

IVX[®] C-Class

WITH Integrated Answering Machine[™]

Installation Manual

0450-0495
Rev. A



We Make It Easy To Communicate

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(This page included for pagination purposes only.)

General description

Welcome to **IVX® C-Class** (IVX stands for *Integrated Voice Exchange*). It offers the small business an all-in-one phone system including not only phone service but also ESI's Integrated Answering Machine™ — which allows up to two people to leave messages simultaneously and accepts a total of 30 minutes of voice message storage.

The IVX C-Class¹ system is housed in a surprisingly small case that is wall-mounted in the telephone equipment room. An external, wall-mounted power transformer powers the system.

Telephone system features

IVX C-Class is configured to accept six lines, 12 digital stations, and two analog devices.

- **Impressive capacity** — Handles six CO lines and up to 12 stations.
- **ESI Feature Phones** — Compact and stylish, yet rugged, the 24-Key Digital Feature Phone includes a high-quality speakerphone, large and informative multi-functional display and a specially designed key layout with several dedicated keys to minimize or eliminate the need to memorize codes. ESI also offers the 12-Key Digital Feature Phone with similar design and basic functions (see page B.1). At least one 24-Key Digital Feature Phone must be purchased with each C-Class system.
- **Extensive help** — ESI's Verbal User Guide™ uses spoken and displayed help prompts to help everyone from the Installer through the Administrator down to the least experienced end user. Easily accessible with one press of the **PROG/HELP** key. You may also go to **www.esiusers.com** for detailed online help.
- **Intelligent Caller ID** — Allows one-touch automatic message return.²
- **Call waiting** — Includes helpful display, showing both calls' Caller ID information, and easy one-key toggling between calls.
- **Conference calling** — Includes two conference bridges, and a conference may contain up to four parties, so IVX C-Class can support two conferences of four parties each. Analog phones on the system also may be parts of conferences.
- **Esi-Dex™ speed-dialing** — Calls any number using three separate lists (personal, station, and system); uses Caller ID information or direct keypad entries.
- **Dedicated overhead paging interface** — Allows for external paging through overhead speakers or multi-zone paging units (amplification required).
- **911 alert** — Provides immediate line access if any station with line access dials **9 1 1** to report an emergency; sends a message via the serial port indicating the start date, time, station number and end-time of the 911; also sounds a warning tone at the operator station and displays, for example:
 911 CALL FROM
 X102 JOHN JAMES
- **Status indicator lamp** — Indicates three conditions of the 24-Key Digital Feature Phone: off-hook, ringing, and new voice mail message.

¹ Also known as IVX 20c.

² This and all other references to Caller ID service within this manual assume the end-user organization subscribes to Caller ID service from its telephone service provider.

Integrated Answering Machine features

- **Two built-in Integrated Answering Machine ports (or “channels”)** — These are **in addition to** the up-to-20 possible call-processing ports; thus, you may build the system to its maximum for call-handling without having to balance voice messaging needs versus call-handling needs.
- **Highest-grade voice quality** (64-kilobit/second sampling) for storage of voice messages.
IVX C-Class with Integrated Answering Machine offers 30 minutes of voice message storage.
- **Records up to two simultaneous calls** —When a message is left, the message indicator on the 24-Key Feature Phone will light. Messages can be retrieved by any authorized 24-Key Feature Phone or remotely from an off-premises location. The system can also be programmed to either call an off-premises number or commercial network to deliver messages.
- **Four message-on-hold (MOH) recordings** — Three prerecorded and one live-entry.
- **Message Recycle Bin** (undelete) — Remembers, and can restore, the Integrated Answering Machine’s 10 most recently deleted messages.

Hardware overview/installation

IVX C-Class consists of a system cabinet that accepts six lines, 12 digital stations, two analog ports, and 30 minutes of voice message storage.

System cabinet

The wall-mounted **system cabinet** measures 8½" W × 11" H × 3" D, and is designed for easy installation and easy component access. It houses a Memory Module and main board. The system includes a 33.6 Kbps modem used by ESI technicians for remote diagnostics.

Main board

The main board combines leading-edge hardware components — including a Motorola® ColdFire® processor and DSP structure — along with proprietary operating system software. The board provides: system control of the Memory Module (CompactFlash®); six CO line interfaces; 12 digital station interfaces; two analog ports; a standard RS-232C DB9 serial port; a built-in 33.6 Kbps modem for remote access by ESI technicians; an external paging-device interface; and an MOH interface.

Wall-mount transformer

The **system cabinet** requires a 1.25-amp transformer (supplied).

Memory Module

The **Memory Module**¹ consists of a CompactFlash card. It contains all system programming and configuration data, including pre-loaded voice prompts, and provides 30 minutes of voice storage.

Phone models

IVX C-Class supports two phone models:

- **24-Key Digital Feature Phone** — Two-line, 32-character display; 12 programmable feature keys; equipped with speakerphone
- **12-Key Digital Feature Phone** — One-line, 16-character display; nine programmable feature keys.

Each model connects to the cabinet via standard two-wire twisted pair.

Note: Use the wall hook located under the handset when the phone is in the most upright position to keep the handset in place.

Phone overlays

Each ESI Feature Phone comes with one overlay for the programmable feature keys. To order additional overlays, visit the DESI™ Web site at www.desi.com. You can also download the free Windows-based software, *DESI Lite*, which allows you to print on the overlays. For assistance with DESI products, please consult the DESI Web site.

¹ Memory Modules are packaged separately and are mounted in the cabinet during installation.

Cautions

Important: This information complies with the requirements of Underwriters' Laboratories (UL) and UL Standard 60950.

When using this telephone equipment, always exercise basic safety precautions in order to minimize the risk of fire, electric shock or injury to persons. **Before proceeding, please read the following:**

- The airflow vents on the IVX case **must** be free of obstruction for proper cooling. Similarly, **do not** install the cabinet in areas of extreme heat or improper ventilation. **Never** insert objects of any kind through the ventilation slots on the system cabinet; doing so may result in contact with dangerous voltages — or cause an electrical short capable of producing fire or shock.
- **Do not** use liquids or aerosols to clean any IVX equipment; rather, use a cloth that is only **slightly** damp.
- The IVX telephone/voice-mail system contains **no** components that are serviceable by either non-Resellers or non-manufacturer technicians. **All service must be referred to the Reseller for further handling.**
- To reduce the risk of fire, use **only** 26 AWG or better telecom wire.

Power supply

Always disconnect the power supply and telephone lines from the system cabinet **before** opening the case for service or component disassembly or replacement.

Heed all warnings and instructions in documentation or marked on the cabinet or peripheral equipment.

Note: If necessary, review "Wall-mount transformer" (page B.1) for information on the type of power supply for the IVX C-Class system.

Fuse

Contact the factory **before** attempting to replace the fuse. The fuse is marked with "F1" and is located at the top (when the system is installed on the wall) of the motherboard.

Battery

"Caution: There is a danger of explosion if the onboard lithium battery is incorrectly replaced. Replace only with Ray-O-Vac® BR1225 (or equivalent). Dispose of used batteries according to the battery manufacturer's instructions."

Regulatory information

United States of America

Registration

The CO line telephone numbers, FCC registration number, and ringer equivalence number (REN) of this equipment must be provided to the telephone company before installation. (See below for FCC registration number and ringer equivalence number.)

FCC Part 15

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and — if not installed and used in accordance with the instruction manual — may cause harmful interference to radio communications (in which case, the user will be required to correct the interference at his/her own expense).

FCC Part 68

This equipment complies with Part 68 of the FCC Rules. On the side of this equipment is a label that contains, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

The REN is helpful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all, areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, the telephone company will notify you in advance but, if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes to its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If so, you will be notified in advance, to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, the telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Installation: The device is equipped with a USOC connector.

Registration Number: 1T11MF08B33727.

Ringer equivalence number (REN): 0.8

Hardware installation

Site location

As with most electronic equipment, the environmental considerations for this site need to observe good common sense. Provide a dry, clean, and accessible area.

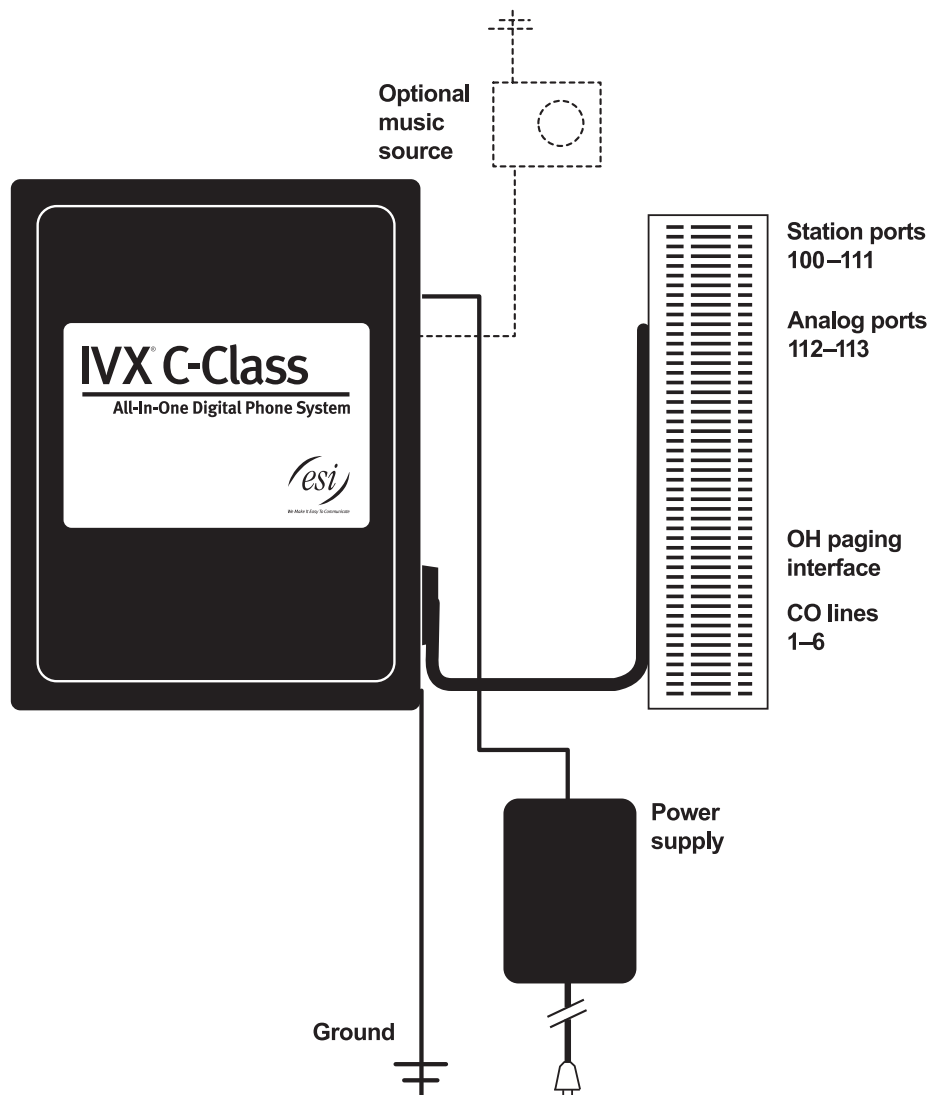
Locate space in the telephone equipment room, which will provide easy connection to the 66 blocks and 110VAC power. **The location should be no further than 1,000 feet from the farthest station.**

Ambient room temperature must be 40⁰–80⁰ (F.), and relative humidity no higher than 90%.

Note: Do not place the equipment or station cabling runs near high voltage electrical equipment or electrical lines susceptible to high voltage surges from air conditioner compressors, etc.

The system and supporting components should be mounted to a half-inch (or thicker) plywood backboard.

IVX C-Class typical installation

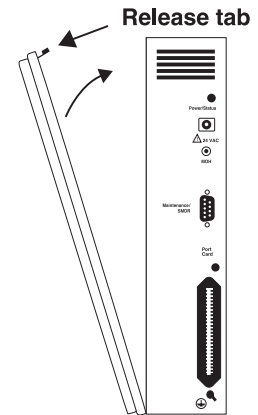


Opening the cabinet

The lid on all cabinets is held in place by two tabs that rest in slots in the bottom of the case, and a release tab that snaps into an opening in the top-center of the cabinet and is secured by a retaining screw.

To remove the lid:

1. Remove the retaining screw and depress the release tab at the top of the cabinet.
2. Rock the lid back from the top.
3. Lift and pull the lid free from the slots in the bottom of the cabinet.

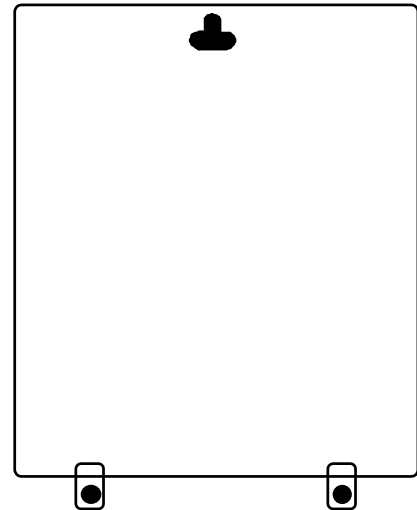


Mounting the cabinet

Use three #8 hex-head screws. Note the position of the three mounting holes in the IVX cabinet.

1. Screw in the top screw to the backboard (at least half-inch thick plywood) leaving about one-eighth-inch clearance between the screw head and the plywood.
2. Hang the unit using the keyhole at the top of the case.
3. Level the unit and install the bottom two screws.

Attach the power transformer to the wall, allowing sufficient length in both cords to reach the power connector on the upper right side of the cabinet and to reach a UPS or a dedicated 110 VAC outlet.



Memory Module

Note: The Memory Module has a **proprietary** formatting scheme — **do not** attempt to install a non-ESI CompactFlash. Contact ESI for a replacement Memory Module, if needed.

Adding or replacing the Memory Module will require that the system be powered down.

Replacing the Memory Module erases all its configuration data and custom recordings.
(Prompts stay intact, however.)

Grounding instructions

System grounding (supplemental ground) is as follows:

- The conductor wires can be no smaller than the ungrounded branch-circuit supply conductors (usually 16-gauge or larger).
- Acceptable wire: bare **or** covered with green (or green-and-yellow-striped) jacket.
- Conductors (and power receptacles) shall connect to earth ground at the service equipment (usually a cold water pipe or copper ground rod).
- The supplemental ground must: be used regardless of power cord ground, be connected to the ground lug on the bottom of the IVX cabinet, and retain ground connection when IVX power supply module is unplugged.

Note: IVX C-Class system lines are protected against a 10 KV surge **only** if the earth ground procedures described above are followed.

Power

The system cabinet requires a 120 VAC outlet (if possible, a dedicated outlet). Use **only** the Class-2 power supply module provided. A clean, isolated power source in conjunction with a UPS is **STRONGLY** recommended. The system draws a maximum of 25 watts.

If AC power is interrupted, the system will drop all connections. When power is restored, the system will resume normal operation in approximately one minute, having retained its full programming and clock setting.

UPS

For system protection and to maintain uninterrupted operation, an uninterruptible power supply is **STRONGLY** recommended. A UPS rated for 200 VA will provide approximately two hours of uninterrupted service for an IVX C-Class system.

LED functions

The unit's various LEDs are designed to provide visual feedback as follows:

Power LED

The **Power** LED is located on the top-right side of the cabinet and is illuminated when power is being applied to the system. This LED blinks periodically to indicate that the main processor is operational.

Memory Transfer LED

This LED is located inside the cabinet in the center of the main board. It serves as a diagnostic aid by flashing as data is transferred to and from the Memory Module.

MOH port

The MOH (messages-, or music-, on-hold) connector on the upper right side of the cabinet is a standard $\frac{1}{8}$ " monophonic mini-jack, used for loading custom MOH recordings or for playing live music-on-hold from an external source such as a radio or CD player.

Maintenance/SMDR serial port

The **Maintenance/SMDR** port is a standard DB9 serial connector located on the side of the cabinet. Use a standard shielded serial cable, DB9-to-DB9, for printer-to-computer (this is usually male-to-female).

Note: The maximum distance from the cabinet is 100 ft.

The output from the Maintenance/SMDR port is, 8 data bits, 1 stop bit, and no parity. The pinout is:

Data Transmit	Pin 2
Receive	Pin 3
Ground	Pin 5

Range: Programmable for 300, 1,200, 2,400, 4,800, 9,600, 19,200, or 38,400 bps.

Default: 38.4K.

SMDR

The IVX C-Class system continuously outputs real-time SMDR call records to the port.

Note: The system will buffer up to 1000 SMDR records (80 KB) in non-volatile memory (CompactFlash) when the maintenance port is in use for programming or uploading. When the buffer reaches capacity, the oldest records are discarded.

External paging device connection

A dry contact overhead-paging device can be connected to the system through the port card's 66 block. The overhead paging port is fixed (located on the main board) as extension 199 for programming purposes and user access.

Audio connection

The audio pair is connected to the 66 block at terminal 33 and 34. The pair's impedance is 600 ohms.

Dry contact control

The manner in which the dry contact pair is punched down on the 66 block sets the pair as normally open (sending a page to the port will close the contacts) or normally closed (sending a page to the port will open the contacts).

Connect the dry contact pair of the device to IVX as follows:

- Terminals 35 and **36** to provide normally **open** operation
or
- Terminals 35 and **37** to provide normally **closed** operation.

The port can be used with zone paging units.

Note: The port doesn't support talk-back paging (which requires a CO port), nor does it support CO ring through the port.

Amphenol cable connections

Connect a standard 66 block using a male 50-pin amphenol cable to the port card's female connector located on the bottom-right side of the cabinet.

CO line connection

Local loop

The IVX C-Class system's advanced CO line circuitry provides for open loop detection and the system's built-in Caller ID interface.

Note: Observe correct order of connection to preserve proper rotary hunting of the CO lines.

Station connection

The first 12 pairs on the amphenol are station ports.

All stations are connected using a single pair. Each port position is pre-numbered and fixed as indicated in the 66 Block Wiring Diagram.

Note: The station runs can be up to 1,000 ft.
--

Digital stations

The digital station wiring is not polarity-sensitive. Only one phone can be connected per digital port.

Analog ports

The analog ports do not require that tip-and-ring polarity be observed. The analog ports can be used for 2500 type sets or for devices such as fax machines, cordless phones, etc., that can be connected via a normal tip-and-ring pair. Each analog port will support only a single analog device.

Worksheet

Term	Wire color	Signal	RJ11	Main board
1	White-Blue	Data+	Green	Digital 100
2	Blue-White	Data-	Red	Digital 100
3	White-Orange	Data+	Green	Digital 101
4	Orange-White	Data-	Red	Digital 101
5	White-Green	Data+	Green	Digital 102
6	Green-White	Data-	Red	Digital 102
7	White-Brown	Data+	Green	Digital 103
8	Brown-White	Data-	Red	Digital 103
9	White-Slate	Data+	Green	Digital 104
10	Slate-White	Data-	Red	Digital 104
11	Red-Blue	Data+	Green	Digital 105
12	Blue-Red	Data-	Red	Digital 105
13	Red-Orange	Data+	Green	Digital 106
14	Orange-Red	Data-	Red	Digital 106
15	Red-Green	Data+	Green	Digital 107
16	Green-Red	Data-	Red	Digital 107
17	Red-Brown	Data+	Green	Digital 108
18	Brown-Red	Data-	Red	Digital 108
19	Red-Slate	Data+	Green	Digital 109
20	Slate-Red	Data-	Red	Digital 109
21	Black-Blue	Data+	Green	Digital 110
22	Blue-Black	Data-	Red	Digital 110
23	Black-Orange	Data	Green	Digital 111
24	Orange-Black	Data-	Red	Digital 111
25	Black-Green	Tip	Green	Analog 112
26	Green-Black	Ring	Red	Analog 112
27	Black-Brown	Tip	Green	Analog 113
28	Brown-Black	Ring	Red	Analog 113
29	Black-Slate			
30	Slate-Black			
31	Yellow-Blue			
32	Blue-Yellow			
33	Yellow-Orange	OH Page Audio A		
34	Orange-Yellow	OH Page Audio B		
35	Yellow-Green	OH Page Relay Common		
36	Green-Yellow	Relay Normally Open or		
37	Yellow-Brown	Relay Normally Closed		
38	Brown-Yellow			
39	Yellow-Slate	Tip	Green	CO1
40	Slate-Yellow	Ring	Red	CO1
41	Violet-Blue	Tip	Green	CO2
42	Blue-Violet	Ring	Red	CO2
43	Violet-Orange	Tip	Green	CO3
44	Orange-Violet	Ring	Red	CO3
45	Violet-Green	Tip	Green	CO4
46	Green-Violet	Ring	Red	CO4
47	Violet-Brown	Tip	Green	CO5
48	Brown-Violet	Ring	Red	CO5
49	Violet-Slate	Tip	Green	CO6
50	Slate-Violet	Ring	Red	CO6

(This page included for pagination purposes only.)

System programming: An introduction

You can program an IVX C-Class system from a 24-Key Digital Feature Phone in the system (while the system is operating).

Read the *C-Class User's Guide* first. Programming features require a clear understanding of **user** interface and application.

Once you've accessed programming mode on a 24-Key Digital Feature Phone, the system will prompt for — and confirm — each keystroke action via voice commands and the display. You program both configuration data and recordings in the same manner.

Programming keys

During programming, the first line of the display will show the current **item** being programmed, and the second line will be the **entry** line. You can enter values as directed by the combination of the voice prompts and display. To enter multiple values, such as a list of extension numbers, separate each value by # (to exit the list, enter # #).

To...	Press ...	What this does
Enter	#	Confirms new or existing entry and advances to next programming step.
Back up (<i>i.e.</i> , reverse direction)	*	Backs up to previous prompt without changing its value.
Delete	HOLD	Deletes data or recording.
Exit	[Hang up]	Exits programming mode and removes extension from DND.
Help	PROG/HELP	Provides more detailed instructions during programming.
Select/scroll	▼ (<i>left-side scroll key</i>)	- During entry of a value, backs up. - If a list is present (">" is displayed), scrolls to left.
	▲ (<i>right-side scroll key</i>)	- Selects from options presented. - If a list is present (">" is displayed), scrolls to right. - Inserts a space during entry of a name.

Note: Either < or > in the display indicates that additional choices or values are available by pressing a corresponding scroll key (▼ or ▲).

Entering alphanumeric characters

You enter names for **extensions, departments, and branch IDs** by pressing the dial pad key that corresponds to the character to be entered. The key's possible entries will change each time the key is pressed, and the display will show this. When the desired character appears on the display, press **#** to confirm; the cursor will move to the next character position. You may move the cursor left (to correct an entry) by pressing the left scroll key (▼) or move right (to add a space) by pressing the right scroll key (▲).

Key	Options
0	0, - (hyphen), _ (underline)
1	Q, Z, 1, " " (space)
2	A, B, C, 2
3	D, E, F, 3
4	G, H, I, 4
5	J, K, L, 5
6	M, N, O, 6

Key	Options
7	P, R, S, 7
8	T, U, V, 8
9	W, X, Y, 9
▼ (left scroll key)	Backs up and erases
▲ (right scroll key)	Adds a space
#	[Enter]
##	Ends the name

Example: To enter a *B*, press **2** twice (the possible options to scroll through are **A, B, C** and **2**). When **B** is displayed, press **#** to confirm; the cursor will move to the next character to be entered. To complete the name, press **##**.

System fixed numbering plan

Numbers	Function
0	Operator
1–6	CO lines
100-111	Digital extensions
112-113	Analog extensions
199	Overhead paging port
290–299	Department numbers
501	Integrated Answering Machine mailbox
560–580	Feature codes
590–593	MOH recordings
600–699	System speed-dial

System programming overview

Here are the programming functions available on IVX C-Class with Integrated Answering Machine.

1 System parameters

- 11 Initialize
- 12 Installer password
- 13 Administrator password
- 14 System clock
 - 141 Set time/date
 - 142 Automatic time setting
- 15 System timing parameters
 - 151 Flash duration
 - 152 Transfer forward timer
 - 153 Recall timers
- 16 System feature parameters
 - 162 Connect tone
- 17 System speed dial
- 18 Maintenance/SMDR serial port baud rate

2 CO line programming

- 21 Line programming
- 22 Toll restriction programming
 - 221 Centrex/PBX access code
 - 222 Toll restriction exception tables
- 23 Line parameters
 - 231 Line receive volume
 - 232 Analog line disconnect
- 24 Caller ID programming

3 Extension programming

- 31 Extension definition and routing
- 32 Extension feature authorization
- 33 Department programming
- 35 Extension button mapping

5 Integrated Answering Machine programming

- 54 Answering Machine Member
- 55 Message notification options

6 Recording

- 63 MOH programming
 - 631 MOH source
 - 632 MOH volume

Accessing programming

You may program from **any** 24-Key Digital Feature Phone in the system:

1. Press **PROG/HELP**. The normal **station** programming menu prompt will begin to play. Press **HOLD** to stop the prompt.
2. Enter the Installer password followed by **#** (The default password is 789).
You are now in programming mode (during this time, the extension will be automatically placed in DND).
3. Follow the **system** programming menu to program as you wish; and, when finished, hang up.

Note: The system will automatically exit programming mode after 10 minutes of inactivity.

Example: If your Installer password is 864, **enter** programming mode by pressing **PROG/HELP HOLD 8 6 4 #**. (To **exit** programming mode, hang up.)

(This page included for pagination purposes only.)

Function 1: System parameters

Function 11: Initialize

This function will return all components and software to their initial state. Initialization will erase all data and custom recordings.

Important notes: Always initialize the system before initial programming for a new installation. You must confirm the command to initialize, when prompted, by entering the Installer password.
Be sure to set the time and date (Function 14) before initializing.

System initialization will take approximately one minute to complete. When completed, the phone's display will return to the idle state. **You must then re-access Programming Mode** by following the steps described earlier (see page C.3).

Functions 12 and 13: Installer and Administrator passwords

These functions will display the existing password and prompt for entry of a new password. The passwords can be 2–8 digits long, followed by #. **The Installer can change either the Installer or Administrator Password. Only those functions listed in the *Administrator manual* can be programmed via the Administrator Password.** The default passwords are:

Installer Password (Function 12) = 7 8 9

Administrator Password (Function 13) = 4 5 6

Notes: Be sure to write down the new passwords, store them in a safe place and give the new Administrator's Password to the Administrator.

Accessing user station programming

Should a user forget his password or if an employee leaves the organization, this feature allows the Installer or Administrator to enter a user's station programming and operate within it as if he were the user. From the user's station, enter the **Installer** or **Administrator** password when the system prompts for the **user** password.

Example: From station 105, entering 7 8 9 # or 4 5 6 # instead of the user password (1 0 5 #) will enter the station's user programming. (Default passwords shown for this example).

Function 14: System clock

Function 141: Set time/date

1. Enter a new time in a **twelve**-hour format.

Example: Enter **1 2 3 3** for 12:33, or **3 1 5** for 3:15 (note that you need **no** leading zero for the time).

2. Select AM or PM by pressing a scroll key (either ▼ or ▲).
3. Enter a new date in an **eight-digit** format, **including** leading zeroes.

Example: Enter **0 7 0 4 2 0 0 3** for July 4, 2003 (note that leading zeroes **are** required here, unlike in Step 1).

4. Press **#** to finish the entry.

Note: A built-in battery maintains the correct time and date, even in the event of a power loss.

Function 142: Automatic time setting

1. Synchronize with CID

This function, when enabled, synchronizes the real-time clock with Caller ID (CID) messaging: call processing compares the time of a CID message to the system real-time clock and, if the difference is more than two minutes, resets the real-time clock to match the time (hours and minutes) of the CID message. The system will analyze each such message (or — if it receives more than four calls with CID information within a one-minute period — as is needed). Select *ENABLE* or *DISABLE* by pressing a scroll key (either ▼ or ▲). Choosing *ENABLE* will allow the CID data to update the time and date.

Default: Enabled.

2. Adjust for Daylight Savings Time

This function, when enabled, causes the real-time clock to adjust itself automatically for Daylight Savings Time (DST). Select *AUTO* or *DISABLE* for DST by pressing a scroll key (either ▼ or ▲). Choosing *DISABLE* is best for those areas that don't observe DST.

Default: Disabled.

Function 15: System timing parameters

Function 151: Flash hook duration

This sets the time (in seconds) that a flash hook will be sent on the current line to the Telco. The default setting of **1.5** will cause disconnect and fresh dial tone from the CO.

Range: 0.2–2.0.

Default: 1.5.

Function 152: Transfer forward timer

This sets the number of times a transferred call will ring before following the day/night routing for the extension or department.

Range: 1–9 rings. **Default:** 3.

Function 153: Hold recall timer

This is the amount of time in seconds that a call will remain on hold or park before recalling to the extension that initiated the exclusive hold.

Range: 5–960 seconds.

Default: 60.

Function 16: System feature parameters

Function 162: Connect tone

This sets whether the system plays a system connect tone (two short beeps a user hears when a station answers).

Default: Enabled (the beep plays).

Function 17: System speed-dial

Up to 100 system speed dial names and associated numbers can be stored, in location numbers 600–699, for access by any station. A user can initiate a system speed-dial by dialing the speed dial location number or by accessing the name through the Esi-Dex feature. In Function 32, access to system speed-dial can be denied to individual stations (see page F.4).

Note: System speed-dialing overrides toll restrictions (Function 32, page F.4).

1. Enter the 3-digit location number to program,
2. Enter a **ten-character** name (see “Entering alphanumeric characters,” page C.2).
3. Enter the number to be dialed (including the line group 9, 8, or 7). Press the left scroll key (▼) to delete any character or digit entered in error. Here’s an example:

1.	2.	3.
Speed Dial #	Name	Number
601	AUTO RENTL	915552221212

The number dialed in Step 3 can be up to 30 digits long **including** the following special codes:

Code	What it produces
#	# DTMF tone
*	* DTMF tone
F	Flash hook
P	2-second pause

To insert a special code, press the right scroll key (▲) to select the desired special code: #, *, F or P. Press # to confirm the inserted character and continue. Press ## to complete the entry. Use the down arrow key (▼) to backspace. Once the number is saved, you can use the scroll keys to move back and forth to view the number. To edit the number, you must delete it and enter the correct number.

Example: To create a System Speed Dial number that dials 9, then 972-555-5644, then pauses for four seconds and finally dials #104, enter:

9 9 7 2 5 5 5 6 4 4 (then scroll to) **P #** (then scroll to) **P #** (then scroll to) **## 1 0 4 #**

Deleting a speed-dial number

To delete an entire speed-dial number and name, delete the location number (**6 X X**) by pressing **HOLD** or the left scroll key (▼) during Step 1 in the speed-dialing procedure described above.

Function 18: Maintenance/SMDR serial port baud rate

The **Maintenance/SMDR** serial port¹ is located on the side of the system cabinet. The system continuously outputs real-time SMDR call records to the port. (See also “SMDR,” pp. I.1–I.2.)

1. The system will prompt you for the *baud rate*. You can change this rate by pressing the scroll keys (▼ and ▲).
Options: 300, 1200, 2400, 4800, 9600, 19200 or 38400 bps.
Default: 38400.
2. Select the SMDR format, *STANDARD* or *CSV*, by pressing the scroll keys (▼ and ▲).
Default: *STANDARD*.

¹ The port is called “**Maintenance/SMDR**” because IVX C-Class shares its cabinet design with other IVX models, on which a PC can be connected to the port for on-line maintenance (programming and software upgrades).

Function 2: CO lines

The IVX C-Class system can operate on a station-by-station basis as a PBX or as a combined key/PBX using standard loop start lines. If a station has line keys programmed, the user accesses the lines by pressing one of these keys **or** by dialing **9** (or **8** or **7**). If a station does **not** have line keys programmed, the user **always** accesses CO lines by dialing **9** (or **8** or **7**).

Note: To provide additional visual indication of CO line usage, the 24-Key Digital Feature Phone's idle display will show on/off-hook line status.

Since the system handles call transfer functions efficiently, operating in the PBX mode provides more programmable feature keys for other uses and the opportunity for glare is greatly reduced.

Note: All phone programmable keys default to being unprogrammed (except on extension 100, where the first key defaults as a day/night key). Use *extension button mapping* (Function 35; see page F.6) to assign line keys system-wide. An **individual** station's keys can be reassigned using **PROG/HELP 2** at that station.

Important: Where any **gray shading** (■) appears in an example, it represents values either **unavailable** to the function or **unused** in the particular example.

Function 21: CO line programming

- The CO lines are numbered 1–6.
- All CO lines are programmed to route callers during the day mode and then can be programmed to route callers differently during the night mode. The display will indicate *D* (for *day*) or *N* (for *night*) to show which mode is currently being programmed. Lines that are to be programmed alike can be *grouped* to simplify programming.

Example: Here is a completed Programming Worksheet for incoming calls on Line 1 to ring live to extension 100 but finally answered by the Integrated Answering Machine on the ninth ring. **(The step numbers correspond to the explanation that begins below.)**

1. CO	2. Out	3. Ring 1	Ring 3	Ring 5	Ring 9
1	9	X100	X100	X100	MB501

Do the following to program the CO lines.

1. Choose CO lines to program

During this step, you use the first 6 programmable keys to represent CO lines. Select lines to be programmed by pressing one or more of the programmable keys.

The first six DSS LEDs glow red. Select the COs to program alike and press the # key to confirm. The LEDs will now glow green.

2. Assign outbound CO line groups

CO lines can be grouped for outbound, pooled access into one of three line groups: 9, 8, or 7.

Note: A line can only be in one line group or designated as a private line.

(Continued)

Select the line group and press the # key to confirm. Outgoing calls will be assigned from the highest CO to the lowest available. Or, to **delete** the line group number (whereupon the line can only **receive** inbound CO line calls), press **HOLD**.

Default: 9 (i.e., all CO lines in Group 9).

Private line

You can designate a line as a **private line** by entering an extension number, instead of a line group number, in this step. The line is then programmed as outlined in the following explanation, giving the private line great flexibility for handling call routing.

Note: A private line can be assigned only to a Digital Feature Phone. A line key must be programmed on the phone to access the line for outgoing calls. However, a status key can be programmed on another phone to display the busy/idle condition of a private line.

3. Assign answer rings

Lines can be directed to be answered at up to 10 extensions, a department, or the Integrated Answering Machine (see “Function 5: Integrated Answering Machine programming,” page G.1). The destination can be set to add or drop extensions, departments, or the Integrated Answering Machine if ringing continues due to no answer.

Example: First ring — Line 1 will ring at the operator's extension.
 Third ring — Extensions 112 and 113 are added.
 Fifth ring — The operator's station is dropped from ringing.
 Ninth ring — The call will be answered by the Integrated Answering Machine.

CO	Out	Ring 1	Ring 3	Ring 5	Ring 9
1	9	X100	X100 X112 X113	X112 X113	MB501

Once you have programmed all desired CO lines for day mode, repeat the programming steps for all desired CO lines for night mode.

Default: Answer on ring 1.

Example: To have after-hours calls directed to the Integrated Answering Machine, program the system as follows.

During night mode, line 1 (and other lines to be programmed alike) will be answered immediately by MB501. The personal greeting for MB501 might be:

“Hello. Thank you for calling ABC Company. Our offices are closed. Our normal business hours are 8 to 5 Monday through Friday. Please leave a message at the tone, and your call will be returned when we resume normal business hours.”

Night mode

CO	Out	Ring 1	Ring 3	Ring 5	Ring 9
1	9	MB501			

Function 22: Access codes/toll restriction

Function 221: Centrex/PBX access code

If the system is to be used behind Centrex or another PBX, you must list the **dial access code** used to gain access to a CO line from Centrex or the PBX, so that toll restriction can ignore the access code digit(s). Users must dial the access code after accessing a line by **either**:

(a.) Dialing **9, 8, or 7**

or

(b.) Pressing a line key (if programmed)

The access code can be one or two digits — e. g., 9, 81, etc. — and must be programmed for each line group.

Default: 0.

Note: You must set the flash duration in Function 151 (page D.3) for the requirements of the host switch.

Function 222: Toll restriction exception tables

The system's toll restriction is based on outbound calls being defined as either *toll calls* or *non-toll calls*.

- **Toll calls** — All “1+” or “1010” calls, information, operator, international, “1-900” and “976” calls.
- **Non-toll calls** — All seven and 10-digit local calls, and all “1-800” or “1-888” calls.

As part of extension feature authorization (Function 32; see page F.4), each station is programmed to be allowed or denied toll calls by following the fixed tables when they are programmed with an “N,” as well as following the allow and deny exception tables (*i.e.*, overriding the fixed tables). All stations that have been assigned access to a line group can make non-toll calls.

To program the allow and deny exception tables:

1. Enter the numbers for either table, separating each number by #.

Example: For “1-900,” enter **1 9 0 0 #**.

Note: Press **MUTE/DND** to insert a “wild card” digit. A “wild card” digit is needed only when followed by more numbers; e.g., to allow/deny 1-555, enter just **1 5 5 5 #** — however, to allow/deny all “1+” area codes and 555, enter **1 X X X 5 5 5 #** (where **X** indicates a pressing of **MUTE/DND**).

Warning: Do **not** include IVX line access codes (9, 8, or 7) in **any** of the toll restriction entries.

2. After the last number, enter **# #** to end the list. The IVX C-Class system will apply the numbers you enter to their most significant digit.

Example: Entering **1 5 0 5** into the deny exception table tells IVX to deny **all** “1+” calls to area code 505. **But** entering **1 5 0 5 5 5 8 7 8 7** into the table tells IVX to deny “1+” calls **specifically** to (505) 555-8787 while **allowing other** “1+505” calls.

To allow information calls, enter into the allow table: **411, 1411, 5551212, 1XXX5551212** (where **X** is a wild card digit, entered by using **MUTE/DND**).

Default: None.

Function 23: CO line parameters

Function 231: System CO line receive volume

Many variables can affect the volume of the CO lines. Weak lines can reduce the system's ability to properly detect DTMF dialed by an outside caller. Conversely, "hot" lines can cause DTMF distortion and/or increase the opportunity for message talk-off (*i. e.*, messages being cut off before completion). Ideally, a message recorded from an outside call has the same playback volume as the system prompts. This function can be used to adjust the gain of the receive volume of the CO lines system-wide.

Range: 0–12 (lowest to highest gain, respectively).

Default: 10.

Function 232: Line disconnect

You can set the lines to detect the open loop interval (if available from the CO) and disconnect more quickly. This will also allow the system to drop abandoned calls from hold, as well as reduce the possibility that abandoned calls could create messages that are either silent or contain CO-generated tones. Since open loop intervals generated by the CO may vary in duration, use this function to program the system to less than or equal to the CO open loop interval.

If this programmed value is set unnecessarily low, the system may falsely interpret static or a momentary loop break as an open loop and disconnect a caller on hold or in the process of leaving a message. If this value is set too high, the system may not detect a valid open loop signal for fastest call processing.

Range: 1–255 (10–2,550 ms) (or 0 to turn off open loop detect).

Default: 6 (60ms).

Function 24: Caller ID

This function activates the Caller ID capability in the IVX C-Class system — **if** the customer has ordered Caller ID service from the Telco. The IVX C-Class system will display the caller's name (or "OUT-OF-AREA," etc.) for incoming calls or messages (or show the Caller ID number if the CO only provides a number).

Default: Disabled.

Esi-Dex and auto callback¹ — This is accomplished by pressing **FLASH/RDL** or **ESI-DEX** either during message playback or after an Esi-Dex search. Caller ID numbers received from the CO are 10 digits long (and include the area codes for local calls). **In auto callback, the IVX C-Class system assumes all calls are to be long distance and will automatically add a "1" prefix to the 10 digits to be dialed.**

A table of local area codes can be programmed to indicate that calls to those area codes are to be dialed as local calls. Select one of the following two types of **local** dialing for each area code entered:

- **Local 7** — Local calls that can be dialed only as seven-digit numbers (the IVX C-Class system strips the area code before dialing and will **not** add a "1" prefix).
- **Local 10** — Local calls that can be dialed only as 10-digit numbers (the IVX C-Class system will **not** add a "1" prefix).

For an area code that can be called as a long distance number (with a "1" prefix) **and** as a local number (10 digits without a prefix), decide which case is the more prevalent and then add to or exclude from the area codes exception list accordingly. Thus, some of these calls must be made manually.

Note: Since the Caller ID information is transmitted from the CO during the silence between the first and second rings, enabling this feature will delay the answer of inbound calls until the second ring.

¹ Esi-Dex isn't available on the 12-Key Digital Feature Phone.

Function 3: Extension programming

This section provides programming for extensions and department groups.

Important: Where any **gray shading** (■) appears in an example, it represents values either **unavailable** to the function or **unused** in the particular example.

Function 31: Extension definition and routing

Extensions can be either:

- **Digital Feature Phone** extensions (*DIGITAL* in the chart below and succeeding charts)
- **Analog** ports (*PHONE*, *FAX*, *MODEM*, *RINGER* or *DOOR* in the same charts)

Digital extensions may be 100–111; analog extensions are 112–113.

Digital Feature Phones

Here is an example of the portion of a completed programming worksheet for Digital Feature Phones.

1. Ext.	2. Type	3. Name	4. CO	5. CF day	6. CF night	7. Page zone	8. Ext.
0		Operator		X100	MB501		X100
100	DIGITAL	Jane	9	X100	MB501	0	
101	DIGITAL	Roger	9	X100	MB501	0	
102	DIGITAL	Sally	9,8	X100	MB501	0	
112	EXT	Roger 2	9	X100	MB501		
113	FAX	FAX					

Note: 100 defaults as OPR (when a user dials 0); 101 is an example of system default.

Here are the steps for programming Digital Feature Phone extensions:

1. **Extension number** — Extension numbers range from 100 to the highest number of ports installed and must match the port numbers as connected to the system.
2. **Type** — Based on the port card installed, the IVX 20c assigns the port as *digital*.¹
3. **Extension name** — Used for the display, reports, and as a programming aid. The name's length can be no longer than 10 characters (See "Entering alphanumeric characters," page C.2).
Default: The extension number.
4. **CO line group** — Assigns the extension's ability to access one **or more** CO line groups (9, 8, and 7).
Default: 9.
5. **Call forward busy/no answer for day mode** — The extension is set to call forward busy/no answer to the extension (or department) mailbox for day mode. This option is set and cannot be changed with the exception of extension 0.
6. **Call forward busy/no answer for night mode** — Same as previous item, except night mode.

(Continued)

¹ For programming of analog ports, see pages F.2–F.3.

7. **Extension page zone assignment** — (The all-page zone, 0, is the only page zone available on IVX C-Class with Integrated Answering Machine.)

The overhead paging port (extension 199) can be paged along with other extensions in a zone by including the desired page zone for extension 199.

All digital phone extensions are included in (and cannot be removed from) the all-page zone.

Analog extensions cannot be included in page zones.

8. **Operator translation** — Extension **0** (Operator) programming requires:

- Programming call forwarding for day and night mode
- Entering the extension number to which calls are to be directed when someone dials **0**.

Default: 100.

Analog ports

The last 2 station ports can be programmed only as follows:

1. Ext.	2. Type	3. Name	4. CO
0		Operator	
100	DIGITAL	Jane	9
101	DIGITAL	Roger	9
102	DIGITAL	Sally	9,8
112	PHONE / FAX / MODEM / RINGER / DOOR	PHONE / FAX / MODEM / RINGER / DOOR	9
113	PHONE / FAX / MODEM / RINGER / DOOR	PHONE / FAX / MODEM / RINGER / DOOR	9

Here are the steps for programming analog ports:

1. **Phone number** — Analog port extension numbers must be X112 or X113.
2. **Type** — If *ANALOG PORT* is selected, then the ports can further be defined as follows; the words in parentheses (**EXAMPLE**) indicate what the display will show in each case:
 - **Phone (EXT)** — Designed to provide for standard 2500 type phones. See *the IVX C-Class User's Guide* for complete description of the capabilities.
 - **Common ringer (RINGER)** — Connected via a tip and ring pair; will apply ring voltage whenever a line rings in night mode or when a call is directed to it (transfer, call forwarding, CO ring, etc.).
 - **Fax (FAX)** — If the Integrated Answering Machine answers and detects a fax tone, it will automatically forward the tone to the analog port programmed as FAX.
 - **Modem (MODEM)** — Incoming calls for a modem can be manually transferred to the modem extension; also, the modem can automatically generate outbound calls. Maximum connect speed through the PBX is 9600 bps.
 - **Door phone (DOOR)** — A telephone connected to this port will automatically dial the programmed ring down extension number whenever the set is taken off-hook.

- 3. Extension name** — This is used for the display, reports, and as a programming aid. The maximum length is 10 characters (See “Entering alphanumeric characters,” page C.2).
Default: The type selected.

Note: The name for the ringer and door must be changed in Function 32.

- 4. CO line/ring down** — For fax, modem, or phone, select the desired line group — 9, 8, or 7.
Default: 9.

If *door phone* is selected, an extension number is entered as a ring down destination.

Default: Extension 100.

No dial tone is presented for *common ringer*.

Overhead paging interface

You can connect a dry-contact overhead paging device to the system through the first port card's 66 block. The overhead paging port's access is fixed as extension 199 for programming purposes. The user can access it by:

(a.) Dialing **1 9 9**

or

(b.) Programming **199** as a programmable key and/or including **199** in one or more page zones.

Note: DTMF can be transmitted to the overhead paging port after access, allowing for zone overhead paging, if the paging unit supports zone paging.

1.		2.		
Ext.	Type	Name	CO	Page Zone
199				

Dry contact control

The manner in which the dry contact pair is punched down on the 66 block sets the pair as either **normally open** (sending a page to the port will close the contacts) or **normally closed** (sending a page to the port will open the contacts). See the “Hardware installation” section (beginning on page B.4).

Function 32: Extension feature authorization

The Installer or Administrator can allow or deny many extension features on an extension-by-extension basis. A user, however, can only program and use allowed features (by using a combination of voice and display prompts) from his/her phone.

Below is an example of a completed programming worksheet. The programming sequence is:

1. Ext.	2. Name	3. Rec.	4. Toll allow	5. Sys. spd. dial	6. Ext. fwdg.	7. Ext fwd. to toll #	8. Trunk- to-trunk
XXX	Default		Y	Y	N	N	N
100	Jane		Y	Y	N	N	N
101	Roger		Y	Y	N	N	N
102	Sally		Y	Y	N	N	N
112	Bill		Y	Y	N	N	N

The programming steps are:

1. Extension number — Enter the extension number to program.

2. Extension name — Name the extension (if not previously named in Function 31 [see page F.1]).

For each of the following features, press a scroll key (▼ or ▲) to select YES or NO.

3. Live recording feature — (Not available on IVX C-Class with Integrated Answering Machine.)

4. Toll restriction — “YES” allows the user to place toll calls. If you select “NO,” the user can make only either non-toll calls or calls to numbers listed in the allow exception table.

5. System speed dial — “YES” allows the user to access and place system speed dial calls.

6. External forwarding — Allows the station user to enable the off-premises “reach-me” feature. The off-premises reach-me feature allows a caller that has been forwarded to voice mailbox to be transferred to an outside number. See the *IVX C-Class User’s Guide* for more information about the Off-Premises reach-me feature.

Default: Disabled.

7. External forwarding — This feature is used in conjunction with external forwarding. When enabled, this feature lets the user program a long-distance number for external call forwarding.

8. Trunk-to-trunk — If enabled, this feature allows manual trunk-to-trunk transfers. While connected to an outside call, the user can press **TRANSFER**, dial an offsite number and then complete the trunk-to-trunk transfer by simply hanging up. Both outside parties are then connected.

Note: After the system dials the external forwarding number, a prompt will be played saying, “*You are receiving a forwarded call. Press any key to accept.*” This prompt will play continuously for 30 seconds. If the forwarded call is answered and the called party dials a digit, the forwarded call will be connected to the called party. If no digit is dialed, the caller is automatically forwarded to voice mail. While the two lines (trunks) are connected, the system constantly monitors the lines for open loop conditions (hang-up). If an open loop is detected on either line, the call is disconnected. The system also monitors for voice activity on the connected lines. If voice is no longer detected, the call is disconnected. Finally, if both lines are connected for more than 60 minutes¹, the call will be disconnected.

¹ The default timer can be made longer or shorter.

Function 33: Department programming

You can create up to 10 **departments** (or “hunt groups”), each with a maximum of 14 extensions. You also can assign an extension to more than one department. Department numbers range 290–299.

A call to a department will ring all listed phones at the same time. If no extension answers or all are busy, the call will call-forward as programmed as part of this function.

Procedure

Here’s an example of a completed programming worksheet:

1. Ext.	2. Name	3. Type	4. CF day	5. CF night	6. List:
290	Sales	[Rings all]	X100	MB501	[All extensions]

Here are the programming steps.

- 1. Department number** — Range is 290–299.
- 2. Name** — Used for the display, reports, and as a programming aid. Length can be up to 10 characters (See “Entering alphanumeric characters,” page C.2).
Default: The department number.
- 3. Type** — (Fixed; a call rings all extensions, as explained before.)
- 4. and 5. Call forward busy/no answer** — The department can be set to call forward busy/no answer (for all extensions in the department) to an extension, another department, a mailbox or a branch ID for day mode and differently for night mode. The department can have its own mailbox for pickup by members knowing the password or forwarded to any mailbox type including guest.
Calls routed to an extension via a department will follow the **department’s** call forwarding. While calls transferred to the extension will follow the **extension’s** call forwarding as programmed in Function 31 (see page F.1).
Default: X100.
- 6. Department list** — (Automatically includes all extensions on the system.)

Example: Here is a portion of a completed programming worksheet for Department programming. Department 290 will ring all extensions. If all are busy or do not answer, the call will forward to the operator (X100) if in day mode — or, if in night mode, to the Integrated Answering Machine (MB501) to let the caller leave a message. Department 291 is set up the same way, except X105 will ring if busy/no answer in Day mode.

1. Ext.	2. Name	3. Type	4. CF day	5. CF night	6. List:
290	SALES	ALL	X100	MB501	All Ext.
291	SERVICE	ALL	X105	MB501	All Ext.

Function 35: Extension button mapping

By default, the programmable feature keys' initial state is "not programmed" (except in the case of station 100, on which the upper left key is a day/night key). Use this function to change the programmable feature keys **system-wide**. Users can later change the programmable feature key positions for **their** stations as part of station programming.

Important: Future, system-wide changes made later here by the Installer will overwrite **any** station user programming.

When prompted, press the desired programmable feature key location, then enter the appropriate digits on the dial pad and confirm by again pressing the same programmable feature key.

To determine how a programmable feature key is currently programmed, press the key, note how it is programmed, and press the key again.

The keys can be programmed as follows:

CO line key

If the dialed digits are 1–6, the key will serve as a CO line key.

Note: Removing the line key appearances will set the station(s) to operate as a PBX with line access by dialing **9** (or **8** or **7**).

Station key

If the digits entered constitute a three-digit extension number (or department, guest mailbox, etc.), the key will become a station key providing the appropriate lamp information (See "System fixed numbering plan," page C.2).

Speed-dial key

If one enters **9** (or **8** or **7**) plus a phone number, the key will become a speed-dial key for outside calls. Alternatively, the user may enter the system speed-dial bin (600–699).

Feature keys

Feature keys, as listed below, cannot be programmed system-wide but must be programmed for each individual station.

Code	Feature	Available on 12-Key Phone	Available on all 24 and 48-Key Phones	Available to Master Station Only
199	Overhead page	X	X	
560	Day/night mode		X	
564	Headset		X	
565	Call forward	X	X	
565YYY	Call forward to an extension	X	X	
568	Message monitor			X
570	Conference	X	X	
571	Greeting 1			X
572	Greeting 2			X
573	Greeting 3			X
575-576	Virtual Answer		X	
578	Mute/DND	X	X	

(Continued)

- **Manual day/night mode (Code 560)** — Allows manual setting of the system's mode — day or night.

Note: You or the Administrator can also change the mode remotely to handle unexpected closings, such as for inclement weather.

- **Headset key (Code 564)** — Provides for easy connecting to/disconnecting from calls when the user is operating in headset mode. The user presses the key to receive dial tone or to answer a ringing call; he/she then presses the key again to disconnect from the call.
- **Call-forward key (Code 565 or 565XXX)** — Toggles call forwarding on and off. If the user always forwards to the same extension, you (or the user) can program a key with both **5 6 5** and the extension number.
- **Message monitor key (Code 568)** — Toggles message monitor mode. (Functionally is same as pressing **PROG/HELP 3 6** and following the prompts.)
- **Conference (Code 570)** — Serves the same function as the **CONF** fixed-feature key.
- **Personal greeting keys (Codes 571–573)** — These provide for easy activation of one or more of the user's personal greetings. Each key's LED will be green for the associated personal greeting that is active. These keys can be used in place of, or in conjunction with, manual activation of the greetings in programming mode.
- **Virtual Answer keys (Codes 575–576)** — You can program a **Virtual Answer Key** to play a greeting to a caller when the extension is busy and route the caller to a desired destination by pressing this key. Program a programmable feature key with either **5 7 5** or **5 7 6**. Prompts will instruct you in how to record the greeting and enter the caller's destination.

Note: This works **only** if call waiting is enabled for the station.

- **Mute/DND (Code 578)** — Serves the same function as the **MUTE/DND** fixed-feature key.
- **VOICE MAIL (Code 579)** — Serves as a **VOICE MAIL** key on 12-Key Digital Feature Phones.
- **Override ring key (Code 580)** — Allows a user to place an outside call (CO, extension, Esi-Link or Remote Phone) while another call is ringing in on the same station.

Note: To **delete** a programmable feature key, press **HOLD** instead of programming a value.

Private line key

If a private line has been established in CO line programming (see "Private line," page E.2), that CO line key must appear on that station's phone to allow outbound access to the line.

(This page included for pagination purposes only.)

Function 5: Integrated Answering Machine programming

Function 54: Answering Machine Members — MB501

The Integrated Answering Machine can record up to two simultaneous calls. When a message is left, the message indicator will light on the 24-Key Feature Phone of each member of **mailbox 501**. Messages can be retrieved by any authorized 24-Key Feature Phone or remotely from an off-premises location. Only one user can access the mailbox at a time. The system can also be programmed to call an off-premises number to deliver messages or notify a pager.

The first member in the **Master List** (which may hold up to 24 members) is allowed to program the Integrated Answering Machine via the **PROG/HELP** key. This station is designated as the **Master Station**. All other users will only be able to play and delete messages. Only a 24-Key Digital Feature Phone can be installed on an extension designated as the Master Station. However, either a 12- or, 24-Key Digital Feature Phone can be installed on an extension in the Master List.

Default: Extension 100.

Function 55: Message notification

The system can be programmed to call an off-premises number or another extension to deliver messages or dial to an external commercial paging network to activate a user's pager. The IVX C-Class system will call or page when the first new message has been left in the mailbox and will repeat (at the interval of minutes programmed in this function) until the new message(s) have been deleted, saved or moved.

The user can program either a phone **or** pager number.

The Installer and Administrator can set, on an individual-station basis:

- The number to be called
- A delay period
- The number of attempts (maximum of 99)
- The interval between attempts
- A "quiet period" to suspend phone delivery — e.g., late at night (the quiet period is an on-and-off time that applies to all days of the week)

Note: Only pager or phone notification can be programmed, not both.
--

(Continued)

Function 551: Station delivery options

Programming of the station options, as shown below, can be performed by the Installer or Administrator. In addition, the user can change his phone number and pager number (but not phone or pager delay time). The phone number's maximum length is 24 digits.

	1. Number	2. Delay	3. Attempts	4. Interval	5. Quiet on	6. Quiet off
1. Phone	9725556789	30	6	60	10:30PM	7:15AM
2. Pager	9725551234	0	10	30		

To program, enter **5 0 1 #** (to select mailbox 501) and choose **1** for phone number or **2** for pager number. Then, follow the prompts to set the parameters below.

- 1. Phone/pager number** — The number to be dialed (**without** the CO line Group [9, 8 or 7]).
- 2. Delay** — How many minutes the system is to wait before dialing the phone or pager number. This allows the user to pick up a message if he is in the office.
Range: 0–500. **Default:** 0.
- 3. Attempts** — How many times the system will call/page.
Range: 0–99. (0 turns off delivery.) **Default:** 3.
- 4. Interval** — How many minutes should elapse between attempts.
Range: 1–1440. **Default:** 30.
- 5. Quiet period on** — Phone only. When the quiet period should begin.
Default: (None.)
- 6. Quiet period off** — Phone only. When the quiet period should end.
Default: (None.)

Code	What it produces
#	# DTMF tone
*	* DTMF tone
F	Flash hook
P	2-second pause

To insert a special code, press the right scroll key (▲) to select the desired special code: **#**, *****, **F** or **P**. Press **#** to confirm the inserted character and continue. Press **# #** to complete the entry. Use the down arrow key (▼) to backspace.

Once the number is saved you can use the scroll keys to move back and forth to view the number. To edit the number, you must delete it and enter the correct number.

Function 552: Delivery/paging parameters

The sequence of programming is as follows:

- 1. CO line access** — Enter the CO line group (9, 8, or 7) that is to be accessed for delivery.
Default: 9.
- 2. Pager dialing pause** — When paging, the IVX C-Class system will send the mailbox number to be shown in the pager's display. To allow time for the paging service to answer, enter the pause, in seconds, to occur between when the IVX C-Class system dials the pager number and when it then dials the mailbox number.
Range: 0–20. **Default:** 6.

Function 6: Recording

Function 63: Message-on-hold (MOH) programming

MOH can be:

- A live feed from an external music source connected to the MOH connector located on the side of the cabinet.
- One of three default, generic MOHs pre-recorded by the factory.

Function 631: MOH source

This selects the source that will be played to callers on hold.

Code	Source
590	Live external source*
591	Pre-recorded music
592	Pre-recorded with <i>"please continue to hold"</i>
593	Pre-recorded with <i>"dial 0 or extension from hold"</i>

* Dialing off-hold doesn't work.

Default: 592 (generic message-on-hold).

Notes: If an external audio source such as a radio is used for MOH, adjust the volume at the source.

To turn live MOH volume completely off, turn off volume at the source.

(This page included for pagination purposes only.)

SMDR

SMDR (station message detail reporting) call records are output in real time via an ESI phone system's **Maintenance/SMDR** serial port. Connect a standard serial printer or call accounting system to the serial port.

The output from the serial port is: 8 data bits, 1 stop bit, and no parity, 1200 baud.

SMDR may be output in one of two formats, selected in system programming: **tabular** or **CSV**. The tabular format is the default.

Tabular SMDR format

The tabular IVX SMDR output format, which is compatible with the standard Panasonic® DBS® format, is as shown below:

	1	2	3	4	5	6	7	
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678								
T MM/DD HH:MM:SS HH:MM:SS NNN XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								LL

The columns are:

- **Call type** — Outbound (“O”), inbound (“I”) or transferred (“T”) at column 1.
- **Date** (“MM/DD”) — Begins at column 3.
- **Start time** (“HH:MM:SS”) — Begins at column 9.
- **Duration** (“HH:MM:SS”) — Begins at column 18.
- **Extension number** (“NNN”) — Begins at column 27.
- **Digits dialed** (right-justified)/**Caller ID** (left-justified) — Begins at column 31 (28 characters).
- **CO line number** (“LL”) — Begins at column 77.

Each record is terminated with a line feed and carriage return character.

CSV SMDR format

The **comma-separated value (CSV)** format is compatible with *Microsoft® Excel®* and other spreadsheet applications. A CSV record will be output for each completed call, and will be represented as follows (word-wrapped):

Format:

"T", "MMDDYYYY", "HHMMSS", "HHMMSS", "NNN", "XXXXXXXXXX. . .XXX", "CCCCCCCCC. . .CCC", "LL"

Example A:

"I","07042002","000852","000059","101","9724229700","ESTECH SYS INC. ","54"

Example B:

"0", "10312003", "221502", "020512", "190", "12125551212", "", "11"

(Continued)

The fields are:

- **Call type** ("T") — Outbound ("O"), inbound ("I") or transferred ("T").
- **Start date** ("MMDDYYYY") — Six characters, zero-filled.
- **Start time** ("HHMMSS") — Six characters, zero-filled; 24 hour clock.
- **Duration** ("HHMMSS") — Six characters, zero-filled.
- **Extension number** ("NNN") — Three characters, space-filled, right-justified.
- **Digits dialed/Caller ID** ("XXXXXXXX . . . XXX") — Up to 28 characters, null-filled.
- **Caller ID name** ("CCCCCCCC . . . CCC") — Up to 24 characters, null-filled.
- **Line number** ("LL") — Two characters, null-filled, right-justified.

Each field is delimited with double quote marks and separated with a single comma. Null fields are still included as place holders (see Example B, p. I.1). Each record is terminated with a line feed and carriage return character.

Reporting conventions and rules

- Inbound and outbound call records are generated only for calls between a station and a CO line.
- The duration of each call record represents the period of time that that station controlled its portion of a call. A record is generated each time a station does any of the following:
 - Disconnects.
 - Places a call on hold.
 - Transfers a call.

A single CO call could be included in multiple records if it is transferred from station to station.

- Periods when calls are placed on hold or attempts at supervised transfers are unsuccessful are included in the station's record.
- Periods when calls are on hold, in the auto attendant, leaving/retrieving voice mail or in an ACD queue are not included in call records.
- A new record begins when a station answers a call or a hold recall.
- Records will be generated independently for all stations in a conference. If more than one CO line is involved in a conference, each call record generated by that conference will be associated with only the last line disconnected.
- Dialed digits don't include the line group or location number.
- Outbound calls begin a call record 10 seconds after the call has cleared toll restriction.

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