

NEC

Basics

Components

Features

**Specifications and
Parts List**

Glossary

DS1000/2000

Product Description

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This manual has been developed by NEC America, Inc. It is intended for the use of its customers and service personnel, and should be read in its entirety before attempting to install or program the system. Any comments or suggestions for improving this manual would be appreciated. Forward your remarks to:

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Section 1

Basics

1

Introducing DS1000/2000 — The STANDARD for the NEW MILLENIUM

DS1000/2000



**All new system architecture . . .
. . . built for the 21ST century**

NEC's legendary reliability and quality standards are evident in the DS1000/2000 innovative 32-bit architecture. This new concept features Digital Signal Processor (DSP) Technology, on-board flash memory, and field software upgradeability. The compact DS1000 starts with 3 lines, 8 stations, and 4 analog ports. It expands to 6 lines, 16 stations and 8 analog ports just by plugging in a single expansion board. The basic DS2000 system is available with 4 slots and 48 ports. It is easily expandable to 8 slots and 104 ports by upgrading to a 104 port cabinet. You can grow the system as you grow your business — while keeping your initial investment in common equipment intact.

Integrating our renowned power features — retooled for the office of the future

The power features first introduced a decade ago in the legendary DS01 have since become the industry standard. DS1000/2000 builds on this base with its totally revamped and redesigned feature set that further enhances the ease-of-use of its digital predecessor. DS1000/2000 brings a new level of speed and sophistication to the features you've come to expect from an NEC phone system.

Busy offices can always keep pace with productivity features like Caller ID, Last Number Redial, Speed Dial and Hotline. Getting through to busy co-workers is never a problem thanks to extensively redeveloped Call Waiting, Voice Over, Reverse Voice Over and Off-Hook Signaling.

Larger firms have a bevy of workgroup features from which to choose, such as Call Coverage on any phone, Extension Hunting, Group Call Pickup and multi-party Conference. With the User-Programmable Features, any extension user can customize their phone to work just the way they like. As the demands on the phone system increase, DS1000/2000 is right there with advanced features like full NVM-Series Voice Mail Integration (highlighted by Park and Page, Conversation Record, Make Call with Caller ID, and Answering Machine Emulation).

A family of telephones that sets the new standard in office communications

All telephone models offer 10 One-Touch (Speed Dial) Keys, Dual Color LEDs, Voice Over and built-in Handsfree Speakerphone. All 2-line display models feature 4 Interactive Soft Keys for intuitive, automated feature operation. In addition, the 34-button sets are available with an optional 24- or 110-Button Direct Station Selection (DSS) console.

DS1000/2000 Feature Overview

Calling a Co-Worker

Easily get in touch with co-workers over the Intercom. The party you call can have their phone ring, or they can respond without touching the phone using Handsfree Answerback. With a Hotline button, you can Intercom frequently called co-workers, Transfer a call and even see at a glance when they're busy. When you must get through to an associate right away, you can Barge In to get through even if they are talking with another caller.

Outside Calls

You can answer Outside Calls that ring your phone or flash your line/loop keys. You can customize the way incoming calls ring your phone. For example, they can ring during the day and just flash at night. Caller ID can show your caller's number and optional name before you answer their call. While you're on a call, use Reverse Voice Over to talk privately to a co-worker without putting your call on Hold.

Place Outside Calls by pressing your line/loop keys, dialing simple codes or just lifting the handset. Once your call goes through, the Call Timer shows how long you're on the phone.

Handling and Rerouting Your Calls

Use Hold to have your call wait at your phone, or Park it in orbit for a co-worker. Don't know where a co-worker is? Use Paging to locate them. When you leave your desk, forward your calls to a co-worker or to your NVM-Series voice mailbox. NVM-Series offers the industry's finest integrated Voice Mail, offering powerful productivity tools such as Return Call with Caller ID, Park and Page and One Touch Mailbox Access.

In a hurry? Think about leaving your co-worker a Message Waiting, or use the NVM-Series Voice Mail to record a voice message for them. Enable Conversation Record to have your voice mailbox record your own conversations.

When Your Call Can't Go Through

Don't just hang up when your call can't get through to a co-worker! Use Call Waiting to wait without hanging up. Send your co-worker Off Hook Signals to let them know you're waiting, or use Voice Over for a private announcement. With Voice Over, you can talk to a busy user while they keep talking to their initial caller. If you don't have time to wait, leave a Callback request that automatically rings you when they become free. You can optionally just lift the handset to have your call go through.

Placing Calls Quickly

Use Personal Speed Dial to store numbers you call often and easily dial them with just a few key presses. To quickly retry the number you just dialed, try Last Number Redial, or Save a number for quick redialing later on. With Directory Dialing, select a co-worker or outside call from a list of names, rather than dialing the phone number.

When You Work in Groups

If you and your co-workers handle each other's calls, set up an Extension Hunting group. To answer a call ringing a co-worker's phone, use Group Call Pickup, Directed Call Pickup or a Call Coverage key. When you're on a call and want others in your area to listen in on the conversation, activate Handsfree or Group Listen.

Have a Telephone Meeting

Conference allows you to quickly set up a telephone meeting. Use Meet Me Conference to set up a meeting which lets others join if they choose.

Customizing Your Telephone's Operation

The User-Programmable Features let you set up your telephone to meet your own unique requirements. For example, you can set ringing options for your line keys, Group Call Pickup keys and Call Coverage keys. Also, you can program your Speed Dial numbers, assign Hotline and DSS keys, and set up your Off-Hook Signaling options. You even have access to your Prime Line Assignment and Ringing Line Preference options.

Managing The System

Set up Toll Restriction to block those expensive, unnecessary long distance calls. To monitor traffic patterns, have Station Message Detail Recording print a record of your system's calls. Control the power and flexibility of system extensions through Class of Service. Some sites have unique numbering considerations, like matching phone numbers to room numbers in a school. If yours does, you'll appreciate Flexible System Numbering.

Other Powerful System Options

Use analog Single Line Telephones to set up a traditional PBX-type system. With the 2-OPX Module (DS2000 only), you can connect Single Line Telephones or off-premise extensions to the same common equipment used for digital phones. The system analog ports also lets you connect to fax machines and modems.

The system allows you to connect a music source for Background Music and Music on Hold, and provides an audio output for External Paging.

Section 2 Components

2

The Telephones

The total number of telephones, other station equipment, and trunks you can connect to your system depends on several configuration requirements. Turn to *DS2000 System Configuration* on page 18 and *DS1000 System Configuration* on page 23 for more on these requirements. Also, for your convenience there is a complete *Parts List* on page 107 at the end of this manual.

34-Button Super Display Telephone (P/N 80673)

The 34-Button Super Display Telephone is the system's premier telephone instrument. It features an 8-line, 20-character display with 12 interactive keys that provide intuitive call processing. The Super Display also offers 24 user-programmable function keys for one-button access to a host of sophisticated features. The 14 fixed feature keys provide quick access to the vast array of standard features. The Super Display has a built-in speakerphone and desk stand, offers Dual Color LEDs and is compatible with the optional REJ Recording Jack.



 34-Button Super Display Telephone P/N 80673 at a glance —

Display 8 x 20	Soft Keys Yes	Dual Color LEDs Yes
Function Keys 24	Speed Dial Keys 10	Feature Keys 14
Handsfree Yes	DSS/REJ Compatible . . Yes	Load Factor 1

34-Button Display Telephone (P/N 80663)

The 34-Button Display Telephone features a 2-line, 20 character display with 4 Interactive Soft Keys for intuitive feature access, 10 Personal Speed Dial bin keys, 24 user-programmable function keys and 14 fixed feature keys. It also offers a built-in speakerphone, Dual Color LEDs, and a built-in desk stand. The 34-Button Display Telephone is compatible with the optional REJ Recording Jack.



☞ 34-Button Display Telephone P/N 80663 at a glance —

Display 2 x 20	Soft Keys Yes	Dual Color LEDs Yes
Function Keys 24	Speed Dial Keys 10	Feature Keys 14
Handsfree Yes	DSS/REJ Compatible . . Yes	Load Factor 1

22-Button Display Telephone (P/N 80573)

The 22-Button Display Telephone provides a 2-by-20 alphanumeric display with 4 Interactive Soft Keys for intuitive feature access, 10 Personal Speed Dial bin keys, 12 user-programmable function keys and 14 fixed feature keys. It also offers a built-in speakerphone, Dual Color LEDs and a built-in desk stand.



☞ 22-Button Display Telephone P/N 80573 at a glance —

Display 2 x 20	Soft Keys Yes	Dual Color LEDs Yes
Function Keys 12	Speed Dial Keys 10	Feature Keys 14
Handsfree Yes	DSS/REJ Compatible . . No	Load Factor 1

22-Button Telephone (P/N 80570)

The economical 22-Button Telephone also has 10 Personal Speed Dial bin keys, 12 user-programmable function keys and 14 fixed feature keys. It also provides a built-in speakerphone, Dual Color LEDs and a built-in desk stand. It does not, however, have a display or Interactive Soft Keys.



☞ 22-Button Telephone P/N 80570 at a glance —

Display No	Soft Keys No	Dual Color LEDs Yes
Function Keys 12	Speed Dial Keys 10	Feature Keys 14
Handsfree Yes	DSS/REJ Compatible . . No	REJ Compatible 1

ST4 Analog Telephone (P/N 85403W)

Use the ST4 or other 2500 type single line set for analog telephone applications. The ST4 features attractive styling, a Flash key and Last Number Redial key. The ST4 is only available in the United States.



ST4 Analog Telephone P/N 85403W at a glance —

Display	No	Soft Keys	No	Dual LEDs.	No
Function Keys	No	Speed Dial Keys.	No	Feature Keys	2
Handsfree.	No	DSS/REJ Compatible . .	No	Load Factor . . .	See page 19.

Other Station Equipment

110-Button (P/N 80555) and 24-Button (P/N 80556) DSS Consoles

The 110-Button DSS Console gives a 34-Button Super Display or 34-Button Display user a 110-button Busy Lamp Field (BLF) and one-button access to extensions, trunks, and selected system features. The 110-Button DSS Console is a great time saver for users that do a lot of call processing (such as operators or dispatchers). By default, the 110-Button DSS Console is set up with Hotline keys to extensions and 14 feature keys for quick access to Page, Park and the system Night Mode.



110-Button DSS Console P/N 80555 at a glance —

DSS/BLFKeys	110	Load Factor	2
Installs only in 34-Button Super Display and 34-Button Display Telephones.			

The compact 24-Button DSS Console is identical in operation to the 110 button model — but provides 24 keys (instead of 110). By default, the 24-Button DSS Console provides Hotline keys for system extensions.



24-Button DSS Console P/N 80556 at a glance —

DSS/BLFKeys	24	Load Factor	1
Installs only in 34-Button Super Display and 34-Button Display Telephones.			

You can install up to 4 DSS Consoles maximum. Depending on your system configuration, the number of DSS Consoles you can install may also be limited by the System Load Factor. See *DS2000 System Configuration* on page 18 and *DS1000 System Configuration* on page 23 for more.

2-OPX Module (P/N 92177A)

The 2-OPX Module provides two 2500 type analog circuits for connecting single line sets, modems and fax machines. It is also a handy way to connect Voice Mail ports in systems without separate ASTU PCBs. (See page 13 for more on ASTU PCBs.) The 2-OPX Module is a stand-alone unit with its own internal DTMF receivers, ring generator and power supply. Since the 2-OPX Module is a true OPX, it can connect to telco OL13 B/C OPX circuits. Even though it provides 2 analog circuits, the 2-OPX Module connects to a *single* digital (DSTU) port. The 2-OPX Module is wall-mountable using the provided wall mount brackets.



The number of 2-OPX Modules you can install may also be limited by the System Load Factor. See *DS2000 System Configuration* on page 18 for more.

The 2-OPX Module is not available in DS1000.

2-OPX Module P/N 92177A at a glance —

Analog 2500 type circuits	2	Load Factor	4
Connects to a single digital (DSTU) port.			

Digital Door Box (P/N 80560) and Analog Door Box (P/N 92245)

The Door Box is a self-contained Intercom unit typically used to monitor an entrance door. A visitor at the door can press the Door Box call button (like a door bell). The Door Box then sends chime tones to all extensions programmed to receive chimes. To answer the chime, the called extension user just lifts the handset. This lets the extension user talk to the visitor at the door. The Door Box is convenient to have at a delivery entrance, for example. It is not necessary to have company personnel monitor the door.




There are two types of Door Boxes: Analog Door Box P/N 92245 and Digital Door Box P/N 80560. Both Door Boxes operate identically. There are, however, some differences:

- The Digital Door Box connects to a digital station port. The number of Digital Door Boxes you can install may be limited by the System Load Factor. See *DS2000 System Load Factor Calculations* on page 19 and *DS1000 System Load Factor Calculations* on page 23 for more.
- The Digital Door Box is available in Universal Slot (02.nn.nn) versions of DS2000 and all versions of DS1000.
- The Analog Door Box is only available in DS1000 (2 maximum). An Analog Door Box plugs into one of the dedicated Door Box ports (DOOR1 or DOOR2).
- The Analog Door Box can be mounted outside. The Digital Door Box is not intended for outdoor installations.

Any extension that receives Door Box alerts can also activate a control relay. If the relay is connected to electric door strike circuits, an extension user can press FLASH or a soft key to remotely lock and unlock the entrance door. There is a single relay in DS2000, located on the CPRU. There are two relays in DS1000, one for each Analog Door Box. Digital Door Boxes in DS1000 do not provide relay control.

 **Digital Door Box P/N 80560 at a glance —**

Connects to a single digital (DSTU) port.	Load Factor 1
One control relay on CPRU in DS2000.	No control relays in DS1000.

 **Analog Door Box P/N 92245 at a glance (DS1000 Only) —**

Connects to a dedicated Analog Door Box port (2 max.).	Control relay available for each Analog Door Box.
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Wall Mount Kit (P/N 80579)

Use the snap-on Wall Mount Kit to attach any key telephone to the wall or a standard wall plate. The wall-mount kit includes a mounting bracket, wall-mount screws and a handset hanger.

REJ Recording Jack Module (P/N 80175)

Use the REJ Recording Jack to connect a Super Display or 34-Button Display Telephone to an external tape recorder or amplifier. The REJ broadcasts both sides of the conversation (i.e., the extension user's voice and the caller's voice) whenever the user lifts the handset. The REJ does not broadcast Paging announcements or activate for Handsfree calls.



The REJ provides a standard AUX level output through a mono sub-miniature jack.

 **REJ Recording Jack Module P/N 80175 at a glance —**

Output Level AUX	Connector Mono Sub-miniature
Installs only in 34-Button Super Display and 34-Button Display Telephones.	

Labelmaker

The DS1000/2000 Labelmaker consists of template software (P/N 80055) which, in combination with separately available pre-cut forms, allows you to make custom key labels for each key telephone. These custom key labels can include Speed Dial names and Programmable Function Key descriptions.

The following pre-cut forms are available:

- 34-Button Super Display Laser Labels - package of 10 (P/N 80625-S34)
- 34-Button Display Laser Labels - package of 25 (P/N 80625-34)
- 22-Button Laser Labels - package of 25 (P/N 80625-22)
- 110-Button DSS Laser Labels - package of 10 (P/N 80625-DSS)
- 24-Button DSS Laser Labels - package of 10 (P/N 80625-24DSS)

The Labelmaker requires:

- A Windows-compatible sheet fed laser or ink jet printer.
 - Microsoft Windows 95/98/2000
 - Microsoft Excel (Office 97 version or higher)
- OR
- Lotus 123 (Release 5 or higher)

DS2000 Common Equipment

4-Slot Cabinet (P/N 80000)

The 4-Slot Cabinet houses the CPU, 4 universal PCB slots and the system's power supply. It provides 48 ports and can connect up to 24 trunks and 40 extensions. It is wall-mountable, has a flip off cover and removable side panel for easy access. The cabinet has a handy translucent panel in the cover that allows you to get essential system status and troubleshooting information at a glance, without removing the cover.



Make a note of the following...

- You must plug a 16DSTU PCB into the first universal slot of the 4-Slot Cabinet.
- The 4-Slot Cabinet accepts either A series or non-A series PCBs and power supply.

Be sure to review *DS2000 System Configuration* on page 18 for more on setting up the 4-Slot cabinet.

 **4-Slot Cabinet P/N 80000 at a glance —**

Universal Slots	4	Ports	48
Trunks (maximum)	24	Extensions (maximum)	40
Accepts either A series or non-A series PCBs and power supplies.			

8-Slot Cabinet (P/N 80001)

The 8-Slot Cabinet contains the CPU slot, 8 universal PCB slots and up to 3 system power supplies (depending on Load Factor requirements). It provides 104 ports and can connect up to 48 trunks and 96 extensions. Just like the 4-slot model, the 8 Slot Cabinet is wall-mountable, has a flip off cover and removable side panel for easy access. The 8-Slot Cabinet also has a translucent panel in the cover for getting essential system status and troubleshooting at a glance.



Make a note of the following...

- You must plug a 16DSTU PCB into the first universal slot of the 8-Slot Cabinet.
- Only install A series PCBs and power supplies in the 8-Slot Cabinet.
- Install a power supply for every 2 16DSTU PCBs.

Be sure to review *DS2000 System Configuration* on page 18 for more on setting up the 8-Slot Cabinet.

 **8-Slot Cabinet P/N 80001 at a glance —**

Universal Slots	8	Ports	104
Trunks (maximum)	48	Extensions (maximum)	96
Accepts only A series PCBs and power supplies.			

Power Supply (P/Ns 80005 and 80005A)

The power supply provides the various DC voltages required to power the system's PCBs. The 4-Slot Cabinet requires a single power supply. The 8-Slot Cabinet requires up to 3 power supplies, depending on system configuration.

Make a note of the following...

- A 4 Slot Cabinet can use either an A series or non-A series power supply.
- An 8 Slot Cabinet can use only A series power supplies.
- In an 8 Slot Cabinet, you must have a power supply for every 2 16DSTU PCBs installed.

Be sure to review *DS2000 System Configuration* on page 18 for help on deciding how many power supplies your 8-Slot Cabinet requires.

**PC Card with Software (P/N 80051-V**.**.**)**

The PC Card with Software allows you to easily upgrade your system's software without removing system PCBs or powering down your system. Just insert the PC Card, flip a switch, and reboot your system with the latest software enhancements fully installed.

Blank PC Card (P/N 85880)

Use the Blank PC Card to store up to 16 system databases. Unlike the PC Card with Software above, the Blank PC Card does not contain system software. You cannot use it to field-upgrade your system's software. Note that you cannot use PC Card with Software P/N 80051-V**.**.**) to store system databases.

Always review the Release Notes that ship with every system for the latest information on DS2000 data base compatibility.



2

DS2000 PCBs
CPU Central Processing Unit PCB (P/Ns 80025 and 80025A)

The CPU PCB is the system's control center. It provides the system's central processing, stored program, and memory for the customer's site-specific data. Every system requires a CPU PCB. In addition, it also provides:

- PC Card interface
- Conference circuits, DTMF receivers and DTMF generators
- External music input
- External Paging output
- External relay
- Real Time Clock
- Battery for short term (14 day) backup of the customer's site-specific data
- Diagnostic and status LEDs



Make a note of the following...

- You can install either an A series or non-A series CPU in a 4-Slot Cabinet.
- If you install a non-A CPU (P/N 80025) in a 4 Slot Cabinet, the system automatically loads a unique 16 trunk x 32 digital station database. Turn to *Hardware Configuration for DS2000 4 Slot Cabinet with Universal Slot Software* on page 21 for more.
- If you install an A CPU (P/N 80025A) in a 4 Slot Cabinet, the system automatically loads the same database as that used in the 8 Slot Cabinet. Again, turn to *Hardware Configuration for DS2000 4 Slot Cabinet with Universal Slot Software* on page 21 for more.
- You must install an A series CPU in an 8-Slot Cabinet. Read *Hardware Configuration for DS2000 8 Slot Cabinet with Universal Slot Software* on page 22 for more on the default database automatically loaded into the 8-Slot Cabinet.
- When connecting a music source, an External Paging system, or a device controlled by the CPU relay, make sure the connected device is compatible with the CPU input and output specifications. Review you system’s *Hardware Manual* for more.

 **CPU P/Ns 80025 and 80025A at a glance —**

Music Inputs	1	Page Outputs	1
Relay Contacts.....	1 set	DTMF Receivers and Generators.....	Yes
You must install an A series CPU (P/N 80025A) in an 8-Slot Cabinet.			


16DSTU Digital Station PCB (P/Ns 80021 and 80021A)

Each 16DSTU PCB connects 16 digital extensions (i.e., keysets) and/or Digital Door Boxes. You can also connect 2-OPX Modules. The 16DSTU has a Mode Switch (for taking the PCB out of service). It also has a status LED that indicates proper PCB operation — as well as a port activity LED that flashes faster as traffic on the PCB increases. You can install up to 2 16DSTU PCBs in a 4-Slot Cabinet. You can install up to 6 16DSTU PCBs in an 8-Slot Cabinet. See *DS2000 System Configuration* on page 18 for more.



Make a note of the following...

- When connecting 2-OPX Modules, always observe the System Load Factor. See page 19 for more.
- You must install a separate power supply for every 2 16DSTU PCBs installed.
- In all systems, you must install a 16DSTU PCB in the first universal slot.
- In Fixed Slot systems, you can only install 16DSTU PCBs in the first 2 universal slots.
- In Universal Slot systems, you can install 16DSTU PCBs in any universal slot.
- You can install either A or non-A series 16DSTU PCBs in 4-Slot Cabinets.
- You must install A series 16DSTU PCBs in 8-Slot Cabinets.

 **16DSTU PCB P/Ns 80021 and 80021A at a glance —**

Digital station ports.....	16	4-Slot Fixed.....	Universal slots 1 and 2
4-Slot Universal.....	Any universal slot	8-Slot Universal.....	Any universal slot
You must install A series 16DSTUs (P/N 80021A) in an 8-Slot Cabinet.			


8ASTU 8 Port Analog Station PCB (P/Ns 80041 and 80041A)

The 8ASTU PCB connects 8 analog extensions. These can include single line telephones, fax machines, modems or Voice Mail ports. Just like the 16DSTU PCB, the 8ASTU PCB has a Mode Switch (for taking the PCB out of service), a status LED indicating proper PCB operation, and a port activity LED to indicate traffic on the PCB. The number of 8ASTU PCBs you can install depends on system configuration. Turn to *DS2000 System Configuration* on page 18 for more.



Make a note of the following...

- In Fixed Slot systems, you can only install an 8ASTU in the second universal slot.
- In Universal Slot systems, you can install 8ASTU PCBs in any universal slot except the first.
- You can install either A or non-A series 8ASTU PCBs in 4-Slot Cabinets.
- You must install A series 8ASTU PCBs in 8-Slot Cabinets.

 **8ASTU PCB P/Ns 80041 and 80041A at a glance —**

Analog station ports 8	4-Slot Fixed Universal slot 2 only
4-Slot Universal . . Any universal slot but 1	8-Slot Universal . . Any universal slot but 1
You must install A series 8ASTUs (P/N 80041A) in an 8-Slot Cabinet.	

4ASTU 4 Port Analog Station PCB (P/Ns 80040 and 80040A)

The 4ASTU PCB is identical to the 8ASTU PCB, except that it provides connection for only 4 analog extensions. The 4ASTU PCB has a Mode Switch (for taking the PCB out of service), a status LED indicating proper PCB operation, and a port activity LED to indicate traffic on the PCB. The number of 4ASTU PCBs you can install depends on system configuration. Turn to *DS2000 System Configuration* on page 18 for more.

Make a note of the following...

- In Fixed Slot systems, you can only install a 4ASTU in the second universal slot. It provides connection for 4 analog extensions, but uses up 8 analog ports.
- In Universal Slot systems, you can install 4ASTU PCBs in any universal slot except the first.
- You can install either A or non-A series 4ASTU PCBs in 4-Slot Cabinets.
- You must install A series 4ASTU PCBs in 8-Slot Cabinets.

 **4ASTU PCB P/Ns 80040 and 80040A at a glance —**

Analog station ports 4	4-Slot Fixed Universal slot 2 only
4-Slot Universal . . Any universal slot but 1	8-Slot Universal . . Any universal slot but 1
You must install A series 4ASTUs (P/N 80040A) in an 8-Slot Cabinet.	

8ATRU 8 Port Analog Trunk PCB (P/Ns 80011 and 80011A)

The 8ATRU PCB supports 8 analog loop start CO trunks. The PCB has a Mode Switch (for taking the PCB out of service), a status LED indicating proper PCB operation, and a port activity LED that indicates traffic on the PCB. You can install 2 8ATRU PCBs in a Fixed Slot 4-Slot Cabinet, up to 3 8ATRU PCBs in a Universal Slot 4-Slot Cabinet, and up to 6 8ATRU PCBs in an 8-Slot Cabinet. Turn to *DS2000 System Configuration* on page 18 for more.



Each 8ATRU PCB also provides 2 power failure cut-through circuits. When commercial AC power fails, the PCB automatically cuts through 2 trunk circuits to 2 power failure telephones.

The A series version of the 8ATRU PCB (P/N 80011A) also accepts Caller ID PCB daughter board P/N 80013 for Caller ID applications.

Make a note of the following...

- In Fixed Slot systems, you can only install 8ATRU PCBs in the last 2 universal slots.
- In Universal Slot systems, you can install 8ATRU PCBs in any universal slot except the first.
- You can install either A or non-A series 8ATRU PCBs in 4-Slot Cabinets.
- You must install A series 8ATRU PCBs in 8-Slot Cabinets.
- You can only install Caller ID PCB daughter boards on A series 8ATRU PCBs.

8ATRU PCB P/Ns 80011 and 80011A at a glance —

Analog loop start trunks 8	4-Slot Fixed . . . U slots 3 and 4 only (2 max)
4-Slot Universal . . Any U slot but 1 (3 max)	8-Slot Universal . Any U slot but 1 (6 max)
You must install A series 8ATRUs (P/N 80011A) in an 8-Slot Cabinet.	

4ATRU 4 Port Analog Trunk PCB (P/Ns 80010 and 80010A)

The 4ATRU PCB is identical to the 8ATRU PCB except that it supports only 4 analog loop start CO trunks. Just like the 8ATRU PCB, the 4ATRU PCB has a Mode Switch (for taking the PCB out of service), a status LED indicating proper PCB operation, and a port activity LED that indicates traffic on the PCB. You can install 2 4ATRU PCBs in a Fixed Slot 4-Slot Cabinet, and up to 3 4ATRU PCBs in a Universal Slot 4-Slot Cabinet. The number you can install in an 8-Slot Cabinet depends on system configuration. See *DS2000 System Configuration* on page 18 for more.

Each 4ATRU PCB also provides 2 power failure cut-through circuits. When commercial AC power fails, the PCB automatically cuts through 2 trunk circuits to 2 power failure telephones.

The A series version of the 4ATRU PCB (P/N 80010A) also accepts Caller ID PCB daughter board P/N 92012 for Caller ID applications.

Make a note of the following...

- In Fixed Slot systems, you can only install 4ATRU PCBs in the last 2 universal slots. Each PCB provides connection for 4 loop start trunks, but uses up 8 analog trunk ports.
- In Universal Slot systems, you can install 4ATRU PCBs in any universal slot except the first.
- You can install either A or non-A series 4ATRU PCBs in 4-Slot Cabinets.
- You must install A series 4ATRU PCBs in 8-Slot Cabinets.

- You can only install Caller ID PCB daughter boards on A series 4ATRU PCBs.

 **4ATRU PCB P/Ns 80010 and 80010A at a glance —**

Analog loop start trunks 4	4-Slot Fixed . . . U slots 3 and 4 only (2 max)
4-Slot Universal . . Any U slot but 1 (3 max)	8-Slot Universal . Any U slot but 1 (6 max)
You must install A series 4ATRU's (P/N 80010A) in an 8-Slot Cabinet.	

8CIDU 8 Circuit Caller ID PCB (P/N 80013)

The 8 Circuit Caller ID Daughter Board PCB snaps on to an 8ATRU Analog Trunk PCB (P/N 80011A) to provide Caller ID capability on all 8 trunk circuits. You can install 8 Circuit Caller ID Daughter Boards on all of the system's 8ATRU PCBs without any Load Factor considerations.



Make a note of the following...

- You can install an 8 Circuit Caller ID PCB only on an A series 8ATRU PCB (P/N 80011A).

4CIDU 4 Circuit Caller ID PCB (P/N 92012)

The 4 Circuit Caller ID Daughter Board PCB snaps on to a 4ATRU Analog Trunk PCB (P/N 80010A) to provide Caller ID capability on all 4 trunk circuits. You can install 4 Circuit Caller ID Daughter Boards on all of the system's 4ATRU PCBs without any Load Factor considerations.

Make a note of the following...

- You can install a 4 Circuit Caller ID PCB only on the A series version of the 4ATRU PCB (P/N 80010A).
- If you install a 4 Circuit Caller ID PCB on an 8ATRU PCB (P/N 80011A), you will get Caller ID service only on the first 4 trunks.

DS1000 Common Equipment

DS1000 Cabinet (P/N 80200)

The compact, wall-mountable DS1000 main equipment cabinet contains all the system's common control circuitry and provides connection for trunks (outside lines), extensions, Door Boxes and other peripherals. **Without** the plug in Expansion Board installed, the DS1000 cabinet supports:

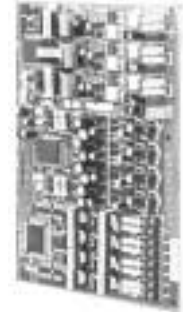


- 3 trunks
- 8 digital extensions
- 4 analog extensions
- 1 Analog Door Box
- 1 Analog Door Box control relay that can alternately be used for External Paging amplifier control
- 1 External Paging output
- 1 Music input

DS1000 Expansion Board (P/N 80221)

By removing the main equipment cabinet cover and snapping in the Expansion Board, the DS1000 can accommodate *an additional*:

- 3 trunks
- 8 digital extensions
- 4 analog extensions
- 1 Analog Door Box
- 1 Analog Door Box control relay that can alternately be used for External Paging amplifier control



With the Expansion Board installed, the *total system capacity* is:

- 6 trunks
- 16 digital extensions
- 8 analog extensions
- 2 Analog Door Boxes
- 2 control relays
- 1 External Paging output
- 1 Music input

Flash Utility (P/N 80250-V**.**.**))

Use the Flash Utility installed on a PC or laptop connected to your system to upgrade your system's software. The Flash Utility, along with the latest system software files, is available on the System Document CD (P/N 80200DCD**) that is provided with each DS1000 system. The Flash Utility and system software files are also available on the web at ws1.nitsuko.com/ds2000.

Miscellaneous and Optional Equipment

DS2000 Adaptor Box (P/N 80890)

The DS2000 Adaptor Box has two 8-conductor (RJ61X) modular jack inputs and 8 2-conductor modular jack (RJ11) outputs. When used with the RJ61X 8-Conductor Cable below (P/N 80891), it can connect up to 8 extensions, 8 trunks, or 4 of each. You can also use the Adaptor Box for the CPU audio and relay connections. The Adaptor Box is intended for DS2000 testing and demo systems.

RJ61X 8-Conductor Cable (P/N 80891)

In DS2000, use the RJ61X 8-Conductor Cable to connect DSTU PCBs, ASTU PCBs, ATRU PCBs, or the CPU audio and relay connections to Adaptor Box P/N 80890. Each Adaptor Box requires 2 RJ61X 8-Conductor Cables.

In DS1000, you can use the RJ61X 8-Conductor Cable to connect:

- A modem to the system's RS-232-C serial port. This application also requires DB25 Male to Mod-8 Adaptor P/N 85981. Note that you can also use a standard Mod 8 Patch Cord in lieu of 8-conductor cable P/N 80891.
- A PC or laptop to the system's RS-232-C serial port. Use the PC or laptop to collect call history, view Station Message Detail Recording (SMDR) data, or use the Flash Utility to upgrade system software. These applications also require DB9 Female to Mod-8 Adaptor P/N 85980. Note that you can also use a standard Mod 8 Patch Cord in lieu of 8-conductor cable P/N 80891.

DS2000 8-Pin DIN to Mod-8 Cable (P/N 80893)

The 8-Pin DIN to Mod-8 Cable is intended for connecting a modem, PC, or SMDR collection device to the DS1000/2000 RS-232-C serial port.

- Use cable P/N 80893 along with the DB9 Female to Mod-8 Adaptor (P/N 85980) below when connecting to a PC or laptop.
- Use cable P/N 80893 along with the DB25 Male to Mod-8 Adaptor (P/N 85981) below when connecting to a modem.

DB9 Female to Mod-8 Adaptor (P/N 85980)

In DS2000, use DB9 Female to Mod-8 Adaptor P/N 85980 along with 8-Pin DIN to Mod-8 Cable P/N 80893 to connect a PC or laptop to the DS2000 RS-232-C serial port.

In DS1000, use DB9 Female to Mod-8 Adaptor P/N 85980 along with RJ61X 8-Conductor Cable P/N 80891 (or a standard Mod 8 Patch Cord) to connect a PC or laptop to the DS1000 RS-232-C serial port.

DB25 Male to Mod-8 Adaptor (P/N 85981)

In DS2000, use DB25 Male to Mod-8 Adaptor P/N 85981 along with 8-Pin DIN to Mod-8 Cable P/N 80893 to connect a modem to the DS2000 CPU RS-232-C serial port.

In DS1000, use DB25 Male to Mod-8 Adaptor P/N 85981 along with RJ61X 8-Conductor Cable P/N 80891 (or a standard Mod 8 Patch Cord) to connect a modem to the DS1000 RS-232-C serial port.

DS2000 Installation Cable (P/N 80892)

Installation Cable P/N 80892 makes it easy to connect the DS2000 system PCBs to standard 66M1-50 connecting blocks. This 25-pair cable has 6 8-pin modular connectors on one end and is unterminated on the other.

Replacement Parts

Turn to *Parts List* on page 107 for a complete parts list of all system components and replacement parts.

DS2000 System Configuration

The total number of components you can install and connect to your DS2000 system depends on power supply capacity and the System Load Factor. Use the notes below and the System Load Factor Table to calculate your system's capacity.

Notes for DS2000 Fixed Slot Software

Fixed Slot (01.nn.nn) software is only available with 4 slot cabinets.

- Fixed Slot software is no longer available, but you may encounter it in existing installations.
- DSTU PCBs can plug only into the first two slots. Do not install more than 2 16DSTU PCBs under any circumstances.
- An ASTU PCB can plug only into the second slot (in place of the second DSTU PCB).
- ATRU PCBs can plug only into slots 3 and 4.
- Maximum configuration is 16 trunks, 32 extensions, and 48 ports.
- Use the System Load Factor Table only if your system has DSS Consoles and 2-OPX Modules.

Notes for DS2000 Universal Slot Software

Universal Slot (02.nn.nn) software is available with both 4 and 8 slot cabinets.

4 Slot Cabinets

- Do not install more than 2 16DSTU PCBs under any circumstances.
- The first 16DSTU PCB you install must be in the first slot.
- You can install up to 40 extensions maximum, as follows:
 - (2) 16DSTU PCBs = 32 digital extensions
 - (1) 8ASTU PCB = 8 analog extensions
 - 40 extensions total
- You can install up to 24 trunks maximum, as follows:
 - (3) 8ASTU PCBs = 24 analog trunks
- Maximum configuration is 48 ports.
- The total of all extensions and trunks installed cannot exceed 48.
- Always use the System Load Factor Table to check your system configuration.

8 Slot Cabinets

- Do not install more than 2 16DSTU PCBs for each power supply.
- The first 16DSTU PCB you install must be in the first slot.
- You can install up to 96 extensions maximum.
- You can install up to 48 trunks maximum.
- The total of all extensions and trunks installed cannot exceed 104 (104 ports).
- 8 slot cabinets **require** A series PCBs, as follows:
 - CPU PCB P/N 80025A
 - Power Supply P/N 80005A
 - 16DSTU Digital Station PCB P/N 80021A
 - 8 ASTU 8 Port Analog Station PCB P/N 80041A
 - 4ASTU 4 Port Analog Station PCB P/N 80040A
 - 8ATRU 8 Port Analog Trunk PCB P/N 80011A
 - 4ATRU 4 Port Analog Trunk PCB P/N 80010A
- Always use the System Load Factor Table to check your system configuration.

DS2000 System Load Factor Calculations

To check your DS2000 system configuration:

1. Indicate the quantity for each item installed in the **Qty** column.
2. For each item, multiply the **Qty** times the **Load Factor** and enter the value in the **Total Load** column.
3. Add all the values in the **Total Load** column and enter the value in **Item 1**.
4. Determine the System Load Factor capacity of the power supplies installed in your system and enter the total in **Item 2**.
A 4-Slot Cabinet can have only 1 power supply. An 8-Slot Cabinet can have up to 3 power supplies. You cannot have more than two 16DSTU PCBs per power supply, regardless of System Load Factor calculations.
5. Compare the entry in **Item 2** to your entry in **Item 1**. *Item 1 must always be equal to or less than the entry in Item 2.*

Do not operate your system if the System Load Factor total (Item 1) exceeds the allowable value (Item 2).



DS2000 System Load Factor Calculations			
Item	Load Factor	Qty	Total Load
Each Digital Telephone and Digital Door Box	1		
4ASTU PCB	8		
8ASTU PCB	12		
110-Button DSS Console	2		
24-Button DSS Console	1		
Total DSS Consoles installed cannot exceed 4.			
2-OPX Module	4		
Item 1: Total load for this configuration:			
Item 2: If you have <u>one</u> power supply installed, enter 48. If you have <u>two</u> power supplies installed, enter 80. If you have <u>three</u> power supplies installed, enter 112. (2 16DSTU PCBs maximum per power supply)			
Note: An 8-Slot Cabinet can have up to 3 power supplies. You <i>cannot</i> have more than two 16DSTU PCBs per power supply, regardless of System Load Factor calculations.			

Sample DS2000 System Configurations

Examples of Typical 4-Slot Cabinet Maximum Configurations

Note that only the first configuration listed below (16 x 32) applies to fixed slot software.

- **16 x 32** (16 trunks and 32 digital extensions)
Recommended for sites with no Voice Mail and high trunk usage.
- **24 x 16** (24 trunks and 16 digital extensions)
Recommended for sites with no Voice Mail and very high trunk usage.
- **8 x 16 x 16** (8 trunks, 16 digital extensions and 16 analog extensions)
Recommended for sites with Voice Mail, normal trunk usage and high analog extension usage.
- **16 x 16 x 8** (16 trunks, 16 digital extensions and 8 analog extensions)
Recommended for sites with Voice Mail, high trunk usage and high analog extension usage.
- **8 x 32 x 8** (8 trunks, 32 digital extensions and eight analog extensions)
Recommended for sites with Voice Mail, normal to low trunk usage and low analog extension usage.

Examples of Typical 8-Slot Cabinet Maximum Configurations

- **32 x 64** (32 trunks and 64 digital extensions)
Recommended for sites with no Voice Mail and high trunk usage. This configuration requires 2 power supplies.
- **48 x 32** (48 trunks and 32 digital extensions)
Recommended for sites with no Voice Mail and very high trunk usage. This configuration requires 1 power supply.
- **16 x 32 x 32** (16 trunks, 32 digital extensions and 32 analog extensions)
Recommended for sites with Voice Mail, normal trunk usage and high analog extension usage. This configuration requires 2 power supplies.
- **32 x 32 x 16** (32 trunks, 32 digital extensions and 16 analog extensions)
Recommended for sites with Voice Mail, high trunk usage and high analog extension usage. This configuration requires 2 power supplies.
- **16 x 64 x 16** (16 trunks, 64 digital extensions and 16 analog extensions)
Recommended for sites with Voice Mail, normal to low trunk usage and low analog extension usage. This configuration requires 3 power supplies.

DS2000 Default Hardware Setup

Every DS2000 system has a factory-installed default setup. The default setup determines the hardware you can install and how the system features work *without reprogramming*.

Hardware Configuration for DS2000 4 Slot Cabinet with Fixed Slot Software

Following is the default PCB configuration for a 4 slot cabinet using CPU P/N 80025 equipped with Fixed Slot software. Although Fixed Slot software is no longer available, you may encounter it in existing installations. Note that an existing CPU P/N 80025 equipped with Fixed Slot software can be upgraded to Universal Slot software. Contact your Sales Representative for the specifics.

Slot	PCB	Extensions
1	16DSTU	300-315
2	16DSTU	316-331
3	8 ATRU	401-408
4	8 ATRU	409-416

2

Hardware Configuration for DS2000 4 Slot Cabinet with Universal Slot Software

Both CPU P/N 80025 and P/N 80025A can be equipped with Universal Slot Software. When installed in a 4 Slot cabinet, each version CPU will provide a different default PCB configuration.

Configuration 1 - with CPU P/N 80025

Following is the default PCB configuration for a 4 slot cabinet using CPU P/N 80025 equipped with Universal Slot software.

Slot	PCB	Extensions
1	16DSTU	300-315
2	16DSTU	316-331
3	8 ATRU	401-408
4	8 ATRU	409-416

Configuration 2 - with CPU P/N 80025A

Following is the default PCB configuration for a 4 slot cabinet using CPU P/N 80025A equipped with Universal Slot software. *Since a 4 slot system allows only 2 16DSTU PCBs, you must reprogram this configuration.*

Slot	PCB	Extensions
1	16DSTU	300-315
2	16DSTU	316-331
3	16DSTU	332-347
4	16DSTU	348-363

Hardware Configuration for DS2000 8 Slot Cabinet with Universal Slot Software

Following is the default PCB configuration for an 8 slot cabinet with Universal Slot software. Note that this configuration requires 3 power supplies. Refer to *DS2000 System Load Factor Calculations* on page 19 for more. In addition, the 8 Slot Cabinet with CPU P/N 80025A does not support Fixed Slot software.

Slot	PCB	Extensions
1	16DSTU	300-315
2	16DSTU	316-331
3	16DSTU	332-347
4	16DSTU	348-363
5	16DSTU	364-379
6	8 ATRU	401-408
7	8 ATRU	409-416
8	8 ATRU	417-424

DS1000 System Configuration

DS1000 System Load Factor Calculations

The combination of extensions, Digital Door Boxes and DSS Consoles you can connect to your system may be limited by the System Load Factor. Use the *DS1000 System Load Factor Calculations* chart below to verify your system's configuration.

To check your DS1000 system configuration:

1. Indicate the quantity for each item installed in the **Qty** column.
2. For each item, multiply the **Qty** times the **Load Factor** and enter the value in the **Total Load** column.
3. Add all the values in the **Total Load** column and enter the value in **Item 1**.
4. Compare the entry in **Item 2** to your entry in **Item 1**. *Item 1 must always be equal to or less than the entry in Item 2.*

Do not operate your system if the System Load Factor total (Item 1) exceeds the allowable load of 30 (Item 2).

2

DS1000 System Load Factor Calculations			
Item	Load Factor	Qty	Total Load
Each Digital Telephone and Digital Door Box	1		
Analog Telephone	1		
Analog Door Box	0		
110-Button DSS Console	2		
24-Button DSS Console	1		
Total DSS Consoles installed cannot exceed 4.			
Item 1: Total load for this configuration:			
Item 2: Maximum allowable load:			30

DS1000 Default Hardware Configuration

Using the factory installed default configuration, your DS1000 system provides:

	Base	Expansion	Total
Trunks	3	3	6
Digital Extensions	8	8	16
Analog Extensions	4	4	8
Analog Door Boxes	1	1	2
Relays	1	1	2
Page Output	1		1
Music Input	1		1

Default Feature Configuration

DS2000 Fixed Slot Software

- All trunks are loop start DTMF
- All extensions are 22-Button Display models.
- Trunks 1-8 ring on line keys 1-8.
- Extension users cannot press ICM and dial 9 for an outside line. Trunk Group Routing, Line Dial-Up, and Direct Trunk Access are disabled.
- The last active Programmable Function Key on extension 300 is the Operator Call Key.

DS2000 Universal Slot Software and DS1000

- All trunks are loop start DTMF.
- All extensions are 22-Button Display models.
- DS1000: Trunks 1-6 ring on line keys 1-6. (Trunks 4-6 will only work if you have an Expansion Board Installed.)
DS2000: Trunks 1-24 ring on line keys 1-24.
- Extension users can press ICM and dial 9 for an outside line. Line Dial-Up and Direct Trunk Access are disabled.
- At the attendant's extension (300), key 11 is the Night Key and key 12 is the Operator Call Key.
 - The attendant presses the Night Key to put the system in the night mode.
 - The attendant presses the Operator Call Key to answer incoming queued Intercom calls.

Section 3

Features

3

Alphanumeric Display

Alphanumeric Display messages help the display telephone user process calls, identify callers and customize features.

Availability: All versions.

The 22- and 34-Button Display Telephones have a two-line, 20-character per line alphanumeric display. The first line displays the date and time (while idle) and feature status messages. The second line displays the Soft Key definitions.

The 34-Button Super Display Telephone has an eight-line, 20-character per line alphanumeric display. The first line displays the data and time (while idle) and feature status messages, just like the 22- and 34-Button Display Telephones. Lines 2-8 are the comprehensive Super Display Telephone soft key definitions.

- To learn more about the Soft Keys, see *Soft Keys* on page 80.

To adjust the display contrast:

1. While your keyset is idle, press VOL ▲ and VOL ▼.

Attendant Call Queuing

Attendant Call Queuing helps minimize call congestion in systems that use the attendant as the overflow destination for unanswered calls.

Availability: All versions.

An unlimited number of Intercom callers can queue for the attendant. The callers hear ringback while they wait for the attendant to answer — not busy tone. If you have the attendant as the overflow destination for Direct Inward Lines, for example, unanswered DILs will “stack up” at the attendant until they are answered.

Operator Call Key

The last programmable key on an attendant telephone is permanently assigned as an Operator Call Key. When the operator has Intercom calls waiting to be answered, the calls queue under this key. The key winks (on) when calls are queued.

The Operator Call Key is a permanent assignment for all extensions assigned as operators. You cannot change this assignment. Attendant Call Queuing is a permanent, non-programmable feature.

Feature Quick Steps

To answer a call flashing the Operator Call Key:

1. Press the flashing Operator Call Key.

Attendant Position

The attendant is the system's call processing focal point.

Availability: All versions.

The attendant is the focal point for call processing within the system. The system can have up to four attendants. In addition to the features of a standard keyset, the attendant also has the following unique capabilities (refer to the respective feature for details):

- **Attendant Call Queuing** (page 25)
Incoming Intercom calls from co-workers queue for the attendant. The callers never hear busy tone.
- **Barge In (Intrusion)** (page 28)
The attendant can break into another extension user's established call. This option is enabled in the attendant's Class of Service (COS 1).
- **Direct Trunk Access** (page 44)
Direct Trunk Access lets the attendant user dial a code to access an individual trunk. This option is enabled in the attendant's Class of Service (COS 1).
- **Forced Trunk Disconnect** (page 50)
In an emergency, the attendant can release (disconnect) another user's active trunk call. This option is enabled in the attendant's Class of Service (COS 1).
- **Night Service / Night Ring** (page 64)
An attendant with a Night key can put the system in the night mode. This option is enabled in the attendant's Class of Service (COS 1).
- **Removing Trunks and Extensions From Service** (page 74)
The attendant can remove problem trunks from service —then return them to service once the problem is corrected. This option is enabled because the attendant has Direct Trunk Access enabled in their Class of Service (COS 1).
- **Trunk (Line) Queuing / Trunk Callback** (page 93)
The attendant can Camp On (queue) for a busy trunk. This option is enabled in the attendant's Class of Service (COS 1).

The attendant should use a 34-Button Display or 34-Button Super Display Telephone. In addition, most attendants should find a 24-Button or 110-Button Direct Station Selection (DSS) Console helpful when processing calls.

Feature Quick Steps

To call the attendant:

1. Press **ICM** + Dial 0 (or 01-04 if the system has multiple attendants).

Automatic Handsfree

Automatic Handsfree is a convenience for workers who don't have a free hand to answer a call or use a feature.

Availability: All versions.

Automatic Handsfree allows a keyset user to place or answer a call Handsfree by just pressing a key — without lifting the handset or pressing **SPK** first.

If enabled, the system provides Automatic Handsfree for:

- Call Coverage keys
- Central Office Calls (line and loop calls)
- Group Call Pickup keys
- Hotline keys
- Intercom (**ICM** key)
- Last Number Redial (**LND** key)
- Paging keys
- Park keys
- Personal Speed Dial bin keys
- Personal and System Speed Dial keys

The system always provides Automatic Handsfree for:

- Dial Number Preview
- Directory Dialing

3

Background Music

Broadcast music through the telephone speaker for a more pleasing work environment.

Availability: All versions.

Background Music (BGM) sends music from a customer-provided music source to speakers in keysets. If an extension user activates it, BGM plays whenever the extension is idle. Incoming calls and Paging announcements temporarily override (turn off) Background Music. Background Music requires a customer-provided music source.

The system provides a single external music input source. Background Music and Music on Hold share the same external source. For example, if Music on Hold uses a customer-provided program from CD, Background Music uses this source as well. In DS2000, the external music source connects to the CPU's 8-pin mod jack. In DS1000, the external music source connects to the AUDIO jack. For more on connecting a customer-provided music source, refer to the system's Hardware Manual.

Note: In accordance with U.S. copyright law, a license may be required from the America Society of Composers, Authors and Publishers (ASCAP) or other similar organizations, if radio, television broadcasts or music other than material not in the public domain are transmitted through the Background Music feature of telecommunications systems. NEC America, Inc., hereby disclaims any liability arising out of the failure to obtain such a license.

Feature Quick Steps

To turn Background Music on and off:

1. Do not lift handset or press **SPK** + Press **HOLD**.

Barge In (Intrusion)

In an emergency, use Barge In to get through to a co-worker right away.

Availability: All versions.

Barge In permits an extension user to break into another extension user's established call. This sets up a three-way conversation between the intruding extension and the two parties on the initial call. The user can Barge In on an Intercom call or a trunk call.

!! CAUTION !!

Unauthorized intrusion on calls using this feature may be interpreted as an invasion of privacy.

Feature Quick Steps

To Barge-In on a call:

1. Call busy extension or access busy trunk + Dial 4.
2. Join the conversation in progress.

Battery Backup

The CPU PCB provides temporary backup of system memory and the time and date.

Availability: All versions.

In the event of commercial AC power failure, the battery on the CPU PCB provides short-term backup of system memory and the system time and date (Real Time Clock). This battery will hold memory and time and date for up to 10-14 days. When commercial AC power is restored, the system restarts with all programming and the time and date intact.

Additional Battery Backup capability can be provided by a customer-supplied Uninterruptable Power Supply (UPS). The length of the time the UPS will power the system when power fails depends on the capacity of the UPS unit. Consult with the UPS manufacturer for the specifics. When sizing a UPS unit, keep in mind that the DS2000 requires 165 VA per power supply, and the DS1000 requires 66 VA. Refer to the system's *Hardware Manual* for additional details.

Call Coverage Keys

Call Coverage keys allow an extension user to cover a co-worker's calls from their own telephone.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add new User Programmable Feature steps.

A keyset can have Call Coverage Keys for a co-worker's extensions, Ring Group master numbers and UCD group master numbers. The Call Coverage Key lights when the co-worker's extension is busy, flashes slowly when the co-worker has an incoming call, and flashes fast when the co-worker is in Do Not Disturb. The Call Coverage Key can ring immediately when a call comes into the covered extension, ring after a delay or not ring at all. In addition, the keyset user can press the Call Coverage Key to intercept their co-worker's incoming call. They can also press the Call Coverage key to call the covered extension. An extension can have as many Call Coverage Keys as they have available Programmable keys on their telephone.

Call Coverage Key Busy Lamp Indications	
When the key is:	The covered extension is:
Off	Idle or not installed
On	Busy
Flashing slowly	Ringing
Flashing fast	In Do Not Disturb

Call Coverage Keys will intercept Key Ring and ringing Intercom calls.

Feature Quick Steps

To answer a call ringing or flashing a Call Coverage Key:

1. Press flashing Call Coverage Key.

To place a call from an idle Call Coverage Key to the covered extension:

1. Press Call Coverage Key + Speak with co-worker at the covered extension.

User Programmable Feature (U Slot): # R A C

User Programmable Feature (Fixed Slot): # R C

Select Call Coverage Key ringing mode.

Call Forwarding

Call Forwarding ensures that the user's calls are covered when they are away from their work area.

Availability: All versions.

Call Forwarding permits an extension user to redirect their call to another extension.

The types of Call Forwarding are:

- **Call Forwarding when Not Answered**
Calls ringing the extension forward when not answered.
- **Call Forwarding when Busy or Not Answered**
Calls ringing the extension forward when not answered, and all calls forward while the extension is busy.
- **Call Forwarding Immediate**
All calls to the extension forward immediately.

Extension users can chain Call Forwards. For example, extension 301 can forward all calls immediately to 304, which in turn can forward all calls immediately to extension 302. Any co-worker calling 301 or 304 goes to 302 instead. If extension 302 is Call Forwarded to Voice Mail, callers to 301 or 304 go directly to 302's mailbox.

Feature Quick Steps

To activate or cancel Call Forwarding:

1. Press **ICM** + Dial ***3**.
2. Dial Call Forwarding type:
0 = Cancel your extension's Call Forwarding
2 = Call Forwarding Busy/No Answer
4 = Call Forwarding Immediate
6 = Call Forwarding No Answer
3. Dial destination extension or press Voice Mail key + Press **SPK** to hang up.

Call Timer

Call Timer helps users that must keep track of their time on the phone.

Availability: All versions.

Call Timer lets a keyset user with a Call Timer key time their trunk calls on the telephone display.

There are two types of Call Timer keys:

- **Manual Call Timer**
The Manual Call Timer key works like a stopwatch. Pressing the key turns on the timer, while pressing the key a second time resets and turns off the timer. With a Manual Call Timer key, the timer will not start automatically. For example, if an extension user presses the Manual Call Timer key and calls three clients, the display will show the total elapsed time for all three calls. The user can also press the Manual Call Timer key to time events anytime while their phone is idle.

- **Automatic Call Timer**
The Automatic Call Timer key will automatically start the Call Timer for each new trunk call, without the user having to press the key. The Automatic Call Timer can also work like a Manual Call Timer key: push to turn on, then push a second time to reset and turn off. There is no need to have a Manual and Automatic Call Timer key on the same phone.

Feature Quick Steps

To time your trunk call if you have an Automatic Call Timer key:

1. Place or answer trunk call. The Call Timer starts automatically.

To time your call if you have a Manual Call Timer key:

1. Place or answer Intercom or trunk call + Press Manual Call Timer key.

Call Waiting / Camp-On

Call Waiting helps busy extension users know when they have additional waiting calls. It also lets callers wait in line for a busy extension without being forgotten.

Availability: All versions.

With Call Waiting, an extension user may call a busy extension and wait in line (Camp-On) without hanging up. When the user Camps-On, the system signals the busy extension with two beeps indicating the first waiting call. (The busy extension can be on a handset or Handsfree call.) The beeps periodically repeat while the call waits. The call goes through when the extension becomes free.

3

If an extension has more than one caller waiting, they queue on a first-in/first-out basis (FIFO). The extension will not hear Camp-On beeps for additional waiting calls.

Feature Operation

To Camp-On to a busy extension:

1. Call busy extension + Dial 2 (do not hang up).
If you hang up, the system converts your Camp-On to a Callback.
2. Speak to your co-worker when they answer their Camp-On ring.

Callback

With Callback, a user does not have to repeatedly call a busy extension back, hoping to find it idle.

Availability: All versions.

When an extension user calls a busy co-worker, they can leave a Callback request for a return call.

The system services Callback requests as follows:

- Caller at extension A leaves a Callback at extension B.
- When extension B becomes idle, the system rings extension A. This is the Callback ring.
- Once caller A answers the Callback ring, the system rings (formerly busy) extension B.
- As soon as extension B answers, the system sets up an Intercom call between A and B.

An extension user can leave a Callback at many extensions simultaneously. The system processes the Callbacks as the extensions become free. In addition, many extensions can leave a Callback at the same extension. The system processes these Callbacks on a first-in/first-out (FIFO) basis.

If an extension user leaves a Callback request and then fails to answer within four rings, the system cancels the Callback.

Feature Quick Steps

To place a Callback:

1. Call busy extension + Dial 2 and hang up.
Stay on the line without hanging up if you want to Camp-On instead.
2. Lift handset to answer when Callback calls you back.
3. Speak to your co-worker when call goes through.

Caller ID

Caller ID automatically displays the phone number and optional name for incoming trunk calls.

Availability: Requires DS2000 U Slot (02.nn.nn) or DS1000.

Caller ID allows a display keyset to show an incoming caller's telephone number (called Directory Number or DN) and optional name. Caller ID supports the telco's Called Number Identification (CNI) and Called Number Delivery (CND) service, when available. These services provide the Caller ID information (i.e. messages) between the first and second ring burst of an incoming call.

Caller ID provides the following features:

Single and Multiple Message Format Compatibility

There are two types of Caller ID message formats currently available: Single Data Message Format (SDMF) and Multiple Data Message Format (MDMF). With Single Message Data Format, the telco sends only the caller's phone number (DN). The DN is up to 10 digits long. In Multiple Data Message Format, the telco sends the DN and the caller's name. The DN for this format is also up to 15 digits long and the name provided consists of up to 15 ASCII characters. If no DN is received, no number or error message displays.

Caller ID on the SMDR Report

Caller ID data prints on the SMDR report. SDMF prints a single line which shows just the incoming number. MDMF records print on two lines, with the first line showing the number and the second line showing the name. Unlike the telephone display, the SMDR report can show the entire 15 digits in the DN, if required.

Following is a sample SMDR report showing Caller ID data. The first two lines of the report show a complete MDMF record with both the caller's number and name. The last two lines of the report show two Caller ID error messages: Private Number and Out of Area. the "IN" in the type column indicates that the records shown are for incoming calls. If no DN is received, no number or error message displays.

Station Message Detail Recording
05/07/1999 09:10P

Sta	Lin	Number Dialed	Account	Start	Duration	T
301	02	2139261000		11:11:39A	00:01:13	IN
301	02	ANDERSON ALLEN		11:11:39A	00:01:13	IN
301	02	Private Number		09:12:13P	00:01:12	IN
301	02	Out of Area Number		09:12:07P	00:01:20	IN

Caller ID Integration with Voice Mail

Caller ID fully integrates with NVM-Series Voice Mail systems. This enables Voice Mail features such as Make Call with Caller ID. Make Call allows the Voice Mail subscriber to return a call to someone who left them a message without knowing the calling party's phone number.

Second Call Caller ID (Extension Level Call Waiting Caller ID)

While a display keyset user is busy on a call, the system can show the Caller ID information for a waiting call. If the busy extension is programmed to receive Camp On tones or Off-Hook Ringing from the waiting call, the system will send the Caller ID data to the busy telephone's display. If the busy extension does not receive Camp On tones or Off-Hook Ringing, it will also not receive the waiting call's Caller ID. (Note that Caller ID data from a Camp On is displayed only once, corresponding to the single Camp On beep.)

Third Party Caller ID Check

Third Party Caller ID Check allows a keyset user to display the Caller ID data for another trunk. The trunk that the user checks can be ringing or busy.

Caller ID Display Separator

An extension's display can optionally show a calling party number separator. The separator is a dash after the area code and after the local exchange on a 7 or 10 digit number.

Hardware Requirements

In DS2000, Caller ID requires the installation of Caller ID Daughter Boards on your ATRU PCBs:

- 4ATRU PCB P/N 80010A uses Caller ID Daughter Board P/N 92012.
- 8ATRU PCB P/N 80011A uses Caller ID Daughter Board P/N 80013.
- The 4ATRU and 8ATRU PCBs must use firmware 1.5 or higher.

In DS1000, Caller ID is built-in and requires the installation of no additional equipment.

Feature Quick Steps

To cancel the Caller ID display and return your phone to its normal display:

1. Press **CLEAR**.

To turn the Caller ID display back on (after you press CLEAR to cancel it):

1. Press **CHECK**.

To display the Caller ID data for the third party's call (i.e., use Third Party Caller ID Check):

1. Press **ICM + CHECK**.
2. Press the key for the call you want to check.

You can press a line key, loop key, Hotline key or Call Coverage key:

- Press a line key while the call is ringing or connected to the third party.
 - Press a loop key while the call is ringing the third party.
 - Press a Hotline key while the call is connected to the third party.
 - Press a Call Coverage Key while the call is ringing the third party.
3. Hang up when you are done.

Central Office Calls, Answering

The system allows trunk calls to ring and be answered at any combination of system extensions.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add new User Programmable Feature Steps.

The system provides flexible routing of incoming CO (trunk) calls to meet the exact site requirements.

Answering Priority

When multiple calls ring an extension simultaneously, the system services the ringing calls in the following order:

1. **ICM** Key
2. Line Key (from lowest to highest)
3. Loop Key (from lowest to highest)

Overflow

Refer to *Overflow for Key Ring Calls* on page 57 for details on the overflow options.

Feature Quick Steps

To answer an incoming trunk call:

1. Lift handset.
If you have Ringing Line Preference, lifting the handset answers the call.
2. Press flashing line or loop key.

User Programmable Feature (U Slot): # R A L

User Programmable Feature (Fixed Slot): # R L

Assigns line key ringing mode.

Central Office Calls, Placing

Customize the call placing options to meet the site requirements and each individual's needs.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add new User Programmable Feature Steps. DS2000 U Slot and DS1000 also allow all users to dial 9 for an outside line by default.

The system provides flexibility in the way each extension user can place outgoing trunk calls. A user can place a call by:

- **Pressing a Line Key**
Any keyset can have line keys for one-touch access to specific trunks. See *Line Keys* on page 58 for more.
- **Pressing a Loop Key**
Loop Keys provide a user with one-touch access to the assigned Loop Group. Loop Groups can consist of one or more Trunk Groups. See *Loop Keys* on page 59 for more.
- **Using Line Dial-Up**
With Line Dial-Up, a user can select a specific trunk by pressing **ICM** and dialing the Line Dial-Up code (#9) followed by the trunk number (1-16).
- **Using Direct Trunk Access**
Direct Trunk Access allows a user to access a trunk by pressing **ICM** and dialing the trunk's extension number (e.g., 401 for trunk 1, 402 for trunk 2. etc.). See *Direct Trunk Access* on page 44 for more.
- **Dialing a Trunk Group Access Code**
User's can also place trunk calls by pressing **ICM** and dialing a Trunk Group Access Code (90-98). See *Trunk Groups* on page 94 for more.
- **Trunk Group Routing**
If the system has Trunk Group Routing enabled, users get the first available trunk when the press **ICM** and dial 9. See *Trunk Group Routing* on page 93 for more.

3

Feature Quick Steps

To place a call over a specific trunk using a line key:

1. Lift handset + Press line key + Dial outside number.

To place a call over a specific trunk (using Line Dial-up or Direct Trunk Access):

1. Lift handset + Press **ICM**.
2. **For Line dial-up:** Dial **#9** followed by the trunk number (e.g., #901 for trunk 1).
OR
For Direct Trunk Access: Dial **4** plus the trunk number (e.g., 401 for trunk 1).
3. Dial outside number.

To place a call over a trunk group:

1. Lift handset + Press **ICM**.
2. Dial trunk group code (90-98) + Dial outside number.

User Programmable Feature (U Slot): # R A L

User Programmable Feature (Fixed Slot): # R L

Assigns line key ringing mode.

Check Key

Quickly check keyset and DSS Console Programmable Function Key assignments.

Availability: All versions.

A display telephone user can use the CHECK key to check keyset and DSS Console Programmable Function Key assignments and Personal Speed Dial bin names.

Feature Quick Steps

To check a Programmable Function Key assignment:

1. Press **CHECK** + Press the Programmable Function Key
2. Press another key or **SPK** to exit the check mode.

To check a Personal Speed Dial bin name:

1. Press **CHECK** + Press the Personal Speed Dial Key once to display the name for the lowered numbered bin (e.g., 701).
2. Press the Personal Speed Dial Key a second time to display the numbered stored in the lower numbered bin.
3. Press the Personal Speed Dial Key a third time to display the name for the higher numbered bin (e.g., 711).
4. Press the Personal Speed Dial key a fourth time to display the number stored in the higher numbered bin.
5. Press another key or **SPK** to exit the check mode.

Class of Service

Customize features and dialing options for extensions.

Availability: All versions.

Class of Service (COS) sets various features and dialing options for extensions. The system allows any number of extensions to share the same Class of Service.

The table below shows each Class of Service option. Refer to the individual features referenced in the table for more.

Table 1: Class of Service Options

Option	Description
Barge-In (Intrusion)	Use this option to enable or disable an extension’s ability to Barge In on a co-worker. <ul style="list-style-type: none"> • See <i>Barge In (Intrusion)</i> on page 28 for more.
Camp-On to Busy Extension	Use this option to enable or disable an extension’s ability to Camp-On to a busy extension. <ul style="list-style-type: none"> • See <i>Call Waiting / Camp-On</i> on page 31 for more.

Table 1: Class of Service Options

Option	Description
Internal Call Forwarding	Use this option to enable or disable an extension's ability to use Internal Call Forwarding. <ul style="list-style-type: none"> See <i>Call Forwarding</i> on page 30 for more.
System Speed Dial Access	Use this option to enable or disable an extension's ability to access System Speed Dial. <ul style="list-style-type: none"> See <i>System Speed Dial</i> on page 80 for more.
Extended Ring	Use this option to enable or disable Extended Ringing at the extension. <ul style="list-style-type: none"> See <i>Extended Ringing</i> on page 47 for more.
Privacy	Use this option to enable or disable Privacy at the extension. <ul style="list-style-type: none"> See <i>Privacy</i> on page 70 for more.
Trunk (Line) Queuing Priority	Use this option to enable or disable Trunk (Line) Queuing Priority at the extension. If more than one extension with Priority is queued on a busy trunk, the system services the Priority extensions on a first-queued, first-served basis. <ul style="list-style-type: none"> See <i>Trunk Queuing Priority</i> on page 94 for more.
Forced Trunk Disconnect	Use this option to enable or disable an extension's ability to use Forced Trunk Disconnect. <ul style="list-style-type: none"> See <i>Forced Trunk Disconnect</i> on page 50 for more.
Camp-On to Busy Line	Use this option to enable or disable an extension's ability to Camp-On to a busy trunk. <ul style="list-style-type: none"> See <i>Trunk (Line) Queuing / Trunk Callback</i> on page 93 for more.
Initiate All Call Page	Use this option to enable or disable an extension's ability to make an All Call Paging announcement. <ul style="list-style-type: none"> See <i>Paging</i> on page 67 for more.
Access Page Zone 1	Use this option to enable or disable an extension's ability to make a Paging announcement into zone 1. <ul style="list-style-type: none"> See <i>Paging</i> on page 67 for more.
Access Page Zone 2	Use this option to enable or disable an extension's ability to make a Paging announcement into zone 2. <ul style="list-style-type: none"> See <i>Paging</i> on page 67 for more.
Access Page Zone 3	Use this option to enable or disable an extension's ability to make a Paging announcement into zone 3. <ul style="list-style-type: none"> See <i>Paging</i> on page 67 for more.
Access Page Zone 4	Use this option to enable or disable an extension's ability to make a Paging announcement into zone 4. <ul style="list-style-type: none"> See <i>Paging</i> on page 67 for more.
Access Page Zone 5	Use this option to enable or disable an extension's ability to make a Paging announcement into zone 5. <ul style="list-style-type: none"> See <i>Paging</i> on page 67 for more.

Table 1: Class of Service Options

Option	Description
Access Page Zone 6	Use this option to enable or disable an extension’s ability to make a Paging announcement into zone 6. • See <i>Paging</i> on page 67 for more.
Access Page Zone 7	Use this option to enable or disable an extension’s ability to make a Paging announcement into zone 7. • See <i>Paging</i> on page 67 for more.
Silent Monitor	Use this option to enable or disable an extension’s ability to use Silent Monitor. • See <i>Monitor / Silent Monitor</i> on page 62 for more.
Flash for Single Line Sets	Use this option to enable or disable Flash for single line telephones. This option only applies to single line telephones. • See <i>Flash</i> on page 49 for more.
Single Ring for Single Line Sets	Use this option to enable or disable single ring for single line telephones. This option only applies to single line telephones. • See <i>Off-Premise Extensions / On-Premise SLT Extensions</i> on page 66 for more.
Automatic Hold	Use this option to enable or disable Automatic Hold at an extension. • See <i>Hold</i> on page 54 for more.
Activate Night Mode	Use this option to enable or disable an extension’s ability to activate Night Service. • See <i>Night Service / Night Ring</i> on page 64 for more.
Direct Trunk Access	Use this option to enable or disable an extension’s ability to use Direct Trunk Access. Note that enabling Direct Trunk Access allows the user to bypass Toll Restriction. • See <i>Direct Trunk Access</i> on page 44 for more.
Soft Keys	Use this option to enable or disable a display set’s Interactive Soft Keys. • See <i>Interactive Soft Keys</i> on page 56 for more.
Conversation Record	Use this option to enable or disable an extension’s ability to record conversations into their Voice Mail mailbox. If enabled, the user can press either their Conversation Record key or RECORD soft key to initiate recording. • See <i>Voice Mail</i> on page 96 for more.
CLID Display	Use this option to enable or disable an extension’s ability to display Caller ID data. • See <i>Caller ID</i> on page 32 for more.
2nd Call CLID	Use this option to enable or disable an extension’s ability to show the 2nd Call Caller ID (Extension Level Call Waiting Caller ID). • See <i>Caller ID</i> on page 32 for more.
3rd Party Caller ID	Use this option to enable or disable an extension’s ability to show 3rd Party Caller ID. • See <i>Caller ID</i> on page 32 for more.

Conference

A user can set up a multiple-party telephone meeting.

Availability: All versions.

Conference lets an extension user add additional inside and outside callers to their conversation.

The following table shows the system's Conference capacities:

Description	Capacity
Conference circuits	32
Maximum simultaneous users in Conference (total of all Conferences system-wide)	32
Maximum simultaneous conferences	8
Maximum parties in any one Conference (trunks and/or extensions)	8

The system's 32 Conference circuits are dynamically allocated as users request them.

Feature Quick Steps

To establish a Conference:

1. Establish Intercom or trunk call + Press **CONF**.
2. Dial extension you want to add, place or answer trunk call, retrieve call from Park Orbit.
3. Press **CONF** to set up the Conference.
4. Repeat steps 2 and 3 to add additional parties to your Conference.

To exit a Conference without affecting the other parties:

1. Hang up.

Delayed Ringing

Delayed Ringing helps co-workers cover each other's unanswered calls.

Availability: All versions.

Delayed Ringing allows a trunk to start ringing a preset interval after the call starts flashing a line key. This is helpful for co-workers that cover each other's calls. For example, a secretary can have Delayed Ringing for the trunks that ring the boss's telephone. If the boss doesn't answer after the Delayed Ringing interval, the call will start ringing the secretary's extension.

Dial Number Preview

Dial Number Preview helps the user avoid dialing errors.

Availability: All versions.

Dialing Number Preview lets a display keyset user dial and review a number before the system dials it out.

Feature Quick Steps

To dial using Dial Number Preview:

1. Do not lift the handset, or press **SPK** or press **ICM** + Dial *.
2. Dial the number you want to call + Press line key to dial previewed number.

To correct the displayed digits before dialing them out:

1. Use VOL ▲ and VOL ▼ until the cursor replaces the digit you want to change.
VOL ▲ moves the cursor to the left. VOL ▼ moves the cursor to the right.
2. Dial the digit that you want to replace the cursor.
3. Press VOL ▲ and VOL ▼ to place the cursor over any other digits you want to edit.
OR
Press VOL ▼ until the entire number displays to the left of the cursor.
The system will only dial the digits to the left of the cursor.
4. Press a line key.

Direct Inward Line

A DIL lets an employee know which calls are just for them.

Availability: All versions.

A Direct Inward Line (DIL) is a trunk that directly rings an extension, Ring Group master number, or UCD Group master number (including Voice Mail). Since DILs only ring one extension, employees always know which calls are for them. For example, a company operator can have a Direct Inward Line for International Sales Information. When outside callers dial the DIL's phone number, the call rings the operator on the International Sales line key. The DIL does not ring other extensions.

Assigning a DIL to an extension automatically provides immediate ringing and incoming access for the trunk, with no additional programming required.

The extension to which the trunk is terminated controls the night mode of the trunk. For example, if extension 301 has trunk 1 assigned as a DIL, the user can press **DND** to switch trunk 1 to its night routing destination. Switching trunk 1 to night mode at extension 301 has no effect on the night mode of the system. This flexibility could allow a service dispatcher with several DILs to independently send trunks to their night destinations without affecting the night mode of the entire system.

A DIL can ring:

- An extension number (including the attendant's extension)
- A Ring Group master number
- A UCD Group master number (including the Voice Mail master number)

Overflow for Direct Inward Lines

If unanswered, DILs calls can route to a programmed overflow destination. The overflow destination can be an extension, Ring Group, UCD Group or Voice Mail (i.e., DIL destination's mailbox). You can set up separate DIL overflow destinations for the day mode and at night. If unanswered at the overflow destination, the call diverts to Key Ring.

Feature Quick Steps

To answer a call on your Direct Inward Line:

1. Lift handset.

To place all your DILs into Night Mode

1. Press **DND**.

This also enables Do Not Disturb at the extension.

Direct Station Selection (DSS)

Quickly place and Transfer calls to co-workers, without having to look up or dial extension numbers.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature steps. In addition, DS2000 U Slot and DS1000 disable DSS keys by default.

3

Programmable Function Keys *automatically* become Direct Station Selection (DSS) keys when the user press **ICM**. Direct Station Selection provides an extension user with one-button Intercom access and Transfer to co-workers. Each DSS key also provides a Busy Lamp Field (BLF) for the assigned co-worker.

When the DSS/BLF key is:	The covered extension is:
Off	Idle
On	Busy or ringing
Flashing fast	In Do Not Disturb

For an alternate feature that also provides one-button Intercom access and Transfer, turn to *Hotline* on page 55.

Feature Quick Steps

To place a call to a co-worker using a DSS key:

1. Lift handset + Press **ICM** + Press DSS key for co-worker you want to call.

To Transfer a call to a co-worker using a DSS key:

1. Place or answer trunk call + Press **ICM** + Press DSS key for co-worker.
2. Hang up to have the Transfer go through unscreened.

OR

Wait for the called party to answer if you want them to screen the Transfer.

User Programmable Feature: # B L F

Assigns co-workers to DSS keys.

Direct Station Selection (DSS) Console

DSS Consoles provide one-touch access to extensions, trunks and system features.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature steps. In addition, DS2000 U Slot and DS1000 disable DSS keys by default.
- DS2000 U Slot and DS1000 also provide Page keys, Park keys and a Night key on the last two rows of the console.

The DSS Console gives a 34-Button Display or 34-Button Super Display user a Busy Lamp Field (BLF) and one-button access to extensions, trunks, and selected system features. This saves time for users that do a lot of call processing (such as operators or dispatchers). There are two DSS Consoles types: the 24-Button (P/N 80556) and the 110 Button (P/N 80555).

Figure 1: 24-Button and 110-Button DSS Consoles



The system allows you to install 4 DSS Consoles maximum. In addition, System Load Factor may further reduce the number that you can install. You cannot connect multiple DSS Consoles to the same keyset. DSS Consoles do not use a station port and do not require their own power supply.

The system provides four unique DSS configurations (called blocks). If you want your DSS Consoles to have unique key configurations, assign them to different blocks. If you want your consoles to share the same configuration, assign them to the same block. Note that DSS Console Personal Speed Dial bins are the same as the extension to which the console is attached. This means that DSS Consoles that share the same block number still have unique Personal Speed Dial.

You can assign DSS Console keys to the following functions:

• Call Coverage (immediate, delayed or no ring)	• Night Key	• Speed Dial, Personal
• Group Pickup (immediate, delayed or no ring)	• Page Zones	• Speed Dial, System
• Hotline	• Park Orbit	• Split
• ICM Directory	• Reverse Voice Over	• Trunks (line keys)
• Message Center	• Save	• Voice Mail Record

Feature Quick Steps

To use your DSS Console trunk (line) key:

1. Press the DSS Console trunk key.

To use your DSS Console Park key:

1. Press DSS Console Park key to Park or retrieve call.

To use your DSS Console Hotline key:

1. Press key to call Hotline partner.

To use your DSS Console Call Coverage key:

1. Press key to call covered extension or pick up ringing call.
You can set up the Call Coverage key for immediate ring, delayed ring, or no ring.

To use your DSS Console Group Call Pickup key:

1. Press key to answer call ringing Pickup Group.
You can set up the Group Call Pickup key for immediate ring, delayed ring, or no ring.

To use your DSS Console Page Zone key:

1. Press key to Page into assigned zone.

To use your DSS Console System Speed dial key:

1. Press key to dial stored number.
System Speed Dial keys provide no BLF.

To use your DSS Console Personal Speed dial key:

1. Press key to dial stored number.
Personal Speed Dial keys provide no BLF.

To use your DSS Console Voice Mail Record key:

1. Press key to record conversation in mailbox.
You must have Voice Mail installed to use this key. A voice prompt and a periodic beep will remind you that your calls are being recorded.

To use your DSS Console Night key:

1. Press key to put the system in the night mode.

To use your DSS Console Split key:

Turn to the Split feature on page 82.

To use your DSS Console ICM Directory key:

1. Press key to access Intercom Directory Dialing.

To use your DSS Console Reverse Voice Over key:

1. While on a handset call, press key to place Private Intercom call to covered extension.

To use your DSS Console Message Center key:

1. Press key to see how many messages are waiting in the Message Center.
OR
Press **SPK** (or lift the handset) + key to call Message Center mailbox.

To use your DSS Console Save key:

1. While on a call, press key to Save the number you just dialed.
OR
While idle, press key to redial a previously saved number.
Save keys provide no BLF.

Direct Trunk Access

Priority users can access trunks directly. Direct Trunk Access also lets maintenance personnel access and test individual trunks.

Availability: All versions.

Direct Trunk Access lets an extension user access (seize) an individual trunk. After seizing the trunk, the user can dial any outside telephone number without restriction. An extension's Class of Service allows or denies Direct Trunk Access. Direct Trunk Access is normally only provided for attendants, priority users and maintenance personnel.

Feature Quick Steps

To place a call over a specific trunk using Direct Trunk Access:

1. Lift handset + Press **ICM**.
2. Dial **4** plus the trunk number (e.g., 401 for trunk 1).
If you hear busy tone, you may be able to dial 2 to queue for the busy trunk. See Trunk (Line) Queuing / Trunk Callback on page 93 for more.
3. Dial outside number.

Directed Call Pickup

Directed Call Pickup allows co-workers to answer each other's calls.

Availability: All versions.

Directed Call Pickup permits an extension user to intercept a call ringing another extension.

With Directed Call Pickup, an extension user can pick up:

- Trunk (Key Ring) calls ringing an extension
- Direct Inward Lines
- Transferred trunk calls
- Ringing Intercom calls.
- Recalls (e.g., Hold recall)

Feature Quick Steps

To use Directed Call Pickup to intercept a call ringing a co-worker's extension:

1. Lift handset + Dial * *.
2. Dial number of extension whose call you want to intercept.

Directory Dialing

Allows users to place Intercom or Speed Dial calls from a displayed list of names.

Availability: All versions.

Directory Dialing allows a display keyset user to select a co-worker or Speed Dial number from a list of names, rather than dialing the phone number.

There are three types of directory Dialing:

- **C** –System (Company-Wide) Speed Dial names.
- **I** –Intercom names (including extension, Ring Group and UCD Group names).
- **P** –Personal Speed Dial names.

Feature Quick Steps

To place a call using Directory Dialing:

1. Do not lift handset or press **SPK**.
2. Dial 3 + Dial the type of Directory Dialing (C, I or P).
*To scroll alphabetically through the selected directory, press **VOL ▲** or **VOL ▼**. To call the displayed name, just press **DIAL**.*
3. Dial the first letter of the desired name.
For example, dial 4 if the first letter in the name begins with G, H or I.
4. Look at your phone's display and dial the digit for the letter/number you want to call.
In the example above, if the name begins with G, dial 1. If the name begins with H, dial 2. If the name begins with I, dial 3.
5. Press **VOL ▲** or **VOL ▼** to scroll through all the names/numbers that begin with the letter/number you selected.
OR
Skip to the next step if the displayed name/number is the one you want to call.
6. Press **DIAL** to have the system dial your call.

To exit Directory Dialing at any time.

1. Press **SPK**.

Do Not Disturb

Work by the phone undisturbed by incoming calls and announcements.

Availability: All versions.

Do Not Disturb (DND) blocks incoming calls, Off-Hook Signaling and Paging announcements. An extension user can activate DND anytime while on a call or while their phone is idle. Once activated, incoming trunk calls still flash the line keys.

The user may use the phone in the normal manner for placing and processing calls.

Feature Quick Steps

To activate or cancel DND at your extension:

1. Press **DND**.

Door Box

Use a Door Box to remotely monitor an entrance door.

Availability: Requires DS2000 U Slot (02.nn.nn) or DS1000.

The Door Box is a self-contained Intercom unit typically used to monitor an entrance door. A visitor at the door can press the Door Box call button (like door bell). The Door Box then sends chime tones to all extensions programmed to receive chimes. To answer the chime, the called extension user just lifts the handset. This lets the extension user talk to the visitor at the Door Box. The Door Box is convenient to have at a delivery entrance, for example. It is not necessary to have company personnel monitor the delivery entrance; they just answer the Door Box chimes instead.

There are two types of Door Boxes: Analog Door Box P/N 92245 and Digital Door Box P/N 80560. Both Door Boxes operate identically. There are, however, some differences:

- The Digital Door Box connects to a digital station port. The number of Digital Door Boxes you can install may be limited by the System Load Factor. See *DS2000 System Load Factor Calculations* on page 19 and *DS1000 System Load Factor Calculations* on page 23 for more.
- The Digital Door Box is available in U Slot (02.nn.nn) versions of DS2000 and all versions of DS1000.
- The Analog Door Box is only available in DS1000 (2 maximum). An Analog Door Box plugs into one of the dedicated Door Box ports (DOOR1 or DOOR2).
- The Analog Door Box can be mounted outside. The Digital Door Box is not intended for outdoor installations. Turn to *Specifications* on page 101 for more on the Analog and Digital Door Box specifications.



Any extension that receives Door Box alerts can also activate a control relay. If the relay is connected to electric door strike circuits, an extension user can press FLASH or a soft key to remotely lock and unlock the entrance door. There is a single relay in DS2000, located on the CPRU. There are two relays in DS1000, one for each Analog Door Box. Digital Door Boxes in DS1000 do not provide relay control.

The system uses Ring Groups to control Door Box chimes. When a visitor at the door presses the Door Box call button, the Door Box will alert (chime) all the extensions in the Ring Group to which the Door Box belongs. For example, if the Door Box and extensions 301 and 302 are in Ring Group 1, pressing the call button alerts 301 and 302.

Door Box Call Coverage

If a Door Box uses Door Chime type 0 (normal ring), you can set up Call Coverage keys for the Door Box Ring Group. This allows extensions that are not members of the Ring Group to answer Door Box calls. Extensions with Call Coverage keys to the Door Box Ring Group can also activate the relay.

Feature Quick Steps

To place a call to the Door Box:

- Lift handset and press **ICM** + Dial the Door Box extension number.

To answer the Door Box chimes from a keyset:

- Lift handset or press **SPK**.

To control the CPRU relay which in turn controls the door strike.

- To open the relay, press **FLASH** key or **OPEN** soft key.
To close the relay, Press **FLASH** key or **CLOSE** soft key.

Extended Ringing

Lets calls ring longer than usual to assist co-workers that can't readily get to their phones.

Availability: All versions.

Extended Ringing forces an unanswered call to ring a telephone an extended number of times before rerouting. This helps users that cannot get to their phones quickly to pick up calls (such as a warehouse worker).

Extended Ringing is available with the following features:

- **Call Forwarding**
A call rings an extension with RNA call forwarding enabled for an extended period before routing to the forwarded destination.
- **Direct Inward Line**
DILs ring for an extended period before routing to the overflow destination.
- **Transfer**
Transferred trunks ring for an extended period before recalling the transferring extension.

3

Extension Hunting

Automatically route calls to co-workers that work closely together.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add the UCD Group Log Out code.

Extension Hunting routes calls to a predefined group of hunt group member extensions. A call rings in sequence through the hunt group until answered at a member extension. Extension Hunting is helpful, for example, for a group of co-workers that share responsibility for answering calls. Each call cycles through the group until an available member picks it up.

There are three types of Extension Hunting:

- Circular Hunting
- Terminal Hunting
- Uniform Call Distribution (UCD) Hunting

Circular Hunting

A Circular Hunting group consists of a group of extensions programmed into a Circular Hunting list. A call unanswered at a member extension rings the next extension in the programmed list. If unanswered, the call will continue to cycle through the hunt group. Depending on the hunt type (see below), Circular Hunting will occur for transferred trunk calls, DILs to a hunt group member, and ringing Intercom calls. Hunting does not occur for Key Ring and Ring Group calls.

There are four types of Circular Hunting:

- **Ring No Answer Trunk (Option 1)**
Hunting will occur for unanswered trunk calls. Hunting will not occur for unanswered ringing Intercom calls or while the member extension is busy.
- **Busy/Ring No Answer Trunk (Option 2)**
Hunting will occur for unanswered trunk calls and for trunk calls to the member extension while it is busy. Hunting will not occur for ringing Intercom calls.
- **Busy/Ring No Answer All Calls (Option 3)**
Hunting will occur for unanswered trunk and ringing Intercom calls, and for trunk and ringing Intercom calls to the member extension while it is busy.
- **Busy Trunk (Option 4)**
Hunting will occur for trunk calls to the member extension while it is busy. Hunting will not occur for unanswered trunk and ringing Intercom calls.

Terminal Hunting

A Terminal Hunting group consists of a group of extensions programmed into a Terminal Hunting list. A call unanswered at a member extension rings the next extension in the programmed list. The call will cycle through the group once, until it reaches the last extension in the list. Unlike Circular Hunting, the call will not cycle back to the top of the hunt list. Depending on the hunt type (see below), Terminal Hunting will occur for transferred trunk calls, DILs to a hunt group member, and ringing Intercom calls. Hunting does not occur for Key Ring and Ring Group calls.

Just like Circular Hunting, there are four types of Terminal Hunting:

- **Ring No Answer Trunk (Option 1)**
Hunting will occur for unanswered trunk calls. Hunting will not occur for unanswered ringing Intercom calls or while the member extension is busy.
- **Busy/Ring No Answer Trunk (Option 2)**
Hunting will occur for unanswered trunk calls and for trunk calls to the member extension while it is busy. Hunting will not occur for ringing Intercom calls.
- **Busy/Ring No Answer All Calls (Option 3)**
Hunting will occur for unanswered trunk and ringing Intercom calls, and for trunk and ringing Intercom calls to the member extension while it is busy.
- **Busy Trunk (Option 4)**
Hunting will occur for trunk calls to the member extension while it is busy. Hunting will not occur for unanswered trunk and ringing Intercom calls.

Uniform Call Distribution (UCD) Hunting

Like Circular and Terminal Hunting, a UCD Hunting group also consists of a group of extensions programmed into a hunt list. The system routes calls into a UCD group according to the frequency of use of the member extensions. The first extension rung is the member that has been idle the longest. The last extension rung is the member that has been idle the shortest.

Each member of the group is additionally associated with a UCD Master Extension Number. To activate UCD hunting, an incoming call must route to the UCD master number. This is done by placing an Intercom call to the master number, transferring a call to the master number or setting up a DIL to the master number. When all members of the UCD Hunting group are busy, the call can route to the programmed UCD Overflow destination.

A UCD Hunting group member can dial a code to temporarily remove themselves from their UCD group. They no longer have to put their phone in DND to stop getting UCD group calls.

Feature Quick Steps

To send a call to a Terminal or Circular Hunting group:

The options available depend on the type of hunting set up.

- Transfer a trunk call to a hunt group member.
- Set up a DIL to a hunt group member.
- Place a ringing Intercom call to a hunt group member.
- Set up a hunt group member as a trunk's overflow destination.

To send a call to a UCD Hunting group:

- Transfer a call to the UCD master number.
- Set up a DIL to the UCD master number.
- Place an Intercom call to the UCD master number.

To temporarily install or remove your extension from your UCD group:

1. Press **ICM** and dial *5.
2. Dial 4 to return your extension to your UCD group, or Dial 6 to remove your extension from your UCD group.

Flash

3

Extension users can access certain CO and PBX features by interrupting trunk loop current.

Availability: All versions.

Flash allows an extension user to access certain CO and PBX features by interrupting trunk loop current. Flash lets an extension user take full advantage of whatever features the connected telco or PBX offers. You must set the Flash parameters for compatibility with the connected telco or PBX.

Feature Quick Steps

1. Press **FLASH** (if applicable) + Dial the code for the desired CO/PBX feature.

Flexible Numbering Plan

Change the digits users dial for co-workers and other features.

Availability: All versions

The system's Flexible Numbering Plan allows you to change the digits users dial to reach the attendant, other co-workers and trunks. The following chart shows the areas of the system number plan you can change.

For this feature:	You can change the digits a user dials to:	These digits are normally:
Attendant Position	Reach the system operator(s)	0 or 01-04
Intercom	Call a co-worker over the Intercom	300-331
Direct Trunk Access	Directly access a trunk	401-416
Central Office Calls, Placing	Access a Trunk Group	90-98

Forced Trunk Disconnect

Disconnect a co-worker's outside call in an emergency.

Availability: All versions

Forced Trunk Disconnect allows an extension user to disconnect (release) another extension's active trunk call. Forced Trunk Disconnect lets a user access a busy trunk in an emergency, when no other trunks are available. Maintenance technicians can also use Forced Trunk Disconnect to release a trunk on which there is no conversation. This can happen if a trunk does not properly disconnect when the outside party hangs up.

CAUTION

Forced Trunk Disconnect abruptly terminates the active call on the trunk. Only use this feature in an emergency and when no other trunks are available.

Feature Quick Steps

1. Access busy trunk + Dial # to disconnect the line.

Group Call Pickup

Easily answer a call ringing your Pickup Group, even if you don't know which extension is ringing.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add new User Programmable Feature Steps.

Group Call Pickup allows an extension user to answer a call ringing an extension in their assigned Pickup Group. This permits co-workers in the same Pickup Group to easily answer each other's ringing calls. The user can intercept the ringing call by dialing a code or pressing a programmed Group Call Pickup key. The system has a maximum of eight Pickup Groups, with an unlimited number of extensions in each group. However, an extension can be a member of only one pickup group.

Group Call Pickup can answer the following types of calls:

- Ringing Intercom calls
- Transferred calls
- Direct Inward Lines
- Calls on trunks assigned to the Pickup Group

To simplify picking up calls, an extension can have Programmable Function Keys assigned as Group Call Pickup keys. There are three types of Group Call Pickup keys: immediate ring, no ring (lamp only) or delayed ring.

Feature Quick Steps

To answer a call ringing a phone in your Pickup Group:

1. Lift handset + Press flashing Group Pickup or dial *#.

User Programmable Feature (U Slot): # R A P

User Programmable Feature (Fixed Slot): # R G

Assigns Group Call Pickup key ringing mode.

3

Group Listen

Use Group Listen to talk to an important client or customer and have your co-workers listen in on the meeting.

Availability: All versions.

Group Listen permits a keyset user to talk on the handset and have their caller's voice broadcast over the telephone speaker. This lets the keyset user's co-workers listen to the conversation. Group Listen turns off the keyset's Handsfree microphone so the caller does not hear the co-worker's voices during a Group Listen.

Feature Quick Steps

To initiate Group Listen:

1. Place or answer call using the handset + Press **SPK** twice (but do not hang up).

To talk handsfree after initiating Group Listen:

1. Press **SPK** twice + Hang up.

To cancel Group Listen and return to your handset:

1. Do not hang up + Press flashing **SPK**.

Group Ring

Use Group Ring to call a group of co-worker's simultaneously.

Availability: All versions.

Group Ring allows you to arrange extensions into Ring Groups for answering calls. When a call comes into the Ring Group master number, all extensions in the group ring simultaneously. Any user in the Ring Group can answer the call just by lifting

the handset. The ringing call can be:

- A Direct Inward Line to the Ring Group (i.e., terminated to the Ring Group master number)
- A trunk call transferred to the Ring Group master number
- An intercom call to the Ring Group master number

The system provides up to 8 Ring Groups (1-8). The Ring Group master number can be any valid extension number not already in use.

Overflow for Group Ring Calls

If unanswered, DILs to a Ring Group can route to a programmed overflow destination. The overflow destination can be an extension, another Ring Group, UCD Group or Voice Mail. You can set up separate DIL overflow destinations for the day mode and at night. If unanswered at the overflow destination, the call diverts to Key Ring. Note that a Ring Group DIL goes into the night mode when any extension with night mode capability presses their Night key. See *Night Service / Night Ring* on page 64 for more.

Feature Quick Steps

To make an Intercom call to a Ring Group:

1. Lift handset + Press **ICM** + Dial Ring Group number (e.g., 350) + Wait for co-worker to answer.

To Transfer your trunk call to a Ring Group:

1. Press **ICM** + Dial Ring Group number (e.g., 350) + Wait for answer or hang up.

To answer a call that rings your Ring Group:

1. Lift handset or Press flashing line/loop key.

To answer a call that is ringing another group (of which you are not a member):

1. Lift handset and press **ICM** + Dial ** and the Ring Group number (e.g., 350).

Handsfree and Handsfree Answerback

Handsfree

*Talk over the phone
Handsfree, using the built-
in speaker and microphone.*

Availability: All versions.

Handsfree allows a keyset user to process calls using the speaker and microphone in the telephone (instead of the handset). Handsfree is a convenience for workers who don't have a free hand to pick up the handset. For example, a terminal operator could continue to enter data with both hands while talking on the phone.

Handsfree Answerback and Forced Intercom Ringing

*With Handsfree
Answerback, answer an
Intercom call by just
speaking toward your
phone.*

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

Handsfree Answerback permits an extension user to respond to a voice-announced Intercom call by speaking toward the phone, without lifting the handset. Like Handsfree, this is a convenience for workers who don't have a free hand to pick up the handset. Incoming Intercom calls alert with two beeps if the extension has Handsfree Answerback — a single beep if it does not.

Forced Intercom Ringing causes an Intercom call to ring the destination extension. You can enable Forced Intercom Ringing system-wide (for all extensions), or a user can dial a code to have their Intercom call ring the destination.

Feature Quick Steps

Handsfree

To use Handsfree instead of lifting the handset:

1. Press **SPK**.

To change a Handsfree call into a handset call:

1. Lift handset.

Handsfree Answerback

1. Operation is automatic if enabled in system programming.

User Programmable Feature (U Slot): # V A

User Programmable Feature (Fixed Slot): # I V or # I R

Enables Intercom voice announcements or Forced Intercom Ringing.

Headset Compatibility

Have the privacy of a handset call without having to hold the handset

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

A keyset user can utilize a customer-provided headset in place of the handset. Like using Handsfree, using the headset frees up the user's hands for other work. However, the headset provides privacy not available from Handsfree.

An example of compatible headsets are GN Netcom Orator-G or Plantronics Mirage. The headset you choose should have a noise-canceling microphone.

Feature Quick Steps

To enable the headset mode:

1. Unplug the handset but leave it in the handset cradle + Plug in the headset or headset adaptor.

When in the headset mode:

- Press a line key to place or answer a trunk call, press **ICM** to get Intercom dial tone, or, if on a call, press **SPK** to hang up.

User Programmable Feature: # H S

Enables or disables the headset mode.

Hold

Have a call wait on Hold, then pick it up to continue the conversation.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add Trunk Pickup from Hold.

Hold lets an extension user put a call in a temporary waiting state. The caller on Hold hears silence or Music on Hold, not conversation in the extension user's work area. While the call waits on Hold, the extension user may process calls or use a system feature. Calls left on Hold too long recall the extension that placed them on Hold. If the recall is unanswered, the call diverts to Key Ring.

There are four types of Hold:

System (Regular) Hold

With System Hold, an outside call a user places on Hold flashes the line key (if programmed) at all other keysets. Any keyset user with the flashing line key can pick up the call. An extension user can pick up a trunk on System Hold at another extension if they know the trunk number.

Exclusive Hold

When a user places a call on Exclusive Hold, only that user can pick up the call from Hold. The trunk appears busy to all other keysets that have a key for the trunk. Exclusive Hold is important if the user doesn't want a co-worker picking up their call on Hold.

Automatic Hold

Automatic Hold allows a user to be on a trunk call, activate a feature and automatically place the call on Hold without first pressing the HOLD key. The system places a call on Hold automatically when the user presses CONF or ICM, a Call Coverage Key or a Hotline key.

Intercom Hold

A user can place an Intercom call on Hold. The Intercom call on Hold does not indicate at any other extension.

Feature Quick Steps

To place a trunk call on System Hold:

1. Press **HOLD** + Hang up.

To place a trunk call on Exclusive Hold:

1. Press **HOLD** twice + Hang up.

To pick up a trunk call on Hold:

1. Press flashing line key.

To pick up a trunk on Hold at another extension:

1. Press **ICM** + Dial *4 followed by the trunk number (e.g., 01 for trunk 1).

To place an Intercom call on Hold:

1. Press **HOLD** + Hang up.

To pick up a call on Intercom Hold:

1. Lift handset + Press **HOLD**.

Hotline

Hotline provides partner extensions with one-button calling and Transfer.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

Hotline gives a keyset user with a programmed Hotline key one-button calling and Transfer to another extension (the Hotline partner). Hotline helps co-workers that work closely together. The Hotline partners can call or Transfer calls to each other just by pressing their Hotline key. In addition, the Hotline key shows the status of the partner's extension:

Hotline Busy Lamp Indications	
When the key is:	The covered extension is:
Off	Idle or not installed
On	Busy or ringing
Flashing fast	In Do Not Disturb

For an alternate feature that also provides one-button Intercom access and Transfer, turn to *Direct Station Selection (DSS)* on page 41.

Feature Quick Steps

To place a call to your Hotline partner:

1. Press Hotline key.

To Transfer your trunk call to your Hotline partner:

1. Press Hotline key + Announce call or hang up.

To answer a call from your Hotline partner:

1. Speak toward phone.

User Programmable Feature: # H L

Assigns Hotline partners to Hotline keys.

Interactive Soft Keys

Use advanced telephone features just by pressing a soft key, without remembering feature codes.

Availability: All versions.

Interactive Soft Keys provide intuitive feature access for display keyset users. It is no longer necessary to remember feature codes to access the telephone's advanced features because the function of the soft keys change as the user process calls. For example, while on a trunk call a display keyset user can press the **PARK** soft key to Park their call in orbit.

For additional information on Interactive Soft Key operation, refer to the DS1000/2000 Soft Key Glossary (P/N 80000GLO**).

Intercom

Use Intercom to call any co-worker.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

Intercom gives extension users access to other extensions. This provides the system with complete internal calling capability.

Handsfree Answerback and Forced Intercom Ringing

Handsfree Answerback permits an extension user to respond to a voice-announced Intercom call by speaking toward the phone, without lifting the handset. Like Handsfree, this is a convenience for workers who don't have a free hand to pick up the handset. Incoming Intercom calls alert with two beeps if the extension has Handsfree Answerback — a single beep if it does not.

Forced Intercom Ringing causes an Intercom call to ring the destination extension. You can enable Forced Intercom Ringing system-wide (for all extensions), or a user can dial a code to have their Intercom call ring the destination.

For more on Handsfree Answerback and Forced Intercom Ringing, see **Handsfree and Handsfree Answerback** (page 53).

Feature Operation

To place an Intercom call:

- Lift handset and press **ICM** + Dial extension number.
*To call the operator, dial the operator's extension number or dial 0 or 01-04 (depending on how your system is set up).
 If your call voice-announces the destination, you can dial 1 to force the call to ring.*

To answer an Intercom call (if you hear two beeps and your phone has Handsfree Answerback):

- Speak toward phone, or lift the handset for privacy.

To answer an Intercom call (if you hear one beep and your phone does not have Handsfree Answerback):

- Lift the handset.

To answer an Intercom call (if you hear ringing):

- Lift the handset.

User Programmable Feature (U Slot): # V A

User Programmable Feature (Fixed Slot): # I V or # I R

Enables Intercom voice announcements or Forced Intercom Ringing.

Key Ring

3

So they are not forgotten, unanswered calls automatically ring co-worker's extensions.

Availability: All versions.

A Key Ring trunk rings an extension according to the settings in *Program 1805 - Ring Assignments*. Multiple extensions can be enabled to ring immediately or after a programmed delay for each incoming trunk call. In addition, under certain conditions

other types of trunk calls divert to Key Ring if unanswered. The following conditions also initiate Key Ring:

- Direct Inward Line**
 An unanswered DIL diverts to Key Ring if unanswered at the extension to which it is terminated (see *Direct Inward Line* on page 40 for more).
- Hold**
 Calls left on Hold too long recall the extensions that initially placed them on Hold. If still unanswered, they divert to Key Ring.
- Park**
 Calls parked in orbit recall the extension that initially parked them. If unanswered, the call diverts to Key Ring.
- Transfer**
 An unanswered Transfer recalls the extension that initially transferred it. If still unanswered, the trunk diverts to Key Ring.

Overflow for Key Ring Calls

If unanswered, Key Ring calls can route to a programmed overflow destination. The overflow destination can be an extension, Ring Group, UCD Group or Voice Mail. You can set up separate Key ring overflow destinations for the day mode and at night. If unanswered at the overflow destination, the call again diverts to Key Ring. Note that a Key Ring trunk goes into the night mode when any extension with night mode capability presses their Night key. See *Night Service / Night Ring* on page 64 for more.

Last Number Redial

Quickly redial the last number dialed.

Availability: All versions.

Last Number Redial allows an extension user to quickly redial the last outside number dialed. For example, a user may quickly recall a busy or unanswered number without manually dialing the digits. Last Number Redial saves in system memory the last outside number dialed (up to 32 digits). The number can be any combination of digits 0-9, # and *. The system remembers the digits regardless of whether the call was answered, unanswered or busy. The system normally uses the same trunk as for the initial call. However, if that trunk is busy and is part of a trunk group, Last Number Redial will automatically select the next trunk in the group. The user can also preselect a specific trunk if desired.

Feature Quick Steps

To redial your last call:

1. Lift the handset + (Optional) Press an idle line key to preselect a trunk + Press **LND**.

Line Keys

Press a line key for one-touch access to an outside line.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add new User Programmable Feature Steps.

A line key provides an extension user with one-button access to trunks. The extension user just presses a line key to place or answer a call on the trunk. There is no need to dial codes to access or intercept trunk calls. In addition, a line key provides a Busy Lamp Field (BLF) for the trunk to which it is assigned (see the table below).

Line Key BLF Indications	
When the key is:	The trunk is:
Off	Idle or not installed
On (red)	In use or on Exclusive Hold at a co-worker's extension
On (green)	In use at your extension
Winking on (red)	On System Hold at a co-worker's extension
Winking on (green)	On System Hold or Exclusive Hold at your extension
Flashing slowly (red)	Ringling into the system
Flashing slowly (green)	Ringling or recalling directly to your extension

Answering Priority

When multiple calls ring an extension simultaneously, the system services the ringing calls in the following order:

1. **ICM** Key
2. Line Key (from lowest to highest)
3. Loop Key (from lowest to highest)

Feature Quick Steps

To place a call over a specific trunk using a line key:

1. Lift handset + Press line key + Dial outside number.

To answer an incoming trunk call:

1. Lift handset + Press flashing line key.

User Programmable Feature (U Slot): # R A L

User Programmable Feature (Fixed Slot): # R L

Assigns line key ringing mode.

Loop Keys

3

Loop keys simplify answering and placing calls.

Availability: All versions.

Loop keys are programmable keys that simplify the way extension users place and answer outside calls. There are two types of loop keys: Switched Loop Keys and Fixed Loop Keys.

Switched Loop Keys

For incoming calls, Switched Loop Keys provide an appearance for any trunk *not* assigned to a line key for which the extension has access and ringing. Switched Loop Keys insure that there is a visual appearance for trunks that do not ring an extension's line keys.

For outgoing calls, Switched Loop Keys provide convenient access to the "dial 9" trunk groups. For example, instead of pressing ICM and dialing 90 for trunk group 0, the user can just press the Switched Loop Key and dial 0 instead.

Fixed Loop Keys

For incoming calls, the Fixed Loop Key works just like a Switched Loop Key. It provides an appearance for any trunk not assigned to a line key for which the extension has access and ringing.

For outgoing calls, a Fixed Loop Key is a loop key assigned to a specific trunk group. When the extension user presses the Fixed Loop Key for an outgoing call, they get the first trunk in the group assigned to the key.

Answering Priority

When multiple calls ring an extension simultaneously, the system services the ringing calls in the following order:

1. **ICM** Key

2. Line Key (from lowest to highest)
3. Loop Key (from lowest to highest)

Feature Operation

To answer a call on a Loop Key:

1. Lift handset + Press Switched Loop Key.

To place a call on a Loop Key:

1. Lift handset + Press Loop Key + Dial trunk group code (0-8) + Dial outside number.

Meet-Me Conference

Set up a multiple-party telephone conversation with your co-workers.

Availability: All versions.

With Meet-Me Conference, an extension user can set up a telephone meeting with their co-workers. Each party joins the Conference by dialing a Meet Me Conference code. Meet Me Conference lets extension users have a telephone meeting — without leaving the office. Users must join the meeting within the Meet-Me Conference interval.

The system has two Meet-Me Conference codes (#11 and #12). After a Meet-Me Conference is set up and the Meet-Me Conference interval expires, the code used becomes available for a new meeting. Since Meet-Me Conference is a type of Conference, the system’s Conference capacity determines:

- The number of users that can join a Meet-Me Conference *and*
- The number of simultaneous conferences.

The following table shows the Conference capacities:

Description	Capacity
Conference circuits	32
Maximum simultaneous users in Conference (total of all Conferences system-wide)	32
Maximum simultaneous conferences	8
Maximum parties in any one Conference (trunks and/or extensions)	8

The system’s 32 Conference circuits are dynamically allocated as users request them.

Feature Quick Steps

To set up a Meet-Me Conference:

1. Page parties and announce the Meet-Me Conference code (#11 or #12) + Do not hang up.
2. Press **ICM** + Dial announced Meet-Me Conference code (#11 or #12).

To join a Meet-Me Conference:

1. Listen for paged invitation to join the Conference + Press **ICM**.

2. Dial announced Meet-Me Conference code (#11 or #12).

Message Waiting

Leave a Message Waiting request for a return call.

Availability: All versions

An extension user can leave a Message Waiting indication at a busy or unanswered extension requesting a return call. The indication is a flashing MW key at the called extension. Answering the Message Waiting automatically calls the extension which left the indication. Message Waiting ensures that a user will not have to recall an unanswered extension. It also ensures that a user will not miss calls when their extension is busy or unattended.

Additionally, Message Waiting lets extension users scroll through their Messages Waiting and select a co-worker to call back.

An extension user can leave Messages Waiting at any number of extensions. Also, any number of extensions can leave a Message Waiting at the same extension.

Feature Quick Steps

To leave a Message Waiting:

1. Place Intercom call to co-worker + Press **MW** + Hang up.
MW flashes fast at the extension you call.

To answer a Message Waiting:

1. Lift handset + Press **MW**.

To review your Messages Waiting and then select a message for a return call:

1. Do not lift the handset + Press **MW**.
The first extension that left a message displays. Press MW repeatedly to display additional Messages Waiting, if any.
2. When the extension you want to call displays, lift the handset + Press **MW**.

3

Microphone Mute

Talk to a co-worker in your office without your caller hearing the conversation

Availability: All versions.

Microphone Mute lets a keyset user turn off their phone's Handsfree microphone at any time. Once activated, Microphone Mute prevents the caller from hearing conversations in the user's work area. The user can turn off the Handsfree microphone while their telephone is idle, busy on a call, in DND or while a call is ringing. The microphone stays off until the user turns it back on.

While an extension has their microphone muted, incoming Intercom calls announce with a single beep (rather than the normal two beeps). The calling party hears this single beep also when the called extension's microphone is muted.

Feature Quick Steps

To activate or deactivate **Microphone Mute**:

1. Press **MIC**.

Modem Cut-Through

Maximize modem throughput speeds and obtain power failure cut-through on the same port.

Availability: DS1000 only.

The unique DS1000 Modem Cut-Through feature allows a modem connected to the system's analog modem port to achieve maximum throughput speeds on outside calls. In addition, a single line set plugged into the modem is a fully functional internal analog telephone at extension 316. This same single line set is also the system's power-failure telephone. It directly connects to an outside line if there is a commercial power failure.

If you are using Modem Cut-Through or a power-failure telephone, do not use extension 316 for Voice Mail.

Monitor / Silent Monitor

Monitor a co-worker's phone conversation without them knowing you are on the phone.

Availability: All versions.

Monitor lets an extension user listen to the conversation at a busy extension. To implement Monitor, an extension user just calls a busy extension and dials the Monitor code. The busy extension and their caller have no indication of the intrusion. There are no tones heard and there is no visual indication that monitoring is occurring. For example, Monitor could help the supervisor of a service department. The department supervisor could listen to the questions that callers ask without disturbing the service call.

!! CAUTION !!

Monitor provides no warning tones prior to intrusion. Monitor may be interpreted as an invasion of privacy.

Feature Quick Steps

1. Call busy extension + Dial 6 + Listen to the conversation in progress.

Multiple Directory Numbers

See *Call Coverage Keys* on page 29.

Music On Hold

Callers can listen to music while waiting for their call to go through.

Availability: All versions.

Music on Hold (MOH) plays music to calls on Hold, parked calls, and transferred calls. The music lets the caller know that their call is waiting, not forgotten. Without Music on Hold, the system provides silence to these types of calls. Music on Hold is available from three sources: two internal beep tones and an external source connected to the CPU music input terminals. The external source typically connects to a customer-provided music source (such as a digital announcer, CD player or FM receiver).

The system provides a single external music input source. Background Music and Music on Hold share the same external source. For example, if Music on Hold uses a customer-provided program from CD, Background Music uses this source as well. In DS2000, the external music source connects to the CPU's 8-pin mod jack. In DS1000, the external music source connects to the AUDIO jack. For more on connecting a customer-provided music source, refer to the system's Hardware Manual.

With Music on Hold enabled, transferred callers can optionally listen to ringback or MOH while their call waits at the transfer destination.

Note: In accordance with U.S. copyright law, a license may be required from the America Society of Composers, Authors and Publishers (ASCAP) or other similar organizations, if radio, television broadcasts or music other than material not in the public domain are transmitted through the Music on Hold feature of telecommunications systems. NEC America, Inc., hereby disclaims any liability arising out of the failure to obtain such a license.

3

Names for Extensions and Trunks

Names help identify trunks and extension.

Availability: All versions.

Extensions and trunks can have names instead of just circuit numbers. These names show on a keyset's display when the user places or answers calls. Extension and trunk names make it easier to identify callers. The user does not have to refer to a directory when processing calls. Extension and trunk names can consist of upper and lower case letters, spaces and punctuation. Extension and trunk names can be up to 15 characters long.

Extension names display when placing or answering Intercom calls. Trunk names display when using the following features:

- Central Office Calls, Answering
- Central Office Calls, Placing
- Direct Inward Line
- Direct Trunk Access
- Directed Call Pickup
- Last Number Redial
- Line Keys
- Loop Keys
- Night Service / Night Ring

- Park
- Speed Dial
- Transfer

Night Service / Night Ring

Use Night Service to reroute calls after hours.

Availability: All versions.

Night Service redirects trunk calls to their night mode destination. Typically, the attendant or supervisor activates Night Service after normal working hours, when most employees are unavailable to answer calls. There are two basic types of Night

Service: Assigned Night Answer and Universal Night Answer.

Assigned Night Answer rings extensions directly at Night, providing specific answering points for Night Service calls. (For example, you can program trunks to ring the security station at night.)

Universal Night Answer (UNA) allows a user to dial a code to pick up a call ringing the system at night. With UNA, an employee can go to any telephone and dial a UNA code to answer the call. The extension does not need to have a line/loop key assigned for the ringing call.

Following are the four basic types of Night Service operation for a trunk. Note that only option 3 enables Universal Night Answer.

- **Option 1: Key Ring Day and Night**
The trunk is a Key Ring trunk during the day and at night. An extension's Night Key (if programmed) controls the day/night mode of the trunk. The trunk will not enable Universal Night Answer pickup.
- **Option 2: Key Ring During the Day, DIL at Night**
The trunk is a Key Ring trunk during the day and a DIL at night. An extension's Night Key (if programmed) controls the day/night mode of the trunk. The trunk will not enable Universal Night Answer pickup.
- **Option 3: DIL During the Day, Key Ring at Night**
The trunk is a DIL during the day and a Key Ring trunk at night. The DIL destination's DND key controls the night mode of the trunk. If the DIL destination is extension 300 (normally the attendant), pressing the DND key also enables Universal Night Answer pickup.
- **Option 4: DIL Day and Night**
The trunk is a DIL during the day and at night. The DIL destination's DND key controls the night mode of the trunk. During the day, the trunk rings the assigned DIL day mode destination extension. At night (after the user presses DND), the trunk rings the programmed DIL night mode destination. Pressing the DND key will not enable Universal Night Answer pickup.

By default, key 11 on attendant keyset is a Night key. This allows the attendant to activate the Night Mode system-wide.

Feature Operation

To activate or deactivate Night Service:

1. Do not lift the handset + Press the Night key.

To answer a call that rings a line or loop key at night:

1. Lift handset + Press flashing line or loop key.

To answer a call ringing the system at night (UNA Pickup):

1. Press **ICM** + Dial ****** followed by the UNA code (01-04).

Off-Hook Signaling

Off-Hook Signaling helps important callers get through.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

When a user is busy on a call, Off-Hook Signaling indicates that another caller is trying to get through. Off-Hook Signaling helps important callers get through, without waiting in line for the called extension to become free. After the user hears the off-hook signal, they can use other system features (such as Hold or Park) to process their active call and then answer the waiting call.

Off-Hook Signaling for Trunk Calls

While a keyset user is on a handset call, Off-Hook Signaling for trunk calls can be:

- While on a handset call, a flashing green Ring/Message lamp, line/loop key, and muted off-hook ringing in the telephone speaker.

OR

- While on a handset or Handsfree call, a flashing green line/loop key and Camp-On tones. This is the default setting.

Off-Hook Signaling for trunks occurs for DILs, transferred calls, Voice Mail Automated Attendant transfers and Key Ring calls. While Off-Hook Signaling ringing is occurring, use VOL ▲ and VOL ▼ to adjust the volume of ringing. Note that single line telephone users cannot receive off-hook ringing.

Off-Hook Signaling for Intercom Calls

While an extension user is on a handset call, they can receive Camp-On tones in the telephone handset from a co-worker that called them and dialed 2 to Camp-On. Turn to *Call Waiting / Camp-On* on page 31 for more on how to set this up. Off-hook ringing for Intercom calls is not available.

User Programmable Feature: # O H S

Sets up the Off Hook Signaling options for an extension.

Off-Premise Extensions / On-Premise SLT Extensions

Connect analog devices such as single line telephones, fax machines and voice mail systems to the system.

Availability: All DS2000 versions.

- 2-OPX Modules require DS2000 02.00.01.
- 2-OPX Modules are not available in DS1000.

The system is compatible with 500 type (dial pulse) and 2500 type (DTMF) analog telephone devices. This includes telco OPX circuits (DS2000 only), on-premise single line telephones (SLTs), fax machines, modems and Voice Mail ports. The DS1000 and DS2000 systems do not provide the signaling required to light SLT Message Waiting lamps.

In DS2000, off-premise SLTs can connect to 2-OPX Modules. On-premise SLTs can connect to 2-OPX Modules or ASTU PCBs.

DS2000 ASTU PCBs are available in two models, providing 4 and 8 ports, respectively. Each ASTU port provides power and ring voltage for the connected SLT. ASTU PCBs use system DTMF receivers. The CPU provides 10 DTMF receivers that are shared by all devices connected to ASTU ports.

Each DS2000 2-OPX Module provides two OPX ports. The first 2-OPX extension number is the same as the port's extension number. The second 2-OPX extension number is the first port **plus 201**. For example, the two extension numbers for the 2-OPX module plugged into extension 314 are 314 and 515. In addition, the 2-OPX Module has its own DTMF receivers (one for each port), internal ring generator and power supply to provide the connected SLT with power and ring voltage.

In DS1000, on-premise SLTs connect to dedicated analog ports in the main equipment cabinet. DS1000 does not support off-premise extensions via 2-OPX Modules.

Ringling For Incoming Calls

On- and Off-Premise single line extensions can ring directly for the following types of calls:

- **Direct Inward Line** (page 40)
- **Intercom** (page 56)
- **Group Ring** (page 52)
- **Ringdown Extension** (page 76)
- **Transfer** (page 92)

Feature Quick Steps

Refer to the Single Line Telephone Quick Reference Guide (P/N 80000SLT**).

One-Touch Keys

Available for Personal Speed Dial. Refer to *Speed Dial* on page 80.

Paging

Use Paging to broadcast announcements or quickly locate co-workers.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.
- Page relay support available in DS2000 U Slot 02.00.04 and higher and DS1000.

Paging lets extension users broadcast announcements to other keyset users and to external Paging speakers. Paging allows a user to locate a co-worker or make an announcement without calling each extension individually. There are two types of Paging: Internal Paging and External Paging.

Internal Paging

Internal Paging allows extension users to broadcast announcements into 7 internal Paging Zones and All Call (all zone). When a user makes a zone page, the announcement broadcasts to all extensions assigned to the specified zone. If the user makes an All Call announcement, the announcement simultaneously broadcasts to extensions in all zones. All Call Paging automatically overrides any zone pages already in progress. A system timer can optionally limit the duration of Paging announcements.

To simplify Paging access, a keyset can have Programmable Function Keys assigned as Page keys.

Paging Key Busy Lamp Indications	
When the key is:	The zone is:
Off	Idle
On (red)	A co-worker is Paging into the assigned zone
On (green)	The extension user is Paging into the assigned zone.

External Paging

When a user pages into Internal All Call Page or Internal page Zone 1, the system simultaneously broadcasts the announcement into the External Paging Zone. In DS2000, access to the external zone is via pins on the CPU's 8-pin mod jack. In DS1000, access to the external zone is via the AUDIO jack in the main equipment cabinet. Refer to the system *Hardware Manual* for additional installation details.

Page Relay Support

Paging can activate system relays. In DS1000, Paging can activate the relay contacts in the DOOR1 and DOOR2 jacks. In DS2000, Paging can activate a single relay located on the CPRU.

Feature Quick Steps

To make an Internal Paging announcement:

1. Lift handset + Press **ICM**.
2. Dial *1 and page zone number (1-7 or 0 for All Call) + Make announcement and hang up.
OR
1. Lift handset + Press Paging key + Make announcement and hang up.

User Programmable Feature: # V P

Enables or disables an extension's ability to receive Paging announcements.

Park

Park a call in orbit so a co-worker can pick it up. With Park, it is not necessary to locate a person to handle their calls.

Availability: All versions.

Park places a trunk call in a waiting state (called a Park Orbit) so that an extension user may pick it up. There are two types of Park: System and Personal. Use System Park when you want to have the call wait in one of 10 system orbits (60-69). Personal Park allows you to Park a call at an extension so a co-worker can pick it up. After parking a call, a user can Page the person receiving the call and hang up. The paged party dials a code or presses a programmed System Park key to pick up the call. Many calls can be parked at the same extension, and are retrieved in LIFO (last-in, first-out) order.

A call parked in System Park Orbit for too long will recall the extension that initially parked it. The recall duration for System Park Orbits 60-67 is programmable. The recall for System Park Orbits 68 and 69 is permanently fixed at 5 minutes. If the recall remains unanswered, the call diverts to Key Ring.

A call parked in Personal Park Orbit for too long will initially recall to the extension at which it is parked. If unanswered there, it recalls to the extension that parked the call. If still unanswered, it diverts to Key Ring.

When an extension has System Park keys, the keys provide a Busy Lamp Field (BLF) for the orbit assigned to the key.

Park Key Busy Lamp Indications	
When the key is:	The Park orbit is:
Off	Idle
On (red)	A co-worker has parked a call in the orbit assigned to the key.
Single wink on (green)	The extension user has parked a call in the orbit assigned to the key.

Feature Quick Steps

To Park a call in system orbit:

1. While on a trunk call, press **ICM** + Dial * + System Park Orbit (60-69) + Hang up.

OR

1. While on a trunk call, press Park key + Hang up.

To retrieve a call from system Park orbit:

1. Lift handset + Press **ICM** + Dial * + System Park Orbit (60-69).

OR

1. Lift handset + Press Park key.

To Park a call at an extension (using Personal Park):

1. While on a trunk call, press **ICM** + Dial * * + Number of extension at which you want to park the call (300-331) + Hang up.

To retrieve a call parked at an extension:

1. Lift handset + Press **ICM** + Dial * * + Number of extension at which the call is parked.

Prime Line Preference

Place or answer an outside call on your Prime Line just by lifting the handset.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

Prime Line Preference allows a keyset user to place or answer a call by just lifting the handset. The user does not have to press a line key, loop key, or the ICM key first. This simplifies handling calls. In programming, you designate a line key, loop key, or the ICM key as a Prime Line Key. With a line or loop key, the trunk or trunk group assigned to that key becomes your Prime Line. With the ICM key, you get Intercom dial tone when you lift the handset. Any number of extensions can have the same Prime Line assignment.

There are two types of Prime Line Preference: Idle Prime Line and Intercom Prime Line.

Idle Prime Line

Idle Prime Line lets a user place or answer a Prime Line call by just lifting the handset. If the Prime Line Key is a line key, lifting the handset places or answers a call on the trunk assigned to the key. If the Prime Line key is a Loop Key, lifting the handset places or answers a call on a trunk assigned to the key.

Intercom Prime Line

With Intercom Prime Line, an idle extension user hears Intercom dial tone whenever they lift the handset or press SPK. Intercom Prime Line may help the extension user that most often uses Intercom functions or calls co-workers. If an extension's Busy Lamp Field is disabled (the default setting in DS1000 and U Slot), the Programmable Function Keys do not go into the DSS mode when the user lifts the handset.

Feature Quick Steps

To place or answer a call on your Prime Line:

To bypass your Prime Line, press another key (e.g., a line or loop key) before lifting the handset.

1. Lift the handset.

User Programmable Feature: # P L A

Assigns a line, loop, or ICM key as the Prime Line key.

Privacy

Use Privacy to prevent interruptions at high priority extensions.

Availability: All versions.

An extension with Privacy blocks incoming Barge In attempts and Call Waiting (Camp-On) signals. Privacy helps extension users that don't want their conversations interrupted.

Note that if an extension with Privacy *enabled* is on a call with an extension with Privacy *disabled*, they are still subject to Barge In attempts and Call Waiting signals to the non-private extension.

Privacy Release Groups

Quickly join in a co-worker's outside call.

Availability: All versions.

You can program extensions into Privacy Release Groups to simplify sharing trunk calls. Co-workers in the same Privacy Release Group can easily join another group member's trunk call just by pressing the busy line key. The co-worker immediately joins in unannounced and uninvited. Privacy Release Groups are a quick alternative to Conference where control over the Conference is not required. In a Customer Service group, for example, a supervisor could just press a busy line key to monitor any agent's call.

If desired, an extension user can prevent other members of their Privacy Release Group from interrupting their active call. This ensures that group members will not interrupt confidential calls.

Any number of extensions can be in the same Privacy Release Group. However, an extension can only be in a single group. Members of the Privacy Release Group must have line keys and access to the trunks they want to share.

Privacy Release Groups utilizes a Conference circuit. The following table shows the Conference capacities:

Description	Capacity
Conference circuits	32
Maximum simultaneous users in Conference (total of all Conferences system-wide)	32
Maximum simultaneous conferences	8
Maximum parties in any one Conference (trunks and/or extensions)	8

The system's 32 Conference circuits are dynamically allocated as users request them.

Feature Operation

To join a trunk call with a member of your Privacy Release Group:

1. Press line key.

To prevent a member of your Privacy Release Group from joining your call:

1. Place or answer trunk call on line key + Press line key
Press line key again to allow users to join your call.

Private Line

You can have a line reserved exclusively for your own use.

Availability: All versions.

A Private Line is a trunk reserved for a keyset for placing and answering calls. A user with a Private Line knows when important calls are for them. Additionally, the user has their own trunk for placing calls that is not available to others in the system.

There are three types of Private Lines:

- **Incoming Only**
The keyset has a Private Line only for incoming calls. The user cannot place a call on the Private Line. A customer service representative may want an incoming only Private Line to be sure customers can always get through.
- **Outgoing Only**
The keyset has a Private Line only for outgoing calls. The Private Line does not ring for incoming calls. A service dispatcher may want an outgoing only Private Line so they can always get in touch with field technicians.
- **Both Ways**
The keyset has a Private Line for both incoming and outgoing calls. An executive may want a both ways Private Line that is available only to them for placing and answering calls.

You can optionally set up shared Private Lines between a group of co-workers that work closely together.

Feature Quick Steps

To answer an incoming call on your Private Line:

1. Lift handset.

To place a call over your Private Line:

1. Lift handset + Press line key + Dial outside number.

Programmable Function Keys

Programmable Function Keys simplify feature operation.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

Each keyset has Programmable Function Keys. These Programmable Function Keys simplify placing calls, answering calls and using certain features. You can customize the function of any keyset's Programmable Function Keys from the User Programmable Features.



The **22-Button Standard and Display Telephones** feature 12 Programmable Function Keys.



The **34-Button Display Telephone** features 24 Programmable Function Keys.



The **34-Button Super Display Telephone** also features 24 Programmable Function Keys.

The following chart lists the available Programmable Function Key assignments.

- Call Coverage
- Call Timer
- Group Pickup
- Hotline
- Intercom Directory Dialing
- Line Key
- Loop Key, Fixed
- Loop Key, Switched
- Message Center
- Night Key
- Page Zones
- Park Orbit
- Reverse Voice Over
- Save
- Speed Dial, Personal
- Speed Dial, System
- Split Key
- Voice Mail Record Key

Feature Quick Steps

To use your line or loop key:

1. Press the trunk key.

To use your Park key:

1. Press Park key to Park or retrieve call.

To use your Hotline key:

1. Press key to call Hotline partner.

To use your Call Coverage key:

1. Press key to call covered extension or pick up ringing call.
You can set up the Call Coverage key for immediate ring, delayed ring, or no ring.

To use your Group Call Pickup key:

1. Press key to answer call ringing Pickup Group.
You can set up the Group Call Pickup key for immediate ring, delayed ring, or no ring.

To use your Page Zone key:

1. Press key to Page into assigned zone.

To use your System Speed dial key:

1. Press key to dial stored number.
System Speed Dial keys provide no BLF.

To use your Personal Speed dial key:

1. Press key to dial stored number.
Personal Speed Dial keys provide no BLF.

To use your Call Timer key:

1. Press key to start or stop the Call Timer.
If you have an Automatic Call Timer Key, the timer will start automatically after you place or answer an outside call.

To use your Voice Mail Record key:

1. Press key to record conversation in mailbox.
You must have Voice Mail installed to use this key. A voice prompt and a periodic beep will remind you that your calls are being recorded.

To use your Night key:

1. Press key to put the system in the night mode.

To use your Split key:

Turn to the Split feature on page 82.

To use your ICM Directory key:

1. Press key to access Intercom Directory Dialing.

To use your Reverse Voice Over key:

1. While on a handset call, press key to place Private Intercom call to covered extension.

To use your Message Center key:

1. Press key to see how many messages are waiting in the Message Center.
OR
Lift the handset or press **SPK** + key to call Message Center mailbox.

To use your Save key:

1. While on a call, press key to Save the number you just dialed.
OR
While idle, press key to redial a previously saved number.
Save keys provide no BLF.

User Programmable Feature: # K P

Assigns functions to Programmable Function Keys.

Pulse to Tone Conversion

Use special services (such as telephone banking) over dial pulse trunks.

Availability: All versions.

An extension can use Pulse to Tone Conversion while placing a trunk call to change the dialing mode from dial pulse to DTMF. For a system in a dial pulse area, this permits users to access DTMF services (such as telephone banking) from their DP area.

Pulse to tone conversion also helps dial pulse callers use another company's automated attendant dialing options. The user can, for example:

- Place a call to their bank over a DP trunk.
- After the banking service answers, wait 6 seconds. (The system automatically converts dialing to DTMF.)
- Dial additional banking options.

Refer to *Central Office Calls, Answering* on page 34 and *Central Office Calls, Placing* on page 35 for the specifics on setting up your trunk calling.

Feature Quick Steps

To convert your phone's dialing to DTMF after placing your call on a DP trunk:

1. Dial initial digits for call + Wait 6 seconds + Dial additional digits.

Removing Trunks and Extensions From Service

Temporarily remove problem extensions and trunks from service until they can be repaired.

Availability: All versions.

Supervisors and attendants can remove problem trunks and extensions from service. This helps ensure maximum system performance. For example, the attendant can busy-out a noisy trunk or problem extension until service personnel can repair the problem. The trunk or extension then appears busy to all callers. Following repair, the attendant or supervisor can return the trunk to service.

The extension or trunk removed from service shows as busy on the appropriate key (e.g., line key or Hotline key). The port activity LED on the DS2000 ATRU PCB indicates that the trunk is busy.

Feature Quick Steps

To remove or return an extension or trunk to service:

1. Press **ICM** and dial #40.
2. Dial the number of the extension or trunk you want to remove or return to service.
3. Dial 4 to return or Dial 6 to remove + Press **SPK** to hang up.

Reverse Voice Over

Privately call a co-worker while you're busy on your handset.

Availability: All versions.

While on a handset call, Reverse Voice Over lets a busy keyset user make a private Intercom call to an idle co-worker. The busy user just presses and holds down a programmed Reverse Voice Over key to make a private call to the assigned co-worker. The initial caller cannot hear the Reverse Voice Over conversation. The private Intercom call continues until the Reverse Voice Over caller releases the key. The initial handset call can be a trunk call or an Intercom call. An extension can have Reverse Voice Over keys for more than one co-worker.

Reverse Voice Over could help a salesperson, for example, when placing a call to an important client. The salesperson can talk with the client and give special instructions to an assistant — without interrupting the initial call.

When the keyset is idle, the Reverse Voice Over key functions the same as a Hotline key. (You cannot, however, use it to Transfer calls.) The key also shows at a glance the status of the associated extension:

Reverse Voice Over Busy Lamp Indications	
When the key is:	The covered extension is:
Off	Idle or not installed
On	Busy or ringing
Flashing fast	In Do Not Disturb

3

Reverse Voice Over uses a system Conference circuit while it is active. The following table shows the system's Conference capacities:

Description	Capacity
Conference circuits	32
Maximum simultaneous users in Conference (total of all Conferences system-wide)	32
Maximum simultaneous conferences	8
Maximum parties in any one Conference (trunks and/or extensions)	8

The system's 32 Conference circuits are dynamically allocated as users request them.

Feature Quick Steps

To place a Reverse Voice Over call:

1. While on a handset call, press and hold your Reverse Voice Over key.

To return to your initial caller:

1. Release your Reverse Voice Over key.

To place a call to your assigned Reverse Voice Over destination:

1. While your telephone is idle, press your Reverse Voice Over key.

Ring Groups

Refer to *Group Ring* on page 52 for more information.

Ringdown Extension

Call another extension, group or Voice Mail just by lifting the handset.

Availability: All versions.

A Ringdown Extension automatically calls a co-worker, Voice Mail, a Ring Group or a UCD Hunting group when the user lifts the handset. The call automatically goes through — there is no need for the user to dial digits or press additional keys. Ringdown extensions are frequently used for lobby phones, where the caller just lifts the handset to get the information desk.

Feature Quick Steps

To use Ringdown Extension:

1. Lift handset or press **SPK**.

To bypass Ringdown (if your keyset is set up as a Ringdown Extension):

1. Before lifting the handset or pressing **SPK**, press **ICM**, a Line key or a Programmable Function Key

Ringling Line Preference

Simply lift the handset to answer a ringing call.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

Ringling Line Preference lets a keyset user answer a ringing call by just lifting the handset. For a user that primarily answers calls, Ringling Line Preference ensures that ringing calls have priority. The tables below show the interaction between Ringling Line Preference and other features for both handset and headset calls.

Table 2: Ringing Line Preference for Handset Calls

Feature	Keypad		Attendant	
	RLP = Y	RLP = N	RLP = Y	RLP = N
	Does lifting the handset answer the ringing call?			
Intercom (page 56) Ringing Intercom calls	Yes	Yes	Yes ¹	Yes ¹
Key Ring (page 57) (Line/Loop Keys)	Yes	No	Yes	No
Transfer (page 92)	Yes	No	Yes	No
Direct Inward Line (page 40)	Yes	No	Yes	No
Group Ring (page 52)	Yes	Yes	N/A	N/A
Extension Hunting (page 47) (Call to UCD master)	Yes	Yes	No	No
Call Coverage Keys (page 29)	No	No	No	No
Group Call Pickup (page 51)	No	No	No	No
¹ Ringing Line Preference will not answer a call ringing the Operator Call Key.				

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Table 3: Ringing Line Preference for Headset Calls

Feature	Keypad		Attendant	
	RLP = Y	RLP = N	RLP = Y	RLP = N
	Does pressing SPK while in the Headset mode answer the ringing call?			
Intercom (page 56) Ringing Intercom calls	Yes	Yes	Yes	Yes
Key Ring (page 57) (Line/Loop Keys)	Yes	No	Yes	No
Transfer (page 92)	Yes	No	Yes	No
Direct Inward Line (page 40)	Yes	No	Yes	No
Group Ring (page 52)	Yes	Yes	N/A	N/A
Extension Hunting (page 47) (Call to UCD master)	Yes	Yes	No	No
Call Coverage Keys (page 29)	No	No	No	No
Group Call Pickup (page 51)	No	No	No	No

When multiple calls ring an extension simultaneously, the system services the ringing calls in the following order:

1. **ICM** Key
2. Line Key (from lowest to highest)
3. Loop Key (from lowest to highest)

Feature Quick Steps

To use Ringing Line Preference:

1. Lift handset or press **SPK**.

To bypass Ringing Line Preference:

1. Before lifting the handset or pressing **SPK**, press **ICM**, a Line key or a Programmable Function Key.

User Programmable Feature: # R L P

Enables or disables Ringing Line Preference.

Save Number Dialed

Save the number you just dialed for quick redialing.

Availability: All versions.

Save Number Dialed permits an extension user to save their last outside number and easily redial it later on. For example, an extension user can recall a busy or unanswered number without manually dialing the digits. The system retains the saved number until the user stores a new one in its place.

Save Number Dialed saves in system memory a dialed number up to 32 digits. The system remembers the digits regardless of whether the call was answered, unanswered or busy. The system normally uses the same trunk as for the initial call. However, if that trunk is busy and is part of a trunk group, Save Number Dialed will automatically select the next trunk in the group. The user can also preselect a specific trunk if desired.

Save Number Dialed requires a uniquely programmed Programmable Function Key or DSS Console Key.

Feature Quick Steps

To save the outside number you just dialed (up to 32 digits):

1. Press Save Number Dialed Key.

To redial a saved number:

1. (Optional) Press a line key to preselect a trunk for the call + Press Save Number Dialed key.

Selectable Display Messaging

While you're away from the phone, display telephone callers can receive personalized text messages you set up.

Availability: All versions.

An extension user can select a preprogrammed Selectable Display Message for their extension. Display keyset callers see the selected message when they call the user's extension. Selectable Display Messaging provides personalized text messaging. For example, an extension user could select the message "GONE FOR THE DAY." Any display keyset user calling the extension would see the message. Other than displaying the message, the system puts the call through normally.

There are 16 Selectable Display Messages (01-16), set up in system programming. Messages 01-09 are preset by default, but can be changed to meet the site requirements. Messages 10-16 are initially undefined. Any message can be appended by the extension user. For example, a user could select message 09 (OUT UNTIL) and append the time they are expected back (e.g., 5:00). The total length of the message *plus* any user appended entries cannot exceed 20. Selectable Display Messages cannot begin with numbers.

Following are the 16 default Selectable Display Messages.

Table 4: Selectable Display Messages

Option	Default
Message 01	CALL (plus 15 user entries)
Message 02	BACK BY (plus 12 user entries)
Message 03	MEETING IN RM (plus 4 user entries)
Message 04	OUT TO LUNCH (plus 7 user entries)
Message 05	GONE FOR THE DAY (plus 3 user entries)
Message 06	ON VACATION (plus 8 user entries)
Message 07	ON BUSINESS TRIP (plus 3 user entries)
Message 08	IN THE MEETING (plus 7 user entries)
Message 09	OUT UNTIL (plus 10 user entries)
Message 10	Undefined (up to 20 characters)
Message 11	Undefined (up to 20 characters)
Message 12	Undefined (up to 20 characters)
Message 13	Undefined (up to 20 characters)
Message 14	Undefined (up to 20 characters)
Message 15	Undefined (up to 20 characters)
Message 16	Undefined (up to 20 characters)

Feature Quick Steps

To select a Selectable Display Message:

1. Press **ICM** + Dial *38 + Message number (01-16).
You can press VOL ▲ or VOL ▼ to scroll through the messages instead of dialing the message number.
2. Press **HOLD** + Enter any additional characters or digits + Press **HOLD** + Press **SPK** to hang up.

To cancel a Selectable Display Message:

1. Press **ICM** + Dial *30 + Press **SPK** to hang up.

Silent Monitor

See *Monitor / Silent Monitor* on page 62.

Single Line Telephones

Refer to *Off-Premise Extensions / On-Premise SLT Extensions* on page 66 for more.

Soft Keys

See *Interactive Soft Keys* on page 56.

Speed Dial

Instead of dialing a long telephone number to reach a client or customer, use Speed Dial instead. Also, store Intercom digits for quick access to commonly used features.

Availability: All versions.

- In DS2000 U Slot (02.nn.nn) and DS1000, the Super Display telephone display shows the first 10 characters of the programmed Personal Speed Dial name (or first 10 digits of the stored number if there is no name).
- DS2000 U Slot and DS1000 also add new User Programmable Feature steps.

Speed Dial gives an extension user quick access to frequently called numbers. There are two types of Speed Dial: System and Personal. Speed Dial numbers can be up to 30 digits long, using 0-9, # and *. Every Speed Dial can have a programmed name up to 16 characters long. The name shows in the telephone display as the Speed Dial number dials out.

Speed Dial can store outside numbers and Intercom digits. The capability to store Intercom digits provides the user with “one-touch” access to features they use most often. For example, a user can have a Speed Dial bin that simplifies forwarding calls to Voice Mail or a co-worker.

System Speed Dial

System Speed Dial gives every extension access to the same set of stored numbers. The system provides up to 1000 System Speed Dial numbers. Depending on the system option selected, the system provides either 10, 100 or 1000 System Speed Dial numbers.

Personal Speed Dial

Personal Speed Dial provides extensions with 20 numbers stored privately for their own use. The Personal Speed Dial keys on a DSS Console access the same bins as the extension to which it is attached.

Unique Speed Dial Entries

In addition to the digits 0-9, # and *, you can enter the following for additional dialing options:

For this option	Use this key:
Pause	MIC
Flash	FLASH

Storing Trunk Routing in a Speed Dial Bin

When you program a Speed Dial bin, you can select either a trunk or a Trunk Group over which the call should route. For example, you can enter 1 for trunk 1 or 90 for Trunk Group 0.

Centrex Compatibility

Speed Dial offers unique compatibility with connected Centrex services. A Speed Dial number can accommodate *both* placing a new call *and* outdialing the stored Speed Dial number on an active Centrex trunk. This enables features such as Centrex Transfer and Conference. Refer to the *Speed Dial* feature in your *Software Manual* for more on this unique capability.

Feature Quick Steps

Personal Speed Dial

To Program a Personal Speed Dial Number:

1. With U Slot software: Dial **#SP**.
With Fixed Slot software: Press **ICM** and dial ##.
2. Dial the Personal Speed Dial bin number (701-720). or
Press Personal Speed Dial Key (for bins 1-10), or
Press **DIAL** and the Personal Speed Dial Key for bins 11-20.
3. Press **HOLD**.
4. Enter the trunk number you want the system to use when dialing your stored number,
OR
Enter the Trunk Group number you want the system to use when dialing your stored number
(e.g., 90 for Trunk Group 0)
OR
Skip this step if you want to enter Intercom codes.
5. Press **HOLD** + Enter the number you want to store (up to 30 digits long) + Press **HOLD**.
6. Enter a name for the Speed Dial number + Press **HOLD**.
7. Repeat from step 2 to program another bin number, or press **SPK** to exit.

To dial a Personal Speed Dial Number:

1. Press **ICM** and dial #.
2. Dial the Personal Speed Dial bin number (701-720).

For one-button access to your Personal Speed Dial numbers:

1. Press Personal Speed Dial Key for bins 1-10, or
Press **DIAL** then Personal Speed Dial key for bins 11-20, or
Press Programmable Function key for Personal Speed Dial bin.

System Speed Dial

To Program a System Speed Dial Number:

1. With U Slot software: Dial **#SP**.
With Fixed Slot software: Press **ICM** and dial **##**.
2. Dial the System Speed Dial bin number (normally 200-299) + Press **HOLD**.
3. Enter the trunk number you want the system to use when dialing your stored number,
OR
Enter the Trunk Group number you want the system to use when dialing your stored number (e.g., 90 for Trunk Group 0).
4. Press **HOLD** + Enter the number you want to store (up to 30 digits long) + Press **HOLD**.
5. Enter a name for the Speed Dial number + Press **HOLD**.
6. Repeat from step 2 to program another bin number, or Press **SPK** to exit.

To dial a System Speed Dial Number:

1. Press **ICM** and dial #.
2. Dial the System Speed Dial bin number (normally 200-299), or
Press Programmable Function Key for System Speed Dial bin.

User Programmable Feature (U Slot): # S P

User Programmable Feature (Fixed Slot): ICM # # Bin

Allows user to program Personal and System Speed Dial numbers.

Split (Alternate)

Switch between active calls without Conferencing the calls together.

Availability: All versions.

With Split, an extension user can split (alternate) between a current call and a new call. Split lets the extension user easily alternate between the calls without joining (Conferencing) the parties together.

Feature Quick Steps

To Split between your current Intercom call and a new Intercom call:

1. Press **HOLD** to place your current Intercom call on Hold, then hang up.
2. Place or answer Intercom call + Press the Split key to switch between your two Intercom calls.

To Split between your current trunk call and an Intercom call:

1. Press **ICM** to place trunk call on Hold, then hang up.
2. Place or answer waiting Intercom call + Press the Split key to switch between the Intercom call and the trunk call.

To Split between your current Intercom call and a trunk call:

1. Press **HOLD** to place your current Intercom call on Hold.
2. Answer trunk call + Press the Split key to switch between your two calls.

To Split between your current trunk call and a waiting trunk call:

1. Press **ICM** to place your current trunk call on Hold, then hang up.
2. Place or answer new trunk call + Press the Split key to switch between your two calls.

Station Message Detail Recording

SMDR provides a printed record of your calls.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 expand the last column of the report from 1 to 3 characters.

Station Message Detail Recording (SMDR) provides a record of the system's trunk calls. Typically, the record outputs to a customer-provided printer, terminal or SMDR data collection device. SMDR allows you to monitor the usage at each extension and trunk. This makes charge-back and traffic management easier. SMDR includes both incoming and outgoing calls, and can be turned off system-wide or selectively for each trunk.

The SMDR call record outputs when the call completes. The system assigns the SMDR record to the last extension on the call. For example, if extension 306 answers the call, talks for 20 minutes, and then Transfers the call to extension 302, extension 302 "owns" the entire call record as soon as they hang up.

The system buffers 50 SMDR call records. When the SMDR buffer fills, new call records will overwrite previously buffered call records.

Sample SMDR Report

Following is a sample SMDR report:

Station Message Detail Recording
05/07/1999 09:10P

Sta	Lin	Number Dialed	Account	Start	Duration	T
306	01	12039265400		09:10:18P	00:00:05	OUT
306	01	19055072888		09:10:48P	00:01:13	OUT
301	02	-		09:12:13P	00:01:12	IN
304	01	-		09:12:07P	00:01:20	IN
306	01	18003651928		09:15:38P	00:00:14	OUT

Note: In Fixed Slot systems, the last column is only 1 character long (O = Outgoing and I = Incoming).

System Programming Backup and Restore

Backup and restore site data to a PC card.

Availability: DS2000 only.

- Fixed Slot 01.nn.nn provides 12 data base storage addresses on PC Card P/N 80050-V**.}.}
- U Slot 02.00.00 provides 8 data base storage addresses on PC Card P/N 80050-V02.00.00.
- U Slot 02.00.01 and higher provide 16 data base storage addresses on PC Card P/N 85880.

You can use PC Card P/N 85880 to back up and restore your site data. Each PC card can store up to 16 complete data bases. In addition, you can assign a name (up to 10 characters long) to each stored data base.

The PC Card provides a permanent, non-volatile backup of all the site's programming. If you have backed up your site data to a PC Card, for example, you can easily restore all site programming after an extended power failure.

System Programming Password Protection

Control access to system programming.

Availability: All versions.

Programming 1704 - DSS Console Key Assignments requires DS2000 U Slot (02.nn.nn) and DS1000.

The system controls access to the programmable options according to the programming password the administrator enters.

There are three password levels:

Logging On with this Password:	Gives you access to these programs:
System Administrator 1 (level 1) Password = 0000	0302 - System Identification 1101 - System Speed Dial Numbers
System Administrator 2 (level 2) Password = 9999	0302 - System Identification 0801 - Selectable Display Messages 1101 - System Speed Dial 1701 - Programmable Function Key Assignments 1702 - Personal Speed Dial 1703 - DSS Key Assignment 1704 - DSS Console Key Assignments
Installer (level 3) Password - 372000	All

System Timers

Use the system-wide timers to tailor the system to the site's requirements.

Availability: All versions.

The system-wide timers allow the administrator to tailor system performance to meet the specific application requirements. Review the table below for a description of each timer.

Table 5: System Timers

Option	Description
Park Orbit	Use this timer to set how long a call stays in System Park Orbit before it recalls the extension that parked it. This timer is for orbits 60-67 only. The recall for orbits 68 and 69 is fixed at 5 minutes.
Transfer Recall	Use this timer to set how long a transferred call rings the destination extension before recalling the extension from which it was initially transferred. This option pertains to all idle extensions, as well as busy multibutton extensions. <i>Note that this timer does not control how long a transferred call rings a busy operator.</i>
Intercom Inter-digit	When an extension user places a call, they must dial each succeeding digit within this interval.
Meet-Me Conference	When a user initiates a Meet-Me Conference, the system waits this interval for the Paged parties to join the call.
Dialing Pause	For Automatic Route Selection, the system waits this interval when it encounters a pause in an ARS Dial Treatment. For Speed Dial, the system waits this interval when it encounters a pause in a Speed Dial bin.
Page Duration	Use this timer to set the maximum length of Page announcements.
Door Unlock	When a single line (2500 type) user hookflashes while talking to a Door Box, the Door Box strike opens for this interval.
DIL No Answer	This timer sets how long a DIL rings an idle extension before Key Ring occurs. Key Ring rings all extensions programmed to ring for that line.
Trunk Revert	This timer sets how long Hold Recall rings the extension that placed the call on hold before Key Ring occurs. Key Ring rings all extensions programmed to ring for that line. This timer also sets how long a Transfer Recall rings the extension that initially transferred the call before Key Ring occurs.
Trunk Delay Ring	Use this timer to set how long the system waits before ringing an extension that has the Delayed Ringing option enabled.

Table 5: System Timers (Continued)

Option	Description
ACD/UCD Overflow	This timer sets when UCD overflow occurs. When all UCD agents are busy, a queued call rings for this interval and then overflows to the UCD Overflow destination.
Number of Password Attempts	Use this option to set how many times the system allows a user to enter the incorrect programming password before locking them out.
Program Lockout Time	Once the system locks out a user, it will wait this interval before allowing the user to reenter the programming mode.
Force Program Exit	If a telephone in the programming mode is inactive longer than this interval, the system automatically cancels the programming mode and makes the telephone idle.

System Timers, Stations

Adjustable station timers allow the system to more precisely meet the site requirements.

Availability: All versions.

The system provides many station timers that the administrator can customize. Review the tables below for a description of each station timer.

Table 6: Station Timers

Option	Description
Hold Recall	Use this timer to set how long a call stays on Hold before it recalls the extension that initially placed it on Hold.
Exclusive Hold	Use this timer to set how long a call stays on Exclusive Hold before it recalls the extension that initially placed it on Exclusive Hold.
Call Forward Ring No Answer	When Call Forwarding Ring No Answer is enabled, this timer sets how long a forwarded call rings an unanswered extension before routing to the forwarding destination. Also use this timer to set how long a transferred call rings a busy operator extension before recalling the extension from which it was initially transferred. <i>Note that this timer does not control how long a transferred call rings any other busy extension.</i>
Call Waiting Tone Interval	Use this timer to set the interval between Call Waiting tones. Also use this timer to set the interval between Off Hook Signaling alert tones.
Call Coverage Delay	For extensions with Delayed Ringing Call Coverage keys, this timer sets how long a call flashes the key at an extension before it starts to ring.

Table 6: Station Timers (Continued)

Option	Description
Number of Extended Rings	If an extension's Class of Service enables Extended Ringing, use this timer to set the duration of the Extended Ringing.
Drop Pulse Send	Use this timer to set the duration of the ASTU PCB drop pulse. This pulse is sent from the ASTU PCB to the connected analog device to initiate a disconnect.
DTMF Detect	Use this timer to set the DTMF detection threshold for single line (analog device) ports. If the analog device sends a DTMF signal longer than this interval, the system recognizes it as a valid DTMF tone and decodes it. If the DTMF signal is equal to or less than this interval, the system ignores it.
Ring No Answer Hunt	Use this timer to set the Extension Hunting Ring No Answer Time. A call will ring a hunt group member extension for this interval before automatically cycling to the next extension in the group.

Following is a summary of Analog Station Timers.

Table 7: Analog Station Timers

Option	Description
Loop Current	Use this option to set the maximum allowed loop current for the system's ASTU PCBs. Normally choose 25mA for short loops and 35mA for long loops. In general, a long loop is 3000 feet or longer and a short loop is less than 3000 feet.
Minimum Break Time	This timer defines the minimum amount of time the loop must be opened to properly decode the dial pulse digits sent from analog devices connected to ASTU PCBs.
Maximum Break Time	This timer defines the maximum amount of time the loop must be opened to properly decode the dial pulse digits sent from analog devices connected to ASTU PCBs.
Minimum Make Time	This timer defines the minimum amount of time the loop must be closed to properly decode the dial pulse digits sent from analog devices connected to ASTU PCBs.
Maximum Make Time	This timer defines the maximum amount of time the loop must be closed to properly decode the dial pulse digits sent from analog devices connected to ASTU PCBs.
Minimum Hookflash Time	For ASTU PCBs, this timer defines the minimum amount of time the loop must be opened before the system starts to detect a transfer or hang up sequence. Open loop intervals shorter than the setting are ignored by the ASTU PCB.
Maximum Hookflash Time	For ASTU PCBs, this timer defines the maximum amount of time the loop can be opened in order for the system to detect a Transfer sequence. Open loop intervals longer than the setting are interpreted as hang up.
Minimum Off-Hook Time	For ASTU PCBs, this timer defines how long a connected analog device must remain off-hook before the system recognizes the off-hook status.
Off-Hook Guard Time	The ASTU PCB waits this interval after an analog device hangs up before accepting any additional input from the device. This timer helps prevent erroneous detection due to hardware stabilization.
Dial Pulse Guard Timer	The ASTU PCB waits this interval between dial pulse digits before attempting to detect any additional DP digits. This timer helps prevent erroneous DP dialing due to hardware stabilization.
Loop Disconnect Time	When the far end disconnects, the ASTU PCB opens the loop to the connected analog device for this interval.
Ring/MW Wait Period Time	This timer determines the ringing sequence for the devices connected to ASTU PCBs.

System Timers, Trunks

Customize critical trunk timers for compatibility with the connected telco or PBX/Centrex.

Availability: All versions.

The system provides many trunk timers that the administrator can customize. Review the table below for a description of each trunk timer.

Table 8: Trunk Timers

Option	Description
Line Response	When the system fails to detect loop current on a trunk, it will wait this interval before marking the trunk as defective.
Dial Tone Detect	When the system seizes a line to place a Speed Dial call, it waits this interval for dial tone before outdialing the call.
PBX/Centrex Flash	Use this timer to set the Flash interval. When a user flashes a trunk, the system opens the trunk circuit for this interval.
Force Idle (Trunk Guard Time)	Use this timer to set the guard time for trunks. When the system disconnects a trunk (e.g., after a user hang up), the system keeps the line idle until this timer expires. The Trunk Guard Time helps prevent call collisions.
Minimum Ring Detection Timer	Use this timer to set the threshold for ring detection. If the ring signal is longer than this interval, the system interprets the signal as valid ringing. If the signal is equal to or shorter than this interval, the system ignores the ringing.
DP Make Timer	Use this timer to set the duration of the Dial Pulse Make signal (i.e., relay closed). This is the “on” time in a Dial Pulse digit.
DP Break Timer	Use this timer to set the duration of the Dial Pulse Break signal (i.e., relay open). This is the “off” time in a Dial Pulse digit.
DP Interdigit Timer	Use this timer to set the duration of the Dial Pulse Interdigit signal (i.e., time <i>between</i> digits).
Manual DTMF Tone On	This timer sets the duration of DTMF digits for trunk calls manually dialed by an extension user. This is required because the system buffers the digits the user dials.
Manual DTMF Tone Off	This timer sets the duration of the interval between DTMF digits for trunk calls manually dialed by an extension user. This is required because the system buffers the digits the user dials.
Speed Dial DTMF Tone On	This timer sets the duration of DTMF digits for Speed Dial trunk calls automatically dialed by the system.
Speed Dial DTMF Tone Off	This timer sets the duration of the quiet time between DTMF digits for Speed Dial trunk calls automatically dialed by the system.
Loop Current Detection Time	For loop start trunks, loop current must be present for this interval before the system seizes the trunk.

Table 8: Trunk Timers (Continued)

Option	Description
Far End Disconnect	Use this timer to set the loop disconnect interval for trunk calls. If the system detects a loop current interruption longer than this interval it assumes the telco has disconnected the trunk. It then returns the trunk to idle.
Minimum Single Ring Detection Timer	The system uses this timer to detect valid ringing signal from the connected telco or PBX. Valid single ring must be longer than this interval.
Minimum Double Ring Detection Off Timer	The system uses this timer to detect valid double ring from the connected PBX. Valid double ring must be longer than this interval.
Maximum Double Ring Detection Off Timer	The system uses this timer to detect valid double ring from the connected PBX. Valid double ring must be less than this interval.
Ringing Signal End Detect Timer	If the ringing signal on a trunk call is interrupted for longer than this interval, the system assumes ringing has stopped and terminates the call.
P.F. Recovery Detect Timer	When the ATRU PCB recovers from a power failure, it checks the power failure trunk (trunk 1) for loop current for the P.F. Recovery Detect interval. If loop current is detected, it assumes the Power Failure Telephone is still connected and does not tear down the call. If loop current is not detected, the ATRU PCB switches the trunk out of the power failure mode.

Tandem Trunking / Unsupervised Conference

Join two callers in Conference, leave the call and let their conversation continue.

Availability: All versions.

Tandem Trunking allows an extension user to join two outside callers in a trunk-to-trunk conference. The extension user can then drop out of the call, leaving the trunks in an Unsupervised Conference. The extension user that established the Conference is not part of the conversation. The Conference continues until either outside party hangs up.

Tandem Trunking uses a Conference circuit. The following table shows the system's Conference capacities:

Description	Capacity
Conference circuits	32
Maximum simultaneous users in Conference (total of all Conferences system-wide)	32
Maximum simultaneous conferences	8
Maximum parties in any one Conference (trunks and/or extensions)	8

The system's 32 Conference circuits are dynamically allocated as users request them.

Feature Quick Steps

To set up a tandem call (Unsupervised Conference):

1. Establish trunk call + Press **CONF**.
2. Place or answer trunk call + press **CONF** to set up the Conference + Hang up.

To disconnect a tandem call (using Forced Trunk Disconnect):

1. Press line key for busy trunk, or Press **ICM** and dial the trunk's Direct Trunk Access code (e.g., 401 for trunk 1) + Dial # to disconnect the line.

To Barge In on a tandem call:

1. Press line key for busy trunk, or press **ICM** and dial the trunk's Direct Trunk Access code (e.g., 401 for trunk 1) + Dial 4.

Time and Date

The time and date shows on telephone displays and prints on system reports.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 add User Programmable Feature Steps.

The system Time and Date appears on:

- Display Telephones
- Station Message Detail Recording reports

The system administrator can change the time and date from the system programming mode. Although the data is entered in 24-hour format, it always displays in 12-hour format (e.g., 1300 = 1:00PM).

User Programmable Feature: # T D

Sets the system time and date.

Toll Restriction

Use Toll Restriction to help you control the costs of outgoing long distance calls.

Availability: All versions.

Toll Restriction limits the numbers an extension user may dial. By allowing extensions to place only certain types of calls, the system administrator can control long distance costs. The system applies Toll Restriction according to an extension's Toll Restriction Level. For each of the 7 Toll Restriction Levels, the administrator can enable or disable the following options.

- **Active Dial Pad (Continuous Dialing)**
Active Dial Pad continuously enables the telephone dial pad. This is important if co-workers typically use dial-up services (such as automated banking) or frequently dial into Voice Mail systems. With Active Dial Pad disabled, the system disables the telephone dial pad 6 seconds after the user has dialed their last digit. Toll Restriction controls Active Dial Pad for both incoming and outgoing calls.

- **N11 Dialing**
N11 Dialing enables or disables an extension's ability to use N11 services such as directory assistance (411) and repair (611). Consider enabling this option if the connected telco charges by the call (i.e., meters) these services. *Note that the system never restricts a user from dialing 911 or 1 + 911.* (Toll Restriction uses the NPA Dialing table to control 1 + N11 dialing.)
- **0 + Dialing**
0 + Dialing enables or disables an extension's ability to manually dial 0 + (operator assisted) calls. These calls typically include collect calls and credit card calls. Be sure to disable this option if you don't want co-workers making these types of calls. The setting of 0 + Dialing does not affect the operation of international dialing (see the option immediately following).
- **International (011) Dialing**
Use the International Dialing option to restrict extension access to high-cost international (011) dialing. You can, for example, enable international dialing for high priority users and executives while disabling international dialing for all other co-workers.
- **Equal Access (10XXX) Dialing**
Equal Access allows users to select long distance carriers other than your primary carrier. Your primary carrier is the long distance provider you access when you seize a trunk and dial 1. To reach another provider, dial 10 and that provider's three-digit code (e.g., 10321). The system does not restrict the numbers dialed after the Equal Access code, but can prevent users from dialing specific 10XXX codes. Enter the codes you want to deny or allow in the 10XXX Toll Restriction Table.
- **NXX Dialing**
NXX Dialing provides restriction for calls not exceeding 7 digits that begin with the digits 2-9. These are typically local exchanges. Enter the codes you want to deny or allow in the NXX Dialing Toll Restriction Table. You might want to prevent local calling to all exchanges that are not in the immediate vicinity of your company.
- **NPA Dialing**
NPA Dialing performs 3-digit analysis on numbers dialed that exceed 7 digits and are not 0+, 011, or 10XXX calls. Enter the codes you want to deny or allow in the NPA Dialing Toll Restriction Table. To control long distance costs, for example, you might want to limit NPA calls to in-state or neighboring state area codes. Note that if a number is allowed or denied by NPA Dialing, it can be further allowed or denied by 6-Digit Analysis below.
- **6-Digit Analysis (NPA + NXX translation)**
The 6-Digit Analysis option evaluates both the NPA and NXX component of the number dialed. Enter the 6-digit codes you want to deny or allow in the 6-Digit Analysis Toll Restriction Table. This option allows for more flexible Toll Restriction assignments. For example, you can allow calls only to the area code and exchange for your out-of-state branch and restrict all other exchanges within that area code.

Transfer

Send the trunk call you are on to a co-worker.

Availability: All versions.

Transfer permits an extension user to send (i.e., extend) an active trunk call to any other extension in the system, a Ring Group, UCD Hunting Group or Voice Mail. With Transfer, any extension user can quickly send a call to the desired co-worker. A call a user transfers automatically recalls if not picked up at the destination extension. If still unanswered, the call diverts to Key Ring. This assures that users do not lose or inadvertently abandon their transfers.

The system allows the following types of transfers:

- **Screened Transfer**
The transferring user announces the call to the destination before hanging up.
- **Unscreened Transfer**
The transferring party extends the call without an announcement.

The system cannot Transfer Intercom calls.

Feature Quick Steps

To Transfer your call:

1. Do not hang up + Press **ICM**.
You can press your Call Coverage or Hotline key instead of ICM.
2. Dial your co-worker's extension, press a DSS key, dial a Ring Group master number, or dial a UCD Hunting group master number.
3. Announce call to make a Screened Transfer., hang up to send the call through Unscreened.

To Transfer your call to a co-worker's mailbox:

1. Do not hang up + Press **ICM**.
You can press your Call Coverage or Hotline key instead of ICM.
2. Dial your co-worker's extension + Press **MW** + Hang up.

Trunk Group Routing

Dial a single code to place a call over the first available trunk in a trunk group.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 allow all extension users to dial 9 for an outside line by default.

With Trunk Group Routing enabled, an extension user can just press **ICM** and dial 9 to place a trunk call. Trunk Group Routing automatically selects the first available trunk in the extension's programmed "dial 9" trunk group. This simplifies placing calls in systems that have a lot of trunks for outgoing calls. Rather than press one of many line keys, the user just dials 9 instead.

Feature Quick Steps

To place a call over a trunk group:

1. Lift handset + Press **ICM** + Dial 9 + Dial outside number.

Trunk (Line) Queuing / Trunk Callback

Trunk Queuing

When all trunks are busy, Trunk Queuing lets a user wait in line for a trunk to become free.

Availability: All versions.

Trunk Queuing permits an extension user to queue (wait in line) off hook for a busy trunk or trunk group to become free. The system connects the queued extension as soon as the trunk is available. The user does not have to manually retry the trunk later.

Trunk Callback

Trunk Callback will automatically call the user back when a trunk is available.

Availability: All versions.

After queuing for a trunk, the extension user just hangs up to convert the Trunk Queue into a Trunk Callback. When the trunk becomes free, the system automatically recalls the extension. As soon as the extension user answers the callback ring, the system connects the extension to the trunk.

An extension user can leave a Trunk Callback for many trunks. The system processes the callbacks as the trunks become free. In addition, many extensions can leave a Trunk Callback for the same trunk. The system processes the Trunk Callbacks on a first-in/first-out (FIFO) basis.

If an extension user leaves a Trunk Callback request and then fails to answer the callback ring within four rings, the system cancels the Callback.

Trunk Queuing Priority

Selected extensions can have Trunk Queuing Priority enabled in their Class of Service. If more than one extension queues for a busy trunk, the system services the extension with Trunk Queuing Priority first. If more than one extension with priority is queued for the same busy trunk, the system services the priority extensions on a first-in/first-out (FIFO) basis.

Feature Quick Steps

Trunk (Line) Queuing

1. Access busy trunk + Dial 2; do not hang up.
If you hang up, the system converts your queue to a Trunk Callback.
2. When the trunk becomes free, you are automatically connected + Place your outside call.

Trunk Callback

1. Access busy trunk + Dial 2 + Hang up.
2. When the trunk becomes free, the system recalls you.
3. Answer recall + Place your outside call.

Trunk Groups

Dial codes to access trunk groups for outgoing calls.

Availability: All versions.

- DS2000 U Slot (02.nn.nn) and DS1000 allow all extension users to dial 9 for an outside line by default.

Extension users can optionally dial trunk group access codes 90-98 to select trunk groups 0-8 for outgoing calls. This is helpful in applications that have different services arranged into trunk groups. For example, dialing 90 could access a group of DDD trunks for local calls, and dialing 91 could access a group of WATS trunks for long distance calls. Note that systems with **Trunk Group Routing** (page 93) enabled cannot also dial trunk group access codes 90-98.

When a user dials a trunk group access code (90-98), the system selects the lowest number in the group that is available. If that trunk is busy, it automatically selects the next highest trunk. If all trunks in the group are busy, the user can optionally queue for a trunk to become free. See *Trunk (Line) Queuing / Trunk Callback* on page 93 for more.

Systems using Trunk Groups or Trunk Group Access should use the hybrid FCC registration number (i.e., the number that ends in MF-E). Look at the label on the bottom of your equipment cabinet for more information.

A trunk can only be in one Trunk Group.

Feature Quick Steps

1. Lift handset + Press **ICM** + Dial trunk group code (90-98) + Dial outside number.

Trunk Timers

See *System Timers, Trunks* on page 89 for more.

User Programmable Features

Extension users can set up their telephones to meet their own unique requirements.

Availability: All versions.

- DS2000 Fixed Slot (01.nn.nn) provides basic User Programmable Features to all users.
- DS2000 U Slot (02.nn.nn) and DS1000 offer extensive User Programmable Features, based on an extension's access level.

User Programmable Features allow an extension user to customize their telephone to work just the way they want. With User Programmable Features, there is no need to rely on a System Administrator or Communications Manager to set up each phone. The following list shows the system's User Programmable Features, including the user-dialable codes. For example, a user just dials **# H S** to access the Headset Mode option.

- **Direct Station Selection (DSS) Assignment: # B L F¹**
See *Direct Station Selection (DSS)* on page 41 for more.
- **Headset Mode: # H S¹**
See *Headset Compatibility* on page 54 for more.
- **Hotline Key Assignment: # H L¹**
See *Hotline* on page 55 for more.
- **Off Hook Signaling Setup: # O H S¹**
See *Off-Hook Signaling* on page 65 for more.
- **Paging (Incoming): # V P¹**
See *Paging* on page 67 for more.
- **Prime Line Assignment: # P L A¹**
See *Prime Line Preference* on page 69 for more.
- **Programmable Function Key Assignment: # K P¹**
See *Programmable Function Keys* on page 71 for more.
- **Programmable Function Key Ringing:**
Call Coverage Keys: **# R A C** (U Slot) or **# R C**

See *Call Coverage Keys* on page 29 for more.

Group Call Pickup: # R A P (U Slot) or **# R G**

See *Group Call Pickup* on page 51 for more.

Line Keys: # R A L (U Slot) or **# R L**

See *Line Keys* on page 58 for more.

- **Ringing Line Preference: # R L P**¹
See *Ringing Line Preference* on page 76 for more.
- **Speed Dial Bin Setup (Personal and System): # S P** (U Slot) or **ICM # # Bin** (Fixed Slot)
See *Speed Dial* on page 80 for more.
- **Time and Date: # T D**¹
See *Time and Date* on page 91 for more.
- **Voice Announce (for incoming Intercom calls): # V A** (U Slot) or **# IV, # I R** (Fixed Slot)
See *Intercom* on page 56 for more.

¹ Feature only available in DS2000 U Slot (02.nn.nn) and DS1000 systems.

Voice Mail

Voice Mail ends the frustration and cost of missed calls, inaccurate written messages and telephone tag, freeing up the company's receptionists and secretaries for more productive work.

Availability: All versions.

- In DS2000 U Slot (02.nn.nn) and DS1000, the telephone display shows the number of new messages in the user's mailbox.

The system is fully compatible with the NVM-Series Voice Mail with Automated Attendant Systems. These systems provide telephone users with comprehensive Voice Mail and Automated Attendant features. Automated Attendant automatically answers

the system's incoming calls. After listening to a customized message, an outside caller can dial a system extension or use Voice Mail. Integrated Voice Mail enhances the telephone system with the following features:

Call Forwarding to Voice Mail

An extension user can forward their calls to Voice Mail. Once forwarded, calls to the extension connect to that extension's mailbox. The caller can leave a message in the mailbox instead of calling back later. Forwarding can occur for all calls immediately, for unanswered calls or when the extension is busy, or just for unanswered calls.

Leaving a Message

Voice Mail lets a keyset extension user easily leave a message at an extension that is unanswered, busy, or in Do Not Disturb. The caller just presses their Voice Mail key to leave a message in the called extension's mailbox. There is no need to call back later.

Transferring to Voice Mail

By using Transfer to Voice Mail, an extension user can Transfer a call to the user's own or a coworker's mailbox. After the Transfer goes through, the caller can leave a message in the mailbox.

Conversation Record

While on a call, an extension user can have Voice Mail record the conversation. The keyset user just presses their Voice Mail Record Key. Once recorded, the Voice Mail stores the conversation as a new message in the user's mailbox. After calling their mailbox, a user can save, edit or delete the recorded conversation.

Personal Answering Machine Emulation

A keyset user can have their idle extension emulate a personal answering machine. This lets Voice Mail screen their calls, just like their answering machine at home. If activated, the extension's incoming calls route to the user's subscriber mailbox. Once the mailbox answers, the user hears two alert tones followed by the caller's incoming message. The keyset user can then:

- Let the call go through to their mailbox.
- Intercept the call before it goes to their mailbox.

Voice Mail Overflow

If Voice Mail automatically answers trunks, Voice Mail Overflow can reroute those trunks to an extension, Ring Group or UCD Hunting group when all Voice Mail ports are busy. During periods of high traffic, this prevents the outside calls from ringing Voice Mail for an inordinate amount of time. Without overflow, the outside calls ring Voice Mail until a port becomes available or the outside caller hangs up.

In addition, Voice Mail can be the *overflow destination* for the following types of calls (refer to the individual features for the specifics):

- **Direct Inward Line** (page 40)
A trunk that directly rings an extension can overflow to Voice Mail.
- **Extension Hunting** (page 47)
A trunk that rings an Extension Hunting group can overflow to Voice Mail.
- **Group Ring** (page 52)
A trunk that rings a group of extensions can overflow to Voice Mail.
- **Key Ring** (page 57)
A trunk ringing extension's line keys can overflow to Voice Mail.

Message Center Mailbox

A Message Center Mailbox is a mailbox shared by more than one extension. Any keyset that has a Message Center Key for the shared mailbox can:

- Listen to the messages stored in the mailbox.
- Transfer calls to the shared mailbox.
- Use many other Voice Mail features previously available only at an extension's individual mailbox.

A Message Center Mailbox helps co-workers that work together closely - such as members of the same Pickup Group. For example, the group supervisor can send important messages to the shared Message Center Mailbox, to which any group member can respond when time allows. Each group member's Message Center Key flashes when messages are waiting.

Interactive Soft Key Shows New Messages

The Display and Super Display Telephone interactive soft keys show the number of new messages in the user's mailbox. For example, if a Display Telephone user has 2 new messages in their mailbox, their soft key shows: **VM02**. If a Super Display Telephone user has 2 new messages in their mailbox, their Voice Mail soft key shows **V-MAIL 02**.

Feature Quick Steps

To call your mailbox:

1. Press **ICM** + Press **MW** or dial Voice Mail master number followed by your mailbox number.
2. If requested by Voice Mail, enter your security code.

To leave a message in a mailbox of an unanswered extension:

1. Press **MW**.

To activate or cancel Call Forwarding to your mailbox:

1. Press **ICM** + Dial ***3**.
2. Dial Call Forwarding type: (0 = Cancel forwarding, 2 = Busy/No Answer, 4 = Immediate, 6 = No answer)
3. Press **MW** + Press **SPK** to hang up.

To Transfer your active call to a mailbox:

1. Press **ICM** + Dial the number of the mailbox to receive the Transfer + Press **MW**.
2. Press **SPK** to hang up.

To record your active call in your mailbox:

1. Press Voice Mail Record key.

To activate Answering Machine Emulation:

1. Press **ICM** + Dial ***3** + Dial **7**.
2. Dial Answering Machine Emulation option (2 or hang up to forward all calls, 8 to forward just trunk calls) + Press **SPK** to hang up.

To cancel Answering Machine Emulation:

1. Press **ICM** + Dial ***30** + Press **SPK** to hang up.

When Answering Machine Emulation broadcasts your caller's message, you can:

- Do nothing to have the caller's message automatically recorded in your mailbox,
- Lift the handset to intercept the call and speak to your caller.

To check your messages:

1. Press **MW**.

To use the Message Center

1. Press **SPK** or lift handset + Press the Message Center key.
2. If requested by Voice Mail, enter the security code for the Message Center mailbox.

Voice Over

Get through to a co-worker busy on a handset call — without interrupting their call.

Availability: All versions.

Voice Over lets a user get through to a keyset extension user busy on a handset call. With Voice Over, the busy keyset extension user hears an alert tone followed by the voice of the interrupting party. The keyset extension user can respond to the interrupting party without being heard by the original caller. If desired, the keyset extension user can easily switch between their original caller and the interrupting co-worker. The original caller and the interrupting party can never hear each other's conversation.

Voice Over could help a lawyer, for example, waiting for an urgent call. While on a call with another client, the lawyer's paralegal could announce the urgent call as soon as it comes in. The lawyer could then give the paralegal instructions on how to handle the situation — all without the original client hearing the conversation.

Either a keyset or SLT can initiate a Voice Over, but only a keyset can receive a Voice Over.

Voice Over uses a system Conference circuit. The following table shows the system's Conference capacities:

Description	Capacity
Conference circuits	32
Maximum simultaneous users in Conference (total of all Conferences system-wide)	32
Maximum simultaneous conferences	8
Maximum parties in any one Conference (trunks and/or extensions)	8

The system's 32 Conference circuits are dynamically allocated as users request them.

Feature Quick Steps

To initiate a Voice Over to a busy extension:

1. Dial **9**.

To respond to a Voice Over alert tone to your extension:

1. Press and hold **MIC**.
Release MIC to talk to your initial caller.

Volume Controls

Easily adjust the volume of ringing, Paging and other features.

Availability: All versions

A keyset user can press VOL ▲ and VOL ▼ to adjust the volume of the following features while they are active. Note that the categories grouped together are the same control. For example, adjusting Intercom ringing also adjusts trunk ringing.

- Incoming Intercom and trunk ringing^{1,2}
- Background Music, Paging, Handsfree speaker, and incoming Intercom voice announcements broadcast through the telephone speaker¹
- Handset/headset receiver volume and incoming Voice Over Announcements¹
- Off Hook Ringing^{1,2}
- Incoming Voice Over Announcement

¹These features retain the user-set volume levels.

²Additionally, these features retain the user-set volume levels after a system reset or power-down.

There are six steps in the Volume Control adjustment range. This makes it easier for the keyset user to set up just the right volume levels.

Feature Quick Steps

To adjust the volume of a feature while it is active:

While your keyset is idle, pressing VOL ▲ and VOL ▼ adjusts the keyset display contrast. Turn to Alphanumeric Display on page 25 for more.

1. Press VOL ▲ and VOL ▼.

Year 2000 Compliance

The system is fully Y2K (Year 2000) compliant.

Availability: All versions.

The system provides Year 2000 Compliance. The change of the date from one century to the next is handled by the system software and is no different than the change from one year to the next. The day following 12/31/99 will be 01/01/00. The system will process the leap year correctly and will not require an upgrade or reprogramming. In addition, the SMDR report will properly show the years in the 21st century.

Section 4

Specifications and Parts List

Specifications

System Capacities		
• Cabinets:	1	
• Talk Timeslots (Intercom/line):	Non-blocking	
• Analog Trunks (CO/PBX lines):	<u>DS2000</u>	<u>DS1000</u>
	4 Slot Fixed: 16	Base: 3
	4 Slot U: 24	Expansion: 3
	8 Slot U: 48	Total: 6
• DS2000 Digital and/or Analog Telephones:	4 Slot Fixed: 32	
	4 Slot U: 40	
	8 Slot U: 96	
• DS1000 Digital Telephones	Base: 8	
	Expansion: 8	
	Total: 16	
• DS1000 Analog Telephones	Base: 4	
	Expansion: 4	
	Total: 8	
• DSS Consoles:	1 max. per keyset, 4 max per system	
• Power Failure Telephones:	<u>DS2000</u>	<u>DS1000</u>
	2 per ATRU PCB	1
	4 Slot Fixed: 4	
	4 Slot U: 6	
	8 Slot U: 12	
• Door Boxes (digital):	1 per digital station port	

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System Capacities (Continued)	
• Door Boxes (analog - DS1000 Only)	Base: 1 Expansion: 1 Total: 2
• External Paging Zones:	1
• Page Audio Output	1
• Internal Paging Zones:	8 (7 and All Call)
• Music Input	1
• Conference Circuits:	Conference circuits dynamically allocated, with 8 parties max. per Conference.
• REJ Recording Jack Units	1 max. per 34-Button or Super Display keyset
• DS2000 4 ATRU Analog Trunk PCBs ¹	4 Slot Fixed: 2 4 Slot U: 3 8 Slot U: 6
• DS2000 8 ATRU Analog Trunk PCBs ¹	4 Slot Fixed: 2 4 Slot U: 3 8 Slot U: 6
• DS2000 16DSTU Digital Station PCBs ¹	4 Slot Fixed: 2 4 Slot U: 2 8 Slot U: 6
• DS2000 4ASTU Analog Station PCBs ¹	4 Slot Fixed: 1 4 Slot U: 2 8 Slot U: 5
• DS2000 8ASTU Analog Station PCBs ¹	4 Slot Fixed: 1 4 Slot U: 2 8 Slot U: 5
• DS2000 CPU Central Processing Unit	1
¹ System Load Factor determines maximum allowable configuration.	

Environmental Requirements
Meeting established environmental standards maximizes the life of the system. Refer to the Standard Practices Manual for further information. Be sure that the telephone equipment is not: <ul style="list-style-type: none"> • In direct sunlight or in hot, cold or humid places. • In dusty areas or in areas where sulfuric gases are produced. • In places where shocks or vibrations are frequent or strong. • In places where water or other fluids comes in contact with the main equipment. • In areas near high-frequency machines or electric welders. • Near computer, telexes, microwaves, air conditioners, etc. • Near radio antennas (including shortwave).

Power Requirements
<ul style="list-style-type: none"> A dedicated 110 VAC 60 Hz circuit located within 4 1/2 feet of the cabinet is required.

Environmental Specifications
Cabinets, Key Telephones and Digital Door Box
<ul style="list-style-type: none"> Temperature: 0-45 C (32-113F) Humidity: 10-95% (non-condensing) Digital Door Box not intended for outdoor installation.
Analog Door Box (DS1000 only)
<ul style="list-style-type: none"> Temperature: -20-60C (4-140F) Humidity: 10-95% (non-condensing)

Electrical Specifications	
The following specifications apply to each power supply installed.	
• Power Supply:	120 VAC \pm -10% @ 50-60 Hz
• Output Power:	DS2000: 91 Watts @ 100% full load DS1000: 35 Watts @ 100% full load
• Input Current:	DS2000: 1.50A @ 110 V DS1000: 550mA @ 110 V
• VA:	DS2000: 165 DS1000: 66
• Kwh:	DS2000: 0.165 DS1000: 0.066
• BTU:	DS2000: 563 DS1000: 225
• Grounding Requirements:	12 AWG copper wire

Mechanical Specifications				
Equipment	Width	Depth	Height	Weight
• 4-Slot DS2000 KSU	10 3/4"	5 7/8"	13 11/16"	4 lbs. 5 oz.
• 8-Slot DS2000 KSU	19 1/2"	5 7/8"	13 11/16"	6 lbs 12 oz.
• DS1000 KSU	13 3/4"	2 1/2"	10 1/2"	4 lbs. 1 oz.
• Non-display Keypad	7 1/4"	9"	2 7/8"	1 lb. 11 oz.
• Display Keypad	7 1/4"	9"	2 7/8"	1 lb. 12 oz.
• Super Display Keypad	7 1/4"	9"	2 7/8"	1 lb. 16 oz.
• 110 DSS Console	7 7/8"	8 7/8"	2 3/4"	1 lb. 6 oz.

Section 4: Specifications and Parts List

DS1000/2000

Mechanical Specifications				
• Digital Door Box	4"	1 1/2"	5 3/16"	10 oz.
• Analog Door Box (DS1000 Only)	3 3/4"	1"	5"	6 oz.
• 2-OPX Module (DS2000 Only)	9 3/8"	7 3/8"	1 1/4"	3 lbs.

Relay Contacts		
• Contact Configuration:	Normally open	
• Maximum Load:	<u>DS2000</u> 60 mA @ 30 VDC 10 mA @ 90 VDC	<u>DS1000</u> 1A @ 24 VDC 0.5A @ 120 VAC
• Maximum Initial Contact Resistance:	<u>DS2000</u> 50 mOhms	<u>DS1000</u> 100 mOhms

External Paging	
• Output Impedance:	600 Ohm
• Output Level:	0 dBr at 1.0 KHz

BGM/MOH Music Source Input		
• Input Impedance:	10K Ohms	
• Input Level:	+18 dBr (+/-2dBr) @ 1.0 KHz	
• Music input:	<u>DS2000</u> Located on the CPU PCB.	<u>DS1000</u> Located in the AUDIO mod jack

DS2000 FCC Registration Information				
• Model:	DS2000			
• Manufacturer:	NEC Infrontia, Inc.			
• FCC Part 15 Registration	Class A			
• FCC Registration Number	IZDTHA27007-KF-E IZDTHA27044-MF-E			
• Industry Canada Certificate (DOC) Number	854 9522 A			
Reg. Status:	FIC:	Mfrs. Port Identifier:	Network Jacks:	
Original	02LS2	80010 80011	REN 0.6B	RJ11C RJ21X
Registered	OL13A	2OPX-A	SOC 9.0F	RJ21X
	OL13B	2OPX-A	SOC 9.0F	RJ21X
	OL13C	2OPX-A	SOC 9.0F	RJ21X

DS1000 FCC Registration Information				
• Model:	DS1000			
• Manufacturer:	NEC Infrontia, Inc.			
• FCC Part 15 Registration	Class A			
• FCC Registration Number	IZDTHA35391-KF-E IZDTHA35392-MF-E			
• Industry Canada Certificate (DOC) Number	TBD			
Reg. Status:	FIC:	Mfrs. Port Identifier:	Network Jacks:	
Original	02LS2	80200	REN 0.6B	RJ11C

Cabling Requirements			
<ul style="list-style-type: none"> Do not run station cable parallel with the AC source, telex or computer, etc. If the cables are near cable runs to those devices, use shielded cable with grounded shields or install the cable in conduit. 			
<ul style="list-style-type: none"> When cables must be run on the floor, use cable protectors. 			
<ul style="list-style-type: none"> Cable runs for key telephones, single line telephones and Door Boxes must be a dedicated, isolated cable pair. 			
Device	Cable Type	Cable Run Length (ft.)	Notes
Key Telephone & Digital Door Box	2-wire 26 AWG	<u>DS2000</u> : 1300 <u>DS1000</u> : 650	
	2-wire 24 AWG	<u>DS2000</u> : 2000 <u>DS1000</u> : 1000	
Single Line Telephone	2-wire 26 AWG	<u>DS2000</u> : 11,500 <u>DS1000</u> : 8000	at constant 20 mA
	2-wire 24 AWG	<u>DS2000</u> : 18,000 <u>DS1000</u> : 12000	at constant 20 mA
	2-wire 22 AWG	<u>DS2000</u> : 29,000 <u>DS1000</u> : 16000	at constant 20 mA
Analog Door Box (DS1000 Only)	2-wire 24 AWG	330	
	2-wire 22 AWG	550	
2-OPX (DS2000 Only)	2-wire 24 AWG	1000	

Parts List

The Telephones		
Description:	Part Number	Quantity
• 34-Button Super Display Telephone	80673	_____
• 34-Button Display Telephone	80663	_____
• 22-Button Display Telephone	80573	_____
• 22-Button Telephone	80570	_____
• ST4 Analog Telephone	85403W	_____
• Analog Telephone (customer-provided)	N/A	_____

Other Station Equipment		
Description:	Part Number	Quantity
• 110-Button DSS Console	80555	_____
• 24-Button DSS Console	80556	_____
• 2-OPX Module (DS2000 Only)	92177A	_____
• Digital Doorbox ¹	80560	_____
• Analog Door Box (DS1000 Only)	92245	_____
• Wall Mount Kit	80579	_____
• REJ Recording Jack Module	80175	_____
• Labelmaker Software	80055	_____
• 34-Button Super Display Laser Labels (Pkg of 10)	80625-S34	_____
• 34-Button Laser Labels (Pkg of 25)	80625-34	_____
• 22-Button Laser Labels (Pkg of 25)	80625-22	_____
• 110-Button DSS Console Laser Labels (Pkg of 10)	80625-DSS	_____
• 24-Button DSS Console Laser Labels (Pkg of 10)	80625-24DSS	_____
¹ Requires DS2000 U Slot software or DS1000		

Section 4: Specifications and Parts List

DS1000/2000

DS2000 Common Equipment		
Description:	Part Number	Quantity
• 4-Slot KSU	80000	_____
• 8-Slot KSU	80001	_____
• Power Supply	80005 80005A ¹	_____
• PC Card with system software preloaded (**.** denotes the system software level). This item is for software versions 02.00.01 and higher.	80051-V**.**	_____
• PC Card with system software preloaded (**.** denotes the system software level). This item is for software versions prior to 02.00.01.	80050-V**.**	_____
• Blank PC Card	85880	_____
¹ Required in 8-Slot KSU		

DS2000 PCBs		
Description	Part Number	Quantity
• CPU Central Processing Unit	80025 80025A ¹	_____
• 16DSTU Digital Station PCB	80021 80021A ¹	_____
• 8ASTU 8 Port Analog Station PCB	80041 80041A ¹	_____
• 4ASTU 4 Port Analog Station PCB	80040 80040A ¹	_____
• 8ATRU 8 Port Analog Trunk PCB (loop start)	80011 80011A ¹	_____
• 4ATRU 4 Port Analog Trunk PCB (loop start)	80010 80010A ¹	_____
• 8 Circuit Caller ID Daughter Board for 8ATRU PCB 80011A PCB	80013	_____
• 4 Circuit Caller ID Daughter Board for 4ATRU PCB 80010A PCB	92012	_____
¹ Required in 8-Slot KSU		

DS1000 Common Equipment		
Description:	Part Number	Quantity
• DS1000 Cabinet (3 x 8 x 4)	80200	_____
• DS1000 Expansion Board (3 x 8 x 4)	80221	_____

Miscellaneous and Optional Equipment		
Description:	Part Number	Quantity
• Adaptor Box (DS2000)	80890	_____
• RJ61X 8-Conductor Cable (DS2000)	80891	_____
• 8-Pin DIN to Mod-8 Cable (DS2000)	80893	_____
• DB9 Female to Mod-8 Adaptor	85980	_____
• DB25 Male to Mod-8 Adaptor	85981	_____
• Installation Cable	80892	_____

Replacement Parts		
Description	Part Number	Quantity
• Noise Cancelling Handset	80150NC	_____
• RFI Bead Kit	88901	_____
• Handset and Cord Assembly	80150	_____
• Handset Coil Cord - Black 9'	92297-9	_____
• Handset Coil Cord - Black 13'	92297-13	_____
• Handset Coil Cord - Black 25'	92297-25	_____
• Telephone Line Cord - Black 7'	82476-7	_____
• Telephone Line Cord - Black 14'	82476-14	_____
• 34-Button Super Display Clear Plastic Cover	80600-S34	_____
• 34-Button Clear Plastic Cover	80600-34	_____
• 22-Button Clear Plastic Cover	80600-22	_____
• 110-Button DSS Console Clear Plastic Cover	80600-DSS	_____
• 24-Button DSS Console Clear Plastic Cover	80600-24DSS	_____
• Directory Tray	92602	_____
• Wall Mount Handset Clip Holder	80578	_____

Glossary

2-OPX Module

A true OPX station device that connects to a single digital station port and provides 2 analog circuits for connecting single line sets, modems, fax machines, and Voice Mail ports.

Reference: *2-OPX Module (P/N 92177A)* on page 8.

All Call Paging

See *Paging* on page 122 in this glossary.

Alphanumeric Display

The keyset LCD display that shows date and time, feature status messages, and Soft Key definitions. The 22- and 34-button keysets have a 2-line, 20 character per line display. The Super Display keyset has an 8-line, 20 character per line display.

Reference: *Alphanumeric Display* on page 25.

Alternate

See *Split (Alternate)* on page 124 in this glossary.

Assigned Night Answer

See *Night Service / Night Ring* on page 121 in this glossary.

ATRU

Analog trunk port.

Reference: *8ATRU 8 Port Analog Trunk PCB (P/Ns 80011 and 80011A)* on page 14 and *DS1000 Cabinet (P/N 80200)* on page 15.

ASTU

Analog station port.

Reference: *8ASTU 8 Port Analog Station PCB (P/Ns 80041 and 80041A)* on page 13 and *DS1000 Cabinet (P/N 80200)* on page 15.

Attendant	<p>The attendant is the system operator. A system can have up to 4 attendants. Normally, the attendant is set up with unique call processing capabilities.</p> <p>Reference: <i>Attendant Position</i> on page 26.</p>
Attendant Call Queuing	<p>The method by which Intercom callers queue for the attendant. Since the attendant is never considered busy for Intercom calls, these types of calls “stack up” under the attendant’s Operator Call Key. This key is permanently assigned on each attendant extension.</p> <p>Reference: <i>Attendant Call Queuing</i> on page 25.</p>
Automatic Hold	<p>Allows an extension user to be on an outside (trunk) call, activate a feature, and automatically place the call on HOLD. See also <i>Exclusive Hold</i> on page 116, <i>Intercom Hold</i> on page 119, and <i>System Hold</i> on page 125 in this glossary.</p> <p>Reference: <i>Hold</i> on page 54.</p>
Background Music	<p>The music that plays over the telephone speakers while the phone is idle. Background Music requires a customer-provided music source that is connected to the telephone system.</p> <p>Reference: <i>Background Music</i> on page 27.</p>
Backup	<p>See <i>System Programming Backup and Restore</i> on page 125 in this glossary.</p>
Barge In	<p>The capability of an extension to join an existing conversation without being invited. This feature is usually invoked only in emergency or priority situations.</p> <p>Reference: <i>Barge In (Intrusion)</i> on page 28.</p>
Battery Backup	<p>The capability of the system to use its internal battery to back up system memory and the date and time. The battery typically holds memory and date and time for 10-14 days.</p> <p>Reference: <i>Battery Backup</i> on page 28.</p>

Call Coverage Keys

A type of Programmable Function Key, assigned to a particular (i.e., covered) extension, that provides:

- A Busy Lamp Field for the covered extension which shows on-hook (idle), off-hook (busy), Do Not Disturb, and ringing status of that extension.
- One button intercept of calls ringing the covered extension.
- One button Intercom calling to the covered extension while it is idle.

Reference: *Call Coverage Keys* on page 29.

Call Forwarding

Permits an extension user to redirect their calls to another extension.

Reference: *Call Forwarding* on page 30.

Call Timer

A telephone display application that allows the keyset user to time their trunk calls.

Reference: *Call Timer* on page 30.

Call Waiting

Provides a busy extension user with an audible indication (i.e., Camp-On tones in the telephone handset) that an additional call is waiting to be answered.

Reference: *Call Waiting / Camp-On* on page 31.

Callback

With Callback, an extension can call a busy extension, dial the Callback code, hang up, and have the busy extension automatically call them back when it becomes free.

Reference: *Callback* on page 31.

Caller ID

The capability of a display keyset to show an incoming trunk caller's number and optional name in the telephone display. Caller ID requires that telco provide Caller ID service on each trunk that should display the Caller ID data.

Reference: *Caller ID* on page 32.

Caller ID, Second Call

Displays the Caller ID data for a waiting (i.e., second) trunk call while the display keyset user is busy on a call.

Reference: *Caller ID* on page 32.

Caller ID, Third Party Check

Permits the display keyset user to press a line key, loop key, Call Coverage key or Hotline key to display the Caller ID data for a trunk that is not ringing their phone.

Reference: *Caller ID* on page 32.

Camp-on	<p>Allows an extension user to wait in line without hanging up for a busy extension to become free.</p> <p>Reference: <i>Call Waiting / Camp-On</i> on page 31.</p>
Central Office Calls	<p>Call placed or answered on trunks provided by the connected telephone company (telco).</p> <p>Reference: <i>Central Office Calls, Answering</i> on page 34 and <i>Central Office Calls, Placing</i> on page 35.</p>
Check Key	<p>A unique key on a display telephone that allows the user to check key assignments and Personal Speed Dial programmed entries.</p> <p>Reference: <i>Check Key</i> on page 36.</p>
Circular Hunting	<p>A type of Extension Hunting in which a call unanswered at a member extension rings the next extension in the hunt group and, if unanswered, continues to cycle through all the members of the group (until it is answered or abandoned). See also <i>Terminal Hunting</i> on page 126 and <i>Uniform Call Distribution (UCD) Hunting</i> on page 127 of this glossary.</p> <p>Reference: <i>Extension Hunting</i> on page 47.</p>
Class of Service	<p>A table of feature and dialing options that can be customized and assigned to individual or multiple extensions. The system has 15 unique, customizable Class of Service tables.</p> <p>Reference: <i>Class of Service</i> on page 36.</p>
Conference	<p>A facility that allows an extension user to add multiple inside or outside callers into an existing telephone conversation.</p> <p>Reference: <i>Conference</i> on page 39.</p>
Date and Time	<p>See <i>Time and Date</i> on page 126 in this glossary.</p>
Delayed Ringing	<p>Allows a call to immediately flash a line or Call Coverage key and then ring after a programmed delay.</p> <p>Reference: <i>Delayed Ringing</i> on page 39.</p>

Dial Number Preview	<p>The ability of a display keyset user to dial and review a number on the telephone display before the system dials it out.</p> <p>Reference: <i>Dial Number Preview</i> on page 40.</p>
Direct Inward Line	<p>An outside line (trunk) that directly rings an extension, Ring Group master number, or UCD Group master number (including Voice Mail). The DIL will not directly ring any other extensions in the system, although it may flash another extension's line key (depending on Programmable Function Key programming).</p> <p>Reference: <i>Direct Inward Line</i> on page 40.</p>
Direct Station Selection (DSS)	<p>A "second level" function of an extension's Programmable Function Keys that provides one-button Intercom access, call Transfer, and Busy Lamp Field for the extension assigned to the key. If enabled in programming, DSS keys automatically activate when the user presses the ICM key.</p> <p>Reference: <i>Direct Station Selection (DSS)</i> on page 41.</p>
Direct Station Selection (DSS) Console	<p>A unique station instrument that plugs into a 34-Button Display or 34-Button Super Display telephone that provides additional Programmable Function Keys. There are two models: a 24-button model and a 110-button model. The keys on a DSS Console can be programmed with many of the same functions available to a keyset's Programmable Function Keys.</p> <p>Reference: <i>Direct Station Selection (DSS) Console</i> on page 42.</p>
Direct Trunk Access	<p>The capability of an extension user to dial a specific code to access (seize) an individual outside line (trunk), and then dial without restriction.</p> <p>Reference: <i>Direct Trunk Access</i> on page 44.</p>
Directed Call Pickup	<p>The ability of an extension user to dial a specific code to intercept a call ringing another extension.</p> <p><i>Directed Call Pickup</i> on page 44.</p>
Directory Dialing	<p>A dial-by-name facility of the telephone system that allows a display keyset user to select a co-worker or outside call from a list of displayed names. Directory Dialing can show a list of System Speed Dial names, Personal Speed Dial names, or Intercom names.</p> <p>Reference: <i>Directory Dialing</i> on page 45.</p>
Display Messaging	<p>See <i>Selectable Display Messaging</i> on page 124 in this glossary.</p>

Do Not Disturb	<p>Blocks incoming calls, Off-Hook Signaling, and Paging announcements at an extension.</p> <p>Reference: <i>Do Not Disturb</i> on page 45.</p>
Door Box	<p>A unique station instrument, typically placed next to an entrance door, that allows visitors at the door to communicate with selected internal extensions. The Door Box works like a door bell with an integral speaker and microphone.</p> <p>Reference: <i>Door Box</i> on page 46.</p>
DSTU	<p>Digital Station Port.</p> <p>Reference: <i>16DSTU Digital Station PCB (P/Ns 80021 and 80021A)</i> on page 12 and <i>DS1000 Cabinet (P/N 80200)</i> on page 15.</p>
Expansion Board	<p>Expands the capabilities of the DS1000 system.</p> <p>Reference: <i>DS1000 Expansion Board (P/N 80221)</i> on page 16.</p>
Extended Ringing	<p>Allows calls to ring specific extensions (such as warehouse telephones) for an extended number of rings before the calls follow the system's normal rerouting procedures.</p> <p>Reference: <i>Extended Ringing</i> on page 47.</p>
Extension Hunting	<p>An internal system call routing facility that allows calls to route to a pre-defined group of hunt group member extensions. There are three types of extension hunting: Circular Hunting, Terminal Hunting, and Uniform Call Distribution (UCD) Hunting.</p> <p>Reference: <i>Extension Hunting</i> on page 47.</p>
Extension Ringdown	<p>See <i>Ringdown Extension</i> on page 123 in this glossary.</p>
External Paging	<p>See <i>Paging</i> on page 122 in this glossary.</p>
Exclusive Hold	<p>A type of Hold for outside (trunk) calls that allows only the extension that initially placed the call on Hold to retrieve it from Hold. See also <i>Automatic Hold</i> on page 112, <i>Intercom Hold</i> on page 119, and <i>System Hold</i> on page 125 in this glossary.</p> <p>Reference: <i>Hold</i> on page 54.</p>

Fixed Loop Keys	See <i>Loop Keys</i> on page 120 in this glossary.
Fixed Slot	A version of the DS2000 system that requires certain types of PCBs to be installed in specific cabinet slots. Reference: <i>DS2000 System Configuration</i> on page 18.
Flash	Allows an extension user to access certain CO and PBX features by interrupting (flashing) trunk loop current. Flash only has an effect if the additional features are provided by the CO or PBX. Reference: <i>Flash</i> on page 49.
Flexible Number Plan	Enables the system programmer to change the digits users dial to reach the attendant, other co-workers, and outside lines (trunks). Reference: <i>Flexible Numbering Plan</i> on page 50.
Forced Intercom Ringing	Causes all incoming Intercom calls to ring an extension. Reference: <i>Handsfree Answerback and Forced Intercom Ringing</i> on page 56.
Forced Trunk Disconnect	Lets an extension user dial specific codes to immediately disconnect (release) another extension's active outside (trunk) call. Reference: <i>Forced Trunk Disconnect</i> on page 50.
Group Call Pickup	Allows an extension to intercept (pick up) a call ringing another extension in the Pickup Group to which the extension belongs. The extension user can either dial a specific code or use a uniquely programmed Group Call Pickup Programmable Function Key. Reference: <i>Group Call Pickup</i> on page 51.
Group Listen	The capability of a keyset extension to allow the user to talk on a handset call conversation and simultaneously broadcast the other party's voice over the telephone speaker. Reference: <i>Group Listen</i> on page 51.

Group Ring	<p>Allows the system programmer to arrange extensions into Ring Groups to control the ringing for incoming outside (trunk) calls. Ring Groups are based around a programmed Ring Group master number. When a call is directed to ring the master number, all extensions in the Ring Group simultaneously ring.</p> <p>Reference: <i>Group Ring</i> on page 52.</p>
Handsfree	<p>Gives the keyset user the ability to process calls using the speaker and microphone in the telephone, instead of the handset.</p> <p>Reference: <i>Handsfree and Handsfree Answerback</i> on page 53.</p>
Handsfree Answerback	<p>The capability of a keyset extension to broadcast an incoming Intercom caller's voice over the telephone speaker, and to additionally allow the receiving extension user to reply by using the microphone in the telephone (without lifting the handset).</p> <p>Reference: <i>Handsfree Answerback and Forced Intercom Ringing</i> on page 56.</p>
Handsfree, Automatic	<p>The ability of a keyset user to place or answer a call by pressing a key, without first lifting the handset or pressing SPK.</p> <p>Reference: <i>Automatic Handsfree</i> on page 27.</p>
Headset Compatibility	<p>Enables a keyset user to plug in a customer-provided headset in lieu of the handset. Once the headset is enabled in programming, the keyset operation is uniquely modified to accommodate the headset.</p> <p>Reference: <i>Headset Compatibility</i> on page 54.</p>
Hold	<p>Lets an extension user put a call in a temporary waiting state, hang up, and return to the call later on. See also <i>Automatic Hold</i> on page 112, <i>Exclusive Hold</i> on page 116, <i>Intercom Hold</i> on page 119, and <i>System Hold</i> on page 125 in this glossary.</p> <p>Reference: <i>Hold</i> on page 54.</p>
Hotline	<p>A uniquely programmed Programmable Function Key that provides one-button calling, Transfer, and a Busy Lamp Field for the extension assigned to the key. The extension assigned to the key is called the Hotline partner.</p> <p>Reference: <i>Hotline</i> on page 55.</p>
Idle Prime Line	<p>See <i>Prime Line Preference</i> on page 122 in this glossary.</p>

Interactive Soft Keys

Interactive feature buttons that provide intuitive call processing. On a display keyset, the soft keys are the 4 buttons just beneath the telephone display that change in function as the user processes calls. The display area just above the buttons indicates the currently active feature function. On a Super Display Keyset, there are 12 soft key buttons; 6 to the left and 6 to the right of the display.

Reference: *Interactive Soft Keys* on page 56.

Intercom

The ability of any extension to call any other extension in the system, providing complete internal calling capability.

Reference: *Intercom* on page 119.

Intercom Hold

Permits an extension user to place an Intercom call on Hold, hang up, and return to the call later on. See also *Automatic Hold* on page 112, *Exclusive Hold* on page 116, and *System Hold* on page 125 in this glossary.

Reference: *Hold* on page 54.

Intercom Prime Line

See *Prime Line Preference* on page 122 in this glossary.

Internal Paging

See *Paging* on page 122 in this glossary.

Intrusion

See *Barge In* on page 112 in this glossary.

Reference: *Barge In (Intrusion)* on page 28.

Key Ring

The system's universal outside (trunk) call ringing facility, set up on an extension-by-extension basis in the system's Ring Assignment programming. When a call rings in, Key Ring can cause multiple extensions to ring simultaneously or after a programmed delay. Key ring is also the "overflow" destination for unanswered DILs and unanswered calls recalling from Hold, Park, or Transfer.

Reference: *Key Ring* on page 57.

Last Number Redial

Allows an extension user to quickly redial the last outside (trunk) call they dialed.

Reference: *Last Number Redial* on page 58.

Line Keys	<p>Uniquely programmed Programmable Function Keys that provide one-button access to an outside line (trunk) for placing and answering calls. The line key also provides a Busy Lamp field for the trunk to which it is assigned.</p> <p>Reference: <i>Line Keys</i> on page 58</p>
Line Queuing	<p>See <i>Trunk (Line) Queuing / Trunk Callback</i> on page 127 in this glossary.</p>
Load Factor	<p>A representation of the system's power supply capacity that may limit the number of components that can be connected to the system.</p> <p>Reference: <i>DS2000 System Load Factor Calculations</i> on page 19 and <i>DS1000 System Load Factor Calculations</i> on page 23.</p>
Loop Keys	<p>Uniquely programmed Programmable Function Keys that provide an appearance for outside lines (trunks) not assigned to a line key. There are two types of Loop Keys: Switched Loop and Fixed Loop. For incoming calls, both Switched Loop and Fixed Loop Keys provide an appearance for any trunk not assigned to a line key. For outgoing calls, Switched Loop Keys simplify access to trunk groups. Fixed Loop keys provide access to a <i>specific</i> trunk group.</p> <p>Reference: <i>Loop Keys</i> on page 59.</p>
Meet-Me Conference	<p>A "telephone meeting" an extension user sets up with their co-workers at one of the two predefined Meet-Me Conference locations. The number of people that can join the Conference is limited only by the system's Conference circuit capacity.</p> <p>Reference: <i>Meet-Me Conference</i> on page 60.</p>
Message Waiting	<p>An indication (flashing MW key) an extension user can leave at a busy or unanswered keyset requesting a return call. Message Waiting is only available in systems that don't have Voice Mail installed.</p> <p>Reference: <i>Message Waiting</i> on page 61.</p>
Microphone Mute	<p>Permits a keyset user to press a key to turn off their phone's Handsfree microphone at any time.</p> <p>Reference: <i>Microphone Mute</i> on page 61.</p>
Modem Cut-Through	<p>A unique DS1000 only feature that allows a modem connected to the system's analog modem port to achieve maximum throughput speeds on outside (trunk) calls.</p> <p>Reference: <i>Modem Cut-Through</i> on page 62.</p>

Monitor / Silent Monitor	Allows an extension user to listen to the conversation being held on another extension without providing any indication of the intrusion. Reference: <i>Monitor / Silent Monitor</i> on page 62.
Multiple Directory Numbers	See <i>Call Coverage Keys</i> on page 113 in this glossary.
Music On Hold	Provides music from a customer-provided music source to callers on Hold, parked callers and transferred callers. Reference: <i>Music On Hold</i> on page 63.
Names for Extensions and Trunks	System extensions and trunks can have names programmed into system memory to help identify them. These names are visible to display keyset users during call processing. Reference: <i>Names for Extensions and Trunks</i> on page 63.
Night Service / Night Ring	Redirects outside (trunk) calls to their night mode destination. Any extension user with a uniquely programmed Night key can active Night Service by pressing that key. There are two types of Night Service: Assigned Night Answer and Universal Night Answer. Assigned Night Answer rings extensions directly at night. Universal Night Answer allows a user to dial a code to pick up a call ringing at night. Reference: <i>Night Service / Night Ring</i> on page 64.
Off-Hook Signaling	Indicates to an extension user busy on a call that another caller is trying to get through. Off-Hook Signaling can be muted off-hook ringing or Camp-On tone, depending on system programming and the type of call. Reference: <i>Off-Hook Signaling</i> on page 65.
Off-Premise Extensions On-Premise Extensions	Single line telephones can be installed as either On- or Off-Premise Extensions, depending on the type of system and additional equipment installed. Reference: <i>Off-Premise Extensions / On-Premise SLT Extensions</i> on page 66.

Paging	<p>Enables extension users to broadcast announcements to speakers in keysets and/or to a customer-provided paging system. There are two types of Paging: Internal Paging and External Paging. With Internal Paging, an extension user can broadcast into 1 of 7 Internal Paging zones, or simultaneously into all zones (termed All Call Paging). With External Paging, announcements into internal zone 1 or internal All Call automatically broadcast from the system's External Paging audio port (which is typically connected to a customer-provided Paging system).</p> <p>Reference: <i>Paging</i> on page 67.</p>
Park	<p>Places an outside (trunk) call into a waiting state called a Park Orbit. An extension user can Park a call in one of 10 System Park Orbits, or use Personal Park to have the call wait at a specific extension.</p> <p>Reference: <i>Park</i> on page 68.</p>
Password Protection	<p>See <i>System Programming Password Protection</i> on page 125 in this glossary.</p>
Personal Speed Dial	<p>See <i>Speed Dial</i> on page 124 in this glossary.</p>
Prime Line Preference	<p>Allows a keyset user to place or answer a call just by lifting the handset. The activation of Prime Line Preference is associated in system programming with a particular key on the telephone. If the association is with a line or loop key, the extension has Idle Prime Line. If the association is with the ICM key, the extension has Intercom Prime Line.</p> <p>Reference: <i>Prime Line Preference</i> on page 69.</p>
Privacy	<p>An extension option that, when enabled, blocks incoming Barge In attempts and Call Waiting signals.</p> <p>Reference: <i>Privacy</i> on page 70.</p>
Privacy Release Groups	<p>A group of extensions that can join in each other's outside (trunk) calls just by pressing a busy line key. The number of group members that can join the call is limited only by the system's Conference capacity.</p> <p>Reference: <i>Privacy Release Groups</i> on page 70.</p>
Private Line	<p>An outside line (trunk) reserved for a specific keyset for placing and answering calls.</p> <p>Reference: <i>Private Line</i> on page 71.</p>

Programmable Function Keys	Keys on a keyset telephone that can be assigned to a variety of functions that simplify placing calls, answering calls, and using certain features. The 22-button sets have 12 Programmable Function Keys. The 34-button and Super Display sets have 24 Programmable Function Keys. Reference: <i>Programmable Function Keys</i> on page 71.
Pulse to Tone Conversion	The ability of an extension to automatically change the dialing mode of an outside (trunk) call from Dial Pulse to DTMF. Reference: <i>Pulse to Tone Conversion</i> on page 74.
REJ Recording Jack Module	A device that plugs into a Super Display or 34-Button Display Telephone that provides connection for an external tape recorder (for recording calls) or amplifier. Reference: <i>REJ Recording Jack Module (P/N 80175)</i> on page 9.
Removing Trunks and Extensions from Service	The capability of specific extensions to remove problem trunks and extensions from service. This is normally a repair facility most commonly reserved for system attendants and supervisors. Reference: <i>Removing Trunks and Extensions From Service</i> on page 74.
Restore	See <i>System Programming Backup and Restore</i> on page 125 in this glossary.
Reverse Voice Over	Allows a keyset user busy on a handset call to press their uniquely programmed Reverse Voice Over key to set up a private Intercom call with a co-worker. When the phone is idle, the Reverse Voice Over key functions the same as a Hotline key. Reference: <i>Reverse Voice Over</i> on page 75.
Ring Groups	See <i>Group Ring</i> on page 118 in this glossary.
Ringdown Extension	Automatically places a call to an extension, Voice Mail, Ring Group or UCD Hunting group when the extension user lifts the handset. Ringdown extensions are typically single line sets used in hotel lobbies and airport terminals. Reference: <i>Ringdown Extension</i> on page 76.

Ringing Line Preference	Provides ringing call priority for keysets, which in turn enables a keyset to automatically answer a ringing call when the user lifts the handset. Reference: <i>Ringing Line Preference</i> on page 76.
Save Number Dialed	Permits an extension user to save the last outside number they dialed and easily redial it later on by pressing a uniquely programmed Save Number Dialed key. Reference: <i>Save Number Dialed</i> on page 78.
Selectable Display Messaging	Lets a user enable a text message for their extension which automatically shows on the display of any co-worker that calls their extension. Text messages can be appended by the user to provide more specific information, such as “BACK BY 5:00.” Reference: <i>Selectable Display Messaging</i> on page 79.
Screened Transfer	See <i>Transfer</i> on page 126 in this glossary.
Silent Monitor	See <i>Monitor / Silent Monitor</i> on page 121 in this glossary.
Single Line Telephones	Single line telephones can be installed as either On- or Off-Premise Extensions, depending on the type of system and additional equipment installed. Reference: <i>Off-Premise Extensions / On-Premise SLT Extensions</i> on page 66.
Soft Keys	See <i>Interactive Soft Keys</i> on page 119 in this glossary.
Speed Dial	Provides an extension with quick access to frequently called numbers. There are 2 types of Speed Dial: Personal Speed Dial and System Speed Dial. Personal Speed Dial provides 20 numbers for each extension. System Speed Dial provides up to 1000 numbers that everyone in the system can use. Reference: <i>Speed Dial</i> on page 80.
Split (Alternate)	Lets an extension user easily switch between their current call and a waiting call, without joining the callers in Conference. Reference: <i>Split (Alternate)</i> on page 82.

Station Message Detail Recording	<p>A system report, typically printed on a printer connected to the system's RS-232-C serial port, that provides a record of the system's outside (trunk) calls.</p> <p>Reference: <i>Station Message Detail Recording</i> on page 83.</p>
Station Timers	<p>See <i>System Timers</i> on page 125 in this glossary.</p>
System Programming Backup and Restore	<p>The capability of the DS2000 system to allow site-specific customer data to be saved to and restored from PC Card P/N 85880.</p> <p>Reference: <i>System Programming Backup and Restore</i> on page 84.</p>
System Programming Password Protection	<p>The protection the system provides against unauthorized programming by requiring the system programmer to enter a password prior to changing system options.</p> <p>Reference: <i>System Programming Password Protection</i> on page 84.</p>
System Timers	<p>The system provides numerous timers that control aspects of system, station, and outside line (trunk) behavior.</p> <p>Reference: <i>System Timers</i> on page 85.</p>
Switched Loop Keys	<p>See <i>Loop Keys</i> on page 120 in this glossary.</p>
System Hold	<p>A type of Hold for outside (trunk) calls that allows any extension user to retrieve the call from Hold. See also <i>Automatic Hold</i> on page 112, <i>Exclusive Hold</i> on page 116, and <i>Intercom Hold</i> on page 119 in this glossary.</p> <p>Reference: <i>Hold</i> on page 54.</p>
System Speed Dial	<p>See <i>Speed Dial</i> on page 124 in this glossary.</p>
Tandem Trunking / Unsupervised Conference	<p>A type of Conference that lets an extension user join two outside callers in a trunk-to-trunk Conference, drop out of the call, and leave the 2 trunk callers connected.</p> <p>Reference: <i>Tandem Trunking / Unsupervised Conference</i> on page 90.</p>

Terminal Hunting

A type of Extension Hunting in which a call unanswered at a member extension rings the next extension in the hunt group and, if unanswered, rings through the group until it reaches the last member. The call will not automatically cycle through all members of the group. It rings from the point at which it entered the group to the last member. See also *Circular Hunting* on page 114 and *Uniform Call Distribution (UCD) Hunting* on page 127 of this glossary.

Reference: *Extension Hunting* on page 47.

Text Messaging

See *Selectable Display Messaging* on page 124 in this glossary.

Time and Date

The Time and Date appears on display telephones and the Station Message Detail Recording report.

Reference: *Time and Date* on page 91.

Timers

See *System Timers* on page 125 in this glossary.

Toll Restriction

Limits the outside numbers an extension user can dial, thereby controlling the cost of long distance calls.

Reference: *Toll Restriction* on page 91.

Transfer

Extends an active call from one extension to another extension, Ring Group, UCD Hunting Group, or to the Voice Mail system. There are two types of Transfer: Screened and Unscreened. With Screened Transfer, the transferring user announces the call to the destination before hanging up. With Unscreened Transfer, the transferring user extends the call without an announcement.

Reference: *Transfer* on page 92.

Trunk Group Routing

Allows an extension user to easily obtain dial tone on an outside line (trunk) for placing a call. Single line telephone users lift the handset and dial 9, while keyset extension users press **ICM** and dial 9. The system automatically selects the first available trunk in the programmed "dial 9" trunk group.

Reference: *Trunk Group Routing* on page 93.

**Trunk (Line) Queuing /
Trunk Callback**

Permits an extension user to queue (wait in line) off hook for a busy trunk or trunk group to become free. If the user hangs up, the system automatically converts the Trunk Queue to a Trunk Callback. When the trunk becomes free, the system automatically recalls the extension that left the Callback. The user then just lifts the handset to answer the Trunk Callback and dials their call.

Reference: *Trunk (Line) Queuing / Trunk Callback* on page 93.

Trunk Groups

Enables extension users to dial Trunk Group access codes 90-98 to place calls on Trunk Groups 0-8.

Reference: *Trunk Groups* on page 94.

Trunk Timers

See *System Timers* on page 125 in this glossary.

**U Slot
Universal Slot**

A version of the DS2000 system that allows flexible PCB-to-cabinet slot assignments.

Reference: *DS2000 System Configuration* on page 18.

**Uniform Call Distribution
(UCD) Hunting**

A type of Extension Hunting in which calls route to hunt group members according to the frequency of use of the member extensions. The first extension rung is the member that has been idle the longest. The last extension rung is the member that has been idle the shortest. See also *Circular Hunting* on page 114 and *Terminal Hunting* on page 126 of this glossary.

Reference: *Extension Hunting* on page 47.

Universal Night Answer

See *Night Service / Night Ring* on page 121 in this glossary.

Unscreened Transfer

See *Transfer* on page 126 in this glossary.

Unsupervised Conference

See *Tandem Trunking / Unsupervised Conference* on page 125 in this glossary.

**User Programmable
Features**

The capability keyset users have to customize the way their telephones work, without having to rely on system programmers.

Reference: *User Programmable Features* on page 95.

Voice Mail	NVM-Series Voice Mail provides integrated Voice Mail and Automated Attendant services to every user in the telephone system. Reference: <i>Voice Mail</i> on page 96.
Voice Over	Allows an extension user to dial the Voice Over code to get through to a keyset user busy on a handset call. Reference: <i>Voice Over</i> on page 99.
Volume Controls	The capability of a keyset user to press VOL ▲ and VOL ▼ to adjust the volume of the active feature, such as ringing, Paging, the Handsfree speaker, and Background Music. Reference: <i>Volume Controls</i> on page 100.

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