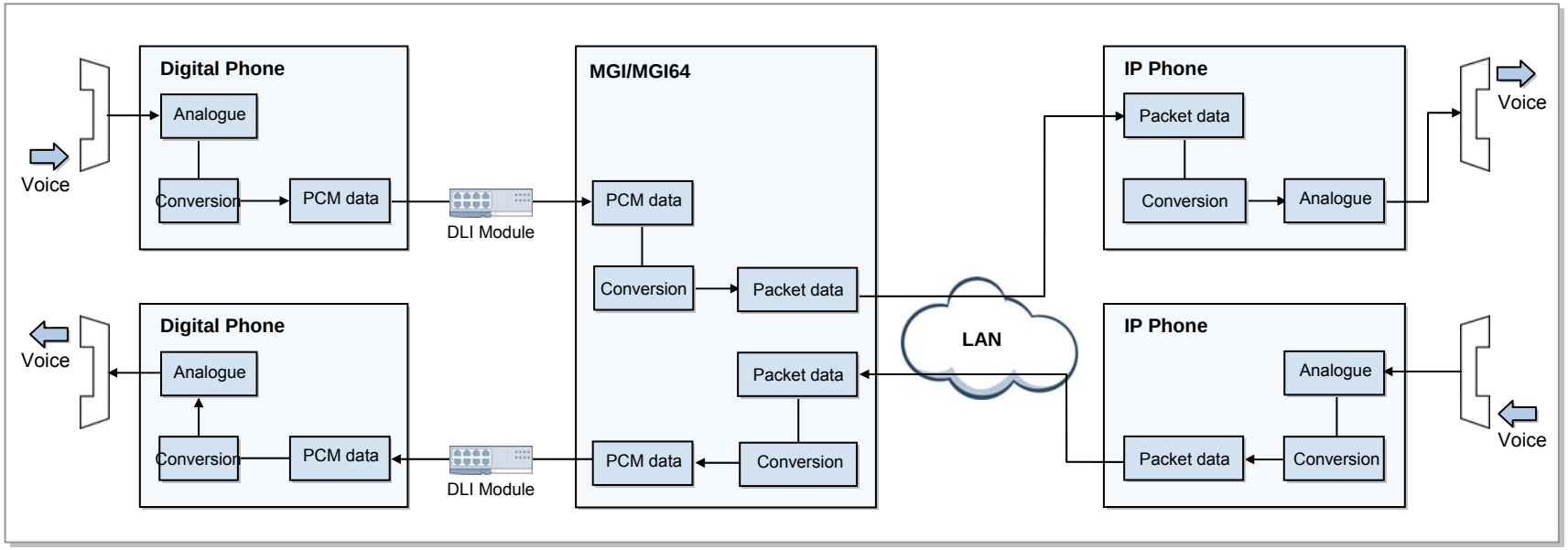


Figure 7.11 Communication between IP Phones and Digital Phones

Therefore, IP phones must be supported by the MGI/MGI64 module, allowing access to the LAN.

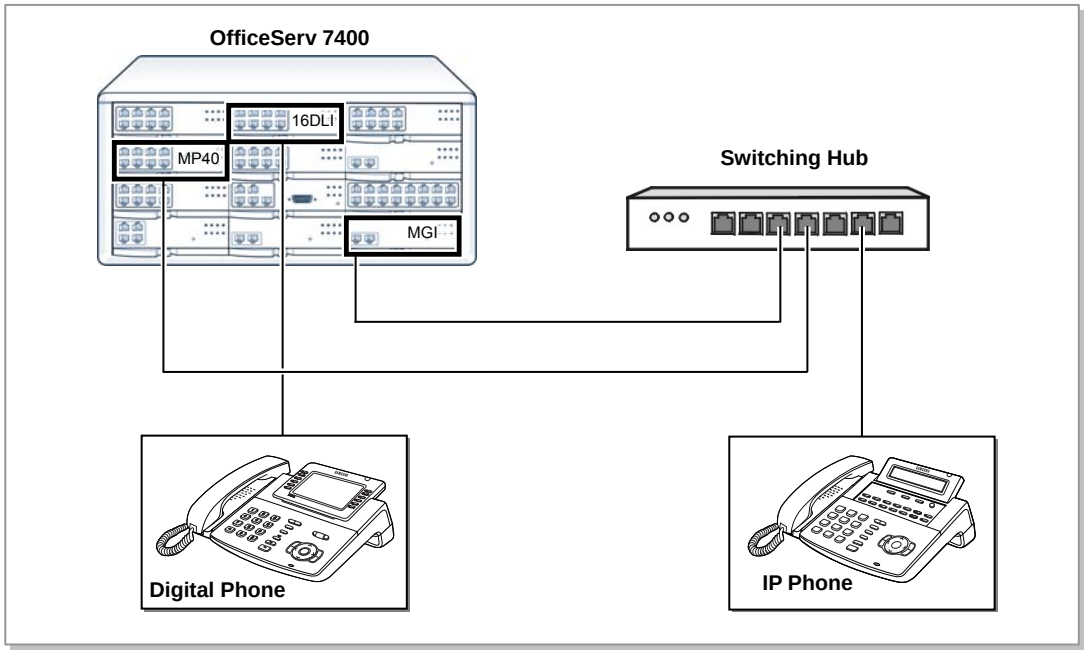


Figure 7.12 Connecting IP Phones

7.1.4.1 Connecting Modules to Ethernet

The modules GWIM / GSIM / GPLIM / LIM / PLIM/ 4DSL / MGI / MGI64 / MP40 / LP40 / TEPRI2 / SVMi-20E can be connected to Ethernet using an Ethernet cable.

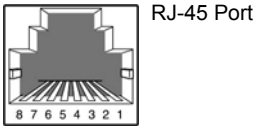


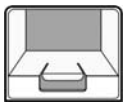
Figure 7.13 RJ-45 Ethernet Connection Port (Module)

- LIM Module - All ports (P1~P16)
- GWIM Module - All ports (P1, P2, P3)
- GSIM Module - All ports (P1~P10)
- GPLIM Module - All ports (P1~P14)
  Since all ports of the GWIM and GSIM and the Up Link ports (P13, P14) of the GPLIM only support the SFP type 1000 Base SX/LX/TX, to connect the 10/100 Base T with the RJ45 connector use the P1~P12 ports of GPLIM.
- 4DSL Module - Up Link port (LAN)
- MP40, LP40, MGI, MGI64, TEPRI2 and SVMi-20E Modules - LAN port

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

The use of a LIM port as an Uplink requires the use of a twisted LAN cable.

7.1.4.2 Mounting Gigabit Module of Switching Module


RJ-45 Port

GPLIM, GSIM, and GWIM modules provide a Gigabit Interface, and by using the SFP (Small Form-factor Pluggable) connector supports 1000 BASE-TX/SX/LX. Therefore, it is important to mount the correct specification of module, and connect between each module with the same kind of cable.

- 1000 BASE-TX SFP Module - UTP Cable
- 1000 BASE-SX - MMF Optic Cable
- 1000 BASE-SX - SMF Optic Cable

7.1.5 Connecting a Wireless LAN Access Point

The Wireless LAN service offered by the OfficeServ 7400 system requires:

- 4WLI module mounted in the system for WBS24 (Combo) connection

  OR

  MGI module mounted in the system for WBS24 (Basic) connection
- WBS24: Wireless LAN Access Point (AP)
- WIP-5000M: Wireless LAN IP phone

Table 7.2 Specification for Wireless LAN Equipment Connection

Items	OfficeServ 7400 System (Basic Chassis and Basic + Expansion Chassis)
Number of 4WLI Modules	3
Max. Number of WBS24 APs	12
Max. Number of Users	120
Number of Simultaneous Users	48

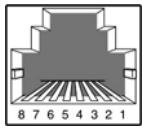
NOTE

Installation and Usage of WBS24 and WIP-5000M

For information on how to install and use the WBS24 and WIP-5000M, refer to the appropriate documentation provided with these.

Connect the 4WLI module and WBS24 using two 0.64 mm twisted cables (RJ-45 Ethernet cable, 600 m maximum distance) or two 0.40 mm twisted cables (RJ-45 Ethernet cable, 400 m maximum distance).

Wiring between 4WLI and WBS24



P1-P4 Ports
(RJ-45)

Figure 7.14 RJ-45 4WLI Module Port

Table 7.3 Wiring between 4WLI and WBS24

WBS24 Port Pin No.	WBS24 No.	Signal	4WLI Port Pin No.
4	1	D Channel Data	4
5			5
3		Sync. Line	3
6			6
4	2	D Channel Data	4
5			5
3		Sync. Line	3
6			6
4	3	D Channel Data	4
5			5
3		Sync. Line	3
6			6
4	4	D Channel Data	4
5			5
3		Sync. Line	3
6			6

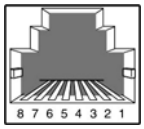
Use twisted pair cable.

7.1.6 Connecting to a Door Phone and a Door Lock

Connect a door phone and a door lock to the OfficeServ 7400 system using a Door Phone Interface Module (DPIM).

1) Connect a pair of #24 AWG or #26 AWG cables to the LINE port of the DPIM and to P1-P8/P16 ports of the 8DLI/16DLI2/8COMBO module as follows:

Connecting to an 8DLI Module

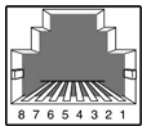


P1-P8 Ports
(RJ-45)

Figure 7.15 RJ-45 8DLI Module Port (for Door Phone)

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

Connecting to a 16DLI2 Module

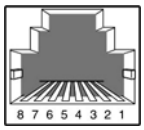


P1-P16 Ports
(RJ-45)

Figure 7.17 RJ-45 16DLI2 Module Port (for Door Phone)

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

Connecting to an 8COMBO Module



P9-P16 Ports

Figure 7.19 RJ-45 8COMBO Module Port (for Door Phone)

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

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

3) When using an automatic door lock, connect it to the LOCK port of the DPIM. The door release contacts are designed to control a low-voltage relay and are rated at 24 VDC and 100 mA. Use MMC 501 to program the duration of the contact closure as required

MMCs

MMC 211 is used to assign call numbers to door phones. For details, refer to the *Samsung OfficeServ 7400 Programming Guide*

7.1.7 Connecting Keyset Daughterboards (KDB-D/KDB-S)

KDB-D and KDB-S modules can be installed on digital phones connected to the 8DLI module (***not*** the 16LDI2 or 8COMBO module). A KDB module enhances the functions of the phone and increases the number of local ports.

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

1) Remove the plastic covers on the bottom of the phone.

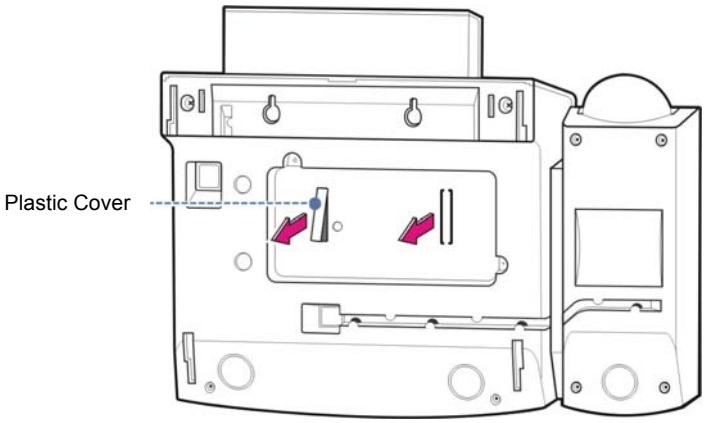


Figure 7.20 Installing KDB Module (1)

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

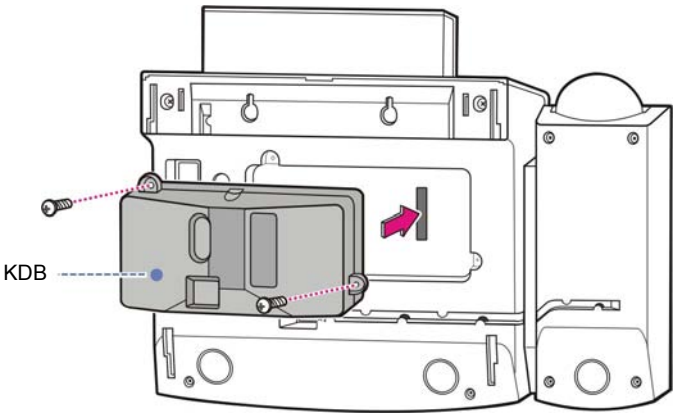


Figure 7.21 Installing KDB Module (2)

7.2 Connecting Additional Equipment

This section describes how to connect optional equipment to the OfficeServ 7400 system: Music on Hold (MOH) and Background Music (BGM) sources, external paging devices, common bells, and PCs for OfficeServ Manager, Station Message Detail Recording (SMDR) and Computer-Telephony Integration (CTI).

7.2.1 Connecting MOH/BGM Equipment

The system offers music when calls are put on hold and as background music for extensions. Both internal system-provided tones/music and external music sources for C.O. or extension lines can be used.

Two external MOH/BGM sources can be provided by the user. Connect the music sources to the MISC ports of the LP40 module (a MIS optional module must be mounted).

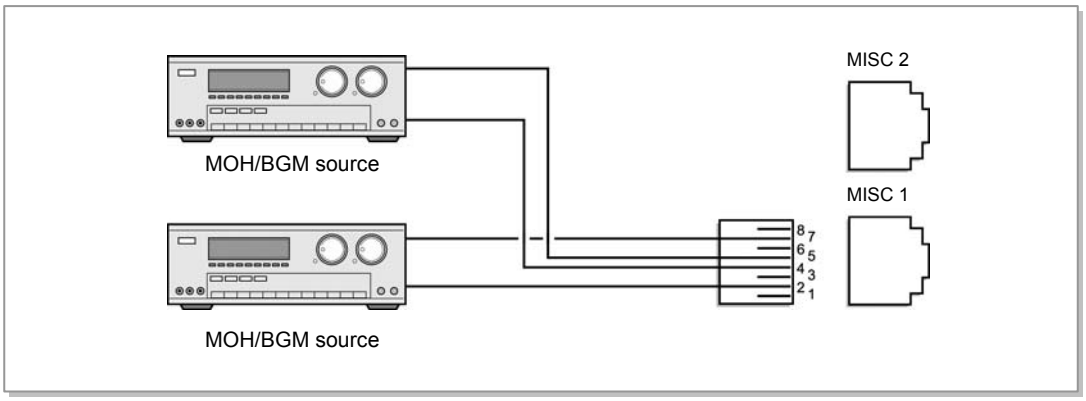


Figure 7.22 Connecting MOH/BGM Sources

NOTE

MMC Related

Select music sources for C.O. lines using MMC 408 and music sources for extensions using MMC 308. For details, refer to the *Samsung OfficeServ 7400 Programming Guide.*

7.2.2 Connecting External/Additional Paging Equipment

To complement the internal paging function through phone speakers, external broadcasting equipment, such as amps or speakers, and additional equipment that can broadcast page (ring) signals inside or outside of a building, can be connected to the system.

Connect external/additional page equipment to the MISC1 and MISC2 ports of the LP40 module (a MIS optional must be mounted). The power to the external/additional page equipment should be connected separately.

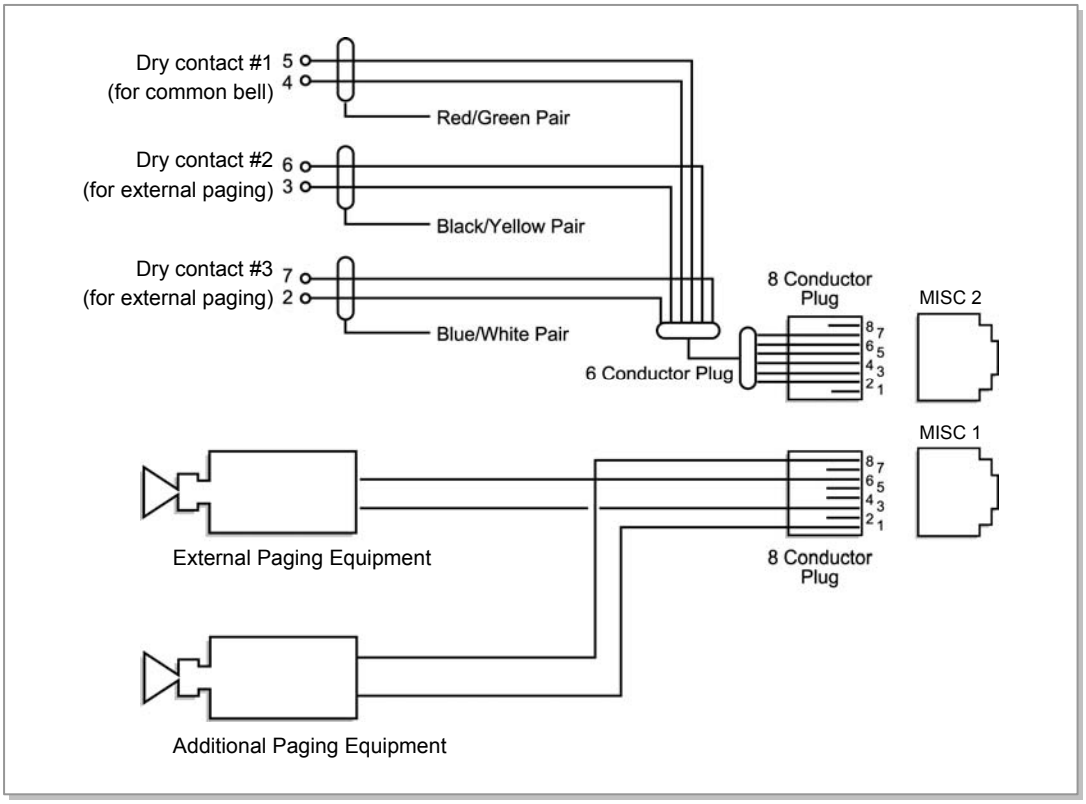


Figure 7.23 Connecting External/Additional Paging Equipment

NOTE

Dry Contact

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

7.2.3 Connecting a Common Bell

Common bell is a ring type. When a ring is received through an extension in a group, all extensions in the group also receive the ring.

Connect the common bell to the MISC1 and MISC2 ports of the LP40 module (a MIS optional module must be mounted).

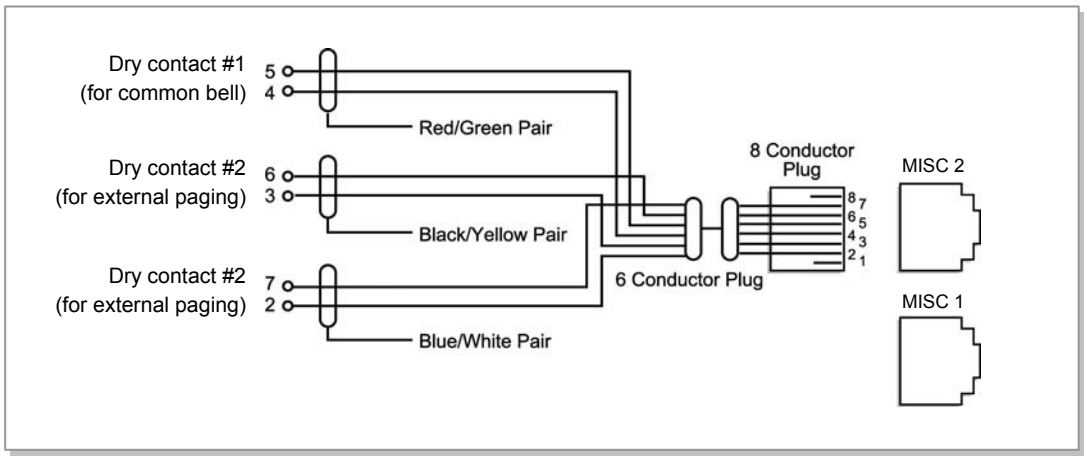


Figure 7.24 Connecting Common Bell

7.2.4 Connecting OfficeServ WebMMC

The OfficeServ WebMMC web application provides a number of functions for system maintenance. For example, when installing or changing equipment, or modifying the system database.

Refer to the OfficeServ WebMMC user's guide for details of installation and use.

7.2.5 Connecting SMDR

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

The PC can be connected via the LIM module or an external LAN port. SMDR system specifications are shown in Table 7.4.

Table 7.4 Specification of SMDR System

Category	Specification
Platform	IBM PC
CPU	Pentium 586 or higher
Operating System	Windows 95/98 or later
Main Memory	32 MB or more

If a LAN is set up, connect it to the LAN port of the MP40 module and connect the SMDR PC to the LAN. If a separate LAN is not set up, connect the SMDR PC to the LAN port of the LIM module.

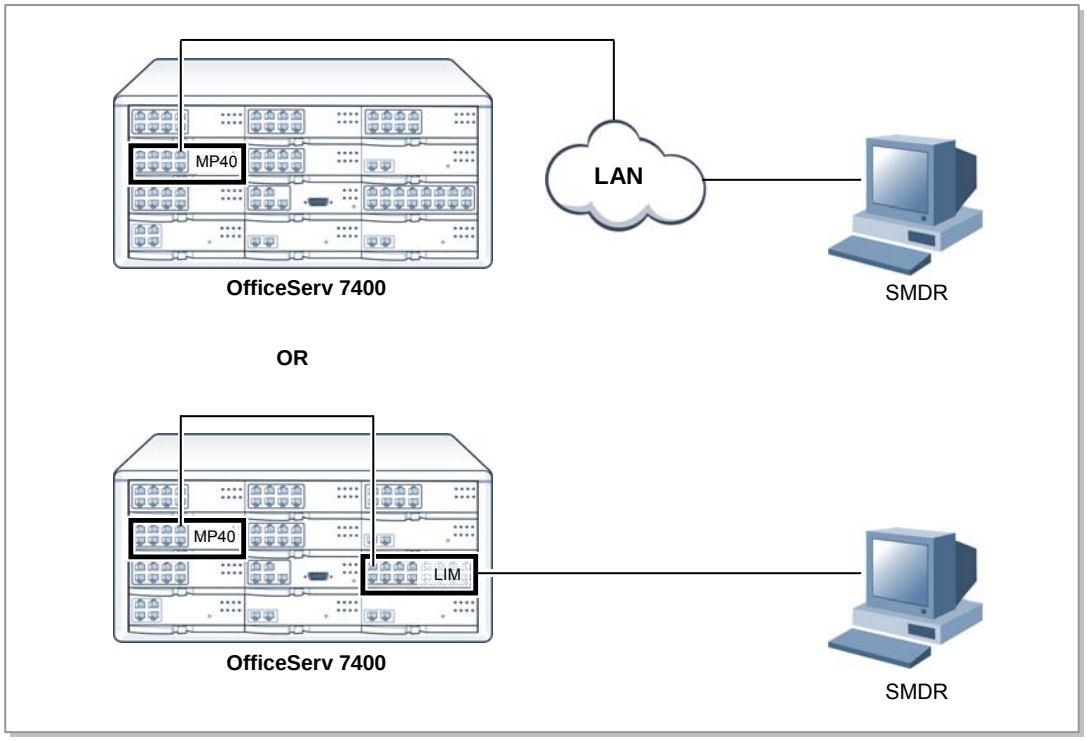


Figure 7.25 Connecting SMDR PC

7.2.6 Connecting Printers

The system can print call information or event information created by the system.

If a LAN is set up, connect it to the LAN port of the MP40 module and connect a printer to the LAN. If a separate LAN is not set up, connect the printer to the LAN port of the LIM module.

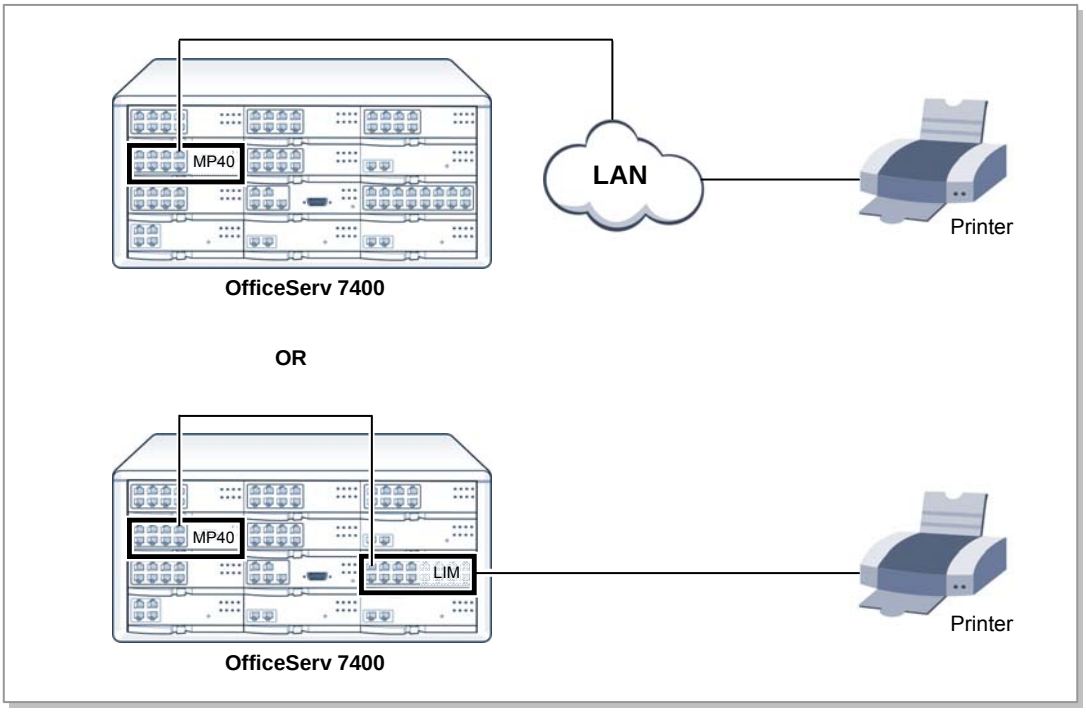


Figure 7.26 Connecting a Printer

NOTE

MMCs and Print Setting

- After connecting a printer, run MMC 804 and enter the I/O port through which the printer is connected
- For connecting to the network, refer to the printer's manual.
- For programming details, refer to the *Samsung OfficeServ 7400 Programming Guide*

CHAPTER 8. Starting the System

This chapter describes the post-installation checks to be made before starting the OfficeServ 7400 system, the procedure for starting the system, and the procedure for testing the operation of the system.

8.1 Pre-Startup Check

8.1.1 System Environment

- Temperature
  Check that the room temperature is between 0°C and 45°C. If it is not, install a heating/cooling device to maintain normal operating temperature.
- Humidity
  Check that the humidity of the room is between 10% and 90%. Take special precautions since humidity can affect electrical components and connectors.
- Direct Sunlight and Dust
  The room should be protected from direct sunlight and have a ventilation system to remove dust and particles.

8.1.2 Safety Conditions

The building where the OfficeServ 7400 system is installed should have lightning rods and grounding to protect the system against lightning and electrical leakage.

- Check that the OfficeServ 7400 system is not on an inclined surface (i.e. is kept horizontal).
- Do not place devices that may cause electromagnetic interference near the system.
- Place a fire extinguisher near the system. Since sprinklers can seriously damage the system, use extinguishers such as Halor 1301 and Carbon Dioxide.
- Make sure that the input power to the system is within the range AC 100~240 V and that other electric devices, such as motors and compressors, do not share the same power socket.
- Check that the grounding terminal on the rear panel of the system is properly connected to the external grounding.

8.2 Starting the System

1) Check that all required modules and cables are properly mounted and connected to the OfficeServ 7400 chassis.

2) Switch on the power to the OfficeServ 7400 basic chassis, and then switch on the power to the expansion chassis.

3) Check the LEDs of the MP40 and LP40 modules.

   The RUN LED on the MP40 module lights green and the SM LED flashes when the system starts the booting process.

   Once booting is complete, the RUN LED on the MP40 module flashes green, and the SM LED stops flashing and lights steady.

   The RUN LED on the LP40 module flashes when the power supply and processor status of the expansion chassis is normal.


NOTE

If the Smart Media card is not detected

If the system cannot detect the Smart Media card, the SM LED of the MCP module might not light or flash. In such cases, switch off the power to the basic chassis, replace the Smart Media card and switch the power on again.

4) Check that the LED statuses of other interface modules are normal.

5) If the LED status of a MP40, LP40 or interface module is abnormal, switch off the power to the chassis and switch it on again.


NOTE

Module LED Status and Shut-down

- Refer to the *Samsung OfficeServ General Description* for the LED statuses of each module.
- Shut-down is rarely required while operating the OfficeServ system. However, if shutting down the system for reasons such as moving it, switch off the power to the expansion chassis first and then switch off the power to the basic chassis

8.3 Numbering Extensions and C.O. Lines

Once the OfficeServ 7400 system is booted, the MP40 and LP40 modules verify the modules mounted in each slot and save this information as the default configuration of the system.

Depending on the settings of the S2 switch (SW6, SW7 and SW8) of the MP40 module, the system assigns three or four digits to C.O. lines, extensions, and extension groups. Refer to **3.2 Mounting Control Modules,** for details of setting the S2 switch.

C.O. line numbers from 701 (or 7001) are assigned sequentially to the C.O. line module mounted in slot 1 of the basic chassis; numbers are then continuously assigned to the next module in the next slot. This numbering process continues until C.O. line numbers are assigned to all C.O. lines. However, only the numbers from 701 to 799 are assigned when using three digits. For example, if two 8TRK modules are mounted in slots 1 and 2, 701 is assigned to the first port of slot 1 (C1/S1/P1) and 712 is assigned to the 4th port of slot 2 (C1/S2/P4). That is, the 12th C.O. line is assigned to the 4th port of the 2nd slot of the basic (1^{st}) chassis.

Extension numbers from 201 (or 2001) are sequentially assigned to the extension module mounted in slot 1 of the basic chassis; numbers are then continuously assigned to the next extension module in 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 three digits.

The last port of the first 8DLI or 16DLI2 module 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 module.

Numbers between 500-549 (or 5001-5049) are assigned to an extension group.

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

8.4 Checking System Operation

After starting the OfficeServ 7400 system, check that it is operating normally. From a phone, check that the basic functions such as station calling, station camp-on, C.O. line calling, and C.O. line camp-on are working properly.

8.4.1 Station Call Function

1) Lift the handset and verify the intercom dial tone.
2) Dial an extension number and check that the dial tone stops.
3) Dial all extension numbers and verify the ring-back tone.
4) When a recipient answers the call, verify the call quality.
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 on another call, this function automatically connects the recipient and the caller immediately the recipient hangs up their current call.

1. Lift the handset of a phone (A) and dial a busy station (B) to verify the busy tone. (Make phone B busy, e.g. by calling the speaking clock.)

2. Press the hookflash button and check that the busy tone stops.

3. Dial the Camp-On code and verify the confirmation tone.

4. Replace the handset of phone A

5. Replace the handset of phone B and check that A rings.

6. Lift the handset of A, check that it stops ringing and confirm that B rings.

7. Lift the handset of B and check that it stops ringing. Check that the ring back tone in A also stops and that A and B are connected in a call.

8.4.3 C.O. Line Call Function

Follow this procedure to check that outside calls can be connected.

1. Lift the handset of a phone and verify the internal dial tone.
2. Dial the C.O. line call code (e.g. 9) and verify the C.O. line dial tone.
3. Dial an external number and verify the ring back tone.
4. When the call is connected, check that the quality is acceptable.

Also, using a phone that is not programmed to support C.O. line calls, check that an error tone is activated when attempting to dial the C.O. line call code.

8.4.4 C.O. Line Camp-On Function

If a caller dials 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 when the line becomes available again.

Follow this procedure to check the C.O. Line Camp-On function.

1. Lift the handset of a phone and dial a C.O. line code. Verify the C.O. line dial tone.
2. Check that a busy tone rings when all C.O. lines are busy.
3. Press the hookflash switch to check that the busy tone stops.
4. Dial the C.O. line Camp-On function code. Verify the confirmation tone.
5. Replace the handset and make the C.O. line idle. Check that the phone rings and that the C.O. line becomes busy.
6. Lift the handset of the phone and check that it stops ringing. Verify the internal dial tone and the C.O. line dial tone.

8.4.5 Fan Operation

If the fan connected to the system stops working, the system will shut down after 24 hours to prevent overheating. This function is programmable, providing an alarm to a pre-programmed extension. The procedure is as follows:

1) Specify the SYSALM key in MMC 722. Program the specified key on the digital phone to be alerted.

2) If an alarm occurs in the phone, the reason for the alarm is displayed in MMC 851. Error 'MJA08' indicates a faulty fan and that the system will be turned off after 24 hours.

If this alarm occurs, replace the fan within 24 hours.

ABBREVIATIONS

A

AC	Alternating Current
AFT	Automatic Function Test
AOM	Add-On Module
AP	Access Point
AWG	American Wire Gauge

C

CTI	Computer-Telephony Integration

D

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

G

GPLIM	Gigabit LAN Interface Module with PoE
GND	Ground
GSIM	Gigabit Switch Interface Module
GWIM	Gigabit WAN Interface Module

I

IP	Internet Protocol

K

KDB	Keyset Daughterboard

L

LAN	Local Area Network
LCD	Liquid Crystal Display
LP40	Local (control) Processor
LED	Light Emitting Diode
LIM	LAN Interface Module

M

MP40	Main (control) Processor
MGI	Media Gateway Interface
MGI64	Media Gateway Interface (64 channel)
MMC	Man Machine Communication
MIS	Miscellaneous
MFM	Multi-Frequency Module

P

PC	Personal Computer
PCM	Pulse Code Modulation
PLIM	LAN Interface Module with PoE
PRI	Primary Rate Interface
PSU	Power Supply Unit

R

RCM2	R2 CID Module

S

SLI	Single Line Interface
SMDR	Station Message Detail Recording

T

TEPRI	T1/E1/PRI
TEPRI2	T1/E1/PRI2
TRK	Trunk

U

UTP	Unshielded Twisted Pair

V

VLAN	Virtual Local Area Network

W

WAN	Wide Area Network
WBS	Wireless Base Station
WIM	Wide Area Network Interface Module
WIMD	WAN Interface Module Daughter module
WIP	Wireless IP Phone
WLI	Wireless LAN Interface

Samsung Business Communications
Brookside Business Park, Greengate, Middleton, Manchester M24 1GS