



Digital Communications System General Description

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DCS COMPACT GENERAL SYSTEM DIAGRAM

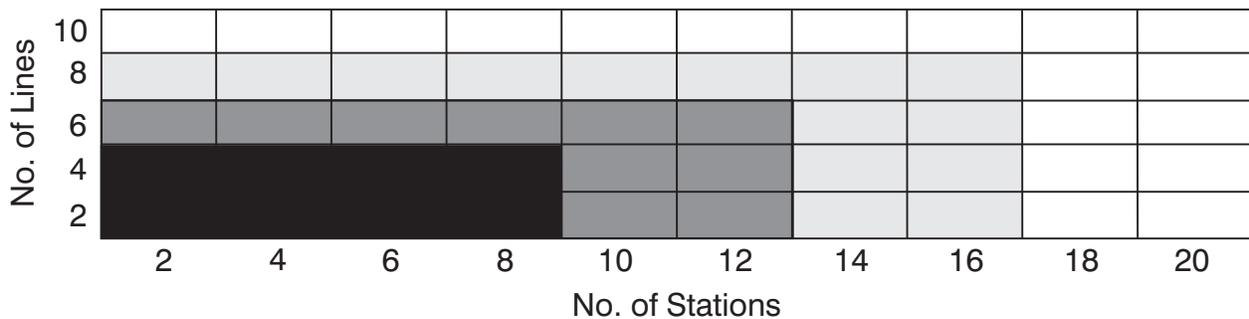


PART 1. SYSTEM OVERVIEW

1.1 SIZE AND CONFIGURATION

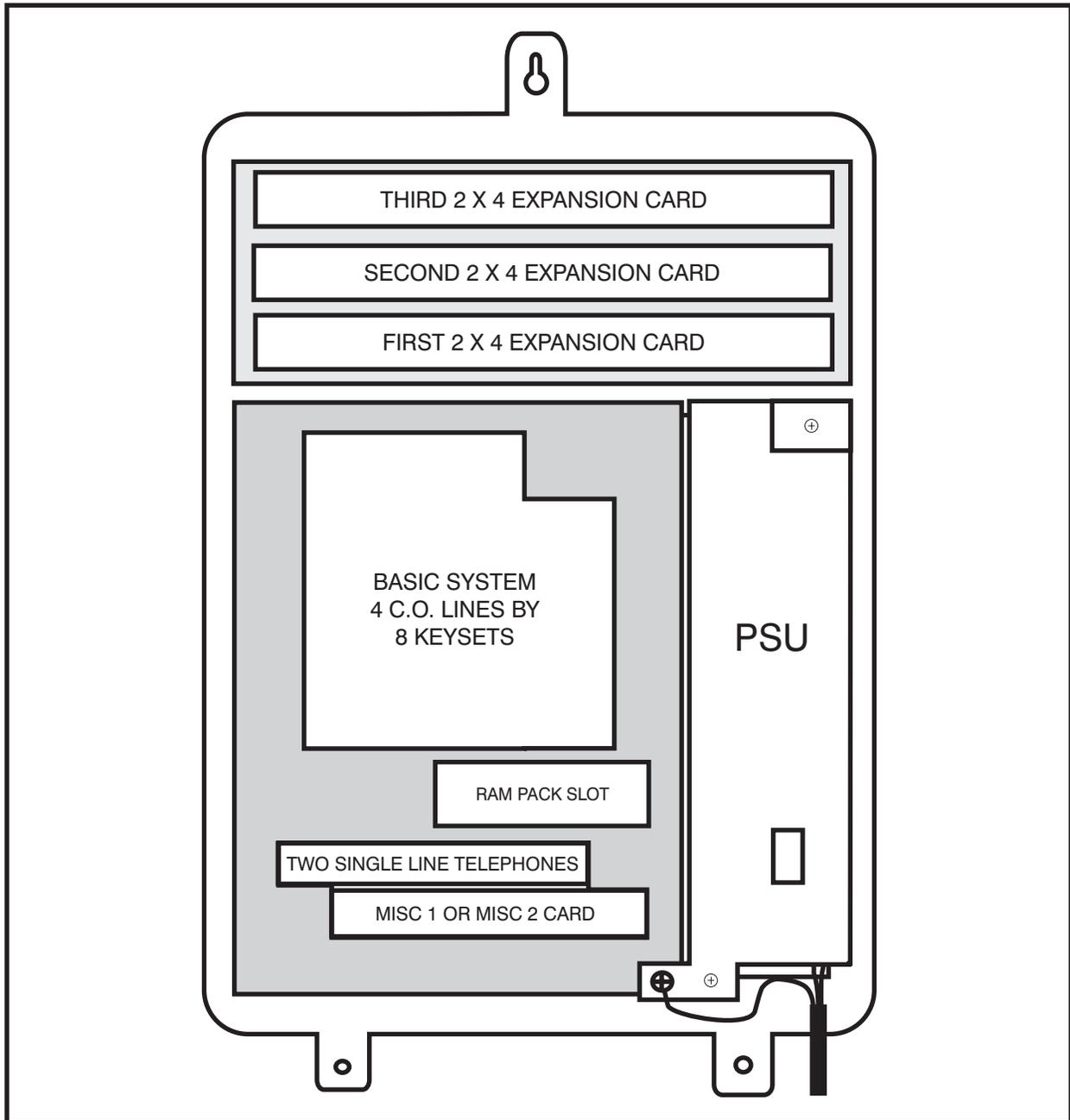
The SAMSUNG DCS COMPACT is an expandable digital hybrid key telephone system that begins with four C.O. line ports and eight keyset ports and expands to ten C.O. line ports and 22 stations (see Figure 1–1). In addition, up to ten keyset daughterboards may be added to the system to provide the maximum configuration of ten C.O. line ports and 32 stations.

Two types of telephones can be connected to the system: proprietary digital stations called “keysets” that connect to DLI (Digital Line Interface) ports and standard telephone sets, generally called “single line telephones” that connect to SLI (Single Line Interface) ports.



	Basic KSU	4 lines and 8 stations
	Basic KSU and one 2 x 4 expansion card	6 lines and 12 stations
	Basic KSU and two 2 x 4 expansion cards	8 lines and 16 stations
	Basic KSU and three 2 x 4 expansion cards	10 lines and 20 stations
	KDb = Max ten each	10 lines and 30 stations
	2 SLI card	10 lines and 32 stations

The above chart describes configurations using the basic Key Service Unit and 2 x 4 expansion cards. However, by using the DCS COMPACT’s unique keyset daughterboards (KDBs), which are installed in the base of a digital keyset, the capacity of the system can be increased by one station per KDb. Installing a KDb-DLI adds another digital port while a KDb-SLI adds a single line port. Mix and match these two types of KDb for up to a total of ten KDBs in the system. Using this method allows the DCS COMPACT to expand to a maximum of 30 stations. Adding the optional 2 SLI card to the Key Service Unit provides a further two SLI ports. The combination of the basic 4 x 8 Key Service Unit plus three 2 x 4 expansion cards plus ten KDBs plus a 2 SLI card provides a maximum configuration of ten C.O. lines and 32 stations plus miscellaneous circuits.



SYSTEM CONFIGURATION

FIGURE 1-1

CONFIGURATION NOTES

1. Only one 2 SLI card can be installed in the system.
2. Only one MISC card can be installed in the system.
3. Only three 2 x 4 cards can be installed in the system.
4. Only ten KDBs can be installed in the system.

1.2 TECHNOLOGY

SWITCHING

System switching is accomplished by means of a custom IC “engine” that provides 256 switchable digital channels. Each of the 256 digital channels is automatically assigned to carry voice or data as required by system operation in a PCM format. In addition to the 256 channels mentioned above, the system also utilizes Digital Signal Processors or DSPs. Each DSP may be configured by the switching control program as a DTMF sender, a DTMF receiver or a C.O. tone detector on a per-call basis. The engine chip contains four DSP channels and an additional four DSPs are added when a MISC card is installed. This means that the system contains a total of eight DSP channels when fully expanded. The DSP channels are fully shared throughout the system as a common resource.

MEMORY

The system operates using stored program control. This program is stored in either two EPROM chips (1024 Kbytes of memory) or four EPROM chips (2048 Kbytes of memory) depending on the feature package. All specific customer data is stored in non-volatile random access memory (NV-RAM) located on the removable RAM pack. It is protected by a Ni-Cd (NICAD) battery providing up to 30 days of memory protection.

MICROPROCESSORS

The DCS COMPACT uses distributed processing. The system’s primary processor is a 16 bit Motorola® MC68000 operating at a clock speed of 8 MHz. The secondary level of processing is done in the keysets. The digital keyset uses a Hitachi H8 processor for data communication within the DCS COMPACT.

1.3 PROGRAMMING

The DCS COMPACT comes with default data. This data provides for operation within seconds after applying power. All trunks and stations are assigned according to the default numbering plan. This numbering plan is flexible and may be changed if so desired. The technician customizes this default data to meet the end user’s requirements.

The system can be programmed from any display keyset without interrupting normal system operation. There are three levels of programming: TECHNICIAN, 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 are controlled by different security passcodes.

The DCS COMPACT 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 uploaded when required to restore the database.

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

PART 2. HARDWARE DESCRIPTIONS

2.1 KEY SERVICE UNIT

The DCS COMPACT Key Service Unit (see Figure 2–1) is a single plastic cabinet containing the following:

- A power supply
- Processing, switching and the system operating program
- Four Caller ID compatible loop start C.O. interfaces with a replaceable 4 C.O. protection card (4COP)
- Eight 2B+D digital keyset interfaces
- One MOH/BGM input
- One page output
- One auxiliary relay
- Power failure circuits for the first two C.O. lines



FIGURE 2–1

2.2 EXPANSION KIT

The optional expansion kit (see Figure 2–2) consists of a backplane PCB with connectors for three 2 x 4 expansion cards and a plastic rack to support the cards. The kit is installed inside the basic KSU and connects to the KSU motherboard via a 50 pin ribbon cable and two pairs of ground wires.

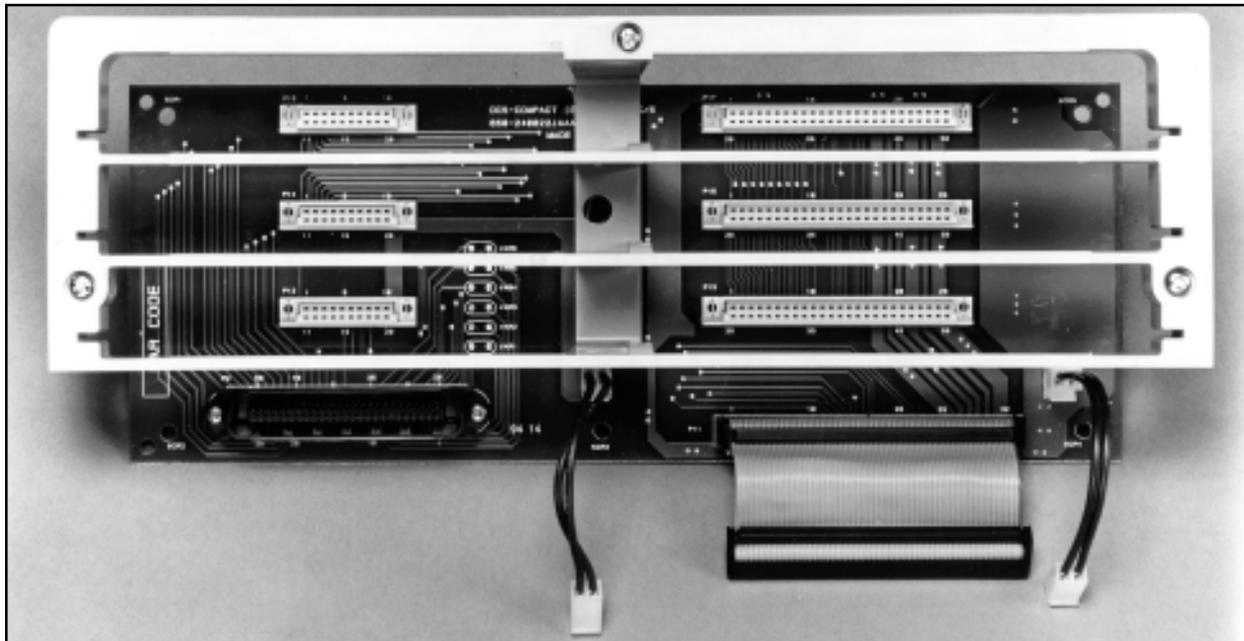


FIGURE 2–2

2.3 RAM PACKS

To operate, the KSU must be equipped with a RAM pack to hold the customer database (see Figure 2–3). There are two types of RAM pack available—RAM packs 1 and 2, described below.

RAM PACK 1 contains:

- Customer database contained in 256 Kbytes of battery protected memory and the Real Time Clock circuit



FIGURE 2–3

RAM PACK 2 contains:

- Customer database contained in 256 Kbytes of battery protected memory and the Real Time Clock circuit
- Additional 256 Kbytes of battery-protected memory for the Caller ID features and to increase the speed dial library to 1500 numbers

2.4 INTERFACE CARDS

- A. The **2 SLI** card is installed in a dedicated slot on the KSU motherboard. The card provides two single line telephone interfaces equipped with OPX protection and the ability to provide a loop disconnect signal.
- B. The **2 x 4 DLI** card provides two Caller ID-compatible loop start C.O. interfaces and four 2B+D DLI ports.
- C. The **2 x 4 SLI** card provides two Caller ID-compatible loop start C.O. interfaces, four SLI ports for industry standard single line telephones and the ability to provide a loop disconnect signal. NOTE: This card does not provide OPX protection.
- D. The **2 E & M x 4 DLI** card provides two two wire (TL11M) tie line interfaces and four 2B+D DLI ports.
- E. The **MISC 1** card provides a second MOH/BGM input, four page zone control relays, two serial I/O ports and four DSP circuits. It is recommended that this card be used in situations requiring heavy single line telephone use.
- F. The **MISC 2** card is similar to the MISC 1 but with the addition of Caller ID decoding circuits.
- G. **FKDBD** – If your iDCS keyset is connected to a Digital Line Interface (DLI) port that supports 2B+D operation (your installing company can determine this) you may install a daughter modules that provides a Digital Line Interface (DLI) port for connection of a digital station device such as a keyset.

- H. The **KDb-DLI** board, if installed in a digital keyset, will provide a second DLI port for the connection of a digital station device.
- I. **FKDBS** – If your iDCS keyset is connected to a Digital Line Interface (DLI) port that supports 2B+D operation (your installing company can determine this) you may install a daughter module that provides a Single Line Interface (SLI) port for connection of a standard telephone device such as a cordless phone. NOTE: The circuitry on a FKDBS does not provide a disconnect signal or have the over-voltage protection necessary for OPX operation.
- J. The **KDb-SLI** board, if installed in a digital keyset, will provide an SLI port for the connection of a standard telephone device. NOTE: The SLI port on a KDb-SLI cannot provide disconnect signal or OPX protection.
- K. **FKDBF** – The standard speakerphone mode of operation for a iDCS keyset is “half duplex”. This means that you cannot transmit and receive speech at the same time. Adding a FKDBF to your keyset will convert the speakerphone into full duplex mode enhancing its operation.

2.5 STATION EQUIPMENT

iDCS 28D KEYSET

(See Figure 2–4)

- 32 character display (2 x 16) with three associated soft keys and a scroll key
- 28 programmable keys with tri-colored lights
- Four fixed function keys
- Terminal Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray or light gray

NOTE: Requires Compact Release 2.6 or higher software.



FIGURE 2–4

iDCS 18D KEYSET

(See Figure 2–5)

- 32 character display (2 x 16) with three associated soft keys and a scroll key
- 18 programmable keys with tri-colored lights
- Four fixed function keys
- Terminal Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray or light gray

NOTE: Requires Compact Release 2.6 or higher software.



FIGURE 2–5

iDCS 8D KEYSET

(see Figure 2–6)

- 32 character display (2 x 16) with three associated soft keys and a scroll key
- 8 programmable keys with tri-colored lights
- Four fixed function keys
- Terminal Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray or light gray

NOTE: Requires Compact Release 2.6 or higher software.



FIGURE 2–6

DCS LCD 24B Keyset (See Figure 2–7)

- Built-in speakerphone
- 24 programmable keys (16 with tri-colored LEDs)
- Four fixed function keys
- 32 character display (2 x 16) with three associated soft keys and a scroll key
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones
- Desk- or wall-mounted
- Available in almond or charcoal



FIGURE 2–7

DCS LCD 12B Keyset (see Figure 2–8)

- 32 character display (2 x 16) with three associated soft keys and a scroll key
- Built-in speakerphone
- 12 programmable keys (six with tri-colored LEDs)
- Four fixed function keys
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones
- Desk- or wall-mounted
- Available in almond or charcoal
- Also available in a Non-Display version



FIGURE 2–8

DCS 7 Button Model Keypad

(see Figure 2-9)

- 7 programmable keys (three with tri-colored LEDs)
- Three fixed function keys
- UP/DOWN buttons for digital control of speaker and ringer volumes
- Eight selectable ring tones
- Desk or wall mounted
- Available in almond or charcoal



FIGURE 2-9

DCS Single Line Telephone

(See Figure 2-10)

- Four fixed function keys: hold, flash, new call, and monitor.
- Data Port: selectable to share station extension or utilize a separate extension
- On hook dialing
- Message Waiting/Ring Indicator
- Desk or wall mounted
- Ring volume control
- Four available ring tones.
- Available in almond and black



FIGURE 2-10

Note: This single line telephone set is FCC approved for direct connection to the public telephone network. FCC # A3LKOR-24627-TE-T REN 0.9B UL LISTED 19X9 FILE # ETI 8093

32 Button Add-On Module (AOM)

(see Figure 2-11)

- 32 programmable keys
- Two fixed function keys
- UP/DOWN buttons for digital control of speaker and ringer volumes
- Available in almond or charcoal
- One or two can be assigned to any keypad to provide executive off-hook voice announce and additional programmable keys (see Figure 2-12)
- Can operate as a stand-alone handsfree telephone unit



FIGURE 2-11



FIGURE 2-12

Door Phone Interface Module (DPIM) and Door Phone (see Figures 2-13 and 2-14)

- 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
- Provides contact control to be used with customer-provided electric door lock
- Door phone is wall-mounted
- Door phone is weather resistant



FIGURE 2-13



FIGURE 2-14

Computer Telephony Module (CTM) (See Figure 2-15)

- Provides RS232 connection via DB9 for TAPI applications
- Connects with any DLI port



FIGURE 2-15

PART 3. SPECIFICATIONS

The following tables provide technical data for the DCS COMPACT hybrid/key telephone system.

3.1	ELECTRICAL SPECIFICATIONS	
AC INPUT	120 (88–132) VAC (48–63 Hz)	
POWER CONSUMPTION (MAX)	97 WATTS MAXIMUM FUSE RATING 3 AMP	
BTU RATING (MAX)	5.5 BTU/MINUTE	
DC OUTPUT	+5 VOLTS 2.0 AMPS MAX –5 VOLTS 0.5 AMPS MAX –48 VOLTS 1.0 AMPS MAX	

3.2	DIMENSIONS AND WEIGHTS			
	HEIGHT	WIDTH	DEPTH	WEIGHT
DCS COMPACT BASIC SYSTEM: SINGLE CABINET	22.5"	14.25"	5"	16 lb.
EXPANDED SYSTEM	22.5"	14.25"	5"	22 lb.
12/24 BUTTON DIGITAL KEYSETS	4.25"	8.50"	9"	2.563 lb.
7 BUTTON DIGITAL KEYSSET	6"	9"	4.25"	2.563 lb.
32 BTN ADD-ON MODULE	4.25"	4.25"	9"	1.188 lb.
DOOR PHONE	5"	3.88"	1.25"	6.8 oz.
iDCS 28D KEYSSET	5"	8"	9"	2.2 lb.
iDCS 8D KEYSSET	5"	6.50"	9"	1.10 lb.

3.3	ENVIRONMENTAL LIMITS	
OPERATING TEMPERATURE	32–104 °F/1–40 °C	
STORAGE TEMPERATURE	–13–158 °F/–10.5–70 °C	
HUMIDITY	10%–90% NON-CONDENSING	

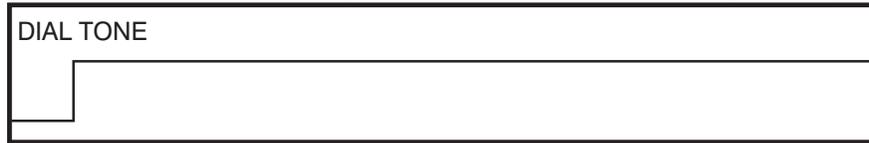
3.4	CABLE REQUIREMENTS			
EQUIPMENT	CABLE	AWG	MAX FEET	MAX METERS
DIGITAL KEYSETS	1 PR. TWISTED	24	1300	400
ADD-ON MODULES	1 PR. TWISTED	24	1300	400
SINGLE LINE STATION	1 PR. TWISTED	24	3000	1 KM
DOOR PHONE	2 PR. TWISTED	24	330*	100

*This is the maximum length of the cable between the door phone and the DPIM. The DPIM can be installed up to 900 cable feet from the KSU.

3.5	SYSTEM TONES	
TONE	FREQUENCIES	CADENCE
DIAL TONE 350 + 440 Hz	CONTINUOUS	
RING BACK TONE	440 + 480 Hz	1 sec on + 3 sec off
BUSY TONE	480 + 620 Hz	0.5 sec on + 0.5 sec off
DND/NO MORE CALLS	480 + 620 Hz	0.25 sec on + 0.25 sec off
ERROR TONE	480 + 620 Hz	0.25 sec of each tone
CONFIRMATION TONE	350 + 440 Hz	Three bursts of tone 0.1 sec on + 0.1 sec off
TRANSFER/CONF	350 + 440 Hz	0.1 sec on + 0.1 sec off

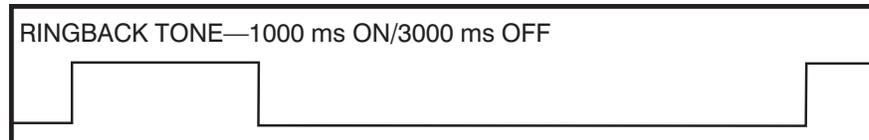
SYSTEM TONES

Intercom Dial Tone—A steady tone that indicates you can begin dialing.



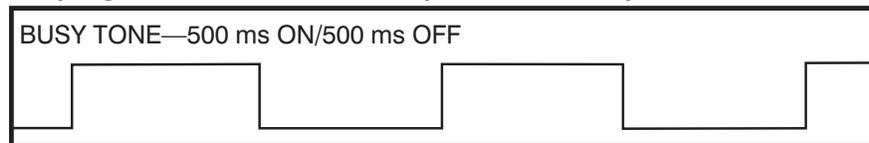
CONTINUOUS

Ringback Tone—Indicates the station you dialed is ringing.



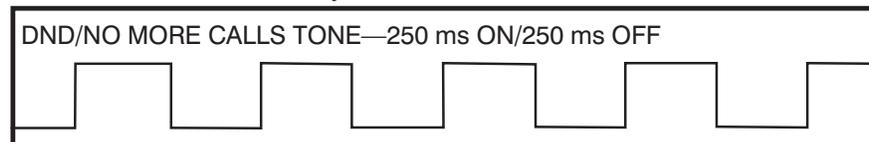
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Busy Signal—Indicates the station you dialed is busy.



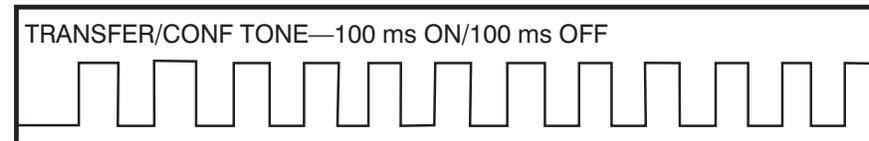
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DND/No More Calls Tone—Fast busy tone advises you the station you dialed is in the Do Not Disturb mode or cannot receive any more calls.



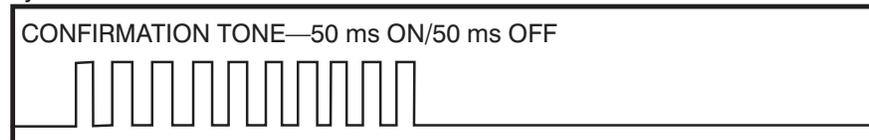
FOR TEN SECONDS

Transfer/Conference Tone—Indicates your call is being held and you can dial another party.



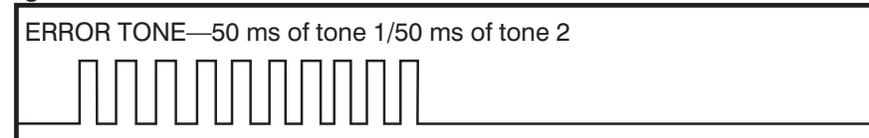
CONTINUOUS

Confirmation Tone—Very short beeps followed by dial tone indicate you have correctly set or canceled a system feature.



FOR TWO SECONDS

Error Tone—A distinctive two level beeping tone indicates you have done something incorrectly. Try again.



FOR TWO SECONDS

3.6A		KEYSET KEY LED INDICATIONS	
CONDITION	LED COLOR	LED ON	LED OFF
LINE IDLE	OFF	–	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	RED/GREEN	100 ms	100 ms
RINGING INTERNAL CALL	GREEN	100 ms	100 ms
DND INDICATION	RED	100 ms ON/100 ms OFF	500 ms

3.6B		TERMINAL STATUS LED INDICATIONS	
CONDITION	LED COLOR	LED ON	LED OFF
BUSY / OFF HOOK	RED	STEADY	–
INTERCOM RING	RED	400 ms ON / 200 ms OFF / 400 ms ON	3 sec
OUTSIDE CALL RING	GREEN	1 sec	3 sec
RECALL RING	AMBER	1 sec	3 sec
MESSAGE WAITING	RED	500 ms	500 ms
DO NOT DISTURB	RED	100 ms ON / 100 ms OFF for 500 ms	500 ms

NO. OF STATIONS	UPS CAPACITY IN VOLT AMPS (VA)						
	250	400	450	600	900	1250	2000
4	65	160	200	245	360	490	930
8	45	110	135	160	240	320	625
12	40	90	115	140	200	280	535
16	30	75	90	110	160	220	415
24	25	50	70	85	120	175	380
32	20	45	60	75	100	150	330

*These are approximate values based on an idle system. The greater the C.O. line activity on the system, the lower these readings will become. In addition, specific UPS devices, due to their internal construction, can have greater or lesser values.

PART 4. FEATURES

SYSTEM FEATURES

Account Code Entry	Dialed Number Identification Service (DNIS) [†]	Station Message Detail Recording (SMDR)
Forced	Day/Night Routing	System Directory
Voluntary	Busy or Camp-On Option	Toll Restriction
All Call Voice Page	Door Lock Release (<i>Programmable</i>)	By Day or Night
Attention Tone	Door Phones	By Line or Station
Authorization Codes	Door Phone Night Ring	Eight Dialing Classes
Forced	E & M Tie Lines	Special Code Table
Voluntary	Executive Barge-In (<i>Override</i>)	Toll Restriction Override
Automatic Hold	Station or Trunk	Tone or Pulse Dialing
Background Music	With/Without Warning Tone	Transfer
Caller ID [†]	Executive/Secretary Pooling	Screened/Unscreened
Name/Number Display	External Music Interfaces	Voice Mail Transfer Key
Next Call	External Page Interfaces	With Camp-On
Save CID Number	Flash Key Operation	Trunk Groups (<i>11</i>)
Store CID Number	Flexible Ringing	Universal Answer
Inquire Park/Hold	Day Ring Assignments	Voice Mail—Inband Integration
CID Review List	Night Ring Assignments	Voice Mail—SVMi-4 [†]
Investigate	Hot Line	Walking Class of Service
Abandon Call List (<i>50</i>)	In Group/Out of Group	
CID on SMDR	Incoming Call Distribution	
Number to Name Translation (<i>250</i>)	Incoming/Outgoing Service	
Call Forwarding	Individual Line Control	
All Calls	Least Cost Routing	
Busy	Live System Programming	
No Answer	From any Display Keypad	
DND	With a Personal Computer	
Busy/No Answer	Meet Me Page and Answer	
Follow Me	Memory Protection	
External	Message Waiting Indications	
To Voice Mail	Microphone On/Off per Station	
Call Hold	Music on Hold—Flexible	
Exclusive	Night Service	
System	Automatic	
Remote	Manual	
Call Park and Page	Off Premises Extensions (OPX)	
Call Pickup	Operator Group	
Directed	Overflow	
Groups (<i>20</i>)	Operator	
Call Waiting/Camp-On	Station Group	
Centrex/PBX Use	Paging	
Chain Dialing	Internal Zones (<i>4</i>)	
Class of Service	External Zones (<i>4</i>)	
Common Bell Control	All Internal	
Computer Telephony Integration (CTI) [†]	All External	
TAPI	Page All	
Conference	Power Failure Transfer	
Add On (<i>5 Party</i>)	Primeline Selection	
Unsupervised	Private Lines	
Customer Set Relocation	Programmable Line Privacy	
Data Security	Programmable Timers	
Database Printout	Recalls	
Dial by Name	Remote Programming—PC	
Direct In Lines	Ring Over Page	
Direct Inward System Access (DISA)	Single Line Connections	
Direct Trunk Selection	Speed Dial Numbers (<i>1500</i>)	
DISA Security	Station List (<i>50 Max</i>)	
Distinctive Ringing	System List (<i>500 Max</i>)	
Direct Inward Dialing (<i>DID</i>) [†]	Station Hunt Groups (<i>30</i>)	
Day/Night Routing	Distributed	
Busy or Camp-On Option	Sequential	
	Unconditional	

[†]Requires optional hardware and/or software. Ask your dealer for details.

4.1 SYSTEM FEATURE DESCRIPTIONS

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. Keypad users may enter this code using an account (ACCT) key without interrupting a conversation. Single line set users must temporarily interrupt the call by hook-flashing and dialing the feature access code. Account codes can be up to 12 digits long. Characters can include the digits 0–9.

FORCED

When forced, they are always verified from a system list of 250 entries. Account codes are always printed on the SMDR report. Account codes can be up to 12 digits long. They can contain the digits 0–9.

VOLUNTARY

Users may elect to enter an account code for any call. When a user voluntarily dials an account code it is only verified from the system list of 500 entries when the ACCT key is pressed before the call is made. If the ACCT key is pressed during a call the account number is not verified. They can include digits 0–9, star (*) and #.

ALL CALL VOICE PAGE

Users can page all the internal and all the external paging zones at the same time by dialing the All Page code. Keypads may be restricted from making or receiving pages in system programming. A maximum of 30 keypads can be programmed to receive page announcements.

ATTENTION TONE

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

AUTHORIZATION CODES

Authorization codes are used to give permission to make a call. These four digit authorization codes can be either forced or voluntary. When used, authorization codes will automatically change the dialing station's class of service to the level assigned to the authorization code. Authorization codes may or may not be programmed to print on SMDR.

FORCED

When a station is programmed for forced authorization the user must always enter this code before dialing is allowed. The dialed authorization code is verified from a system list of 100 entries.

VOLUNTARY

Any station user can always enter an authorization code before he/she begins dialing. The dialed authorization code is verified from a system list of 100 entries.

AUTOMATIC HOLD

While a keyset user is engaged on an outside (C.O.) call, pressing another trunk key, route key or CALL button automatically places the call on hold when this feature is enabled. Pressing the transfer key, the conference key, the page key or a DSS key will always automatically place a C.O. call on hold. Intercom calls can only be automatically held by pressing the transfer key or the conference keys. 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.

CALLER ID

This feature requires that optional software and hardware be installed in the DCS COMPACT KSU. In addition, the Caller ID service must be provided by your local telephone company. The availability of the calling party name or number depends on the type of CID service offered by your local telephone company. The Caller ID feature is dependent on having an LCD keyset to show the name or number in the top line of the display.

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

NAME/NUMBER DISPLAY

Each LCD keyset user can decide if he/she wants to see the CID name or CID number in the display. Regardless of which one is selected to be seen first, the N/N key is pressed to view the other piece of CID information.

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 Caller ID information associated with this next call in queue at your station. Either the CID name or CID number will show in the display depending on your N/N 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 SAVE number redial key will dial the CID number. The system must be using LCR to dial the saved 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. The system must be using LCR to dial the stored number.

INQUIRE PARK/HOLD

Having been informed that an incoming call is on hold or has been parked, you may view the Caller ID 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. This list can be from ten to fifty calls in a first-in, first-out basis. The list includes calls that you answered and calls that rang your station but that you did not answer. When reviewing this list, you can press one button to dial the person back. The system must be using LCR to dial the stored number.

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 will know to whom this station 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.

WARNING: Barge-in without tone may violate state or federal laws concerning the right to privacy. STA is in no way responsible for the misuse of this feature.

ABANDON CALL LIST (50)

The system has a system-wide abandon call list that stores CID information for the last 50 calls that rang but were not answered. The list is accessed using the system administrator 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. The system must be using LCR to dial numbers from the abandon call list.

CID ON SMDR

The Station Message Detail Records report can be set to include CID name and number for incoming calls. This format expands the print out to 113 characters. You must use a wide carriage printer or an 80 column printer set to the condensed print option.

NUMBER TO NAME TRANSLATION (250)

The system provides a translation table for 250 entries. When the CID number is received, the table is searched. When a match is found, the system will display the corresponding name. This will allow users in areas that do not support deluxe Caller ID to provide names for regular callers.

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 DND, the calling party will receive DND/REORDER tone. Calls cannot be forwarded to a door phone.

FORWARD ALL CALLS

A maximum of 30 keysets can be programmed to receive page announcements. This type of forwarding is not affected by the condition of the station. All calls are immediately redirected to the designated destination. If it is desired, the destination station may redirect the call back to the forwarded station by using the transfer feature. The forwarded station user can continue to originate calls as usual. DSS keys for stations that are forwarded all will flash slow red.

FORWARD BUSY

This feature forwards all calls only when the station set is busy. The station user can originate calls as usual.

FORWARD NO ANSWER

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

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 to forward immediately to another destination.

FORWARD BUSY/NO ANSWER

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

FORWARD FOLLOW ME

This feature allows the station user to forward all calls from another station to the user's station or change the forward destination to the extension you are at now.

FORWARD EXTERNAL

This feature forwards C.O. calls to an external number via a central office trunk if allowed by class of service. These C.O. calls will only forward after the programmable external call forward delay timer expires.

FORWARD TO VOICE MAIL

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

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. Intercom 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 button. 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 keyset 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 button will flash at the remote hold station.

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 buttons to press and there is no lost time looking for a free zone.

CALL PICKUP

With directed call pickup, users can answer calls ringing at any station by dialing a code plus that station's extension number. Calls can be picked up from a station group in a similar manner. The group pickup feature allows users to answer any call ringing within a pickup group. There are 20 pickup groups available. A station cannot be in more than one pickup group. To employ this feature, users either dial the access code or press the assigned feature button followed by the pickup group number.

CALL WAITING/CAMP-ON

Busy stations are notified that a call is waiting (camped-on) when they receive a tone. The tone will be 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 will follow Forward No Answer if a Forward No Answer destination has been set.

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 buttons. Toll restriction programming can ignore PBX or CENTREX access codes so toll calls can be controlled when using these services.

CHAIN DIALING

Station 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 customized in memory to allow or deny access to features and to define a station's dialing class. Each station can be assigned different classes of service for day and night operation.

COMMON BELL CONTROL

Each KSU provides a dry contact pair 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 SAMSUNG DCS COMPACT and a personal computer system (PC). Caller ID service is required on 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 DCS COMPACT Release 2 system. TAPI is described below.

TAPI

Jointly developed by Intel and Microsoft, TAPI (Telephony Applications Programming Interface) delivers telephony features to the Windows desktop. TAPI is an open application interface (OAI) protocol that supports First Party Call Control. A DCS Computer Telephony Module (CTM) is required to connect any keyset to a personal computer running Windows 95 or Windows 98. The number of CTMs that can be installed on a system is only limited to the number of keyphones. The features and functionality of the DCS keyset are not changed.

CONFERENCE

Any combination of up to five parties (stations or outside lines) can be joined together in an add-on conference. 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. The system allows six simultaneous conferences.

CUSTOMER SET RELOCATION

Customer Set Relocation allows the customer to exchange or swap similar stations in the DCS COMPACT without wiring changes. All individual station assignments such as trunk ring, station group, station COS, station speed dial, button appearances, call forwarding, etc. will follow the Customer Set Relocation program. This feature requires software version 2.0 or higher.

DATA SECURITY

Single line extensions 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 will receive DCS COMPACT C.O. ringing pattern instead of intercom ring pattern. Devices connected to a 2 SLI card or a 2 x 4 SLI card will receive a disconnect signal upon termination.

DATABASE PRINTOUT

A copy of the customer database can be obtained using PCMMC. This information can be directed to an image file for later printing or to the PC screen and may be done either on-site or remotely. A complete database or specific data blocks may be obtained.

DIAL BY NAME

SYSTEM SPEED DIAL LIST

Each system speed dial number can have an associated directory name. A speed dial number can be selected by scrolling alphabetically through the directory name list. This on-line "directory" allows the user to look up and dial numbers in seconds.

PERSONAL SPEED DIAL LIST

Each personal speed dial number can have an associated directory name. A speed dial number can be selected by scrolling alphabetically through the directory name list. This on-line "directory" allows the user to look up and dial numbers in seconds.

STATION DIRECTORY LIST

Each station can have an associated directory name. A station can be selected by scrolling alphabetically through the directory name list. This on-line "directory" allows the user to look up and dial other users in seconds.

DIRECT IN LINES

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

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 now 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. The C.O. lines used for DISA must have disconnect supervision.

DIRECT TRUNK SELECTION

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

DISA SECURITY

Telephone fraud and long distance theft continue to increase; therefore, we have introduced a 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 number of incorrect passcode attempts and the time that 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.

WARNING: As it is impossible to prevent unauthorized access to your telephone system by hackers, we suggest that you do not turn the DISA feature on unless you intend to use it. If you do use this feature, it is good practice to frequently change passcodes and periodically review your telephone records for unauthorized use.

DISTINCTIVE RINGING

Users will know the type of call they receive by the type of ring that they hear. Outside calls have a single ring repeated while internal calls have a double ring repeated.

DIRECT INWARD DIALING (DID)

The DCS COMPACT can use local telephone company-provided DID service via an E & M trunk. When programmed, anyone dialing a user’s personal number rings directly to that user’s office. DID calls to a busy station have the option to return busy signal to the C.O. or return ringback to the C.O. When ringback is selected, the called station receives off-hook ring. Multiple DID numbers can ring the same extension or station group and display keysets show a DID directory name when ringing if a name has been programmed. DID calls can be assigned both a day and night ring destination. This allows routing of DID calls that have one destination during the system Day mode to be routed to a different destination during the system Night mode. DID calls that are directed to ring a voice mail machine can be identified by a special digit (see Voice Mail Integration). As it is possible to program E&M trunks to follow the DID translation tables, the system can use both way DID type service.

DNIS (DIALED NUMBER IDENTIFICATION SERVICE)

DNIS is an incoming service provided by the telephone service provider that translates the 10 or 11 digit numbers dialed into 3 or 4 digits, then sends them into the DCS COMPACT. The DCS COMPACT is considered enhanced because it provides separate day and night destinations with name display allowing greater call coverage. The DCS COMPACT supports DNIS on E&M tie line service.

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 from 100–2500 ms.

DOOR PHONES

The door phone interface module (DPIM) provides for connection of a door phone to a DLI port. Pressing the button on the door phone will give a distinctive ring (three short rings repeated) at the assigned station or station group. If not answered within a programmable time, the system will release the door phone and stop ringing. Stations may call the door phone directly and monitor the surrounding areas.

DOOR PHONE NIGHT RING

The night ring destination of door phone calls may be different than during the day. For example, large factories may want these calls directed to a security desk after hours.

E & M TIE LINES

Your office can be connected to another office with a tie line. Use this 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 are other outside calls. Users accessing the tie line from the other system can get a line in your system and make outgoing calls. These calls can be controlled by assigning a dialing class to the tie line. Your local telephone company may use E & M tie lines to provide DID service. See DID.

EXECUTIVE BARGE-IN (OVERRIDE)

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

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 will not receive an override display. This feature will not work from single line sets.

WARNING: Barge-in without tone may violate state or federal laws concerning the right to privacy. Samsung Telecommunications America is in no way responsible for the misuse of this feature.

EXECUTIVE/SECRETARY POOLING

Each keyset may be defined as a BOSS or a SECY in system programming. Each BOSS can have up to four SECYs and each SECY can have up to four BOSSes. These

arrangements are known as executive/secretary pools. There can be multiple pools in a system. When a BOSS is in DND, all calls to the BOSS will ring the first SECY assigned to that BOSS; if that SECY is busy, the call will hunt to the next available SECY assigned to that BOSS. If the SECY must communicate with the BOSS while he/she is in DND, pressing the corresponding BOSS button on the SECY's keyset will result in an Auto Answer intercom call being made to the BOSS (providing the BOSS is free). A station can be the BOSS of only one SECY pool.

EXTERNAL MUSIC INTERFACES

The system provides an interface for connecting a customer-provided external music source and the addition of a MISC card provides a second interface. These interfaces can be used for background music, station music on hold or trunk music on hold.

EXTERNAL PAGE INTERFACE

The system provides one external page audio output. The addition of a MISC card will provide up to four external zone control relays. Multiple relays may be assigned to a page 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 will release the existing call and return dial tone to make a new call.

FLEXIBLE NUMBERING

System programming allows stations to have two, three or four digit extension numbers beginning with the digit 2 or 3. Default extension numbers begin with 201. Station hunt group access codes can be two or three digits beginning with the digit 5. These can be changed but doing so will affect other feature access codes. All user guides are written using the default numbering plan.

FLEXIBLE RINGING

Outside lines can be programmed to ring at any station or station group. Each line can be assigned a day ring destination and a night ring destination.

HOT LINE

Stations can be programmed to call a pre-defined station or station group as soon as the handset is lifted. A programmable hot line delay timer (1–250 seconds) can be programmed.

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 button providing that there is someone still in the group. Stations 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 may put him/herself back into the group by pressing the button again. Users who do not have this button may dial the access code and the group desired. A station user is allowed to be in several groups, providing a key and the extender of that group are assigned for each group on the user's phone.

INCOMING CALL DISTRIBUTION

Incoming calls can be assigned to ring a distributed station hunt group. This will allow 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 dialing out as well as allow or deny answering for each outside line.

LEAST COST ROUTING

Least Cost Routing (LCR) is the ability to automatically select the appropriate trunk group for the number dialed by any station. LCR can become quite complicated to understand and program but does allow highly complex dialing decisions. The DCS COMPACT's LCR package includes the following features:

- Option to use or not use LCR
- Programmable LCR access code
- Digit analysis table—ten digits each with 500 entries
- Routing by time of day
- Routing according to individual station class
- Modify digits table—100 entries
- Flexible trunk group advance timer
- Option to use or not use trunk group advance warning tones

LIVE SYSTEM PROGRAMMING

The system can be programmed from any display keyset without interrupting normal system operation. There are three levels of programming: TECHNICIAN, CUSTOMER and STATION. The technician level has access to all programs and can allow the cus-

tomers access to system programs as needed. Technician and customer access are controlled by different security passcodes.

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 power is lost to the system, all customer data contained in the RAM pack is retained by the use of a Ni-Cd (or NICAD) battery for approximately thirty days. In addition, the PCMMC computer program may be used to produce a backup copy of the customer data.

MESSAGE WAITING INDICATIONS

When calling a station and receiving a busy signal or no answer condition, the caller can leave an indication that a message is waiting. The message button will light red at the messaged keyset. A single line phone will receive a distinctive message waiting dial tone. Five message waiting indications can be left at any station.

MICROPHONE ON/OFF PER STATION

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

MUSIC ON HOLD—FLEXIBLE

When external music sources are connected, each C.O. line may be programmed to receive one of the two external sources, internally-generated tones or no music when it is placed on hold. If there are no sources installed, each line may receive either a 50 ms tone or no music. The system-generated tone is a beep every 3.5 seconds.

NIGHT SERVICE

The DCS COMPACT provides separate ringing locations for all trunks in both the DAY and the NIGHT modes.

NIGHT SERVICE (AUTOMATIC)

Automatic night service allows the system to automatically go in and out of night service according to the system clock. There are separate time options available for each day of the week. This feature can be overridden by a manual night service key.

OFF PREMISES EXTENSIONS (OPX)

A single line (tip and ring) extension from a 2 SLI card may be connected to telephone company-provided OPX circuits to remote locations.

OPERATOR GROUP

Any number of stations can be assigned to the operator group for answering 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.

OVERFLOW

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

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 or receive page announcements to any zone or combination of zones.

POWER FAILURE TRANSFER

Each system is equipped with two power fail relays. If power fails, these relays can be used to re-route the first two C.O. lines on the card to single line telephones. When power is restored to the system, the lines and stations return to normal operation and calls in progress will be disconnected.

PRIMELINE SELECTION

Any station can be programmed to select a specific line, line group, telephone number, station or station group.

PRIVATE LINES

For private line use, stations can be prevented from dialing 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 button. This is similar to 1A2 key telephone operation.

PROGRAMMABLE TIMERS

There are over 35 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 period of time. A recall that goes unan-

swered for 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 buttons with tri-colored LEDs will flash amber.

REMOTE PROGRAMMING

Remote programming allows the technician 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. A PC can also be connected directly to a MISC card for on-site programming.

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 DAY or NIGHT mode.

SINGLE LINE CONNECTIONS

Single line ports allow for connection of a variety of single line telephones 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 out before purchase to ensure correct operation.

SPEED DIAL NUMBERS (1500)

A library of up to 1500 speed dial numbers may be allocated as needed. RAM Pack 1 provides 500 speed dial numbers. RAM Pack 2 and Caller ID/CTI software provide 1500 speed dial numbers. The system list can have up to 500 numbers and each station can have up to 50 numbers. Speed dial numbers are assigned in blocks of ten. Each speed number may contain up to 18 digits.

STATION HUNT GROUPS (30)

System programming allows for up to 30 station hunt groups. One of three ring patterns are available for each group: SEQUENTIAL, DISTRIBUTED and UNCONDITIONAL. Each group may contain a maximum of 30 stations and a station may be in more than one group. The default directory numbers to call these groups are 501–529. Group 500 is reserved for the operator group and is called by dialing “0.” Each station group has its own recall timer for calls transferred to that group.

STATION HUNT GROUPS (UCD)

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

STATION MESSAGE DETAIL RECORDING (SMDR)

The system provides, via an optional MISC card, records of calls made, received and transferred. Connecting a customer-provided printer or call accounting system will allow for collection of these records. Each call record provides details of station number, outside line number, start date, start time, duration of call, digits dialed (maximum 18) and an account code if entered. 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.

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

SYSTEM DIRECTORY

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

TOLL RESTRICTION

There are 500 allow and 500 deny entries of eleven digits each. Each of these entries can apply to dialing classes B, C, D, E, F and G. Expensive 976, 1-900, 411 and operator-assisted calls, as well as specific area and office codes, can be allowed or denied on a per-class basis. Class A stations have no dialing restrictions and Class H stations cannot make outside calls.

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 day dialing class and a night dialing class.

TOLL RESTRICTION OVERRIDE

Program options allow for 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 toll restriction override code.

STONE OR PULSE DIALING

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

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 (11)

Outside lines can be grouped for easy access by dialing a code or pressing a button. There are eleven trunk groups available. Access codes are 9 and 80–89.

UNIVERSAL ANSWER

Stations may dial the Universal Answer (UA) 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.

VOICE MAIL–INBAND INTEGRATION

This feature uses DTMF tones (inband signaling) 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 forwarded station user's mailbox. Keypad users can press one button to retrieve messages from the voice mail system.

Some additional options of this feature concern overflow and message retrieval. Because of the complex nature of this feature, check the DCS COMPACT Technical Manual for more details.

NOTE: Although most voice mail systems will work on the DCS COMPACT, the system data has default values set to work with the Starmail Voice Processing System.

VOICE MAIL–SVMi-4

The DCS Compact can be equipped with Samsung's proprietary integrated voice mail and auto attendant card (the SVMi-4). It provides 2 or 4 ports of voice processing. Because it is built into the system it provides advanced features that are not normally available with other 3rd party equipment like answer machine emulation, interactive displays, and soft keys. Ask your telephone equipment provider for more details.

WALKING CLASS OF SERVICE

This feature allows users to make calls or use features from a station that is restricted. Either use the WCOS feature code or the authorization code feature. Both methods will change the class of service to correspond with the passcode or authorization code that is dialed. After the call is completed, this station returns to its programmed class of service.

STATION FEATURES

ADD-ON MODULE	PROGRAMMABLE KEYS
APPOINTMENT REMINDER	PROGRAMMED STATION MESSAGES
AUTOMATIC HOLD	PROTECTION FROM BARGE-IN
AUTOMATIC PRIVACY	PULLOUT DIRECTORY TRAY
BACKGROUND MUSIC	PULSE TO TONE SWITCH OVER
BUSY STATION CALLBACK	REDIAL
BUSY STATION INDICATIONS (BLF)	AUTO RETRY
CALL FORWARDING	LAST NUMBER
CALL PICKUP	SAVE NUMBER
DIAL BY NAME	REMOTE HOLD
DIRECT STATION SELECTION (DSS)	RING MODES
DO NOT DISTURB (PROGRAMMABLE)	AUTO ANSWER
DOOR LOCK RELEASE	RING—EIGHT TONE CHOICES
EXCLUSIVE HOLD	VOICE ANNOUNCE
GROUP LISTENING	RINGING PREFERENCE
HEADSET OPERATION	SPEAKERPHONE
HEARING AID COMPATIBLE	STATION LOCK
LINE QUEUING WITH CALLBACK	TRI-COLORED LIGHTS
LINE SKIPPING	TERMINAL STATUS INDICATOR
MESSAGE WAITING LIGHT/INDICATION	VOLUME SETTINGS
MUTE MICROPHONE/HANDSET	HANDSET
OFF-HOOK RINGING	BGM
OFF-HOOK VOICE ANNOUNCE (STANDARD)	RINGING
OFF-HOOK VOICE ANNOUNCE (EXECUTIVE)	PAGING
ONE TOUCH DIALING KEYS	SPEAKER
ONE TIME DO NOT DISTURB	OFF-HOOK RING
ON-HOOK DIALING	WALL-MOUNTABLE KEYSSETS

4.2 STATION FEATURE DESCRIPTIONS

ADD-ON MODULE

The DCS COMPACT add-on module (AOM) adds to the capability of any keyset or can be used by itself whenever a handset and dial pad are not desired. The 32 programmable buttons can be used for feature keys, DSS/BLF keys or one touch speed dial buttons.

APPOINTMENT REMINDER

Keysets with an alarm key can be used like an alarm clock. Program in a specific time and the keyset will give a distinctive ring to remind you of meetings or appointments. Alarms can be set for “today only” or everyday at the same time. Up to three alarms may be set at each keyset. Display keysets can also view a programmed message when the alarm rings.

AUTOMATIC HOLD

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

AUTOMATIC PRIVACY

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

BACKGROUND MUSIC

When customer-provided music sources are connected, each keyset user may listen to background music. The HOLD button turns BGM on or off and the volume is controlled by the volume control keys. One source is located in the KSU. A second source is located on the optional MISC card.

BUSY STATION CALLBACK

When reaching a busy station, callers may request a callback by pressing one button or dialing a code. The system rings the caller back when that station becomes idle (a system-wide maximum of 100 callbacks are allowed at one time including busy station and busy trunk).

BUSY STATION INDICATIONS (BLF)

DSS/BLF keys may be assigned to any keyset or add-on module. These buttons 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 immediately (Forward All), when busy (Forward Busy) or if not answered in a programmable number of seconds (Forward No Answer). 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 Calls takes priority over Busy and No Answer conditions. In addition to the three usual methods of forwarding described above, a fourth option called Follow Me is available. This option allows station users to set a Forward All condition from their station to another station while at the remote station.

Keyset users can also be given an External Call Forward button to forward their calls to an external phone number. Each outside line may be programmed to either follow or ignore station call forwarding. A per-station option allows internal calls to either forward or not forward to voice mail. Single line telephone users must have the system administrator program this feature for them.

CALL PICKUP

With directed call pickup, a user can answer new calls ringing at any station by dialing a code plus that extension number. The group pickup feature allows you 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 DCS COMPACT has 20 programmable pickup groups.

DIAL BY NAME

Each system and personal speed dial number can have an associated directory name. A speed dial number can be selected by scrolling alphabetically through the directory name list. This on-line “directory” allows the user to look up and dial numbers in seconds.

DIRECT STATION SELECTION (DSS)

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

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 reorder tone. When in the DND mode, calls may be forwarded to another destination. See Forward DND option. There is also a programmable option to allow a C.O. line to override DND at its ring destination if that destination is a single station.

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 button twice will hold a call exclusively at that station so no other station can pick up that call. Intercom calls are automatically placed on exclusive hold.

GROUP LISTENING

A keyset assigned this feature button may turn on the speaker while using the handset. This allows a group of people to listen to the distant party over the speaker without turning on the microphone.

HEADSET OPERATION

Every keyset can be programmed to allow for the use of a headset. In the headset mode, the hookswitch is disabled and the ANS/RLS key is used to answer and release calls. Keyset users may turn headset operation ON/OFF by keyset programming or more easily by pressing the headset ON/OFF key. The headset key lights steady red when the keyset is in headset mode. The ANS/RLS key lights if headset mode is activated by keyset programming only.

HEARING AID COMPATIBLE

All keysets are hearing aid compatible as required by Part 68 of the FCC requirements.

LINE QUEUING WITH CALLBACK

When the desired outside line is busy, the user can press the CALLBACK key or dial the access code to place his/her station in a queue. The user will be called back when the line is available (a maximum of 100 callbacks are allowed system-wide at one time including busy station and busy trunk).

LINE SKIPPING

When you are talking on an outside line and the automatic hold feature is turned off, you may directly press another idle line key and skip to that line without causing the previous call to go on hold.

MESSAGE WAITING LIGHT/INDICATION

When a message indication is left at a keyset, the MESSAGE button will slowly flash red. Single line telephone users will receive a distinctive dial tone to notify them that a message is waiting. Message waiting indications can be left for any station.

MUTE MICROPHONE/HANDSET

Any keyset can mute the handset transmitter by pressing a MUTE key. In addition, 24 and 12 button keysets can also mute the keyset microphone while 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 repeated ring. The interval is controlled by a system-wide timer. Single line stations 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.

EXECUTIVE

A keyset associated with an add-on module (AOM) may receive an executive off hook voice announcement while on another call. The called keyset may reply handsfree without interrupting the call in progress. Only keysets with an off-hook voice announce button (OHVA) can off-hook voice announce to keysets with AOMs.

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 canceled and the station is returned to normal service. This feature requires a programmed button.

ONE TOUCH DIALING KEYS

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

ON-HOOK DIALING

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

PROGRAMMABLE KEYS

DCS LCD 24B keysets have 24 programmable keys, DCS LCD 12B keysets have 12, and DCS 7B keysets have 7. The iDCS 28D keyset has 28 programmable keys with tri-colored lights, the iDCS 18D keyset has 18 programmable keys with tri-colored lights, and the iDCS 8D keyset has 8 programmable keys with tri-colored lights.

Each key can be programmed for more than 25 different uses to personalize each phone. Examples of keys include individual outside line, individual station, group of lines, group of stations and one touch speed dial buttons. Using these keys eliminates dialing 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, 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

Any station may select one of twenty messages to be displayed at a calling party's keyset. Ten messages are factory-programmed and the remaining ten can be customized by the system administrator (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 non-secure station talking to a secure station cannot be barged-in on.

PULLOUT DIRECTORY TRAY

A pullout directory tray is conveniently located beneath all DCS keysets. Use this to record station directory names and speed dial numbers.

PULSE TO TONE SWITCH OVER

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

REDIAL

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

- **AUTO RETRY**—When you dial an outside number and receive a busy signal, use the auto retry feature to reserve the outside line and automatically redial the number for a programmable number of attempts.
- **LAST NUMBER**—The most recent number dialed on a C.O. line is saved and may be redialed by pressing the redial key or dialing the LNR access code.
- **SAVE NUMBER**—Any number dialed on a C.O. line may be saved for redial at a later time.

REMOTE HOLD

When you wish to place a call on hold at another station, press TRSF and dial the station number (or press the appropriate DSS key). Press the HOLD key. This will place the call on system hold on an available CALL button or Line Key at the remote station.

RING MODES

Each keyset user can select one of three distinct ways to receive intercom 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. Another option is Forced Auto Answer, which is invoked by the calling station and controlled by the calling station's class of service.

RINGING PREFERENCE

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

SPEAKERPHONE

DCS LCD 24B and DCS LCD 12B keysets have a built-in speakerphone. The speakerphone enables calls to be made and received without the use of the handset.

All iDCS keysets are speakerphones. The iDCS 28D and the iDCS 18D can have a Full Duplex Speakerphone Module added.

STATION LOCK

By using a programmable personal station passcode, any keyset can be locked and unlocked. A locked keyset cannot be used to make or receive calls.

TERMINAL STATUS INDICATOR

iDCS keysets are equipped with a terminal status indicator lamp. The terminal status indicator light is positioned on the top right corner of the keyset above the display. The terminal status indicator is a tri-colored (red, green, and amber) light that provides greater visibility of your keysets status than the individual key LEDs. The terminal status indicator provides the following indications:

- | | |
|---------------------|--------------------------------------|
| – Busy/Off Hook | Steady Red |
| – Intercom Ring | Flashing Red |
| – Outside Call Ring | Flashing Green |
| – Recall Ring | Flashing Amber |
| – Message Waiting | Flashing Red |
| – Do Not Disturb | Fast Flash Red at 1 Second Intervals |

TRI-COLORED LIGHTS

DCS LCD 24B keysets have 16 keys equipped for tri-colored LED indications (green, red, and amber). The DCS LCD 12B model has six of these keys and the the DCS 7 button keysets have three. To avoid confusion, your calls always light green, other calls show red and recalls light amber. All programmable keys on iDCS keysets have tri-colored LEDs.

VOLUME SETTINGS

Each keyset may separately adjust the volume of the ringer, speaker, handset receiver, BGM, page announcements and off-hook ring tone. DCS keysets use UP and DOWN keys to adjust volume levels.

WALL-MOUNTABLE KEYSETS

Each keyset and add on module can be wall mounted by reversing the base wedge.

DISPLAY FEATURES

ACCOUNT CODE DISPLAY	ENHANCED STATION PROGRAMMING
CALL DURATION TIMER	IDENTIFICATION OF RECALLS
CALL FOR GROUP IDENTIFICATION	IDENTIFICATION OF TRANSFERS
CALL PROCESSING INFORMATION	MESSAGE WAITING CALLER NUMBER
CALLING PARTY NAME	OUTSIDE LINE IDENTIFICATION
CALLING PARTY NUMBER	OVERRIDE IDENTIFICATION
CONFERENCE INFORMATION	PROGRAMMED MESSAGE DISPLAY
DATE AND TIME DISPLAY	SOFT KEYS
DIALED NUMBER	STOPWATCH TIMER

4.3 DISPLAY FEATURE DESCRIPTIONS

ACCOUNT CODE DISPLAY

Account codes are conveniently 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 hours, minutes and seconds. Station users may manually time calls by pressing the TIMER button.

CALL FOR GROUP IDENTIFICATION

When a call is made to a station group, the display will show [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 information that is helpful and in some cases invaluable. Displays such as [CALL FROM 201], [TRANSFER TO 202], [701 RINGING], [CALL IS WAITING], [TRSF FROM 225], [208 BUSY], [CAMPON TO 236], [RECALL FROM 204], [CALL FOR 501], [MESSAGE FROM 201], [FORWARD FROM 260] and [705 ON HOLD] keep users informed of what is happening and where they are. In some conditions, the user is prompted to take action and in other cases the user receives directory information.

CALLING PARTY NAME

For intercom calls, display keysets show the calling party's name before answering. Names must be stored in the system directory list and can be up to ten characters long.

CALLING PARTY NUMBER

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

CONFERENCE INFORMATION

When setting up a conference, each extension and outside line number is displayed at the controlling station when it is added. When a station is added to a conference, its display will show [CONFERENCE 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 conveniently displayed. Display keysets can have a 12 or 24 hour clock in either ORIENTAL or WESTERN display format with information shown in uppercase or lowercase.

DIALED NUMBER

When a user makes an outside call, the digits dialed are displayed as the user dials them. If the display indicates an incorrect number has been dialed, 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 are identified differently. Hold recalls show [HOLD RECALL 7XX] and transfer recalls show [RECALL FROM XXX].

IDENTIFICATION OF TRANSFERS

The display will identify who transferred a call to the user [TRANSFER FROM XXX].

MESSAGE WAITING CALLER NUMBER

When the message indication is on, pressing the MSG button will display the station number of the person who has messages for the user. Display keysets can scroll up and down to view message indications.

OUTSIDE LINE IDENTIFICATION

Each line can be identified with a ten character name. Incoming calls ringing at your station will display this name before the call is answered. This feature is helpful when individual lines need to be answered with different greetings.

OVERRIDE IDENTIFICATION

If another station barges-in on a user's conversation, the display will alert the user with an [OVERRIDE CALL] display if the system is set for barge-in with tone.

PROGRAMMED MESSAGE DISPLAY

Preprogrammed station messages set by other stations can be viewed at the user's station.

SOFT KEYS

Below the display there are three soft keys and a scroll button. These keys allow the user to access features in his/her class of service without requiring the keyset to have a designated feature key.

STOPWATCH TIMER

Display keyset users will find this feature very convenient to time meetings, calls and other functions. Users simply press to start the timer and press again to stop the timer.

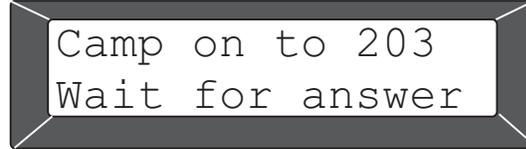
SAMPLE DISPLAYS

All display model keysets have a 32 character liquid crystal display. Helpful call processing information is provided so everyday call handling is quick and easy. Here are just some of the displays you may see.



```
209:Tim Kelly
FRI 23 Sep 02:54
```

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



```
Camp on to 203
Wait for answer
```

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



```
Call for 501
202 Mr. Smith
```

This station in the sales department is receiving a group call from Mr. Smith.



```
Call for 501
706 Local #6
```

This display tells you this is a new incoming call to the sales department.



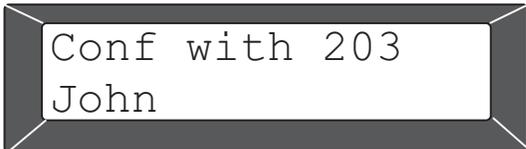
```
203: Busy
CBK MSG CAMP ->
```

This station is calling station 203 which is currently busy.



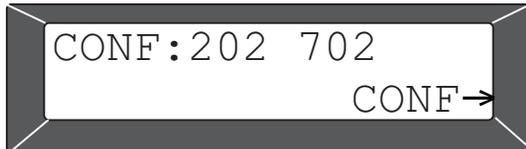
```
OHVA from 203
REJECT
```

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



```
Conf with 203
John
```

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



```
CONF:202 702
CONF->
```

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



```
Transfer to 203
John
```

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



```
Call from 201
Operator
```

This station is receiving a call from extension 201.



```
DO NOT DISTURB
ON OFF
```

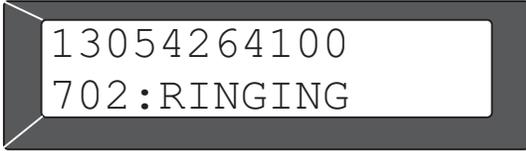
This station is setting the Do Not Disturb feature.



```
703 Local 3
CONF PAGE MUTE ->
```

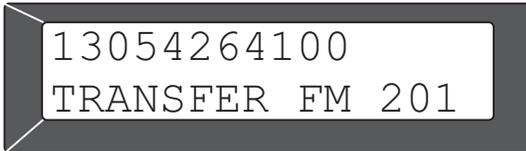
This station is speaking on trunk 703.

SAMPLE CALLER ID DISPLAYS



13054264100
702:RINGING

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



13054264100
TRANSFER FM 201

This display shows a call from 1-305-426-4100 that has been transferred to you from station 201.



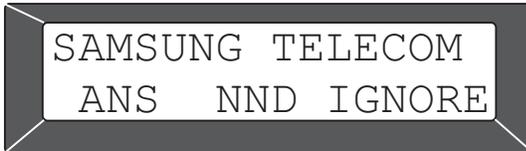
SAMSUNG TELECOM
BARGE NND DROP

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



SAMSUNG TELECOM
CALL FOR:500

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



SAMSUNG TELECOM
ANS NND IGNORE

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.



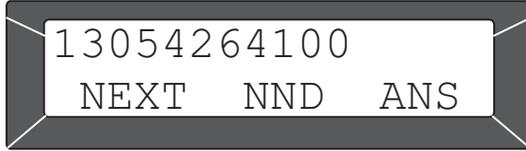
05/25,09:41,702
CLEAR NND DIAL

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.



SAMSUNG TELECOM
CLEAR NND DIAL→

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.



13054264100
NEXT NND ANS

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

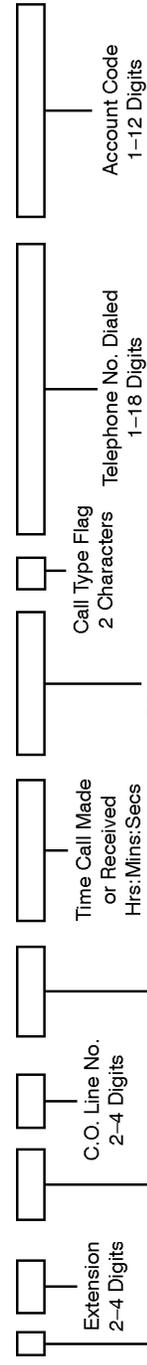


TALKING TO:203
BARGE DROP

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

```
=====
T EXT AUTH TRK MM/DD STT.TIME DURATION FG DIALED DIGIT ACCOUNT CODE
=====
```

```
1 208      705 09/23 16:12:33 00:05:12 OT 12145551234567
1 226      703 09/23 16:13:31 00:00:29 IT
1 202      703 09/23 16:14:00 00:00:25 TT
1 210      704 09/23 16:15:28 00:01:52 O 4205069      1234567890*#
1 201      702 09/23 16:15:51 00:01:45 I
1 211      703 09/23 16:19:53 00:00:25 T
1 204      703 09/23 16:18:16 00:01:57 O 4205068
1 208      702 09/23 16:21:12 00:00:19 IT
1 210      706 09/23 16:21:31 00:04:15 ALARM RINGING
1 211      706 09/23 16:20:59 00:02:43 O 18005551234
1 208      706 09/23 17:04:10 DND ON
1 208      706 09/23 17:12:07 DND OFF
1 207      706 09/23 17:12:05 GROUP OUT
1 207      706 09/23 17:16:55 GROUP IN
1 209      735 09/23 17:17:15 00:00:11 DE 3833
1 735      735 09/23 17:17:38 00:00:30 DI
1 706      709 09/23 17:18:08 00:12:19 DO 13055551234
1 701      701 09/23 17:25:15 00:00:28 FI
1 701      706 09/23 17:25:15 00:10:25 FO 4205071
1 312      2326 705 09/23 18:00:03 00:08:12 O 13054264100 232552779600
```

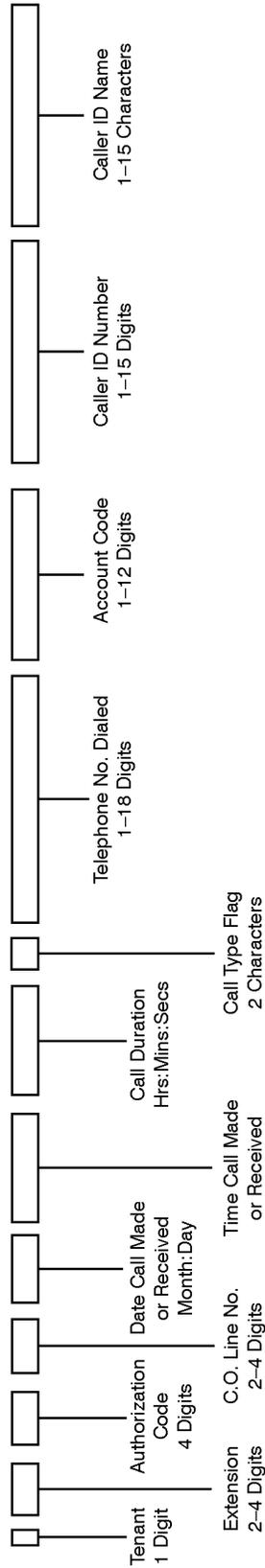


Call Type Flag Definitions

- o Outgoing Call
- i Incoming Call
- DI DISA call in
- DO DISA call out
- FO Outgoing record of forwarded call
- DE DISA call with error
- T Transferred call that was terminated
- IT Incoming transfer
- FI Incoming call forwarded to an external number
- OT Outgoing transfer - Outgoing call made and transferred
- TT Caller received a transferred call and transferred it again

4.4 SAMPLE SMDR PRINTOUT (WITHOUT CALLER ID)

T EXT	AUTH TRK	MM/DD	STT	TIME	DURATION	FG	DIALED DIGIT	ACCOUNT CODE	CID NUMBER	CID NAME
1 201	701	01/02	17:15:13	00:00:28	IT				13054264100	SAMSUNG TELECOM
1 205	701	01/02	17:15:41	00:00:02	T				13054264100	SAMSUNG TELECOM
1 217	702	01/02	17:24:49	00:00:25	IT				13055557890	CURTIS SMITH
1 202	702	01/02	17:25:14	00:00:03	T				13055552354	SUSAN HOLLINS
1 202	702	01/02	17:25:56	00:00:00	O	4264100				
1 217	702	01/02	17:26:35	00:00:11	IT				13054264385	SAMSUNG TELECOM
1 203	702	01/02	17:26:46	00:00:16	T				13054264385	SAMSUNG TELECOM
1 203	702	01/02	17:27:13	00:00:20	O	4264385				
1 203	702	01/02	17:28:04	00:00:00	O	4264385				
1 201	701	01/02	17:28:34	00:00:04	IT				13055559748	JOAN LEVIN
1 203	701	01/02	17:28:38	00:00:14	T				13055558703	LENNY WILKINS
1 203	702	01/02	17:29:54	00:01:27	OT	5556420				
1 205	702	01/02	17:31:06	00:03:00	TT					
1 209	702	01/02	17:33:24	00:02:18	T				13055556420	PIZZA DELIVERY
1	701	01/02	17:41:45	00:00:30	A				13055556420	PIZZA DELIVERY
1	701	01/02	17:42:15	00:00:02	A				13055553426	TERRY FRUITT
1 203	702	01/03	17:51:17	00:00:22	O	5555069			13055554676	BLANCHE MARKER
1	701	01/03	17:56:02	00:00:05	A				13055556733	ALEX DAULTON
1	701	01/03	17:56:07	00:00:54	A				13055559723	CHAZ NEWMAN



Call Type Flag Definitions

- 0 Outgoing Call
- I Incoming Call
- DI DISA call in
- DO DISA call out
- FO Outgoing record of forwarded call
- A Abandoned call
- DE DISA call with error
- T Transferred call that was terminated
- IT Incoming transfer
- FI Incoming call forwarded to an external number
- OT Outgoing transfer - Outgoing call made and transferred
- TT Caller received a transferred call and transferred it again

4.5 SAMPLE SMDR PRINTOUT (WITH CALLER ID)

PART 5. USER INFORMATION

5.1 RADIO FREQUENCY INTERFERENCE

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy. If not installed and operated in accordance with the instruction manual, it may cause interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to connect the interference at his own expense.

The following measures can be tried:

1. Reorient the receiving antenna.
2. Relocate the telephone with respect to the receiver.
3. Move the telephone equipment away from the receiver.
4. Plug the Key Service Unit into a different AC outlet so that the KSU and receiver are on different circuits.

5.2 FCC REQUIREMENTS

The DCS COMPACT electronic telephone system complies with Part 68 of the Federal Communications Commission Rules and Regulations.

UNAUTHORIZED MODIFICATIONS

Any changes or modifications performed on this equipment that are not expressly approved in writing by SAMSUNG TELECOMMUNICATIONS AMERICA could cause non-compliance with the FCC rules and void the user's authority to operate the equipment.

NOTIFICATION TO TELEPHONE COMPANY

The customer must notify the telephone company of the particular line to which the connection will be made and provide it with the FCC registration number and the Ringer Equivalence Number (REN) of the protective circuit.

FCC Registration Numbers: A3LKOR-21433-KF-E or A3LKOR-21434-MF-E

Ringer Equivalence Number: 0.5 B

TELEPHONE CONNECTION REQUIREMENTS

The Federal Communications Commission (FCC) has established rules which permit the DCS COMPACT to be connected directly to the telephone network using telephone company network access jacks.

5.3 TELEPHONE COMPANY INTERFACES		
CIRCUIT TYPE	FIC	NETWORK JACK
C.O. LINE—LOOP START	O2LS2	RJ21X RJ11C RJ14C
E & M TIE LINE	TL11M	RJ2GX
OFF PREMISES EXTENSION	OL13C	RJ21X RJ11C RJ14C

NOTE: Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of part 68 of the FCC's rules.

RINGER EQUIVALENCE (REN)

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of the RENs should not exceed 5.0. To be certain of the number of devices that may be connected to the line, as determined by the number of RENs, contact the telephone company to determine the maximum REN for the calling area.

INCIDENCE OF HARM

If the terminal equipment, the DCS COMPACT, causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

CHANGES TO TELEPHONE COMPANY EQUIPMENT OR FACILITIES

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications so that you may maintain uninterrupted service.

SERVICE CENTER

If trouble is experienced with the DCS COMPACT, please contact SAMSUNG TELECOMMUNICATIONS AMERICA at (305) 592-2900 for repair or warranty information. If the trouble

is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

FIELD REPAIRS

Only technicians certified on the DCS COMPACT are authorized by SAMSUNG TELECOMMUNICATIONS AMERICA to perform system repairs. Certified technicians may replace modular parts of a system to repair or diagnose trouble. Defective modular parts can be returned to SAMSUNG TELECOMMUNICATIONS AMERICA for repair.

GENERAL

The equipment must not be used on coin telephone lines. Connection to party line service is subject to state tariffs.

HEARING AID COMPATIBILITY

All models of the DCS COMPACT are hearing aid compatible as specified in Part 68 of the FCC Rules.

5.4 SAFETY TESTS

The DCS COMPACT system has been tested to comply with safety standards in the United States as listed below. This system is listed with Underwriters Laboratories.

LISTED



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5.5 MUSIC ON HOLD WARNING

IMPORTANT NOTICE: In accordance with US copyright laws, a license may be required from the American Society of Composers, Authors and Publishers (ASCAP) or other similar organizations if copyrighted music is transmitted through the Music on Hold feature. SAMSUNG TELECOMMUNICATIONS AMERICA hereby disclaims any liability arising out of failure to obtain such a license.

KEY SYSTEMS DEALER AGREEMENT SAMSUNG TELECOMMUNICATIONS AMERICA KEY SYSTEMS LIMITED WARRANTY

SAMSUNG TELECOMMUNICATIONS AMERICA ("STA"), warrants to its authorized Dealers and to the original retail purchaser ("Users") of a STA product for a period of 24 months from the date of shipment of the Product from STA's facility, that the Product (except for lamps, fuses, and other consumable items) will be free from defects in material and workmanship. Repaired or replaced materials shall be warranted for the balance of the warranty remaining on the original equipment, or 90 days from date of shipment from STA's facility, whichever is longer.

This warranty is for the benefit of and shall apply only to authorized Dealers and to Users. This warranty will not apply if the defect arises out of accident, neglect, alteration or misuse, failure of electric power, air conditioning, humidity control, causes other than ordinary use, or causes beyond STA's control. All warranty claims shall be waived unless reported, in writing, to STA or its authorized Dealer, prior to the expiration of the applicable warranty period.

The obligation of STA under this warranty is, at the sole option of STA: 1) the repair or replacement (with new or refurbished parts), of the defective or missing parts that are causing the malfunction and which are determined to be the defective by STA, and the return shipment of such parts to the Dealer (Dealer or User shall be responsible to pay for shipment of the defective parts to STA and for all the expenses connected with their removal and reinstallation); or 2) in lieu of repair or replacement, STA may refund the price charged by STA to its Dealer for such parts as are determined by STA to be defective and which are returned to STA through an authorized Dealer within the warranty period and no later than 30 days after such malfunction, whichever occurs first.

To obtain service under this warranty:

- (1) USERS must provide written notice of the malfunction to an authorized STA Dealer within the warranty period and not later than 30 days after the date of the malfunction, whichever occurs first. If the USER is unable to identify an authorized STA Dealer, USER must provide written notice of the malfunction, including proof of the date of purchase of the equipment and the serial number of the malfunctioning Product, to STA at its corporate offices at 2700 N.W. 87th Avenue, Miami, Florida, 33172. Upon receipt of such notice and determination by STA that User is eligible for Warranty service, STA will provide the USER with the name of an authorized STA Dealer to contact for warranty service. DEALERS must provide written notice of malfunction to STA no later than the expiration of the warranty period 30 days after the date the Dealer becomes aware of the malfunction, whichever comes first. For purposes of this Warranty, the issuance by STA of a Material Return Authorization (MRA) number by telephone to an authorized Dealer shall be deemed to be written notice from the Dealer with respect to the material returned under that MRA.

STA MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES ARE DEALER'S AND USER'S SOLE REMEDIES AND IN LIEU OF ALL OBLIGATIONS OR LIABILITIES ON THE PART OF STA FOR DAMAGES, INCLUDING, BUT NOT LIMITED TO, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF THE PRODUCTS, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF THE PRODUCTS, WHETHER IN A CONTRACT OR TORT ACTION. INCLUDING NEGLIGENCE, EVEN IF STA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, THE TOTAL MAXIMUM LIABILITY OF STA FOR BREACH OF WARRANTY SHALL BE LIMITED TO A REFUND OF THE COST OF THE DEFECTIVE PRODUCT.

No Dealer and no person other than an officer of SAMSUNG TELECOMMUNICATIONS AMERICA may extend or modify this warranty, and no modification or extension of this warranty shall be effective unless in writing signed by the authorized officer of SAMSUNG TELECOMMUNICATIONS AMERICA, INC.

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