iDCS

100

Digital Communications System

General Description

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telecommunications

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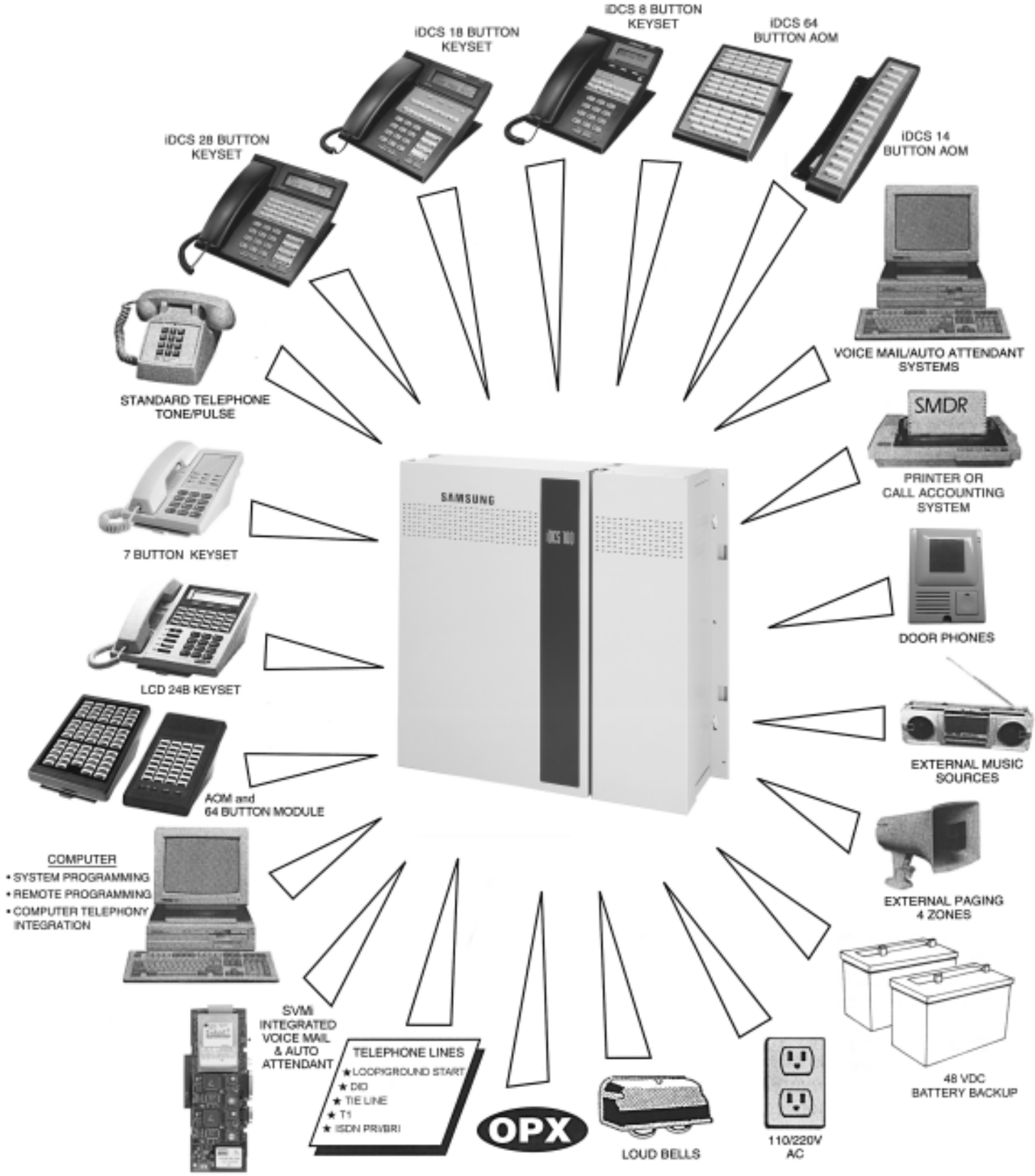
PRINTED IN USA 06/02

TABLE OF CONTENTS

5 GENERAL USER INFORMATION

iDCS 100 GENERAL SYSTEM DIAGRAM



PART 1. SYSTEM OVERVIEW

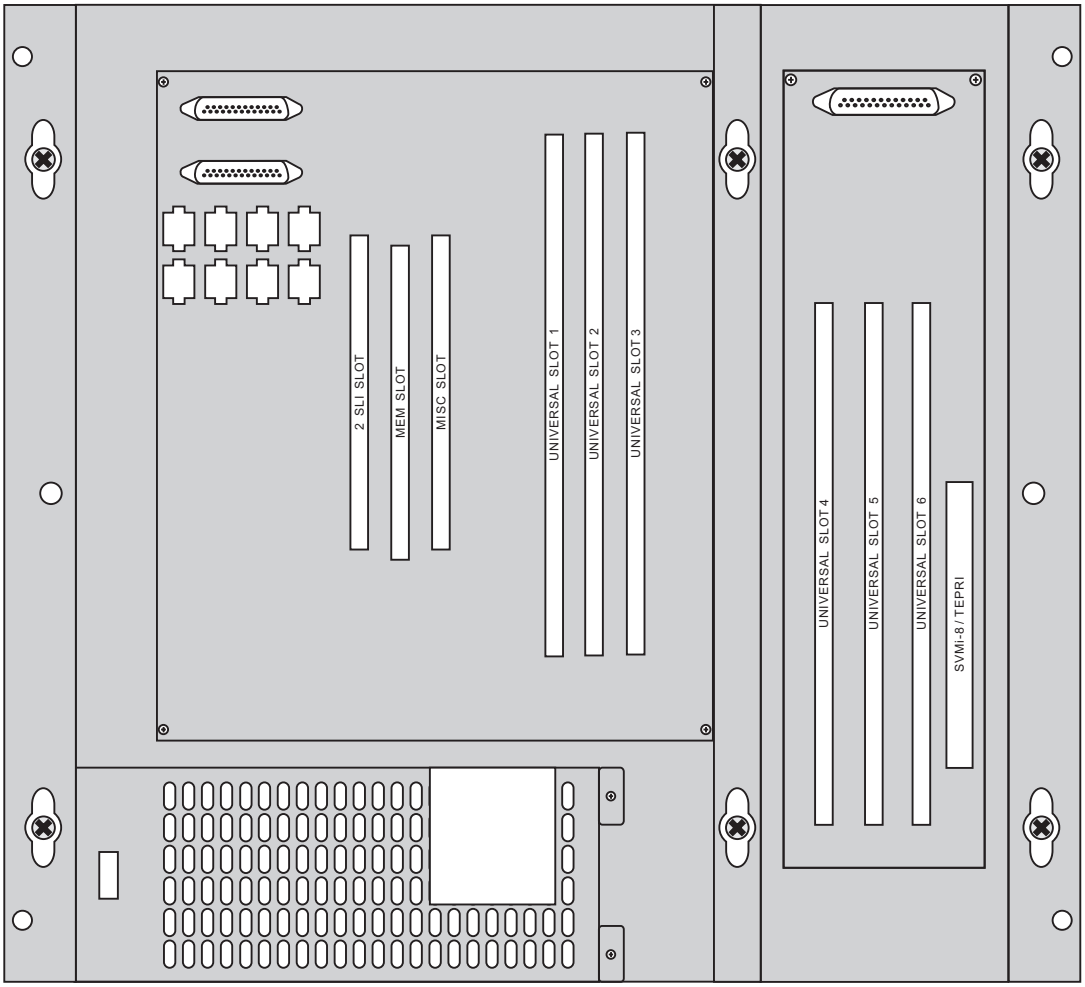
1.1 SIZE AND CONFIGURATION

The iDCS 100 is a digital ISDN compatible telephone system designed for small businesses. It can operate with the functionality of a square key system, PABX or a combination of both (hybrid). The iDCS 100 employes the very latest DSP (Digital Signal Processor) digital technology.

The iDCS 100 offers a variety of interface cards that allow connection to the public telephone network or to private networks. These are generally referred to as trunk cards. Two types of telephones can be connected to the system. Proprietary digital phones called “keysets” connect to digital line interface cards (DLI). Standard telephones generally called “single line sets” connect to single line interface cards (SLI). In addition, DLI station ports are used to connect peripheral devices such as door phones and add-on modules. Miscellaneous circuits are provided to allow such optional features as external paging, music on hold, background music, common audible devices, alarms and emergency power failure telephones.

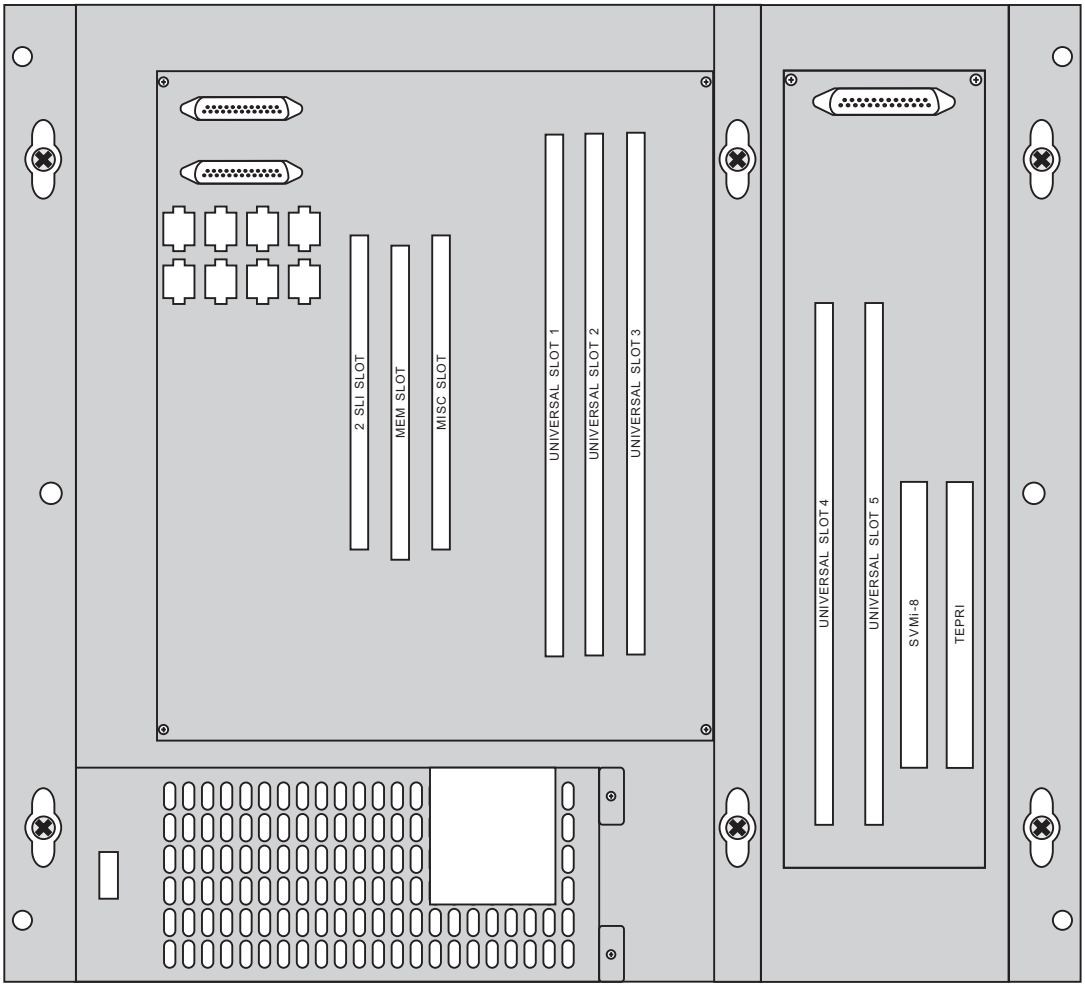
All keysets utilize a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung’s customary large, easy-to-read displays and LEDs in the button design make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or push-on/push-off feature keys.

Expanding the iDCS 100 system is both economical and easy. Begin with the basic Key Service Unit and then add an expansion cabinet as your business grows (See Figure 1–1, Figure 1–2). The KSU has 8 keyset ports and 3 universal card slots that can be used for stations, trunks or 2x4 combination cards. In addition, the KSU has dedicated slots for a 2SLI card and a miscellaneous function card. There is one of two expansion cabinets to choose from (type-A or type-B). A type-A expansion cabinet adds a further 3 universal slots and a dedicated slot for a Samsung Plug-In Voice Mail card or a T1/PRI card. A type-B expansion cabinet adds a further 2 universal slots and two dedicated slots for a Samsung Plug-In Voice Mail card and a T1/PRI card. The systems low density card design allows greater flexibility when configuring a system for the right combination of lines and stations. A removable memory card makes it convenient to upgrade to future feature packages as well as providing quick and easy servicing. The maximum quantities of the various station and trunk types can be seen in the table 1–1.



KEY SERVICE UNIT AND
EXPANSION CABINET TYPE-A

FIGURE 1–1



KEY SERVICE UNIT AND
EXPANSION CABINET TYPE-B

FIGURE 1–2

MAXIMUM DEVICE QUANTITIES		
DEVICE TYPE	PSU WITHOUT SVM	PSU WITH SVM
STATIONS (SLT'S & DLI DEVICES)	56	48
DLI DEVICES (KEYSETS/AOMS/DPIMS)	56	48
SINGLE LINE TELEPHONES	42	34
LOOP START LINES	36	36
BRI CIRCUITS	24	24
BRI CHANNELS	48	48
E&M TRUNKS	12	12
SVMi-8 PORTS	0	8
SVMi-4 PORTS	0	4
T1/PRI Digital Trunks	1 (24)	1 (24)

TABLE 1–1

CONFIGURATION NOTES

1. Only one 2 SLI card can be installed in the system.
2. Only one SMISC card can be installed in the system.
3. Up to six expansion cards can be installed in the system with a type B Expansion Cabinet and five slots for a type A Expansion Cabinet.
4. Only one SVM card can be installed in the system.
5. Installing SVMi-8 reduces the maximum number of stations by 8. Installing the SVMi-4 card reduces the maximum number of stations by 4.
6. Only eight KDbs can be installed in the system and they must be installed on keysets connected to the (8) eight 2B+D ports on the KSU motherboard.
7. Only one TE/PRI card can be installed in the system.
8, Only one ITMC card can be installed in the system.

1.2 TECHNOLOGY

System switching is accomplished by means of a custom IC “engine” that provides 128 switchable digital channels. Each of the 128 digital channels is automatically assigned to carry voice or data as required by system operation in a PCM format. In addition to the 128 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 receiver or a C.O. tone detector on a per-call basis. The engine chip contains four DSPs and four more are added when an SMISC 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 EPROMs for MEM3 or Flash Media for a MEM4 card. All specific customer data is stored in non-volatile random access memory (NV-RAM) located on the removable MEM3 and MEM4 card. It is protected by a super capacitor providing seven days of memory protection in the event of loss of AC power to the system.

MICROPROCESSORS

The iDCS 100 uses distributed processing. The system's primary processor is a 16 bit Motorola® MC68000 operating at a clock speed of 16MHz. The secondary level of processing is done in the keysets.

1.3 PROGRAMMING

The IDCS 100 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: TECHNICAL, 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 iDCS 100 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 an iDCS 100 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

FIGURE 2–1

FIGURE 2–2

2.1 KEY SERVICE UNIT

The iDCS 100 (see Figure 2–1) is a metal cabinet containing the following:

- A power supply (120 VAC) with battery backup (48VDC) connection
- Processing, switching and the system operating program
- Eight 2B + D digital keyset interfaces
- One MOH/BGM input source (switch selectable between internal chimes and external input)
- One page output

2.2 EXPANSION CABINETS

One of two optional cabinets may be used (see Figure 2–2) and they consist of a metal case containing a backplane PCB. The first type of expansion cabinet (type-A) comes with connectors for three expansion cards and a fourth connector for either a Samsung Plug-In Voice Mail Card or a Digital Trunk Card (TE/PRI). The second type of expansion cabinet (type-B) comes with connectors for two expansion cards and a third for a Samsung Plug-In Voice Mail card and a fourth for a Digital Trunk Card (TE/PRI). The expansion cabinet (type-A or type-B) is installed to the right of the basic KSU and connects to the KSU motherboard via a ribbon cable and two pairs of wires.

2.3 MEM3 AND MEM4 CARD

To operate, the KSU must be equipped with an iDCS 100 MEM3 or an iDCS MEM4 card to hold the system software and customer database. The software is stored in EPROM chips for the iDCS 100 MEM3 card in Flash Memory on an iDCS 100 MEM4 card. All specific customer data is stored in non-volatile random access memory (NV-RAM). The MEM3 and MEM4 cards are both protected by a super capacitor providing up to seven days of memory protection in the event of loss of AC power to the system.

2.4 INTERFACE CARDS

2 SLI

This 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. This is the same card used on the DCS Compact and 50si.

2 x 4 DLI

This card provides two Caller ID-compatible loop start C.O. interfaces and four 1B+D DLI ports. KDb's cannot be used with this card. This is the same card used on the DCS Compact and 50si.

S8DLI

This card provides eight 1B+D DLI ports. KDb's cannot be used with this card.

2 x 4 SLI

This 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. This is the same card used on the DCS Compact and 50si.

S8SLI

This card provides eight 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.

S3TRK

This card provides three Caller ID-compatible loop start C.O. interfaces with power failure transfer on the first two ports.

S6TRK

This card provides six Caller ID-compatible loop start C.O. interfaces.

2 E & M x 4 DLI

This card provides two two wire (TL11M) tie line interfaces and four 1B+D DLI ports. KDb's cannot be used with this card. This is the same card used on the DCS Compact.

S4BRI

This card provides 4 ISDN Basic Rate Interface (BRI) S/T circuits with the ability to support two channels per circuit for a total of 8 channels. A system can have up to six of these cards. These S/T circuits can be configured for station or trunk use. An NT1 is required for connection to a telephone company BRI circuit. The BRI card requires that an SPLL daughter board be installed in the KSU.

TE/PRI

When programmed as a T1 this card provides up to 24 trunk circuits in any combination of the following:

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

When the card is programmed as a PRI it will provide 23 bearer channels and 1 data channel (23B+D). This card can only be installed when a Type A or Type B expansion cabinet are installed.

SPLL Daughter Board

This daughter board is required to provide clocking for the S4BRI card and/or a TEPRI card. If an S4BRI or TEPRI card is to be installed an SPLL daughter board must also be installed.

NOTE: Only one SPLL daughter board is required per system however many S4BRI cards are installed.

SMISC1

This card provides a second MOH/BGM input, three general purpose relays, an alarm sensor, two serial I/O ports, caller ID decoding circuits, and four DSP circuits. That may be required for DID/ANI/DNIS. It is recommended that this card be used in situations requiring heavy single line telephone use.

SMISC2

This card is similar to the SMISC1 but with the addition of four ports of auto attendant.

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 module that provides a Digital Line Interface (DLI) port for connection of a digital station device such as a keyset or 64 button module.

KDb-DLI

This board, if installed in a digital keyset connected to one of the eight DLI ports on the motherboard, will provide a second DLI port for the connection of a digital station device.

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 circuit on a FKDBS does not provide a disconnect signal or have the overvoltage protection necessary for OPX operation.

KDb-SLI

This board, if installed in a digital keyset connected to one of the eight DLI ports on the motherboard, 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.

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.

SMODEM Daughter Board

The SMODEM Daughter Board plugs on the SMISC card and provides a 14.4 Kbps modem for remote programming.

SVMi-8

The SVMi-8 is a self contained plug in Voice Mail and Auto Attendant card for the DCS, DCS 50si, iDCS 500, and iDCS 100. It is designed to meet the demands of the sophisticated voice mail user without sacrificing simplicity.

The SVMi-8 may act as an Auto Attendant system only, a Voice Mail System only or both. Out of the box the SVMi-8 can handle 4 calls simultaneously. It can be easily upgraded to handle up tp 8 calls simultaneously.

No external line or power connections are necessary, these are accomplished directly through the phone system.

At the time of this writing the memory capacity is about 100 hours, although as time goes on, improvements in technology will allow for changes in storage time.

The SVMi-8's modular design allows it to be expanded to add voice ports as needed. Only one SVMi-8 card can be installed in a system, do not use other voice mail system in combination with SVMi-8.

SVMi-4

The SVMi-4 is a self contained plug in Voice Mail and Auto Attendant card for the DCS Compact, DCS 50si, and iDCS 100. It is designed to meet the demands of the sophisticated voice mail user without sacrificing simplicity.

The SVMi-4 may act as an Auto Attendant system only, a Voice Mail System only or both. Out of the box the SVMi-4 can handle 2 calls simultaneously. It can be easily upgraded to handle up tp 4 calls simultaneously.

No external line or power connections are necessary, these are accomplished directly through the phone system.

At the time of this writing the memory capacity is about 5 hours, although as time goes on, improvements in technology will allow for changes in storage time.

Note: An upgrade key is required for the SVMi-4 card to work.

2.5 STATION EQUIPMENT

iDCS 28D KEYSET
(See Figure 2–7)

- 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

FIGURE 2–7

iDCS 18D KEYSET
(See Figure 2–8)

- 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

FIGURE 2–8

iDCS 8D KEYSET
(see Figure 2–9)

- 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

FIGURE 2–9

iDCS 64B AOM
(See Figure 2–10)

- 64 programmable keys with red lights
- A maximum of 2 can be assigned to any keyset to provide additional programmable keys
- A maximum of 4 per iDCS 100 System
- Available in dark gray or light gray

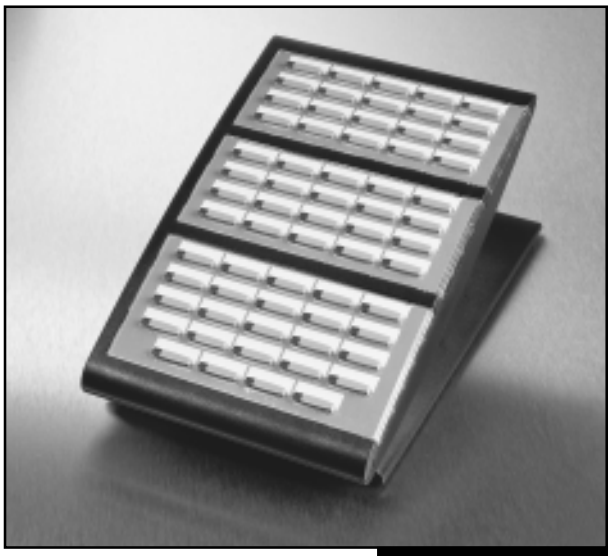


FIGURE 2–10

DCS LCD 24B Keyset (See Figure 2–11)

- 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 2–11

DCS LCD 12B Keyset (see Figure 2–12)

- 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 2–12

DCS 7 Button Model Keyset
(see Figure 2–13)

- 7 programmable keys
- 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 2–13

Single Line Telephone (See Figure 2–14)

- 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 2–14

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 2–15)

- 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 keyset to provide executive off-hook voice announce and additional programmable keys (see Figure 2–16)
- Can operate as a stand-alone handsfree telephone unit

FIGURE 2–15

FIGURE 2–16

64 Button Module (See Figure 2–17)

- 64 programmable keys
- Available in almond and charcoal
- A maximum of 2 can be assigned to any keyset to provide additional programmable keys
- A maximum of 4 per iDCS 100 System

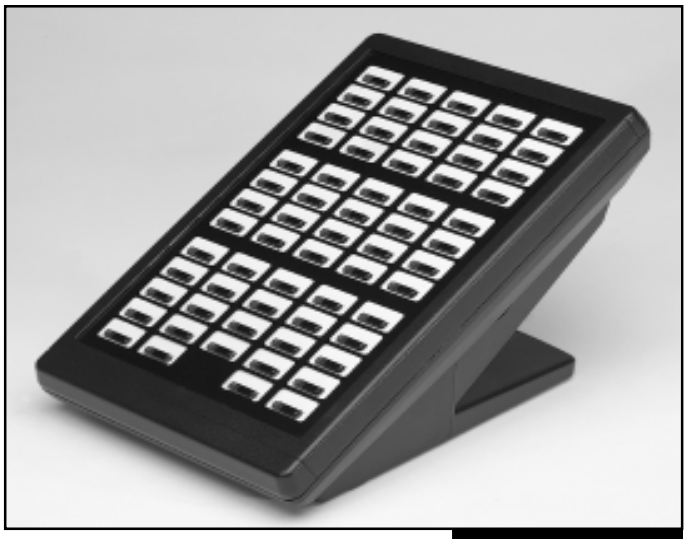


FIGURE 2–17

Door Phone Interface Module (DPIM) and **Door Phone** (see Figures 2–18 and 2–19)

- 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 2–18

FIGURE 2–19

iDCS 14B STRIP

(See Figure 2–20)

- 14 programmable keys with red lights
- A maximum of one can be assigned to any iDCS keyset to provide additional programmable keys
- Available in dark gray or light gray

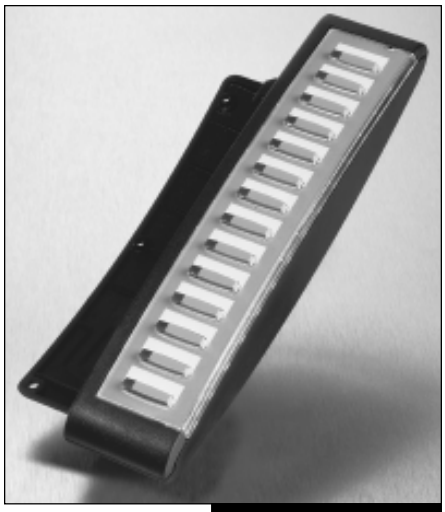


FIGURE 2–20

PART 3. SPECIFICATIONS

The following tables provide technical data for the iDCS 100 hybrid/key telephone systm.

3.1 ELECTRICAL SPECIFICATIONS

AC INPUT	112 (88–132) VAC (48–63 Hz)
POWER CONSUMPTION (MAX)	97 WATTS MAXIMUM FUSE RATING 5 AMP
BTU RATING (MAX)	5.5 BTU/MINUTE
DC OUTPUT	+5 VOLTS 3.0 AMPS MAX -5 VOLTS 0.5 AMPS MAX -56 VOLTS 1.7 AMPS MAXIMUM
BATTERIES	10–40 AMPS 48 VOLTS MAXIMUM CHARGE CURRENT 0.4 A MAXIMUM DISCHARGE RATE 2.5 A

3.2 DIMENSIONS AND WEIGHTS

	HEIGHT	WIDTH	DEPTH	WEIGHT
iDCS 100 BASIC SYSTEM: SINGLE CABINET	18.5"	14.5"	5.75"	20 lb.
EXPANDED SYSTEM	18.5"	20.5"	5.75"	27.5 lb.
12/24 BUTTON DIGITAL KEYSET	4.25"	8.50"	9"	2.563 lb.
7 BUTTON DIGITAL KEYSET	4.25”	6”	9”	2.563 lb.
32 BUTTON ADD-ON MODULE	4.25"	4.25"	9"	1.188 lb.
64 BUTTON MODULE	4.25"	6”	9"	1.25 lb.
DOOR PHONE	5"	3.88"	1.25"	6.8 oz.
iDCS 28D KEYSET	5"	8"	9"	2.2 lb.
iDCS 8D KEYSET	5”	6.50”	9”	1.10 lb.
iDCS 18D KEYSET	5"	6.50”	9"	1.10 lb.
iDCS 64B AOM	4"	5.25"	9"	1.1 lb.
iDCS 14B STRIP	5”	1.625	8”	5.5 oz.

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

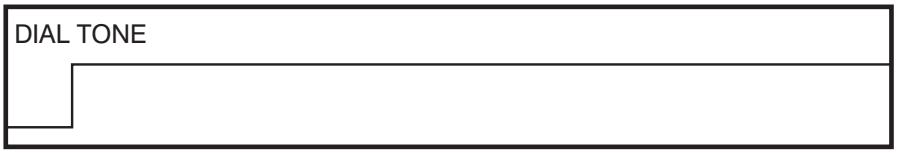
*This is the maximum length of the cable between the door phone and the DPIM. The DPIM can be installed up to 900 cable feet from the KSU.

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	0.05 sec of tone 1/0.05 sec of tone 2

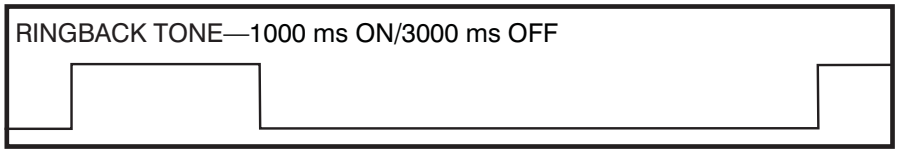
SYSTEM TONES

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



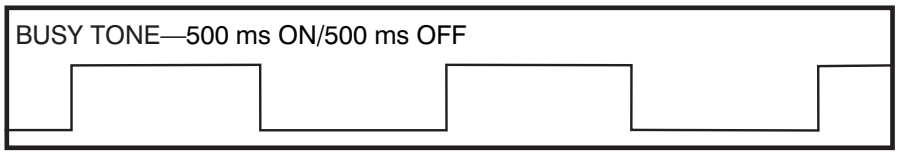
CONTINUOUS

Ringback Tone—Indicates the station you dialed is ringing.



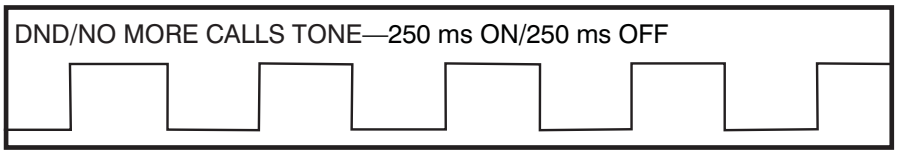
CONTINUOUS

Busy Signal—Indicates the station you dialed is busy.



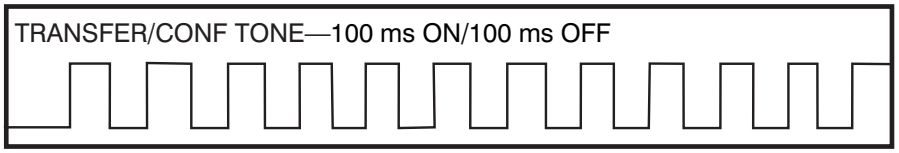
CONTINUOUS

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.



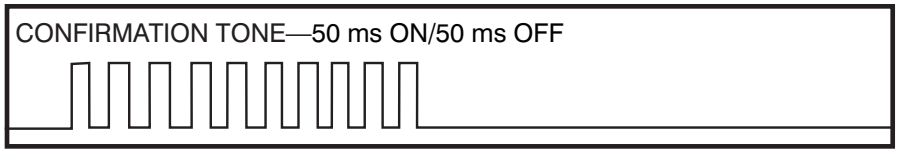
FOR TEN SECONDS

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



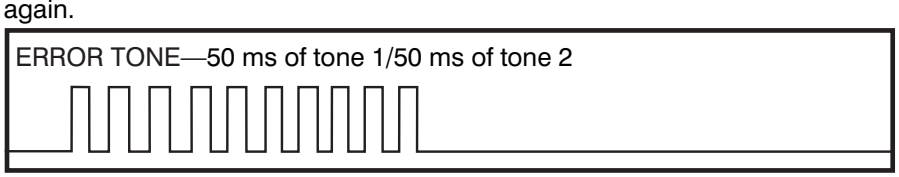
CONTINUOUS

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



FOR ONE SECOND
(programmable)

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



FOR THREE 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	GREEN	100 ms	100 ms
RINGING INTERNAL CALL	GREEN	100 ms	100 ms
DND INDICATION	RED	112 IPM for 500 ms	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

3.7A RESERVE POWER DURATION ESTIMATES (in minutes)*

NO. OF STATIONS	UPS CAPACITY IN VOLT AMPS						
	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
40	15	35	50	60	80	125	275
48	10	20	45	50	55	75	100
56	–	10	30	45	50	60	80

*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.

3.7B RESERVE POWER DURATION ESTIMATES

NO. OF STATIONS	WITHOUT SVMi	WITH SVMi
8	83 Hours	57 Hours
16	49 Hours	39 Hours
24	35 Hours	29 Hours
32	27 Hours	23 Hours
40	22 Hours	18 Hours
48	17 Hours	11 Hours

The table above gives estimated system hold up times for a iDCS 100 system. These times are based on an idle system equipped with a fully charged 40 Amp Hour / 48 Volt battery pack. The hold up times stated above are approximate and will be reduced the busier the system becomes. In addition different battery types and configurations will also affect the hold up times.

PART 4. BUSINESS FEATURE PACKAGE

SYSTEM FEATURES

- Account Code Entry
  - Forced - Verified
  - Forced - Not Verified
  - Voluntary
- Account Code Key
- All Call Voice Page
- Attention Tone
- Authorization Codes
  - Forced
  - Voluntary
- Auto Attendant†
- Automatic Hold
- Background Music
- Call Activity Display
- Caller Identification†
  - Automatic Number Identification (ANI)
  - Caller ID
  - Calling Line Identification (CLI)
- Calling ID Features
  - Name/Number Display
  - Next Call
  - Save Caller ID Number
  - Store Caller ID Number
  - Inquire Park/Hold
  - Caller ID Review List
  - Investigate
  - Abandon Call List
  - Caller ID on SMDR
  - Number to Name Translation
  - Caller ID Send
- Call Forwarding
  - All Calls
  - Busy
  - No Answer
  - Busy/No Answer
  - Forward DND
  - Follow Me
  - External
  - To Voice Mail
  - Preset Destination
  - Call Forward Busy (CFB - Enhanced S/W)
  - Call Forward No Response (CFNR - Enhanced S/W)
  - Call Forward Unconditional (CFU - Enhanced S/W)
- Call Hold
  - Exclusive
  - System
  - Remote
- Call Park and Page
- Call Pickup
  - Directed
  - Groups
- Call Waiting/Camp-On
- Caller Emergency Service ID (CESID)
- Centrex/PBX Use
- Chain Dialing
- Class of Service
- Common Bell Control
- Conference
  - Add On *(5 Party)*
  - Unsupervised
- Computer Telephony Integration (CTI)
  - Smart Centre
  - Smart Operator
  - TAPI 2.1
- Customer Set Relocation
- Data Security
- Database Printout
- Daylight Saving Time-Automatic
- Dialed Number Identification Service (DNIS)
- Direct In Lines
- Direct Inward Dialing *(DID)*
  - T1/Copper
  - Day/Night Routing
  - Busy or Camp-On Option
  - MOH Source
- Direct Inward System Access (DISA)
- Direct Trunk Selection
- Directory Names
- DISA Security
- Distinctive Ringing
- Door Lock Release *(Programmable)*
- Door Phones
- E & M Tie Lines *T1/Copper*
- Executive Barge-In *(Override)*
  - With Warning Tone
  - Without Warning Tone
  - Trunk Monitor or Service Observing
- External Music Interfaces
- External Page Interfaces
- Flash Key Operation
- Flexible Numbering
- Ground Start Trunks *(T1/Copper)*
- Hot Line
- In Group/Out of Group
- Incoming Call Distribution
- Incoming/Outgoing Service
- Individual Line Control
- ISDN Service
  - Primary Rate Interface (PRI)
  - Basic Rate Interface (BRI)
- LAN Interface
- Least Cost Routing
- Live System Programming
  - From any Display Keyset
  - With a Personal Computer
- Meet Me Page and Answer
- Memory Protection
- Message Waiting Indications
- Message Waiting Key
- Microphone On/Off per Station
- Music on Hold—Flexible
- Music on Hold—Sources
- Networking
- Off Premises Extensions (OPX)
- Operator Group
- Overflow
  - Operator
  - Station Group
- Override Code
- Paging
  - Internal Zones *(4)*
  - External Zones *(4)*
  - All Internal
  - All External
  - Page All
- Park Orbits
- Primeline Selection
- Private Lines
- Programmable Timers
- Recalls
- Remote Programming—PC
- Ring Modes
  - Time Based Routing–Plans
  - Automatic / Manual
  - Holiday Schedule
  - Temporary Override
- Ring Over Page
- Secretary Pooling
- Single Line Connections
- Speed Dial Numbers
  - Station List *(50 Max)*
  - System List *(500 Max)*
- Speed Dial by Directory
- Station Hunt Groups *(30)*
  - Distributed
  - Sequential
  - Unconditional
- Station Message Detail Recording (SMDR)
- Station Pair
- SVMi–Integrated Voice Mail
- System Alarms
- System Maintenance Alarms
- System Directory
- Toll Restriction
  - By Day or Night
  - By Line or Station
  - Eight Dialing Classes
  - Special Code Table
- Toll Restriction Override
- Tone or Pulse Dialing
- Traffic Reporting
- Transfer
  - Screened/Unscreened
  - Voice Mail Transfer Key
  - With Camp-On
- Trunk Groups *(11)*
- Uniform Call Distribution (UCD)†
  - UCD Groups
  - Call Statistics
  - Agent Pin Numbers
  - Agent Statistics
  - Group Supervisors
  - Printed Reports
- Universal Answer
- Virtual Single Line Telephone
- Voice Mail – Inband Integration
- VoIP
- Walking Class of Service

†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. Keyset users may enter this code using an account code key without interrupting a conversation. Single line telephone users must temporarily interrupt the call by hook-flashing and dialing the feature access code. Manually entered account codes can be up to 12 digits long. In some cases users can be forced to enter an account code and this account code may or may not be verified as described below.

FORCED – VERIFIED

When set for this option the user must enter an account code for all outgoing calls. The account code entered will be verified from a system list of 500 entries. Forced Verified codes can contain the digits 0~9.

FORCED - NOT VERIFIED

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

VOLUNTARY

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

ACCOUNT CODE KEY

The account code (ACCT) key can be programmed on any keyset and will appear as a soft key on display keysets. This key allows the user to enter account codes without interrupting a call.

ALL CALL VOICE PAGE

Users can page all internal and all external paging zones at the same time by dialing the All Page code. Keysets may be restricted from making or receiving pages in system programming. A maximum of 40 keysets can be programmed in each internal page zone to receive page announcements.

ATTENTION TONE

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

AUTHORIZATION CODES

Authorization codes are used to give permission to make a call. A maximum of 250 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 be programmed to print or not 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 the system list of 250 authorization codes.

VOLUNTARY

Any station user can always enter an authorization code before they begin dialing. The dialed authorization code is verified from a system list of 250 authorization codes.

AUTO ATTENDANT

The SMISC2 card for the IDCS 100 includes four ports of auto attendant for simultaneous answering and call processing. Sixteen professionally recorded prompts inform callers of the progress of their calls. Several examples are the following: "I'm sorry. There is no answer", "That station is busy" and "Invalid number. Please try again", Two minutes of battery-backed random access memory (RAM) provide up to 48 customer recordings for announcements or greetings. Twelve individual greeting boxes, each with its own dialing options, allow you to build call routing branches as needed. Callers are routed through the branches by dialing extension numbers or single digits.

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

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 Automatic Hold is enabled. Pressing TRSF, CONFERENCE, PAGE or a DSS key always automatically places a C.O. call on hold. Intercom calls can be automatically held only by pressing TRSF or CONFERENCE. Each keyset user can enable or disable Automatic Hold.

BACKGROUND MUSIC

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

CALL ACTIVITY DISPLAY

The iDCS 100 will record and buffer all calling activity within the system. With a Call Activity Display (CAD) key, the iDCS 100 will display a “snapshot” of the following information:

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

NOTE: This feature is only available on a iDCS 100 with a MEM4.

CALLER IDENTIFICATION

The iDCS 100 supports three methods of identifying an incoming caller depending on the circuit type as described below.

AUTOMATIC NUMBER IDENTIFICATION (ANI)

On a digital T1 trunk programmed as E&M trunks calling party information is called ANI. This information is the telephone number of the calling party and is sent as in-band DTMF digits during the call setup. Care should be taken to ensure the system has sufficient DTMF receiver resources to handle the expected volume of call traffic. Although ANI provides the number only, a name can be attached to the telephone number of frequent callers via the CID/ANI translation table.

CALLER ID

On an analog, loop start CO line, calling party information is called Caller ID and is available from the telephone company in two formats, Number only and Name and Number, sometimes called Deluxe. The iDCS 100 is compatible with both formats. Even if the telephone company only offers the number only, a name can be attached to the telephone number of frequent callers via the CID/ANI translation table.

CALLING LINE IDENTIFICATION (CLI)

On ISDN circuits, calling party information is called CLI and is supported on both BRI and PRI type circuits as described below.

BRI On BRI circuits the iDCS 100 only supports Number delivery and, like ANI, a name can be attached to the telephone number of frequent callers via the CID/ANI translation table.

PRI On 5ESS and NI2 PRI circuits both name and number support is provided on the iDCS 100 system. On a DMS100 circuit only Number service is provided.

CALLER ID FEATURES

The following features apply to all forms of Caller Identification, however, to make them easier to read caller identification is referred to as Caller ID.

NAME/NUMBER DISPLAY

Each LCD keyset user can decide if he/she wants to see the name or number in the display. Regardless of which one is selected to be seen first, the NND key is pressed to view the other pieces of 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 Caller ID name or number will show in the display depending on your selection.

SAVE CALLER ID NUMBER

At any time during an incoming call that provides Caller ID information, you may press the SAVE key. This saves the Caller ID number in the Save Number feature. Pressing the SAVE number redial key will dial the Caller ID number. The system must be using Least Cost Routing (LCR) to dial the saved number.

STORE CALLER ID NUMBER

At any time during an incoming call that provides Caller ID information, you may press the STORE key. This saves the Caller ID 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.

CALLER ID REVIEW LIST

This feature allows display keyset users to review Caller ID 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 Caller ID information is available for an incoming call, you will know to whom this station user is speaking. On outgoing calls, you can see who was called. After investigating, you may barge-in on the conversation, disconnect the call or hang up.

ABANDON CALL LIST

The system has a system-wide abandon call list that stores Caller ID information for calls that rang but were not answered. The list is accessed using the administrator's passcode. When reviewing this list, you are provided options to CLEAR the entry or DIAL the number. You can see the NND key to toggle between the Caller ID name, number and the date and time the call came in. The system must be using LCR to dial numbers from the abandon call list. The abandoned call list will store up to 50 unanswered calls.

Caller ID ON SMDR

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

NUMBER TO NAME TRANSLATION

The system provides a translation table for 350 entries on iDCS 100. When the Caller ID number is received, the table is searched. When a match is found, the system will display the corresponding name.

Caller ID SEND

The CID Send feature works in conjunction with the DID numbers assigned to a PRI trunk. When an outgoing call is made over the PRI the system can be programmed to send as caller id the did number associated with that station.

CALL FORWARDING

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

ALL CALLS

This type of forwarding is not affected by the condition of the station. All calls are immediately redirected to the designated destination. If 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. If no key is programmed as Forward All, the TRSF key lights steady when a Forward All condition is set.

BUSY

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

NO ANSWER

This feature forwards calls that are not answered within a preprogrammed time.

The user can originate calls as usual and receive call if present. The timer is programmable on a per-station basis to allow for differences in individual work habits.

BUSY/NO ANSWER

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

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.

FOLLOW ME

This feature allows the user to forward all calls from another station to the user's station or change the forward destination to the user's current location.

EXTERNAL

This feature forwards C.O. calls to an external number via a central office trunk if allowed by class of service. Intercom calls may also be programmed to forward to an external number via a central office trunk. These calls will forward only after the programmable external call forward delay timer expires. This timer is programmable on a per station basis.

TO VOICE MAIL

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

PRESET DESTINATION

If desired this feature provides for a permanent (preset) forward no answer destination for each extension. It can only be programmed by the system technician or system administrator. When any station does not have FWD/NO-ANSWER set, the call will ring this preset destination if one is programmed.

CALL FORWARD BUSY (CFB) (Enhanced Version Software/MEM4)

This is a different feature from the normal call forward busy and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward busy where when the forwarded station is busy a calling station will be forwarded to the forward destination.

CALL FORWARD NO RESPONSE (CFNR) (Enhanced Version Software/MEM4)

This is a different feature from the normal call forward no answer and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward no answer where when the forwarded station does not answer after a programmed amount of time a calling station will be forwarded to the forward destination.

CALL FORWARD UNCONDITIONAL (CFU) (Enhanced Version Software/MEM4)

This is a different feature from the normal call forward all and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward all where all calls to the forwarded station will be forwarded to the forward destination.

CALL HOLD (EXCLUSIVE)

Outside calls can be placed on exclusive hold at any keyset by pressing HOLD 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. Exclusive hold for trunk calls can be denied in class of service.

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. NOTE: Intercom calls cannot be remote held.

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

DIRECTED

With directed call pickup, users can answer calls ringing at any station by dialing a code plus that station's extension number or by pressing the feature button and then dialing the extension. There is a system option to allow a DSS key to perform a pickup function rather than a transfer function when pressed.

GROUPS

In addition, 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 any pickup group. There are 20 pickup groups available on iDCS 100. A station cannot be in more than one pickup group. To use this feature, station users either dial the access code or press the assigned feature 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 is repeated at a programmable interval. Keysets receive an off-hook ring signal through the speaker and single line stations receive a tone in the handset. The volume of the camp-on tone can be set by the station user. Camped-on calls follow Forward No Answer if a Forward No Answer destination has been set.

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

CALLER EMERGENCY SERVICE ID (CESID)

This is a service where the telephone system sends a number, usually a call back number, to the Public Service Answering point (PSAP) when a station user dials 911. This number is associated in the PSAP with a location indicating exactly where the call originated. This allows the emergency services to respond directly to the correct building or floor of a building rather than to have to make inquiries as to the location of the emergency. This service is sometimes referred to as Enhanced 911 or E-911. This service is provided via an ISDN PRI circuit configured for both way DID connected to the TEPRI card.

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 that toll calls can be controlled when using these services.

CHAIN DIALING

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

CHAIN FORWARD

The chain forward option determines whether a forwarded call that subsequently forwards to voicemail will target the original stations mailbox or the second stations mailbox.

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

The MISC daughter board provides relays that may be programmed to control a customer-provided common bell or common audible device. These contacts must

be programmed as members of a station group and may provide steady or interrupted closure.

CONFERENCE

The system allows six simultaneous conferences up to 5 parties each. If a SCM daughter board is installed, then the system allows a total of 24 simultaneous conferences up to 5 parties each.

ADD-ON (5 PARTY)

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

UNSUPERVISED

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

COMPUTER TELEPHONY INTEGRATION (CTI)

Computer Telephone Integration (CTI) allows integration between the iDCS 100 and a personal computer (PC) on a local area network (LAN). Caller ID service is required for TAPI inbound call applications that use the CID information to display computer records in conjunction with the presentation of the call to the station on the iDCS 100.

SMART CENTRE

Smart Centre is an ACD type reporting package that connects to the iDCS 100 CTI link and can provide group status information to a reader board as well as providing a wide variety of printed reports showing current and historical data.

SMART OPERATOR

Smart Operator is a software application that connects to the iDCS 100 CTI link and provides a PC based attendant console adjunct. This application works in conjunction with the operators keyset to give improved visibility of station status within the system and to make directory searching easier.

TAPI 2.1

TAPI 2.1 is the method of integrating the iDCS 100 system to a computer. TAPI 2.1 is a LAN based solution allowing computers to communicate directly to the telephone system over the network system. This establishes a logical connection rather than a physical connection between telephone and computer. It eliminates the cost and administrative overhead of connecting every PC to a desktop phone. It emphasizes third-party call control. (Example: calls can be tracked as they are transferred, making it more suited to large office applications).

CUSTOMER SET RELOCATION

Customer Set Relocation allows the customer to exchange or swap similar stations in the iDCS 100 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.

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 receive iDCS C.O. ringing pattern instead of intercom ring pattern. Devices connected to an SLI card receive a disconnect signal upon termination.

DATABASE PRINTOUT

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

DAYLIGHT SAVING TIME-AUTOMATIC

The system has a table that can be programmed with the daylight savings change dates for up to 10 years. At 2:00 am on these dates the system will automatically adjust the system clock to match daylight savings time. If no dates are programmed the clock will not change.

DIALED NUMBER IDENTIFICATION SERVICE (DNIS)

When DNIS service is provided on an incoming E&M trunk the iDCS 100 can route calls based on the numbers received. (See DID)

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 DIALING (DID) T1/COPPER

The term Direct Inward Dialing refers to types of digit steered inbound call handling. These are DID, Both Way DID, Dialed Number Identification service (DNIS) and Direct Dial In (DDI). The iDCS 100 supports the types described below.

DID is an inbound only service where multiple telephone numbers are assigned, usually in blocks of twenty, to a single circuit or small group of circuits. These circuits can be single pair analog circuits that will terminate on a DID card. DID circuits can be channels on a digital T1 service terminating on an iDCS 100 TEPRI card.

Both way DID is a service that combines DID service with normal outbound local telephone service. This service is provided over E&M tie line circuits. These E&M

tie line circuits can terminate on either the iDCS E&M card or on a channel of a digital T1 circuit on an iDCS TEPRI card.

Dialed Number Identification service (DNIS) is a feature of 800 or 900 type numbers that allows the number dialed by the caller to be identified in the telephone system by means of a sequence of DTMF digits (usually four). This service terminates on E&M tie lines. These E&M tie line circuits can terminate on either the iDCS E&M card or on a channel of a digital T1 circuit on an iDCS TEPRI card.

Direct Dial In (DDI). This is the name given to the above three services when they are provided over an ISDN PRI circuit.

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 and may be active in day mode, night mode or both. The C.O. lines used for DISA must have disconnect supervision.

DIRECT TRUNK SELECTION

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

DIRECTORY NAMES

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

DISA SECURITY

Telephone fraud and long distance theft are a serious concern. The iDCS 100 provides a strong DISA security system. If an incorrect DISA passcode is entered repeatedly (as is the case with “hackers”), the DISA system can be automatically disabled temporarily. Both the number of incorrect passcode attempts and the time that DISA is disabled are programmable. In addition, all failed attempts to access DISA print on SMDR (if provided) with a “DE” DISA error flag.

DISTINCTIVE RINGING

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

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

DOOR LOCK RELEASE (PROGRAMMABLE)

After answering a call from the door phone, users can dial a code to activate a contact closure. This can be used to operate a customer-provided electric door lock release mechanism. The contact closure timer is programmable 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 produces a distinctive ring (three short rings repeated) at the assigned station or station group. If not answered within a programmable time, the system releases the door phone and stops the ringing. Stations may call the door phone directly and monitor the surrounding areas. Door phones follow the system ring mode plan.

E & M TIE LINES (T1/COPPER)

Your office can be connected to another office with a tie line. Use it to make calls to stations in the other system. If programming allows, you can access lines in the other system to make outside calls. Tie line calls can be put on hold, transferred and conferenced in the same way as 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. In this case these tie lines can be programmed to follow the DID translation table. See DID. Translated E & M tie line calls have Day and Night routing capabilities.

EXECUTIVE BARGE-IN (OVERRIDE)

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

WITH WARNING TONE

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

WITHOUT WARNING TONE

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

This feature does not work from single line sets.

TRUNK MONITOR or SERVICE OBSERVING

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

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 POSSIBLE MISUSE OF THIS FEATURE.

EXTERNAL MUSIC INTERFACES

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

EXTERNAL PAGE INTERFACES

The system KSU provides one external page audio output. The addition of an SMISC card will provide a second audio output and three general purpose relays that may be assigned to control paging zones. 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 releases the existing call and returns 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 group numbers can be three or four digits beginning with the digit 5.

Using digits other than 2, 3 or 5 will require the technician to change other feature access codes in the system default numbering plan. User guides will need to be modified as these are all written using the iDCS 100 default numbering plan.

GROUND START TRUNKS (T1)

The iDCS 100 can utilize these trunks to support a positive disconnect signal and prevent call collisions on heavy traffic usage. Caller ID or ANI service is not available on these trunks.

HOT LINE

Stations can be programmed to call a pre-defined station or station group whenever that station goes off-hook. A hot line delay timer of 0–250 seconds can be programmed to allow sufficient time to make a different call. This timer is programmable on a per station basis.

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. There is a system wide option to allow all members to log out of a station 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 allows all members of the group to share the call load.

INCOMING/OUTGOING SERVICE

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

INDIVIDUAL LINE CONTROL

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

ISDN SERVICE

PRIMARY RATE INTERFACE (PRI)

The iDCS 100 supports Primary Rate Interface ISDN. PRI allows simultaneous data calls, calling party and calling line identification, high speed call setup and disconnect are among the benefits of ISDN calling. The 23+D configuration of ISDN allows call information to be delivered via the data channel (the "D" of 23B+D) thus leaving the bearer channels (the "B" of 23B+D) available for single use or combined use to provide a wider bandwidth for data and video. The iDCS 100 supports the most popular protocol standards in the U.S.

PRI Protocols supported: National ISDN-2 (NI2)
AT&T No. 5 ESS
DMS 100/250

BASIC RATE INTERFACE (BRI)

The iDCS 100 BRI card supports trunk or station level Basic Rate Interface services (BRI). Trunk or station BRI use is software programmable. BRI allows simultaneous data calls, called party and calling number identification, high speed call setup and disconnect are among the benefits of ISDN calling. The 2B+D configuration of ISDN allows call information to be delivered via the data channel (the "D" of 2B+D) thus leaving the bearer channels (the "B" of 2B+D) available for single use or combined use to provide a wider bandwidth for data and video.

LAN INTERFACE (MEM4 CARD ONLY)

The iDCS 100 LAN card provides a 10/100 base T Ethernet interface for connection to a data network. This interface allows a high speed connection for PC programming across an IP network. This interface also allows the system software to be uploaded to the Flash Memory via the PCMMC program.

LEAST COST ROUTING

Least Cost Routing (LCR) is the ability to automatically select the most cost effective central office route for the outside number dialed by any station. The iDCS 100 LCR program includes the following features:

- Option to use or not use LCR or a tenant basis
- Programmable LCR access code
- Digit analysis table 1000 entries each with ten digits for a iDCS 100 system.
- Routing by time of day and day of week (4 time bands per day)
- Routing according to individual station class
- Modify digits table 100 entries for an iDCS 100 system.
- 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 or personal computer without interrupting normal system operation. There are 3 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. Programming from a PC requires the PCMMC program. The system can also be programmed remotely via an optional modem card or over the internet via the LAN with a MEM4.

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 memory is retained by the use of a "super capacitor" for approximately 7 days. Additionally,

the Smart Media card may be used to store the system database. 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 the no answer condition, the caller can leave an indication that a message is waiting. The message button will flash 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.

MESSAGE WAITING KEY

The Message Waiting (MW) key is used in conjunction with a voicemail card. The MW key is programmed with an extender matching a station or station group number and is used to access the voice mailbox associated with the extender.

MICROPHONE ON/OFF PER STATION

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

MUSIC ON HOLD—FLEXIBLE

The iDCS 100 allows its music sources to be used in a very flexible manner as follows:

Each keyset can have a designated music source for playing as Background Music (BGM) through the keyset speaker.

Each Station can have a designated music source for playing to callers placed on Exclusive hold at that station.

Each Trunk can have a designated music source for playing to callers placed on hold. This setting is overridden by some of the other settings such as station music on hold, and UCD MOH.

Each UCD group can have a designated music source to be played while a caller is in queue.

MUSIC ON HOLD—SOURCES

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.

NETWORKING (Enhanced Version Software/MEM4)

The iDCS 100 networking feature package (Enhanced Version Software Only) allows the iDCS 100 system to be connected to an iDCS 100 or to an iDCS 100 via some basic feature transparency. The physical connection between the systems is via a proprietary PRI connection and is based on the Q-SIG specification. The following features are supported between two networked systems. Note that enhanced version software is only available with a MEM4 card.

Call Completion, Busy Station (CCBS) also known as Callback or Busy Station Callback. When a station in one system calls a station in another system across the network link and the destination station is busy the calling station can set a Callback to the busy station. When the busy station becomes idle the system will notify the callback originating station by ringing that station and when the originating station answers, the system will call the destination station.

Call Completion, No Response (CCNR) also known as Callback or No Answer Callback. When a station in one system calls a station in another system across the network link and the destination station does not answer the calling station can set a Callback to the called station. When that station indicates the user is present by becoming busy then idle the system will notify the callback originating station by ringing that station and when the originating station answers, the system will call the destination station.

Call Forward Busy (CFB). This is a different feature from the normal call forward busy and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward busy where when the forwarded station is busy a calling station will be forwarded to the forward destination.

Call Forward No Response (CFNR). This is a different feature from the normal call forward no answer and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward no answer where when the forwarded station does not answer after a programmed amount of time a calling station will be forwarded to the forward destination.

Call Forward Unconditional (CFU). This is a different feature from the normal call forward all and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward all where all calls to the forwarded station will be forwarded to the forward destination.

Forward External. This feature operates in the same manner as a non networked system with the exception that, because calls across a network link are trunk calls, network calls do not follow the ICM FWD EXT ON/OFF setting in MMC 210. It is therefore suggested that this setting be set to ON in a networked switch to avoid confusion in operation between networked and non networked calls.

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

Call Offer/Call Waiting (Camp On). This feature operates in the same manner as in a non networked switch. When a called station is busy the caller can press a camp on key and appear as a ringing call on the second call button. The Auto camp on feature will not work on calls across a network link if set to ON in MMC 110.

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

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

Transfer Recall. Calls transferred across a network link will recall to the transferring station after the originating systems transfer recall timer expires. After recalling, if not answered prior to that systems attendant recall timer expiring, the call will recall to that systems designated operator group. Attendant recalls will not recall to a 'Centralized Attendant".

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

Do Not Disturb (DND). This feature operates in the same manner as in a non networked switch. There is an option in MMC 823 to determine the type of DND tone sent across the network link.

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

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

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

Centralized Voice Mail with Message Waiting Lights. This feature will only operate with SVMi voicemail systems only. Users in one node can call forward (CFNR, CFB & CFU) to the SVMi group in a different switch and messages left in that switch will be indicated on the VMSG key in the origination switch. Messages can be returned to the voice mail group by pressing the VMSG key.

OFF PREMISES EXTENSIONS (OPX)

A single line (tip and ring) extension from an SLI card may be connected to telephone company-provided OPX circuits to remote locations. 8SLI cards and KDb-SLIs do not support off premises extensions.

OPERATOR GROUP

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

OVERFLOW

OPERATOR

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

STATION GROUP

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

OVERRIDE CODE

This feature allows users to make emergency outside calls from a station that has a forced code such as Account code or authorization code enabled but without requiring them to enter a forced code. The basis of this feature is an override code table containing 5 entries of up to 11 digits each. The iDCS 100 will examine digits that are dialed from a station to see if they match any entry in the Override Code table. If the digits match the table, the system will process the call without requiring a forced code.

PAGING

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

PARK ORBITS

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

PRIME LINE SELECTION

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

PRIVATE LINES

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

PROGRAMMABLE TIMERS

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

RECALLS

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

REMOTE PROGRAMMING—PC

Remote programming allows the technician to access the system database from a remote location for the purpose of making changes to the customer data. The modem card and a PC using an optional software package will be needed to implement this feature.

RING MODES

TIME BASED ROUTING –PLANS

Each C.O. line can be programmed to ring at any station or station group. Each line can be assigned a ring destination based on six (6) different ring plans based on time of day and the day of the week. The system operator (intercom dial "0") can also be a different station group for each ring mode.

AUTOMATIC / MANUAL

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

HOLIDAY SCHEDULE

The system has a table of 20 dates that are used to define holidays. On a date designed as a holiday the system will remain in a ring plan for that calendar day. This feature will override the ring plan time table.

TEMPORARY OVERRIDE

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

RING OVER PAGE

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

SECRETARY POOLING

Each keyset may be defined as an executive (BOSS in programming) or a secretary (SECY in programming) in system programming. Each executive can have up to four secretaries and each secretary can have up to four executives. These arrangements are known as executive/secretary pools. There can be multiple pools in a system. When an executive is in DND, all calls to the executive ring the first secretary assigned to that executive; if that secretary is busy, the call hunt to the next available secretary assigned to that executive. If the secretary must communicate with the executive while he/she is in DND, pressing the corresponding executive button on the secretary's keyset results in an Auto Answer intercom call being made to the executive (providing the executive is free).

SINGLE LINE CONNECTIONS

Single line ports allow 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. Central office ring cadence can be selected for SLT stations. This is helpful when optional devices cannot detect iDCS 100 intercom ring cadence.

SPEED DIAL NUMBERS

A library of 1500 speed dial numbers may be allocated as needed for iDCS 100 system. 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 dial number may contain up to 24 digits.

SPEED DIAL BY DIRECTORY

The iDCS 100 system provides the user with the ability to look up a speed dial number and place the call. There are three speed dial selections: personal, system and station. This feature requires a display keyset.

STATION HUNT GROUPS

System programming allows up to 30 station hunt groups. One of three ring patterns—sequential, distributed and unconditional—is available for each group. Each unconditional group may contain a maximum of 32 stations and each sequential

and distributed group may contain a maximum of 48 stations. A station may be assigned to more than one group. Each station group has its own recall timer for calls transferred to that group.

STATION MESSAGE DETAIL RECORDING (SMDR)

The system provides records of calls made, received and transferred. Connecting a customer-provided printer or call accounting system will allow collection of these records. Each call record provides the following details: station number, outside line number, start date, start time, duration of call, digits 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 for 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.

STATION PAIR

This feature allows station to be assigned as a "pair". That is to say a primary and secondary. Calling the primary station will make both stations ring. Selected features such as Message Notification, DND, Callback, and Class of Service act as one station. This is convenient when an individual has two offices or an office extension and a cordless extension.

NOTE: Not all system features are applicable to station pairs. Features designed for a single user may conflict with paired stations.

SVMi–INTEGRATED VOICE MAIL

The iDCS 100 can be equipped with Samsung's proprietary intergrated voice mail and auto attendant card (SVMi). It provides 4–8 ports of voice processing. Because it is built into the system it provides such feature as one touch Call Record, Answering Machine Emulation and Voice Mailbox Administration with interactive keyset displays. Ask your dealer for literature on SVMi.

SYSTEM ALARMS

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

SYSTEM MAINTENANCE ALARMS (Enhanced Version Software/MEM4 Only)

The iDCS 100 continuously performs internal system diagnostics. When either a major or minor fault is detected the system can ring stations with an ALARM KEY assigned. The keyset display shows information that includes the description, location and date and time stamp for each alarm.

A log of 100 alarms are stored in a buffer and can be reviewed at a display keyset or sent to a printer (see sample Alarm Report in section 4.11 of this document).

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 250 allow and 250 deny entries of 11 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.

SPECIAL CODE TABLE

A Special Code Table of ten entries (four digits each) allows use of telephone company features such as CID blocking (✱67) or call waiting disable (✱70) without interference to toll restriction or LCR. The Special Code table allows use of these custom calling features on a per call basis.

TOLL RESTRICTION OVERRIDE

Program options allow system speed dial numbers to follow or bypass a station's toll restriction class. In addition, users may make calls from a toll restricted station by using the walking class of service or authorization code feature.

TONE OR PULSE DIALING

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

TRAFFIC REPORTING (Enhanced Version Software/MEM4 Only)

The iDCS 100 system can store peg counts for various types of calls. These peg counts can be printed on-demand, daily, hourly, or up to three separate programmable shifts. The report includes statistics for each trunk, trunk group, station, station groups and page announcements. For more details and explanations see sections 4.9 and 4.10 of this document.

TRANSFER

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

TRUNK GROUPS

Outside lines can be grouped for easy access by dialing a code or pressing a button. There are 11 trunk groups available for iDCS 100 system.

UNIFORM CALL DISTRIBUTION (UCD)

UCD is used whenever the user expects to have more ringing calls than people to answer them. It prevents callers from receiving busy signals or lengthy delays before answering. Callers reaching a busy station group are held in queue for an available agent. First and second announcements reassure the caller until an agent becomes free. Programmable automatic logout removes a station from the group if a call is placed to an unattended station, thus preventing unanswered calls. A wrap-up timer prevents calls to a station for a programmable period of time to allow the agent to finish up work associated with the call. NOTE: Requires optional hardware. Ask your dealer for details.

UCD GROUPS

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

CALL STATISTICS

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

AGENT PIN NUMBERS

This feature is to allow multiple UCD agents to use the same keyset at different times. This requires that each user be issued an “Agent ID” or PIN number and that each time a user logs into a station the system will request an ID code which will be verified against the master list.

AGENT STATISTICS

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

GROUP SUPERVISORS

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

PRINTED REPORTS

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

UNIVERSAL ANSWER

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

VIRTUAL SINGLE LINE TELEPHONE

The iDCS 100 has 14 virtual extensions. These ports have all the attributes of an actual SLT port including call forwarding. These virtual ports can be exchanged with real ports using the set relocation feature to provide hot desking.

VOICE MAIL – INBAND INTEGRATION

The iDCS 100 system 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 called station user's mailbox. Keyset users can press one button to retrieve messages from the voice mail system. A Voice Mail Transfer key permits keyset users to easily transfer a caller directly to an individual voicemail box without navigating through menus.

NOTE: Although most voice mail systems will work with the iDCS 100, the system data has default values set to work with the Starmail Voice Processing System. They may need to be changed if you are using another system.

VoIP

The iDCS 100 ITMC VoIP card supports up to eight voice calls over an IP network connection using the industry standards based H.323 protocol. An additional eight VoIP channels can be added by installing an eight-circuit daughterboard for a total of sixteen channels of VoIP. The ITMC cards fit into any universal iDCS 100 card slot. The iDCS 100 supports a maximum of one ITMC card.

VoIP is transported by the iDCS 100 ITMC card utilizing the ITU standards based H.323 protocol. This standard addresses the means of transferring voice, data, and images through IP (Internet Protocol) networks.

With VoIP certain compression standards have also been adopted to represent each second of voice with an amount of bandwidth. The iDCS 100 ITMC utilizes G.711, G.729A or G.723 standards voice compression codec's. This allows for a selectable 64kbps, 8Kbps or 6.3Kbps bandwidth use when preparing voice compression for IP transport. Compression is used to reduce the digitized voice into a smaller bandwidth that can be carried in smaller packets. The ITMC H.323 gateway determines the compression method for each call setup. There is also a certain amount of frame/packet overhead in each compression channel. 64K of bandwidth can support 6~7 calls simultaneously. This can vary depending on efficiency features like Silence Suppression and multiframe counts. Unlike switched networks, VoIP connections consist of a sequence of numbered of data packets. Since voice

conversation is usually considered “real time” these packets need to be delivered in a consistent manner with minimal delay. This can be controlled via a Gatekeeper which tracks and monitors voice packets. Gatekeepers are part of the H.323 standard but are not required. The iDCS 100 ITMC is Gatekeeper compliant.

In any Ethernet environment, packet transfers are subject to delays and/or loss. If these delays are greater than 200ms the voice quality will deteriorate. The Ethernet data traffic and network topology should be a consideration when applying the iDCS 100 ITMC VoIP feature. Network congestion does affect call quality in any VoIP application.

WALKING CLASS OF SERVICE

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

STATION FEATURES

ADD-ON MODULE
APPOINTMENT REMINDER
AUTOMATIC HOLD
AUTOMATIC PRIVACY
BACKGROUND MUSIC
BUSY STATION CALLBACK
BUSY STATION INDICATIONS (BLF)
CALL FORWARDING
CALL LOGS
CALL PICKUP
DIRECT STATION SELECTION (DSS)
DO NOT DISTURB (OVERRIDE)
DO NOT DISTURB (PROGRAMMABLE)
DOOR LOCK RELEASE
EXCLUSIVE HOLD
GROUP LISTENING
HEADSET OPERATION
HEARING AID COMPATIBLE
LINE QUEUING WITH CALLBACK
LINE SKIPPING
LOUD RINGING INTERFACE
MESSAGE WAITING LIGHT/INDICATION
MUTE MICROPHONE/HANDSET
OFF-HOOK RINGING
OFF-HOOK VOICE ANNOUNCE *(STANDARD)*
OFF-HOOK VOICE ANNOUNCE *(EXECUTIVE)*
ONE TIME DO NOT DISTURB
ONE TOUCH DIALING KEYS
ON-HOOK DIALING
PROGRAMMABLE KEYS
PROGRAMMED STATION MESSAGES
PROTECTION FROM BARGE-IN
PULSE TO TONE SWITCHOVER
REDIAL
- AUTO RETRY
- LAST NUMBER
- SAVE NUMBER

REMOTE HOLD
RING MODES
- AUTO ANSWER
- RING–EIGHT TONE CHOICES
- VOICE ANNOUNCE

RINGING PREFERENCE
SPEAKERPHONE
STATION LOCK
TERMINAL STATUS INDICATOR
TRI-COLORED LIGHTS
VOLUME SETTINGS
- HANDSET
- BGM
- RINGING
- PAGING
- SPEAKER
- OFF-HOOK RING

WALL-MOUNTABLE KEYSETS

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

4.2 STATION FEATURE DESCRIPTIONS

ADD-ON MODULE

iDCS 14 BUTTON AOM

The 14B AOM attaches to the right hand side of an iDCS 18D or iDCS 28D keyset and provides 14 buttons with red LEDs. These buttons can be used for DSS keys, speed dial bins or any key that does not require a dual colored LED.

32 BUTTON AOM

The DCS 32-button add-on module (AOM) adds to the capability of any keyset. The 32 programmable buttons with red buttons can be used for feature keys, DSS/BLF keys or one touch speed dial buttons. Because this AOM has a microphone and a speaker it can be used to provide executive off hook voice announce or as a stand alone unit whenever a handset and dial pad are not required.

64 BUTTON MODULE

The 64-button module adds to the capability of any keyset. Up to four 64-button modules can be added to each keyset. The 64 programmable red LED buttons with red LED can be used for feature keys, DSS/BLF keys or one touch speed dial buttons. A maximum of 4 can be installed on a iDCS 100 system.

APPOINTMENT REMINDER

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

AUTOMATIC HOLD

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

AUTOMATIC PRIVACY

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

NOTE: Intercom calls cannot be automatically held.

BACKGROUND MUSIC

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

BUSY STATION CALLBACK

When reaching a busy station, callers may request a callback by pressing one 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 the 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 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 a station user to set a Forward All condition from his/her station to another station while at the remote station. To display the Follow Me condition, the TRSF key lights steady red at the station that is forwarded. The TRSF key also lights if Forward All is set and no key is programmed for Forward All.

Keyset users can 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 controls whether internal calls forward to voice mail or not. Single line telephones must have the system administrator program this feature for them.

CALL LOGS (Enhanced Version Software/MEM4 Only)

With the call log feature, a display keyset user can review up to 50 of the last incoming calls from the Caller ID review list or up to 50 of the last external telephone numbers that were dialed. The numbers can be viewed, stored and/or dialed using the associated soft keys. LCR must be enabled for dialing and storing numbers from the CID review list. Optional hardware and/or software may be needed for Caller ID.

CALL PICKUP

With directed call pickup, a user can answer calls ringing at any station by dialing a code plus that extension number. The group pickup feature allows the user to answer any call ringing within a pickup group. Pickup keys may be customized with extenders to allow pickup from a specific station or pickup group. The iDCS 100 has 20 programmable pickup groups.

DIRECT STATION SELECTION (DSS)

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

DO NOT DISTURB (OVERRIDE)

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

DO NOT DISTURB (PROGRAMMABLE)

The Do Not Disturb (DND) feature is used to stop all calls to a station. System programming can allow or deny use of the DND feature for each station. Parties calling a station in DND will receive reorder tone. When in DND mode, calls may be forwarded to another destination. See Forward DND option. A keyset without a DND button can activate DND via the feature access code. The ANS/RLS key will flash at 112 ipm (rapidly) when DND is set. There is 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 HOLD twice will hold a call exclusively at a station so no other station can pick up that call. Intercom calls are automatically placed on exclusive hold.

GROUP LISTENING

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

HEADSET OPERATION

Every keyset can be programmed to allow the use of a headset. In the headset mode, the 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 iDCS 100 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 the user is talking on an outside line and the automatic hold feature is turned off, he/she may press an idle line key and skip to that line without causing the previous call to go on hold.

LOUD RINGING INTERFACE

The MISC daughter board has 3 relays that can be programmed to provide a dry contact closure for control of a customer provided loud ringing device. Any of these relays can be programmed to operate with a specific station or station group.

MESSAGE WAITING LIGHT/INDICATION

When calling a station and receiving a busy signal or the no answer condition, the caller can leave an indication that a message is waiting. The message button will flash red at the messaged keyset. A single line phone connected to a 16MWSLI or 8MWSLI will have a message light otherwise it will receive a distinctive message waiting dial tone. Five message waiting indications can be left at any station.

MUTE MICROPHONE/HANDSET

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

OFF-HOOK RINGING

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

OFF-HOOK VOICE ANNOUNCE (EXECUTIVE)

A keyset associated with an add-on module may receive an executive off-hook voice announcement while on another call. The called keyset user 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.

OFF-HOOK VOICE ANNOUNCE (STANDARD)

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

ONE TIME DO NOT DISTURB

The Do Not Disturb (One Time) feature is used to stop all calls to a station when the user is on an outside line and does not want to be disturbed for the duration of the call. Upon completion of the call, DND is 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 user can originate calls without lifting the handset. When the called party answers, the user may speak into the microphone or lift the handset for more privacy.

PROGRAMMABLE KEYS

LCD 24B and STD 24B keysets have 24 programmable keys, LCD 12B and Basic 12B keysets have 12, and 7B keysets have 12. 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 station that is not secure cannot be barged-in on when talking to a secure station.

PULSE TO TONE SWITCHOVER

When dialing a number on a dial pulse network, a station user can dial # and the iDCS 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 an outside number is dialed and a busy signal is received, the auto retry feature can be used to reserve the outside line and automatically redial the number for a programmable number of attempts (available to keyset users only).
- LAST NUMBER—The most recently dialed number 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. Forced Auto Answer is invoked by the calling station and is controlled by the calling station's class of service.

RINGING PREFERENCE

Lifting the handset or pressing the speaker button automatically answers a call ringing at the keyset. Using this method, users are assured of answering the oldest call first. When ringing preference is turned off, the user must press the flashing 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 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 28 Button and the iDCS 18 Button can have a Full Duplex Speakerphone Module added.

STATION LOCK

With a programmable personal station passcode, any keyset or single line station can be locked and unlocked to control use of each telephone. There are two lock options: 1=LOCKED OUTGOING and 2=LOCKED ALL CALLS. See the following table for more details.

	0 UNLOCKED	1 LOCKED OUTGOING	2 LOCKED ALL CALLS
Make outside calls	YES	NO	NO
Receive outside calls	YES	YES	NO
Make intercom calls	YES	YES	NO
Receive intercom calls	YES	YES	NO

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 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 the iDCS keysets have tri-colored LEDs.

VOLUME SETTINGS

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

WALL-MOUNTABLE KEYSETS

Each keyset, add on module and 64 button module can be wall mounted by reversing the base wedge.

DISPLAY FEATURES

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

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 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 shows [CALL FOR GROUP] and the user's group number. These calls can be answered with a different greeting than calls to the user's extension number.

CALL PROCESSING INFORMATION

During everyday call handling, the keyset display will provide information that is helpful and in some cases invaluable. Displays such as [CALL FROM 203], [TRANSFER TO 202], [701: RINGING], [TRANSFER FM 203], [708 busy], [Camp on to 204], [Recall from 204], [Call for 501], [message from 204] and [FWD ALL to 204] 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.

CALLER ID INFORMATION

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

NAME/NUMBER DISPLAY

Each display keyset user can decide if he/she wants to see the Caller ID name or

Caller ID 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 there is a call waiting or a camped-on call at the user's keyset, the user can press the NEXT key to display the Caller ID information associated with the next call in queue at the station. Either the CID name or CID number will show in the display depending on the N/N selection.

SAVE CID/ANI NUMBER

At any time during an incoming call that provides CID information, the user 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/ANI NUMBER

At any time during an incoming call that provides CID information, the user may press the STORE key. This saves the CID number as a speed dial number in the personal speed dial list. The system must be using LCR to dial the stored number.

INQUIRE PARK/HOLD

When a user is informed that an incoming call is on hold or has been parked, the user may view the Caller ID or ANI information before he/she retrieves the call. This will influence how the user chooses to handle the call.

CID/ANI 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 were answered and calls that rang the user's station but that were not answered. When reviewing this list, the user 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/ANI information is available for an incoming call, the selected stations can know to whom the iDCS 100 user is speaking. On outgoing calls, the selected stations can see who was called. After investigating, the selected stations may barge-in on the conversation, disconnect the call or hang up.

ABANDON CALL LIST (50)

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

LCR to dial numbers from the abandon call list. The abandoned call list will store up to 50 unanswered calls on iDCS 100.

CALLING PARTY NAME

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

CALLING PARTY NUMBER

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

CONFERENCE INFORMATION

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

DATE AND TIME DISPLAY

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

DIAL BY NAME

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

1. System wide speed dial list
2. Personal speed dial list
3. Station directory list

This online "phone book" allows display keyset users to look up and dial any speed dial number or station in seconds.

DIALED NUMBER

When an outside call is made, digits are displayed as the user dials them. If the display indicates an incorrect number was 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 than other ringing calls. Hold recalls indicate the recalling line or station number and the associated name. Transfer recalls indicate the recalling line or station and where it is coming from.

IDENTIFICATION OF TRANSFERS

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

MESSAGE WAITING CALLER NUMBER

When the message indication is on, pressing the MESSAGE button displays the station number(s) of the person(s) who have messages for the user. Display keyset users can scroll up and down to view message indications.

MULTIPLE LANGUAGE SUPPORT

The iDCS 100 has a user definable setting for the language of the keyset interactive displays. There are eight languages currently in the system. The languages are as follows and are defined in MMC 121: English, German, Portuguese, Norwegian, Danish, Dutch, Italian, Spanish, and Swedish.

OUTSIDE LINE IDENTIFICATION

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

OVERRIDE IDENTIFICATION

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

PROGRAMMED MESSAGE DISPLAY

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

SOFT KEYS

Below the 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 designated feature keys.

STOPWATCH TIMER

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

UCD SUPERVISOR DISPLAYS

With the optional AA card, when UCD is used, multiple supervisors can view information about the UCD groups calls or agents.

CALL SCREEN

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

AGENT SCREEN

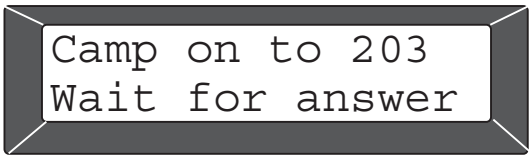
This allows the supervisor to monitor how many agents are logged in, check each agents status (IN GROUP, OUT OF GROUP, or DND), view each agents total number of calls, average call length or average ring time.

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

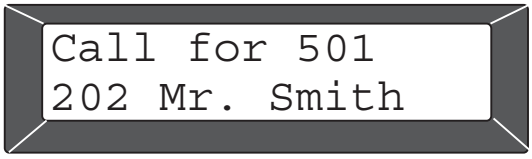
SAMPLE DISPLAYS

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.

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



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

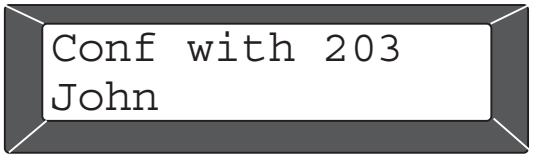


This station in the sales department is receiving a group call from Mr. Smith.

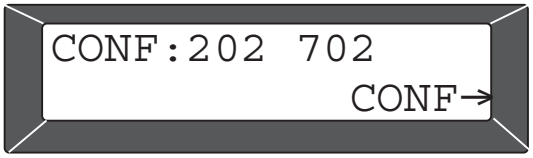
This display tells you this is a new incoming call to the sales department.

This station is calling station 203 which is currently busy.

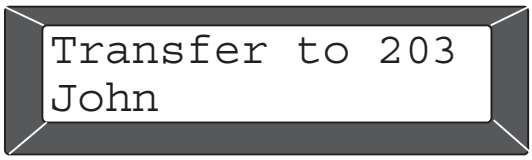
This station is receiving an off-hook voice announcement from station 203.



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



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



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

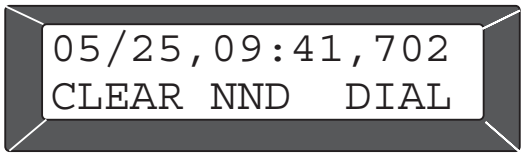
This station is receiving a call from extension 201.

This station is setting the Do Not Disturb feature.

This station is speaking on trunk 703.

SAMPLE CALLER ID DISPLAYS

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

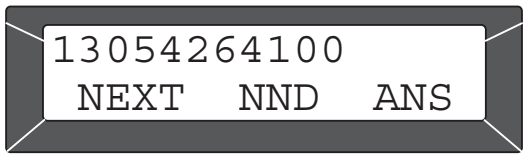


This display shows the information on the abandoned call list. This call came in on May 25 at 9:41 A.M. on line 702. The user can CLEAR the entry, DIAL the caller back or examine further NND information.

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

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

This display 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.



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

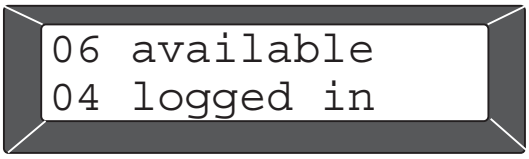
This display shows an incoming call from Samsung Telecom ringing at group 500.

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

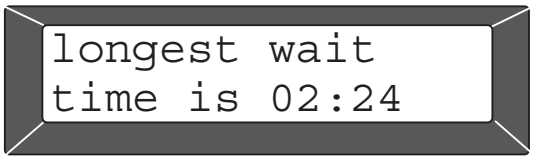
This display is seen while using the INQUIRE feature. It shows the three options available while you are checking on a held or parked call.

SAMPLE UCD DISPLAYS

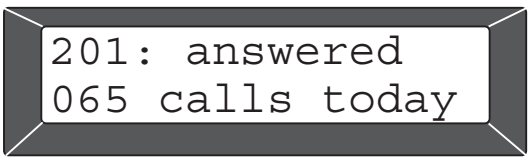
There are five calls currently waiting to be answered by the UCD group.



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

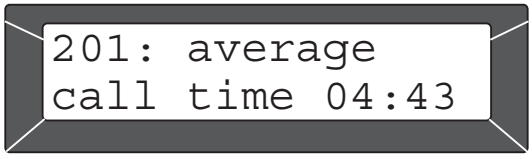


The longest call on hold (waiting to be answered) was for two minutes, 24 seconds. This data applies to all calls since the supervisor data was last cleared. It does not necessarily represent calls currently in queue.

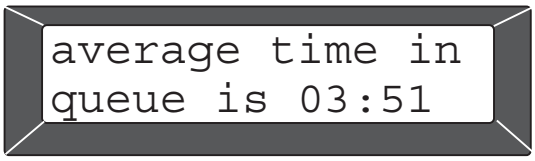


The agent at station 201 has answered 65 calls today.

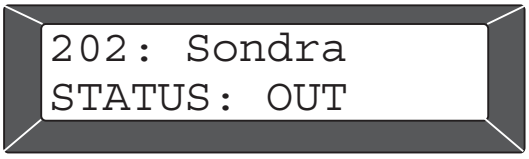
The UCD group has received 124 calls today.



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



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

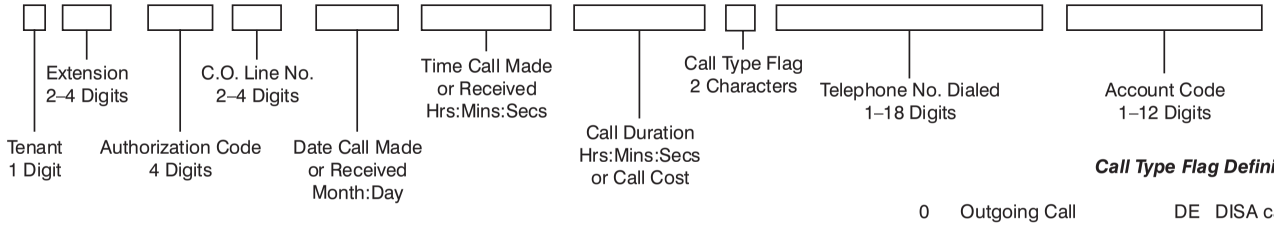


Station 202 is currently out of the group. (The display can also show IN GROUP and DND.)

4.4 SAMPLE SMDR PRINTOUT (WITHOUT CALLER ID)

SMDR REPORT FOR [STA Miami] Mar/21/1999 13:49

T	EXT	AUTH	TRK	MM/DD	STT.TIME	DURATION	FG	DIALED DIGIT	ACCOUNT CODE
1	3951		725	03/21	13:51:17	00:00:08	IA		
1	3951		725	03/21	13:51:25	00:00:14	IT		
1	217		744	03/21	13:51:29	00:00:14	IA		
1	235		725	03/21	13:51:39	00:00:06	T		
1	219		726	03/21	13:51:25	$ 10.75	O	3056401067	*1234567890#
1	217		744	03/21	13:51:43	00:00:40	I		
1	278		725	03/21	13:53:40	00:00:07	O	18007864782	
1	3951		726	03/21	13:54:45	00:00:07	IA		
1	219			03/21	13:55:03			GROUP OUT	
1	3951		726	03/21	13:54:52	00:00:30	IT		
1	217		726	03/21	13:55:22	00:00:16	TT		
1	235			03/21	13:55:30			DND ON	
1	218		726	03/21	13:55:38	00:00:33	TT		
1	235			03/21	13:57:50			DND OFF	
1	279	6398	727	03/21	13:57:32	$ 13.25	O	3056401066	
1	219			03/21	14:00:45			GROUP IN	
1	219		726	03/21	13:56:11	00:05:38	T		
1	296		725	03/21	13:54:40	00:07:06	O	3055922900217	
1	219		717	03/21	14:03:57	00:00:15	O	19544530000	*1234567890#



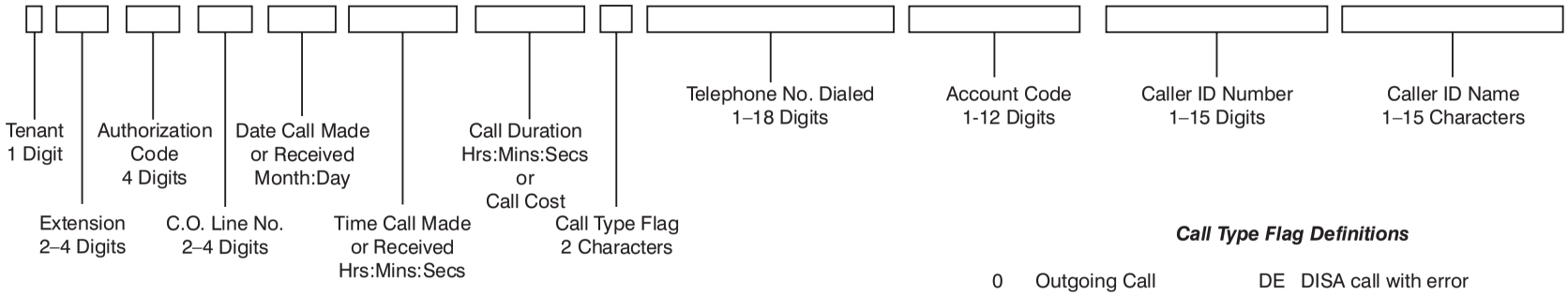
Call Type Flag Definitions

0	Outgoing Call	DE	DISA call with error
I	Incoming Call	T	Transferred call that was terminated
DI	DISA call in		
DO	DISA call out	IT	Incoming transfer
FO	Outgoing record of forwarded call	FI	Incoming call forwarded to an external number
IA	Incoming Ring Time Before Being Answered	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)

```
                                        SMDR REPORT FOR [STA Miami      ] Mar/21/99 13:49

=================================================================================================================
   T EXT  AUTH TRK  MM/DD STT.TIME DURATION FG DIALED DIGIT       ACCOUNT CODE  CID/ANI NUMBER      CID/ANI NAME
=================================================================================================================
   1 3951       725  03/21 13:51:17 00:00:08 IA
   1 3951       725  03/21 13:51:25 00:00:14 IT                                 13055922900       SAMSUNG TELECOM
   1 217        744  03/21 13:51:29 00:00:14 IA
   1 235        725  03/21 13:51:39 00:00:06 T                                  13055922900       SAMSUNG TELECOM
   1 219        726  03/21 13:51:25 $  10.75 O  3056401067         *1234567890#
   1 217        744  03/21 13:51:43 00:00:40 I                                  13055559748       PIZZA DELIVERY
   1 278        725  03/21 13:53:40 00:00:07 O  18007864782
   1 3951       726  03/21 13:54:45 00:00:07 IA
   1 219             03/21 13:55:03            GROUP OUT
   1 3951       726  03/21 13:54:52 00:00:30 IT                                 13055922900       SAMSUNG TELECOM
   1 217        726  03/21 13:55:22 00:00:16 TT                                 13055922900       SAMSUNG TELECOM
   1 235             03/21 13:55:30            DND ON
   1 218        726  03/21 13:55:38 00:00:33 TT                                 13055556420       PIZZA DELIVERY
   1 235             03/21 13:57:50            DND OFF
   1 279  6398 701  03/21 13:57:32 $  13.25 O  3056401066
   1 219             03/21 14:00:45            GROUP IN
   1 219        726  03/21 13:56:11 00:05:38 T                                  13055922900       SAMSUNG TELECOM
   1 296        725  03/21 13:54:40 00:07:06 O  3055922900217
   1 219        717  03/21 14:03:57 00:00:15 O  19544530000        *1234567890#
```



Call Type Flag Definitions

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

4.6 SAMPLE UCD REPORT

```
=======================================================
UCD GROUP 529 : SALES

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

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

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


=======================================================
UCD GROUP 515 : SUPPORT

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

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

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

4.7 CALL STATISTICS

CALLS IN QUEUE NOW

How many calls are currently in queue.

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

ABANDONED CALLS

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

AVERAGE RING TIME

This is calculated from the time an agent begins to ring until the time an agent answers the call, this does not include ringing at an agent station that does not answer or is logged out because of the ring next option.

NUMBER OF TIMES ALL AGENTS BUSY

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

Example: If there are 5 members in a group, 3 are Out of Group one is busy and one is idle, and a call is placed to the group, because there is an idle station the all agents busy counter is not incremented.

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

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

AVERAGE TIME IN QUEUE

This is calculated as an average of all the calls that were in queue.

Note that this is ONLY an average of the calls that were in queue. The caller must have overflowed to the UCD recording to be considered in queue.

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

TOTAL CALLS RECEIVED

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

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

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

This statistic includes:

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

LONGEST QUEUE TIME TODAY

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

a) Queue time begins when a caller starts to hear the first UCD message.
b) Queue time ends when a caller is either

- Answered by an agent
- System gets disconnected from C.O. or
- Caller is transferred to final destination

LONGEST QUEUE TIME NOW

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

a) Queue time begins when a caller starts to hear the first UCD message.
b) Queue time ends when a caller is either

- Answered by an agent
- System gets disconnected from C.O. or
- Caller is transferred to final destination

4.8 AGENT STATISTICS

LOGGED IN

The number of stations programmed in the UCD group and the number of stations that are currently logged in.

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

STATUS

This screen shows the agents name, extension number and status. The status can be In Group, Out of group or in DND.

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

CALLS ANSWERED

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

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

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

AVERAGE CALL TIME

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

AVERAGE RING TIME

This is an average of all the ring times for the agent. Ring times are previously explained.

4.9 SAMPLE TRAFFIC REPORT

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

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

     ACTIVITY                                          SYSTEM TOTAL

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

     INTERCOM CALLS - COMPLETED......................    7178
     INTERCOM CALLS - NOT ANSWERED...................    1540

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

     INTERNAL PAGE USED..............................      35
     EXTERNAL PAGE USED..............................      79
     ALL PAGE USED...................................     231

***************************** TRUNK GROUPS *********************************

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

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


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

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

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

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

4.10 TRAFFIC REPORT OVERVIEW

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

1 BEGINNING:  04/01/99  08:00                    ENDING:  04/01/99 17:30

2 ACTIVITY                                      SYSTEM TOTAL

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

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

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

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

1. **BEGINNING & ENDING**
   This identifies when the statistics were collected. It includes dates and time.

2. **ACTIVITY:** Overall summary of traffic in the system for activities 3 to 13.

3. **INCOMING TRUNK CALLS-ANSWERED:** These are any incoming trunk calls to the system. These calls are pegged when answered by any device and/or station in the system whether it is a new call or a recall.

4. **INCOMING TRUNK CALLS-NOT ANSWERED:** These are any incoming trunk calls that were not answered by any station or device in the systems. These are the same calls that would be flagged as abandoned in SMDR.

5. **OUTGOING TRUNK CALLS:** These are all outgoing trunk calls that were originated by any station or through the DISA feature. Outgoing trunk calls are valid calls as defined by the SMDR START TIME in MMC 501.

6. **A SELECTED TRUNK WAS BUSY:** Pegged every time a trunk or trunk group was busy regardless of the manner in which it was selected (e.g., DTS key, LCR, “9”, 7XX, TRK GROUP SELECT, SPD, External call forward, DISA).

7. **INTERCOM CALLS COMPLETED:** These are all intercom calls that were completed to any station, station group or device.

8. **INTERCOM CALLS NOT COMPLETED:** These are all intercom calls that were not answered and resulted in the calling party hanging up. A call to a station group that overflows to another station is considered not answered whether the overflow destination did or did not answer.

9. **TRUNK RECALLS TO STATION:** These are trunk calls that were placed on any kind of hold and recalled a station. These are also trunk calls that were transferred and were not answered and recalled the transferring station. This includes members of the operator group that put calls on hold and then recall the operators station.

10. **TRUNK RECALLS TO OPERATOR GROUP:** These are any trunk calls that recalled to the operator group.

11. **INTERNAL PAGE USED:** Peg count of every time internal page was accessed.

12. **EXTERNAL PAGE USED:** Peg count for every time external page was accessed.

13. **ALL PAGE USED:** Peg count of every time the all page feature was accessed. This does not include internal or external page, only 55+✱ or PAGE ✱.

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

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

1. **GROUP:** A listing of all trunk groups assigned in the system.

2. **OUTGOING:** These are the number of outgoing trunk calls made using each trunk group. Pegged every time a member of this trunk group was used to make a valid outgoing call. A valid outgoing call is defined by the SMDR Start Time programmed in MMC 501.

3. **BUSY:** This is the number of times each trunk group was busy when someone attempts to access it.

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

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

1. **TRUNK:** A listing of each trunk in the system.
2. **TRUNK NAME:** The names of each trunk as programmed in MMC 404.
3. **ATTA:** Average Time To Answer for trunks is counted in the number of seconds that ringing voltage is detected at the trunk interface and the timer stops when trunk is answered by station or device in the system. The ATTA is the sum of all answered times divided by the answered call count.
4. **ANSD:** This is the number of times this specific trunk was answered by any station or device whether it is a new call or a recall.
5. **NOT-ANSD:** This is the number of times this specific trunk rang the system but was not answered. These are the same calls that would be flagged as abandoned in SMDR.
6. **OUTGOING:** This is the number of times this trunk was used to make an outgoing call. A valid outgoing call is defined by the SMDR START TIME programmed in MMC 501.
7. **BUSY:** This is the number of times this trunk was busy when accessed by a button or dial code.

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

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

1. **OUTSIDE CALLS:** These statistics are for outside calls that reach these station groups regardless how they arrive there.

2. **GROUP:** Listing of all station groups in the system.

3. **ANSD:** This column is a peg count of all answered trunk calls that rang to the specific group directory number regardless of how these arrived.

4. **NOT-ANSD:** The number of times any trunk call directed to the specific group number was not answered by any member of the group.

5. **INTERCOM:** An intercom call made from a station or device within the system to the specific group number.

6. **ANSD:** This is a count of how many times an intercom call was answered by any group member of that specific group.

E******** INDIVIDUAL STATIONS **********

		1							11	
		<——— OUTSIDE CALL ———>							<-INTERCOM->	
2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**13**
EXT	STATION-NAME	ATTA	ANSD	NOT-ANSD	DIALED	ICM-TRSF	TRK-TRK	PICKUP	ANSD	DIALED
201		0000	0000	0000	0000	0000	0000	0000	0000	0000
202		0000	0000	0000	0000	0000	0000	0000	0000	0000
203		0000	0000	0000	0000	0000	0000	0000	0000	0000
204		0000	0000	0000	0000	0000	0000	0000	0000	0000
205		0000	0000	0000	0000	0000	0000	0000	0000	0000

1. **OUTSIDE CALLS:** These statistics are for outside calls that in any way reach individual stations or devices.

2. **EXT:** Listing of all extension numbers in the system. This also includes AA, VM, and SVM ports.

3. **STATION NAME:** The name for each particular station as programmed in MMC 104.

4. **ATTA:** Average Time To Answer for stations is counted in the number of seconds that ringing signal is applied to a station for trunk calls and recalls. The ATTA is the sum of all answered times divided by the answered call count. Use the same calculation method as used for individual trunk ATTA.

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

6. **NOT-ANSD:** This is a count of how many times a trunk call was directed to the station but was not answered by this station.

7. **DIALED:** Peg count of how many times the station made a valid outside call. An outside call is defined by the SMDR start time in MMC 501.

8. **ICM-TRSF:** This is the number of times a trunk call was successfully transfered to another station using the intercom. It includes both screened and unscreened transfer.

9. **TRK–TRK:** This is the number of times a trunk call was transfered to another trunk (tie line) This is called a trunk–to–trunk transfer. This field gets pegged every time the station completes a trunk to trunk transfer.

10. **PICKUP:** This is a count of the outside calls that were picked up by the specific station. Picked-up calls are calls that are not ringing at your station but were answered by you. This peg count is separate from the number of answered call in #5 of Individual Stations section E.

11. **INTERCOM:** Statistics for intercom calls. An intercom call made from a station or a station device within the system to another station.

12. **ANSD:** This is the number of times an intercom call was answered by this specific station. Screened transfers count as an answered intercom call.

13. **DIALED:** The number of times the specific station dialed another station or station group. Screened transfers count as a dialed intercom call.

4.11 SAMPLE ALARM REPORT

```
ALARM REPORT FOR [                ] Apr/17/2002 01:05
          04/17/2002  00:59:18   MJD01  Sync Failure      SLOT#7
          04/17/2002  00:59:18   MJD03  Red Alarm         SLOT#7
          04/17/2002  00:59:18   MJD21  PCM Loss          SLOT#7
          04/17/2002  00:59:18   MJD18  T1 Restart        SLOT#7
```

PART 5. GENERAL 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 correct 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 IDCS 100 Private Automatic Branch Exchange (PABX) 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 noncompliance 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. On the right side of the PABX System is a label that contains the FCC registration number and ringer equivalence number (REN) for this equipment.

FCC Registration Numbers: A3LKOR-32706-KF-E or A3LKOR-32705-MF-E
Ringer Equivalence Number: 0.5 B

TELEPHONE CONNECTION REQUIREMENTS

The Federal Communications Commission (FCC) has established rules which permit the IDCS 100 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 iDCS 100, 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 iDCS 100, please contact your local 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 iDCS 100 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

This 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 keyset are hearing aid compatible as specified in Part 68 of the FCC Rules.

DISA WARNING

Lines that are used for Direct Inward System Access feature must have the disconnect supervision options provided by the telephone company insist that your service company verify this.

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.

5.4 SAFETY TESTS

The iDCS 100 system has been tested to comply with safety standards in the United States as listed below. This system is listed with Underwriters Laboratories.

LISTED

83X3

E118093
Project No.: 98NK12204

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.

5.6 EQUAL ACCESS REQUIREMENT

This equipment is capable of providing user access to interstate providers of operator services through the use of access codes. Modifications of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990 and Part 68 of the FCC Rules.

N O T E S

N O T E S

N O T E S

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 comsumable 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.