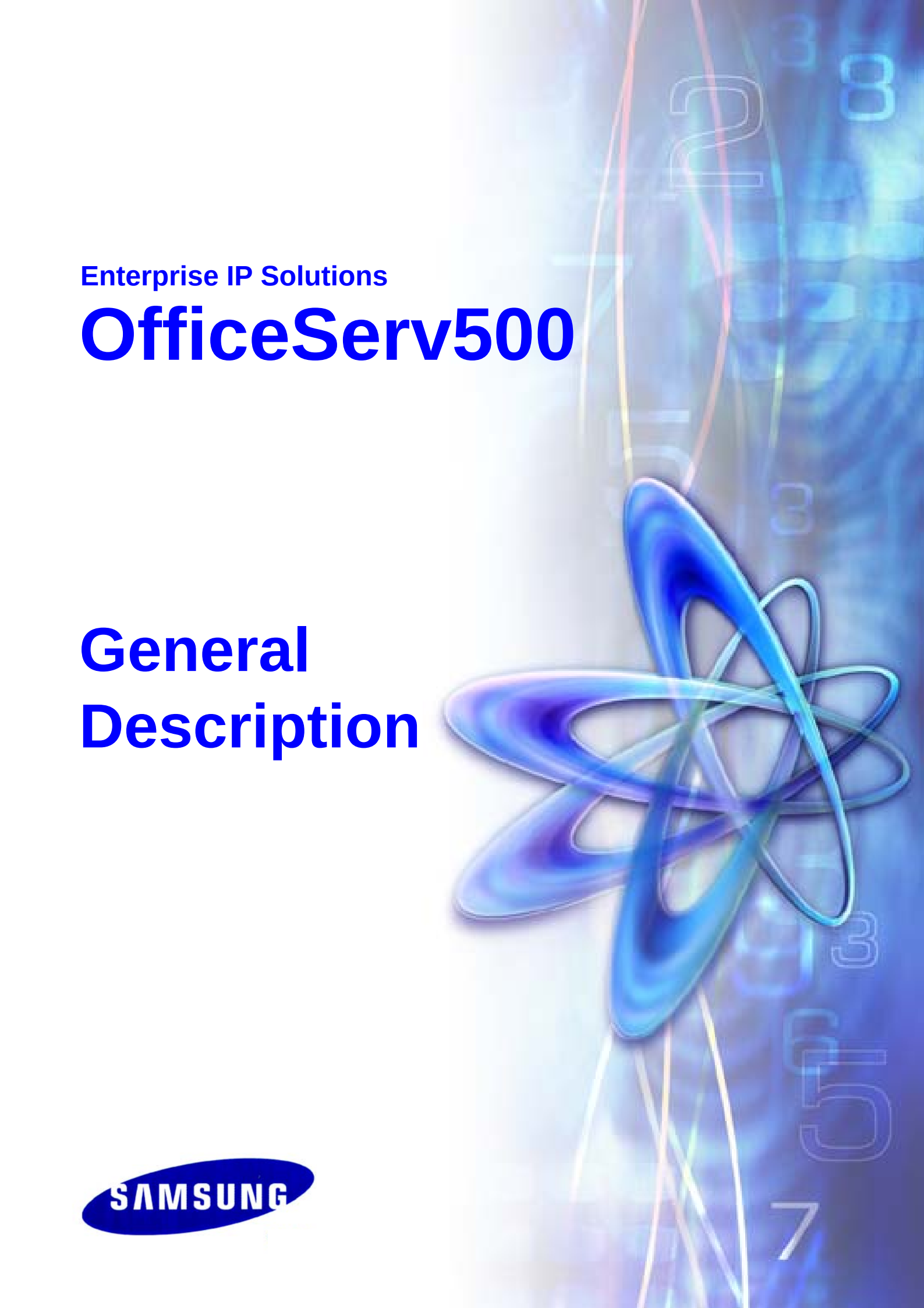
Enterprise IP Solutions

OfficeServ500

General Description



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SAMSUNG ELECTRONICS

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 "*i*DCS500 / OfficeServ500"

to which this declaration relates is in conformity with

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

CE

By application of the following standards

RTTE: TBR4: November 1995 incorporating TBR4/A1: December 1997

LVD: EN60950: 2000 (IEC 60950, Third Edition, 1999)

EMC: EN55022 : 1998, EN61000-3-2:1995 Inc A1/A2:1998 + A14:2000*,

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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.

Preface

About Your Samsung OfficeServ500 System

The Samsung OfficeServ500 system comprises three separate versions: ‘S’ (small), ‘M’ (medium) and ‘L’ (large). They are defined by their size and functionality—the larger systems providing support for more telephone ports and features than the smaller systems—and are designed to suit a wide range of commercial and business activities.

About This Manual

This guide provides an overview of the OfficeServ500, including system structure and hardware, features and facilities, and specifications. The guide consists of the following chapters.

1 Introduction to OfficeServ500

2 Hardware Descriptions

3 Specifications

4 Business Features Package

5 Hotel Features

Supporting Documents

The following guides and manuals are also available for your system. You may need to refer to one or more of them during installation. You should have them available for guidance when your system is fully installed and operational.

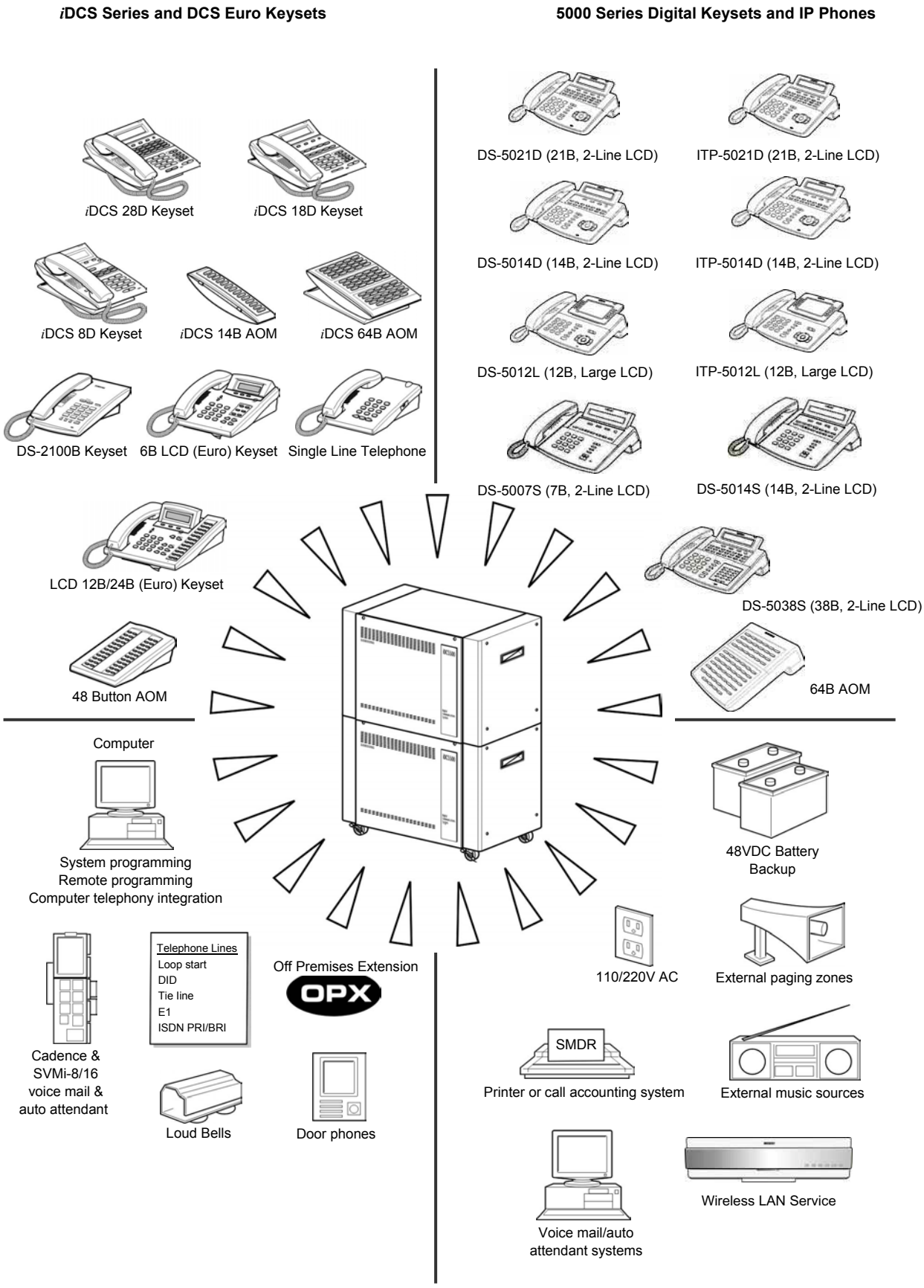
- *Samsung OfficeServ500 Installation Guide*
  This guide provides information for installing your system and connecting station and optional equipment.

- *Samsung Combined Systems Programming Manual*
  The system is configured using MMC (Man Machine Communication) programming. The installer or system administrator programs the system using MMCs from a digital display keyphone. This manual describes each MMC and how it is used.

- *Samsung OfficeServ System Administration Guide*
  This guide provides easy to follow instructions for the system administrator on setting up the features most commonly required by telephone users.

- *Samsung Digital Keyset, Internet Phone & Single Line Telephone User Guides*
  Refer to the appropriate user guide for each type of telephone connected to your system. These may include Samsung DCS (Euro) digital keysets, OfficeServ500 series digital keysets and IP phones, *i*DCS series digital keysets, and single line telephones.

OfficeServ General System Diagram



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Chapter 1 Introduction to OfficeServ500

This chapter contains the following sections:

- Terminology
- General Description
- Sizes and Configurations
- Differences Between OfficeServ500 Systems
- Technology
- Programming

Terminology

The Samsung OfficeServ500 digital telephone system is designed for medium-sized businesses. The system is configured as an 'S', 'M' or 'L' system: 'S' and 'M' systems are single cabinet systems while 'L' systems have a higher capacity and can be expanded to two or three cabinets. It is possible to easily upgrade from an 'M' to an 'L' system by changing the software. All systems are controlled by a main control processor card, the MCP2.

General Description

All systems can operate with the functionality of a square key system, PABX or a combination of both (hybrid). They employ DSP (Digital Signal Processors) digital technology.

A variety of interface cards are available that allow connection to the public telephone network or to private networks. These are generally referred to as trunk cards. Three types of telephone can be connected to the system: proprietary digital phones (keysets) which connect to digital line interface cards (DLI); standard telephones (generally called single line telephones, or SLTs) which connect to single line interface cards (SLI); and Internet (IP) phones.

In addition, DLI station ports are used to connect peripheral devices such as door phones and add-on modules. Miscellaneous circuits are provided to allow such optional features as external paging, music-on-hold, background music, and common audible devices. All interface cards are encased in an anti-static plastic enclosure and some can be inserted or removed with power on to eliminate unnecessary service interruptions while performing maintenance.

All keysets have a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung's customary large, easy-to-read displays and key LEDs make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or programmable feature keys.

Expanding the system is both economical and easy. You can begin with a single cabinet configured as a basic Key Service Unit (KSU) and then add up to two more cabinets as your business grows. Its low- and medium-density card design allows greater flexibility when configuring a system for the right combination of lines and stations. A removable software cartridge (SmartMedia card) makes it convenient to upgrade to future feature packages.

Sizes and Configurations

OfficeServ500 is a fully modular system. A basic system comprises a single cabinet configured as a KSU with interface cards and keysets. Up to two additional (expansion) cabinets can be connected to a single cabinet 'L' system to enhance its abilities. A fully expanded 'L' system (three cabinets) using TEPRI cards can have a maximum of 406 lines or 360 stations. Without the TEPRI cards, the maximum number of lines is 208 and the maximum number of stations is 360.

The system supports a maximum of 542 ports and 240 IP extensions. Each cabinet supports one or two PSU-B power supply units. One PSU-B supports up to 56 stations; two PSU-Bs support up to 120 stations. Both power supply units are connected to the DC bus for external battery backup. Each cabinet also has four Digital Signal Processor (DSP) channels for use as DTMF receivers/senders or tone detectors.

NOTE: For a full description of each card discussed in this section, refer to Chapter 2, Hardware Descriptions.

Single Cabinet System (Basic KSU)

A single cabinet system (Figure 1–1) has a number of universal card slots, a main processor card (MCP2) slot and two power supply slots. 'S' systems have six universal slots, while 'M' and 'L' systems have nine universal slots. On 'L' systems, the MCP2 card must be equipped with an ESM daughterboard.

The first power supply slot must be occupied by a PSU-B to supply sufficient power to all 10 slots (nine universal and a processor slot) and support up to 56 stations. A second PSU-B may optionally occupy the second power supply slot. Station or trunk (line) cards can be installed in any of the universal slots. The TEPRI and 8BSI cards must be installed in slots 1, 2 or 3. This allows a maximum of 120 stations of any kind or 138 lines in a single cabinet system. Without TEPRI cards, the maximum number of CO lines in the basic KSU is 72.

Two Cabinet System

In a two cabinet system (Figure 1–2), the Signal Control Processor (SCP2) card must be installed in slot 9 of the KSU. This card provides an intermediate level of processing to control the first cabinet, thereby freeing resources on the MCP2 to control the entire system. Adding the SCP2 card therefore reduces the number of universal card slots in the KSU to eight. The expansion cabinet must also have a Local Control Processor (LCP2) card installed.

All processor cards have provision for installing three daughterboards. The MCP2 card must be equipped with an ESM daughterboard. Any other type of daughterboard you need can be installed on the MCP2, SCP2 or LCP2 card.

A two cabinet system has 17 universal card slots. This allows a maximum of 240 stations or 268 lines when using TEPRI cards. Without TEPRI cards, the maximum number of lines is 136 while the maximum number of stations remains at 240. The LCP2 card controls the expansion cabinet in a similar manner to the SCP2 in the KSU, and connects to the MCP2 via a 25-pair cable. The LCP2 card resides in dedicated slot 10 of the expansion cabinet and therefore does not deplete the number of universal card slots.

NOTE: The first power supply slot in each cabinet must be occupied by a PSU-B to supply sufficient power to all 10 slots (nine universal and a processor slot) and support up to 56 stations. A second PSU-B may optionally occupy the second power supply slot.

Three Cabinet System

In a fully expanded three cabinet system (Figure 1–3), there are 26 universal card slots. This allows a maximum of 360 stations or 406 lines when using TEPRI cards. Without TEPRI cards, the maximum number of lines is 208 and the maximum number of stations is 360. The third (expansion) cabinet is also controlled by an LCP2 card in a similar manner to that in the second (expansion) cabinet and connects to the second cabinet's LCP2 card via a 25-pair cable. This processor resides in dedicated slot 10 and therefore does not deplete the number of universal card slots. Additionally, the MCP2 card must be equipped with an ESM daughterboard.

NOTE: The first power supply slot in each cabinet must be occupied by a PSU-B to supply sufficient power to all 10 slots (9 universal and a processor slot) and support up to 56 stations. A second PSU-B may optionally occupy the second power supply slot.

Differences Between OfficeServ500 Systems

The following tables describe the different configurations allowed for each system—cabinets, interface cards, daughterboards, and so on.

Table 1-1 Allowed System Configurations

Classification	Component	OfficeServ500			Remarks
		S	M	L	
SYSTEM (see Chapter 2 for a description of interface cards and daughter-boards)	CABINET	■	■	■	
	MCP2	■	■	■	
	SCP2			■	
	LCP2			■	
	IOM	■	■	■	Not installed in expansion cabinets.
	SCM	■	■	■	Common resource daughterboards are installed on MCP2 card for 'S' and 'M' versions, and on MCP2 / SCP2 / LCP2 cards for 'L' version.
	MFM	■	■	■	
	RCM2	■	■	■	
	MISC	■	■	■	
	ESM			■	Used for line expansion
	MODEM	■	■	■	Installed on IOM
	MGI2	■	■	■	Supports G.711, G.729, T.38, H323, SIP
	MGI3	■	■	■	Supports G.711,G.729, G.723, T.38, H323, SIP
	MGI3D/ITM3D	■	■	■	8 additional channels in MGI3

Table 1-1 Allowed System Configurations (Contd)

Classification	Component	OfficeServ500			Remarks
		S	M	L	
DECT	DBS	■	■	■	DECT Base Station
	8BSI	■	■	■	Accommodates eight DECT Base Stations (DBS) per card Max. 1 card for 'S' & 'M' systems Max. 3 cards for 'L' systems
	OD8000	■	■	■	DECT handset
Keyset	DPIM	■	■	■	
	DS-5012L	■	■	■	Large LCD
	DS-5021D / 5014D	■	■	■	2-line LCD
	DS-5007S / 5014S / 5038S	■	■	■	2-line LCD
	ITP-5012L	■	■	■	Large LCD IP phone
	ITP-5021D / 5014D	■	■	■	2-line LCD IP phone
DTRK	TEPRI	■	■	■	
	BRI	■	■	■	
A TRK	TRK_B	■	■	■	
	8TRK	■	■	■	
	AC15	■	■	■	
Subscriber	16SLI	■	■	■	16 ports
	16MWSLI	■	■	■	Message Waiting function
	8SLI	■	■	■	8 ports
	8MWSLI	■	■	■	Message Waiting function
	16DLI	■	■	■	
	DLI	■	■	■	Supports keyset daughterboards
Service	AA	■	■	■	
	SVMi-8	■	■	■	
	SVMi-16	■	■	■	
	VDIAL	■	■	■	
SmartMedia Card	System software	■	■	■	Separate management for 'S', 'M' and 'L'
Wireless IP	WLI	■	■	■	Wireless LAN Access Point interface (Combo type only)
	WBS24 (Combo)	■	■	■	Wireless IP Access Point for use with the WLI card
	WBS24 (Basic)	■	■	■	Wireless IP Access Point for use with the MGI card
	WIP-5000M	■	■	■	Wireless IP handset

Table 1-2 Slots, Cards and I/O ports

Item	S or M Version	L Version
Cabinets	SIngle cabinet	One, two or three cabinets
Universal Slots	16 channel : 6 (‘M’), or 3 (‘S’) 32 channel : 3	16 channel : Max. 17 32 channel : Max. 9
Basic Cards Installed	MCP2 card PSU-B card	MCP2, SCP2 and LCP2 card, ESM daughterboard, PSU-B card
Daughterboards	SCM: Max. 1 RCM2: Max. 1 MISC: Max. 1 TOTAL: Max. 3	SCM: Max. 1 MFM: Max. 3 RCM2: Max. 3 MISC: Max. 3 TOTAL: Max. 10
Input/Output Ports (IOM card)	Two SIO ports (max. 38.4Kbps)	

Table 1-3 Specifications

Item		Specifications
Supported Cards	C.O	TRK-B, 8TRK, AC15, TEPRI, BRI
	Station	SLI, 8SLI, 16SLI, 8MWSLI, 16MWSLI, DLI, 16DLI
	Service	AA, SVMi-8, SVMi-16, VDIAL, MGI2, MGI3
	Daughter Board	ESM, MISC, SCM, MFM, RCM2, MGI3D/ITM3D, MODEM
	Service	IOM, MDF, PFT
Additional Equipment		Hold/Background music source External paging device Loud bells PC for programming (PCMMC) PC for SMDR, PC for Computer-Telephony Integration (CTI)
Station Equipment		● Standard telephone (SLT) ● DPIM ● Digital Keysets (Euro, *i*DCS) ● Large LCD Keyset DS-5012L, ITP-5012L ● 2-Line Keysets DS-5021D/5014D, DS-5007S/5014S/5038S, ITP-5021D/5014D

Technology

Memory

The system operates using stored program control. The program is stored on a SmartMedia card inserted into the Main Control Processor (MCP2) card.

MCP2 Card

The card contains a minimum of 16 Megabytes (MB) of NAND-Flash memory providing a backup customer database and a backup operating program. The system boots from a 512 kbyte boot ROM and downloads the operating program into 64MB of DRAM on the MCP2 card. The customer database is stored in 4MB of non-volatile SRAM for a single cabinet system.

Microprocessors

The system uses distributed processing. Its primary processor is a 32-bit Motorola MC68302 operating at a clock speed of 80MHz on the MCP2 card. This provides all the processing necessary for a single cabinet system. In a multiple cabinet system the secondary level of processing is on the SCP2 card for the first cabinet and on the LCP2 cards for the expansion cabinets. These secondary processors are MC68302 processors running at 16 MHz and provide local control of each cabinet. The tertiary level of processing is done in the keysets. The digital keysets use a Hitachi H8 processor for data communication within the system.

Programming

The system is self-configuring. This means that immediately after switching on, the system reads the types and locations of all installed interface cards and keysets and assigns default data to them. This data provides for system operation within a few minutes of power on. All trunks and stations are assigned three- or four-digit numbers according to the settings of the switches on the MCP2 card and the default numbering plan. This numbering plan is flexible and may be changed to suit customer requirements during installation.

The system can be programmed from any LCD display keyset without interrupting system operation. There are three levels of programming: technician (or system), customer and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access levels are controlled by different security passcodes and access procedures.

The system also allows the use of a proprietary computer program called PCMMC. This permits a technician to program the system using a personal computer. PCMMC can be used on-site to modify the customer database or to download (save) the entire customer database to a file. This file can then be saved as a backup and be uploaded when required to restore the database.

Using modems, PCMMC can access the system remotely (off-site) to make database changes or perform uploads or downloads of the customer database as if the technician were on-site.

Figure 1-1 Single Cabinet System

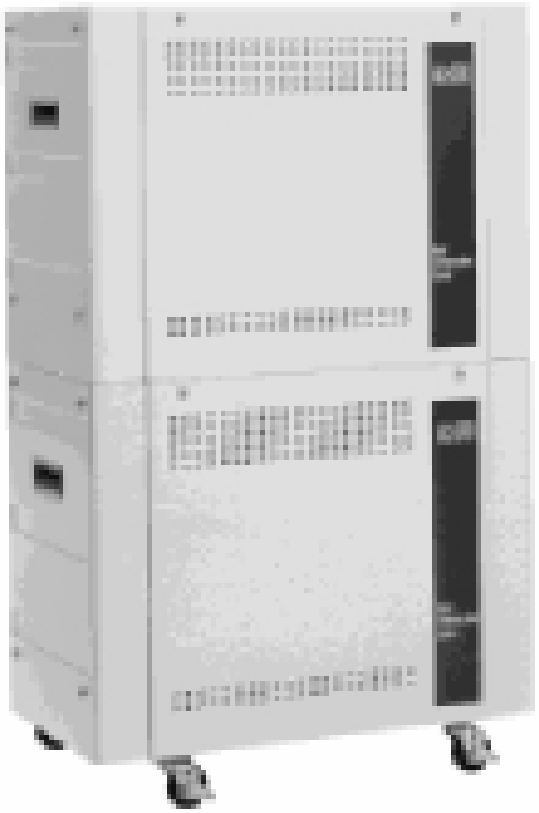


Figure 1-2 Two Cabinet System

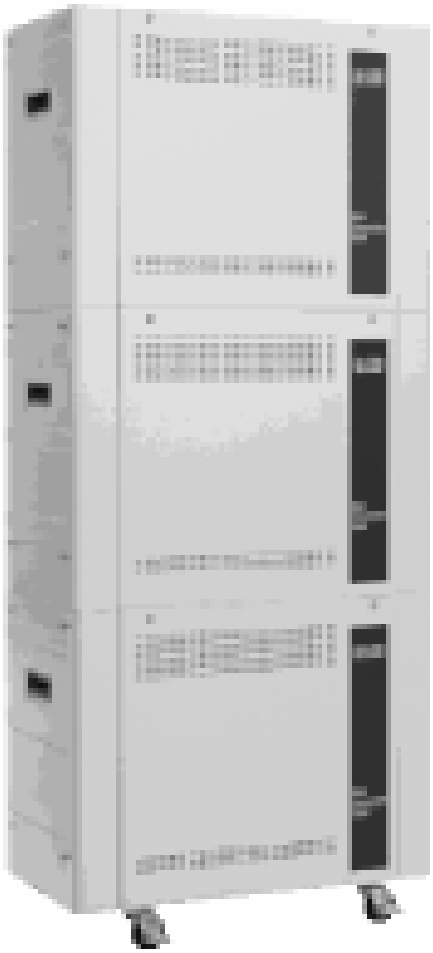


Figure 1-3 Three Cabinet System

Chapter 2 Hardware Descriptions

This chapter describes the hardware for OfficeServ500 systems, as follows:

- System Cabinets
- Common Control Cards
- Interface Cards
- Station Equipment

System Cabinets

System cabinets are made of metal and are therefore robust. They are used as the main cabinet / key service unit (KSU), or as expansion cabinets in 'L' systems where they can be stacked up to three high to achieve maximum capacity. Cabinets may be wall mounted or—for multiple cabinet systems—may be mounted in a standard 19-inch equipment rack after removal of the side panels and their supporting brackets. Each cabinet comprises the following:

- Eight universal interface card slots (or six for 'S' systems)
- One dual-purpose interface card / signal processor slot (see Sizes and Configurations in Chapter 1)
- One processor card slot
- Two power supply slots
- One IOM board slot for the main cabinet/KSU (see Input-Output Module (IOM) Board in this chapter).
- AC power connector
- DC power (Battery Backup) connector

NOTE: The first power supply slot must be occupied by a PSU-B power supply to supply sufficient power to all 10 slots (8 interface, one dual purpose and one processor slot). A second PSU-B may optionally occupy the second power supply slot.

Common Control Cards

PROCESSOR CARDS

The system requires a processor card (or cards) in order to operate. In a single cabinet system, only the Main Control Processor (MCP2) card is required. (See the Technology section in Chapter 1 for a description of how Main Control Processor cards work.) When the system is expanded to two or three cabinets, an SCP2 card is also required in the main cabinet to assist the MCP2. Each expansion cabinet requires its own Local Control Processor (LCP2) card. These cards are described here.

Main Control Processor Card (MCP2)

The features of the MCP2 card are described in the table below.

Table 2-1 MCP2 Card Features

Item	Description
Processor	32 bit, 80 MHz
SIO Port (Asynchronous)	Basic 2 port (SIO2,SIO3)
SmartMedia Card	16 MB
SRAM	Basic : 4 MB
SDRAM	Basic : 64 MB
HDLC Port for IPC	Basic: Installed
Time switch	Basic : 512x512 Ch. Expansion : 1024x1024 Ch.
Daughterboard Mounting	LOC1, LOC2, LOC3

The MCP2 is installed in the dedicated processor slot 10 of the first cabinet and has positions for three daughterboards (refer to table below).

The first daughterboard position **(LOC1)** can support one of four types of daughterboard: a Multi-Frequency Module (MFM), a Switch/Conference Module (SCM), an R2/CID Module (RCM2), or an Expanded Switching Module (ESM). **The ESM must be installed in this position on the card in a multiple cabinet system, or in a single cabinet system running 'L' version software.**

The second daughterboard position **(LOC2)** can support the MFM, the SCM, or the RCM2.

The third daughterboard position **(LOC3)** can support an MFM, SCM, RCM2, or Miscellaneous (MISC) daughterboard.

MAIN CONTROL PROCESSOR (MCP2) DAUGHTERBOARD CAPABILITIES	
Position	**Type of Daughterboard Allowed**
LOC1	MFM, SCM, RCM2 and ESM*
LOC2	MFM, SCM, RCM2
LOC3	MFM, SCM, RCM2 and MISC

* The ESM must be installed in this position in a multiple cabinet system or a single cabinet system running 'L' version software.

.

NOTE: Only one of any given type of daughterboard may be installed on any one MCP2 card (e.g. only one MFM can be installed on one MCP2).

Switch Control Processor Card (SCP2)

The Switch Control Processor (SCP2) card is required when an 'L' system is to be expanded beyond a single cabinet, or where a single cabinet system is running 'L' version software. It is installed in slot 9 of the KSU and reduces the available universal card slots to eight. The card has positions for three daughterboards (refer to the table below).

The first daughterboard position (LOC1) can support an MFM, an SCM or an RCM2.

The second daughterboard position (LOC2) can support an MFM, an SCM, an RCM2 or a MISC.

The third daughterboard position (LOC3) can support an MFM, an SCM or an RCM2.

SWITCH CONTROL PROCESSOR (SCP2) DAUGHTERBOARDS	
Position	Type of Daughterboard Allowed
LOC1	MFM, SCM, or RCM2
LOC2	MFM, SCM, RCM2, or MISC
LOC3	MFM, SCM, or RCM2

NOTE:

1. Only one of any given type of daughterboard may be installed on any one SCP2 card (e.g. only one MFM can be installed on one SCP2).
2. The SCP2 contains 4MB of DRAM.

Local Control Processor Card (LCP2)

The Local Control Processor (LCP2) card is installed in the dedicated processor slot 10 of each expansion cabinet and does not reduce the available universal card slots of that cabinet. The LCP2 card has positions for three daughterboards (refer to the table below).

The first daughterboard position (LOC1) can support an MFM or RCM2.

The second daughterboard position (LOC2) can support an MFM, RCM2 or MISC.

The third daughterboard position (LOC3) can support an MFM or RCM2.

LOCAL CONTROL PROCESSOR (LCP/LCP2) DAUGHTERBOARDS	
Position	Type of Daughterboard Allowed
LOC1	MFM or RCM2
LOC2	MFM, RCM2 or MISC
LOC3	MFM or RCM2

NOTE:

1. Only one of any given type of daughterboard may be installed on any one LCP2 card (e.g. only one MFM can be installed on one LCP2).
2. The LCP contains 4MB of DRAM.

PROCESSOR CARD DAUGHTERBOARDS

There are seven types of daughterboard that fit on the processor cards. Some daughterboards will work only on the MCP2; others will work on any processor card. Each daughterboard is described below.

NOTE: Not all daughterboards are available in all countries.

Switch and Conference Module (SCM)

This daughterboard installs on the **MCP2** or the **SCP2** processor card.

In a single cabinet system the SCM can be installed in position LOC1, LOC2 or LOC3.

In a multiple cabinet system the SCM must be installed on the **SCP2** card because the MCP2 must have the ESM board installed. Regardless of size, the system can only support one SCM daughterboard. Adding an SCM daughterboard to the system increases the number of conference paths in the system from 6 to 24. In addition, the SCM also adds 12 DSPs for DTMF and tone detection.

- 12 DSPs for DTMF and tone detection
- 18 conference paths (for a system total of 24)

Multi-Frequency Module (MFM)

The MFM installs in any position on any processor card and in the daughterboard position of the TEPRI card. The main purpose of the MFM is to provide DSPs for DTMF and tone detection.

The receivers are also used for AC15 trunks and DISA.

- 12 DSPs for DTMF and tone detection.

Expanded Switch Module (ESM)

The ESM is used to expand the time switch matrix from 512 channels in a single cabinet to the 1024 channels required for a multiple cabinet system. It is also required in single cabinet systems running ‘L’ version software.

The ESM daughterboard installs in position **LOC1** of the MCP2 card and comprises:

- 1024 x 1024 time switch

R2/CID Module (RCM2)

The RCM2 installs in any position of any processor card. The main purpose of the RCM2 daughterboard is to provide Caller ID decoders for use with SLI ports to send FSK signalling to analogue phones. A secondary use of the RCM2 is to provide R2MFC senders and receivers to the system, although these are not widely used. The system can support up to three of these cards for a total of 42 CID receivers.

The RCM2 comprises:

- 14 CID receivers (for use with Caller ID on SLI ports)

Miscellaneous Function Module (MISC)

The MISC daughterboard installs:

- in position **LOC3** on the MCP2 card in a single cabinet system, or
- in position **LOC2** on the SCP2, or position **LOC2** on the LCP2, in a multiple cabinet system.

It provides external music on hold/audio inputs (radios, digital announcers, etc.), external paging audio output, loud bell, common bell and assignable dry contact closures. The system can support up to three of these daughterboards, one on the MCP2 or SCP2 and one on each LCP2. The MISC comprises:

- Two external music/audio inputs
- One external paging audio output
- One loud bell relay contact closure

- One common bell relay contact closure
- Two software assignable relay contact closures

SMARTMEDIA CARDS

An OfficeServ500 system must have a SmartMedia card installed on the MCP2 since the card contains the system operating software. The SmartMedia card can also be used to store a backup customer database to supplement the database stored on the MCP2 card. In addition, the SmartMedia card can store backup copies of the operating software for the SCP2, LCP2 and TEPRI cards.

INPUT–OUTPUT MODULE (IOM) BOARD

The IOM installs in the first cabinet and provides access to serial I/O ports 2 and 3 on the MCP2 card. The IOM board also has provision to have an internal 56K/V.90 modem installed on it (see 'Modem Daughterboard', below).

MODEM DAUGHTERBOARD

The Modem daughterboard installs on the IOM card. The modem provides a 56K/V90 connection to the system for remote administration and/or programming. The card has a default extension number of 3999 and eliminates the need for an external modem, serial cable, single line telephone port and serial I/O port on the system.

Interface Cards

These cards provide the interface connections for telephone lines and stations to the KSU and expansion cabinets. These cards fit into the universal card slots to configure the system as required. Interface cards are encased in a static dissipative ABS plastic shell to protect the card during handling.

TRUNK CARDS

Trunk B

Contains four loop start C.O. line interface circuits with C.O. disconnect detection. Optionally, it also contains the circuitry needed for Metering Pulse Detection (MPD) or Polarity Reversal Signal (PRS). It can be inserted in any universal card slot in all cabinets.

8TRK

This card contains eight loop start C.O. line interface circuits with C.O. disconnect detection. It can be inserted in any universal card slot in any cabinet.

AC15

This card contains three 4-wire AC15 tie lines. It can be inserted in any universal card slot in any cabinet. This card can be used for two-way DDI calling.

TEPRI Digital Trunk

When programmed as an E1, this card provides up to 30 trunk circuits in any combination of the following:

- Loop start lines
- DID (Direct Inward Dialling)
- E&M tie lines or two-way DID calling

When the card is programmed as a PRI, it will provide 30 bearer channels and 1 data channel (30B+D). This card can be installed in any of the first three slots of any cabinet.

4BRIN (Basic Rate Interface–4BRI)

The 4BRIN card supports four trunk or station level ISDN Basic Rate Interface (i.e., 2B plus D) circuits. The 4BRI can be inserted in any universal slot.

Media Gateway Interface (MGI) Cards

Two types of MGI card are available—MGI2 and MGI3—which provide a Voice over Internet Protocol (VoIP) gateway between IP and non-IP parts of the telephone system, as well as Codec conversion. Each is described separately, below. The main features and characteristics of MGI cards are:

- On-board Flash memory and data memory
- Echo cancellation function supported
- Silence suppression function supported, preventing data transfer on the network for the bri ef silent intervals between words during calls
- MGI2 supports G.711 and G.729 Codecs
- MGI3 supports G.711, G.729, and G723 Codecs
- Both cards support T.38, H323 (version 4), and SIP protocols

MGI2

Provides a 16-channel interface using the G.711 and G.729 Codecs. Used to connect IP terminals on the LAN, wide area network (WAN) or internet. A maximum of five cards can be installed in a system

MGI3

Provides an 8-channel interface using the G.711, G.723 and G.729 Codecs for speech compression and T.38 protocol for fax or IP communication. Acts as a universal gateway for generic types of VoIP handsets. A maximum of two cards can be installed in a system.

8BSI

The Base Station Interface (8BSI) card provides DECT cordless communication services through DECT Base Stations (DBS) and mobile handsets. The card supports up to eight DBS. 'S' and 'M' systems support one 8BSI card and 'L' systems support a maximum of three 8BSI cards. The table below shows the possible configurations.

	'S' and 'M' Systems	'L' Systems
Number of 8BSI Cards	1	3
Number of DBSs	8	24
Max. Users[1]	48	192
Simultaneous Calls[2]	32	96

[1] Maximum Users equates to the maximum number of handsets that can be registered on the system.
[2] The maximum number of simultaneous calls depends on the number of DBSs connected. Each DBS can support a maximum of four simultaneous calls.

STATION CARDS

DLI

This is an 8-circuit digital station interface card providing 2B+D service when installed in any universal card slot in any cabinet.

NOTE: The circuit on an FKDBS or KDb-SLI keyset daughterboard does not provide a disconnect signal or have the over-voltage protection necessary for OPX operation.

16DLI

This is a 16-circuit digital station interface card providing 1B+D service when installed in any universal card slot in any cabinet. Keyset daughterboards will not work when connected to this card.

SLI

This card is a 4-circuit analogue station interface for industry standard single line telephones or other analogue peripheral devices (voice mail, etc.). Each circuit is equipped with an analogue DTMF receiver and provides the over-voltage protection required for connection to telephone company off-premises extension circuits (OPX). It can be inserted in any universal card slot in any cabinet. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. (See Chapter 3 of the *Samsung OfficeServ500 Installation Manual* for details.)

8SLI

This card is an 8-circuit analogue station interface for industry standard single line telephones or other analogue peripheral devices. The 8SLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but shares system DSP resources. It can be inserted in any universal card slot in any cabinet. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. (See Chapter 3 of the *Samsung OfficeServ500 Installation Manual* for details.)

16SLI

This card is a 16-circuit analogue station interface for industry standard single line telephones or other analogue peripheral devices. The 16SLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but shares system DSP resources. It can be inserted in any universal card slot in any cabinet. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. (See Chapter 3 of the *Samsung OfficeServ500 Installation Manual* for details.)

8MWSLI

This card is an 8-circuit analogue station interface for industry standard single line telephones that require operation of an industry standard message waiting lamp with a voltage range of 85 ~ 96 VDC. The lamp can be programmed to be on continuously or flash at a programmable rate of 100ms to 2000ms ON/OFF. The 8MWSLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but instead shares the system DSP resources. It can be inserted in any universal card slot in any cabinet. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. (See Chapter 3 of the *Samsung OfficeServ500 Installation Manual* for details.)

16MWSLI

This card is a 16-circuit analogue station interface for industry standard single line telephones that require operation of an industry standard message waiting lamp with a voltage range of 85-96 VDC. The lamp can be programmed to be on continuously or flash at a programmable rate of 100ms to 2000ms ON/OFF. The 16MWSLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but instead shares the system DSP resources. It can be inserted in any universal card slot in any cabinet. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. (See Chapter 3 of the *Samsung OfficeServ500 Installation Guide* for details.)

OTHER CARDS

Auto Attendant

This optional 8-port card can be used for the Automated Attendant, or Uniform Call Distribution (UCD) or a combination of both. For more information about the Automated Attendant and UCD, see the System Features section in Chapter 4.

SVMi-8 / SVMi-16

The SVMi-8 / SVMi-16 Voice Mail system is a fully integrated Auto Attendant/Voice Mail System on a single card. The SVMi-8 card provides four or eight channels of communication; the SVMi-16 card provides up to 16 channels. Only one card is permitted per system and it can be installed in any universal card slot.

This fully featured self contained system is connected directly to the system data bus and communicates with the system processor. This design means that installation time is minimized, operation is streamlined and many features can be implemented that are not normally possible with older conventional standalone Voice Mail/Auto Attendant systems.

All power to run this self-contained system comes from the system power supply. Each power supply is rated according to the number of stations it will support. When the card is installed it counts as eight stations of the PSU rating regardless of the number of Voice Processing Modules installed.

Cadence

Samsung's proprietary integrated Voice Mail and Auto Attendant card (CVM8A) provides four or eight ports of voice processing. Because it is built into the system it provides such features as one-touch Call Record, Answering Machine Emulation and Voice Mailbox Administration with interactive keyset displays. Only one card is permitted per system and it can be installed in any universal card slot.

VDIAL

The VDIAL card is installed in any universal slot in the system, and is used for making calls by voice rather than by pressing the phone keys. The module comprises both random access memory (RAM) and read-only memory (ROM) for storing voice data and programs.

8WLI

The 8WLI card provides a wireless LAN (WLAN) service to the system via a cable interface between the system and WLAN base stations (WBS24), the Access Points for WLAN. A single 8WLI card:

- Supports 32 voice channels
- Performs initialization to service VoIP over WLAN
- Manages information on all voice terminals and provides service only for authorized terminals
- Provides initial registration service for wireless IP phones (WIP-5000M)
- Supports mobility and handover between base stations for voice terminals.

Station Equipment

Note that the keysets described here may differ according to the country of use.

OFFICESERV 5000 SERIES KEYSETS

❶ 2-Line LCD IP Keysets

14-Button 2-Line LCD IP Keyset (ITP-5014D) (Figure 2–1)

- 48-character display (2x24) LCD with three associated soft keys and scroll key
- Supports data and voice transfer using Internet Protocol
- 14 programmable keys
- Navigation keys for easy use of keyset functions
- Five fixed-function keys
- Built-in speakerphone
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–1 14-Button 2-Line LCD IP Keyset (ITP-5014D)

21-Button 2-Line LCD IP Keyset (ITP-5021D) (Figure 2–2)

- 48-character display (2x24) LCD with three associated soft keys and scroll key
- Supports data and voice transfer using Internet Protocol
- 21 programmable keys
- Navigation keys for easy use of keyset functions
- Five fixed-function keys
- Built-in speakerphone
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–2 21-Button 2-Line LCD IP Keyset (ITP-5021D)

❷ 2-Line LCD DS-5000D Keysets

14-Button 2-Line LCD Keyset (DS-5014D) (Figure 2–3)

- 48-character display (2x24) LCD with three associated soft keys and scroll key
- 14 programmable keys
- Navigation keys for easy use of keyset functions
- Five fixed-function keys
- Built-in speakerphone
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–3 14-Button 2-Line LCD Keyset (DS-5014D)

21-Button 2-Line LCD Keyset (DS-5021D) (Figure 2–4)

- 48-character display (2x24) LCD with three associated soft keys and scroll key
- 21 programmable keys
- Navigation keys for easy use of keyset functions
- Five fixed-function keys
- Built-in speakerphone
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–4 21-Button 2-Line LCD Keyset (DS-5021D)

❸ 2-Line LCD DS-5000S Keysets

7-Button 2-Line LCD Keyset (DS-5007S) (Figure 2–5)

- 48-character display (2x24) LCD with three associated soft keys and scroll key
- 7 programmable keys
- Five fixed-function keys
- Built-in speakerphone
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–5 7-Button 2-Line LCD Keyset (DS-5007S)

14-Button 2-Line LCD Keyset (DS-5014S) (Figure 2–6)

- 48-character display (2x24) LCD with three associated soft keys and scroll key
- 14 programmable keys
- Five fixed-function keys
- Built-in speakerphone
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–6 14 Button 2-Line LCD Keyset (DS-5014S)

38-Button 2-Line LCD Keyset (DS-5038S) (Figure 2–7)

- 48-character display (2x24) LCD with three associated soft keys and scroll key
- 38 programmable keys
- Five fixed-function keys
- Built-in speakerphone
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–7 38-Button 2-Line LCD Keyset (DS-5038S)

❹ Large LCD Keysets

12-Button Large LCD IP Keyset (ITP-5012L) (Figure 2–8)

- Large LCD with 12 keys for feature selection
- Supports data and voice transfer using Internet Protocol
- Navigation keys for easy use of keyset functions
- Five fixed-function keys
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes

Figure 2–8 12-Button Large LCD IP Keyset (ITP-5012L)

12-Button Large LCD Keyset (DS-5012L) (Figure 2–9)

- Large LCD with 12 keys for feature selection
- Supports data transfer, handset calls and full-duplex speakerphone
- USB interface
- Navigation keys for easy use of keyset functions
- Five fixed-function keys
- Keyset Status Indicator
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes

Figure 2–9 12-Button Large LCD Keyset (DS-5012L)

OFFICESERV 5000 SERIES ADD-ON MODULE

DS-5064B 64-Button AOM (Figure 2–10)

- 64 programmable keys with red LEDs
- Up to four can be assigned to a keyset to provide additional programmable keys
- Maximum of 32 per ‘L’ system or 8 per ‘S’ or ‘M’ system

Figure 2–10 64B AOM (DS-5064B)

OFFICESERV 5000 SERIES KEYSET DAUGHTERBOARDS

[DS-5014D, DS-5021D and DS-5038S Keysets Only]

DS-5014D, DS-5021D and DS-5038S keysets support one of three different types of daughterboards installed on them to enhance operation or to provide an additional local port depending on the type of daughterboard.

KDB-Digital Line Interface (KDB-D)

If your keyset is connected to a Digital Line Interface (DLI) port that supports 2B+D operation, you may install a daughterboard that provides a Digital Line Interface (DLI) port for connection of a digital station device such as a keyset or 64 button add-on module.

KDB-Single Line Interface (KDB-S)

If your keyset is connected to a Digital Line Interface (DLI) port that supports 2B+D operation, you may install a daughterboard that provides a Single Line Interface (SLI) port for connection of a standard telephone device such as a cordless phone.

KDB-Full Duplex (KDB-F)

The standard speakerphone mode of operation for 2-line LCD keysets is “half duplex”. This means that you cannot transmit and receive speech at the same time. Adding an KDB-F to your keyset will convert the speakerphone into full duplex mode, enhancing its operation. In addition, the KDB-F may have up to three external microphones attached to it for conference room type applications. These microphones require an “EXTMIC” key programmed on the keyset to activate or deactivate them.

DCS SERIES (EURO) KEYSETS

LCD 24B Keyset (Figure 2–11)

- 32-character display (2 x 16) with three associated soft keys and a scroll key
- 24 programmable keys (16 with tri-coloured LEDs)
- Eight fixed-function keys
- Built-in speakerphone
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones
- Desk- or wall-mounted

Figure 2–11 LCD 24B Keyset

LCD 12B Keyset (Figure 2–12)

- 32-character display (2 x 16) with three associated soft keys and a scroll key
- 12 programmable keys (eight with tri-coloured LEDs)
- Four fixed-function keys
- Built-in speakerphone
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones
- Desk- or wall-mounted

Figure 2–12 LCD 12B Keyset

LCD 6B Keyset (Figure 2–13)

- 32-character display (2 x 16) with three associated soft keys and a scroll key
- 6 programmable keys
- Four fixed-function keys
- Built-in speakerphone
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones
- Desk- or wall-mounted

Figure 2–13 LCD 6B Keyset

6B Basic/Enhanced Model Keyset (Figure 2–14)

- 6 programmable keys
- Four fixed-function keys
- Built-in speakerphone
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones per keyset
- Desk- or wall-mounted

Figure 2–14 6B Basic/Enhanced Model Keyset

DS-2100B Keyset (Figure 2–15)

- Multi-function indicator
- Four fixed-function keys
- Built-in speakerphone
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones per keyset
- Desk- or wall-mounted

Figure 2–15 DS-2100B Model Keyset

DCS SERIES ADD-ON MODULE

48-Button AOM (Figure 2–16)

- 48 programmable keys
- Up to four can be assigned to any DCS keyset to provide additional programmable keys

Figure 2–16 48-Button AOM

DCS SERIES KEYSET DAUGHTERBOARDS

KDB-DLI

This small daughterboard can be installed only in a 12B or 24B keyset. The KDB-DLI provides one additional DLI circuit for the connection of any digital station device such as a keyset, add-on module or DPIM. The KDB-DLI will only operate when the keyset is connected to an 8-port DLI card so it can use the second B channel. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. (See Chapter 3 of the *Samsung OfficeServ500 Installation Manual* for details.)

KDB-SLI

This daughterboard can be installed only in a 12B or 24B keyset. The KDB-SLI provides one additional SLI circuit for the connection of any standard telephone device. This KDB-SLI will only operate when the keyset is connected to an 8-port DLI card so it can use the second B channel. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. (See Chapter 3 of the *Samsung OfficeServ500 Installation Manual* for details.)

NOTE: The circuitry on a KDB-SLI does not provide a loop open disconnect signal or have the over-voltage protection necessary for OPX operation.

*i*DCS SERIES KEYSETS

28-Button *i*DCS Keyset (28D) (Figure 2–17)

- 32-character display (2 x 16) with three associated soft keys and scroll key
- 28 programmable keys with tri-coloured LEDs
- Two fixed-function keys
- Keyset Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–17 28-Button *i*DCS Keyset (28D)

18-Button *i*DCS Keyset (18D) (Figure 2–18)

- 32-character display (2 x 16) with three associated soft keys and scroll key
- 18 programmable keys with tri-coloured LEDs
- Two fixed-function keys
- Keyset Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–18 18-Button *i*DCS Keyset (18D)

8-Button *i*DCS Keyset (8D) (Figure 2–19)

- 32-character display (2 x 16) with three associated soft keys and scroll key
- 8 programmable keys with tri-coloured LEDs
- Two fixed-function keys
- Keyset Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- Volume Up/Down keys for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 2–19 8-Button *i*DCS Keyset (8D)

8-Button *i*DCS Keyset (8S)

This is similar to the 8D (above) but does not have a display or keyset status indicator.

*i*DCS SERIES ADD-ON MODULES

64-Button *i*DCS AOM (Figure 2–20)

- 64 programmable keys with red LEDs
- Up to four can be assigned to a keyset to provide additional programmable keys
- Maximum of 32 per ‘L’ system or 8 per ‘S’ or ‘M’ system

Figure 2–20 64-Button *i*DCS AOM (shown connected to keyset)

14-Button *i*DCS AOM / STRIP (Figure 2–21)

- 14 programmable keys with red LEDs
- One only can be assigned to a keyset to provide additional programmable keys

Figure 2–21 14 Button *i*DCS AOM/Strip (shown connected to keyset)

*i*DCS SERIES KEYSET DAUGHTERBOARDS

[28D and 18D Keysets Only]

*i*DCS 28D and18D keysets support one of three different types of daughterboards installed on them to enhance operation or to provide an additional local port depending on the type of daughterboard.

*i*DCS KDB-Digital Line Interface (FKDBD)

If your keyset is connected to a Digital Line Interface (DLI) port that supports 2B+D operation, you may install a daughterboard that provides a Digital Line Interface (DLI) port for connection of a digital station device such as a keyset or 64 button add-on module.

*i*DCS KDB-Single Line Interface (FKDBS)

If your keyset is connected to a Digital Line Interface (DLI) port that supports 2B+D operation, you may install a daughterboard that provides a Single Line Interface (SLI) port for connection of a standard telephone device such as a cordless phone.

*i*DCS KDB-Full Duplex (FKDBF)

The standard speakerphone mode of operation for an *i*DCS keyset is “half duplex”. This means that you cannot transmit and receive speech at the same time. Adding an FKDBF to your keyset will convert the speakerphone into full duplex mode, enhancing its operation. In addition, the FKDBF may have up to three external microphones attached to it for conference room type applications. These microphones require an “EXTMIC” key programmed on the keyset to activate or deactivate them.

DOOR PHONE INTERFACE MODULE (DPIM) & DOOR PHONE (Figure 2-22)

- The DPIM adapts any DLI circuit for use with the door phone unit
- Commonly used to request entry through locked doors (interior or exterior) or as a room monitoring box (a weatherproof door phone is available for external use)
- Provides contact control to be used with a customer-provided electric door lock
- Door phone is wall-mounted

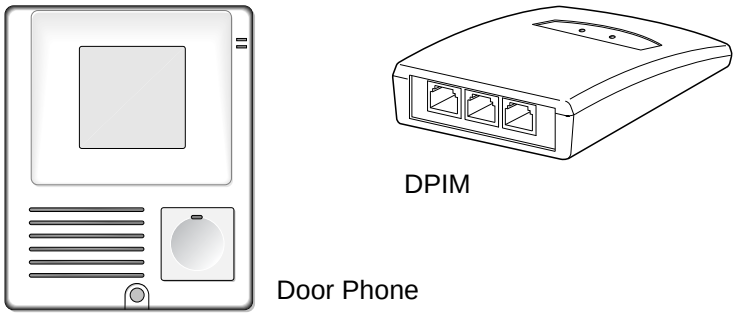


Figure 2–22 Door Phone Interface Module & Door Phone

Chapter 3 Specifications

This chapter provides the technical data for the OfficeServ500 hybrid/key telephone system as follows.

- Electrical Specifications (PSU-B)
- Dimensions and Weights
- Environmental Limits
- Cable Requirements
- Reserve Power Duration Estimates
- System Tones
- Keyset LED Indications

Electrical Specifications (PSU-B)

AC INPUT	100–120 (88–132) VAC (48–63 Hz) 220–240 (180–260) VAC (48–63 Hz)
POWER CONSUMPTION (MAX)	150 WATTS PER PSU FUSE RATING 5 AMP*
DC OUTPUT	+5 VOLTS 7.0 AMPS MAX -5 VOLTS 1.5 AMPS MAX -48 VOLTS 1.4 AMPS MAXIMUM -54 VOLTS Charger 0.45 AMPS MAX

* The maximum power consumption for a shelf containing two PSU-Bs is 270 Watts.

Warning

You must use only PSU-B power supplies with your OfficeServ500 system.

Dimensions and Weights

BASIC SYSTEM	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)	WEIGHT (kg)
SINGLE CABINET*	438	563	300	15.5
EXPANDED SYSTEM: TWO CABINETS*	875	563	300	31
EXPANDED SYSTEM: THREE CABINETS*	1313	563	300	47.7
DOOR PHONE	125	97	31	0.2

* Without legs/castors

Environmental Limits

OPERATING TEMPERATURE	32–104 °F/0–40 °C
STORAGE TEMPERATURE	-13–158 °F/-25–70 °C
HUMIDITY	10%–90% non-condensing

Cable Requirements

EQUIPMENT	CABLE	AWG / mm	MAX METRES
DIGITAL KEYSET	1 PR. TWISTED	#24 / 0.5	400
ADD-ON MODULE	1 PR. TWISTED	#24 / 0.5	400
SINGLE LINE STATION	1 PR. TWISTED	#24 / 0.5	1000
DOOR PHONE	2 PR. TWISTED	#24 / 0.5	100

*This is the maximum distance a door phone can be from the DPIM. The DPIM can be up to 300 cable metres from the KSU. The total distance must not exceed 370 metres.

Reserve Power Duration Estimates (minutes)*

NO. OF PSUs	UPS CAPACITY IN VOLT AMPS (VA)					
	250	450	600	900	1250	2000
1	5	20	30	47	75	180
2		8	10	24	40	70
3		5	7	20	36	64
4				13	22	35
5				10	13	25
6				5	10	20

*These are approximate values. Specific UPS devices, due to their internal construction, can have greater or lesser values.

NO. OF PSUs	BATTERY CAPACITY (AH)					
	40	80	120	160	200	240
1	20	X	X	X	X	X
2	10	20	X	X	X	X
3	7	13	20	X	X	X
4	5	10	15	20	X	X
5	4	8	12	16	20	X
6	3	7	10	13	16	20

*These are approximate values. Specific UPS devices, due to their internal construction, can have greater or lesser values.

NOTE: X denotes that this system configuration cannot charge batteries of this capacity.

System Tones

TONE	CADENCE (Milliseconds)			
	On	Off	On	Off
DIAL TONE A steady tone that indicates you can begin dialling	CONTINUOUS			
RINGBACK TONE The station you dialled is ringing	400	200	400	2000
DDI RINGBACK TONE Ringback tone heard by external party when dialing DDI number	1000	3000	1000	3000
BUSY TONE The station you dialled is busy	350	350	350	350
DND/NO MORE CALLS Fast busy tone tells you the station you dialled is in the Do Not Disturb mode or cannot receive any more calls. (Rings for 10 secs)	250	250	250	250
TRANSFER/CONF Your call is being held and you can dial another party.	100	100	100	100
CONFIRMATION / BARGE IN TONE Very short beeps followed (after 2 seconds) by dial tone indicate you have correctly set/cancelled a system feature or set a barge in with tone	50	50	50	50
ERROR TONE A distinctive two-level beeping tone followed (after 2 seconds) by dial tone indicates you have done something incorrectly. Try again.	100	100	100	100
MESSAGE WAITING A message waiting indication has been left at the SLT station	CONTINUOUS			
HOLD / CAMP-ON Call on hold or camped on	500	3500	500	3500
RING Ring over page	1000	3000	1000	3000
C.O. BUSY C.O. line is busy	350	350	350	350
C.O. RINGBACK C.O. line is ringing	400	200	400	2000
C.O. DIAL C.O. line dialling tone	1000	250	1000	250

Keyset LED Indications

CONDITION	LED COLOUR	LED ON	LED OFF
LINE IDLE	–	–	OFF
LINE IN USE	RED/GREEN	STEADY	–
RECALL	AMBER	500 ms	500 ms
CALL ON HOLD	RED/GREEN	500 ms	500 ms
RINGING C.O. CALL	GREEN	100 ms	100 ms
RINGING INTERNAL CALL	GREEN	100 ms	100 ms
DND INDICATION	RED	112 ipm for 500 ms	500 ms
OPERATOR CALLS	RED	100 ms	100 ms
ANS/RLS (DND)*	RED	112 ipm for 500 ms	500 ms
ANS/RLS (HEADSET MODE)	RED	STEADY	–
TRSF (FORWARD ALL)	RED	STEADY	–

*Overrides headset mode

Chapter 4 Business Features Package

This chapter describes the features available on the OfficeServ500 system. It is subdivided into the following sections.

- System Features
- Station Features
- Display Features
- Sample Keyset Displays
- Sample Caller ID Displays
- Sample UCD Displays
- Sample SMDR Printout
- Sample UCD Report
- UCD Call Statistics
- UCD Agent Statistics
- Sample Traffic Report
- Traffic Report Overview
- Sample Alarm Report

System Features

AC15 Tie Lines
Account Code Entry
    Forced - Verified
    Forced - Not Verified
    Voluntary
Account Code Key - One Touch
All Call Voice Page
Attention Tone
Authorization Codes
    Forced
    Voluntary
Auto Attendant
Automatic Hold
Background Music
Boss/Secretary Service
    Executive Answer Mode
    Executive Status
    Divert
Cadence–Integrated Voice Mail*
Call Activity Display
Call Costing
Caller Identification (Caller ID)
    Calling Line Identification (CLI) for Incoming Calls
        Caller ID (CID) Features
        Name/Number Display
        Next Call
        Save CID Number
        Store CID Number
        Inquire Park/Hold
        CID Review List
        Investigate
        Abandon Call List
        CID on SMDR
        Number to Name Translation
Calling Line Identification (CLI) for Outgoing Calls
    Outgoing CID
    Restricting Outgoing CID
Call Forwarding
    All Calls
    Busy
    No Answer
    Busy/No Answer
    Forward DND
    Follow Me
    To Voice Mail
    Preset Destination
Call Hold
    Exclusive
    System
    Remote
Call Park and Page
Call Pickup
    Directed
    Groups
    Established
Call Waiting/Camp-On
Centrex/PBX Use
Chain Dialling
Class of Service
Common Bell Control
Computer Telephony Integration (CTI)
    TAPI 2.1
Conference
    Add On (5 Party)
    Unsupervised
    Split ('L' systems only))
Database Printout
Data Security
DECT Service

- Direct In Lines
- Direct Dialling In (DDI)
- Direct Inward System Access (DISA)
- Direct Trunk Selection
- Directory Names
- DISA Security
- Door Phones
- Easylink Interface
  - Easy Call Plus
  - Easy News
  - Easy Choice
- EasySet Interface
- Executive Barge-In (Override)
  - With Warning Tone
  - Without Warning Tone
  - Trunk Monitor or Service Observing
- Executive/Secretary Pooling
- External Music Interfaces
- External Page Interfaces
- Flash Key Operation
- Flexible Numbering
- Group Conference
- Hot Desking
- Hot Line
- In Group/Out of Group
- Incoming Call Distribution
- Incoming/Outgoing Service
- Individual Line Control
- IP Phone Interface
- ISDN Service
  - Primary Rate Interface (PRI)
  - Basic Rate Interface (BRI)
- Large LCD Phone Interface
- Least Cost Routing
- Live System Programming
- Meet Me Page and Answer
- Memory Protection
- Message Waiting Indications
- Microphone On/Off per Station
- Music on Hold—Flexible
- Music on Hold—Sources
- Networking (PRI / Q-SIG)
- Off Premises Extensions (OPX)
- Operator Group
- Overflow
  - Operator
  - Station Group
- Override Code
- Paging
- Park Orbits
- Prime Line Selection
- Private Lines
- Programmable Line Privacy
- Programmable Timers
- Recalls
- Remote Programming—PC
- Ring Modes
  - Time Based Routing Plans
  - Automatic / Manual
  - Holiday Schedule
  - Temporary Override
- Ring Over Page
- Single Line Connections
- Speed Dial Numbers
- Speed Dial by Directory
- Station Hunt Groups
- Station Message Detail Recording (SMDR)
- SVMi-8/16 Integrated Voice Mail*
- System Alarms
- System Maintenance Alarms
- System Directory
- Tenant Service
- Text Message Service
- Toll Restriction
- Toll Restriction Override
- Tone or Pulse Dialling
- Traffic Reporting
- Transfer
- Trunk Groups
- Uniform Call Distribution (UCD)
  - UCD Groups
  - Call Statistics
  - Agent Statistics
  - Group Supervisors
  - Printed Reports
- Universal Answer (Night Bell)
- Virtual Extensions
- Voice Dialling
- Voice Mail – Inband Integration
- Voice over IP (VoIP)
- VoIP Networking
- VoIP Trunk Interface (H.323/SIP)
- Walking Class of Service (WCOS)
- Wireless LAN Service (WLAN)

*Requires optional hardware and/or software. Ask your dealer for details.

System Feature Descriptions

AC15 Tie Lines

Your office can be connected to another office with a tie line. Use it to make calls to stations in the other system. If programming allows, you can access lines in the other system to make outside calls. Tie line calls can be put on hold, transferred and conferenced in the same way as other outside calls. Users accessing the tie line from the other system can also get a line in your system and make outgoing calls. These calls can be controlled by assigning a dialling class to the tie line. Your local telephone company may use AC15 tie lines to provide DDI service. In this case, these tie lines can be programmed to follow the DDI translation table. Translated AC15 tie line calls have time-based routing capabilities.

Account Code Entry

Station users may enter an account code (maximum 12 digits) before hanging up from a call. This account code will appear in the SMDR printout for that call record. Keyset users may enter this code using an account code key without interrupting a conversation. Single line telephone (SLT) users must temporarily interrupt the call by hook-flashing and dialling the feature access code. Manually entered account codes can be up to 12 digits long. In some cases, users can be forced to enter an account code and this account code may or may not be verified as described below.

Forced (Verified)

When set for this option the user must enter an account code for all outgoing calls. The account code entered will be verified from a system list of 999 entries. Forced (Verified) codes can contain the digits 0–9.

Forced (Not Verified)

When set for this option, the user must enter an account code for all outgoing calls, but the account code is not verified against the system list. Non-verified account codes can contain the digits 0–9 and #.

Voluntary

In this case, account codes are not required to make outgoing calls but may be used if desired. This is also the method used to assign an account code to incoming calls. These account codes can contain the digits 0–9 and #.

NOTE: Forced codes can be overridden for emergency calls if required. See **Override Code**.

Account Code Key—One Touch

The account code (ACCT) key can be programmed on any keyset. This key can be programmed with an extender and operates in three different ways, depending on the extender, as follows.

Extender = 000 When programmed with an extender of 000, pressing the key prompts the user to enter an account code without interrupting a call.

Extender = 001–999 When programmed with an extender ranging from 001 to 999, pressing the key will automatically insert the account code entered for that number. This is known as One-Touch account codes. This option can be denied in system programming to prevent users from bypassing the security of system account codes.

No Extender When programmed without an extender, pressing the key will prompt the user to enter the number in the system account code table where the account code is stored.

All Call Voice Page

Users can page all internal and all external paging zones at the same time by dialling the All Page code. Keysets may be restricted from making or receiving pages in system programming. A maximum of 99 keysets can be programmed in each internal page zone to receive page announcements.

Attention Tone

To get your attention, a brief tone precedes all page announcements and internal voice calls. There are separate programmable duration timers for page and voice announce tones.

Authorisation Codes

Authorisation codes give permission to make a call. Maximum number of codes allowed is 500 four- to 10-digit authorisation codes (either forced or voluntary).

When used, authorisation codes will automatically change the dialling station's class of service to the level assigned to the authorisation code. Authorisation codes may be programmed to print, or not print, on SMDR.

Forced

When a station is programmed for forced authorisation, the user must always enter this code before dialling is allowed. The dialled code is verified from the system list of codes.

Voluntary

A station user can choose to enter an authorisation code before they begin dialling. The dialled code is verified from the system list of codes.

NOTE: Forced codes can be overridden for emergency calls if required. See **Override Code**.

Auto Attendant

The integrated digital Automated Attendant feature (AA) provides eight ports per card for simultaneous answering and call processing. A maximum of five cards can be installed in one system. Each 16 professionally recorded announcements inform callers of the progress of their calls. Examples are: "I'm sorry. There is no answer", "That station is busy", and "Invalid Number. Please try again". A maximum of four minutes of super capacitor-backed random access memory (RAM) provide up to 48 customer recordings for announcements or greetings. (This RAM will hold data for up to 100 hours without power supplied.) Twelve individual announcements (boxes), each with its own dialling options, allow you to build call routing branches as needed. Callers are routed through the branches by dialling extension numbers or single digits.

NOTE: Announcements recorded on one AA card cannot be played to callers on another AA card.

Automatic Hold

While a keyset user is engaged on an outside (C.O.) call, pressing another trunk key, route key or CALL key automatically places the call on hold when Automatic Hold is enabled. Pressing TRANSFER (TRSF), CONFERENCE, PAGE or a DSS key always automatically places a C.O. call on hold. Internal calls can be automatically held only by pressing TRANSFER (TRSF) or CONFERENCE. Each keyset user can enable or disable Automatic Hold.

Background Music

Keyset users may choose to hear music through their keyset speakers when optional external sources are installed. Each user may adjust this level by the use of a volume control program at the selected keyset.

Boss/Secretary Service

See Executive/Secretary Pooling for a description of setting up and using 'Boss' and 'Secretary' keysets. The following features are also available to enhance this mode of working.

Executive Answer Mode

You can set the response mode for each executive (boss) keyset to Ring, Automatic Answer or Voice Announce. (See Ring Modes in *Station Features*.)

Executive Status

The status of an executive can be set by the executive or the secretary. Others can verify the set status through the Easyset application.

Divert

'Divert' allows an executive to automatically transfer all incoming calls to the secretary. Divert can only be set from the keyset designated as a BOSS keyset using a programmed DIVERT key. Pressing the key while the keyset is idle, or when a call is ringing, will transfer calls to the secretary. Pressing the key again turns off the Divert feature.

Cadence - Integrated Voice Mail

The system can be equipped with Samsung's proprietary integrated Cadence Voice Mail and Auto Attendant card (CVM8A). It provides four or eight ports of voice processing (expandable from four to eight ports). Because it is built into the system it provides such features as one-touch Call Record, Answering Machine Emulation and Voice Mailbox Administration with interactive keyset displays. Ask your dealer for information on Cadence.

Call Activity Display

The system will record and buffer all call activity. With a Call Activity Display (CAD) key, the system will display a "snapshot" of the following information:

- The maximum number of ports that have been used
- The maximum number of trunks that have been used
- The maximum number of stations that have been used
- The current number of ports in use
- The current number of trunks in use
- The current number of stations in use

Call Costing

The system provides programmable call costing tables to calculate the cost of incoming and outgoing calls. Rates are calculated by the number dialled, and may include surcharges. Display keysets can be set to show the call duration timer or the call cost. The SMDR report will show either the call duration or the call cost depending on the station selection. The relevant portion of the cost for a call handled by multiple stations will be allocated to each station.

Caller Identification (Caller ID or CID)

The system supports caller identification on ISDN circuits as a means of identifying an incoming caller. It is also possible for station users to identify themselves to external parties by sending CID information when making calls.

NOTE: CID is sometimes referred to as Calling Line Identification Presentation (CLIP).

1. Calling Line Identification (CLI) for Incoming Calls

With ISDN, calling party information is referred to as Calling Line Identification (CLI) and is supported on both BRI and PRI type circuits.

The system supports 'Number only' delivery format provided by the telephone company. Names can be attached to telephone numbers of frequent callers via the CID translation table.

Caller Identification (CID) Features

The following features apply to all forms of caller identification. However, for simplicity, caller identification is referred to as CID.

Name/Number Display

Each LCD keyset user can decide to see either the name or number in the display first. Regardless of which is selected to be seen first, the NND key can be used to view the other.

Next Call

In the event that you have a call waiting or a camped-on call at your keyset, you can press the NEXT key to display the CID information associated with this next call in queue at your station. Either the CID name or number will show in the display depending on your selection.

Save CID Number

At any time during an incoming call that provides CID information, you may press the SAVE key. This saves the CID number in the Save Number feature. Pressing the Saved Number Redial (SNR) key will dial the CID number.

Store CID Number

At any time during an incoming call that provides CID information, you may press the STORE key. This saves the CID number as a speed dial number in your personal speed dial list.

Inquire Park/Hold

Having been informed that an incoming call is on hold or has been parked, you may view the CID information before you retrieve the call. This will influence how you choose to handle the call.

CID Review List

This feature allows display keyset users to review CID information for calls sent to their stations. The review list is between 10 and 50 calls on a first in, first out basis. The list can include calls that you answered and calls that rang your station but that you did not answer. When reviewing this list, you can press a key to dial the person back.

An added option in the Station On/Off MMC program called CID REVW ALL can be used to define the review list. If this option is set to ON, both answered and unanswered calls are recorded in the review list. If set to OFF, only calls that are not answered at the station are recorded.

Investigate

This feature allows selected stations with a special class of service to investigate any call in progress. If CID information is available for an incoming call, you can see to whom this station user is speaking. On outgoing calls, you can see who was called. After investigating, you may barge-in on the conversation, disconnect the call or hang up.

Abandoned Call List

There is a system-wide abandoned call list that stores CID information for calls that rang but were not answered. The list is accessed using the administrator's passcode. When reviewing this list, you are provided options to CLEAR the entry or DIAL the number. You can use the NND key to toggle between the CID name, number and the date and time the call came in. The abandoned call list will store up to 100 unanswered calls.

CID on SMDR

The Station Message Detail Recording (SMDR) report can be set to include CID name and CID number for incoming calls. This format expands the printout to 113 characters. Use a wide carriage printer or an 80 column printer set for condensed print.

Number to Name Translation

The system provides a number-to-name translation table for the system. When a CID number is received, the table is searched; if a match is found, the system will display the corresponding name. Number of entries allowed in the table is:
'S' & 'M' systems: 1000 entries.
'L' systems: 2000 entries.

2. Calling Line Identification (CLI) for Outgoing Calls

Outgoing CID

A station user can choose to have an identifying number sent to called parties when a call is made. This number can be any valid number the user selects in programming options (the DDI number, for example). One of four numbers can be selected, depending on the outgoing trunk circuit.

Restricting Outgoing CID

Sending of CLI information can be turned off either permanently in MMC programming, or on a one-time basis using a programmed NOCLIP key at the station.

Call Forwarding

This feature allows the user to redirect (forward) incoming calls. The calls can be redirected to the attendant, a hunt group, voice mail, external number or another station user. If the destination station is in Do Not Disturb (DND), the calling party will receive DND/Reorder tone. Calls cannot be forwarded to a door phone.

All Calls

This type of forwarding is not affected by the condition of the station. All calls are immediately redirected to the designated destination. The station user forwarding the calls can continue to make calls as usual. If desired, a destination station may redirect the call back to the forwarding station by using the transfer feature. If no key is programmed as a Forward All key, the Transfer (or TRSF) key lights steady when a Forward All condition is set.

Busy

This feature forwards all calls only when the station is busy on another call. The station user can make calls as usual.

No Answer

This feature forwards calls that are not answered within a pre-programmed time. The user can make and receive calls as usual. The timer is programmable on a per-station basis to allow for differences in individual work habits.

Busy/No Answer

This feature allows the station user to use both types of forwarding simultaneously, provided both destinations have already been entered in the usual manner (as described above).

Forward DND

This feature works with the Do Not Disturb feature. This allows calls directed to a station in Do Not Disturb or One-Time Do Not Disturb mode to forward calls immediately to another destination.

Follow Me

This feature allows the user to forward all calls from another station to the user's station, or from their normal station to the user's current location.

To Voice Mail

Each station may be programmed to allow or deny the ability to forward internal calls to voice mail. When denied, valuable message time in the voice mail system can be saved.

Preset Destination

If desired this feature provides for a permanent (preset) Forward No Answer destination for each extension. It can only be programmed by the system installer or system administrator. If a station does not have Forward No Answer set, the call will ring this preset destination if one is programmed.

Call Hold (Exclusive)

Outside calls can be placed on exclusive hold at any keyset by pressing the HOLD key twice during a call. Calls placed on exclusive hold can only be retrieved at the keyset that placed the call on hold. Internal calls are always placed on exclusive hold.

Call Hold (System)

Outside calls can be placed on system hold at any station. Users may dial the access code or press the HOLD key. Calls on system hold may be retrieved at any station.

Call Hold (Remote)

Outside calls can be placed on hold at a remote station. This feature allows calls to be answered at one station and placed on hold at another station. This allows time for the user to proceed to that station or allows the party that the call was intended for to have that call placed at their station. The call or trunk key will flash at the 'remote hold' station.

NOTE: You cannot use system hold or remote hold for internal calls.

Call Park and Page

Each C.O. line has its own park zone. This simple method eliminates confusion and ensures that a park zone is always available. Pressing the PAGE key parks the call automatically. There are no extra keys to press and there is no lost time looking for a free zone.

Call Pickup

Directed

With directed call pickup, users can answer calls ringing at any station by dialling a code plus that station's extension number, or by pressing the feature key and then dialling the extension.

Groups

The group pickup feature allows users to answer any call ringing within any pickup group. There are 99 pickup groups available. A station cannot be in more than one pickup group. To use this feature, station users either dial the access code or press the assigned feature key followed by the pickup group number.

Established

This feature enables a keyset user to pick up an established call in progress at a single line telephone connected to a modem on a PC. An EP key with this extension number must be programmed on the keyset. Established Call Pickup (EP) is useful with PC dialling programs that dial out from a large list of telephone numbers. Let the computer dial for you, then press the EP key to speak with the called party.

Call Waiting/Camp-on

Busy stations are notified that a call is waiting (camped-on) when they receive a tone. The tone is repeated at a programmable interval. Keysets receive an off-hook ring signal through the speaker and single line stations receive a tone in the handset. The volume of the camp-on tone can be set by the station user. Camped-on calls follow Forward No Answer if a Forward No Answer destination has been set.

Optionally, any station can be programmed to automatically camp-on to a busy station instead of having to press the camp-on key or dial a camp-on code.

Centrex/PBX Use

CENTREX and PBX lines can be installed in lieu of central office trunks. CENTREX and PBX feature access codes, including the command for hook-flash (FLASH), can be stored under one-touch keys. Toll restriction programming can ignore PBX or CENTREX access codes so that toll calls can be controlled when using these services.

Chain Dialling

Keyset users may manually dial additional digits following a speed dial call or chain together as many speed dial numbers as are required.

Class of Service

The system allows a maximum of 30 station classes of service. Each class of service can be customised in memory to allow or deny access to features and to define a station's dialling class. Each station can be assigned different classes of service according to the ring plan table.

Common Bell Control

The MISC daughterboard provides relays that may be programmed to control a customer-provided common bell or common audible device. These contacts must be programmed as members of a station group and may provide steady or interrupted closure.

Computer Telephony Integration (CTI)

Computer Telephone Integration (CTI) allows integration between the system and a personal computer system (PC) or a local area network (LAN). CID service is required for TAPI inbound call applications that use the CID information to display computer records in conjunction with the presentation of the call to the station on the system.

TAPI 2.1

TAPI 2.1 is the method of integrating the telephone system and a PC. TAPI 2.1 is a LAN-based solution allowing PCs to communicate directly with the telephone system over the PCs' local area network. This establishes a logical connection rather than a physical connection between telephone and PC. It eliminates the cost and administrative overhead of connecting every PC to a desktop phone. It emphasizes third-party call control. (Example: calls can be tracked as they are transferred, making it more suited to large office applications). TAPI 2.1 can emulate first-party type call control for the telephone system, rather than from the telephone as TAPI 2.0 does. For example, to make a call the telephone system, rather than the telephone, would dial the phone number, and the call would be then transferred to the telephone.

Conference

The system allows six simultaneous conferences of up to five parties each. If an SCM daughterboard is installed, the system allows a total of 24 simultaneous conferences of up to five parties each.

Add-On (5 Party)

Any combination of up to five parties (stations or outside lines) can be joined together in an add-on conference. Parties may be eliminated or added after a conference has been established.

Unsupervised

A station user may set up a conference with two or more outside lines and then exit the conference leaving the outside lines connected in an unsupervised (trunk to trunk) conference.

Split ('L' Systems Only)

A station user can 'split' a conference into separate outside calls, then speak with each caller privately. Individual callers can then be put back in conference again in any combination.

NOTE: This feature requires individual trunk keys and Auto-hold must be enabled.

Database Printout

A copy of the customer database can be obtained by using PCMMC (the PC program for configuring the telephone system). This information can be directed to a printer or the PC screen and may be done either on-site or remotely. A complete database or specific data blocks may be obtained.

Data Security

Single line telephones used with modems and facsimile machines can be programmed so that they will not receive any system-generated tones that would disrupt data transmissions. In addition, these devices receive DCS C.O. ringing pattern instead of internal ring pattern. Devices connected to an SLI card receive a disconnect signal upon termination.

DECT Service

DECT cordless communications can be implemented with the addition of one or more Base Station Interface (8BSI) cards, DECT Base Stations (DBS) and DECT handsets. The service allows users to be contacted or to make calls while away from their desks.

Direct In Lines

Outside lines may be programmed to bypass the operator(s) and ring directly at any station or group of stations.

Direct Dialling In (DDI)

Direct Dialling In (DDI) refers to digit steered inbound call handling. This service is provided over ISDN PRI and BRI circuits.

Direct Inward System Access (DISA)

Users can call in on specific DISA lines at any time, input a security code and receive system dial tone. Users can then place internal calls or, if permitted, calls using C.O. lines. The caller must have a tone dial phone and know his/her DISA security code. DISA lines can be used as ‘both way’ lines or incoming only and may be active/inactive according to the ring plan table. The C.O. lines used for DISA must have disconnect supervision. The requirement to put in a DISA security code can be disabled if desired.

Direct Trunk Selection

Each station can be allowed access to or denied access from a trunk or trunk group by access code when LCR is activated. When restricted, the station user must use a trunk key or a route key.

Directory Names

Each station, station group and C.O. line may be assigned a directory name (maximum 11 characters). In addition, each personal speed dial number, system speed dial number and entry in the DDI translation table may be assigned a name (maximum 11 characters). These names are displayed during calls with these ports and in the case of station and speed dial names, can be used to originate calls. See the Dial By Name feature in *Display Features*.

DISA Security

Telephone fraud and long-distance theft are a serious concern. The system provides a strong DISA security system. If an incorrect DISA passcode is entered repeatedly (as is the case with “hackers”), the DISA system can be automatically disabled temporarily. Both the allowed number of incorrect passcode attempts and the time for which DISA is disabled are programmable. In addition, all failed attempts to access DISA will print on SMDR (if provided) with a “DE” DISA error flag.

Distinctive Ringing

A user recognises the type of call received by the type of ring heard. Outside calls have a double ring repeated while internal calls have a single ring repeated.

In addition, any trunk or station can be programmed to ring a keyset with a predefined ring tone (selectable between 1 and 8), or to ring a single line telephone with a predefined cadence (selectable between 1 and 5). This provides for easy identification of special lines or extensions that ring your phone.

Door Lock Release (Programmable)

After answering a call from the door phone, users can dial a code to activate a contact closure. This can be used to operate a customer-provided electric door lock release mechanism. The contact closure timer is programmable in the range 100–2500 ms.

Door Phones

The door phone interface module (DPIM) provides for connection of a door phone to a DLI port. Pressing the key on the door phone produces a distinctive ring (three short rings repeated) at the assigned station or station group. If not answered within a programmable time, the system releases the door phone and stops the ringing. Stations may call the door phone directly and monitor the surrounding areas. Door phones follow the system ring mode plan.

Easylink Interface

Easylink provides simple control of stations, access to a user's personal information manager, and many other features.

Easy Call Plus

Caller information is displayed on the phone's LCD screen and the user's PC screen.

Easy News

Information from the Internet and internal information are displayed on the LCD screen.

Easy Choice

A number of information services can be displayed, as selected by the user.

EasySet Interface

The EasySet application is used for configuring the keys and functions of digital keysets / IP phones through a PC. A number of features including the Short Message Service (SMS) and a diary are available through this application.

Executive Barge-in (Override)

The feature allows specially programmed stations with a Barge-In key to override the automatic privacy of another station or outside trunk. Programming allows barge-in with or without a warning tone. Stations may also be programmed as "secure" so that they cannot be barged-in on.

With Warning Tone

When the barge-in with tone option is set, the barging-in keyset has its microphone on and the barged-in on station receives an override display. A double burst of warning tone sounds and repeats every 10 seconds. This feature does not work from single line telephones.

Without Warning Tone

When the barge-in without tone option is set, the barging-in keyset has its microphone muted and the barged-in on station does not receive an override display. This feature does not work from single line telephones.

Trunk Monitor or Service Observing

This feature allows the user who barged-in to retain the trunk call after the barged-in on station has hung up.

Warning: Barge-in without tone may violate laws concerning the right to privacy. Samsung Business Communications is in no way responsible for the possible misuse of this feature.

Executive/Secretary Pooling

Each keyset may be defined as an executive (BOSS) or a secretary (SECR) keyset in system programming. Each 'executive' can have up to four 'secretaries', and each 'secretary' can have up to four 'executives', assigned to it. These arrangements are known as executive/secretary pools. There can be multiple pools in a system. When an executive is in DND mode, all calls to the executive ring the first secretary assigned to that executive; if that secretary is busy, the call hunts to the next available secretary assigned. If the secretary needs to communicate with the executive while the latter is in DND mode, pressing the corresponding executive key on the secretary's keyset results in an Auto Answer internal call being made to the executive (providing the executive is free). The software has a system-wide option to allow the stations to ring rather than auto announce the executive secretary calls. A station can only be the executive of one secretary pool. In addition, a station cannot be in more than one pool.

See also Boss/Secretary Service for additional features available for executive/secretary working.

External Music Interfaces

The MISC card provides two inputs for connecting to customer-provided external music sources. Each system cabinet supports one MISC card for a total of three cards or six sources as a system maximum. These sources can be used to provide background music, or any of the varied Music-On-Hold (MOH) uses.

External Page Interfaces

A MISC card installed on a processor control card provides one external page output and three zone control relays. Resources from added MISC cards can be combined to provide four external zones. Multiple relays may be assigned to each zone.

Flash Key Operation

While a user is on an outside line, pressing the FLASH key will flash the central office or PBX. This is used for custom calling features on C.O. lines or in conjunction with CENTREX/PBX operation. System programming allows individual flash times for C.O. and PBX lines. When C.O. or PBX flash is not required, setting the timers for two seconds releases the existing call and returns dial tone to make a new call.

Flexible Numbering

Default system programming allows stations to have 3- or 4-digit extension numbers beginning with the digit 2 or 3. Three-digit default extension numbers begin with 201 and 4-digit defaults begin with 2001. Station group numbers can be three or four digits beginning with the digit 5. Other numbering plans can be used.

Using digits other than 2, 3 or 5 will require the installer to change other feature access codes in the system default numbering plan. User guides will also need to be modified as these are all written using the default numbering plan.

Group Conference

A programmed GCONF key can be used to automatically call a preset number and include the called party in a conference when the call is answered. Up to five numbers, including the keyset from which the conference is supervised, may be assigned to a conference group. Up to five conference groups can be assigned to an extension.

Hot Desking

Hot Desking gives users mobility by allowing them to locate to any selected station and, simply by dialling a code at the station, transfer all the features they normally require (a specified extension number, pickup groups, paging groups, call barring, voice mailbox, and so on) to the station. This feature is also referred to as Set Relocation (see *Station Features*).

Hot Line

Stations can be programmed to automatically call a pre-defined station or station group whenever that station goes off-hook. A hot line delay timer of 0–250 seconds can be programmed to allow sufficient time to make a different call, if required.

In Group/Out of Group

Individuals assigned to a station hunt group may temporarily remove their telephones from the group by pressing the In/Out of Group key, provided that there is someone still in the group. There is a system-wide option to allow *all* members to log out of a station group. Stations logged out of a group will not receive calls to that group but will continue to receive calls to their individual extension numbers. When desired, the user can go back into the group by pressing the key again. Users who do not have this key may dial the access code and the group desired. A station user is allowed to be in several groups, provided a key and the extender for that group are assigned for each group on the user's keyset.

Incoming Call Distribution

Incoming calls can be assigned to ring a distributed station hunt group. This allows all members of the group to share the call load.

Incoming/Outgoing Service

Outside lines are available for incoming or outgoing service. Programming allows any outside line to be used for incoming calls only, outgoing calls only or both-way service.

Individual Line Control

Each station in the system can be individually programmed to allow or deny dialling out as well as allow or deny answering for each outside line.

IP Phone Interface

An additional Media Gateway Interface (MGI) card is not required for calls between local IP phones, but must be installed to allow IP phones to call digital keysets and non-IP phones. There are two types of MGI card: MGI2 and MGI3. Up to five MGI2 cards, or up to two MGI3 cards, can be installed per system. The MGI3 card is required for Internet fax.

ISDN Service

Primary Rate Interface (PRI)

The system supports Primary Rate Interface (PRI) ISDN. Simultaneous data calls, calling party and calling line identification, high-speed call setup and disconnect are among the benefits of ISDN calling. The 30B+D configuration of ISDN allows call information to be delivered via the data channel (the “D” of 30B+D) thus leaving the bearer channels (the “B” of 30B+D) available for single use or combined use to provide a wider bandwidth for data and video.

Basic Rate Interface (BRI)

The BRI card supports trunk or station level Basic Rate Interface services (BRI). Trunk or station BRI use is software programmable. BRI allows simultaneous data calls, called party and calling number identification, high-speed call setup and disconnect among other benefits of ISDN calling. The 2B+D configuration of ISDN allows call information to be delivered via the data channel (the “D” of 2B+D) thus leaving the bearer channels (the “B” of 2B+D) available for single use or combined use to provide a wider bandwidth for data and video.

Large LCD Phone Interface

Large LCD phones provide various features such as Virtual AOM, a Phone Book, and enblock/overlap dialling. LCD navigation (similar to that of a mobile phone) using navigation keys and menu/feature selection keys allows users to select features, discussed in this chapter, without the need for programmable keys or feature codes.

Least Cost Routing

Least Cost Routing (LCR) is the ability to automatically select the most cost effective central office route for the outside number dialled by any station. The system LCR program includes the following features:

- Option to use or not use LCR on a tenant basis
- Programmable LCR access code
- Digit analysis table: 2000 entries, each with 10 digits
- Routing by time of day and day of week (four time bands per day)
- Routing according to individual station class
- Modify digits table: 200 entries
- Flexible trunk group advance timer
- Option to use trunk group advance warning tones

Live System Programming

The system can be programmed from any display keyset or PC without interrupting normal system operation. There are three levels of programming: technician (or system), customer and station. The technician (system) level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access are controlled by different security passcodes. Programming from a PC requires the PCMMC program.

Meet Me Page and Answer

After a user makes a Meet Me Page, the user may remain off-hook to allow the paged party to meet the user for a private conversation.

Memory Protection

In the event that system power is lost, all customer data contained in memory is retained by the use of a “super capacitor” for approximately 7 days. In addition, the PCMMC computer program may be used to produce a backup copy of the customer data. The Smart Media card may also be used to store the system database.

Message Waiting Indications

When calling a station and receiving a busy signal or no answer, the caller can leave an indication that a message is waiting. The message key (and keyset status indicator, if fitted) will flash red at the messaged keyset. A single line telephone will receive a distinctive message waiting dial tone. Five message waiting indications can be left at a station at any one time.

Microphone On/Off Per Station

The microphone can be disabled at any keyset. When the microphone is disabled, the keyset cannot use the speakerphone, although on-hook dialling and group listening are still possible.

Music-On-Hold (MOH) – Flexible

The system allows its music sources to be used in a flexible manner.

- Each keyset can have a designated music source for playing as Background Music (BGM) through the keyset speaker.
- Each keyset can have a designated music source for playing to callers placed on exclusive hold at that station.
- Each trunk can have a designated music source for playing to callers placed on hold. This setting is overridden by some of the other settings such as station Music-On-Hold (MOH), DDI MOH and UCD MOH.
- Each UCD group can have a designated music source to be played while a caller is in queue.
- Each entry in the DDI translation table can have a designated music source to be played when a caller to that DDI number is placed on hold.

Music-On-Hold (MOH) – Sources

The system provides for up to six different types of MOH source, including silence (“NONE”):

None: No audio is played to the listener

Tone: A tone or “beep” is repeated at a programmable interval

Chime: A music chime source (Old Folks At Home) located on the MCP card is played to the listener.

External source: An external source connected to a MISC card, such as a digital announcer or radio, is played to the listener.

Digital Announcement on AA card: If the system is equipped with an AA card, the last port of this card can be flagged as an MOH source and used to repeatedly play a message recorded on the AA card to the listener.

Voicemail Sound File: If the system has an optional Voice Mail card installed, up to 100 custom recorded sound files from the card can be used for MOH sources. For information on creating the sound files, refer to the Samsung Voice Mail documentation provided with your card or telephone system.

Networking (PRI / Q-SIG)

The networking feature allows up to 50 OfficeServ500 systems to be connected together with important feature transparency. The physical connection between the systems is via a proprietary PRI connection and is based on the Q-SIG specification. The following features are supported between two networked systems.

Call Completion, Busy Station (CCBS) also known as Callback or Busy Station Callback. When a station (A) in one system calls a station (B) in another system across the network link, and station B is busy, station A can set a Callback to station B. When station B becomes idle, the system will ring station A; when station A answers, the system will ring station B.

Call Completion, No Response (CCNR) also known as Callback or No Answer Callback. When a station (A) in one system calls a station (B) in another system across the network link, and station (B) does not answer, station A can set a Callback to station B. When station B indicates that its user is present by becoming busy (e.g. when the user lifts the handset), and then becomes idle again, the system will ring station A; when station A answers, the system will ring station B.

Call Forward Busy (CFB). Operation is the same as the normal Forward Busy: when the forwarded station is busy, a calling station will be forwarded to the programmed destination.

Call Forward No Response (CFNR). Operation is the same as the normal Forward No Answer: if the forwarded station does not answer after a programmed time, a calling station will be forwarded to the programmed destination.

Call Forward Unconditional (CFU). Operation is the same as the normal Forward All: all calls to the forwarded station will be forwarded to the programmed destination.

Forward External. This feature operates in the same manner as a non-networked system with the exception that, because calls across a network link are trunk calls, network calls do not follow the ICM EXT FWD ON/OFF option in MMC programming. It is therefore suggested that this option be set to ON in a networked switch to avoid confusion in operation between networked and non-networked calls.

Call Intrusion (Barge In). This feature operates in the same manner as in a non-networked switch.

Call Offer/Call Waiting (Camp On). This feature operates in the same manner as in a non networked switch. When a called station is busy, the caller can press a Camp-On key and appear as a ringing call on the second call key. The Auto Camp-On feature will not work on calls across a network link if set to ON in MMC programming.

Call Transfer. Calls answered in one network node can be transferred to a station or station group in another network node.

Transfer Retrieve. Calls on Transfer Hold during a screened transfer can be retrieved by pressing the Call key for that call.

Transfer Recall. Calls transferred across a network link will recall to the transferring station after the originating system's transfer recall timer expires. After recalling, if not answered prior to the system's attendant recall timer expiring, the call will recall to the system's designated operator group. Attendant recalls will not recall to a 'Centralised Attendant" (see below).

DDI with Pass Through. Incoming DDI calls can be routed through one switch across a network link to be processed by the DDI table of the destination switch.

Do Not Disturb (DND). This feature operates in the same manner as in a non-networked switch. There is an option in MMC programming to determine the type of DND tone sent across the network link.

Caller ID (CID). CID in the forms that are currently available (PRI Name and Number and BRI Number) will be transported across the network link with the original call.

Centralised Attendant. This feature allows a user in any switch to dial "0" and ring at the designated Central Attendant group. Each system on the network requires its own designated attendant group for local usage and recalls.

Internal Calling/Uniform Dialling Plan. Station to station and station to group calls can be made across the network link without having to dial an access code for a call within the network. LCR can also be programmed to route calls across a network link to access local trunks in another networked system.

Centralised Voice Mail with Message Waiting Lights. This feature will operate only with Cadence, SVMi-8 or SVMi-16 Voice Mail systems. Users in one node can call forward to the voice mail group in a different switch and messages left in that switch will be indicated on the VMSG key in the originating switch. Messages can be returned to voice mail by pressing the VMSG key.

Off Premises Extensions (OPX)

A single line (tip and ring) extension from a 4SLI card only may be connected to telephone company-provided OPX circuits to remote locations.

Operator Group

The operator group can contain up to 32 stations to answer incoming calls. Calls to this group can be set for distributed, sequential or unconditional ringing. Operators can use the In/Out of Group feature to meet flexible operator requirements. Operator groups are selectable per ring plan.

Overflow

Operator

When calls ringing an operator group go unanswered, they can overflow to another destination after a programmed period of time. The operator group has its own timer. The overflow destination can be a station or station group.

Station Group

When calls ringing a station group go unanswered, they can overflow to another destination after a programmed period of time. Each station group has its own timer. The overflow destination can be a station or station group.

Override Code

This feature allows users to make emergency outside calls from a station that has a forced code enabled, such as an Account Code or Authorisation Code, without requiring them to enter a code. The basis of this feature is an override code table containing eight entries of up to 14 digits each. The system will examine digits that are dialled from a station to see if they match any entry in the Emergency Number table. If the digits match the table, the system will process the call without requiring a forced code.

Paging

System software allows the use of four internal and four external paging zones. Stations can page any individual zone, all internal zones, all external zones or all zones simultaneously. Using system programming, each station may be allowed or denied the ability to make and/or receive page announcements to any zone or combination of zones.

Park Orbits

The system has 10 park orbits (0–9). These orbits can be used to park calls prior to paging and allows the call to be retrieved by dialling a park code plus the orbit number. Calls parked in this manner can also be retrieved by dialling the Park Pickup code plus the station or trunk number. This feature is in addition to Call Park and Page.

Prime Line Selection

Any station can be programmed to select a specific line, trunk group, telephone number, station or station group when the handset is lifted or the Speaker key is pressed (same as **Hot Line** feature).

Private Lines

For private line use, stations can be prevented from dialling and/or answering any line.

Programmable Line Privacy

Each outside line can be programmed to ignore the automatic line privacy. This allows up to four other parties to join your conversation by simply pressing the line key. This is similar to 1A2 key telephone operation.

Programmable Timers

There are over 50 programmable system timers to allow each installation to be customized to best fit the end user’s application.

Recalls

Calls put on hold, transferred or camped-on to any station will recall to the originating station if not answered within a programmable time. A recall that goes unanswered for the duration of the attendant recall timer will recall to the system operator group. Hold, transfer, camp-on and attendant recalls have individual programmable timers. Calls recalling to keys with tri-coloured LEDs will flash amber.

Remote Programming - PC

Remote programming allows you to access the system database from a remote location for the purpose of making changes to the customer data. Customer-provided modems and a PC using an optional software package will be needed to implement this feature.

Ring Modes

Time-Based Routing Plans

Each C.O. line or DDI number can be programmed to ring at any station or station group. Each line can be assigned a ring destination based on six different ring plans according to time of day and day of the week.

Automatic / Manual

Ring destinations will automatically change according to time of day and day of week. At any time the system can be manually forced into a specific ring plan. It will remain in this plan until manually taken out.

Holiday Schedule

The system has a table of 60 dates that are used to define holidays. On a date designated as a holiday, the system will remain in a ring plan for that calendar day. This feature will override the ring plan timetable.

Temporary Override

The system can, at any time, be forced into a specific ring plan for a temporary period until the next scheduled ring plan automatically takes effect.

Ring Over Page

Any outside line can be programmed to ring over a customer-provided paging system. Outside lines, door phones and station groups may ring over page in the system ring plan mode.

Single Line Connections

Single line ports allow connection of a variety of single line telephones (SLTs) plus facsimile machines, answering machines, loud bells, computer modems, cordless phones and credit card machines. When connecting customer-provided equipment to these extensions, compatibility should be checked before purchase to ensure correct operation. Central office ring cadence can be selected for SLTs. This is helpful when optional devices cannot detect system internal ring cadence.

Speed Dial Numbers

A library of speed dial numbers may be allocated as needed. Maximum numbers per system is:
'S' and 'M' = 2000
'L' = 2500

The system list can have up to 500 or 950 numbers, depending on how your system is programmed. Each station can have up to 50 numbers. Speed dial numbers are assigned in blocks of 10. Each speed dial number may contain up to 24 digits.

Speed Dial by Directory

The system allows the user to look up a speed dial number, using the name allocated to it, and place the call. There are three speed dial selections: personal, system and station. This feature requires a display keyset.

Station Hunt Groups

System programming allows a number of station hunt groups to be assigned. The maximum number of groups depends on the system version as follows:

'S' and 'M' = 40
'L' = 80

One of three ring patterns—sequential, distributed and unconditional—is available for each group. Each unconditional group may contain a maximum of 32 stations and each sequential and distributed group may contain a maximum of 48 stations. A station may be assigned to more than one group. Each station group has its own recall timer for calls transferred to that group.

Station Message Detail Recording (SMDR)

The system provides records of calls made, received and transferred. Connecting a customer-provided printer or call accounting system will allow collection of these records. Each call record provides the following details: station number, outside line number, start date, start time, duration of call, digits dialled (maximum 18), an account code if entered, CLI and name. The system may print a header followed by 50 call records per page or send continuous records with no header for use with a call accounting machine. See the sample printouts at the end of this manual.

The SMDR format contains many options that allow it to be customised for a company's individual needs. Print options include incoming calls, outgoing calls, in and out of group status, change in DND status and authorisation codes.

SVMi-8 / SVMi-16 – Integrated Voice Mail

The OfficeServ500 can be connected to Samsung's proprietary SVMi-8 or SVMi-16 integrated Voice Mail and Auto Attendant system. SVMi-8 provides four or eight ports of voice processing (expandable from four to eight ports). SVMi-16 provides 16 ports. Both systems support features such as one-touch Call Record, Answering Machine Emulation and Voice Mailbox Administration with interactive keyset displays. Ask your dealer for information on SVMi-8/16.

System Alarms

A DISA alarm will warn the customer if the DISA security system has been triggered by too many incorrect password attempts. The alarm can ring any station or group of stations and show an appropriate display at the assigned station(s).

System Maintenance Alarms

Internal system diagnostics are performed continuously while the system is operating. When a major or minor fault is detected, the system can ring stations with an ALARM KEY assigned. The keyset display shows information that includes the description, location and date and time stamp for each alarm.

A log of 100 alarms is stored in a buffer and can be reviewed at a display keyset or sent to a printer (see 'Sample Alarm Report' section of this manual).

System Directory

Each station, station group and outside line can have a directory name up to 11 characters. This name will appear on keyset displays to provide additional information about lines and stations.

Tenant Service

The Tenant Service feature allows the system installer to split the system between two 'tenants', each tenant being completely separate and having control over their own system features such as operator groups, page zones, speed dial numbers, DISA and customer-level programming. No internal calling between tenants is permitted.

Toll Restriction

Any outside line may be programmed to follow station toll restriction or follow the toll restriction class assigned to it. Each station and trunk can have a dialling class specified by the time plan.

Allowance and Deny tables set in the system contain the numbers that can or cannot be dialled. Each entry in a table is a maximum of 12 digits, and the maximum number of entries per table is 500.

Each of these entries can apply to dialling classes B, C, D, E, F and G. Expensive calls, as well as specific area and office codes, can be allowed or denied on a per-class basis. Class A stations have no dialling restrictions and Class H stations cannot make outside calls.

Special Code Table

A Special Code Table of 10 entries (four digits each) allows use of telephone company features such as CID Blocking or Call Waiting Disable without interference to toll restriction or LCR. The Special Code table allows use of these custom calling features on a per-call basis.

Toll Restriction Override

Program options allow system speed dial numbers to follow or bypass a station's toll restriction class. In addition, users may make calls from a toll-restricted station by using the Walking Class of Service or Authorisation Code feature.

Tone or Pulse Dialling

Outside lines can be programmed for either tone or pulse dialling to meet local telephone company requirements.

Traffic Reporting

The system can store peg counts for various types of calls. These peg counts can be printed on-demand, daily, hourly, or for up to three separate programmable shifts. The report includes statistics for each trunk, trunk group, station, station groups and page announcements.

Transfer

System operation permits station users to transfer calls to other stations in the system. Transfers can be screened, unscreened or camped-on to a busy station.

Trunk Groups

Outside lines can be grouped for easy access by dialling a code or pressing a key. The maximum number of trunk groups is 30.

Uniform Call Distribution (UCD)

UCD is used whenever an organisation expects to have more ringing calls than people (“agents”) to answer them. It prevents callers from receiving busy signals or lengthy delays before being answered. Callers reaching a busy station group are held in queue for an available agent. First and second announcements reassure the caller until an agent becomes free.* Programmable automatic logout removes a station from the group if a call is placed to an unattended station, thus preventing unanswered calls. A wrap-up timer prevents calls to a station for a programmable period to allow the agent to finish up work associated with a previous call.

*NOTE: Requires optional hardware. Ask your dealer for details.

UCD Groups

The UCD group option allows callers in queue at a UCD group to be temporarily diverted to an announcement device and then placed back in the queue. A wrap-up timer will allow agents to complete paperwork before receiving the next UCD call.

Call Statistics

UCD supervisor positions using a display keyset can monitor the number of calls in queue, the time that the oldest caller has been waiting, the total number of calls received for the current day and the average time a caller waits to be answered.

Agent Statistics

UCD supervisor positions using a display keyset can monitor the number of agents in a group and how many agents are currently logged in. Each station’s status can be reviewed for the number of calls answered and the average call length for the current day.

Group Supervisors

Multiple supervisors can be assigned to each group or one station can be given supervisor status for multiple groups. The group supervisor (using a display keyset) can add and delete agents in real time to/from the group to handle the workload.

Printed Reports

Agent supervisors may run printed reports to a customer-provided printer, showing the data available on the supervisor displays.

Universal Answer (Night Bell)

Station users may dial the Universal Answer code or press the UA key to answer any outside lines programmed to ring the UA device. The UA device can be a station, group of stations, common bell or ring over page.

Virtual Extensions

The system has a number of virtual extensions available. These can be used for a number of functions such as Hot Desking. Computer Telephony Integration (CTI) and pre-programmed call forwarding. Systems provide both SLT and digital line (DLI) virtual extensions.

Voice Mail—In-band Integration

The system uses DTMF tones (in-band signalling) to communicate with any compatible voice mail system. Stations can call forward to a voice mail system. When answered, the system will send DTMF tones routing the caller directly to the called station user's mailbox. Keyset users can press a key to retrieve messages from the voice mail system. A Voice Mail Transfer key permits keyset users to easily transfer a caller directly to an individual voice mailbox without navigating through menus.

Voice over IP (VoIP)

The MGI cards support up to 16 voice calls over an IP network connection using the industry standards based H.323 or SIP protocol. These standards address the means of transferring voice, data and images through IP (Internet Protocol) networks. The cards fit into any universal card slot. The system supports a maximum of two MGI3 or five MGI2 cards.

With VoIP, certain compression standards have also been adopted to represent each second of voice with an amount of bandwidth. The MGI card uses G.711, G.729A or G.723 standards voice compression Codecs. This allows for a selectable 64kbps, 8kbps or 6.3kbps bandwidth when preparing voice compression for IP transport. Compression is used to reduce the digitized voice into a smaller bandwidth that can be carried in smaller packets. The MGI gateway determines the compression method for each call setup. There is also a certain amount of frame/packet overhead in each compression channel. 64k of bandwidth can nominally support 6–7 calls simultaneously. This can vary depending on efficiency features like Silence Suppression and multiframe counts.

Unlike switched networks, VoIP connections consist of a sequence of numbered data packets. Since voice conversation is usually considered "real time" these packets need to be delivered in a consistent manner with minimal delay. This can be controlled via a Gatekeeper which tracks and monitors voice packets. Gatekeepers are part of the H.323 standard but are optional. The MGI card is Gatekeeper compliant. In any Ethernet environment, packet transfers are subject to delays and/or loss. If these delays are greater than 200ms the voice quality will deteriorate. The Ethernet data traffic and network topology should be a consideration when applying the MGI VoIP feature. Network congestion affects call quality in any VoIP application.

Walking Class of Service (WCOS)

This feature allows users to make calls or use features from a station that is normally restricted. The feature is similar to the Authorisation Code feature. Both methods change the class of service to correspond with the station passcode or authorisation code that is dialled. After the call is completed, the station returns to its programmed class of service.

Wireless LAN Service (WLAN)

The OfficeServ500 system supports a number of WBS24 Access Points (wireless base stations). These Access Points can be either WBS24 (Combo) base stations connected to 8WLI cards or WBS24 (Basic) base stations connected to MGI cards. When WBS24s are installed, phone users can receive wireless LAN service using a mobile IP phone (WIP-5000M) or a PC or personal digital assistant (PDA) configured with a wireless LAN interface.

Station Features

Add-On Module
Appointment Reminder
Automatic Hold
Automatic Privacy
Background Music
Busy Station Callback
Busy Station Indications (BLF)
Call Forwarding
Call Log
Call Pickup
Direct Station Selection (DSS)
Do Not Disturb (Override)
Do Not Disturb (Programmable)
Door Lock Release
Exclusive Hold
Group Listening
Headset Operation
Hearing Aid Compatible
Line Queuing With Callback
Line Skipping
Loud Ringing Interface
Manual Signalling
Message Waiting Light/Indication
Mute Microphone/Handset
Off-Hook Ringing
Off-Hook Voice Announce (Standard)
One-Time Do Not Disturb
One-Touch Dialling Keys
On-Hook Dialling
Privacy Release
Programmable Keys
Programmed Station Messages
Protection From Barge-In
Pullout Directory Tray
Pulse To Tone Switch Over
Redial
- Auto Retry
- Last Number
- Manual Retry With LNR
- Memo Redial
- Save Number

Remote Hold
Ring Modes
Ringing Preference
Set Relocation
Speakerphone
Station Lock
Tri-Coloured Lights
Volume Settings
Wall-Mountable Keysets

Station Feature Descriptions

Add-On Modules (AOM)

A variety of AOMs are available for connecting to keysets. They increase the number of available programmable keys. The keys, with red LEDs, can be used for feature keys, DSS/BLF keys or one-touch speed dial keys.

14-Key AOM for *i*DCS Series Keysets

14 programmable keys add to the capability of any *i*DCS series keyset.

48-Key AOM for DCS (Euro) Keysets

48 programmable keys add to the capability of any DCS Euro keyset. Up to four 48-key AOMs can be added to a keyset.

64-Key AOM for *i*DCS Series Keysets

The 64 programmable keys add to the capability of any *i*DCS series keyset. Up to four 64-key AOMs can be added to each keyset. A maximum of eight can be installed on an 'M' system, and a maximum of 32 on an 'L' system.

64-Key AOM (DS-5064B) for 5000 Series Keysets

The 64 programmable keys add to the capability of any 5000 series keyset. Up to four 64-key AOMs can be added to a keyset. A maximum of eight can be installed on an 'M' system, and a maximum of 32 on an 'L' system.

Appointment Reminder

Keysets with an alarm key can be used like an alarm clock. When programmed for a specific time, the keyset will sound a distinctive ring to remind the user of meetings or appointments. Alarms can be set for "today" only or for every day at the same time. Up to three alarms may be set at each keyset. Display keysets can also show a programmed message when the alarm rings.

Automatic Hold

Station users can enable or disable automatic hold at their keysets. While a user is engaged on an outside (C.O.) call, pressing another trunk key, route key or CALL key automatically puts the call on hold when this feature is enabled. Pressing TRANSFER (TRSF), CONFERENCE, PAGE or a DSS key will always automatically place the call on hold. This type of automatic hold is not a user-selectable option.

NOTE: Internal calls cannot be automatically held.

Automatic Privacy

All conversations on outside lines and internal calls are automatically private. The privacy feature can be turned off on a per-line basis.

Background Music

Keyset users may choose to hear music through their keyset speakers when optional external sources are installed. Each user may adjust this level by the use of a volume control program at the selected keyset.

Busy Station Callback

When reaching a busy station, callers may request a callback by pressing one key or dialling a code. The system rings the caller back when that station becomes idle. A system-wide maximum number of callbacks, including busy station and busy trunk, are allowed at one time as follows:
'S' and 'M' = 100
'L' = 500

Busy Station Indications (or Busy Lamp Field, BLF)

DSS/BLF keys may be assigned to any keyset or add-on module. These keys will be off when the station is idle, light red when that station is in use and flash distinctively when that station is in DND mode.

Call Forwarding

Station users can forward internal and outside calls to other destinations using the following options (refer to System Features for full descriptions):

- immediately (Forward All)
- when busy (Forward Busy)
- if not answered in a programmable time (Forward No Answer)
- if either busy or not answered in a programmable time (Forward Busy/No Answer)
- when in Do Not Disturb (DND) mode (Forward DND)

These forward destinations can all be different. Once a destination has been programmed, it can be turned on and off with a programmable key. Forward All takes priority over Busy and No Answer conditions.

An additional option called Follow Me is available. This option allows a station user to set a Forward All condition from their normal station to a remote station while at the remote station. To display the Follow Me condition, the TRANSFER (or TRSF) key lights steady red at the station that is forwarded. The TRANSFER (or TRSF) key also lights if Forward All is set and no key is programmed for Forward All.

Each outside line may be programmed to either follow or ignore station call forwarding. A per-station option controls whether internal calls forward to voicemail or not. Single line telephones must have the system administrator program this feature for them.

Call Log

A display keyset user can review a list of up to 50 numbers containing the most recent incoming calls to the keyset and external telephone numbers dialled from the keyset. The numbers can be viewed, stored and/or dialled using the associated soft keys.

Call Pickup

With directed call pickup, a user can answer calls ringing at any station by dialling a code plus that extension number. The group pickup feature allows the user to answer any call ringing within a pickup group. Pickup keys may be customized with extenders to allow pickup from a specific station or pickup group. The system has 99 programmable pickup groups.

Direct Station Selection (DSS)

Programmable keys can be assigned as DSS keys and associated with extension numbers. Users press these keys to call or transfer calls to the assigned stations.

Do Not Disturb (Override)

The DND Override feature allows a keyset with a DND Override key (DNDO) and the appropriate class of service to override the DND setting at a called keyset. This will allow a user to go into DND while waiting for an important call and have that call transferred to them via a screened transfer from a station (for example the user's secretary) with a DNDO key.

Do Not Disturb (Programmable)

The Do Not Disturb (DND) feature is used to stop all calls to a station. System programming can allow or deny use of the DND feature for each station. Parties calling a station in DND will receive DND tone. When in DND mode, calls may be forwarded to another destination. (See Call Forwarding.) A keyset without a DND key can activate DND via the feature access code. The ANS/RLS key or keyset status indicator (if fitted) will flash rapidly when DND is set. There is a programmable option to allow a DDI number to override DND at its ring destination if that destination is a single extension.

Door Lock Release

Stations programmed to receive calls from a door phone can dial a code to activate a contact closure for control of a customer-provided electronic door lock.

Exclusive Hold

Pressing the HOLD key twice will hold a call exclusively at a station so no other station can pick up that call. Internal calls are automatically placed on exclusive hold.

Group Listening

This feature allows users to turn on the speaker while using the handset. It allows a group of people to listen to the distant party over the speaker without the microphone turned on.

Headset Operation

Every keyset can be programmed to allow the use of a headset. In the headset mode, the hook-switch is disabled. Calls are answered by pressing a specific key (such as ANS/RLS on some keysets). Keyset users may turn headset use on and off in programming or, more easily and conveniently, by programming a headset ON/OFF key. The ON/OFF key lights steady red when the keyset is in headset mode.

Hearing Aid Compatible

All keysets are hearing aid compatible.

Line Queuing with Callback

If the called outside line is busy, the station user can press the CALLBACK key or dial the access code to place the station in a callback queue. The user will be called back when the line is available. A system-wide maximum number of callbacks, including busy station and busy trunk, are allowed at one time, as follows:
'S' and 'M' = 100
'L' = 500

Line Skipping

When the user is talking on an outside line and the automatic hold feature is turned off, pressing an idle line key can skip to that line without causing the previous call to go on hold.

Loud Ringing Interface

The MISC daughterboard has one relay for control of a customer-provided loud ringing device. This relay can be programmed to operate with a specific station or station group.

Manual Signalling

Keysets can signal each other via a programmable key. This allows one station to alert another without establishing a voice conversation. Each press of the key results in 500 milliseconds of ring tone being set to the intended station. An individual manual signalling key must be programmed for each station to be signalled.

Message Waiting Light/Indication

When a message indication is left at a keyset, the MESSAGE key will slowly flash red. If fitted, the keyset status indicator will also flash. Single line telephones will receive a distinctive dial tone to notify them that a message is waiting. Message waiting indications can be left for any station or group of stations.

Mute Microphone/Handset

Any keyset user can mute the keyset's handset transmitter by pressing the MUTE key. In addition, keyset users can also mute the keyset microphone while the keyset is in speakerphone mode.

Off-Hook Ringing

When a keyset is in use, the system will provide an off-hook ring signal to indicate that another call is waiting. The ring signal is a single ring repeated. The interval is controlled by a system-wide timer. Single line telephones will receive a tone burst through the handset receiver instead of a ring.

Off-Hook Voice Announce (Standard)

Keysets may receive a voice announcement while on another call. The calling station must have an OHVA key. When transferring a call to a busy keyset, or while listening to busy signal, the station user can press the OHVA key to make an OHVA call to the busy keyset. If the called keyset is in the DND mode, it cannot receive OHVA calls.

One-Time Do Not Disturb

The Do Not Disturb (One Time) feature is used to stop all calls to a station when the user is on an outside line and does not want to be disturbed for the duration of the call. Upon completion of the call, DND is cancelled and the station is returned to normal service. This feature requires a programmed key.

One-Touch Dialling Keys

Frequently-used speed numbers can be assigned to one touch dialling keys for fast accurate dialling.

On-Hook Dialling

Any keyset user can originate calls without lifting the handset. When the called party answers, the user may speak into the microphone or lift the handset for more privacy.

Privacy Release

This feature will allow another station to join in on your conversation by temporarily releasing privacy on the C.O. line from your keyset. Requires a Privacy Release key to be programmed on your keyset. A maximum of three other people can join in. This uses one of the conference circuits in the system.

Programmable Keys

Some keysets have a number of programmable keys. The number depends on the type of keyset, e.g. 14 (DS-5014D), 21 (DS-5021D), 24B (Euro), 12B (Euro), and so on. Each key can be programmed for more than 25 different uses to personalise each phone. Examples of key assignments include individual outside line, individual station, group of lines, group of stations and one-touch speed dial keys. Using these keys eliminates the need to use dialling access codes.

The following feature keys have extenders that make them more specific: SPEED DIAL, SUPERVISOR, PAGE, DSS, DIRECTED PICKUP, GROUP PICKUP, DOOR PHONE, BOSS, PARK, PROGRAMMED MESSAGE, IN AND OUT OF GROUP, FORWARD and VOICE MAIL TRANSFER. The extender can be a station, a group or another identifying number.

Programmed Station Messages

A station user may select one of a number of messages to be displayed both at a calling party's keyset and on the station's display. There are 15 possible messages (01–15) supported.

Messages 01–10 are pre-set with a selection of single-line text, but these can be changed in programming. The remaining messages (11–15) can be customised by the system administrator, up to 16 characters maximum.

NOTE: The calling party must have a display keyset to view these messages.

Protection from Barge-In

Each station can be programmed as secure or not secure. Secure stations cannot be barged-in on. A station that is not secure also cannot be barged-in on when talking to a secure station.

Pullout Directory Tray

A pullout directory tray is located beneath some types of keyset (e.g. Euro). It is used to record station directory names and speed dial numbers.

Pulse to Tone Switchover

When dialling a number on a dial pulse network, a station user can dial # and the system will begin to send DTMF.

Redial

There are several types of external redial available to station users. Each type can redial up to a maximum of 18 digits.

- AUTO RETRY—When an outside number is dialled and a busy signal is received, the auto retry feature can be used to reserve the outside line and automatically redial the number for a programmable number of attempts (available to keyset users only).
- LAST NUMBER—The most recently dialled number on a C.O. line is saved and may be redialled by pressing the redial key or dialling the LNR access code.
- MANUAL RETRY with LNR—When you make an outside call and receive a busy signal you can press the LNR key to redial the same number again. This operation can be manually repeated for a limited number of attempts as defined by system programming (available to keyset users only).
- MEMO REDIAL—When you are calling directory assistance you can store the number you are given using the dial pad and SAVE number feature (available to keyset users only).
- SAVED NUMBER—Any number dialled on a C.O. line may be saved for redial at a later time.

Remote Hold

You can place a call at a station on system hold at another station (on an available CALL key or line key).

Ring Modes

Each keyset user can select one of three distinct ways to receive internal calls. The phone can automatically answer on the speakerphone, voice announce through the speaker or receive ringing. When the ring mode is selected, keyset users can choose one of eight distinct ring tones. Forced Auto Answer is invoked by the calling station and is controlled by the calling station’s class of service.

Ringing Preference

Lifting the handset or pressing the Speaker key automatically answers a call ringing at the keyset. Using this method, users are assured of answering the oldest call first. When ringing preference is turned off, the user must press the flashing key to answer. Users may answer ringing lines in any order by pressing the flashing key.

Set Relocation

This feature allows a user to relocate to a station other than their usual one and, by dialling a code and extension number at the station, transfer all the features and program settings (trunk ring, station group, station Class of Service, station speed dial, key assignments, call forward conditions, and so on) from their usual station to the new station. This may also be referred to as Hot Desking (see *System Features*.)

Speakerphone

Most keysets have a built-in speakerphone. The speakerphone enables calls to be made and received without the use of the handset. Some keysets can have a Full Duplex Speakerphone Module added.

Station Lock

With a programmable personal station passcode, any keyset or single line telephone can be locked and unlocked to control use of each telephone. There are three options: 0=UNLOCKED, 1=LOCKED OUTGOING and 2=LOCKED ALL CALLS.

	0 (UNLOCKED)	1 (LOCKED OUTGOING)	2 (LOCKED ALL CALLS)
Make outside calls	YES	NO	NO
Receive outside calls	YES	YES	NO
Make internal calls	YES	YES	NO
Receive internal calls	YES	YES	NO

Tri-Coloured Lights

Most keysets are equipped for tri-coloured LED indications (green, red and amber). The number of tri-coloured LED keys available depends on the keyset type. On these keys, your calls always light green, other calls show red and recalls light amber.

Volume Settings

Each keyset user may separately adjust the volume of the ringer, speaker, handset receiver, background music, page announcement and off-hook ring tone.

Wall-Mountable Keysets

Most keysets and add-on modules may be wall mounted if preferred. Large LCD keysets can only be desk mounted.

Display Features

Account Code Display
Call Duration Timer
Call for Group Identification
Call Processing Information
Caller ID (CID) Information
- Name/Number Display
- Next Call
- Save CID Number
- Store CID Number
- Inquire Park/Hold
- CID Review List
- Investigate
- Abandoned Call List

Calling Party Name
Calling Party Number
Conference Information
Date and Time Display
Dial By Name
Dialled Number
Enhanced Station Programming
Identification of Recalls
Identification of Transfers
Message Waiting Caller Number
Outside Line Identification
Override Identification
Programmed Message Display
Soft Keys
Stopwatch Timer
Text Messaging
UCD Supervisor Displays

Display Feature Descriptions

Account Code Display

Account codes are displayed for easy confirmation. If entered incorrectly, users may press the ACCOUNT key again and reenter the account code.

Call Duration Timer

The system can automatically time outside calls and show the duration in minutes and seconds. Station users may manually time calls by pressing the TIMER key.

Call for Group Identification

When a call is made to a station group, the display shows [CALL FOR GROUP] and the user's group number. These calls can be answered with a different greeting than calls to the user's extension number.

Call Processing Information

During everyday call handling, the keyset display will provide helpful information, e.g. [CALL FROM 203]. In some cases the user is prompted to take action, and in other cases receives directory information.

Caller ID (CID) Information

CID information is dependent on the use of display keysets. The following explains the displays that are used with CID.

Name/Number Display

A display keyset user can choose to see the CID name or CID number in the display first when a call is received. Regardless of which is selected to be seen first, the NND key can be used to view the other.

Next Call

In the event that there is a call waiting or a camped-on call at the user's keyset, the user can press the NEXT key to display the CID information associated with the next call in queue at the station. Either the CID name or number will show in the display depending on the NND selection (above).

Save CID Number

At any time during an incoming call that provides CID information, the user may press the SAVE key. This saves the CID number using the Save Number feature. Pressing the Saved Number Redial (SNR) key will dial the CID number.

Store CID Number

At any time during an incoming call that provides CID information, the user may press the STORE key. This saves the CID number as a speed dial number in the personal speed dial list.

Inquire Park/Hold

When a user is informed that an incoming call is on hold or has been parked, the user may view the CID information before retrieving the call. This will influence how the user chooses to handle the call.

CID Review List

This feature allows display keyset users to review CID information for calls sent to their stations. This list contains between 10 and 50 calls on a first in, first out basis. The list includes calls that were answered and calls that rang the user's station but that were not answered. When reviewing this list, the user can press a key to dial the person back.

Investigate

This feature allows a selected station with a special class of service to investigate any call in progress at another station. If CID information is available for an incoming call, the investigating station can see to whom the investigated station is speaking. On outgoing calls, the investigating station can see who was called. After investigating, the station may barge-in on the conversation, disconnect the call or hang up.

Abandoned Call List

The system has a system-wide abandoned call list that stores CID information for calls that rang but were not answered. The list will store up to 100 unanswered calls and is accessed using the operator's passcode. When reviewing this list, you are provided options to CLEAR the entry or DIAL the number. You can use the NND key to toggle between the CID name, CID number and the date and time the call came in.

Calling Party Name

For internal calls, LCD keysets show the calling party's name before answering. The names must be stored in the system directory list and can be up to 11 characters long.

Calling Party Number

When an internal call is received, all display stations show the calling party's extension number before the call is answered.

Conference Information

When a conference is set up, each extension and outside line number is displayed at the controlling station when it is added. When a station is added, its display shows [Conf with xxx], alerting the user that other parties are on the line.

Date and Time Display

In the idle condition, the current date and time are displayed. Display keysets can have a 12- or 24- hour clock in either the WESTERN or ORIENTAL display format, with day/month information shown in upper case or lower case letters.

Dial By Name

Each station and speed dial number can have an associated directory name. Any station or speed dial number can be selected by scrolling alphabetically through a directory list. There are three directories:

1. System speed dial list

2. Personal speed dial list

3. Station directory list

This online “phone book” allows display keyset users to look up and dial any speed dial number or station quickly.

Dialled Number

When an outside call is made, digits are displayed as the user dials them. If the display indicates that an incorrect number was dialled, the user can quickly hang up before billing begins.

Enhanced Station Programming

Personal programming options are easier to select and confirm with the help of the display.

Identification of Recalls

Hold recalls and transfer recalls can be distinguished from other ringing calls. Hold recalls indicate the recalling line or station number and the associated name. Transfer recalls indicate the recalling line or station and where it is coming from.

Identification of Transfers

The display will identify who transferred a call to the user.

Message Waiting Caller Number

If one or more message waiting indications have been left at a station, pressing the MESSAGE key displays the station number(s) of the person(s) who have messages for the user. Display keyset users can scroll up and down to view message indications.

Outside Line Identification

Each line can be identified with a name up to 11 characters. Incoming calls display this name before the call is answered. This feature is helpful when individual lines must be answered with different greetings.

Override Identification

If another station barges-in on a user’s conversation, the display will alert the user with a [Barge from 2xx] display if the system is set for barge-in with tone.

Programmed Message Display

Preprogrammed station messages set by other stations are displayed at the calling station's keyset.

Soft Keys

Below the LCD on 2-line display keysets, there are three soft keys and a SCROLL key. These keys allow the user to access features allowed by the station' class of service without requiring the keyset to have designated feature keys.

Stopwatch Timer

Display keyset users can use this feature to time meetings, calls and other functions. Users simply press once to start the timer and press again to stop the timer.

Text Messaging

This feature allows two display keyset users to respond to each other with preprogrammed messages. After receiving an Off Hook Voice Announcement or station Camp-On, you may respond with a text message while continuing to talk to your outside party. The other station can view this message and take the appropriate action or respond with another text message.

Up to 20 messages can be stored in the system memory and sent to another display keyset. Only display keysets that are allowed in system programming will receive the TMSG soft key in the display and can use this feature.

UCD Supervisor Displays

When UCD is used, multiple supervisors can view information about UCD group calls or agents.

Call Screen

This allows the supervisor to view how many calls are in queue, the longest wait time, how many calls have been received today, what the average time in queue is and how many calls were abandoned.

Agent Screen

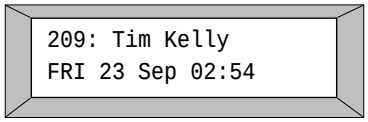
This allows the supervisor to monitor how many agents are logged in, check each agent's status (IN GROUP, OUT OF GROUP, or DND), and view each agent's total number of calls, average call length or average ring time.

NOTE: Accessing this screen will also allow a Supervisor to change the status of each agent (IN GROUP, OUT OF GROUP, or DND).

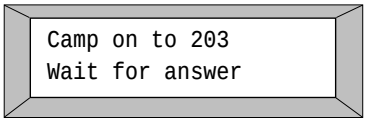
Sample Keyset Displays

Display keysets have either a large liquid crystal display (LCD) or a 2-line LCD. Both are easy to read and helpful call processing information is provided so everyday call handling is quick and simple. Large LCD keysets have a number of different 'menu' screens and you should refer to the relevant keyset user guide for more information on these. For 2-line LCD display keysets, here are some examples of the displays you may see.

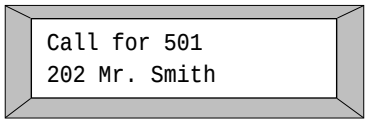
Call Handling



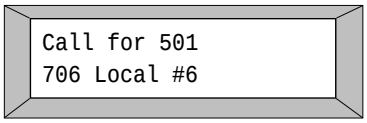
Idle display shows extension, name, day, date and time.



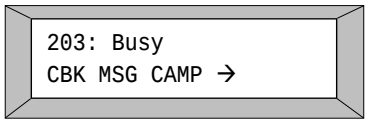
This station is camped-on to extension 203 and is waiting for 203 to answer.



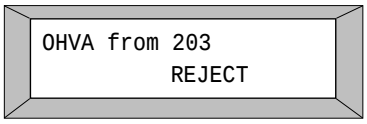
This station (e.g. in the sales department) is receiving a group call from Mr. Smith.



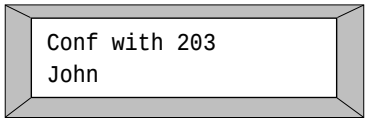
This display tells you this is a new incoming call to (e.g.) the sales department.



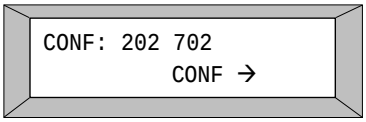
This station is calling station 203 which is currently busy.



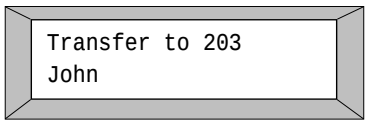
This station is receiving an off-hook voice announcement from station 203.



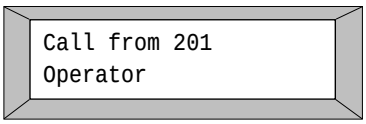
This station is on a conference call with John, extension 203. Assume other parties will hear your conversation.



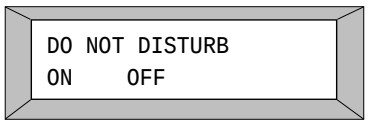
This station is on a conference call with extension 202 and trunk 702 and has the option to add two more parties.



This station is transferring a call to John at extension 203.

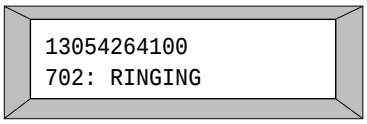


This station is receiving a call from extension 201.

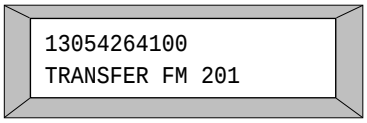


This station is setting the Do Not Disturb feature.

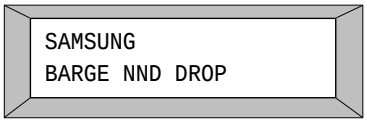
Caller ID Displays



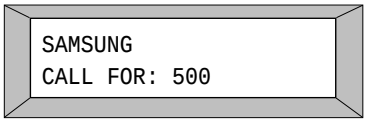
This display shows an incoming call from 1-305-426-4100 on Line 702 ringing directly at your station.



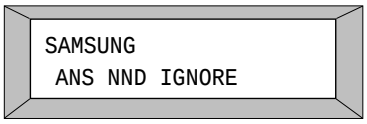
This display shows an incoming call from 1-305-426-4100 being transferred to you from station 201



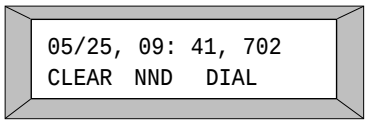
This display shows an investigation of a station that is talking to Samsung. The investigator can BARGE-in to the conversation, DROP the call from the system or examine further NND information.



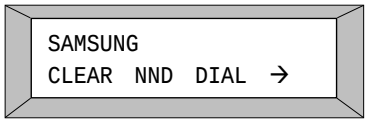
This display shows an incoming call from Samsung ringing at group 500.



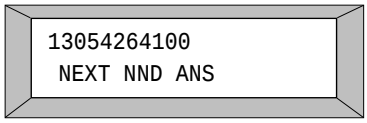
This display is seen while using the INQUIRE feature. It shows the three options available while you are checking on a held or parked call.



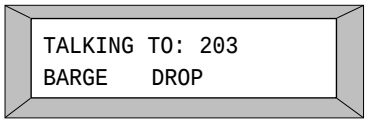
This display shows the information on the abandoned call list. This call came in on May 25 at 9:41 A.M on line 702. The user can CLEAR the entry. DIAL the caller back or examine further NND information.



This display shows an entry in a station review list showing the three initial options. The arrow indicates other options available to you by pressing the SCROLL key.

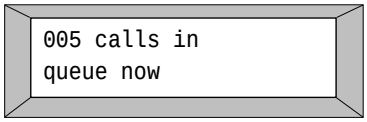


This display is seen while examining calls in queue at your keyset.

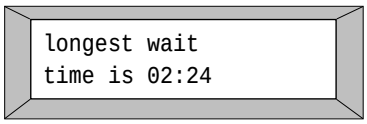


This display can be seen when investigating an internal call.
The investigator can BARGE-in or DROP the connection.

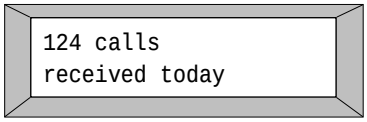
UCD Displays



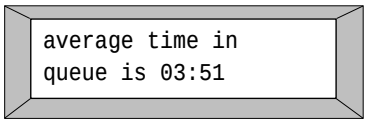
There are five calls currently waiting to be answered by the UCD group.



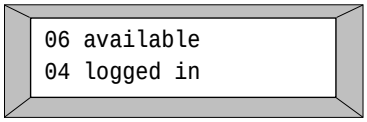
The longest call on hold (waiting to be answered) was for two minutes, 24 seconds. This data applies to all calls since the supervisor data was last cleared. It does not necessarily represent calls currently in queue.



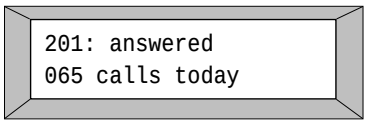
The UCD group has received 124 calls today.



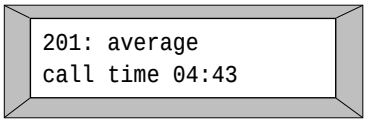
The average time on hold (waiting to be answered) is three minutes and 51 seconds.



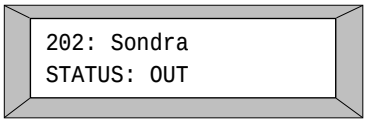
There are six members in the group. Four of the members are currently logged in.



The agent at station 201 has answered 65 calls today.



The average call length for station 201 is four minutes and 43 seconds.



Station 202 is currently out of the group. (The display can also show IN GROUP and DND.)

Sample SMDR Printout

```
                SMDR REPORT FOR [ABC PLC] 03/24/04 11:21
          1         2         3         4         5         6         7         8         9         1         2         3
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234
================================================================================================================================
   T EXT  AUTH TRK  MM/DD STT.TIME DURATION FG DIALED DIGIT       ACCOUNT CODE   CARR    COST  CLIP NUMBER  CLIP NAME
================================================================================================================================
   1 202  1234 701  10/24 11:14:08 00:00:10 O  01234567890234567  123456789012    02  1234567
   1 202  2234 702  10/24 11:14:18 00:00:10 DO 01234567890234567  2635577896      03        0
   1 202  3274 703  10/24 11:14:28 00:00:10 I                    3536587                    01616551234  ABC PLC
   1 202  4284 704  10/24 11:14:38 00:00:10 IT                   443454769414               01616551234  ABC PLC
   1 202  5294 704  10/24 11:14:48 00:00:10 A  01234567890234567  5335                       01616551234  ABC PLC
   1 202             10/24 11:14:08           ALARM RING
   1 202             10/24 11:14:27           ALARM RING
   1 202             10/24 11:20:10           DND OFF
   1 202             10/24 11:20:15           DND ON
   1 202             10/24 11:20:20           DND OFF
   1 202             10/24 11:22:17           GROUP OUT
   1 202             10/24 11:22:21           GROUP IN
```

Tenant 1Digit

Auth Code 4 Digits

Extn 2 - 4 Digits

CO No. 2 - 4 Digits

Date Call Made or Received (MM/DD)

Time Call Made or Received (Hrs:Mins:Secs)

Call Duration (Hrs:Mins:Secs)

Call Type Flag 2 Chars

Telephone No. Dialled 1-18 Digits (Miscellaneous Info.)

Account Code 1-12 Digits

Carrier Number 01-16

Call Cost 7 Digits

Calling Line ID Presentation on ISDN Line 1-11 Digits

CLIP Name 1-15 Characters

Call Type Flag Definitions

O	Outgoing	DE	DISA call with error
I	Incoming	T	Transfer
DI	DISA call in	IT	Incoming Transfer
DO	DISA call out	FI	Incoming call forwarded to an external number
FO	Outgoing record of forwarded call	OT	Outgoing Transfer
A	Abandoned call	IA	Incoming call Answered

Sample UCD Report

```
UCD GROUP 529 : SALES

FROM: SUN 02 Feb 00:00
TO : SUN 02 Feb 02:54


CALL STATISTICS
===============
AVERAGE RING TIME(TIME TO ANSWER)......00:40
NUMBER OF TIMES ALL AGENTS BUSY........00002
AVERAGE TIME IN QUEUE..................00:51
TOTAL CALLS RECEIVED...................00011
LONGEST QUEUE TIME(TODAY)..............02:14
TOTAL CALLS ABANDONED..................00004


AGENT STATISTICS
================
MEMBER    AGENT   NAME    CALLS      AVERAGE     RING
                          ANSWERED   CALL TIME   TIME
-------------------------------------------------------
01        210     JOHN    0002       01:55       00:05
02        211     SAM     0001       02:18       00:06
03        208     MIKE    0003       01:22       00:04
04        207     PETER   0001       03:16       00:05


UCD GROUP 515 : SUPPORT

FROM: MON 03 Jan 08:30
TO : SUN 02 Jan 02:54


CALL STATISTICS
===============
AVERAGE RING TIME(TIME TO ANSWER)......00:07
NUMBER OF TIMES ALL AGENTS BUSY........00005
AVERAGE TIME IN QUEUE..................01:06
TOTAL CALLS RECEIVED...................00023
LONGEST QUEUE TIME(TODAY)..............01:02
TOTAL CALLS ABANDONED..................00001


AGENT STATISTICS
================
MEMBER    AGENT   NAME    CALLS      AVERAGE     RING
                          ANSWERED   CALL TIME   TIME
-------------------------------------------------------
01        223     FRED    0012       02:33       00:08
02        213     JANE    0010       01:04       00:04
```

UCD Call Statistics

Calls in Queue Now

How many calls are currently in queue. This is a real-time statistic and so will not print on a report.

Total Calls Abandoned

This shows the number of callers that reached the UCD group, but hung up before being answered. A high number probably means that there are not enough agents available and the wait time is too long.

Average Ring Time

This is calculated from the time an agent's phone begins to ring until the time an agent answers the call. This does not include calls to an agent's phone that does not answer or is logged out because of the Ring Next option.

Number of Times All Agents Busy

This is the number of times that a call is placed to a UCD group and all agents are busy or out of group. This check is made when the call is first placed to the group.

Example: There are five members in a group: three are Out of Group, one is busy and one is idle. A call is placed to the group. Because there is an idle station, the 'all agents busy' counter is not incremented.

If the idle station rings, does not answer and is logged out, although the condition of the group is now 'all agents busy', the check has been made and the 'agent busy' statistic does not increment.

Also, if a call comes in to a group with all agents busy and then one becomes idle, the busy counter will increment because the check has been made.

Average Time in Queue

This is calculated as an average of all the calls that were in queue. Note that this is only an average of the calls that were in queue. The caller must have overflowed to the UCD recording to be considered in queue. (An AA card is required.)

A call is considered in queue until it is answered or until it goes to the final destination.

Total Calls Received

The total number of times that calls were sent to a group. This includes calls that were answered by the group, calls that went to a group with all agents busy or out of group, calls that are abandoned and calls that go to UCD final destination. This includes internal calls to the UCD group.

If this number is less than the total calls received by all the agents, it is possible that calls were transferred from one agent to another.

If this number is more than the total calls received by all the agents, it is possible that calls were unanswered by an agent and went to the final destination or callers hung up while in queue.

This statistic includes:

- Calls answered by agents.
- Calls that are not answered by an agent and go to the final destination.
- Calls that are sent to the UCD group but callers hang up before being answered.

Longest Queue Time Today

This shows the longest call in queue today. The queue time is calculated as follows:

a) Queue time begins when a call is queuing.

b) Queue time ends when

- caller is answered by an agent
- system gets disconnected from C.O. or
- caller is transferred to the final destination

Longest Queue Time Now

This shows the longest call currently in queue. The queue time is calculated as follows:

a) Queue time begins when a caller starts to hear the first UCD message.

b) Queue time ends when

- caller is answered by an agent
- system gets disconnected from C.O. or
- caller is transferred to the final destination

This is a real-time statistic and so will not print on a report

UCD Agent Statistics

Logged in

The number of stations programmed in the UCD group and the number of stations that are currently logged in. This is a real-time statistic and so will not print on a report.

Status

This screen shows the agent's name, extension number and status. The status can be In Group, Out of Group or in DND. This is a real-time statistic and so will not print on a report.

Calls Answered

The total number of calls answered by the agent. This does not include 'ring no answer' to an agent station.

If this total number is less than the calls received by the group, it is possible that calls were unanswered by an agent and went to the final destination or that callers hung up while in queue.

If this total number is more than the calls received by the group, it is possible that calls were transferred from one agent to another.

Average Call Time

This is an average of all the call durations for the agent.

Ring Time

This is an average of all the ring times for the agent. See UCD Call Statistics.

Sample Traffic Report

```
                TRAFFIC REPORT FOR [ SAMSUNG ] Mar/21/1999 13:35
************************** SYSTEM STATISTICS ******************************

BEGINNING: Mar/15/1999 00:42          ENDING: Mar/21/1999 13:32

  ACTIVITY                SYSTEM TOTAL

  INCOMING TRUNK CALLS - ANSWERED.................   3041
  INCOMING TRUNK CALLS - NOT ANSWERED.............    26
  OUTGOING TRUNK CALLS ...........................   2168
  A SELECTED TRUNK WAS BUSY.......................    44

  INTERNAL CALLS – COMPLETED .....................  7178
  INTERNAL CALLS - NOT ANSWERED ..................  1540

  TRUNK RECALLS TO STATION .......................   145
  TRUNK RECALLS TO OPERATOR GROUP ................   32

  INTERNAL PAGE USED .............................   35
  EXTERNAL PAGE USED .............................   79
  ALL PAGE USED ..................................   231
***************************** TRUNK GROUPS ********************************

 GROUP   OUTGOING BUSY
 9          1245    18
 800         521     3
 801          20     3
 802           0     0
************************** INDIVIDUAL TRUNKS ******************************

TRUNK  TRUNK-NAME  ATTA   ANSD   NOT-ANSD   OUTGOING  BUSY
 701   LOCAL 1    0    737     0      19    12
 702   LOCAL 2    0    541     4      26    11
 703   LOCAL 3    0    290     1      37    21

************************ STATION HUNT GROUPS ******************************

    <———————— OUTSIDE CALL ————————>         <-INTERNAL->
GROUP  ANSD  NOT-ANSD                    ANSD
 500  439    19                         61
 501  261    37                         38
 502   40    2                         77
 503   87    5                         162
 504   19    1                         44

********************** INDIVIDUAL STATIONS ********************************

       <———— OUTSIDE CALL ——————————————————————><-INTERNAL—>
EXT STATION-NAME ATTA ANSD NOT-ANSD DIALLED ICM-TRSF TRK-TRK PICKUP ANSD DIALLED
201 Operator      9    360    11       15      341       0      0     39    72
202 Barbara       12   60     2        80      20        0      12    49    66
203 Ivania        4    25     1        36      3         0      18    86    29
```

Traffic Report Overview

```
A************************** SYSTEM STATISTICS ************************

1 BEGINNING: Mar/15/2001 08:00        ENDING: Mar/15/2001 17:30

2 ACTIVITY SYSTEM TOTAL

3 INCOMING TRUNK CALLS - ANSWERED.................0000
4 INCOMING TRUNK CALLS - NOT ANSWERED.............0000
5 OUTGOING TRUNK CALLS ...........................0000
6 A SELECTED TRUNK WAS BUSY.......................0000

7 INTERNAL CALLS - COMPLETED......................0000
8 INTERNAL CALLS - NOT ANSWERED...................0000

9 TRUNK RECALLS TO STATION........................0000
10 TRUNK RECALLS TO OPERATOR GROUP.................0000

11 INTERNAL PAGE USED.............................0000
12 EXTERNAL PAGE USED.............................0000
13 ALL PAGE USED..................................0000
```

1. **BEGINNING & ENDING**

   This identifies when the statistics were collected. It includes dates and times.

2. **ACTIVITY SYSTEM TOTAL**

   Overall summary of traffic in the system for activities 3 to 13.

3. **INCOMING TRUNK CALLS–ANSWERED**

   These are any incoming trunk calls to the system. These calls are pegged when answered by any device and /or station in the system, whether it is a new call or a recall.

4. **INCOMING TRUNK CALLS–NOT ANSWERED**

   These are any incoming trunk calls that were not answered by any station or device in the system. These are the same calls that would be flagged as abandoned in SMDR.

5. **OUTGOING TRUNK CALLS**

   These are all outgoing trunk calls that were originated by any station or through the DISA feature. Outgoing trunk calls are valid calls as defined by the SMDR START TIME in MMC programming.

6. **A SELECTED TRUNK WAS BUSY**

   Pegged every time a trunk or trunk group was busy regardless of the manner in which it was selected (e.g. DTS key, LCR, “9”, 7XX, TRK GROUP SELECT, SPD, External Call Forward, DISA).

7. **INTERNAL CALLS COMPLETED**

   These are all internal calls that were completed to any station, station group or device.

8. **INTERNAL CALLS NOT ANSWERED**

   These are all internal calls that were not answered and resulted in the calling party hanging up. A call to a station group that overflows to another station is considered not answered whether the overflow destination did or did not answer.

9. TRUNK RECALLS TO STATION

These are trunk calls that were placed on any kind of hold and recalled a station. These are also trunk calls that were transferred, were not answered, and recalled the transferring station. This includes members of the operator group that put calls on hold which then recall the operator's station.

10. TRUNK RECALLS TO OPERATOR GROUP

These are any trunk calls that recalled to the operator group.

11. INTERNAL PAGE USED

Peg count of every time internal page was accessed.

12. EXTERNAL PAGE USED

Peg count for every time external page was accessed.

13. ALL PAGE USED

Peg count of every time the All Page feature was accessed. This does not include internal or external page, 55+ * or PAGE *.

```
B*************************** TRUNK GROUPS ***************************

      1 GROUP              2 OUTGOING             3 BUSY
          9                    0000                 0000
        800                    0000                 0000
        801                    0000                 0000
```

1. GROUP

A listing of all trunk groups assigned in the system.

2. OUTGOING

This is the number of outgoing trunk calls made using each trunk group. Pegged every time a member of this trunk group was used to make a valid outgoing call. A valid outgoing call is defined by the SMDR START TIME programmed in MMC programming.

3. BUSY

This is the number of times each trunk group was busy when someone attempted to access it.

```
C*************************** INDIVIDUAL TRUNKS ************************

1TRUNK    2TRUNK-NAME    3ATTA      4ANSD    5NOT-ANSD    6OUTGOING    7BUSY
 701                     0000       0000       0000         0000        0000
 702                     0000       0000       0000         0000        0000
 703                     0000       0000       0000         0000        0000
 704                     0000       0000       0000         0000        0000
 705                     0000       0000       0000         0000        0000
 706                     0000       0000       0000         0000        0000
 707                     0000       0000       0000         0000        0000
 708                     0000       0000       0000         0000        0000
 709                     0000       0000       0000         0000        0000
 710                     0000       0000       0000         0000        0000
```

1. **TRUNK**

   A listing of each trunk in the system.

2. **TRUNK NAME**

   The names of each trunk as set in MMC programming.

3. **ATTA**

   Average Time To Answer for trunks (in seconds): calculated from the time that ringing voltage is detected at the trunk interface until the trunk is answered by a station or device in the system. The ATTA is the sum of all answered times divided by the answered call count.

4. **ANSD**

   This is the number of times this specific trunk was answered by any station or device whether it is a new call or a recall.

5. **NOT–ANSD**

   This is the number of times this specific trunk rang the system but was not answered. These are the same calls that would be flagged as abandoned in SMDR.

6. **OUTGOING**

   This is the number of times this trunk was used to make an outgoing call. A valid outgoing call is defined by the SMDR START TIME in MMC programming.

7. **BUSY**

   This is the number of times this trunk was busy when accessed by a key or dial code.

```
D************************ STATION HUNT GROUPS ************************

     <———————— 1 OUTSIDE CALL ————————————————————> 5 <-INTERNAL->
  2GROUP      3ANSD       4NOT-ANSD                                6ANSD
    500        0000          0000                                   0000
    501        0000          0000                                   0000
    502        0000          0000                                   0000
    503        0000          0000                                   0000
    504        0000          0000                                   0000
```

1. **OUTSIDE CALLS**

   These statistics are for outside calls that reach these station groups regardless of how they arrive there.

2. **GROUP**

   Listing of all station groups in the system.

3. **ANSD**

   This column is a peg count of all answered trunk calls that rang to the specific group directory number regardless of how they arrived.

4. **NOT–ANSD**

   The number of times any trunk call directed to the specific group number was not answered by any member of the group.

5. **INTERNAL**

   An internal call made from a station or device within the system to the specific group number.

6. **ANSD**

   This is a count of how many times an internal call was answered by any group member of that specific group.

```
E****************************** INDIVIDUAL STATIONS **************************
                              1          11
      <———————————————— OUTSIDE CALL ————————————————> <-INTERNAL->
 2    3    4  5   6    7    8   9   10  12  13
EXT STATION-NAME ATTA ANSD NOT-ANSD DIALLED ICM-TRSF TRK–TRK PICKUP ANSD
DIALLED
201              0000 0000   0000    0000    0000    0000   0000  0000  0000
202              0000 0000   0000    0000    0000    0000   0000  0000  0000
203              0000 0000   0000    0000    0000    0000   0000  0000  0000
204              0000 0000   0000    0000    0000    0000   0000  0000  0000
```

1. **OUTSIDE CALLS**

   These statistics are for outside calls that in any way reach individual stations or devices.

2. **EXT**

   Listing of all extension numbers in the system. This also includes AA and VM ports.

3. **STATION NAME**

   The name for each particular station as set in MMC programming.

4. **ATTA**

   Average Time To Answer for stations is the time (in seconds) that ringing signal is applied to a station for trunk calls and recalls. The ATTA is the sum of all answered times divided by the answered call count. Uses the same calculation method as for individual trunk ATTA.

5. **ANSD**

   This is a count of how many times an outside call was answered by the specific station. Outside calls recalling a station are not counted again when they are answered.

6. **NOT–ANSD**

   This is a count of how many times a trunk call was directed to the station but was not answered by the station.

7. **DIALLED**

   Peg count of how many times the station made a valid outside call. An outside call is defined by the SMDR START TIME in MMC programming.

8. **ICM–TRSF**

   This is the number of times a trunk call was successfully transferred to another station. It includes both screened and unscreened transfers.

9. **TRK–TRK**

   This is the number of times a trunk call was transferred to another trunk (tie line) This is called a trunk–to–trunk transfer. This field is pegged every time the station completes a trunk-to-trunk transfer.

10. **PICKUP**

    This is a count of the outside calls that were picked up by the specific station. Picked-up calls are calls that were not ringing at your station but were answered by you. This peg count is separate from the number of answered calls in 5 above.

11. INTERNAL

Statistics for internal calls. An internal call made from a station or a station device within the system to another station.

12. ANSD

This is the number of times an internal call was answered by this specific station. Screened transfers count as an answered internal call.

13. DIALLED

The number of times the specific station dialled another station or station group. Screened transfers count as a dialled internal call.

Sample Alarm Report

ALARM REPORT FOR [iDCS 500 SAMPLE] MAR/24/1999 19:45

MM/DD/YYYY	ERR.TIME	ERR.CODE	ERROR DISPLAY	POSITION
03/14/1999	16:45:00	[MNF22]	Phone Disconnect	C1-S7-P02
03/14/1999	16:45:00	[MNF23]	Phone Connect	C1-S7-P02
03/14/1999	16:45:00	[MNF03]	IPC Error	C1-S01
03/14/1999	16:45:00	[MNF03]	IPC Error	C1-S04
03/14/1999	16:45:00	[MNF22]	Phone Disconnect	C1-S7-P03
03/14/1999	16:45:00	[MNF03]	IPC Error	C1-S01
03/14/1999	16:45:00	[MNF03]	IPC Error	C1-S04
03/14/1999	16:45:00	[MNF22]	Phone Disconnect	C1-S7-P04
03/14/1999	16:45:00	[MNF03]	IPC Error	C1-S01
03/14/1999	16:45:00	[MNF03]	IPC Error	C1-S04
03/14/1999	16:46:00	[MNF01]	Card Out	C1-S07
03/14/1999	16:46:00	[MNF02]	Card In	C1-S07
03/14/1999	16:47:00	[MJD01]	SYNC Failure	C2-S02
03/14/1999	16:47:00	[MJD02]	SYNC Recvry	C2-S02
03/16/1999	16:47:00	[MNF04]	Trunk Fault	C1-S08-P03
03/16/1999	16:48:00	[MNF05]	Trunk Recovery	C1-S08-P01
03/16/1999	16:48:00	[MNF05]	Trunk Recovery	C1-S08-P02
03/16/1999	16:48:00	[MNF05]	Trunk Recovery	C1-S08-P03
03/18/1999	16:51:00	[MNF01]	Card Out	C1-S02
03/18/1999	16:51:00	[MNF02]	Card In	C1-S02
03/18/1999	17:04:00	[MJD05]	Yellow Alarm	C1-S02
03/19/1999	17:22:00	[MJD06]	Yellow Alarm Rec	C1-S02
03/19/1999	17:23:00	[MNF01]	Card Out	C1-S06
03/20/1999	17:24:00	[MJC01]	DTMF Fault	MCP OPT:2
03/20/1999	17:24:00	[MJC01]	DTMF Fault	C#2 OPT:2
03/20/1999	17:24:00	[MJC01]	DTMF Fault	C#3 OPT:3
03/20/1999	17:24:00	[MJC01]	DTMF Fault	C#3 OPT:3
03/20/1999	17:24:00	[MNF03]	IPC Error	C1-S01
03/20/1999	17:24:00	[MNF03]	IPC Error	C1-S04
03/24/1999	17:24:00	[MJD19]	PRI Restart	C2-S02
03/24/1999	17:25:00	[MNF23]	Phone Connect	C1-S7-P08

Chapter 5 Hotel Features

Samsung's hospitality solutions combine sophisticated front-of-house management functions with a comprehensive range of guest services - ideal for all hospitality environments such as hotels, hospitals, nursing homes and halls of residence. The Hotel application is controlled via an administrator's display phone—keys are programmed with the required functions such as Guest Check In and Check Out, Billing and so on. Data for the application—including room costs, taxes levied (e.g. VAT), item costs, call costing information, and so on—are set up using MMC programming from the phone.

The enhanced front-desk management system includes automatic generation of consolidated guest accounts, multiple room tariffs, automatic credit control, on-line room status and customised bill invoicing (including itemised billing of phone and room charges). The sophisticated software can also manage the status of rooms, with programmable check-in and check-out facilities to ensure that the telephone system is not abused when rooms are unoccupied. The system also allows room status control from phones in each room and provides real-time access to customer account details: e.g. which rooms are occupied, which rooms are being cleaned and which rooms are available for occupancy. Least-cost routing functionality ensures that costs are kept to a minimum.

Hotel software has been developed to interface with most industry leading front-of-house management systems, allowing a bi-directional flow of data between external software applications and the telephone system. Therefore, these applications can control the Hotel features, making the system usable for both small and large applications.

Features

Billing (Account Management)
Booth Phone
Call Cost
Change Room Status
Check In
Check Out
Credit
Express Check In
Message Groups
Messaging
PMS Reports
Printer Control
Print Room Bill (Invoicing)
Remote Billing for Phones
Room Cost
Room On Hold
Room Status Reports
Room Status View
Separating Phone Charges
Staff Location
Timers
Wake-Up (Alarm) Calls
Wake-Up (Alarm) Calls With Voice Messaging

Feature Descriptions

Operation of Hotel features is carried out through an administrator's display phones. Keys are programmed with the required functions, such as checking in, checking out and billing, which can then be completed by simply pressing the relevant key and following step by step displays on the phone.

Special staff access codes are used to prevent unauthorized use of these features. However, there is also an option in MMC programming to turn off the use of staff codes if they are not required (refer to the *Samsung Combined Systems Programming Manual* for details).

Billing (BILL Key)

Used to add or delete items to/from a guest-room bill (invoice). When adding an item to a bill, the system checks the amount added against any cash deposit already entered for the room and displays a message if the deposit amount is exceeded. VAT and other taxes are automatically applied to entered values. A special passcode is required to delete items.

Booth Phone

This feature enable any phone as a 'booth' phone for use by a guest and have calls from the phone billed to the guest's room. The phone can be used to make calls until disabled by this key.

Call Cost

This feature allows a display phone to show the cost or duration of a call. The real-time call cost is displayed in the top right of the phone display while a call is in progress. It is useful, for example, if a guest requests to make a call from the front desk phone.

This feature is automatically activated when a call is made if it is a programmed feature in the system. Call costing information (rates and dial plans) can be programmed from the phone.

Change Room Status

Each room is assigned a status depending on whether it is occupied, cleaned, on hold or in need of repair. The status may be changed automatically. For example, when a guest is checked out, the room may automatically be flagged as "needs cleaning" before the next guest can be checked in. When a new guest is checked in, the status automatically changes to "occupied".

The status can also be manually changed. For example, when a room is cleaned, the status can be changed, through the room's phone using a special dialling code, to "available" for check in. On Hold status prevents automatic billing of a room if a guest requests a check-out time later than the normal system check-out time (see Room On Hold and Timers).

Check In (CHIN Key)

Used to check in a guest. Relevant details entered for a guest include room number, customer name, room type and cost, and any room or telephone credit. Credits are used to limit charges applied to rooms or phone calls. (See also Express Check In.)

Check Out (CHOUT Key)

Used to check out a guest. This feature will automatically print a bill (invoice) to present to the guest. It is also possible to print an invoice without checking out a guest (see Print Room Bill). The Check Out feature can also be used to put a room on hold (see Room On Hold).

Credit (CREDIT Key)

You can credit a guest's room or phone bill if the guest makes a pre-payment (deposit) when checking in or subsequently makes a cash payment to offset some of the charges already incurred. A deposit can be entered during the check-in procedure.

If the existing deposit for a room is exceeded when adding items to a room bill an error message will be displayed. Similarly, if a deposit is made for phone bills and the bill is approaching this limit, the guest will hear warning beeps when using the phone. (The 'warning threshold' is determined by the call costing feature set up for the system and occurs one billing period before the credit limit is reached.) When the credit limit is reached the call in progress is dropped and no more calls can be made from that extension.

Express Check In (XCHIN Key)

The Hotel application check-in procedure using the administrator's phone involves a number of separate key presses to enter the required information for a guest (see Check In). The Express Check-in feature can be used instead to reduce the number of entries required. Only a room number, type and cost need to be entered for this option.

Message Groups

Extensions can be grouped together in Message Groups (for example, all extensions on the front desk). If one of these extensions leaves a message waiting indication at another phone (see Messaging) and that phone returns the call, the call will ring all extensions in the group.

Messaging

Messages can be quickly and conveniently left for guests, if they cannot otherwise be contacted. While on a call, the MSG (Message) or CBK (Callback) option can be selected at the phone if the call is unanswered.

If MSG is selected, a 'message waiting' key LED or other light on the extension (e.g. a status indicator light) will flash to indicate that a message is waiting, or a special tone will be heard when the handset is lifted. The guest can then connect to the extension that left the message (which may be the front desk or another guest-room). If CBK is selected, the guest phone will ring the administrator's phone when it becomes free or when it is next used. (See Message Groups.)

NOTE: The use of a flashing message light is an optional feature which is available with selected telephones.

PMS Reports

You can configure a printer to produce PMS (Property Management System) reports which show all the activity logged in the system, including items added to or deleted from invoices, status flags set/changed, phone calls made and so on.

Printer Control

The serial printer connected to the system for printing room bills (invoices) can be configured to allow printing on separate sheets of paper and on headed paper.

Print Room Bill

Room bills (invoices) are printed automatically when a guest is checked out (see Check Out). However, you may wish to print a bill without checking out the guest. The Check Out feature also provides a Print option for this. The bill is printed but charges continue to accrue on the bill until a check-out is completed.

Remote Billing for Phones (RB Key)

It is possible for a guest to make a phone call from a phone extension other than their own (e.g. a phone in the lobby) and have the call charged to their phone bill. The phone must be able to dial the front desk administrator / operator's phone to request this service. The administrator's phone should be set up to operate the Hotel remote billing feature.

Room Cost

The Room Cost feature allows you to program room types and item types, costs and tax rates. This is normally done at system installation time but can be reconfigured by the administrator when these items and costs change or require updating. The values entered are used to automatically calculate invoices either at check-out time or on demand.

Room On Hold

A special status that allows a guest to check out later than the programmed check-out time without incurring additional costs resulting from the automatic billing of a room on expiry of the system Check Out timer. (See Timers.)

Room Status Reports

It is possible to print a room status report on the printer you would normally use for printing invoices. You can select which particular status to print (e.g. print a list of all occupied rooms) or print a report on the status of all rooms.

Room Status View (RSV Key)

This feature requires the addition of one or more add-on modules (AOMs) with LED keys assigned to each room. Pressing an RSV key on the phone displays on the AOM(s) all rooms flagged with the requested status. For example, if you request to view all available rooms, all LED keys assigned to available rooms will light.

Separating Phone Charges

This option allows you to print a guest's phone charges separately from other room charges. It is also possible to delete these charges from the final room invoice. For example, many guests staying for business purposes may wish to pay for personal calls separately from items on their room bill. These call charges would not then appear on the final bill.

Staff Location

This feature requires the addition of one or more add-on modules (AOMs) with LED keys assigned to each room. When the administrator presses the programmed SLOCATE key on the keyset, the relevant keys will light on the attached AOM(s) to show the rooms in which members of staff are currently located. For this to work correctly, members of staff must have entered a feature code and staff code from the guest-room phone.

Timers

Hotel has configurable timers for levying charges on guest-rooms and for room cleaning. When the set Check Out timer expires, an additional day's charge is levied on all rooms still occupied. (For exceptions to this rule, see Room On Hold. A separate timer also allows you to exclude rooms checked in after a given time each day.) When the Room Clean timer expires, the status flag for occupied rooms changes to 'room needs cleaning'.

Wake-Up Calls (WAKEUP Key)

Wake-up (alarm) calls can be set for guests when requested. These will ring extensions for a programmable period at the set time(s). Unanswered wake-up calls will alarm to the operator. It is also possible to cancel any alarms set before they are activated. There is also an option that allows you to print a list of wake-up calls set since a guest was checked in.

NOTE: Guests can also set (and cancel) their own alarms from the guest-room phone.

Wake-Up Calls With Voice Messaging

The addition of the optional Auto Attendant card to the system allows a pre-recorded voice message to be played to guests when they answer their wake-up (alarm) calls.

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