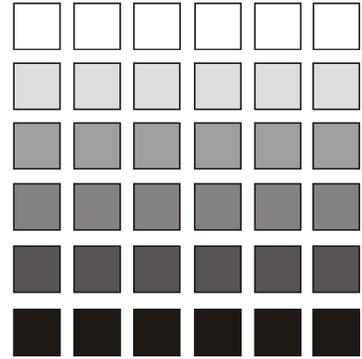


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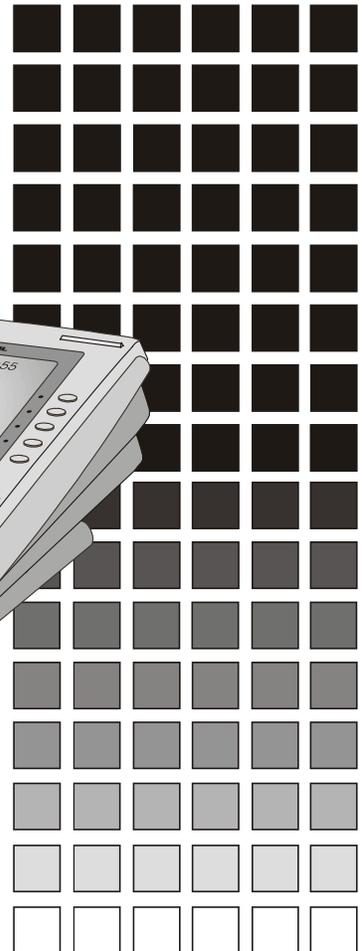
# S-ICX

*Integrated Voice & Data Solutions*

## Technical Manual



## Section 200 General Description



## **Matsushita Communication Industrial Co. Ltd. (MCI)**

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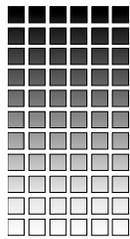
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# Chapter 1 - System Overview

## *INTRODUCING THE NEXT-GENERATION PHONE SYSTEM FROM PANASONIC*



Today's phone systems have taken on a new role and become a critical factor in virtually every business. Often times, it is the phone system that serves as a "welcome mat" to the outside world, creating a first impression to the public. And, as everyone knows, it is the first impression that makes a lasting impression. So, why not make the first impression, the best impression... with an Integrated Communication eXchange (ICX) system solution.

Providing such an important link to the outside world requires a **proven company in the telecommunications industry**; One with a solid reputation for reliability. It requires a company whose products provide feature-rich options for greater flexibility and expandability, as well as providing state-of-the-art technology...all of this at an affordable price.

**The company is Panasonic**...providing reliable, state-of-the-art telephone and networking solutions for your business requirements. Because, **we** understand the importance a first impression makes. With our popular line of Integrated Communication eXchange (ICX) telephone switches for small to medium size businesses, we've developed a reputation for providing cost-effective digital technology, dependable functionality and user-oriented design.

Panasonic is one of the world's largest electronics companies, with a worldwide reputation for solid reliability and innovative design in all of our products. Investing highly in research and development, we have become a major manufacturer of electronic telecommunications products and a reliable source for telecommunications solutions.

Panasonic is also one of the largest suppliers of business telephone systems in the world. With high-level training and testing, our authorized dealers are specialists in solving telecommunications needs.

Panasonic prides itself in listening to customer feedback and responding with innovative products that will help maintain a competitive edge in their marketplace, both today and tomorrow. Customers asked for a smaller system to meet their phone system requirements. They asked for ISDN... Computer Telephony Integration... Automatic Call Distribution... Networking... Voice Recognition...

Introducing the Panasonic **S-ICX**, the latest addition to our popular S-ICX line of Key/Hybrid/PBX products.

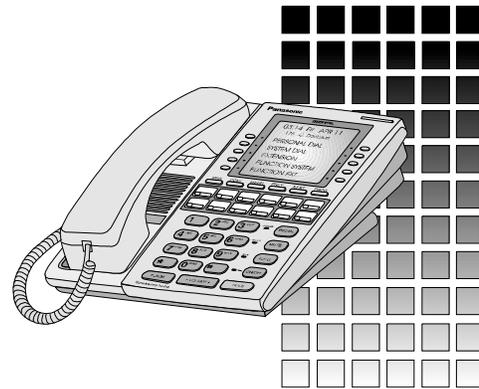
The "S-ICX" offers many of the same features as its predecessor, the ICX, but it does so with one small cabinet, made possible through the use of a "high density" backplane. Furthermore, this robust and reliable phone system delivers the sophistication of the ICX to small and medium sized companies, while at a more economical price point.

The Panasonic S-ICX... making the first impression the best impression.

Here are just a few of the features found on the S-ICX:

**Smaller, more compact cabinet.**

The S-ICX cabinet is a scaled down version of the cabinet used with the ICX system. This is possible because the S-ICX uses a unique High-Density backplane. The result is a smaller system with the power of the ICX. It's expandable from 8 to 132 ports.



**Configures automatically.**

The S-ICX system automatically inspects cards installed and assigns extension numbers, trunk numbers, etc.

**Full Flexible Slot Availability.**

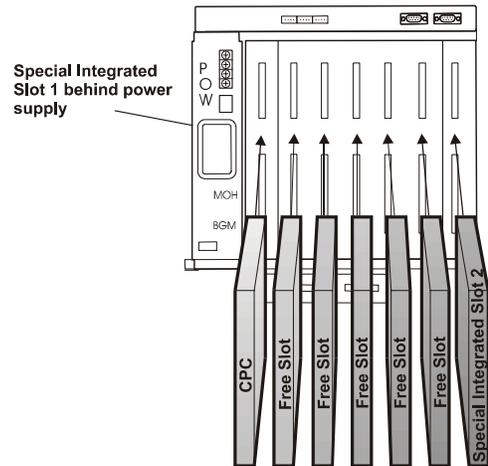
Supports high-density cards in all flexible slots without losing the ability to use other slots.

**Universal ports.**

The S-ICX offers flexible slot configuration. You can mount Trunk or Extension Cards in any of the 5 Free Slots in the cabinet. With this built-in flexibility, you can design the system the way you want it: efficiently, cost-effectively, whichever way makes the most sense. (In other words, YOU control the system—the system doesn't control you.)

**Seamless compatibility with ICX.**

Most cards used in the HD can also be installed in the ICX. This is a valuable feature should you ever need the additional ports and extensions offered in the ICX. Simply remove the cards from the HD cabinet and insert them in the ICX.



**Flash memory upgrades.**

No more chip change-outs. No more complicated hookups. No more waiting forever to download/upload from the phone system. The S-ICX phone system can be upgraded in a handful of minutes with a small diskette known as a compact flash card. Simply plug it onto the processor card, and perform a few simple programming steps. That's all there is to it: the system now contains the latest-and-greatest software release.

**Voice Recognition phones.**

With these special phones and S-ICX technology, users can literally *tell* their phones what to do. Instead of dialing your home phone number, for example, press the Voice Recognition key and say, "Home." The phone will automatically call your house. Or press the same key and say, "Jeff." The phone will call Jeff for you. The future is right here.

**Dynamic Bandwidth Allocation for ISDN digital switching.**

The S-ICX provides the ability to allocate bandwidth on demand to several different sources, via hardware installations of special ISDN adapters. This powerful technology can be used to perform different applications from a single phone outlet. It means you can do video-conferencing, data transmission, multiple phones, voice, etc. - all from the same station position.

In fact, the S-ICX offers **ISDN support** with both BRI (Basic Rate Interface) and PRI (Primary Rate Interface) capability. ISDN provides fully digital signaling, combines voice and data into one

signaling system, and supports large-bandwidth applications such as video-conferencing.

**Computer Telephony interface capability.**

We've developed proprietary software for several Computer Telephony applications, in which the desktop phone and the PC computer merge together into a single entity. The merger works like this: #1) Install a special board inside the computer. #2) Install our software in Windows. #3) Plug the phone's handset into the board. #4) Plug the board into the phone jack. Presto! you can now click-and-drag call transfers, monitor the status of other extensions, generate your own call traffic reports, and many other tasks you couldn't do before on your desktop computer.

Panasonic offers **PC Console applications for the Attendant position** that supports up to 60 extensions and up to 96 ports total. One is a low-end product (supports up to 96 extensions) and the other is high-end (up to 384 extensions). The PC Console controls the system's calls from the computer, and the attendant can watch everything on the PC monitor.

Panasonic also offers proprietary software for a **PC Phone**, which replaces the desktop extension phone. End-users can control their own phone calls using the computer.

**Networking services.**

The S-ICX offers several ways to set up networking—tying multiple S-ICX systems together through the public switching network. **AC15 Tie Lines** let you connect directly to another S-ICX system using a leased voice line. **Q-Sig Networking** lets you tie multiple systems together through the network, so that (for example) when one location closes for the day, its calls can be picked up by another location across the country. A user can also turn a long-distance call into a local one by accessing another location and then dialing the number as a local call.

The system can also be set up in a **Tandem (Q-Sig or AC15 Network)** environment, adding further benefits to the users at each location. For example, each switch can analyze the number dialed, and automatically route the call to other locations, extensions, or go through another location's switch to place a local call.

**Automatic Call Distribution.**

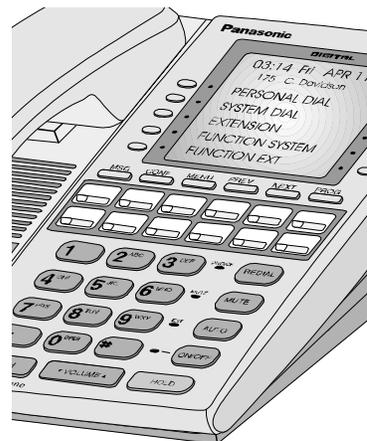
With the S-ICX's Built-in ACD option, calls can be automatically distributed to the least-busy extension first, or on a next-available-extension basis. If the extension doesn't answer the call, you can program the system to continue searching, transfer to a particular extension, transfer to Voice Mail, or disconnect the call. You can control what the caller hears while he/she is waiting. Supervisors can instantly access the current status of all agents right from their desk using a Large-Display telephone - no need for costly computer programs to provide "real-time reporting". MIS reports can also be generated.

## System Technology

The S-ICX is a completely digital system. Information is exchanged between the major system components using Pulse Code Modulation (PCM). The conversation exchange between digital telephones is also digital, converting the digital information to analog just before it reaches your handset or speaker.

Stored Program Control (SPC) is accomplished via a 16-bit processor. This technology controls the powerful system features of the S-ICX. Each processor's customized memory (program settings) is backed up by an on-board, 7-year lithium battery.

The system provides maximum protection from outside power surges, with built-in triple surge protection for Exchange outside line connectors.



## Power Requirements

The system must be connected to an input power source of 200-240V AC, 50/60 Hz. Each cabinet's power supply automatically generates 5V DC and 24V DC necessary to power the various printed circuit boards for station and peripheral equipment. Optional backup batteries are available, and are designed to safely fit into the cabinet. The power supply contains a charger that maintains a full charge to the backup batteries, which have a 3-year life and can support the phone system for up to 30 minutes at a time.

## Diagnostic Maintenance

The printed circuit board (PCB) cards are designed to slide easily into slots within the S-ICX cabinet. By using diagnostic troubleshooting, small problems can be isolated to specific cards. Some cards are designed to be installed and extracted from slots without turning off the power, allowing system maintenance to be completed without interrupting the entire system.

For example, you're having a problem with one of the trunks on a Loop Start Trunk Card. Instead of having to turn off the power, or reprogram anything, or alert anyone to get off the phone, all you have to do is throw a Maintenance switch on the Card. This will busy-out the trunks on that Card that aren't being used at the moment, but will leave the trunks in use alone, allowing people to finish their phone calls without any disruption. The LEDs on the Card will tell you when the trunks become vacant. When all LEDs are extinguished, the Card can be replaced.

## Programming the Phone System

Programming can be accomplished in several ways without disrupting normal phone system operation. Most programming changes take place as you are programming, what we refer to as "live" programming.

### **Programming from a display telephone.**

Programming can be performed on any small-display or large-display extension phone. A large-display phone is recommended because its LCD buttons can perform special one-touch functions in programming (such as "stepping" through addresses, entering a pause in a speed-dial number, etc.). Only authorized access is allowed; you must enter a valid password to get into Programming mode.

### **Programming from the RS232 port.**

A PC computer or laptop can be connected to the S-ICX phone system, via a DB9-pin RS232 port inside the cabinet. Then, from the computer, you can program the phone system with our proprietary

PC-based software, **called PCAS**.

This popular software package runs in a Windows 95 environment and makes programming and maintaining phone systems easy and fun. With PC Customized Tool, multiple phone systems can be maintained in separate databases on the computer. The phone system parameters are grouped together in windows so you can see the current settings all on the same page. To set a parameter, simply click a button, or select from a multiple-choice field, or type in an entry. It even has context-sensitive help if you get stuck (press F1 and a help screen will pop-up, explaining the field you're in).

You can use PC Customized Tool to "build" a phone system, then download it into the phone system's memory all at once. Or you can perform individual, "live" changes to phone system memory from the computer. It can also be used for backing up and restoring phone system databases.

**Programming from a remote location.**

Again, using **PCAS**, the S-ICX can be programmed from a remote location, using an offsite computer terminal to call into the phone system. You can perform "live" changes in this manner as well as downloads/uploads (for backup/restoring).

## Supporting Documentation

Panasonic provides extensive end-user documentation for the S-ICX (all of which are available on our Web site for authorized dealers):

**Section 300: Installation**

This manual provides installation instructions for the S-ICX system.

**Section 350: Safety and Installation**

This manual provides safety requirements and installation instructions for the S-ICX CCU.

**Section 400: Programming**

This manual provides in-depth programming instructions for the S-ICX system.

**Section 410: Programming**

This manual provides S-ICX programming instructions tailored to the UK market.

**Section 450 - Programming Forms and Tables**

This manual contains forms that are designed to assist you in planning and implementing a S-ICX phone system. Typical users of this manual are Customer Service representatives and Installers.

**Section 521: Built-In ACD Supervisor Guide (1 Guide provided with each ACD Card)**

This is an end-user guide intended for the ACD Supervisor. It is a condensed version of the ACD Reference manual, and includes only the commands appropriate for the ACD Supervisor.

**Section 551: ISDN Reference**

This manual provides an overview of the S-ICX ISDN Interface, along with installation and programming instructions.

**Section 660: PCAS Administrator Guide**

This manual provides an overview of PCAS, a Windows-based software application that allows you to remotely manage the Panasonic S-ICX using a personal computer.

**Section 700: Feature Operation (1 provided with each CPC Card)**

This is a general operating reference guide for the S-ICX. It describes system and telephone features. It is designed for use by both the dealer and the end-user.

**Section 750: Digital Key Phone User Guide**

This is a general end-user guide for the VB-D Series Digital Key Telephone.

**Section 751: Digital Key Phone/DSL Quick-Reference (25 provided in VB-44299 kit)**

This is a quick-reference guide for Digital Key Telephones and DSLTs (Digital Single-Line Telephones). It covers only the most commonly-used features, and is intended for the end-user.

**Section 752: SLT Phone Quick-Reference**

This is a quick-reference guide for Analog devices such as the SLT phone. It covers only the most commonly-used features, and is intended for the end-user.

**Section 770: Voice Recognition Telephone Adapter User Guide (1 provided with VR-AD)**

This is a user guide describing the additional features of the Voice Recognition Telephone. It is intended for the end-user.

# Chapter 2 - System Hardware

## Overview

This section describes the purpose and functionality of the main components of the S-ICX system. By understanding how these components work, you can easily configure a system that meets your specific needs.

This section is divided into the following categories:

### Cabinet

The S-ICX cabinet is explained in detail throughout this chapter. The cabinet can attach to any of the proprietary telephone sets offered by Panasonic. It also includes its own power supply, and is designed with dedicated slots for a CPC card, and free slots for trunk, extension, and built-in option cards.

### Common Cards

The common cards control the signaling and features used by all other cards in the system. Without common cards, other cards cannot function. The common card which is considered the “brains of the system” is called the Central Processor Card, or CPC. Each phone system must have a processor to operate.

### Telephone Company Interface Equipment

Panasonic offers a wide variety of interface circuits that allow the S-ICX to attach to an Exchange and/or common carrier equipment. This interface equipment is explained in this chapter.

### Station Interface Equipment

The S-ICX allows for connection of Panasonic proprietary telephones as well as various analog telephones and devices provided by other manufacturers. This chapter includes descriptions of the cards and equipment needed to accomplish these connections.

### Optional and Miscellaneous Equipment

The cards and interfaces that provide optional services, and all miscellaneous equipment, are explained later in this chapter.

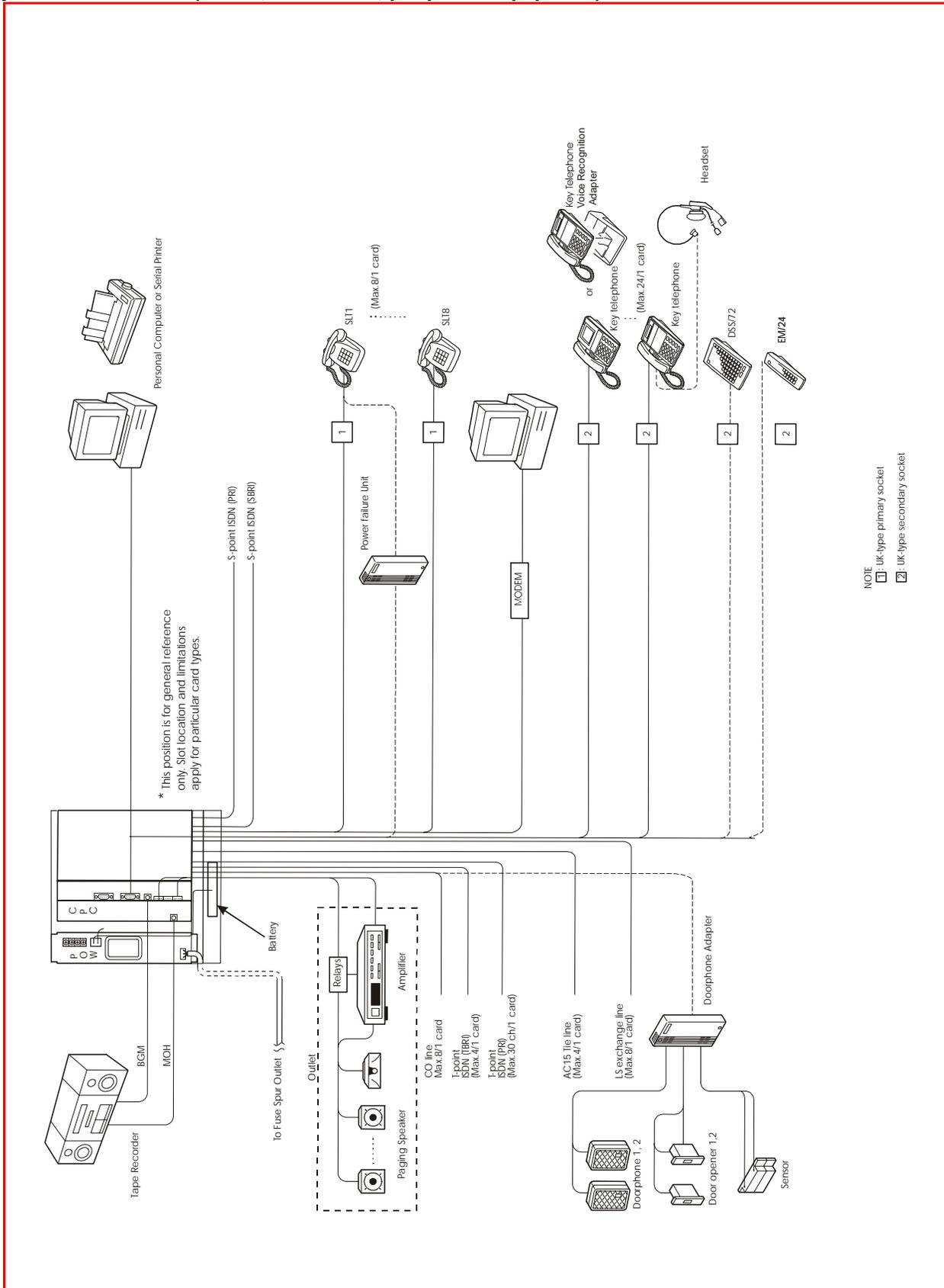
### Station Equipment

All Panasonic proprietary stations are explained later in this chapter.

### System Hardware Connections

Shown on the next page is an illustration of S-ICX trunk and extension line connections, as well as some of the more popular peripheral connections.

# System Connections (trunks, extensions, peripheral equipment)



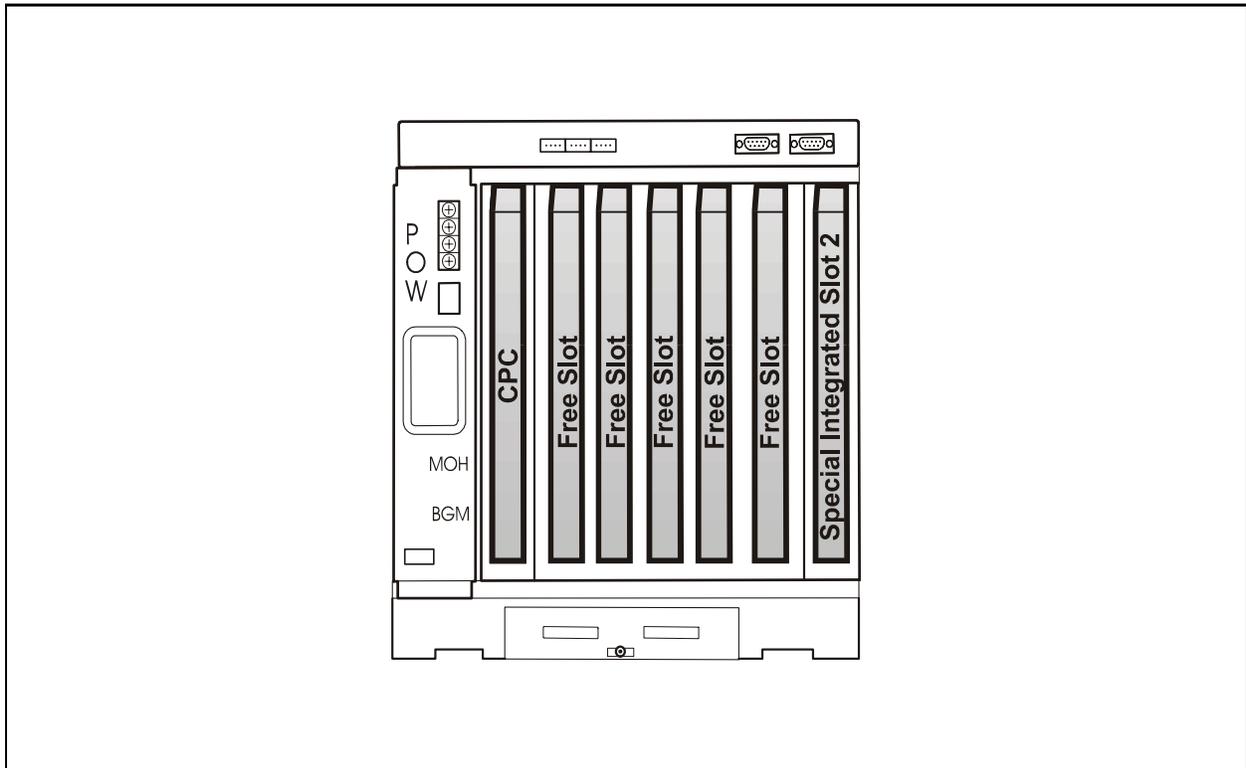
## Cabinet

The S-ICX consists of one cabinet capable of supporting up to 132 ports. Contained within the cabinet are 7 slots (1 power, 1 CPC and 5 flexible slots), 8 built-in DEC circuits, and a connector for a 4 AEC option/API option. Peripherals such as paging speakers, external music-on-hold sources, background music sources, PCs, printers, and SMDR/Call Logging connect to the unit cards or the mother board. Each cabinet may include the following:

- Power Unit
- Card Slots
- Unit Cards (optional)
- Backup Battery (VB-44026)

Slot type	# of slots	Unit type to be installed
Power slot	1	For the cabinet power supply (which comes installed in the cabinet).
CPC slot	1	For the control processor card (either CPC-HS or CPC-HM).
Flexible slots	5	For trunk cards, station cards, and other circuit cards.
Special integrated slot 1	1	Supports 8 DEC circuits. (located on mother board)
Special integrated slot 2	1	Can support an SAPI card or an SAEC/8 card.

### S-ICX Cabinet



## Battery Backup (VB-44026UK)

The backup batteries supply power to the system in the event of a power failure. If the Battery Backup option is chosen for the system, each cabinet requires its own set of batteries (1 kit per cabinet, 2 batteries per kit). The batteries can back up the system for up to 30 minutes.

## Control Unit Processor Cards

### Control Processor Card (78-port) - CPC-HS (VB-44440UK)

The CPC-S card is a standard CPU unit for a system with up to 32 extensions and up to 78 ports. The card uses a 16-bit CPU and **does not support the DEC 16/24**.

Included are a time switch (9 Highway x 9 Highway), a 4-circuit MFR (DTMF receiver circuit), eight 3-party conference circuits, service tone, a DTMF transmitter, an input terminal for external hold tone and BGM source (RCA jack), EPA output (RCA jack), a connecting terminal for synchronization package (VB-44460), and an interface connector for a compact flash card. The system control program is downloaded to the internal memory of the system through the compact flash card.

Memory is retained with a backup battery.

### Control Processor Card (132-port) - CPC-HM (VB-44441UK)

The CPC-M card is a standard CPU unit for a system with up to 64 extensions and up to 132 ports. The card uses a 16-bit CPU and supports the DEC 16/24.

Included are a time switch (9 Highway x 9 Highway), a 4-circuit MFR (DTMF receiver circuit), eight 3-party conference circuits, service tone, a DTMF transmitter, an input terminal for external hold tone (RCA Jack), an input terminal for BGM source (RCA jack), EPA output (RCA jack), a connecting terminal for synchronization package (VB-44460), and an interface connector for a compact flash card. The system control program is downloaded to the internal memory of the system through the compact flash card.

Memory is retained with a backup battery.

CPC Card Processor Unit Specifications		CPC-HS (VB-44440UK)	CPC-HM (VB-44441UK)
<b>MPU (Main Processor Unit)</b>			
CPU Used		68032 (16-bit)	68032 (16-bit)
Operating Clock		19.6608 MHz	19.6608 MHz
Memory	Program Area (ROM):	FLASH: 4MB Boot ROM: 1 MB	FLASH: 4MB Boot ROM: 1 MB
	Work Area (DRAM):	1 MB	1 MB
	Backup Area (SRAM):	1 MB	1 MB
Tone/PAD/CNF ROM		1 MB	1 MB

### Network Synchronizing Unit - SYNC (VB-44460UK)

This unit provides network synchronization and is required with digital circuits such as ISDN. The SYNC card synchronizes the PCM clock with an outside resource. When digital circuits are used, one SYNC card is required and installs on the CPC-HS or CPC-HM card.

## Trunk/Tie Line Cards

### Loop Start Trunk Card - LTRK/4 (VB-44514UK)

This Loop Start Card supports up to 4 loop start exchange lines and can be installed in any flexible slot.

### Loop Start Trunk Card - LTRK/8 (VB-44510UK)

The Loop Start Card supports up to 8 loop start exchange lines and can be installed in any flexible slot.

### ISDN Primary Rate Interface Card (T/S-point) - PRI/30 (VB-44540UK)

This supports T-point Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) (30B+D/2 M kbps) and also S-point ISDN PRI.

The PRI card can be set to support either 8, 16, 24, or 30 channels.

Unlike most other cards, due to the interaction between card slots, the PRI card must be installed in specific Free Slots. With the S-ICX new high-density design, no other neighboring slots are restricted when this card is installed.

T-point PRI requires a DSU (Digital Service Unit) for connection to the carrier circuit. A Network Sync card is also required.

### ISDN Basic Rate Interface Card (T-point) - TBRI/4 (VB-44530)

This supports T-point Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) (2B+D:144kbps). This card can be installed in any flexible slot. Up to 4 T-point ISDN lines can be connected to each TBRI/4 Card.

The T-point BRI Unit supports information transferring capability (speech and data) at the trunk.

The TBRI/4 Card connects via NT1 (Network Termination Unit/Type 1) to the T-point ISDN interface.

### AC15 Card - AC15/4 (VB-44570)

This card supports the AC15 tie line interface (Speech pass 4W/2W, Control line 4W). The signaling methods that are supported include Immediate and Wink methods. Each AC15 card includes 4 circuits.

When installed in any flexible slot, the AC15 card supports call signal detection and answer from other PBX or carrier equipment, calling to the AC15 tie line, dial sending and speech.

The AC15 interface can connect to another PBX with AC15 capability.

External safety devices (available from standard telecommunications suppliers) are required when installing this unit outside the building.

### Q-Signalling Interface Card (VB-44560) UK only

The current PRI card is used for Q-sig connections.

## Extension Cards

### Digital Extension Card - DEC/8 (VB-44610UK)

This card provides 8 digital circuits. Each circuit supports the Panasonic Digital Key Telephone, Digital Single Line Telephone, DSS/72, and EM/24. Supply voltage for the telephones is supplied by the digital circuits.

This card can be installed in any flexible slot.

### **Digital Extension Card - DEC/16, DEC/24 (VB-44612UK, VB-44613UK)**

These two cards provide 16 and 24 circuits, respectively, and can only be used with the CPC-M. Each circuit supports the Panasonic Digital Key Telephone, Digital Single Line Telephone, DSS/72, and EM/24. Supply voltage for the telephone is supplied by the digital circuits.

This card can be installed in any flexible slot.

### **Analog Extension Card - SAEC/4 and SAEC/8 (VB-44621UK, VB-44622UK)**

This card provides 4 and 8 analog circuits, respectively. Each circuit supports standard analog telephone devices such as analog telephones, answering machines, fax machines, modems, cordless telephones, etc. The connected device(s) can be either pulse dial (rotary) or DTMF. Ringer circuitry is built into the card. This card can only be used in Special Slot 2. DO NOT insert card while unit is powered on.

### **Analog Extension Card - AEC/8 (VB-44620UK)**

This card provides 8 analog circuits. Each circuit supports standard analog telephone devices such as analog telephones, answering machines, fax machines, modems, cordless telephones, etc. The connected device(s) can be either pulse dial (rotary) or DTMF. Ringer circuitry is built into the card. This card can be installed in any flexible slot.

### **Analog Proprietary Extension Card (APEC/8) (VB-44660UK) UK only**

The APEC/8 card is an interface card for SBS or VB-9 / A-series proprietary key telephones. A maximum of eight (8) extensions can be connected to each APEC/8 card.

The APEC/8 card is mounted in a flexible slot. This card accommodates 8-extensions. The connection is 4-wires to each extension.

### **ISDN Primary Rate Interface Card (T/S-point) - PRI/30 (VB-44540UK)**

The PRI/30 card supports both S-point and T-point ISDN. See pg. 18 for more information.

### **ISDN Basic Rate Interface Card (S-point) - SBRI/4 (VB-44630)**

This unit supports Basic Rate Interface (2B+D:144kbps) for S-point ISDN. Each card provides 4 BRI circuits.

This card can be installed in any flexible slot.

The S-point BRI Unit supports information transferring capability (speech and data) at the Exchange.

### **ISDN Interface Card (S-Point/T-Point) - STBRI/4 (VB-44531) UK only**

This ISDN Basic Interface (2 B+D: 144 kbps) card is mounted in a flexible slot, and can be switched to either S-point or T-point use by the port base.

When more than one circuit is used for T-point, the card is connected through a Network Termination Unit (NT1) to the ISDN trunk, which supports the T-point ISDN basic interface.

The card has an on-board, 4-circuit T-point ISDN basic interface and lightning arrester built-in. It also provides a network clock synchronizing function.

## Options

### DTMF Multi-Frequency Receiver Card - MFR/8 (VB-44110UK)

The MFR/8 card accepts dialed DTMF tones and determines the dialed digits. Each card contains 8 receiver circuits.

This card can be installed in any flexible slot. The maximum number of MFR/8 cards that can be installed is two.

### Conference Card (4 circuits) - CONF (VB-44120UK)

This is a conference speech card with four 8-party conference circuits. One conference card per cabinet can be installed into any flexible slot. An 8-party conference can consist of 8 extensions; 7 extensions + 1 external line; or 1 extension + 7 external lines (or any combination in between).

### Special Application Processor Interface Card - SAPI (VB-44132UK) (For Future Use)

This 4-port card installs in special IS2 slot, and does not occupy a free slot. DO NOT insert card while unit is powered on.

External interface: RS232C port (19200bps maximum)

### Built-In ACD Card - ACD (VB-44140UK)

This card, combined with the Voice Processor Unit card (4 circuits) (VB-44160), provides basic Automatic Call Distribution functions. MIS (Management Information System) reports can be output from the RS232C port of the ACD card. The reports can be printed out by connecting a printer to the RS232C port. However, a PC and printer cannot be simultaneously connected to the RS232C (the RS232C cable must be used exclusively for one connection).

Only one Built-In ACD can be installed in flexible slot 4 or 5.

### Voice Processing Card (4 circuits) - VPU/4 (VB-44160UK)

This card contains 4 voice processing circuits. It can be used with Built-In ACD.

Built-In ACD uses only 1 voice processing card (the 4-circuit card).

### Additional Options

Option	Location	Description
RS232 port	Backplane (mother board)	2 ports (max. 9600 bps)
BGM input terminal	CPC-HM	1 port (with RCA jack)
On/Off control of external amplifier	CPC	1 contact
On/Off control of external equipment	Backplane (mother board)	5 contacts (withstand 30V)

## Station Equipment

### Overview

The full line of Panasonic ICX phone systems offer a wide variety of critically acclaimed telephones.

As the user interface, the station instrument is a crucial element of the communications system. All ICX telephones are designed to provide easy access to system features and functions. A mixture of

fixed and programmable feature keys allow the station to be specifically customized to accommodate the needs of each user. A wide variety of telephones are offered with different combinations of programmable keys, speakerphones, and liquid crystal displays to provide a complete solution to any telecommunication requirement. The advanced economic design and quality manufacturing assure longevity of the ICX system and stations, protecting the investment of the end-user.

All telephones are designed with the following features:

- A 1" LED Message-Waiting lamp for voicemail/internal message alert.*
- Dual-color LEDs for status indication.*
- Off-Hook Voice Announce circuitry.*
- Off-Hook Monitoring circuitry that allows additional listeners the opportunity to hear phone conversations through the speaker.*
- Key lettering is a part of the key mold, making it impossible for lettering to fade or rub off.*
- Special film coating enables displays to be seen under extremely bright lighting conditions.*
- Adjustable display contrast levels adapt to different lighting conditions.*
- Adjustable base for 3 different LCD viewing positions (VB-D series only).*
- Photo coupled controlled hookswitch, which extends the life of the hookswitch.*
- Unique one-board design that allows for a more compact, durable product.*
- Special material separating the keys from the PCB reduces damage from liquid spills.*
- Built-in processors provide automatic identification when plugged in at any digital port, assuring instant operation.*
- Above-standard cords contain clamps to attach to the telephone's base, alleviating stress on modular connectors.*
- Volume controls of dB levels can be automatically and/or manually adjusted.*
- Hearing-aid compatible.*
- Headset compatible.*
- Built-in wall mounting capability in the base of the telephone.*
- Textured finish on selected high-contact areas reduces scratching and fingerprints.*
- Molded with an extremely durable, high-impact polymaterial for break resistance.*
- Telephone handsets allow easy installation of handset cord swivels.*

## Model Options

Panasonic offers a wide variety of options for telephones so that you can select the one that is just right for you. All phones are digital, and all except for the DSLT have a microphone and speaker for Hands-Free Answerback and Off-Hook Monitoring (the ability to conduct calls on-speaker without lifting the handset). All display phones are "speakerphones," meaning they have additional built-in circuitry for background-noise cancellation during outside calls. The Small-Display phones have a 2-line LCD; the Large-Display phone has a 7-line LCD.

Also available on all phones except DSLTs are Flexible Function (FF) keys, which have dual-colored LEDs and can be programmed only in system programming under FF4. And the EM/24 and DSS/72 units offer additional panels of FF-keys that you can add-on to any digital station.

The following table shows some of the options available with the different models.

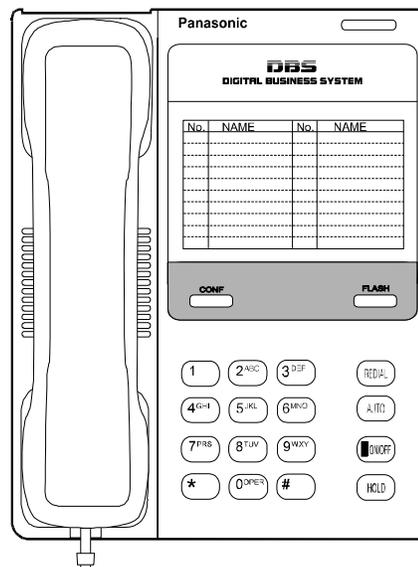
### Station Telephone Models

Description	No. of FF-Keys	HFAB-ICM	Speaker phone	Display	Optional Black Phone
Digital Single Line Telephone (DSLTL)	0				
12-Key Standard Phone	12	✓			✓
12-Key Small-Display Phone	12	✓	✓	✓	✓
12-Key Small-Display Phone with Voice Response	12	✓	✓	✓	
12-Key Large-Display Phone	12	✓	✓	✓	✓
24-Key Small-Display Phone	24	✓	✓	✓	
24-Key Expansion Module (EM/24)	24				
72-Key DSS/BLF Module (DSS/72)	72				✓

## Model Descriptions

### Digital Single Line Telephone (DSLTL) (VB-3011)

Provides single-line service on a digital telephone. Buttons include hold, on/off, auto, redial, flash and conference. Large message-waiting light. Slide controls for volume adjustment. Does not support hands-free answerback on intercom. Requires one digital port. Does not include user tray.



*The DSLTL (VB-3011)*

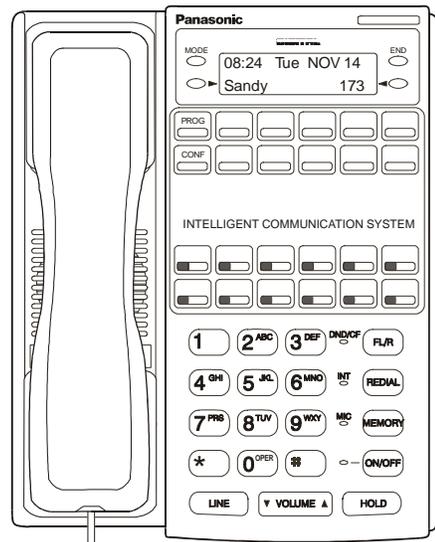
### 12-Key Small-Display Phone (VB-D411DSUK)

Black (VB-D411DSUKB)

Provides 12 flexible feature/line keys (dual colored LED) and 10 personal speed dial keys with an integrated hands-free speakerphone and a 2-line liquid crystal display (LCD). Supports hands-free answerback on intercom, offhook voice announce, and headsets. Requires one digital port. Wall-mountable. Includes user tray and elevation supports.

### 12-Key Small-Display Phone with Voice Response (VB-D411DSVUK)

Provides 12 flexible feature/line keys (dual colored LED) and 10 personal speed dial keys, with an integrated hands-free speakerphone and a 2-line liquid crystal display (LCD). 4 programmable softkeys are included with the display to provide access to advanced system features. Supports hands-free answerback on intercom, offhook voice announce, and headsets. Requires one digital port. Wall-mountable. Includes user tray and elevation supports.

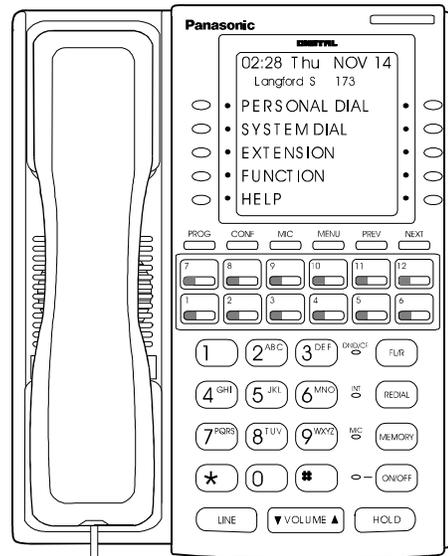


*The 12-Key Small-Display Phone  
(VB-D411DSVUK)  
with Voice Response (VB-44101)*

### 12-Key Large-Display Phone (VB-D411LDSUK)

Black (VB-D411LDSUB)

Provides 12 flexible feature/line keys (dual colored LED) with a 7-line Liquid Crystal interactive display. The top line of the display contains 15 characters. The remaining 6 lines contain 16 characters each. There are 10 softkeys to interact with the large screen display. User-definable screens provide ultimate user-friendly flexibility. This telephone comes equipped with a built-in speakerphone for hands-free conversation on outside line calls, and a hands-free answerback circuit for responding to intercom calls. This telephone also supports offhook voice announce and headsets. Requires one digital port. Wall-mountable. Includes user tray and elevation supports.



*The 12-Key Large-Display Phone  
(VB-D411LDSUK)*

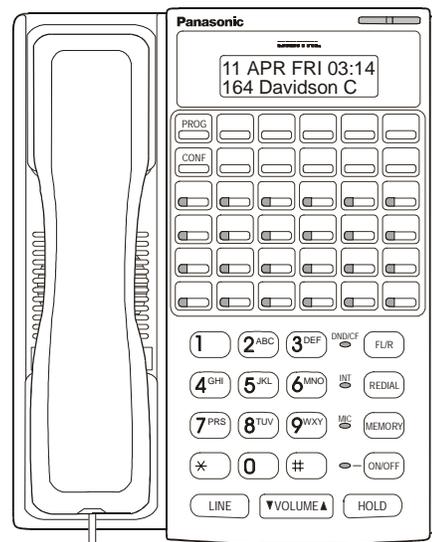
**24-Key Small-Display Phone  
(VB-D611DUK)**

Provides 24 flexible feature/line keys (dual colored LED) and 10 personal speed dial keys. Supports hands-free answerback on intercom, offhook voice announce, and headsets. Requires one digital port. Wall-mountable. Includes user tray and elevation supports.

**24-Key Small-Display Phone with Speakerphone  
(VB-D611DSUK)**

Black (VB-D611DSUKB)

Provides 24 flexible feature/line keys (dual colored LED) and 10 personal speed dial keys, with an integrated hands-free speakerphone and a 2-line liquid crystal display (LCD). Four programmable softkeys are included with the display to provide access to advanced system features. Supports hands-free answerback on intercom, offhook voice announce, and headsets. Requires one digital port. Wall-mountable. Includes user tray and elevation supports.



*The 24-Key Small-Display Phone  
(VB-D611DSUK)*

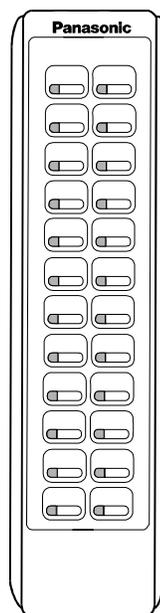
**24-Key Expansion Module (EM/24)  
(VB-D331UK)**

Provides 24 flexible feature/line/DSS/BLF keys (dual colored LED). This unit is used in conjunction with a digital station. Comes equipped with a joining bracket to connect it to the telephone to give the appearance of one complete unit. Requires its own digital port. Wall-mountable. Includes elevation supports.

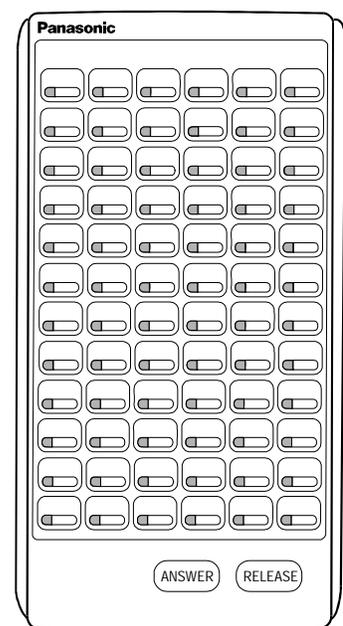
**72-Key Direct Station Select/Busy Lamp Field Module (DSS/72)  
(VB-D631UK)**

Black (VB-D631UKB)

Provides 72 flexible feature/line/DSS/BLF keys (dual colored LED). Normally used in conjunction with attendant console positions, but can be used with any digital station. Comes equipped with a joining bracket to connect it to the attendant telephone to give the appearance of one complete unit. Up to 4 DSS/72s per system can be used with no limit per phone. Each DSS/72 requires its own digital port. Wall-mountable. Includes elevation supports.



*The EM/24  
(VB-D331UK)*



*The DSS/72  
(VB-D631UK)*

## Optional Terminal Devices

### **Voice Recognition Unit Adapter (VB-44101UK)**

Working in conjunction with the 12-Button Display Telephone (VB-D411DSVUK), this adapter adds voice response functions to the telephone. The user can program the telephone to automatically dial numbers based on the user's voice commands.

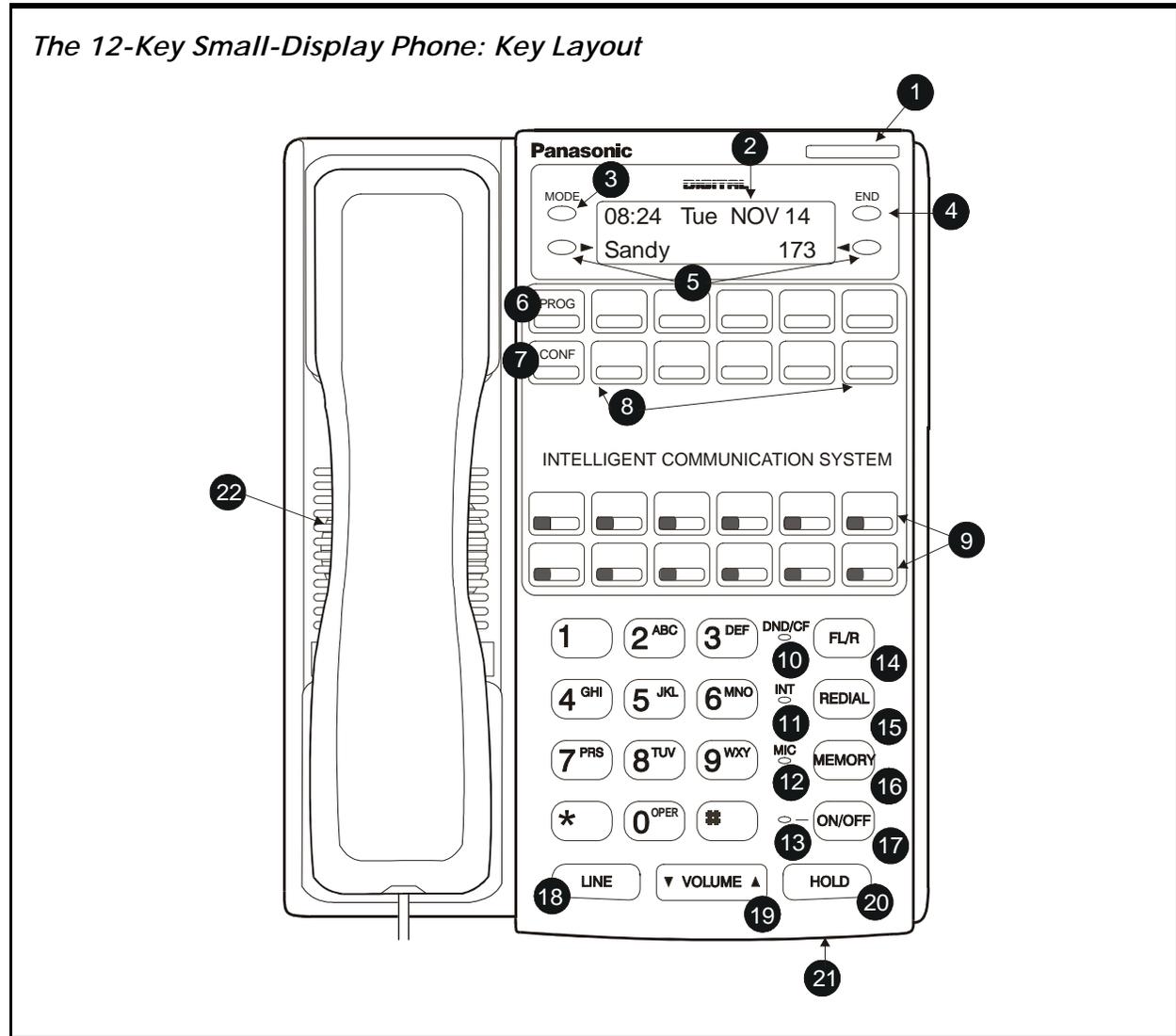
### **PC Phone (VB-44332UK)**

The PC Phone is designed to replace an extension phone, adding telephony capability to a desktop PC. It is comprised of a PC card installed inside the computer; application software; and various connections to the computer (e.g., handset, headset, etc.). The PC Phone then plugs into a S-ICX extension port, and becomes a sophisticated "on-screen" phone for the end-user. For more information, see *Chapter 5 - Special Applications*.

### **PC Attendant Console/96 (VB-44330)**

This is one of two PC Attendant Consoles offered by Panasonic; both consoles are designed to replace an Attendant phone and add telephony capability to a desktop PC. The PC Attendant Console/96 is a 2-port solution that is equivalent to one key phone (either a 24-key small-display phone, or a 12-key large-display phone) with one DSS/72; it can monitor up to 96 ports. For more information, see *Chapter 5 - Special Applications*.

# Telephone Key Layout

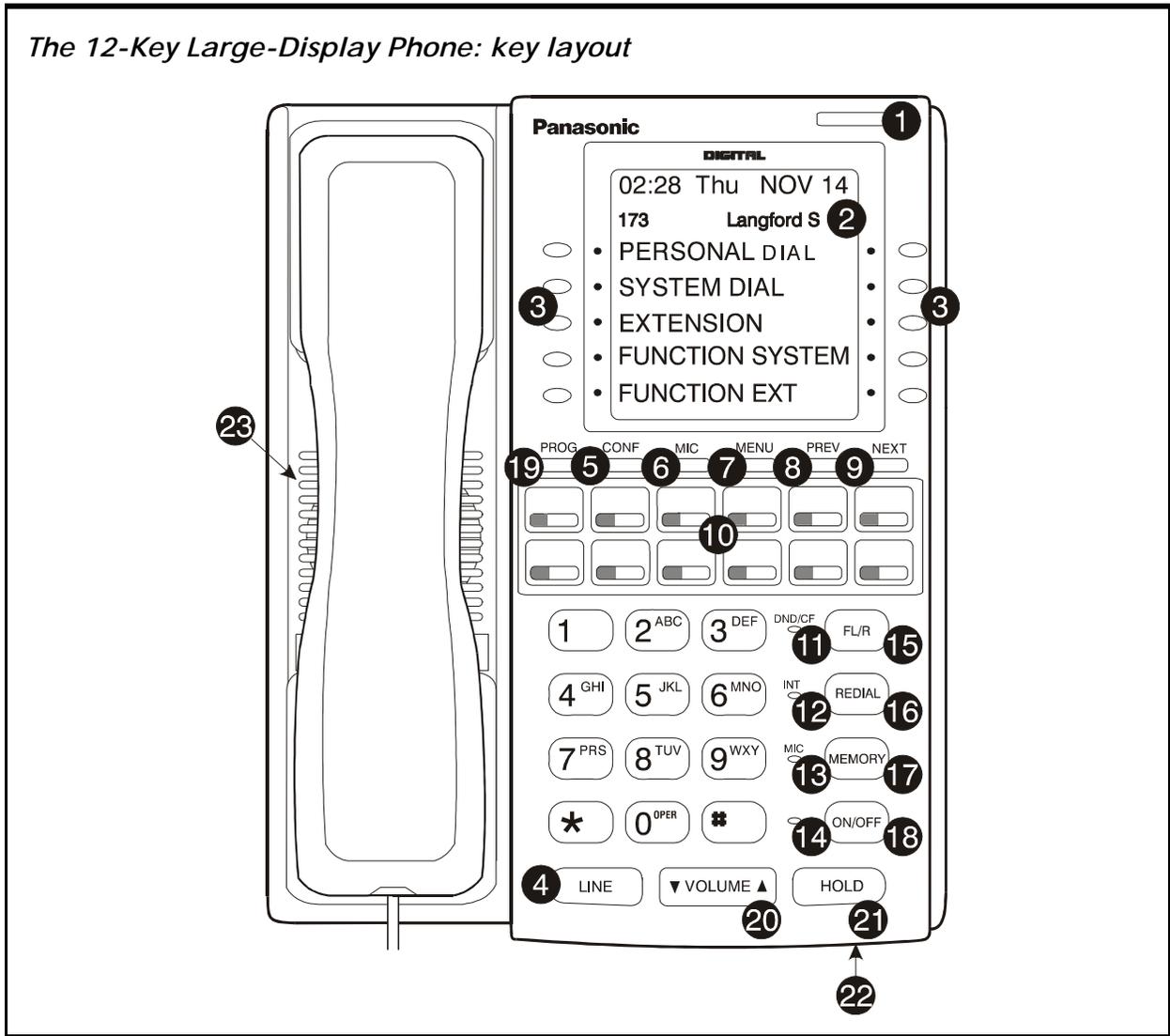


## Small-Display Phone Features

No.	Feature	Description
1	Message Waiting Indicator	Indicates that you have a message.
2	Display	Displays information about the phone's status, menus, and dialing directories.
3	MODE Key (VB-D411DSVUK only)	Used to change display modes from Default Mode to Speed Dial Mode or Extension Directory Mode.
4	END Key (VB-D411DSVUK only)	Used to exit Directory Mode and return the display to Default Mode.
5	Soft Keys (VB-D411DSVUK only)	Used to select speed dial directories, Caller ID numbers, or extension numbers.

No.	Feature	Description
6	PROG Key	Used to program Flexible Function (FF) and one-touch keys, to adjust ringer volume, and to send a flash signal. Depending on the setup of your system, may also be used to transfer calls.
7	CONF Key	Used to establish conference calls and to check FF key and one-touch features.
8	One-Touch Keys	Used to make outside calls or to access system features.
9	Flexible Function (FF) Keys	Used to access outside lines or to access system features.
10	DND/CF Indicator	Indicates that Do-Not-Disturb (DND) or Call Forwarding ALL.
11	INT Indicator	Lights when you are on a call and flashes when you hold a call.
12	MIC Indicator	Indicates that your voice is muted (i.e., party on the other end cannot hear you). Lights solid when your hands-free microphone is muted and flashes when your handset is muted.
13	ON/OFF Indicator	Lights when the <b>ON/OFF</b> key has been pressed.
14	FL/R Key	Used to end an outside call and to either restore outside dial tone or switch to external dial tone status without hanging up the receiver.
15	REDIAL Key	Used to redial the last number dialed.
16	Memory Key	Used to access speed dialing or enter account codes.
18	LINE Key	Used to seize an exchange line.
17	ON/OFF Key	Used to make a call without lifting the handset or to turn the speaker on and off.
19	VOLUME Key	Used to adjust the level of tones, background music, ringing, receiver volume, and display contrast.
20	HOLD Key	Used to hold calls, to retrieve held calls, and to complete FF key programming.
21	Microphone	Used to talk to another party without using the handset.
22	Speaker	Outputs tones and voice at your extension.

*The 12-Key Large-Display Phone: key layout*



**Large-Display Phone Features**

No.	Feature	Description
1	Message Waiting Indicator	Indicates that you have a message.
2	Display	Displays information about the phone's status, menus, and dialing directories.
3	Soft Keys	Used to select menus, directories, speed dial numbers, and to access call-handling features.
4	LINE Key	Used to seize exchange lines.
5	CONF Key	Used to establish conference calls and to check Flexible Function (FF) and one-touch key settings.
6	MIC Key	Used to activate/deactivate the Mute function. When activated, the party on the other end cannot hear you.

No.	Feature	Description
7	MENU Key	Used to return to the default Main Menu screen which contains the following items: <ul style="list-style-type: none"> <li>• Personal Dial</li> <li>• System Dial</li> <li>• Extension</li> <li>• Function System</li> <li>• Function Ext</li> </ul>
8	PREV Key	Used to return to the previous screen.
9	NEXT Key	Used to advance to the next screen.
10	Flexible Function (FF) Keys	Used to access outside lines or to access system features.
11	DND/CF Indicator	Indicates that Do-Not-Disturb (DND) or Call Forwarding is set.
12	INT Indicator	Lights when you are on a call and flashes when you hold a call.
13	MIC Indicator	Indicates that your voice is muted (i.e., party on the other end cannot hear you). Lights solid when your hands-free microphone is muted and flashes when your handset is muted.
14	ON/OFF Indicator	Lights when the <b>ON/OFF</b> key has been pressed.
15	FL/R Key	Used to end an outside call and to either restore outside dial tone or switch to external dial tone status without hanging up the receiver.
16	REDIAL Key	Used to redial the last number dialed.
17	MEMORY Key	Used to access speed dialing or enter account codes.
18	ON/OFF Key	Used to make a call without lifting the handset or to turn the speaker on and off.
19	PROG Key	Used to program FF and one-touch keys, to adjust ringer volume and to send a flash signal. Depending on the setup of your system, may also be used to transfer calls.
20	VOLUME Key	Used to adjust level of tones, background music, ringing, receiver volume, and display contrast.
21	HOLD Key	Used to hold calls, to retrieve held calls, and to complete FF key programming.
22	Microphone	Used to talk to another party without using the handset.
23	Speaker	Outputs tones and voice at your extension.

# Chapter 3 - System Features

## Overview

This chapter describes some of the most powerful, technologically advanced features inherent in the S-ICX that are available system-wide. The first part of this chapter highlights the most popular features in alphabetical order. Following these highlights is a complete list of system features and the S-ICX versions to which they apply.

## Popular System Features

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### AEC DISCONNECT

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**Description:**

Analog station ports can generate a positive disconnect (open loop) to devices that are attached to it upon hang-up.

**Benefits:**

- Allows quick disconnection from third-party voicemail or similar devices.

---

### ALPHA TAGGING

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**Description:**

SSD Name which is corresponding with ISDN or Analog Caller ID will be displayed on Key telephone. SSD000-199 can be used. Caller ID Name has the priority than Alpha tagging.

**Benefits:**

- Caller's Name is displayed when receiving a call.

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### ATTENDANT GROUPS

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**Description:**

Many systems are designed with multiple answering positions to handle the various call traffic which exists within an organization. With this in mind, the S-ICX was designed to allow attendant groups to be set up to handle these calls. When "0" is dialed, the system will hunt through a pre-established list of extensions to make sure the call is answered.

**Benefits:**

- Relief for attendants is automatically built-in.
- All calls will be answered.

**Applications:**

- Any organization that handles many calls throughout the working period

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## AUTO DAY/NIGHT MODE

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### Description:

The S-ICX system provides three different modes of operation. We call them Day 1, Day 2 and Night mode. Each of these modes can have a different Attendant as well as different ringing position assignments for extensions. The system can be programmed to automatically switch in and out of any one of these modes at a preset time each day. Weekends, holidays, and other special days can also be programmed with their own separate modes.

### Benefits:

- Enables the system's ringing and dialing capabilities to change automatically when the mode is switched.

### Applications:

- Lines that need to be switched over to an answering machine or voice mail system after-hours
- Lines that require toll restrictions (call barring) after-hours so unauthorized personnel cannot dial long distance
- Different mode for lunchtime operation (Day 2 mode)

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## AUTOMATIC ROUTE SELECTION (ARS)

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This feature enables the system to select the most appropriate route for an outgoing call (i.e., the least expensive one). Working in conjunction with Toll Restriction Service (TRS) or Call Barring, the call can also be denied based on the TRS level for the station (or user) placing the call.

There are three levels of ARS, based on the number dialed after the ARS access code:

- **Direct Route Selection.** The simplest form of ARS routing. Directly selects the trunk group and (if programmed) modifies the dialed number by deleting some of the first digits dialed, and/or adding digits to the beginning or end of the dialed number.
- **Route List Selection.** A more complex routing method that includes up to 5 alternative levels of route selection.
- **Time List Selection.** The most complex routing method that determines the appropriate route list based on the day and time.

For "exceptions to the rule" such as holidays, up to 20 Special Days can be defined in programming with their own separate ARS routing methods.

Codes can be defined in ARS programming for automatic adding to (or deleting from) the beginning or end of a dialed phone number (the user won't even know these Codes are being dialed). For example, these Codes can insert a pause, or switch signaling to DTMF, or just tack on additional digits that are needed by the exchange line.

Forced ARS (where the user must dial an ARS access code to be able to dial-out) can be enabled/disabled via the Extension COS assignment.

### Benefits:

- Lets the customer (management) control the routing of outgoing calls by defining the route to be selected.
- Provides an effective means of cost control for expensive long-distance calls.
- Provides greater security, as end-users don't need to know the Itemized Codes or Authorization Codes used to place calls to the exchange line.

---

## CALL TRAFFIC REPORTING

---

**Description:**

Traffic data can be stored and printed for intercom calls, incoming trunk calls, and outgoing trunk calls.

**Benefits:**

- Information can be used to evaluate exchange line usage and control costs.

---

## CALLER ID (ISDN)

---

**Description:**

Caller Identification (CID) is an optional service offered by your local telephone company which adds the following functions to a display phone:

- LCD indication of caller information.** Users can see caller information displayed while the incoming call is ringing their extension. **If the user receives another call during a conversation, caller ID information is presented on the second line of the display.** This includes ISDN digital messaging through the D-channel, also known as ANI (Automatic Number Identification).
- Log of caller information.** The Call Log keeps a record of the last 10 CID calls received at an individual phone, and allows the user to view the Log and select from it to place a call. Up to 20 phones per cabinet can have the Call Log feature.
- SMDR recording (Call Logging).** CID information can be sent to the RS232C serial port so that it can be printed to a serial printer or call accounting system.
- CID notice to CTI.** CID information sent by the exchange line can be output to TAPI and other CTI devices.

**Benefits:**

- Allows users to handle calls more efficiently by knowing who is calling before they answer.
- Enables users to return calls that ring unanswered at their phones.

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## CLASS OF SERVICE (COS) RESTRICTION

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**Description:**

Specific feature restrictions can be placed on extensions or on trunks. There are up to 16 definable classes of service for extensions, 16 more for trunks, and 8 more for extension timers. If no COS is assigned, most features are allowed.

**Benefits:**

- Allows users to have telephones customized to their needs.

**Applications:**

- Users with Single Line Telephones (SLTs) or those who need to limit access to various features on selected telephones

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## CONFERENCING

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**Description:**

Any digital phone user can initiate a conference that includes from 2 to 7 other participants, who can be either intercom phone users or outside parties. (NOTE: Optional equipment must be

installed in the S-ICX cabinet to support more than 3 parties in a conference.) During a 3-party conference, a digital intercom phone participant can establish a private conversation with one of the other parties, then rejoin both to the conference. Since the system is digital, there is no internal dB loss during a conference - but you can still program additional dB gain/loss settings for conference calls.

**Benefits:**

- Saves time and money associated with conferencing geographically-separated employees, customers, etc.
- Users can establish their own conference calls without auxiliary equipment.

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## CTI (COMPUTER TELEPHONY INTEGRATION)

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**Description:**

For desktop computer-driven applications on a station-to-station basis, the Panasonic S-ICX supports Microsoft's Windows-based Telephone Application Programming Interface (TAPI). The system also offers powerful computer/phone integrations for the Attendant position (via our **PC Attendant Console**) as well as end-user phones (via our **PC Phone**). For more information about these CTI applications, see *Chapter 5 - Special Applications* in this document.

**Benefits:**

- Enables customers to operate more efficiently by taking advantage of the latest telephone and computer convergence. These industries are coming together to offer a more intelligent and streamlined way to do business.

**Applications:**

- Control and pull up information on your "on-screen" phone based on caller information
- Allows computer applications to control telephone operation

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## DATA SECURITY

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**Description:**

Data Security makes it possible to prevent interruptions on a phone. This feature is often used when the phone is hooked up to a modem, but it could also be used for confidential or sensitive calls. Data Security can be implemented for all phone usage, or it can apply only to outside line use.

**Benefits:**

- Protects data transmissions from being interrupted or cut off.

**Applications:**

- Modem phones

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## DELAYED RINGING

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**Description:**

An incoming or transferred call, as well as intercom calls using the DN key, can be programmed to ring at a secondary answering position if the call rings the primary answering position more than a specified length of time. The call can be programmed to ring at one or more delay ringing positions (including phones with BLF keys). This feature also works with Direct Inward Dialing (DDI) calls.

**Benefits:**

- Ensures that a call does not go unanswered or ring for an extended period of time.

**Applications:**

- Any company that experiences short, temporary periods of high traffic and needs to ensure that calls are answered
- Backup support functions to cover void periods of the workday

---

## DISA (DIRECT INWARD SYSTEM ACCESS)

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**Description:**

Any number of exchange lines can be assigned to DISA lines which after being accessed, will enable the incoming caller to dial any extension within the system. Or, if the proper security code is entered, the caller will be able to access outside lines. Remote programming can also be done over these lines after entering a password.

**Benefits:**

- Allows internal personnel to access the system without tying up the attendant or other lines coming into the system.
- Enables people who are away from the office to access FX (Foreign Exchange), Network, etc., to make long-distance calls using less expensive means.

**Applications:**

- Field sales people, repeat customers, etc.

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## DIRECTORY NUMBER

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**Description:**

Directory Number (DN) allows extension numbers to be used on a key basis. The same DN may be assigned to multiple keys on the same telephone and to keys on other telephones. There are two types of DNs.

- **Primary Directory Number(PDN):** A telephone's extension number is assigned to a key on the same telephone. Up to three appearances of the PDN may be assigned to keys on a key telephone.
- **Non-Primary Directory Number (NPDN):** A DN is assigned to an FF key on another telephone. Up to three NPDN appearances of the same DN may be assigned to keys on a telephone.
- **Phantom Non-Primary Directory Number (PNPDN):** PNPDNs are assigned to a card position that is not installed in the system. As a result, this enhancement expands the NPDN system by allowing the user to assign multiple extension numbers to a single telephone without the need for additional hardware.

A telephone may only have one PDN (on up to three keys) but may have multiple NPDNs with up to three appearances of any one NPDN.

**Benefits:**

- Maximum four extension incoming call can be handled.
- A PNPDN can be assigned as a 2nd DN key to separate private calls from other types of calls.
- Handling calls is easier because DN calls can be transferred by pressing one key.

---

## DISTINCTIVE RINGING

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**Description:**

Individual exchange lines and stations can have their own unique ring pattern and frequency for incoming calls, to distinguish them from other lines or phones. If no distinctive ringing is assigned, the exchange line's ring pattern will be heard.

**Benefits:**

- Allows users to recognize the ring of their own individual telephones, or distinguish between different types of incoming calls.

**Applications:**

- Companies with separate departments or large, open bullpen areas

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## **FLEXIBLE DIAL PLAN**

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**Description:**

The S-ICX's dial plan is flexible. This means that the system comes with a default set of feature codes, which can be changed. (For example, the default Call Forward-All Calls feature code is 721. But you can change it to 7, or 2#, or \*\*\*, or anything else between 1 and 4 digits long.)

It also means that you can have two different sets of feature codes for each system, dividing extensions into two different groups (for example, SLT phones can have a different set of feature codes than digital extensions). Each extension can be assigned Dial Plan A or Dial Plan B.

**Benefits:**

- Analog and digital phones can each have a unique set of feature codes.
- The S-ICX can be designed to match the current phone system's feature numbering plan, therefore minimizing training.

---

## **FLEXIBLE RINGING ASSIGNMENT**

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**Description:**

Ring assignment is completely flexible so any exchange line can be assigned to ring at any station with a line-appearance key. This ringing assignment can differ in Day 1, Day 2, and Night modes depending on user requirements.

**Benefits:**

- Assures coverage for outside lines, increasing customer satisfaction.
- Allows for customization of the system in order to meet a wide variety of applications.

**Applications:**

- Any organization that is separated from main answering position
- Departments that continue operations after receptionist switches system into Night mode can continue to make and receive calls

---

## **"HOWLER" TONE**

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**Description:**

If any phone is unintentionally left off-hook, the phone will emit a "howler" tone so someone nearby will notice and hang it up. This feature can be enabled/disabled system-wide, and the timer for it is also programmable.

**Benefits:**

- Helps keep phones or trunk lines from being inadvertently tied up because someone didn't put the handset back in the cradle.

---

## HUNT GROUPS

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### Description:

Calls can be automatically transferred to hunt groups, which consist of member positions #1 through #20 to which extensions can be assigned (for example, Extension 201 is Member #1, Extension 314 is Member #2, Extension 268 is Member #3, ... Extension 107 is Member #20). For each hunt group, you can choose one of four different automatic hunting methods in programming:

- Pilot Terminal hunting.** When a call is directed to the pilot number of the hunt group, Member #1 is tried first. Hunting proceeds forward through the sequential members to the end of the hunt group. If Member #20 (last member) doesn't answer, the call then returns to Member #1 again, and the hunt cycle is repeated until a member answers the call.
- Pilot Distributed hunting.** When a call is directed to the pilot number of the hunt group, the next sequential member after the member who received the last call, is tried first. Hunting then proceeds forward from that member, through the sequential members to the end of the hunt group. If Member #20 (last member) doesn't answer, the call then goes to Member #1, and hunting proceeds forward through the hunt group again. The hunting cycle (Member #1 through Member #20) repeats until a member answers the call.
- Circular hunting.** This is for direct calls to member extensions (no pilot number involved). Starting at the member extension receiving the call, hunting proceeds forward through the sequential members to the end of the hunt group. If Member #20 (last member) doesn't answer, the call then goes to Member #1, and hunting proceeds forward through the hunt group again. The hunting cycle (Member #1 through Member #20) repeats until a member answers the call.
- Switchback hunting.** This is also for direct calls to member extensions (no pilot number involved). Starting at the member extension receiving the call, hunting proceeds forward through the sequential members to the end of the hunt group. It then returns to the receiving (originally called) member, and hunts backward through the members to the beginning of the hunt group. Then it returns to the receiving member again, and hunts forward. This return-forward/return-backward hunt cycle repeats until a member answers the call.

Twelve (12) hunt groups are available. Each hunt group can have its own unique characteristics such as hunting method, no-answer timeout/destination, etc. In other words, via programming you can control how long a Member will ring before the call moves to the next Member, and also how long before (or whether) the call will be transferred out of the Hunt Group to an extension or to another Hunt Group.

### Benefits:

- Allows calls to be distributed among a group of extensions where a group of people answer the same calls.
- Voice mail systems use hunt groups to distribute calls.

### Applications:

- Customer service departments, sales & marketing divisions, technical support groups, etc.

---

## MULTIPLE DIRECT INWARD DIAL (DDI) ASSIGNMENT

---

**Description:**

This feature allows a DDI number to ring on more than one telephone through the use of virtual ports. Also, one telephone can have multiple DDI numbers assigned to it.

**Benefits:**

- Improves coverage of DDI numbers and allows more flexibility in how an end-user can program the numbers.

**Applications:**

- Executive suites, travel agencies, answering services

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## RECALL TIMERS

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**Description:**

The S-ICX is equipped with various system-wide and station-specific recall timers that help direct unanswered (maybe forgotten) calls to someone who can answer them:

- Start Recall from Hold or Park** - how long a call will remain on hold before recalling (ringing at) the extension, SLT, or Attendant that put it on hold or park hold. Each of these destination types has its own separate recall timer in the system. Also, individual groups of stations can be programmed to recall more quickly/slowly from their own calls on hold.
- Start Recall from Transfer** - the maximum amount of time a transferred call will ring unanswered before it goes back to (starts ringing at) the phone that made the transfer. Attendants have their own Transfer Recall Timer, separate from extensions and SLTs. Also, individual groups of stations can have a quicker/slower timer for their own unanswered transfers.
- Recall Duration** - how long a recall will ring before reverting to the default phone position (usually the Attendant Group).
- Reversion Duration** - how long a reverted call rings the Attendant Group before being disconnected (this can be set to "ring indefinitely").

**Benefits:**

- Improves call handling efficiency and ensures that held/transferred calls will not be lost or forgotten.

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## SLIDE RINGING

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**Description:**

This is a type of delayed ringing for exchange line FF-keys. Unlike delayed ringing, the immediate ring stations will continue ringing even after slide ringing occurs. You can program a exchange line to ring incoming calls on certain phones first, then (if they remain unanswered) have them start ringing on other phones that have an FF-key appearance for that line. You can enable/disable this feature on individual extensions and individual trunks. You can also set a timer for determining when Slide Ringing begins on the FF-keys.

**Benefits:**

- Provides delayed ringing for multiple line-appearance calls.

## STATION DISTINCTIVE RINGING

**Description:**

Extension basis, the different ringing pattern and frequency can be selected. This feature is available for Key telephone and DSLT.

**Benefits:**

- Not only Trunk basis, also Extension basis distinctive Ringing Assignment is available.

## STATION MESSAGE DETAIL RECORDING (SMDR/CALL LOGGING)

**Description:**

By attaching a serial printer to the RS232C port, a detailed record of all incoming and outgoing calls, can be kept for future reference.

Through programming, the titles for each page can be removed to allow for connection to call accounting services.

The following is an explanation concerning the output format and display contents for call data:

**SMDR Output Data Format**

**Format #1**  
I MM/DD HH:MM:SS HH:MM:SS NNNN TTTT ddddddddddddddddddddddd aaaaaaaaaa vvvH  
 ①      ②                      ③      ④      ⑤                                      ⑥                                      ⑦      ⑧ ⑫

**Format #2**  
I MM/DD HH:MM:SS HH:MM:SS NNNN TTTT ddddddddddddddddddddddd aaaaaaaaaa vvv  
 ①      ②                      ③      ④      ⑤                                      ⑥                                      ⑦      ⑧

dddddddddddddddddd cccccccc MM:SSH  
 ②                      ⑨                      ⑩      ⑪      ⑫

③

④ **Condition Code:**

INCOMING CALLS:		OUTGOING CALLS:	
I	Incoming Call	F	Call Forward Outside
D	DID Incoming Call	H	Hold Outgoing Call
h	Hold Incoming Call	L	LCR Outgoing Call
N	Network Incoming Call	O	Outgoing (non-LCR) Call
S	DISA Incoming Call	T	Transfer Outgoing Call
t	Transfer Incoming Call	W	Closed Numbering Outgoing Call
A	Abandoned Incoming Call		

⑨ Call Start Time (Month/Day, Hour:Minute:Second)

⑩ Call Duration Time (Hours:Minutes:Seconds)

⑪ Trunk User No. (Internal Line No. 0 to 9999, or Trunk No. C1 to C576)

Trunk No. (1 to 576, or \*1 to \*576 when trunk is disconnected while the call is on hold)

Dialed No. (24 digits max., including 0-9, \*, #. Hidden numbers will appear as \* instead of digits. Format #2 only: "T" precedes digits for incoming calls. Security/Access Codes will not appear as dialed digits.)

Account Codes (Unverified: 10 digits max., or Verified: either first 4 digits, or Code Pgming Table No. V100-V500)

DISA Security Code (Pgming Table No. D001-D016)

Caller Data (Format #2 only)

ISDN Charge Data (Format #2 only -- Not Used/for future use)

Call Ringing Duration (Format #2 only; includes abandoned calls)

## ⑫ Carriage Return Line Feed

*NOTE: Centrex and PBX codes, DISA security codes, and ARS access codes will not appear as dialed digits.*

*If the Caller ID Feature is installed and enabled, "Private" will appear for calls with restricted Caller ID display. "Out of Area" will appear for long-distance calls that do not provide Caller ID information.*

### Benefits:

- Provides accounting management tool for allocation of telephone expenses.
- Identifies areas for system or feature upgrade.
- Provides customer with record of telephone usage which can be used in making budgetary and planning forecasts.
- Prevents telephone abuse and misuse by identifying unauthorized outgoing calls.
- Provides personnel evaluation tool to measure amount of employee's time spent on the telephone.

### Applications:

- Customers whose operation requires call tracking capabilities (e.g., lawyers, consultants, etc.)

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## STATION TIMER CLASS

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### Description:

Depends on Extension Timer Class, the timer for Hold Recall, Transfer Recall, Extension Call Park recall, Call Forward No Answer Timer can be programmed. Maximum 8 extension Timer Class are available.

### Benefits:

- Extension basis, different time can be selected.

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## SYSTEM SPEED DIALING (SSD)

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### Description:

The system can store up to 800 SSD bin numbers that can be accessed by any user. Selected users can program the SSDs on their extension phones (if their phones are enabled for it in programming).

The phone numbers stored inside the SSD bins can be up to 24 digits in length. End-users can “chain” up to 6 SSDs together inside a PSD (Personal Speed Dial) bin, to handle phone numbers that are longer than 24 digits. Also, the system can be set to automatically access a trunk group whenever an SSD is dialed (so you won’t have to program trunk access into the SSD bins).

On a proprietary telephone, an SSD number can be dialed by pressing a pre-programmed Flexible Feature (FF) key, or by pressing “Memory” and dialing the SSD bin number (00-79 or 000-799). Or, on display phones, the user can display an SSD Index that shows a list of current SSDs in the system, and press the soft key next to the desired SSD to dial it automatically.

Individual phones can be programmed to display (or not display) the actual phone number being outpulsed for the SSD.

The S-ICX can be programmed so that SSDs will override any toll restrictions (call barring) that would normally apply.

**Benefits:**

- Saves time and increases productivity by allowing the user to use abbreviated dialing to access frequently-called numbers.
- Provides a way for users to store frequently-used feature codes into SSD bins for easy, one-touch feature activation.

**Applications:**

- General business environment where many people call the same locations or customers

---

## TENANT GROUPS

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**Description:**

Tenant Groups allow you to separate extensions, trunks, MCO Access, System Speed Dial Bins, and Virtual Port Assignments within the same system.

**Benefits:**

- One system can provide service for several different groups (i.e., companies, divisions, departments, etc.)

---

## TOLL RESTRICTION SERVICE (TRS/CALL BARRING)

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**Description:**

TRS/Call Barring lets you control user access to outside lines on a per-station and per-line basis. It can be combined with ARS to block calls based on the number dialed, the outside line used, the extension phone used, the time of day (via Day and Night modes), and/or the day of the week/month/year.

- A TRS Class can be assigned to each extension and trunk. Up to 50 different TRS Classes are available.
- Each TRS Class is then assigned to a TRS Level. It is this Level that is used as the basis for allowing/restricting calls.
- There are 10 TRS Levels available. Level 0 denies all calls. Levels 1-8 can be partially restrictive per assignments. Level 9 allows all calls.
- TRS can restrict the number of digits dialed (1-20 digits, or no limit).
- TRS can restrict the use of SSDs for outdialing, based on TRS Class assignments. Either all SSDs or a range of them can be restricted.

- TRS can also restrict the dialing of \* and #, again based on TRS Class assignments.
- The same phone can have different TRS restrictions during Day and Night modes.

**Benefits:**

- Controls toll calling expenses by allowing the customer to define an individual station's capability to use outside exchange line groups.
- Prevents toll calling abuse by providing automatic blocking of calls placed to restricted phone numbers.

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## **UNIVERSAL NIGHT ANSWER TO PAGE**

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**Description:**

During night mode, Universal Night Answer(UNA) sends incoming calls for selected trunks to ring external paging speakers. UNA calls can be picked up from any extension, provided the extension's Class of Service (COS) allows UNA answer. Users can also program this feature to ring both external paging speakers and specified extensions.

**Benefits:**

- Allows any employee to answer any incoming call at night, provided the extension's COS allows the extension to perform a UNA answer.

---

## **WALKING TRS**

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**Description:**

A user can use his or her calling privileges at another extension by entering a 4-digit (0-9) ID code. This enables the other extension to temporarily have exchange line access capabilities which are defined by the Toll Restriction Service (TRS) data of the user's extension. When the user hangs up the telephone, the extension returns to its original TRS type. This allows a user to make a call from a telephone that is normally restricted, such as a warehouse phone or lobby phone.

NOTE: The Walking TRS code must be programmed at the user's extension before it can be entered at a different extension. The same code can be programmed on multiple extensions. The entered code will show up on the SMDR (Call Logging) report as: "Wnnnn" (W means Walking TRS code; nnnn is the 4-digit code).

Since a phone can have a different TRS Class assignment during Day and Night modes, the Walking TRS codes will follow these assignments. For example, long-distance calls can be allowed on the phone during the day, but restricted at night.

**Benefits:**

- Allows a telephone to be restricted, but still allows certain users to override the restriction.

**Applications:**

- Warehouse telephones, waiting area, etc.

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## **ZIP MODE**

---

**Description:**

Zip mode automatically answers calls when operating a Key Telephone in headset mode.

**Benefits:**

- Allows users the freedom to continue work activities without having to manually answer phone.

Applications:

- Customer Service Centres, etc.

## List of Available System Features

System Feature	Notes
<b>Alarm Ringing</b>	to alert other users of unanswered calls
<b>Analog (AEC) Disconnect Signal</b>	for quick-disconnect from 3rd-party Voice Mail systems
<b>Analog Device Compatibility</b>	
<b>Attendant Group</b>	up to 20 phones per Att.Group; each system mode (Day1, Day2, and Night) has its own Att.Group
<b>Auto Day/Night Mode</b>	system automatically switches modes at preset times
<b>Automatic Route Selection (ARS)</b>	least cost routing
<b>Automatic Trunk-to-Trunk Transfer</b>	automatically connect two outside calls together
<b>Background Music (BGM) / Music-on-Hold (MOH) Separation</b>	a different music source for each <b>CPC-HM only</b>
<b>Battery Backup</b>	can support the phone system for up to 15 minutes at a time
<b>Behind PBX/Centrex Compatibility</b>	
<b>BLF Ringing</b>	FF-keys can be programmed to represent other extensions
<b>Building Block Configuration</b>	1 Cabinet
<b>Built-In ACD</b>	basic Automatic Call Distribution functions
<b>Call Progress Tones</b>	dial tone, busy tone, ringback tone, error tone, confirmation tone, splash tone
<b>Caller ID</b>	LCD Display, Call Log, CTI, SMDR (Call Logging) (available on display phones only)
<b>Centralized Attendant</b>	one Attendant position for all extensions in a tie-line network
<b>Centralized Voice Mail</b>	one VM system serving multiple PBXs in a tie-line network
<b>Class of Service (COS)</b>	Exchange Line/Tie-Line feature, Extension feature Extension-to-Extension and Trunk-to-Trunk restriction
<b>Closed Numbering</b>	for networking systems together
<b>CO Trunk Interface</b>	AC15 Wink-Start, ISDN BRI and PRI, Loop Start
<b>Computer Telephony Integration (CTI) Capability</b>	TAPI, PC Phone, PC Attendant
<b>Conferencing</b>	3-party to 8-party conferences, including up to 7 outside lines; 2-party private conversations during a conference
<b>Data Security</b>	for SLT devices
<b>Delayed Ring</b>	separate controls for Day/Night Modes
<b>Digital Pad Settings for Volume Adjustment</b>	dB volume adjustments between different connections
<b>DID/DNIS (Direct Inward Dial/ Dialed Number Identification Service)</b>	delayed ringing, direct to Voice Mail, multiple-ringing, name display, night ringing assignments

System Feature	Notes
<b>DISA (Direct Inward System Access)</b>	Outside callers dialing-in on a DISA trunk can use internal features such as paging, transfer, outside-line access, etc. Up to 16 DISA Security Codes can be assigned for outside-line access, each Code with its own TRS Class of Service.
<b>Distinctive Ringing</b>	for both individual exchange lines and stations
<b>Door Box Connection</b>	Exchange line connection
<b>Doorphone</b>	Visitors at a locked outside door can call a user, who can open the door by dialing a code on the desktop phone.
<b>Flexible Numbering</b>	1-4 digits in Extension Nos.; changeable Feature Access Codes
<b>Flexible Station Functions</b>	(available on large-display phones only)
<b>Free Slot Configuration</b>	most cards can be installed in any flexible slot
<b>Hot Line</b>	up to 20 phones can be programmed to automatically call another extension or SSD when the user goes off-hook
<b>Howler Tone</b>	an alarm for abnormally long off-hook/dial-tone conditions
<b>Hunt Groups</b>	Pilot No.; Circular/Distributed/Switchback/Terminal hunting; Attendant Hunt Groups; Extension Hunt Groups
<b>ISDN (Integrated Services Digital Network)</b>	T-point/S-point BRI and PRI
<b>Longtalk Alarm</b>	to alert the user of a lengthy exchange line call
<b>Maintenance</b>	local and remote
<b>MCO Tenant Groups</b>	trunk groups can be assigned to different phone areas within the same system, for outside-line access and incoming calls
<b>Memory Backup</b>	on-site or via remote computer
<b>Multiple Ringing</b>	the same trunk call ringing on multiple phones via DSS/BLF keys, Exchange Lines/MCO keys, and Directory Numbers (up to 3 PDNs and 3 NPDNs per phone)
<b>MOH (Music-On-Hold)</b>	external and internal sources
<b>Non-Blocking Architecture</b>	all extensions/lines available for use at the same time
<b>Page Zones</b>	Up to 5 external/10 internal page zones per system; UNA calls over paging system (all or per-zone)
<b>PC Based Programming</b>	PC Customized Tool (proprietary)
<b>Port/Channel Close ("Station Lockout")</b>	trunk/extension ports can be disabled for use
<b>Power Fail Transfer</b>	Up to 4 SLT phones can automatically receive dial tone from a trunk line in the event of a power failure.
<b>Power-On Maintenance</b>	for most extensions
<b>Privacy</b>	includes Privacy Release
<b>Private Networking (AC15)</b>	two or more PBXs in different locations, connected together in a tie-line network
<b>Program Data Output</b>	for maintenance/troubleshooting
<b>Recall Timers</b>	system-wide or station-specific
<b>Slide Ringing</b>	delayed ringing for FF-key line appearances
<b>Soft Key Operation</b>	(available on display phones only)
<b>Speed Dialing (SSDs/PSDs)</b>	2-digit or 3-digit SSD codes (up to 80 or 800 per system); 2-digit PSD codes (up to 20 per phone)

<b>System Feature</b>	<b>Notes</b>
<b>Station Message Detail Recording (SMDR)</b>	includes abandoned calls
<b>Station Name Assignment</b>	up to 10 characters each
<b>System Fault Recording</b>	Bus Monitor; storing/printout via programming
<b>System Speed Dial (SSD)</b>	up to 800 SSDs per system; name assignments for display phones; toll restriction override
<b>Tandem Connection</b>	AC15 and Qsig
<b>Tenant Groups</b>	Allow separation of extensions, trunks, MCO Access, System Speed Dial Bins, and Virtual Port Assignments
<b>Telephone Programming</b>	(available on display phones only)
<b>TRS (Toll Restriction Service/Call Barring)</b>	Outgoing calls can be allowed/blocked based on the path (originating ext.-to-seized-trunk) and dialed digits.
<b>Traffic Measurement</b>	trunk (separate inbound/outbound) and intercom call traffic; 30-minute interval storing/printout via programming
<b>Trunk Groups</b>	inbound and outbound; up to 99 groups per system; can only be a member of one group; MCO trunk group chaining
<b>Trunk Name Assignment</b>	(available on display phones only)
<b>UNA (Universal Night Answer)</b>	incoming calls ringing over the paging system
<b>Virtual Ports</b>	for multiple ringing, floating park, etc.
<b>Walking TRS</b>	codes for overriding TRS on a phone



# Chapter 4 - Station Features

## Overview

This chapter describes the many features that end-users can perform on S-ICX station phones. Some of the most popular functions are highlighted below. A complete list of Station Features is included at the end of this chapter.

## Popular Station Features

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### ABSENCE MESSAGE

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**Description:**

Extension users can leave text messages on their phones when they are away. When the unattended extension is dialed, the text message displays on the caller's phone.

**Benefits:**

- Allows extension user to send a message to someone who calls when the extension user is away.

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### ACCOUNT CODE CAPABILITY

---

**Description:**

This feature works with Station Message Detail Recording (SMDR/Call Logging). During a phone call, a station user can silently enter an accounting or client billing code. The entered Code will display on the phone's LCD as it's dialed, so the user can tell it's being registered. Subsequent SMDR/Call Logging reports will show the Code dialed for each call.

There are two different types of account codes you can use in the S-ICX:

**Non-Verified Account Codes:** Codes that aren't checked by the system for validity; the user can enter anything from 1-10 digits long. Individual phones can be programmed to accept *forced* Account Codes (the user must enter a code for every call) or *voluntary* Account Codes (the user can enter a code, but doesn't have to, for each call).

Non-Verified Account Codes can be assigned to incoming and/or outgoing calls. For incoming calls, the user can enter the Code anytime during the call. For outgoing calls, the user either enters the Code before accessing an outside line (for *forced* Codes), or anytime during the call (for *voluntary* Codes).

**Verified Account Codes:** Codes entered by phone users that must match a code of up to 10 digits that has been pre-programmed into an Account Code Table. If the dialed Code doesn't have a matching entry in the Table, the user gets fast-busy and is unable to place the call. These codes can also be either *forced* or *voluntary*. You can program these codes with their own Toll Restriction Service (TRS) or Call Barring. Class assignment so that, when entered, they will override the extension's TRS Class (which would normally be used to allow/restrict the call).

**Benefits:**

- Provides a way to allocate telephone expenses (outgoing calls) to specific clients/ departments as a cost accounting tool.
- Doesn't limit the expense allocation by phone; the Account Codes are specific to the phone *users*, not to the *phones*.
- Displays the entered Account Code on the phone's LCD, allowing the user to verify it immediately.
- Provides record-keeping confidentiality by allowing the user to enter the Account Code while the call is in progress, without interrupting the conversation or showing any other indication to the outside party.

**Applications:**

- Customers who need to track outgoing calls so they can bill clients such as lawyers, accountants, etc.
- Customers who allocate phone call expenses by project

---

## **ALARM RINGING**

---

**Description:**

If an incoming trunk call rings unanswered for a (programmable) period of time, the call's ringing pattern and dB level changes automatically so users can tell which calls have been ringing longer. You can program the pattern of the ringing. You can also enable this feature on some trunks, and disable it on others.

**Benefits:**

- Users can distinguish between calls that have been ringing longer than others.

**Applications:**

- Noisy office environments; heavy call traffic

---

## **ALARM TONE FOR LENGTHY CALLS**

---

**Description:**

If a user is on a phone call for a long time, an alarm tone sounds intermittently in the handset receiver. This feature can be turned on/off system-wide in programming. If you turn it on, you can also enable/disable individual phones and trunks for it, as well as programming the amount of time before the alarm goes off.

**Benefits:**

- The S-ICX can automatically monitor call duration, and let users know when they've been on a phone call too long.

---

## **ATTENDANT CALLING**

---

**Description:**

With this feature, multiple phones can serve as Attendant consoles via a programmed Attendant Hunt Group. When a phone user dials "0" to reach an operator, the first Attendant member phone in the Hunt Group rings. If it continues to ring unanswered, the call goes to the next Attendant member; and so on. Or you can program some of the members to ring simultaneously.

Up to 20 extensions can be members of the Attendant Hunt Group. You can program a different Attendant Hunt Group to ring during Day1, Day2, and Night mode. If someone dials the member's actual extension number, the call won't enter the Hunt Group.

Benefits:

- The Attendant position isn't limited to just one phone. Different phones can act as the system operator position, depending on the time of day.
- Other phones can serve as backup positions for the Attendant phone.

---

## AUTO-REPEAT DIALING

---

Description:

If a user places an outside phone call and gets a busy tone, he/she can stay on the line and press REDIAL. The S-ICX will automatically send a Flash signal, redial the call, and wait to detect busy tone on the line (note: this doesn't work on AC15 tie-lines or ground-start trunks). If the line is still busy, the system will try again and again, at programmable intervals, until one of the following happens (whichever occurs first): 1) the called party answers; 2) the user hangs up; or 3) the system tries 14 more times.

You can turn this feature on/off for individual extensions, and also enable/disable it on individual trunks. You can also program the amount of time the system waits to detect busy or answer, as well as the interval between redial attempts.

Benefits:

- An automatic feature that helps phone users save time and reduce dialing errors.

---

## BACKGROUND MUSIC (BGM)

---

Description:

Users can set their phones to play Background Music on-speaker while the phone is idle. If the phone receives a call, or the user goes off-hook, BGM will go away until the phone becomes idle again. BGM can be turned off by dialing the same code that turned it on. It can have a different sound source than Music-On-Hold (MOH) only when used with the CPC-HM.

Applications:

- One sound source for employees (BGM, typically music), another for callers (MOH, such as recorded advertisements).

---

## BUSY OVERRIDE ("BARGE-IN")

---

Description:

An extension user can barge into a call on another extension, whether it's an outside or intercom call. Phones set to Do-Not-Disturb (DND) can also be barged into; see **DO NOT DISTURB** for more information.

When a barge-in occurs, a 3-party conference call is created; all three parties can hear each other and talk to each other. There are two ways to barge-in on a call:

- Extension Busy Override**, where the user dials the extension, gets busy tone, and dials a code to barge-in.
- Exchange Line Key Busy Override**, where the user presses the lit exchange line key on his/her phone that represents the call in progress.

You can program the S-ICX to send an alert tone to all parties when the barge-in occurs. You can also allow/block the phone's ability to perform this feature based on the phone's Class of Service assignment (see **CLASS OF SERVICE RESTRICTION** in *Chapter 3 - System Features* for more information).

**Benefits:**

- Allows operators, secretaries, bosses, etc. to interrupt calls in progress with urgent information or other calls that need to be answered.
- Provides a way to establish a 3-party conference between two users and an outside party, or among three users.

---

## CALL DURATION DISPLAY

---

**Description:**

The length of a call in progress (minutes and seconds) is tracked and displayed on the phone's LCD.

**Benefits:**

- Users can tell how long they've been on a call—and what the SMDR/Call Logging report is going to show for that call.

---

## CALL FORWARDING

---

**Description:**

Call Forwarding allows users to automatically send their calls to another extension, to an outside line, or to voicemail. There are several different types of call forwarding that can be set:

- All Calls
- If Busy
- If No Answer
- If Busy or No Answer
- Call Forward/Outside

All types can be set or cancelled manually by the phone user (you can allow/disallow this ability for groups of users in programming). Most types can also be programmed on a permanent basis. The user can also clear the phone of all of its Call Forward and DND settings with a single code. Users can also set/clear Call Forward settings on other extensions from their own phones. (This can all be allowed/disallowed in programming.) The S-ICX also provides timers in programming for ringing duration before and after call forwarding.

**Benefits:**

- Provides a way to pick up calls for absent personnel who are not part of a call coverage group.
- Allows for integration of Voice Mail systems.

**Applications:**

- Sales, marketing, customer service, etc.
- Companies using Automated Attendant and/or Voice Mail

---

## CALL PARK

---

**Description:**

This feature is often used with Paging. It's a type of transfer that doesn't involve the phone ringing; you simply "move" the call to another location. There are three types of Call Park:

- System Park.** Also known as Park Orbit or "Floating" Park. Users can park the call to an orbit (ie., Virtual port), and page the person to pick up the call from any extension by dialing a Park Pickup code and the orbit number.

- Remote Park.** The call can be parked onto another (physical) extension, when the user wants to walk over to another desk and conduct the call from there.
- Station Park.** The call can be parked on a user's phone, and retrieved from another phone.

If the parked call isn't picked up within a programmable timeout, it will return to (begin ringing) the original extension again.

**Benefits:**

- Better call handling capabilities.
- When a party cannot be reached at his/her phone, a user can "park" the call and page the party to pick up the call.

---

## CALL PICK-UP

---

**Description:**

Phone users can pick up calls ringing on another (single) extension, other (multiple-ringing) extensions, in an Extension Group, on a specific trunk, or in an MCO Trunk Group. Almost any type of call can be picked up, including DID/DISA calls, network calls, and tone intercom calls.

**Benefits:**

- Allows phone users to pick up calls, no matter where they're ringing, without leaving their workstations.

**Applications:**

- Customers who need call coverage for unattended stations
- Organizations with department structure
- Customers who presently have a key system operating behind a PABX to provide group pick-up capability

---

## CALLBACK REQUEST

---

**Description:**

A phone can alert the user when another busy extension becomes free. For example, let's say Extension "A" calls Extension "B" who is busy. "A" can dial a Callback Request code, hang up, and concentrate on other things. When "B" becomes free, "A" will ring. When the "A" user picks up the handset, the "A" phone will automatically ring the "B" phone. (Or, "A" can change their mind and cancel the Callback Request.)

**Benefits:**

- The user doesn't have to keep redialing a busy extension; the phone does all the work.

---

## CALLER ID CALL LOG

---

**Description:**

The Call Log keeps a record of Caller ID calls to individual phones. The Call Log allow you to view Caller ID calls that have been sent to your phone and, if desired, return or call. per CCU, 20 extension can use this feature. Max. 10 logs per extension.

---

## CAMP-ON (CALL WAITING)

---

**Description:**

You can program phones to be able to "camp-on" calls to other extensions. This in effect "queues" the call onto a busy extension. On phones that are programmed for **Automatic Camp-**

**On**, put the call on hold, dial the extension to transfer the call to, and hang up. For **Manual Camp-On**, users dial a Camp-On code before hanging up. The busy extension will receive a splash tone on-speaker (this tone can be turned on/off in programming).

To pick up a camped-on call, either hang up from the current call and then go off-hook again, or put the current call on hold. You'll be automatically connected to the caller.

**Benefits:**

- Users only have to call a busy extension once. They don't have to wait for the station to become free, or interrupt the current call, to transfer a waiting call to it.

**Applications:**

- Any user who wants to be notified of another call, without the current caller being aware of it
- Attendants who don't have time to wait for extensions to become free before transferring calls to them

---

## CONFERENCE CALLS

---

**Description:**

Users can include other parties in an existing call. The ICX offers **3-Party Conferencing** which can consist of:

- 1 extension + 2 CO lines
- 2 extensions + 1 CO line
- 3 extensions.

There's also **8-Party Conferencing** with 1 extension and up to 7 exchange lines, or up to 8 extensions. This requires an extra Conference Card (VB-44120) installed in the ICX cabinet.

**Applications:**

- Employees in separate buildings who want to hold meetings over the phone
- Telemarketing applications where a station user needs to conference-in a Supervisor for assistance

---

## DO-NOT-DISTURB (DND)

---

**Description:**

DND enables station users to stop all transferred intercom and exchange line calls from ringing their station, but still be able to make outgoing calls. Anyone who calls the DND station will hear a distinctive busy signal. But individual phones can be programmed with the ability to override DND settings on other phones. The DND On/Off code can be programmed into an FF-key; the user simply presses the key to activate DND (key LED will be lit red), or turn it off (key LED will extinguish).

**Benefits:**

- Enables a user to quickly and easily initiate privacy for important meetings, etc.

---

## DP-TO-DTMF SIGNAL CONVERSION

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**Description:**

While on a DP (dial pulse) trunk, a user can switch to DTMF (dual tone multi-frequency) signaling by pressing the \* or # key. DTMF signaling is required whenever additional digits are dialed after connecting to an automated answering system such as Voice Mail, Auto Attendant, etc.

You can program the S-ICX to automatically change DP to DTMF tones based on incoming and outgoing timer programming for each trunk.

**Benefits:**

- Doesn't limit users to certain trunks whenever they have to dial additional digits.

**Applications:**

- Users dialing into a Voice Mail or Auto-Attendant system on a DP trunk. They'll need to switch to DTMF signaling to select Voice Mail options by dialing numbers on the phone when prompted. (For example, they'll hear: *"To reach Sales, press 1. To reach Purchasing, press 2."*)

---

## DSS/BLF KEYS

---

**Description:**

With the Direct Station Select/Busy Lamp Field feature, a phone's FF-key can be programmed to represent another extension. The FF-key can be programmed to do one of the following:

- Monitor the extension's current status.** The DSS/BLF key will be lit red when the extension it represents is currently busy. It'll flash when there's an incoming call ringing to that extension. Or, it'll be blank (unlit) while the extension is idle.
- Call the extension.** Just press the (unlit) DSS/BLF key to ring the extension or transfer a call to it. No pressing Hold, no dialing the extension number, no transfer codes. Just press the DSS/BLF key.
- Immediate-ring the extension's calls to your phone.** The DSS/BLF key will flash and your phone will ring at exactly the same time the extension is ringing. Just pick up the handset to connect to the caller. (Or, press the flashing DSS/BLF key if the phone isn't ringing.)
- Delay-ring the extension's calls to your phone.** After a programmable period of time, your phone will start ringing for the extension's unanswered calls. Pick up the handset to answer the call.

**Benefits:**

- Users can monitor calls to other extensions, and answer them if no one else does.
- Users can transfer calls to an extension simply by pressing the DSS/BLF key for it.

**Applications:**

- Receptionists, secretaries, operators—anyone who needs a quick and simple way to get calls to, and receive them from, other extensions

---

## DUAL-COLOR LEDS

---

**Description:**

Each LED key has dual colors underneath. Red is a busy exchange line and green is the exchange line you are speaking on. These dual colors are utilized to indicate busy or DND stations.

**Benefits:**

- Lets users know what exchange line they're talking on; especially useful for calls on hold.
- Helps users monitor the status of stations (if the key is being used as a DSS/BLF).

**Applications:**

- Systems that are designed as “squared,” and multiple lines appear on telephones
- Boss/Secretary applications

---

## **FLEXIBLE FEATURE KEYS (“FF-KEYS”)**

---

**Description:**

Every FF-key on a telephone can be programmed by the end-user for a variety of one-touch features. The following is a list of some of those features:

- |                    |                      |                        |                           |
|--------------------|----------------------|------------------------|---------------------------|
| • Absence Messages | • Call Park          | • Meet-Me Answer       | • Station Lockout         |
| • Account Codes    | • Conferencing       | • Message-Waiting Send | • Switch to Voice Calling |
| • Alarms           | • Direct Call Pickup | • MIC Key              | • Transfer Key            |
| • Answer Key       | • DND                | • Night Mode           | • Voice Mail Access       |
| • Barge-In         | • DSS/BLF            | • Paging               | • UNA Pickup              |
| • BGM              | • Group Call Pickup  | • Release Key          |                           |
| • Call Forwarding  | • Headset On/Off     | • Speed Dialing        |                           |

**Benefits:**

- Flexibility to custom-configure a telephone to suit the individual user’s needs.
- Easy one-touch feature access, instead of having to remember (and dial) codes.

---

## **HANDS-FREE ANSWERBACK**

---

**Description:**

Station users receiving an intercom call can answer a Voice call on-speaker, without picking up the handset or otherwise touching the phone. Individual phones can be initially set for Voice calling via the Extension COS (Class of Service) assignment in programming. Extensions can also be individually enabled or disabled for Send Voice Calls and Receive Voice Calls (again, via the Extension COS assignment). If a user begins a Tone call, he/she can switch to Voice calling by dialing “1” or pressing a programmed key. A “splash” tone alerting the called party of the on-speaker condition can be enabled/disabled system-wide.

**Benefits:**

- Users can answer intercom calls without touching the phone.

---

## **HEADSET CAPABILITY**

---

**Description:**

A proprietary phone’s FF-key can be programmed for activating/deactivating Headset Mode on the phone. When it’s activated (FF-key LED is lit red), all audio for the phone (including the speaker) is switched to the Headset jack, and the “RELEASE” and “ANSWER” buttons replace handset on/off-hook functions.

During Headset Mode, headset users can activate Zip Mode (automatic answer of the next incoming call); the user will hear a short notification tone (double-beep) before connecting to the caller. Also, individual phones can be programmed to lower the dial-tone volume when the headset user accesses an outside line.

**Benefits:**

- Increases user efficiency by allowing headset operation from any proprietary telephone, eliminating the need to lift or hang up the handset.

**Applications:**

- Attendant position, customer service, etc.

---

## HOLD

---

**Description:**

With its variable Call Holding features, the S-ICX lets you control who can pick up a call on hold:

- System Hold:** Anyone can retrieve the held call from any phone.
- Exclusive Hold:** Only the person who put the call on hold can retrieve it.
- Station Park Hold:** Users can “park” a call at any phone (effectively putting it on hold there), and retrieve it when they’re ready.
- Floating Hold:** A kind of System Park where the user can transfer the call to a Floating Hold key.
- Brokers Hold:** A user can toggle between two calls by pressing HOLD (one call is current, the other is on hold).

**Benefits:**

- You can limit the number of people who can pick up a call on hold.
- You can allow anyone to be able to pick it up, no matter where it’s put on hold.

---

## HOT DIAL PAD

---

**Description:**

A user can simply walk up to a digital phone and start dialing without picking up the handset. The call immediately switches to the phone’s speaker, and the entire call can be conducted on it. Of course, the user can pick up the handset anytime to take the call off-speaker.

This feature can be enabled/disabled on individual extensions in programming. There is no limitation on the number of digital phones that can have Hot Dial Pad. It’ll work whenever the phone is idle, has another call on hold, or is receiving a page.

**Benefits:**

- Calls can be initiated hands-free (no handset required).

**Applications:**

- Fast-paced environments
- Emergency-dial situations

---

## HOT LINE

---

**Description:**

When somebody lifts the handset, the phone automatically dials a preassigned extension or speed-dial number. (The user doesn’t dial any digits.)

**Applications:**

- Lobby areas, elevators, etc. (for example, a sign above the phone that reads “*For assistance, pick up the phone*”)

---

## MEET-ME ANSWER

---

### Description:

With Meet-Me Answer, a user can answer a page from any extension without having to run to a certain phone. All the user has to do is pick up the handset on the nearest phone, and dial the universal Meet-Me Answer Code (the default Code is ##) to connect to the initiator of the page.

### Benefits:

- Users can answer their calls from any phone in the building.
- Attendants don't have to chase people down to relay important messages.

---

## MESSAGE-WAITING/CALLBACK

---

### Description:

This is similar to Call Waiting. The difference is, the called party isn't as obligated to call you back when they get off the phone. The Message-Waiting LED will blink on the called party's phone, and its LCD will also indicate the Message-Waiting callback request. The called party can go off-hook and press the Message Callback key to call you back. Or, he/she can ignore it. (The indications won't go away, but they won't interrupt anything else from happening on the phone, either.) Priority message-waiting is available for 3rd party voice mail connection.

### Benefits:

- A more polite, less urgent way to ask someone to call you back, when they get a minute.

### Applications:

- Voice Mail. Whenever users get a new message in their mailbox, this is how the phone lets them know.

---

## MUTE/MIC

---

### Description:

Mute/MIC is often used as an alternative to putting a caller on hold. For example, let's say a station user is on a call. The boss walks up and starts silently mouthing words to the user. Instead of putting the caller on hold, the user can press an FF-key programmed for Mute/MIC, to block audio to the outside party (or, if the call is on-speaker, press the MIC button). The user can still hear the outside party. But the outside party can't hear the user or the boss, who can now speak freely. The user can re-establish audio by pressing the FF-key or MIC button again.

### Benefits:

- There is no indication to the outside party (other than silence) that he/she can't hear the station user anymore.

---

## NAME ASSIGNMENT

---

### Description:

The S-ICX lets you create a more user-friendly, personalized system by allowing various name assignments that will display on phone LCDs. You can assign names to:

- Exchange Lines
- DDI/DNIS Numbers
- Extensions
- Extension Index
- Personal Speed Dial (PSD) Codes

- System Speed Dial (SSD) Codes
- SSD Index

**Benefits:**

- Lets users look up a phone number by name, and have the phone dial it automatically.

**Applications:**

- Executive suites, doctors offices, travel agencies

---

## OFF-HOOK MONITORING

---

**Description:**

With Off-Hook Monitoring, a call can be conducted through the handset and on-speaker at the same time. After lifting the handset and placing/answering a call, the user can press the ON/OFF key to “share” the call on-speaker. The outside party can be heard both in the handset receiver and through the speaker. But the outside party can hear the user only if he or she is talking into the handset. (The handsfree microphone in the telephone won’t transmit.) NOTE: This feature isn’t available during Headset Mode.

**Benefits:**

- Others nearby (such as Supervisors) can listen in on a call without conferencing-in.

---

## OFF-HOOK SIGNALING

---

**Description:**

This applies to calls with multiple-line appearances (those calls that ring on multiple phones). Off-Hook Signaling sends a tone to a busy extension to indicate that another exchange line call has arrived. Off-Hook Signaling applies to direct calls, Automatic Camp-Ons, and Manual Camp-Ons.

**Benefits:**

- The user (especially the Attendant) knows when a second or third call is ringing in.

---

## OFF-HOOK VOICE ANNOUNCE (OHVA)

---

**Description:**

This is a type of barge-in that doesn’t include the outside party. A station user calls a busy extension and wants to break in. So he/she dials a code, and tells the busy extension of the important message. The busy extension user can (if desired) press a pre-programmed OHVA key to mute conversation to the outside party, and connect to the user who’s trying to relay the message. In the meantime, the outside party doesn’t hear what’s going on behind-the-scenes. To resume normal conversation with the outside party (and disconnect from the extension that broke in), press the OHVA key again. The calling party can also activate the OHVA feature even when the second and/or third DN key is available.

**Benefits:**

- Allows more flexibility for users who want to be alerted that there are other calls or important messages waiting, without putting the outside caller on hold.
- Confidentiality.

**Applications:**

- Boss/Secretary relationship
- Any office environment

---

## ON-HOOK DIALING

---

**Description:**

With this feature, station users can dial out without picking up the handset, by pressing the ON/OFF key and then dialing the number. They'll hear everything -- dial tones, DTMF signals, talk, etc. -- through the phone speaker. To take the call off speaker, just lift the handset.

**Benefits:**

- Easier dialing.
- Hands-free phone conversations on speakerphones.

---

## ONE-TOUCH KEYS

---

**Description:**

S-ICX phones have several different types of keys that can be programmed to execute features or store frequently-dialed numbers. Instead of dialing a series of digits, the user can just press the key. There are **FF-keys** (with LEDs that flash red or green, indicating certain features or phone status), **Labeled Keys** (that perform a specific function such as Hold, Flash, MEMORY, etc.), **Soft Keys** (surrounding the phone's LCD, that execute the feature name that's displayed on the LCD), and **One-Touch Feature Keys** (solid one-touch keys, not available on some phones, that store additional feature codes or frequently-dialed numbers).

**Benefits:**

- Gives users many one-touch options for performing features such as exchange line access, camp-ons, barge-ins, etc.

---

## PAGING

---

**Description:**

The S-ICX allows users to make both *internal pages* (heard on phone speakers) and *external pages* (heard over a loudspeaker system). Users can respond to pages for calls on hold with Meet-Me Answer. You can create up to 10 different internal Paging Groups, which include up to 72 members. Five different external paging zones can be set, and an extension can belong to more than one of them. Paging Override settings are also available.

**Benefits:**

- Improves operating efficiency by providing dial access to paging equipment and to stations in designated paging zones.
- Improves customer satisfaction by facilitating a faster response to callers on hold.

---

## PRIME LINE PREFERENCE

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**Description:**

A phone can be programmed to automatically access an MCO trunk when the user goes off-hook.

**Applications:**

- Users who need instant access to an outside line.

---

## RINGING LINE PREFERENCE

---

**Description:**

This feature gives station users the ability to answer a ringing incoming call simply by lifting the handset or pressing ON/OFF. If this feature is disabled on the phone, the user must press the flashing exchange line key to answer the call.

**Benefits:**

- Users can pick up calls quickly.

**Applications:**

- Easier access to ringing calls

---

## SOFT KEY VARIABLE MODE

---

**Description:**

Soft Key Variable Mode allows display phone users access to frequently-used features through their soft keys, while the phone is in different call states such as during intercom call, during exchange line dial tone, during a trunk call, and during busy tone (after calling a busy extension).

**Benefits:**

- Provides easy feature access via customized phone keys.
- Displays the feature name next to the soft key during the call state in which it's available.

---

## SPEED DIALING

---

**Description:**

Users can program any of their one-touch keys for speed-dialing. There are **Personal Speed Dial** codes which can be different on each extension (up to 20 PSDs per phone). There are also **System Speed Dial** codes (up to 800) that can be used by everyone. Some of the wonderful things you can do with these speed-dial codes in programming:

- Set individual extensions to be able to override TRS restrictions with SSD numbers.
- Chain SSDs and PSDs together (useful for entering account codes, navigating through automated answering machines, etc.).
- Divide the SSDs into blocks and assign them to different tenants.
- Set the system to automatically select a trunk whenever an SSD or PSD is dialed.

**Benefits:**

- Saves time and increases productivity by allowing one-touch dialing of frequently-called numbers, or one-touch feature activation.

---

## STATION LOCKOUT

---

**Description:**

Use the Station Lockout feature to limit use of your phone by others when you are away from your telephone. When the Station Lockout feature is in use, the TRS (Toll Barring) Class of your telephone is changed. Anyone using your telephone is limited to the calling abilities defined by this Lockout TRS (Call barring) Class.

In addition, with the appropriate COS, you can set or cancel Station Lockout for other telephone.

**Benefits:**

- Saves the telephone cost unexpected used by others.

---

## TEXT MESSAGE/MESSAGE REPLY

---

**Description:**

You can send a text message to a key telephone with a display when you are sending call waiting signal (Auto camp-on or manual camp-on). To reply message is also available.

**Benefits:**

- Allows the person receiving the call waiting to view information about the call/caller that is being sent.

---

## TRANSFER

---

**Description:**

The S-ICX's Transfer feature allows station users to transfer their outside line or inter-station calls without attendant intervention. Transferring calls can be either *supervised* by the user (who waits for the third party to answer, then announces the call before transferring it) or *unsupervised* (user hangs up before the third party answers). If the third party doesn't pick up, the call will return to the extension that originated the transfer. If that extension doesn't answer it either, the call will revert to the Attendant Group.

**Benefits:**

- Provides efficient, user-friendly call handling capabilities.

---

## WALKING TRS

---

**Description:**

By entering a Walking TRS (Toll Restriction Service) code on any phone, a station user can temporarily have access to the less-restrictive call capabilities of his/her own phone. For example, the user can walk over to another phone that is set to restrict long-distance calls, pick up the handset and dial his/her Walking TRS code (which is associated with the user's own phone), and be able to make a long-distance call. When the user hangs up, the phone will return to its original TRS setting.

**Benefits:**

- Allows a telephone to be restricted, but still allows certain users to override the restrictions.

**Applications:**

- Warehouse phones, waiting areas, etc.

## List of Available Station Features

Station Feature	Notes
<b>Absence Messages</b>	users can set their phones to send one of 10 pre-programmed messages, which will appear on other phones that try to call when the user is absent
<b>Account Codes</b>	10-digit voluntary; 4-digit verified
<b>Alarm Ringing (phone)</b>	ring pattern changes for unanswered calls
<b>Alarm Ringing (handset)</b>	beep heard by user for a lengthy call

Station Feature	Notes
<b>Any Key</b>	Voice Mail Hunt Pilot number can call by one touch.
<b>Auto Busy Redial</b>	phone will automatically redial a busy number
<b>Background Music</b>	users can turn BGM off/on on their own phone speakers
<b>BLF Keys</b>	4 modes for representing another ext.
<b>Busy Override (“Barge-In”)</b>	creates a 3-party conference
<b>Callback Request</b>	Users can set their phones to ring when another busy extension becomes available.
<b>Call Duration Display</b>	displays the running time duration of a call in progress
<b>Call Forwarding</b>	All Calls, Busy, No-Answer, Outside; Destination/Source Display; Set/Clear on another extension
<b>Call Park</b>	Users can put a call on hold at another phone.
<b>Call Pickup</b>	Direct; Group; Multiple-Line Appearance
<b>Caller ID Log</b>	up to 20 phones; up to 10 entries/phone
<b>Camp-On</b>	both automatic and manual
<b>Conferencing</b>	digital phone users can initiate 3-party to 8-party conferences, including up to 7 outside lines; 2-party private conversations during a conference
<b>Dial Tone Shut-Off</b>	Dial tone can be muted.
<b>Direct Exchange Line Access</b>	Users can select a specific trunk to make an outgoing call.
<b>Direct Exchange Line Answer</b>	Users can select a specific trunk to answer an incoming call.
<b>Directory Number Keys</b>	for handling multiple calls simultaneously on the same phone; up to 3 PDNs and 3 NPDNs per phone.
<b>DSS/72 (Direct Station Select/72-key) Module</b>	can be used with any digital station phone
<b>Directory Display &amp; Dial</b>	Extension, PSD, SSD directories
<b>Display</b>	call status, called party, calling party, date/time
<b>Distinctive Ringing</b>	for individual exchange lines and stations
<b>Do Not Disturb</b>	set/clear on own ext. or another ext.
<b>DP-to-DTMF Signal Conversion</b>	Dial-pulse signaling can be switched to DTMF, either manually or automatically.
<b>DSS/BLF Keys</b>	4 modes for representing another ext.
<b>Dual-Color LEDs</b>	for easier detection of call status/priority
<b>Extension Directory</b>	Users can toggle through a displayed Directory of extensions, and press a soft key to select & call the extension.
<b>EM/24 (Extension Module/24-Key)</b>	attachable to any keyphone; provides 24 extra FF-keys
<b>Flash</b>	for toggling between 2 calls on an SLT phone, or seizing another trunk line without hanging up
<b>Flexible Feature Keys</b>	with dual-colored LEDs; can program executable codes for one-touch feature access
<b>Floating Park Hold and Retrieve</b>	Anyone can pick up a call on Floating Hold.
<b>Hands-Free Answerback</b>	voice calling; intercom calls are established through the phone's speaker (don't have to lift handset)
<b>Hands-Free Operation</b>	Press ON/OFF to put a call on speaker, then hang up and conduct the call over the speaker.

Station Feature	Notes
<b>Headset Operation</b>	user-activated; automatic answer; dial-tone muting
<b>Hold</b>	Brokers, Exclusive, Floating, System
<b>Hot Dial Pad</b>	dial without lifting handset
<b>Hot Line</b>	lift handset (no dialing) - the phone automatically dials a pre-programmed number
<b>Interactive Screens</b>	(available on large-display phones only)
<b>Intercom Calling</b>	Tone, Voice
<b>Key Bank Hold</b>	on DSS/72s
<b>Line Appearances</b>	the same trunk line "appears" (via FF-key) on multiple phones
<b>Longtalk Alarm</b>	beep heard by user for a lengthy call
<b>MCO Line Preference</b>	dial an MCO access code to seize an MCO trunk
<b>MCO Trunk Access</b>	access an MCO trunk group to make an outside call; the system decides which trunk in the group will be used
<b>Meet-Me Answer</b>	answer an intercom page from any phone
<b>Message Waiting/Callback</b>	send a Message-Waiting signal to another phone; dial a code to automatically callback the Message-Waiting sender
<b>Mute/MIC</b>	block audio to the outside party
<b>Name Assignments</b>	Extension, Trunk, SSD, PSD, DDI/DNIS, Extension Index, SSD Index
<b>Off-Hook Monitoring</b>	press ON/OFF to put an outside caller on speaker, and continue to conduct the call through the handset (outside caller can only hear through the handset)
<b>Off-Hook Signaling</b>	phone "beeps" to alert user that phone is off hook
<b>Off-Hook Voice Announce</b>	intercom calls on speaker; originate and receive
<b>On-Hook Dialing</b>	via ON/OFF key, or Hot Dial Pad
<b>One-Touch Keys</b>	for feature access/execution
<b>Paging</b>	internal receive; internal/external access; UNA pickup
<b>Personal Speed Dial (PSD)</b>	up to 20 PSDs per phone; Directory; Name Assignment (7 char.)
<b>Prime Line Preference</b>	automatically access an MCO trunk when user goes off-hook or presses ON/OFF
<b>Redial Last Number</b>	press the REDIAL key to automatically call the last dialed no.
<b>Ringling Line Preference</b>	go off-hook to answer an incoming call (don't have to also press a key).
<b>Soft Key Variable Mode</b>	(available only on display phones with softkeys) Access another set of features by switching to Variable Mode.
<b>Speakerphone</b>	(available on speakerphones only)
<b>Speed-Dialing</b>	System (SSD); Personal (PSD); SSD/PSD chaining
<b>Station Callback Display</b>	(available on display phones only)
<b>Station Function List</b>	(available on large-display phones only)
<b>Station Lockout</b>	users can temporarily change their phone's TRS Class to restrict others from placing outside calls on it

<b>Station Feature</b>	<b>Notes</b>
<b>Step Calling</b>	after calling a busy extension, users can dial only the last digit of the next extension to transfer to it
<b>System Speed Dial (SSD)</b>	up to 800 SSDs per system; SSD Directory; SSD Name Assignment (up to 16 char.)
<b>Text Messages</b>	during Call Waiting/OHVA or Camp-On, a user can send one of 10 pre-programmed messages that will display on the called extension
<b>Time &amp; Date Display</b>	(available on display phones only)
<b>Timed Reminder</b>	phone issues an alarm tone at a pre-set time
<b>Transfer</b>	screened (transfer/wait for answer) and unscreened (transfer/hang up)
<b>Trunk Queuing</b>	(for direct trunk access and MCO-1) Users can "queue" (wait in line) for a trunk to become available.
<b>Trunk-to-Trunk Connection</b>	connect two outside calls together
<b>Voice Mail Transfer Key</b>	transfer calls to someone's voice mailbox
<b>Voice Recognition</b>	requires Adapter Kit for each phone
<b>Volume Control</b>	handset; monitor (speaker); ringing
<b>Walking TRS</b>	codes for overriding TRS on a phone
<b>Zip Mode</b>	automatically answer next incoming call during Headset Mode

# Chapter 5 - Special Applications

## Overview

The S-ICX is designed to accommodate a wide variety of features as described throughout this document. However, this powerful phone system is also designed to support fast-emerging technological trends and specialized 3rd-party product integrations. Listed below are some examples.

## Private Networking

Companies with two or more offices can benefit from the S-ICX's powerful networking features by establishing private phone connections between the sites. Typically, companies with multiple sites have a high level of call traffic between them, resulting in astronomical phone bills if they're using the public switching network (Exchange Lines). In a private network, however, the company pays a fixed rental fee for the private lines, regardless of how often they are used. In fact, the more they're used, the more money the company saves. A private network also provides other benefits, such as increased efficiency by allowing the user to dial an extension number instead of a long-distance number.

The S-ICX can provide networking features such as:

- Network Call Transfers.** Allows a call at an extension to be transferred to an extension in another network PBX.
- Network Call Forward.** When two systems are linked via a Tie Line, AC15 or Analog E&M connection, this feature allows the user to "free up" one of the two Tie Lines.
- Network Extension Calling.** Allows you to reach an extension on another S-ICX. Based on the number you dial, the S-ICX network routes the call automatically.
- Network Paging.** Allows users on one S-ICX system to page on another S-ICX, when the appropriate Class of Service allows.
- Network Call Routing ("Closed Numbering").** Allows multiple systems that are interconnected in a network, to direct calls to a specific tie line based on the number dialed (the call does not leave the network). This allows intercom calls to be conducted between locations that would normally be considered long-distance calling.
- Tandem Connection.** Allows calls over network tie lines to be automatically routed to another PBX, out to the public network, or to internal extensions. The tandem relay function increases network efficiency via automatic routing methods between multiple PBXs, thus reducing the number of tie lines needed.
- Centralized Attendant.** Via tie-line routing, operator calls and associated operator functions (paging, transfer, reversion for unanswered calls) are performed from one Attendant position in the network.
- Centralized Voice Mail.** One voice mail system, installed in one of the network PBXs, serves all extensions in the network. The functions needed for voice mail operation (Call Forwarding to the user's mailbox, Priority Message-Waiting to indicate the mailbox message on the user's phone, and MSG ID Notification for accessing the mailbox and retrieving messages) are simply programmed to be routed over the tie lines.

These powerful networking functions are facilitated by the following S-ICX hardware connections:

- AC15 Tie Lines.** Multiple S-ICX sites can be connected over leased voice lines.
- Q-sig Interface.** Multiple sites (called "nodes") can be tied together through network trunk lines, so that (for example) when one site closes for the day, another node across the country can pick

up their calls. Network users can also turn a long-distance call into a local one, by accessing another (long-distance) node and then dialing the (local) number.

## Computer Telephony Integration (CTI)

CTI technology ties computers and phone systems together, allowing phone users to combine the advantages of both technologies for fast, accurate, effective response to incoming callers. It's a powerful tool for increasing customer satisfaction, which in turn increases sales for the company that has CTI built into their phone system. For example:

- Customer information could be automatically displayed on a Customer Representative's computer screen, based on the caller's phone number.
- A computer-based phone directory could be used to look up a phone number, and select it on-screen to automatically place the call.
- PBX features such as call transfers, pickups, forwarding, etc. could be executed by clicking on a computer icon or responding to a screen prompt (no more trying to remember a feature access code or sequence).

Panasonic is constantly developing new, more powerful CTI applications to work with the S-ICX. The following describes the CTI products that are currently available.

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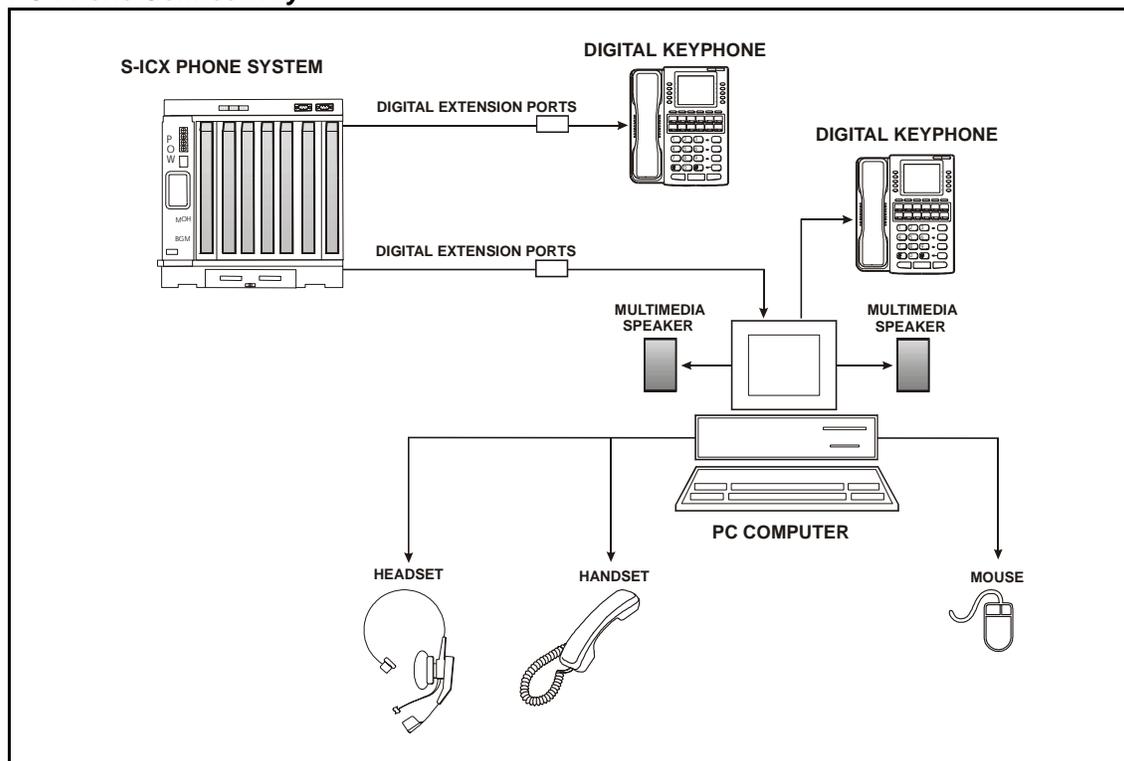
### PC PHONE

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Our **PC Phone** is effectively a "Super-Executive Keyphone," which is designed to replace an extension phone. We have redesigned our telephone circuit cards to fit within a PC. Software allows us to replicate the dial pad, LCDs, and keys of the phone which are modeled after the popular "Large-Screen Display" telephone.

Comprised of a PC card (installed inside the computer), application software, and various connecting items (leads, handset, headset, etc.), the PC Phone connects to a S-ICX extension port and provides a sophisticated "on-screen" phone for the end-user.

## PC Phone Connectivity



Here's just a few of the many features and benefits that come with the PC Phone:

- Flexible configuration.** It's easily configured by size or by features, to provide a simple interface that the end-user can customize to his/her exact requirements.
- Easy to use.** S-ICX features are easily selected via on-screen menus, tool bars, and programmable keys, without the need to consult a user guide.
- On-line help.** An easy-to-search help facility is available that describes all PC Phone features.
- Directory.** An unlimited database of contacts that can be searched by name, address, etc., allowing easy dialing of internal or external calls.
- Caller ID.** End-users can identify incoming callers by the number they're calling from (if the exchange line supports Caller ID functionality).
- Call logging.** The PC Phone can record and report every incoming and outgoing call with time, date, duration, calling/called name from directory, etc.
- Compatibility with other applications.** The PC Phone comes with a TAPI middleware software package which allows connectivity with many TAPI-compatible software applications such as ACT!, Goldmine, and Maximizer, to name a few.

### System Requirements for PC Phone

- CPC-S or CPC-M
- an 80486 or compatible processor, running at 33 MHz or higher
- 8MB of RAM
- 1.44MB (3-1/2") floppy disk drive
- Microsoft Windows 95 or Windows NT Version 3.51
- Windows-compatible mouse
- 1 spare ISA expansion slot

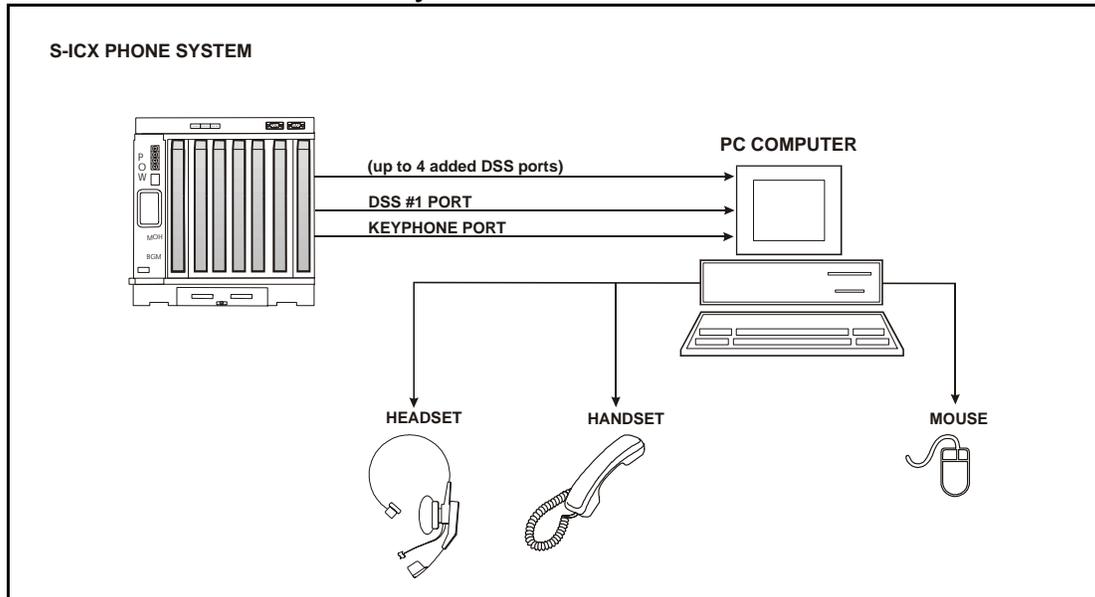
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## PC ATTENDANT CONSOLE

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The **PC Attendant Console** is for the receptionist/operator position. It is designed to replace the DSS/72 console & keyphone combination that's commonly used as the Attendant.

### **PC Attendant Console Connectivity**



This product is offered in two capacities: a **2-port solution** (equivalent to one 24-key phone with one DSS/72 console) which is capable of monitoring up to 96 ports; and a **6-port solution** (equivalent to one 24-key phone with four DSS/72 consoles) which supports a maximum of 384 ports.

In addition to providing all the features of a PC Phone, the PC Attendant Console will also offer:

- Flexible, scalable Busy Lamp Field (BLF).** One Console can display up to 384 BLFs.
- Line prioritization.** The PC Attendant Console can assign priorities to incoming calls independent and separate from S-ICX priorities.
- Reporting.** The PC Attendant Console can produce graphical and text reports on system and operator performance.

### **3rd Party Computer Telephony Integration (CTI)**

A client-server type package (e.g., external voice mail or external enhanced ACD) is now available via an API card.

### **System Requirements for PC Attendant Console/96 (same as PC Phone)**

- CPC-HS or CPC-HM
- an 80486 or compatible processor, running at 33 MHz or higher
- 8MB of RAM
- 1.44MB (3-1/2") floppy disk drive
- Microsoft Windows 95 or Windows NT Version 3.51
- Windows-compatible mouse
- 1 spare ISA expansion slot

## Voice Mail

With the S-ICX, Voice Mail is available externally (a third-party application hooked up to the phone system). Voice mail options are discussed below:

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### THIRD-PARTY VOICE MAIL SUPPORT

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The S-ICX also provides features for external Voice Mail products from a third-party vendor. Some of these features are explained below.

*NOTE: The fact that the S-ICX offers these features does NOT guarantee that all features offered by the third-party Voice Mail manufacturer will work with the S-ICX.*

#### VOICE MAIL TRANSFER KEYS

##### Description:

Users can program any one-touch key on their phones to transfer to a mailbox without waiting for the Voice Mail system to answer. **The mailbox can be located on the user's S-ICX system, or on another networked S-ICX or ICX system.** Two Transfer Keys are available. One can be used for external transfers to greetings, and the other for external transfers without greetings.

##### Benefits:

- Calls can be transferred to a personal mailbox faster, with fewer buttons to press.

#### MSG KEY CALLBACK KEY

##### Description:

Key phone users can program the MSG Callback key to retrieve their Voice Mail messages.

##### Benefits:

- The MSG Callback key is already labeled; it's simple to remember and simple to press.

#### ONE-TOUCH KEY FOR VOICE MAIL

##### Description:

Allows a user to program any one-touch key on the phone to automatically dial Voice Mail. The dial number for Voice Mail along with the user's password can be stored under the key. If this feature is programmed on an FF-key, the key will flash red when a new message is left in your voice mailbox. This key can also be used by the Attendant to transfer a caller into a specific person's mailbox, by hitting the Voice Mail key and the DSS key for that person.

##### Benefits:

- Allows a station user to have a larger message waiting lamp for Voice Mail and a quicker way to retrieve messages from Voice Mail.

#### ANSWER SUPERVISION FOR VOICE MAIL

##### Description:

The S-ICX can be programmed to send an answer supervision signal to a 3rd-party Voice Mail or Auto Attendant system, when the extension user answers a call. (Voice Mail doesn't wait for the ringing to stop before releasing the call.)

##### Benefits:

- Voice Mail releases calls to the extension more quickly.

- The one-touch access and flashing key serves as an excellent tool for prompt voice mail interaction.

### DDI (ISDN) TO VOICE MAIL

**Description:**

DDI numbers can be assigned to ring directly to a voice mailbox that is not associated with a physical station. When the Voice Mail answers the DDI call, automatic digits can be sent to route the call to a specific personal mailbox.

**Benefits:**

- Station equipment doesn't have to be used for routing incoming DDI calls to specific mailboxes.

### FOLLOW-ALONG IDENTIFICATION (CALL FORWARDING ID)

**Description:**

When your extension is forwarded to Voice Mail, this feature sends a string of digits when Voice Mail answers. This enables the outside caller to skip the Voice Mail main greeting, forwarding directly to a personal mailbox. Any combination of digits 0-9, pause, \* and # (maximum 16) can be programmed to make this feature work, depending on what the Voice Mail manufacturer requires.

**Benefits:**

- Outside callers are not inconvenienced by having to dial extra digits to reach a personal greeting.

### POSITIVE DISCONNECT (AEC DISCONNECT)

**Description:**

Analog station ports can generate a positive disconnect (open loop) to devices that are attached to them upon hang-up.

**Benefits:**

- Sending this signal allows quick disconnection from third-party Voice Mail or similar devices.

## Automatic Call Distribution (ACD)

ACD provides efficient presentation, handling, and management of incoming calls for phone systems that experience heavy call traffic. Calls can be evenly (or fairly) distributed to different groups of specialized users, called "agents". And call traffic data can be sent to a PC computer or printer through the S-ICX built-in ACD's card RS232C serial port.

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### BUILT-IN ACD

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Panasonic's Built-In ACD offers low-cost, easy installation, programming, and operation of ACD functionality. Some of the strong points of this product are:

- One-vendor solution.** There is only one place you have to call - Panasonic - to support and service your ACD. Saves time and eliminates miscommunication.
- Easy installation.** This is a card-type product. All you have to do is insert the unit into the S-ICX cabinet, and enter a few program settings for it. You don't need to wire any cable or install any awkward, extra equipment.

- ❑ **Simple operation.** Agents can use our Large-LCD phones to handle calls efficiently. Agent features can be performed simply by following the prompts displayed on the LCD.
- ❑ **Easy programming and flexibility.** Use a Large-LCD phone to enter the S-ICX programming mode, and go to one area of settings specifically for ACD. No special equipment or complicated programming is required.
- ❑ **Powerful ACD functionality.** Incoming calls can be routed to the first available agent, or transferred to Voice Mail. Supervisors can instantly access the current status of all agents. MIS reports can be generated.

The 576 ACD software can be designed to efficiently handle incoming calls to a group of phones, especially when the entire group is busy. At this point, the caller will be directed to a recording asking the caller to hold, then sent to a Music-On-Hold source until an agent becomes available.

These processing steps are totally flexible and can be changed easily by the supervisor at any time. Utilizing the Large-Screen Display phone, the supervisor can edit the existing script and change the routing. For example, perhaps the office is closed as a result of weather conditions. At this point, the supervisor can edit the script and record a special greeting for incoming callers. This type of quick programmability will greatly increase customer satisfaction.

- ❑ **Reporting.** Of course, reports are crucial for the group's activities. These reports can give you enough information to make intelligent staffing decisions. Unlike most of the competition, the S-ICX ACD system comes complete with reporting capabilities standard! Choose from individual agent activity by week, day, etc., or choose an entire group.
- ❑ **Optional MIS reports:** In addition to the ACD system, real-time displays provide information about current Call Center workload (incoming calls) and resources (agents). Historical reports (MIS reports) provide essential information used to evaluate trends, performance, and results.

#### Specifications for Built-In ACD:

- Maximum no. of ACD Units per System: 1
- Agent Groups per ACD Unit: 3
- Agent IDs per Group: 64
- Maximum Agent IDs per ACD Unit: 64
- Number of Agents Simultaneously Logged In: 32
- Supervisor IDs per ACD Unit: 6
- Voice Ports per Group: 4
- Voice Ports per ACD Unit: 4
- Music Ports: 1 (on main unit/external MOH source)
- MIS Monitor Ports: 1 (RS232C 9600bps)
- Guidance Length: 1-96 seconds (changeable)
- Number of Guidance Messages: 1-6 (changeable)
- Total Guidance Recording Length: 96 seconds for 6 messages
- Appearance FF key/call: CPC-HS: 64 CPC-HM: 24
- Ringing FF key/call: CPC-HS: 24 CPC-HM: 24
- Traffic Condition: 5.4 HCS

## Integrated Features Module (IFM)

IFM is a plug-in circuit card that includes a generic PC section, a voice processing section, a telephone system interface section, and a power supply section. The initial feature offered with this module is known as Integrated Courier Voice Mail (ICVM), which is explained below. Other features will soon follow.

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### INTEGRATED COURIER VOICE MAIL (ICVM) (FOR FUTURE USE ONLY)

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ICVM is an advanced voice mail system based on Courier Voice Mail. The card plugs directly into the ICX CCU.

ICVM has a number of attractive features:

- ❑ **Advanced Technology.** Unlike other plug-in voice mail cards based on older DOS operating systems, ICVM is built on the advanced Windows NT operating system, which ensures reliability and expendibility.
- ❑ **Efficient and powerful.** Because ICVM uses embedded NT technology, the operating system performs at an optimum level. Unlike generic operating systems that use unnecessary processes, ICVM uses only those processes that add real value to the system. For example, ICVM's embedded NT system eliminates the need for a monitor and a keyboard. Therefore, support processes needed for these items are not running in the system's background.
- ❑ **Less hardware required.** Because it communicates directly with the S-ICX backplane, intermediate hardware such as extension ports and API cards are not needed.
- ❑ **Flexibility.** ICVM can be configured with a variety of features to meet a variety of needs.
- ❑ **Expendibility.** ICVM is expandible from 4 to 24 ports in a variety of configurations.
- ❑ **Reduced space requirements.** ICVM requires no external PC and/or cabling.
- ❑ **Easier to install than external voice mail.**



# Chapter 6 - Specifications

## Overview

This chapter provides detailed lists of all system specifications in an easy-to-follow table format.

*Note: The following specifications are subject to change without notice.*

## Electrical Characteristics

### Power Supply

Equipment	Specification/Requirements
S-ICX Cabinet	200 - 240V AC
Primary Power - Input @ AC: AC Frequency: Maximum Power Dissipation (VA):	230V +10% 50/60 Hz 336VA
Maximum Peak AC Input Current:	1.4A
DC Voltage Output Specification:	+24 volts DC (+26.0 to +27.6 volts DC) +5 volts DC (+4.9 to +5.3 volts DC)
AEC (8-circuit card that supports single-line devices such as rotary and DTMF standard phones; FAX machines; dictation equipment; etc.) - Ring Voltage: Ringing Capability:	150 volts p-p 2.0 REN per circuit
Traffic Rating Characteristics:	6 ACS per station system-wide
S-ICX key telephones	3 watts maximum (powered from the S-ICX)

### Battery Backup

Equipment	Specification
Battery Pack: (Part No. VB-44026) Capacity (with maximum traffic):	15 minutes
Battery Charger Characteristics - Charger: Nominal Voltage: Battery Discharge Cut-Off Voltage:	Constant voltage and constant current charge 27.2 volts 21.0 ± 0.3 volts DC

## Environmental Requirements

### Temperature and Humidity Requirements for System Operation

Environmental Conditions	Requirements
Temperature	32 to 104 degrees F (0 to 40 degrees C)
Relative Humidity	30% to 90% non-condensing
Storage Temperature	-40 to +140 degrees F (-20 to +60 degrees C)

### Dimensions and Weight for System and Telephones

Item	Cabinet
<b>Dimensions (cm)</b>	
Cabinet	36.2 W x 23 D x 44.5 H including top panel
Large-Display phone	10.5 x 18.7 x 23
Other key phones	9.5 x 18.7 x 23
DSL T	8 x 18.7 x 23.2
DSS/72	7.5 x 12.2 x 23.3
EM/24	7.5 x 6 x 23.3
<b>Weight (kg)</b>	
Cabinet	approximately 7.0 kg (no cards)
Large-Display phone	1.0 kg
Other key phones	1.0 kg
DSL T	0.7 kg
DSS/72	0.5 kg
EM/24	0.4 kg

## Resource Maximums

### Line Capacities

System Resources	CPC-HS Cabinet	CPC-HM Cabinet
Ports (exchange line or Station)	78	132
Speech Path Switching (exchange line/Station)	Nonblocking	

### Feature-Related Capacities

Resource	Capacities	
	CPC-HS Cabinet	CPC-HM Cabinet
Loop Start Trunks	40	40
T-point ISDN-BRI (channels)	20	20
T-point ISDN-PRI (8/16/24/30ch.)	1	2
AC15 (Tie Lines)	20	20
AEC (Extensions)	24	48

Resource	Capacities	
	CPC-HS Cabinet	CPC-HM Cabinet
DEC (Extensions)	24	56
S-point ISDN-BRI (channels)	20	20
S-point ISDN-PRI (channels)	1	2
EM/24 Unit	24	56
DSS/72 Console	4	4
3-Party Conference (no card required)	8	8
8-Party Conference (requires one CONF card per cabinet)	4	4
DTMF Unit	2	2
API Unit	1	1
Built-In ACD Unit	1	1
Call Traffic Maximum Appearance FF key/call Ringing FF key/call	64 24	64 24
Traffic Condition	5.4 HCS	
Switching Method	Time division PCM method	
MCO Tenant Groups	12	12
MCO Trunk Groups	99	99
SSD Bins	800	800
PSD Bins	20	20
SSD/PSD String Length	24	24
SSD Name Length	16	16
PSD Name Length	7	7
Trunk Name Length	10	10
Extension Name Length	10	10
Attendant Group	1	1
Attendant Group Members	20	20
Ext. Hunt Groups	12	12
Ext. Hunt Group Members	20	20
External Page Port	1	1
External Relay Control Port	5	5
Message Waiting Set (High Priority) (per Ext.)	1	1
Message Waiting Set (Normal Priority) (per Ext.)	4	4
Hot Dial Pad Extensions (Digital)	24	56
Hot Lines	20	20
Virtual Ports	96	96
Extension COS	16	16
Trunk COS	16	16
TRS Class	50	50
ARS/TRS: Leading Digit Strings (max. 10 digits/string)	100	100
ARS/TRS: Follow Digit Strings (max. 8 digits/string)	500	500
ARS: Time List Tables	4	4
ARS: Time List Entries (per Table)	50	50
ARS: Route List Paths	100	100

Resource	Capacities	
	CPC-HS Cabinet	CPC-HM Cabinet
ARS: Digit Modify Strings	50	50
Authorization Codes ( <i>UK use</i> )	8	8
DDI/DNIS Tables	2	2
DDI/DNIS Numbers (per Table)	96	96
ISDN S-point DDI Numbers	96	96
MSN Numbers	50	50
Closed Numbers	150	150
Tandem Exchange Numbers	50	50
Account Codes: Digit Length	10	10
Account Codes: Verified	500	500
Account Codes: Verified Digits	4	4
Call Pickup Groups	16	16
Paging Groups	10	10
Paging Group Members	72	72

## Hardware Maximums

Part No.	Description	Capacities	
		CPC-HS Cabinet	CPC-HM Cabinet
<b>Station Equipment</b>			
VB-44101UK	Voice Recognition Adaptor	24	56
VB-D411UK	12-key Standard Phone	24	56
VB-D411DSUK	12-key Small-Display Phone (2-line LCD)	24	56
VB-D411DSVUK	12-key Small-Display Phone (2-line LCD) with voice recognition capability	24	56
VB-D411LDSUK	12-key Large-Display Phone (7-line LCD)	24	56
VB-D611DSUK	24-key Small-Display Phone (2-line LCD)	24	56
VB-D331UK	24-key Expansion Module (EM/24)	24	56
VB-D631UK	72-key DSS/BLF Module (DSS/72)	4	4
<b>Common Equipment</b>			
VB-44440UK	CPC-HS	1	N/A
VB-44441UK	CPC-HM	N/A	1
<b>Telephone Company Interfaces</b>			
VB-44460UK	SYNC: Sync Unit	1	1
VB-44510UK	LTRK/8: Loop Start Trunk Card (8-port)	5	5
VB-44514UK	LTRK/4 Loop Start Exchange Card	5	5
VB-44530	BRI: Basic Rate Interface card (T-point)	5	5
VB-44531UK	STBRI/4 Common ISDN Interface	For IS2 slot	For IS2 slot
VB-44540UK	PRI: Primary Rate Interface card (8 ch)	5	5
VB-44540UK	PRI: Primary Rate Interface card (T/S-point) (16/24/30ch)	1	2
VB-44570UK	AC15/4: AC15 Tie Line trunk card (4-port)	5	5
<b>Station Interfaces</b>			
VB-44110UK	MFR/8: DTMF signal receiver for 8 SLT lines	2	2
VB-44610UK	DEC: digital extension card (8-port)	2	5
VB-44612UK	DEC/16: digital extension card	5	5
VB-44613UK	DEC/24: digital extension card	5	5
VB-44620UK	AEC: analog extension card (8-port)	2	5
VB-44621UK	SAEC/4: special analog extension card	For IS2 slot	For IS2 slot
VB-44622UK	SAEC/8: special analog extension card	For IS2 slot	For IS2 slot
VB-44630	BRI: Basic Rate Interface card (S-point)	5	5
<b>VB-44541</b>	<b>STBRI/4: Station interface card (S/T-point)</b>	<b>5</b>	<b>5</b>
VB-44540UK	PRI: Primary Rate Interface card (T/S-point)	1	2
VB-44660UK	APEC: SBS/A-Series Proprietary Extension	5	5
<b>Optional Equipment</b>			
VB-43703UK	Power Failure Unit (4-line)	10	10
VB-44026UK	Built-in System Backup Battery Kit (2 batteries per kit)	1	1
VB-44140UK	Built-In ACD Unit	1	1
VB-44160UK	Voice processing card/4-port (VM/ACD)	1	1

Part No.	Description	Capacities	
		CPC-HS Cabinet	CPC-HM Cabinet
VB-44330	PC Attendant Console 96 (1 Ext. + 1 DSS per Console unit)	4	4
VB-44331	PC Attendant Console 384 (1 Ext. + up to 5 DSSs per Console unit)	2	2
VB-44332	PC Phone (1 Ext. per PC Phone unit)	24	56
(none)	PC Customize Tool	1	1

## Cabling Specifications

### Maximum Cabling Distances

Loop Type Resistance	Resistance	Cable Gauge (AWG)	Maximum Cabling Length in Meters (distance from the S-ICX)
Key Telephone, EM/24	40 Ohms	22	360
		24	240
		26	120
DSS/72	20 Ohms	22	180
		24	120
		26	60
SLT	100 Ohms	22	900
		24	600
		26	300
Doorphone (loop between the S-ICX and Doorphone Adapters)	10 Ohms	22	90
		24	60
		26	30
Doorphone (loop between the Doorphone Adapter and the Doorphone)	10 Ohms	22	90
		24	60
		26	30

*NOTE: If a Voice Recognition Adapter is installed with the telephone, the measured resistance must be less than 20 Ohms and the maximum cabling distance reduced in half compared to a standard key telephone.*

## Voice/Data Transmission

### Voice Path from Digital Keyphones to the S-ICX

Channel	Speed
Overall communications path	256 kbps
D-channel data	16 kbps
B-channel data	64 kbps

### Data Communication Ports

Port	Parameters	
Serial Port 1	Interface:	RS232-C
	Baud rate:	300, 600, 1200, 2400, 4800, 9600 Bps
	Parity:	Even, odd, none
	Stop bit length:	2 or 1
	Data bit length:	7 or 8
Serial Port 2	Interface:	RS232-C
	Baud rate:	300, 600, 1200, 2400, 4800, 9600 Bps
	Parity:	Even, odd, none
	Stop bit length:	2 or 1
	Data bit length:	7 or 8

## Signaling Characteristics

### Signaling to Exchange Line

Item	Specification
Dial pulse	8 to 11 pulses per second
Break ratio	58% to 64%
Minimum pause	0.7 to 1.0 seconds
Trunk start signaling	Loop or ground start; AC15 wink or immediate start

### Transmission Specifications

Item	Specification	
Impedance	600 Ohms	
Overload level	600 Ohms	
Insertion Loss	Exchange line to analog station	0 dB
	Analog station to exchange line	0 dB
	Exchange line to digital station	0 dB
	Digital station to exchange line	0 dB
	Digital station to digital station	6 dB
	Digital station to analog station	6 dB
	Analog station to digital station	6 dB
	Analog station to analog station	6 dB

### DTMF Frequencies

Digit	Frequency (Hz)
1	700 + 1200
2	700 + 1340
3	700 + 1480
4	760 + 1200
5	760 + 1340

<b>Digit</b>	<b>Frequency (Hz)</b>
6	760 + 1480
7	860 + 1200
8	860 + 1340
9	860 + 1480
0	940 + 1340
*	940 + 1200
#	940 + 1480