

ENGINEERING BULLETIN

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ADIX Software Version 7.00 Installation Guide and Feature Description

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Introduction

Note: Before you begin to install and program ADIX Software Version 7.00, make sure to read this bulletin for installation instructions, new features and enhancements, and other important information.

This document includes information about the following added features:

- Redirected Number Routing
- Omegatrek Wireless System
 - Features and Operations · A description of each system feature.
 - Component Description and Specifications · A description of each piece of system hardware.
 - System Planning and Installation · Installation instructions and procedures.

This document also contains a Database Programming Guide, which is a detailed description of the ADIX/Omegatrek programming database.

ADIX Software Version 7.00 Features Overview

Redirected Number Routing

Overview

Some telephone companies provide Redirecting Number Identification (RNI) in their Setup message. The Redirected Number is the directory number of forwarding party. This number is used by answering services to determine where the call was forwarded from. This allows the customer to ID the call with out having to purchase DID numbers for each client.

The ADIX uses the RNI for routing instead of the Called Party Number (DNIS) by setting an option in Class 04 Item 70.

Conditions

1. This feature is used by both BRI and PRI lines. If two RNIs are contained in the Setup message, ADIX uses the second one.
2. To use an RNI for routing, it is necessary to set new data 04-70-01(Redirecting Number Routing) to a 1for enabled.
3. Class25 DNIS table is used for routing the calls. The RNI will replace the DNIS number.
4. In an RNI is not in the setup message, the Called Party Number is used for routing.
5. When the RNI routing is enabled, all displays of the DNIS number are replaced with the RNI. This replacement includes Voice Mail packets, ACD event stream and the CSTA output.

Omegatrek Wireless System Overview

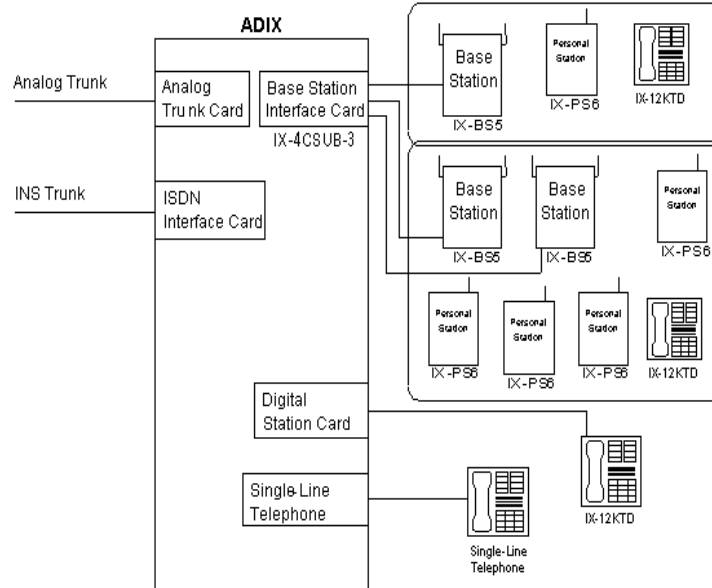
The Omegatrek Wireless System is a 1.9 Ghz unlicensed PCS Multi-Cell / Multi-User system for the ADIX APS that allows users to answer calls and access system features from anywhere in their building or campus using the PS6 Digital Wireless Handset.

The IX-PS6 was designed to operate as a portable version of the IX-12KTD-2 Digital Key Telephone. Using the PS6, virtually all ADIX key telephone features are accessible via eight multi-purpose keys and a three line, twelve character LCD. The unit is also equipped with a speaker for receiving pages and announcements and seven feature access keys. Each of the eight multi-purpose keys features a two-color (red and green) LED for status indication. In addition, all keys and the display are back-lit for easy viewing in darkened areas. While communicating using the IX-PS6 Portable Station, the Omegatrek system monitors each connection for noise and interference and automatically switches channels if necessary. The IX-PS6 Portable Station provides access to the ADIX APS feature set as well as access to its own feature set. The IX-PS6 feature set includes Multiple Ringing Options with Optional Vibration Alert, a 500 Entry Speed Dial Directory, and One-Touch Feature Access.

The Omegatrek Wireless system is created by installing the IX-4CSUB-3 card in an ADIX APS universal card slot. Each IX-4CSUB-3 will support up to four IX-BS5 base stations. It is the IX-BS5 base station that actually creates the zones in an office or campus through which the IX-PS6 Portable Stations communicate. IX-BS5 base stations must be configured as either *Primary* or *Secondary* base stations in system programming. Each zone must contain one primary base station. The Primary Base Station will support up to 3 simultaneous calls. One or more Secondary Base Stations may be added to a zone to increase the number of available communications channels. Each Secondary Base Station adds 4 wireless communications channels to the zone.

The wiring distance from the IX-4CSUB-3 card to the IX-BS5 base station varies depending on the wire gauge used. These distances are explained later in this manual. Additionally, the IX-BS5 loop distance may be increased using IX-BSREP repeaters. The IX-BSREP repeaters are also explained later in this manual.

Figure 1 depicts an outline of a system configuration.



**Figure 1. System Configuration
Omegatrek and UTAM**

NOTE FROM THE FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Installation of this equipment is subject to notification and coordination with UTAM, Inc. Any relocation of this equipment must be coordinated through, and approved by UTAM. UTAM may be contacted at (800) 429-UTAM.

The Iwatsu Omegatrek Wireless system is designed for use in the United States in the Unlicensed Personal Communication Services (UPCS) 2 GHz unlicensed frequency band. As such, Iwatsu America will be subject to the rules and regulation of UTAM (Unlicensed Transition and Management of the 2 GHz Unlicensed Frequency Band). UTAM was created to solve the unique problems facing the UPCS industry. In order to deploy unlicensed devices and systems that are by nature easily portable, microwave licensees currently operating in the 2 GHz Unlicensed Frequency Band must be relocated to other frequencies because of the potential for interference to their microwave operations from unlicensed devices. Since the spectrum is unlicensed, however, no one manufacturer has an incentive to relocate the microwave links because all manufacturers have equal rights to the cleared spectrum. While band clearing will undoubtedly be a time-consuming process, demand for UPCS exists now. To meet this demand and to provide a revenue stream to fund the clearing process, the industry proposed permitting limited, coordinated deployment of qualifying UPCS systems and devices in a manner that would avoid interference to incumbent microwave systems.

The Omegatrek Wireless System cannot transmit in the 2 GHz Unlicensed Frequency Band without authorization from UTAM. Iwatsu will process all UTAM information, keeping distributor involvement to a minimum. When a distributor provides Iwatsu with the necessary application information for UTAM, including the locations and number of base stations that will be installed, Iwatsu will submit the application with UTAM. Iwatsu will create an Activation Code once authorization from UTAM has been granted. The distributor will activate the base stations at the user's site by entering the Activation Code.

Detailed information on UTAM may be found in the Omegatrek Policy and Procedure Manual. This document may be downloaded from the Iwatsu Distributor Access Area Web Site www.iwatsu.com/UTAM.

Voice Channels and Control Channels

In the Omegatrek Wireless System, each primary base station carries one control channel and three voice channels. Every cell must contain one primary base station. Control channels run from the IX-4CSUB-3 card in the ADIX APS and are used for notification of incoming calls and other signal information. Voice channels carry voice and data transmissions.

Secondary base stations can use all four channels for transmitting and receiving voice signals, so the number of channels in a cell are increased by adding secondary base stations to a primary base station.

Base stations can use up to twenty-four radio channels to communicate with portable stations. The Omegatrek Wireless System is equipped to switch the channel from one of the twenty-four channels to another of the twenty-four if a portable station is using a channel that contains noise or is affected by interference.

Cells and Areas

To optimize the signal reception, the Omegatrek Wireless System is installed using a cell configuration. A cell is the area covered by radio signals from a base station. Signal strength in a cell should be strong enough for users of the Omegatrek Wireless System to carry on normal conversations.

In an open area, a cell covers a circular area of about 300 feet from a base station. Realistically, radio signals can be blocked by many objects in a normal office setting, so the radius of the cell may only extend to about 150 feet in a general office environment. At a lower reading than 40 EM, users may experience the results of lower signal strength.

In the Omegatrek Wireless System, as many as three calls are allowed simultaneously in a cell with just a primary base station. The number of calls allowed can be increased by adding secondary base stations to a primary base station.

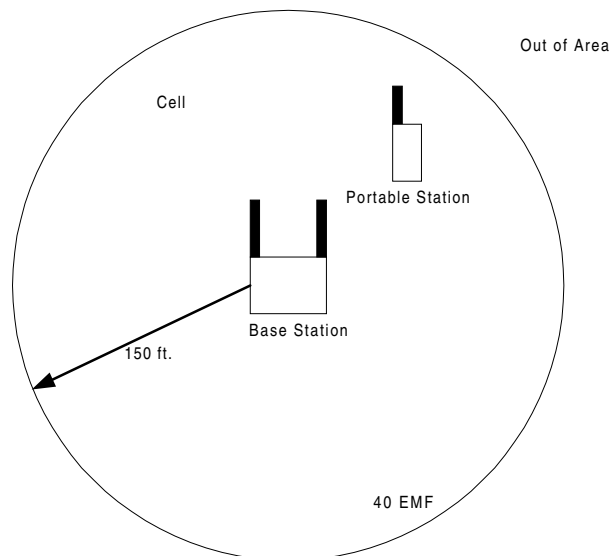


Figure 2. Model of Cell

Larger areas can be covered by combining cells. Multiple cells are generally configured so that users can use the Omegatrek Wireless System in any area of an office or an entire building area. The number of cells is generally the same as the number of primary base stations needed. However, if secondary base stations are added to increase the number of voice channels available, the number of cells allowed decreases.

Cells may overlap and provide a higher number of channels in small areas. The maximum number of channels that transmit in an overlap area are 17. See Figure 3 for a detailed illustration.

Be sure to select a proper system size to provide a service area that meets your customers' needs. Iwatsu's IX-PSMK Site Measurement Kit (PN 109425) is designed to simply the process of configuring base stations during the Omegatrek installation process. The IX-PSMK Site Measurement Kit is described later in this bulletin.

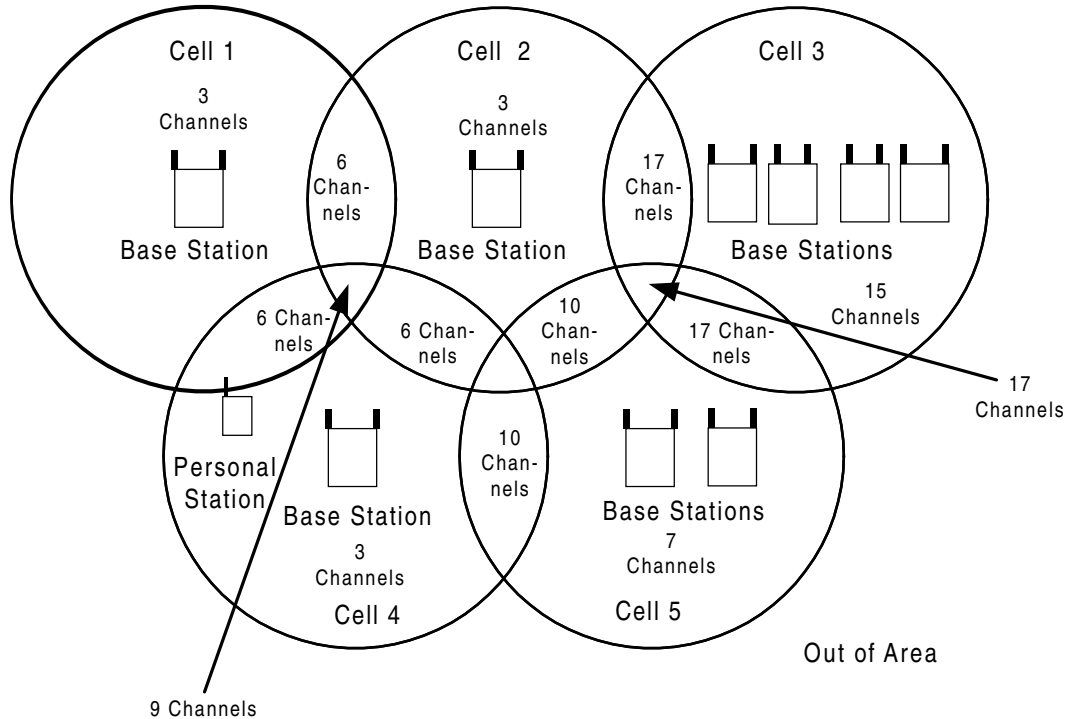


Figure 3. Cells, Channel Availability, and Service Areas

A group notification area consists of one or more cells. Two, four, or eight cells can be defined in one simultaneous notification area. The number of cells in one simultaneous notification area is specified in programming of the portable stations and in the system database.

The position of a portable station is registered to a simultaneous notification area. When the portable station receives a call, the base stations in the simultaneous notification area notify the portable station at the same time. When the user travels from one simultaneous notification area to another, the position of the portable station is automatically registered in the new area.

Base Stations

Base stations can be configured as either primary base stations or secondary base stations. A primary base station transmits and receives a control channel that notifies portable stations of incoming calls in addition to its three voice channels. Each cell contains one control channel, so each cell must have a primary base station. Secondary base stations do not use control channels; they are generally used to add to the number of voice channels that a primary base station can handle.

Outgoing and Incoming Call Control

A speech path is established in accordance with an outgoing call request from a portable station and in accordance with an incoming call request from the ADIX/APS. Base stations controls connections and disconnections of speech paths.

Automatic Cell Handoff

As a user travels from one cell to another, the portable station automatically switches to the nearest available cell. The user can make and receive calls in a new location and continue speaking while moving. The portable station automatically switches to a new voice channel to avoid interference from other digital cordless systems or noise from other sources.

Security Against Eavesdropping

The Omegatrek provides high security for conversations by scrambling 216 one key code combinations. A key code can be set in advance or for each call, and scrambling does not degrade speech quality. Omegatrek also provides Access Authentication and Voice Encryption.

Operation Status Indication

Both base stations and portable stations indicate their operation status with lamps. Portable stations also use backlight flashing patterns and color to indicate status. The following table includes information about the operation status of portable stations:

Type	Light Pattern	Status
Line Keys (Backlight)	Two Quick Blinks While ON (Green)	Your portable station is in use.
	ON (Red)	Another portable station in the group is in use.
	Flashing (Red)	Your portable station is receiving a call.
	Slow Flashing (Red)	A call is on hold on another extension.
	Slow Flashing (Green)	A call is on hold on your extension.
Dial Pad (Backlight)	ON (Green)	You are operating the dial pad keys.
Incoming Call/ Charge Lamp	ON (Green)	The battery is almost fully charged.
	ON (Red)	The battery is being recharged.
	Slow Flashing (Red)	Your battery cannot be recharged.
	Flashing (Red)	Your portable station is receiving a call.

Diversity

A base station is equipped with two antennae. The antenna with the higher sensitivity of the two is automatically selected in order to reduce the effect of phasing.

Portable Stations

The Omegatrek Portable Station is a small lithium battery-operated portable telephone that allows users to make and receive calls in a service area. The portable station has a three-line twelve character LCD display and twenty-nine keys, and gives users access to a wide range of features available with ADIX key telephones including:

- Auto Answer
- Speed Dial
- Call Transfer
- Call Hold
- Dial by Name
- Conferencing
- Redial
- Any Key Answer
- Key Lock
- Dial Lock
- Call Log
- Telephone Directory
- Call Forwarding

Identification Numbers

The Omegatrek system uses several identification numbers and call signs to authenticate the connection between the portable stations and the base station and establish main cell groups and sub-cell groups. These identification numbers can be found on the IX-PS6 or IX-BS5 hardware, or provided by Iwatsu America. The identification numbers include:

System Call Sign and Portable Station Call Sign. In the Omegatrek, the system and portable stations all have different IDs. Each portable station is assigned to a unique portable station Call Sign (PS ID). One Omegatrek ID, which is shared by all base stations in the system, is assigned to each system. Base stations and portable stations are assigned authorized IDs before shipping.

In order to function properly, a system must recognize each PS ID, and the each portable station must recognize the Omegatrek ID.

Each portable station can be programmed with up to nine system call signs, making the portable station usable in nine systems.

WARNING

Misuse of IDs and use of unauthorized IDs are crimes punishable by Federal and State law. Never misuse a PS ID or Omegatrek ID under any circumstances.

Portable Station Number. A portable station number provides another way for the system to recognize portable stations. The portable station's logical number is used as its portable station number and is unique to the system.

CS ID and BS Logical Number. A CS ID identifies a base station and consists of a system call sign and an additional identification information including the main cell group number, a sub-cell group number, and a BS logical number. These identifications numbers are programmed in the database for each base station. Each base station is also identified by a BS logical number, which is configured using the switch on the base station.

Sub-Cell Group Number. The Sub-Cell Group Number identifies an area in which the cell group key lamps on portable stations function.

Main Cell Group Number. The Main Cell Group Number identifies main cell groups.

Base Station - Portable Station Synchronization

When a portable station is turned on, it hunts for and synchronizes to a control channel that meets the proper conditions for receiving signal level, system call sign, etc.). Once a control channel is selected, the portable station goes into standby mode. If a control channel cannot be selected, the portable station continues hunting. If a control channel cannot be selected after a certain period, the portable station is considered to be outside the area.

A portable station in the standby mode receives only incoming call information from the base stations. In the In-House mode, it also receives key lamp information.

Portable Station Position Notification

Because portable stations are notified of incoming calls by all the base stations in their main cell group, the ADIX/APS system needs to know which main cell group contains each portable station portable station.

Using position registration, the portable station notifies the ADIX/APS of its current position. A portable station performs a position registration when it is powered up, when the user travels to another main cell group, when the user comes back in from outside the area, or when it successfully synchronizes with a control channel from a base station.

The portable station also performs a BS position registration when the user travels between cells. This function allows the ADIX/APS system to keep key lamp information and LCD information for each base station, allowing seamless service for portable station users.

Channel Switchover

The system automatically switches the voice channel when a call is affected by interference or when the user travels between cells during a call. There are two types of channel switchover that are caused by noise and interference, TCH Channel Switchover and Cell Switchover.

TCH Channel Switchover occurs when the portable station is switched to a different channel of the same base station. The ADIX/APS system monitors errors in order to automatically switch the voice channel in case a call is affected by interference or noise.

Cell Switchover occurs when the portable station re-synchronizes with and reconnects to a channel on the nearest base station. The ADIX/APS system monitors errors and the received signal level and automatically switches voice channels when the user travels between cells during a call. A cell switchover is often called a handover.

Key Lamp Indications

The line status and function of the portable station are indicated when the backlight colors of the flexible keys blink and change. The functionality of the keys is set using ADIX/APS Database Programming. The portable station's keys can be programmed with both Cell Group Key Attributes and Individual Key Attributes.

Cell Group Key Attributes are effective only when the portable station is inside its sub-cell group. Individual Key Attributes are effective in the whole Omegatrek system, regardless of whether the portable station is inside its sub-cell group or not.

Though the area in which the cell group keys can be used is limited, cell group keys are not functionally limited. Individual keys can be used regardless of area, but their functions may be limited by traffic.

Whether a key operates as a cell group key or an individual key is determined by the key status. There are two types of key statuses, Cell Group Key status and Individual Key status. If the key is set as a Cell Group Key, it is normally in the Cell Group Key status. However, when a green lamp indicating I-use is illuminated, the key is temporarily in Individual Key status. If the key attribute is set as an Individual Key, it is always in the Individual Key status.

If a portable station in the standby mode is outside its sub-cell group, the group indication lamps and keys are ineffective. When the portable station's green lamp flashes indicating I-use, however, the lamps and keys are effective regardless of the portable station's presence in its own cell group.

Even if a portable station is outside its sub-cell group, the user can still receive a direct call on a line key with the Cell Group Key attribute. When the user answers the call, the key goes into Individual Key status and the lamps are effective.

If the portable station is in standby mode and no key is pressed for 30 seconds, the key lamps shut off. Shutoff timing may be changed using the portable station. The key lamps re-light when an incoming call is received or a key is pressed.

The key lamps continue working while the portable station is charging its battery.

Sub-Cell Group

Sub-cell group consists of one or more cells. Two, four, or eight cells can be defined in one main cell group. The number of cells in one main cell group is specified in while programming the portable stations and ADIX Database Programming.

In a sub-cell group, the portable stations' cell group key lamps are controlled by the group. Each portable station belongs to a sub-cell group.

Flexible keys operate under the following guidelines when the user travels out of his or her sub-cell group or into his or her own sub-cell group

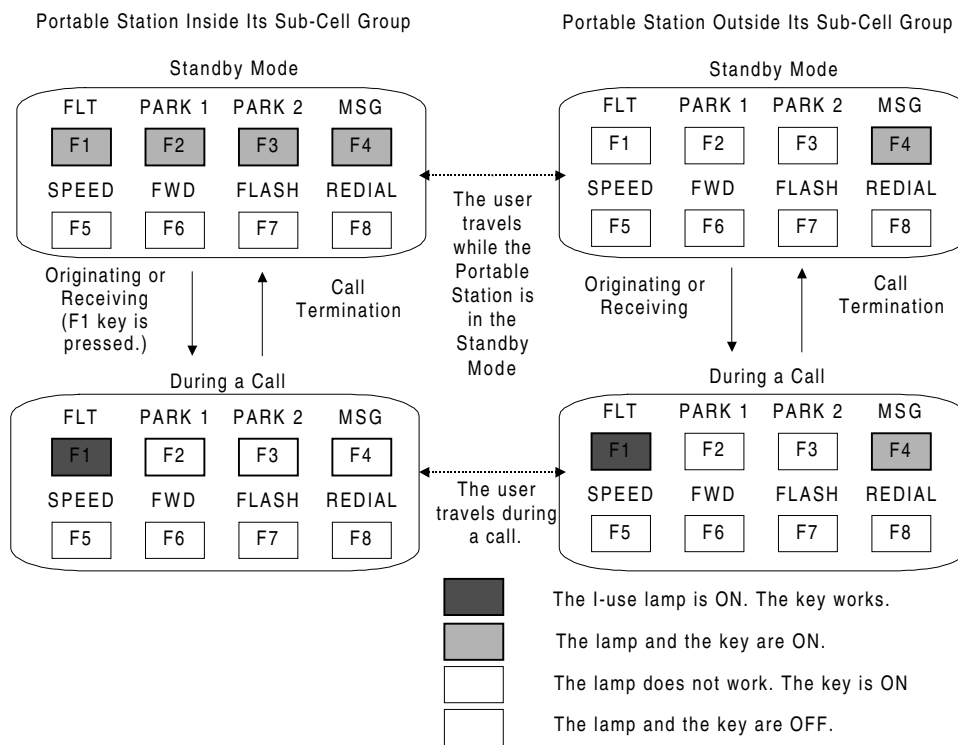


Figure 4. Portable Station key changes in a sub-cell group

Omegatrek Wireless System Features Overview

CO Incoming Call Features

- **Automatic Number Identification (ANI).** Omegatrek supports ANI trunks provided by the phone company on T1 lines.
- **Caller ID Routing.** Caller ID numbers may be assigned a 16-character alphanumeric ID to identify the calling party, calling party's telephone number, type of call, or purpose of call. The Caller ID alphanumeric ID is displayed on the station LCD when a call is received on a Caller ID trunk. A call can be routed to a station, master hunt group, or voice mailbox according to the Caller ID information received.
- **Caller ID, ANI/DNIS, ISDN Name and Number Display.** When a call is received on a caller ID or ANI line, the Omegatrek captures and stores information about the caller received with the call in the system memory. This information includes the caller's telephone number and name, date and time of the call, trunk number, and destination station.
- **Delayed Ringing.** This feature allows outside lines ringing at a telephone to ring at another telephone or group of telephones after a predetermined period of time.
- **Dialed Number Identification Service (DNIS) Routing.** DNIS (Dialed Number Identification Service) numbers may be assigned a 16-character alphanumeric ID to identify the number the calling party dialed to reach the Omegatrek. The DNIS alphanumeric ID is displayed on the station LCD when a call is received on an DNIS trunk. A call can be routed to a station, master hunt group, or voice mailbox according to the DNIS information received.
- **DID (Direct Inward Dialing) Alphanumeric ID Display.** DID (Direct Inward Dial) numbers may be assigned a 16-character alphanumeric ID to identify the party being called, type of call, or purpose of call.
- **Direct Inward Dial (DID) Trunks.** Omegatrek supports DID trunks provided by the phone company. This service allows any number of telephones to be called directly from the outside without the need of having a dedicated outside line for every telephone.
- **Direct Inward Line (DIL).** Each outside line can be assigned to ring at up to 32 extensions. A different ringing assignment can be programmed for Day and Night modes. A ringing tone for each line can be selected from four available ringing tones. If a delayed ringing assignment is programmed for the line, the ringing changes to an incoming alarm when delayed ringing begins.
- **Uniform Call Distribution (UCD).** This feature allows telephone lines to be directed to a group of phones. If all phones are busy, the caller may hear a recorded message. Calls to the UCD group may search for an idle extension in either a Terminal or Distributed Hunting pattern. In Terminal Hunting the incoming calls always start hunting from the first telephone in the group. In Distributed Hunting the incoming calls start hunting from the telephone following the last called telephone. In both cases, calls will hunt to the next telephone if a telephone does not answer in a predefined period of time, is busy, or in the Call Forward, Absence Message, or Do Not Disturb mode. Two levels of recording are available. This allows you to play a second message to inform callers that you are still waiting to assist them. Omegatrek also has the ability to send unanswered calls to an overflow or secondary answering position after a predefined period of time. This second answering position may be another UCD group, hunt group, extension, or attendant.

- **Universal Night Answer (UNA).** This feature allows you to answer calls that have been switched to ring at the Night Mode location.
- **Direct Inward System Access (DISA).** Direct Inward System Access (DISA) allows an external caller to access Omegatrek intercom dial tone by dialing the phone number of an outside line that is dedicated for DISA. DISA gives the external caller the ability to make intercom, hunt group, and external calls, and also have access to the paging system. Use of DISA for external calls and paging requires the entry of a security code to control fraudulent use.
- **Off-Hook Outside Line Answering.** This feature allows a station user to answer an outside call without having to press the button representing the ringing line. The station user can still access other system features using CO/ICM line selection while an incoming call is ringing.
- **Manual Outside Line Answering.** This feature allows a station user to answer an outside call by pressing the button representing the ringing line.

Hold/Transfer/Conference Features

- **Conference.** Omegatrek allows you to converse with three other people in one conversation. There may be any combination of inside extensions or outside lines.
- **Hold/Hold Recall.** A call can be put on hold by pressing the [HOLD/DND] button. Calls that remain on hold for a programmable amount of time recall. The ringing tone for recall differs from the ringing tone of an incoming call. Recalls that are not picked up are automatically forwarded to the attendant.
- **Call Park/Swap and Call Park Pick-Up.** Call Park/Swap allows you to alternate between two conversations. Call Park Pick-Up allows you to answer a call ringing at someone else's phone.
- **Group Park.** When a station places a call on group park, a station's [Group Park] button representing that group will flash red. A station can pick up the call by pressing [Group Park]. If the call is not picked up within the duration programmed, the station that originally placed the call on group park is recalled.
- **Transfer to Park (Call Park at Another Extension).** The Omegatrek system allows you to place a call on park at another user's extension from your portable station.
- **Call Transfer.** There are two ways a station user can transfer a call:
 - *Screened Transfer.* The call is transferred after the transferring station announces the call.
 - *Unscreened Transfer.* The call is transferred without being announced.
- **Accessing Guest Mailbox.** This feature accommodates the Guest Mailbox feature provided by many voice mail systems. It allows access to mailboxes that are not associated with specific ADIX extensions. The guest mailbox may be accessed from any system extension.

CO Outgoing Call Features

- **Optimized Routing.** Optimized Routing is frequently referred to as either Least Cost Routing (LCR) or Automatic Route Selection (ARS). This feature allows ADIX/APS to automatically select the most inexpensive way to make an outgoing call. The system identifies the dialed number, then selects the most cost-effective outside line group. If a line in the first choice outside line group is not available the system may be programmed to select an alternate outside line group. Stations may be programmed as Forced Optimized or assigned an Optimized Key.
- **CO Line Direct Access.** A multipurpose button on an ADIX/APS digital telephone can be programmed as a [COL n] button for direct access to an outside line for incoming and outgoing calls.
- **CO Line Group Access.** One or more CO lines can be assigned to a group that is used for remote CO forwarding, incoming calls, outgoing calls, or both incoming and outgoing calls.
- **Outside Line Call and Pick Up Restriction.** The system can be programmed to restrict any phone from making outside line calls on specified outside line groups and it can be programmed to restrict stations from accessing incoming calls on specific outside lines.

ICM Incoming/Outgoing Features

- **Doorphone Call.** The doorphone can be programmed for use as a simplified intercom extension at a building entrance or sound monitoring locations. When the call button on the doorphone is pressed up to 16 stations programmed in Database Programming.
- **Hunting Call.** A Hunt Group may be programmed as the delayed ringing assignment for a trunk. If a call on a CO line is not answered at the ringing stations within a programmable duration, the call starts ringing to the hunt group designated.
- **Intercom Call.** A portable station can call another station by dialing a one to four digit extension number. This feature is called intercom (ICM) dialing. ICM calls can be made in either the tone or voice mode.
- **Tone/Voice Calling.** A station user can switch the ICM calling mode from voice to tone from the station set. Database Programming is used to grant access to this feature to either the called station or the calling station.
- **Direct Station Selection.** A multipurpose button on a portable station can be programmed as a [DSS n] button for direct access to a system extension. Direct station selection buttons provide an indication if the extension programmed to that button is busy or idle. If the represented extension is busy the LED is illuminated.
- **Hands-Free Answerback on Intercom.** This feature allows a station user to answer an intercom call without lifting the receiver. The microphone can be turned off if desired.
- **Paging.**
 - *Internal Paging.* An Omegatrek station can make a page announcement that is broadcast to stations that belong to a page group.
 - *Zone (External) Paging.* The ADIX/APS can be connected to an external paging system in order support four zones of paging.
 - *Meet-Me Page Answer.* A station user can answer a page from any phone that is in the same meet-me page answer group.

Station Features

- **Fixed Call Forwarding.** The system database contains items that allow you to define a fixed call forward destination for each station.
- **Flexible Call Forwarding.** This feature allows you to send your calls to an internal destination or external line using Personal Speed Dial numbers 90-99. You can also separate call forward destinations for ICM incoming and CO incoming calls. For instance, you could set all intercom calls to go to your cell phone, and all CO calls to be forwarded to your voice mail.
- **Direct Outside Line Appearance.** A multipurpose button on an ADIX digital telephone can be programmed as a [COL n] button for direct access to an outside line for incoming and outgoing calls. A station user can also seize a specific outside line by dialing a CO line access number.
- **Quick-Mode Operation.** This feature allows a station user to access an outside line or ICM dial tone without going off-hook.
- **Extension Number Display.** A user can display the logical port number, extension number, and station user ID of a portable station by pressing [FEAT] + [9][9].
- **Message Waiting.** This feature allows you to inform an extension user that there is a message waiting for them by lighting a Message Waiting Lamp on their phone. This operation allows you to send a message without having the desired extension ring.
- **Whisper Page.** The Whisper Page feature allows portable station users to communicate with busy extensions without requiring the IX-BPAD Busy Bypass Unit. When a busy station is called using the Whisper Page feature, the busy station will hear the voice announcement via the portable station receiver. Neither the whisper page nor the busy station's response is audible to the outside calling party.
- **Whisper Page during Consultation Hold.** Whisper Page is possible during consultation hold. When a station tries to transfer a call to a busy station (placing the call on consultation hold), the station can send a whisper page to the busy station. This allows the transferring party to announce a call to a busy station and then camp-on the call all in one step.
- **Feature Access Using ICM Dial Codes.** Feature access codes can be assigned to ICM dial codes. This allows portable station users to access system features without using the [FEAT] key. Access codes are entered on a feature-by-feature basis in the database. No default values are assigned.
- **Single-Line Telephone Feature Access.** Feature access codes can be assigned to ICM dial codes. This functionality allows SLT and data module station users to access system features without using the [FEAT] key.

System Features

- **Flexible Key Assignment.** The buttons on portable stations are programmable for specific feature operation.
- **System Clock.** Omegatrek is equipped with a real time clock that provides an indication of the current time and duration of both incoming and outgoing calls on the display of portable stations. The clock also has a 100-year calendar that eliminates the need to change the date for leap year.
- **Network Access.** The Omegatrek system supports network access from remote stations using a DISA line.
- **Separate Timers.** With many features available to the Omegatrek system, timers can be set for an individual stations. This allows station users to have individual timers instead of using the system-wide timers.

Out of Area

If you walk outside of the service area while the phone is in the idle state, the Antenna icon on the display will disappear. If this happens, go to an area where you can see the Antenna icon again to receive or place a call.

If you walk outside of the service area while you are talking on the phone, you will lose the voice of the other party or start hearing an out-of-area warning tone. If this happens, go to an area where the signal is stronger (or where you no longer hear the warning tone).

Notes: You cannot talk on the phone while an out-of-area warning tone sounds.

Do not place a call in the service area when you hear a busy tone and see the words CHANNEL BUSY on the display. Other cordless phones are using all available channels, so no channels are open. Try again later.

Occasionally the [SEND] key and dial pad keys may not function in the service area because the portable station is communicating with the base station. Try again later.

Reception improves if the antenna is extended.

If you walk outside of the service area while you are talking on the phone, the call may disconnect after a warning tone sounds.

Building structure may reduce the size of the service area.

The Omegatrek Wireless system is created with the addition of IX-BS5 base stations, IX-PS6 portable stations and repeaters to ADIX APS systems. IX-BS5 base stations transmit information to and receive information from Omegatrek IX-PS6 portable stations. Omegatrek IX-PS6 portable stations are wireless digital handsets that allow users to make and receive calls and utilize many of the features included with ADIX key telephones. Repeaters extend the wiring distance between IX-BS5 base stations and the ADIX system.

Required Components and Part Numbers

Listed below are the components and part numbers required for ADIX Software Version 7.00. Please note the IX-CPUP/HW controller card with either the IX-CPU20/ MEM-M or IX-CPU20/ MEM-L CPU/Memory Module is required. For more information on the components listed below, please reference either the ADIX Technical Manual, Edition 5, or information later in this bulletin.

Component	Part Number	Description
IX-CPUP/HW Controller Card	101090	ADIX System Controller Card. This card contains the Highway Controller, Customer Database, Serial Port, PLLU and I/O Ports, and MOH/ BGM Speaker Ports.
IX-CPU20/ MEM-M	01095	CPU and operating system software. Compatible with all ADIX systems up to 184 ports, including ADIX APS Systems with one or two shelves.
IX-CPU20/ MEM-L	101100	CPU and operating system software. Compatible with all ADIX APS systems up to 472 ports (supports 5-shelf configuration consisting of 1 IX-CML, 3 IX-EXPML1's, and 1 IX-EXPML2).
IX-CPU20/ MEM-M ACD	101096	CPU and ADIX ACD operating system software. Compatible with all ADIX ACD systems up to 184 ports, including ADIX APS ACD Systems with one or two shelves.
IX-CPU20/ MEM-L ACD	041110	CPU and ADIX ACD operating system software. Compatible with all ADIX APS systems up to 280 ports (supports 3-shelf configuration consisting of 1 IX-CML and 2 IX-EXPML1's).
IX-4CSUB-3	109411	Station Card. Provides interface circuits for four digital IX-BS5 base stations, which can form up to four cells, and contains an echo canceller
IX-BS5	109410	Omegatrek base station. Can be configured as either a primary or secondary base station. Connected to the IX-4CSUB-3 card with 2-pair wiring.
IX-PSMK	109425	Omegatrek site measurement kit. Used to measure EMF from base station site to various portable station positions
IX-PSBP	109415	Omegatrek portable station battery. This lithium ion battery included with the IX-PS6 portable station provides four and a half hours of talk time and up to three hundred twenty hours of standby time when fully charged.
IX-PSCG	109416	Omegatrek portable station battery charger, a non-contact battery charger specifically designed for IX-PS6.
IX-PS6	109400	Omegatrek portable station. Requires a lithium battery (IX-PSBP / PN 109415) for power. Includes an earphone jack as well as a port for station feature programming

Required Components and Part Numbers (Cont'd)

Component	Part Number	Description
IX-BSREP	109411	Repeaters are used to extend the distance that a radio signal can travel between the ADIX APS and an IX-BS5 base station and are used when the wiring distance for an IX-BS5 base station exceeds 3,280 feet.
ADIX PC Programmer 10.00/ ADIX ACD PC Programmer 4.23	107399	PC Programmers required to program ADIX Software Version 7.00 and ADIX ACD Software Version 7.00.
IX-100MBD IX-CM Motherboard	107545	Motherboard upgrade for ADIX systems larger than 224 ports. (Refer to EBA-98003 for more information.)

Additional Components and Part Numbers

The following components are not necessary for the Omegatrek system's functionality, but they may be added to the system when needed.

Component	Part Number	Description
IX-PSCAS	109413	Omegatrek Portable Station Leather Handset Case. Protects the Omegatrek personal station stylishly.
IX-PSSTR	109414	Omegatrek Portable Station Handstrap.
IX-PSEM	109417	Omegatrek Ear Microphone/Handset

Component Description

All listed Omegatrek system components can be installed in the ADIX-S/M, Classic ADIX (ADIX-100, ADIX-200) or ADIX APS.

IX-4CSUB-3 Station Card

The IX-4CSUB-3 card is a required component in ADIX APS for Omegatrek systems. This card connects IX-BS5 base stations to Omegatrek IX-PS6 portable stations. The IX-4CSUB-3 provides interface circuits for four digital IX-BS5 base stations, which can form up to four cells, and contains an echo canceller.

Unlike an echo suppressor, an echo canceller estimates the amount of feedback in the two-wire/four-wire conversion circuit and generates a pseudo-echo to cancel echo caused by feedback. Therefore, an echo canceller does not lower the volume of the other party's voice.

The IX-4CSUB-3 can be installed in any universal card slot. However, if another card is installed next to an IX-4CSUB-3 card, the maximum number of simultaneous calls using the IX-4CSUB-3 card decreases from 15 to eight. If another card must be installed next to an IX-4CSUB-3 card, limit the number of base stations connected to the IX-4CSUB-3 card to two.

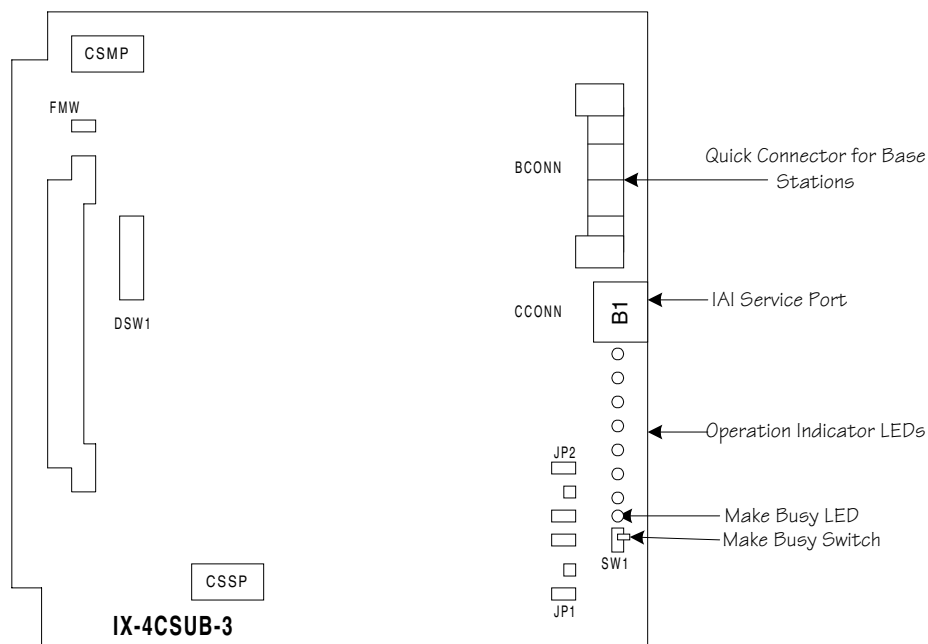


Figure 5. IX-4CSUB-3 Card

Model:	IX-4CSUB-3	Additional Power Requirements:	None
Part No.:	109412	On-Board Functions:	MBSW - Make Busy
Location:	Any universal card slot	Indicators:	MBLED = Make Busy
Indicators:	Make Busy LED, Operation Indicator LEDs	Size:	9.7"H x 9.5"W x.75"D
Connectors:	ACONN - Motherboard, Quick Connector, Connector for personal computer	Weight:	0.75 lbs.

Power Supply Strapping Jack and Jumper Settings

	ADIX APS Power Supply (Factory Setting)	External Power Supply
Strapping Jacks J1 and J2	No Strap	Strap Attached
Jumpers J401 and J402	Intact	Cut

IX4CSUB Switch Settings

IAI Switch Settings

Switches 1-2 on SW1 used exclusively for Iwatsu America's firmware updates. These switches **must** be set to the OFF position.

Switch Settings		Function
1	2	
OFF	OFF	DO NOT SET

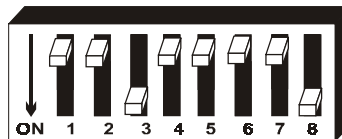


Figure 6. SW1 Switches 1-2 Settings

Portable Station Setting

Switch 3 on SW1 is used to indicate the type of portable station that the Omegatrek system is using. At this time, Switch 3 is only functional in the ON position.

Switch Setting	Function
3	
ON	IX-PS6 Setting

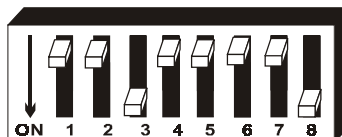


Figure 7. SW1 Switch 3 Setting

Testing Settings

Switches 3-4 are used for IAI's testing purposes only. These switches should be set to OFF.

Switch Settings		Function
4	5	
OFF	OFF	DO NOT SET

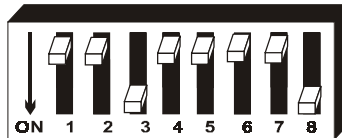


Figure 8. SW1 Switches 4-5 Switch Settings

Single or Double Highway Settings

The IX-4CSUB-3 card can be placed in either a single or dual highway slot in the ADIX APS. In the ADIX 450 (ADIX Classic) and ADIX-M, only single slot usage is available. If the installation of the IX-4CSUB-3 card is to be in a dual highway slot, Switch 6 must be OFF and Switch 7 must be ON. If the installation of the card is to be in a single highway slot, both switches must be OFF.

Switch Settings		Function
6	7	
OFF	OFF	Single Highway Usage
OFF	ON	Double Highway Usage

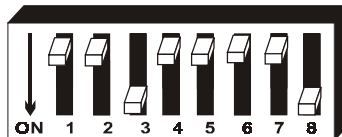


Figure 9. SW1 Switches 6 and 7 Set for Single Highway Usage

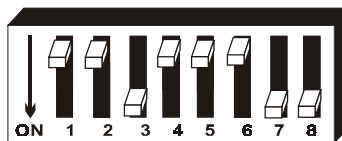


Figure 10. SW1 Switches Set for Dual Highway Usage

Echo Canceller Setting

SW1 Switch 8 controls the echo cancelling function of the IX-4CSUB-3 card. This switch should always be set to ON.

Switch Setting	Function
3	
ON	Echo Cancelling On
OFF	Echo Cancelling Off

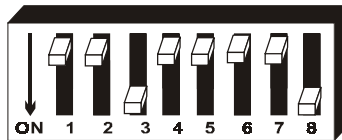


Figure 11. SW1 Switch 8 Setting

IX-BS5 Base Station

IX-BS5 base stations can be configured as either primary base stations or secondary base stations. A primary base station transmits and receives a control channel that notifies IX-PS6 portable stations of incoming calls in addition to its three voice channels. Each cell contains one control channel, so each cell must have a primary base station. Secondary base stations do not use control channels; they are generally used to add to the number of voice channels that a primary base station can handle. Each secondary base station can transmit four voice channels.

The IX-BS5 should be connected to the ADIX APS with 2-wire star wiring. An IX-BS5 base station is equipped with two antennae. The antenna with higher sensitivity is automatically selected in order to reduce the effect of phasing.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference using the following methods:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to the IX-BS5 not expressly approved by Manufacturer could void the user's authority to operate the product.

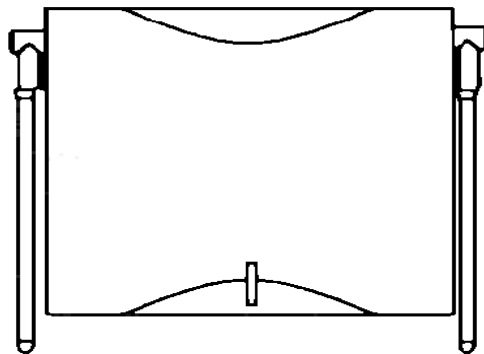


Figure 12. IX-BS5 Base Station

Model:	IX-BS5	Operating Temperature:	14°F to 122°F
Item Number	109410	Frequency Deviation:	±3 ppm
Communication Channels:	3 Voice Channels, 1 Control Channel	Relative Humidity:	10% to 90% (non-condensing)
Wired Transmission System:	Ping Pong (1.544 MHz)	Channel Spacing:	300 kHz
Wiring:	2-Wire Star Wiring	Size:	
Power:	Supplied by KSU	Weight:	10.5 oz.
Operation Voltage:	21.6-26.4 V DC	Communication Mode:	4-Channel Multi-Carriers TDMA-TDD (Time Division Multiple Access-Time Division Duplex)

IX-BS5 Switch Positions

Omegatrek ID Programming

SW1 (the longer switch) on the IX-BS5 is used to set the Omegatrek ID. This logical number is programmed in binary using these switches. See below for an example of binary settings for Omegatrek IDs.

Switch Setting Examples								Omegatrek ID Examples
1	2	3	4	5	6	7	8	
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	1
OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	2
OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	3
OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	4
OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	5
OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	6

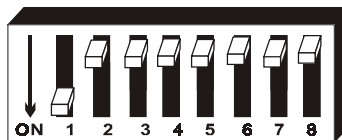


Figure 13. IX-BS5 Omegatrek ID Switch Settings

Primary and Secondary Base Station Settings

SW2 (the shorter switch) on the IX-BS5 is used to determine whether the base station is primary or secondary base station. If the selected base station is to be a primary base station, switches 1-5 should be set to OFF, and switch 6 should be set to OFF. If the selected base station is to be a secondary base station, switches 1-5 should be set to OFF, and switch 6 should be set to ON.

Switch Settings						Function
1	2	3	4	5	6	
OFF	OFF	OFF	OFF	OFF	OFF	Primary Base Station
OFF	OFF	OFF	OFF	OFF	ON	Secondary Base Station

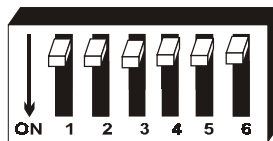


Figure 14. SW2 Primary Base Station Setting

IX-PS6 Portable Station

The Omegatrek IX-PS6 portable station is a small lithium battery-operated portable telephone that allows users to make and receive calls in a service area. The portable station has a three-line twelve character LCD display and twenty-nine keys, and gives users access to a wide range of features available with ADIX key telephones. These features include Hold, Call Transfer, Personal Speed Dial, Placing and Receiving Intercom Calls, Hands-free Answer Back on Intercom, Least Cost Routing, Conference Call, and Paging. The IX-PS6 also includes six multipurpose keys that can be programmed using database programming.

The user may program the IX-PS6 portable station to ring, vibrate, or to both ring and vibrate when a call is received. He or she may also select a ring tone for the station and raise or lower the volume of the handset.

The IX-PS6 portable station includes a jack for an earphone and a port for programming using the Omegatrek wireless programmer.



Figure 15. IX-PS6 portable station

Model:	IX-PS6	LCD Display:	3 lines, 12 character Dot Matrix
Part Number:	109400	Key Pad:	29 Keys
Battery:	3.6 V Lithium Ion	Memory:	500 Name/Number Entries
Charge Time:	6 hours	Size	5.5" (H) x 1.7" (W) x 0.9" (D)
Talk Time:	4.5 hours	Weight:	3.7 oz.
Standby Time:	320 hours	Operational Features:	Auto Answer, Speed Dial, Call Transfer, Call Hold, Dial by Name, Conferencing, Redial, Any Key Answer, Key Lock, Dial Lock, Call Log, Telephone Directory, Call Forwarding
Typical Operating Range from IX-BS5:	150 feet typical indoor		

IX-BSREP Repeaters

Repeaters are used to extend the distance that a radio signal can travel between the ADIX APS and an IX-BS5 base station and are used when the wiring distance for an IX-BS5 base station exceeds 3,280 feet. One repeater adds 6,562 feet to the distance covered; two repeaters add 13,123 feet.

Each repeater includes LEDs indicating power, reverse transmission, and forward transmission. Connectors for the ADIX, the motherboard, and an outside power source are also included.

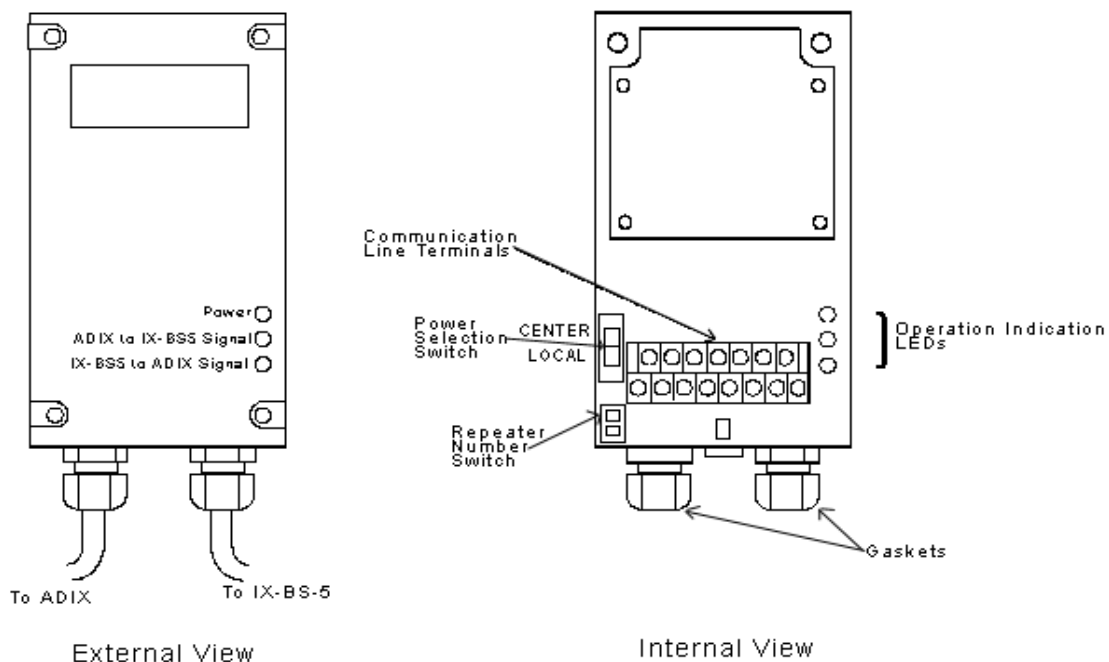


Figure 16.IX-BSREP repeater

Model:	IX-BSREP	Operating Voltage:	+21.6 V to +26.4 V DC
Part No.:	109411	Operating Temperature:	14° F -122° F
Power:	Supplied by ADIX APS	Relative Humidity:	10% to 90% (non-condensing)
Additional Power Requirements:	None	Indicators:	Power Indicator Lamp Operation Indicator Lamps
Weight:	.75 lbs.	Connectors:	ACONN - Motherboard CCONN - Station Terminals
Indicators:	Power LED, Trunk Data LED, Rev Data LED		

IX-PSBP Lithium Ion Battery

The lithium ion battery included with the IX-PS6 portable station provides four and a half hours of talk time and up to three hundred twenty hours of standby time when fully charged. It fits snugly into the battery compartment of the IX-PS6 portable station and is attached by placing the IX-PSBP battery's connector into the battery connector in the IX-PS6 portable station's battery compartment.

The IX-PSBP battery is fully rechargeable. Use the IX-PSCG battery charger to recharge the battery while the battery is inside the IX-PS6 portable station.

CAUTION

Replace battery with Iwatsu P/N IX-PSBP only. Use of another battery may present a risk of fire or explosion. See the Omegatrek Owners' Manual for safety instructions.

There is a danger of explosion if the battery is incorrectly replaced.

Replace this battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

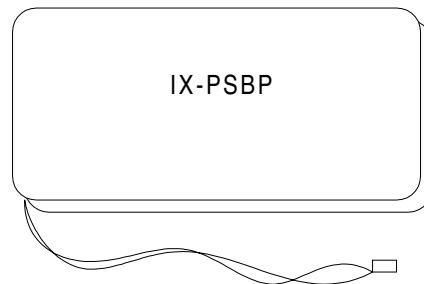


Figure 17. IX-PSBP lithium ion battery

Model:	IX-PSBP	Charge Time:	Approximately 7 Hours for fully discharged battery
Part Number	109415	Talk Time:	Over 4.5 Hours (fully charged)
Battery Type:	Lithium Ion Rechargeable Battery	Standby Time:	Over 320 Hours (fully charged)
Power	3.6 V, 600 mAH		
Charge:	Non-contact Charging with IX-PSCG Charger		

IX-PSCG Battery Charger

The IX-PSCG battery charger is a non-contact battery charger specifically designed for IX-PS6. Its features include a Charge Lamp Indicator, which displays a steady green light when the charge is complete, a steady red light to indicate that the IX-PS6 portable station is charging, and a flashing red light to indicate abnormal battery charging

Note: The IX-PSCG should be installed near an easily accessible power outlet. .

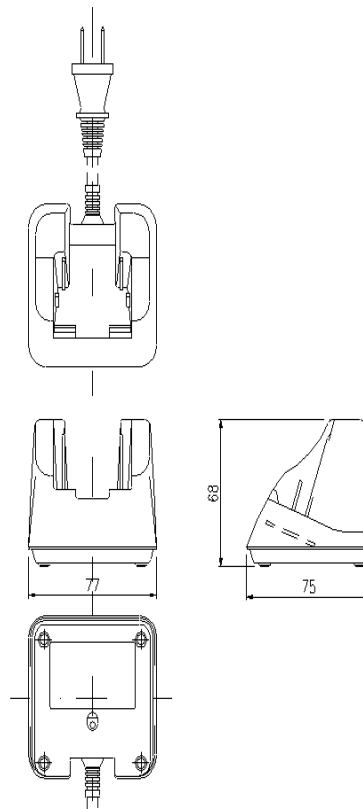


Figure 18. IX-PSCG Battery Charger

Model:	IX-PSG	Relative Humidity:	90% or less (non-condensing)
Part Number:	109416		95% or Less (non-condensing) for Storage
Operating Temperature:	0° to 40°C (32° to 104°F)	Input Voltage:	120 V \pm 12 V AC 57 to 63 Hz
Charge Temperature:	5° to 35°C (41° to 95°F)	Power Consumption:	Max. 4 VA
Storage Temperature:	20° to 60°C (-4° to 140°F)	Output Current:	10 mA
Size:	2.9" x 2.2" x 2.9"	Weight:	About 5.6 oz

IX-PSMK Omegatrek Site Measurement Kit

The Omegatrek Site Measurement Kit is used to measure the EMF signals from the mapped position of a base station to anticipated positions of portable stations. It consists of two portable stations without audio, with two portable station batteries and portable station chargers.

This tool is useful when planning installation of the Omegatrek system.



Figure 19. IX-PSMK Omegatrek Site Measurement Kit

Model:	IX-PSMK	Standby Time:	320 hours
Part Number:	109425	LCD Display:	3 lines, 12 character Dot Matrix
Batteries (2):	3.6 V Lithium Ion	Key Pad:	29 Keys
Charge Time:	6 hours	Size	5.5" (H) x 1.7" (W) x 0.9" (D)
Test Time:	4.5 hours	Weight:	3.7 oz.

System Planning and Installation

Cell Planning

To provide a service area that meets the customer needs, the base stations must be positioned in such a way that there are as few dead cells (where radio signals do not reach) as possible. First, decide the positions of base stations on paper. To do so, obtain the following information from the customer.

- A floor plan
- A map of the desired service area

On the floor plan, draw circles, using a compass, with the positions of base stations as centers. In a normal office environment, the radius is about 165 feet.

Note: The radio signals from a base station reach as far as 330 feet in an open area. However, the distance may be shortened due to the building structure and installation environments.

The following structures obstruct signal travel:

- Metallic Structures (Elevators, Fire Doors, Shutters, Lockers, Etc.)
- Columns, Walls, Floors, and Ceilings

The following structures obstruct signal travel minimally:

- Window Panes (excluding infrared reflecting glasses)
 - Stairwells and Stairs
-

Consider the above objects when planning the positions of base stations on paper. Radio signals travel in different ways in similar-looking offices. There is no standardized method of planning cells.

Following are recommended places to install base stations:

- Open spaces
- Elevated places above obstacles
- Wall surfaces (The back of ceilings greatly reduces radio signals, compared to wall surfaces.)
- Places free of metallic objects, ducts, etc.

Using the Omegatrek Site Measurement Kit for Signal Checking

Before conducting a signal check, prepare the following for the service area in which the Omegatrek system is to be installed:

- A floor plan
- A survey of building conditions
- A map of the desired service area

As is often the case, cell planning on paper may not work well in an actual system installation. For this reason, you should check signal conditions at the installation site beforehand.

The Omegatrek Site Measurement Kit measures EMF strength from the position at which you will place the base station to various positions where you anticipate portable station positioning. This feature is very helpful during the installation process to determine locations of the base stations.

To use the Omegatrek Site Measurement Kit to determine the positions of base stations:

1. Remove the test portable stations from the boxes, insert the batteries, and fully charge the units.
2. Determine the desired locations of all base stations and probable movement areas for all associated portable stations.
3. On one of the test portable stations, press [POWER] [#] [4] simultaneously. The password screen displays.
4. Press [5] + [1] + [6] + [2]. The Class 1 screen displays.
5. Press [2] + [HOLD] to enter Class 02. The Item screen displays.
6. Press [2] + [HOLD] to enter Item 02. The Element screen displays.
7. Press [1] + [HOLD]. The Omegatrek ID screen displays.
8. Enter any number to serve as the Omegatrek ID. Record or remember the number that you enter at this screen.
9. Press [HOLD] after you have entered and properly recorded the Omegatrek ID. The Element 4 screen displays.
10. Press [HOLD]. The Class 2, Item 2, Element 4 screen displays.
11. Enter an ID number, record or remember the number, then press [HOLD]. The Write Completed screen displays briefly.
12. Turn the test portable station OFF.
13. Follow steps 3-10 for the second portable station using a different Omegatrek ID.
14. Turn both test portable stations ON.
15. Use the first test portable station to call the second portable station.
16. Answer the second portable station.
17. Press [FEAT] + [1] on both test portable stations. The EMF strength displays.
18. Place one test portable station at the location where you wish to install a base station.

19. Taking the other test portable station with you, go to the sites where you anticipate there will be portable station traffic. Check the EMF strength in all of these areas. An EMF strength of 40 is sufficient to support most portable station communications.
20. If there is a problem with the signal strengths or the error rates, change the position of the base station (represented by a portable station) or review the cell planning on paper; then repeat a signal check.

Cell Traffic Assessment

Based on the customer's traffic assessment (the number of portable stations per cell), determine the number of base stations per cell. The maximum number of base stations and the maximum number of simultaneous calls in a cell are shown in Figure 19.

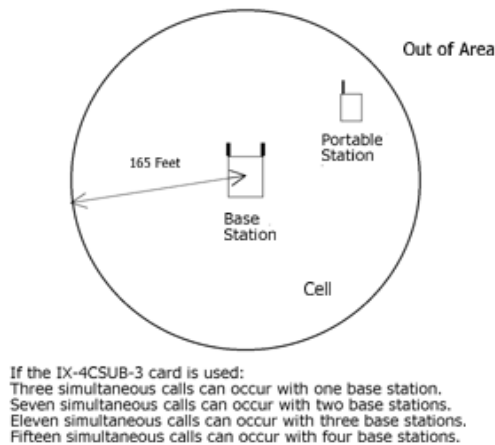


Figure 20. Maximum Number of Base Stations and Simultaneous Calls in a Cell

Sub-Cell Group Registration

Portable stations in the same sub-cell group have the same key lamp indications and the same key pattern assignment of the cell group keys. Use the database programming to assign each station to a sub-cell group.

System Capacity

System	Item	Slot	Port	Remarks
Total Number of Ports			448	
Number of Free Slots		56		Excluding slots used for IX-CPUP/ HW
Number of Reserved Slots		7		
Total Number of Trunks			200	
Digital Trunks	IX-2ICOTB	33	132	
	IX-ICOTP	8	184	
Total Number Of Stations			400	
Number of Actual Station Ports			400	
Key Telephone	IX-12KTx		392	Can be reduced by using IX-CSUB
Busy Bypass	IX-BPAD		196	
SATT	IX-12KTD		8	At least one is required
DSS Console	IX-DSSB		8	
Attendant Console	IX-ATT		8	
BLF	IX-BLF		8	
Digital Doorphone	IX-DDPH		391	
Message Card	IX-MSGU	8	32	
Single-Line Telephone	IX-8SUBS-2		384	
Off-premises Station	IX-4SUBL		212	
Digital Cordless Station	IX-PS		392	# of units that can be accommodated
Number of Simultaneous Calls			378	
Base Station	IX-BS5		108	Up to 100 cells
	IX-4CSUB-3	27		
Remote Maintenance Card	IX-RMPU	1	8	Built-in DTMF Receiver
Serial Communications Card	IX-SCIF	1	0	
MISC + SCIF Card	IX-EDVIF	1	8	
MISC Card	IX-MISC	7	56	
	IX-RCVPM	2		
DTMF Receiver	IX-4RCVC		16	

Additional Units	Item	Quantity
Ring Generator	IX-RNGUM	0
	IX-RNGU	4
PC Programmer		1

Restrictions

- The system needs at least one attendant station, at least one digital station card, and at least one trunk card.
- The system accommodates up to twenty-seven IX-4CSUB-3 cards, up to one hundred and eight base stations, and up to 392 portable stations.
- If another card is installed next to an IX-4CSUB-3 card, the maximum number of simultaneous calls using the IX-4CSUB-3 card decreases from fifteen to eight. If another card must be installed next to an IX-4CSUB-3 card, limit the number of base stations connected to the IX-4CSUB-3 card to two.
- Any combination of these cards is allowed as long as the total number of trunks, extensions, and miscellaneous ports does not exceed the total number of ports.
- Any combination of the above stations is allowed as long as the number of stations does not exceed the total number of actual station ports.
- Any combination of trunk cards is allowed as long as total number of cards does not exceed the total number of trunks.
- At least one KT (IX-12KTD) should be set up as an attendant station for system programming, so at least one digital station card (IX-8PSUB-1, etc.) should be installed.
- At least one trunk card must be installed in the system or the system will not be operational.
- The wiring distance between the ADIX and the base station should be 820 feet or fewer using 1 pair AWG22. This distance varies according to wiring type and pair number. For a longer distance, a repeater could be required. See the **Wiring Distance** section of this document for more information.

Determining IX-4CSUB-3 Position in the ADIX

The IX-4CSUB-3 card is a 16 port card that can be placed on either a single or dual highway. In determining the placement of the IX-4CSUB-3 card and the DSW1 settings of that card, it is necessary to understand the system highway structure, as well as the functional relationships between slot numbers, port numbers, and physical card numbers.

A dual highway shelf contains three (3) 32-channel highways. There are two (2) different types of cabinets that contain dual highway shelves.

The ADIX-APS IX-CML and ADIX-S/M IX-CMM cabinets provide the first type of dual highway shelf. This type shelf provides a T-1 type slot (3-card slot) at the far left of the shelf that supports 24 ports and 8 additional ports. There is no physical card slot associated with these 8 ports. The next 4 slots are all 16-port card slots (2-card slots) supported by two 32-channel highways. One 32-channel highway (Primary Highway) supports the first 8 ports on each of the 4 slots. The other 32-channel highway (Secondary Highway) supports the second 8 ports on each of the 4 slots.

The ADIX-APS IX-EXPML cabinet provides the second type of dual highway shelf. This type shelf provides a T-1 slot (3-card slot) at the far left of the shelf that supports 24 ports and a single card type slot (1-card slot) that supports 8 ports all within the first 32-channel highway. The next 4 slots are all 16-port card slots (2-card slots) supported by two 32-channel highways. One 32-channel highway (Primary Highway) supports the first 8 ports on each of the 4 slots. The other 32-channel highway (Secondary Highway) supports the second 8 ports on each of the 4 slots.

A single highway shelf contains one 32-channel highway for every 4 single card slots supporting a maximum of 64 ports.

In an ADIX-M system, there is a T-1 slot (3-card slot) at the far left of the shelf that supports 24 ports and a single card type slot (1-card slot) that supports 8 ports all within the first 32-channel highway. The next 4 slots in the shelf are all single card type slots (1-card slots), supporting 8 ports each all within the second 32-channel highway of the shelf.

In an ADIX IX-CM (Classic or Full Size 450) system, the first 4 single card type slots (1 card slots), supporting 8 ports each are all within the first 32-channel highway. The second 4 single card type slots (1-card slots), supporting 8 ports each are all within the second 32-channel highway.

The **slot number** is an actual universal card slot location in the ADIX cabinet where any station, trunk or miscellaneous card can be placed. The slots are numbered from left to right. Each ADIX cabinet type has a different number of slots. See Figures 20, 21 and 22 in this section for the slot numbers in each ADIX cabinet.

The **physical card number** is the unique number assigned to a specific card slot in a system. This number identifies the actual physical location (specific highway slot and shelf) where a card resides in the system.

ADIX APS Card Numbers

Figure 20 lists the physical card numbers of each shelf in an ADIX-APS.

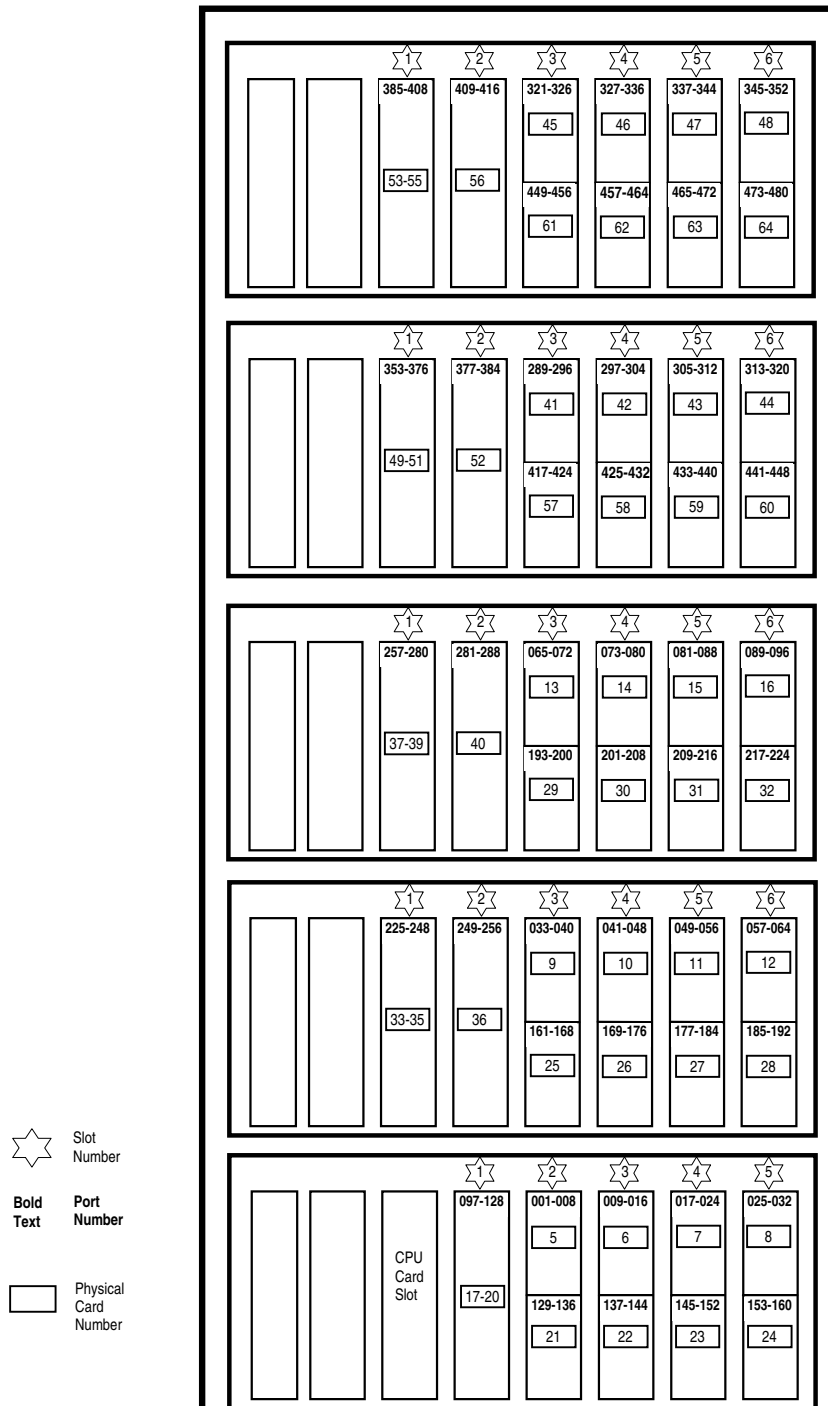


Figure 21. ADIX APS Slot Numbers, Port Numbers, and Card Numbers

ADIX-M Card Numbers

Figure 21 lists the physical card numbers of each shelf in an ADIX-M.

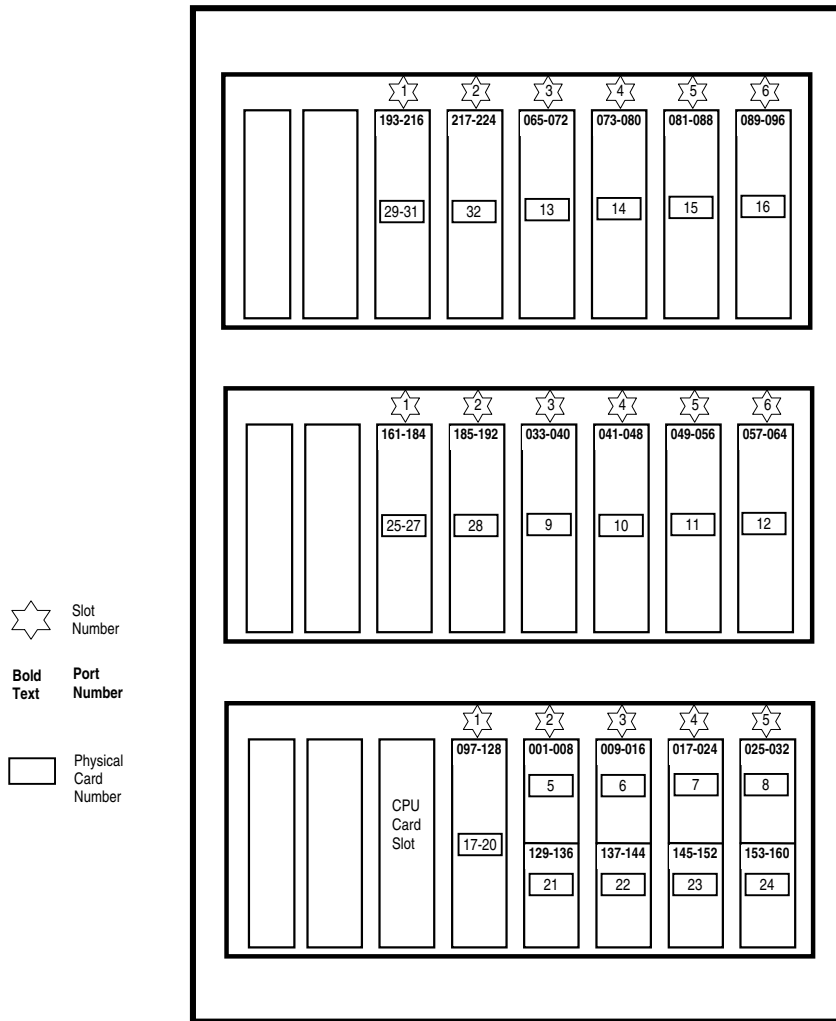


Figure 22. ADIX-M Slot Numbers, Port Numbers, and Card Numbers

ADIX 450 Card Numbers

Figure 22 lists the physical card numbers of each shelf in an ADIX 450.

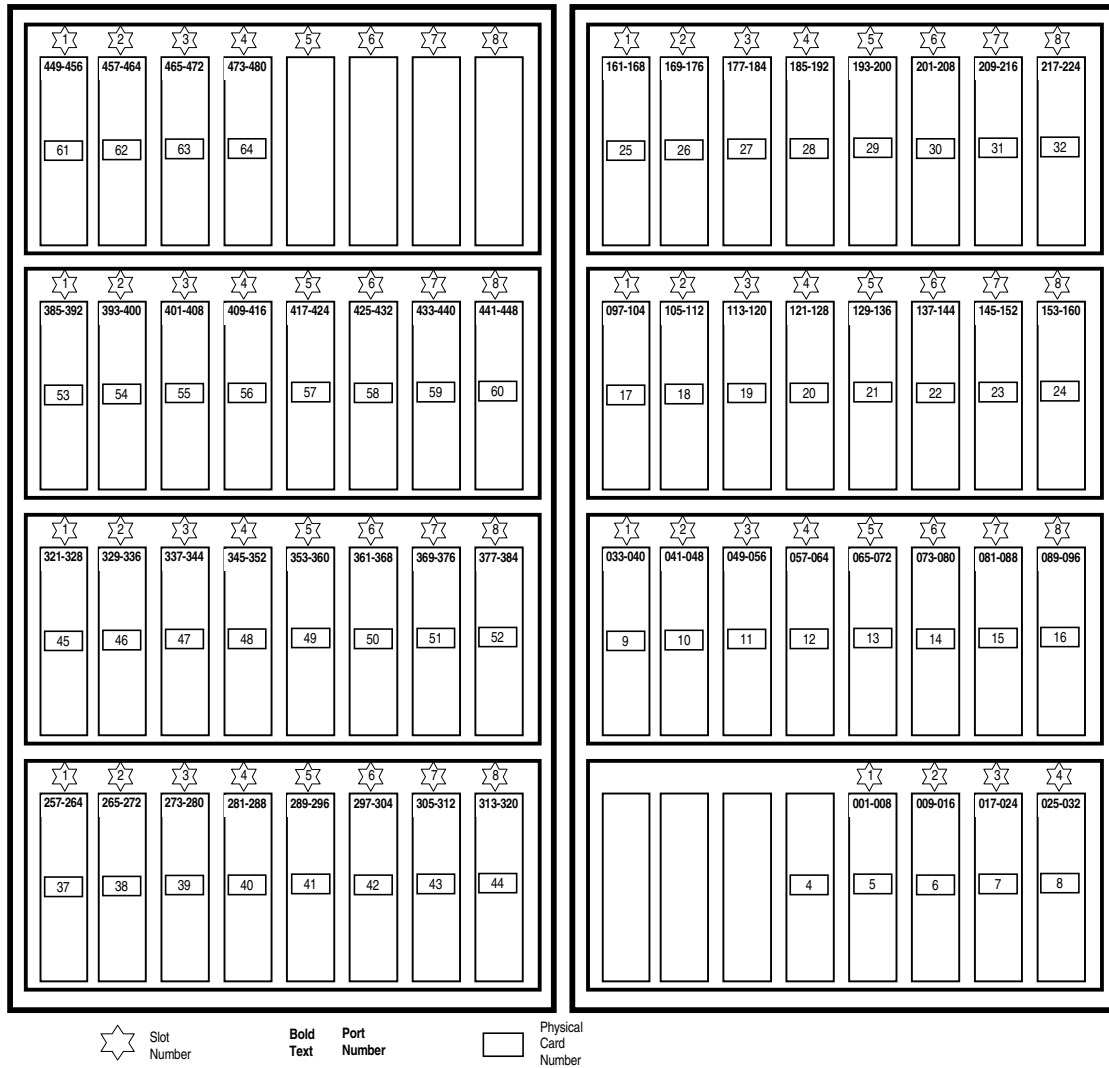


Figure 23. ADIX Slot Numbers, Port Numbers, and Card Numbers

Wiring Planning

Wiring Distance Using No Repeaters

See the table below for cable and distance information about wiring without using a repeater.

Cable Diameter	Number of Cable Pairs	Wire Length	Remarks
AWG26	1	290 ft.	Varies with the transmission characteristics of the signal lines.
	2	490 ft.	
AWG24	1	460 ft.	
	2	790 ft.	
AWG22	1	820 ft.	
	2	1340 ft.	
AWG18	1	1870 ft.	
	2	3180 ft.	

When using two pair cabling, you must attach the second pair to the first pair as shown below.

Note: Do not use local power if you follow this configuration. Problems may arise from use of local power, and local power provides no advantage in distance.

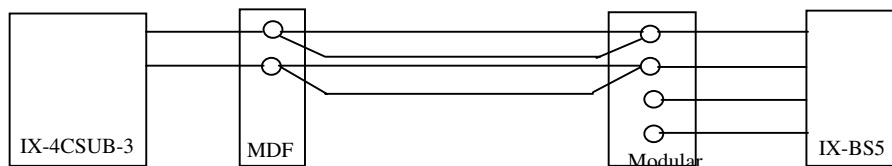


Figure 24. Wiring Setup Using 2 Pair and No Repeaters

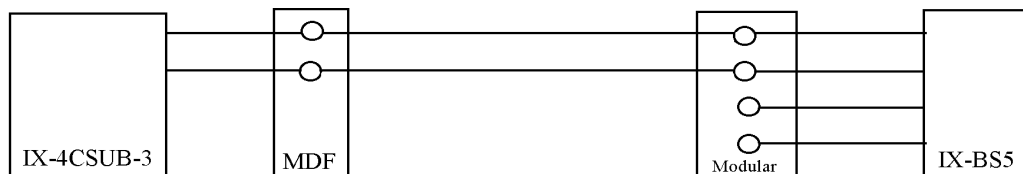


Figure 25. Wiring Setup Using 1 Pair and No Repeaters

Wiring Distance Using One Repeater

All IX-BSREP units require a local power. Use Valcom VP-624B AC/DC Power supply (DC +24V, 600mA). Note that all local power units require an UPS unit for uninterrupted operation.

- To set up the IX-BSREP for use as the only repeater:
 1. Set IX-BSREP's SW1 (Power Setting SW) to "Local" side.
 2. Set IX-4CSUB-3's JP1&2 (Power Selection) to "Center"..

Cable Diameter	Wire Length 1	Wire Length 2	Total Wire Length	Remarks
AWG26	3900 ft.	300 ft.	4200 ft.	The total wire length is the same if no repeater is used.
AWG24	3900 ft.	550 ft.	4450 ft.	The total wire length is the same if no repeater is used.
AWG22	3900 ft.	950 ft.	4850 ft.	The total wire length is the if when no repeater is used.
AWG18	3900 ft.	2200 ft.	6100 ft.	Varies with the transmission characteristics of the signal lines.The total wire length is the same if no repeater is used.

See the illustration below for a wiring installation diagram if you plan to use one repeater

CAUTION
Use only one pair cable.

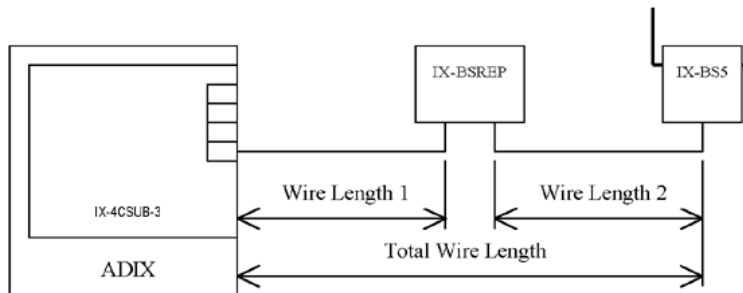


Figure 26. Wiring Setup with One Repeater

Wiring Distance Using Two Repeaters

See illustration below for a wiring installation diagram if you plan to use two repeaters.

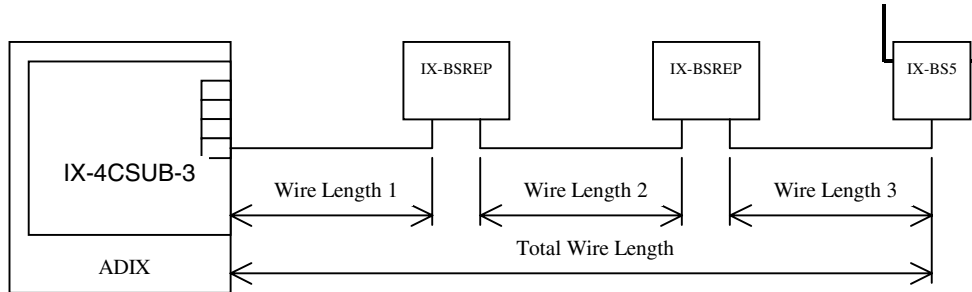


Figure 27. Wiring Setup with Two Repeaters

CAUTION
Use only one pair cable.

Cable Diameter	Wire Length 1	Wire Length 2	Wire Length 3	Total Wire Length	Remarks
AWG26	3200 ft.	3900 ft.	340 ft.	7550 ft.	The voltage near the quick connector on the IX-4CSUB-3 card should be 26 V or higher. If the number of cable pairs is one or two, the total wire length becomes shorter than when no repeater is used.
AWG24	3200 ft.	3900 ft.	560 ft.	7770 ft.	The voltage near the quick connector on the IX-4CSUB-3 card should be 26 V or higher. If the number of cable pairs is one or two, the total wire length becomes shorter than when no repeater is used.
AWG22	3200 ft.	3900 ft.	950 ft.	8160 ft.	The voltage near the quick connector on the IX-4CSUB-3 card should be 26 V or higher. If the number of cable pairs is one or two, the total wire length becomes shorter than when no repeater is used.
AWG18	3200 ft.	3900 ft.	2200 ft.	9400 ft.	The voltage near the quick connector on the IX-4CSUB-3 card should be 26 V or higher. If the number of cable pairs is one or two, the total wire length becomes shorter than when no repeater is used.

Environmental and Structural Conditions

The Omegatrek Wireless System should be operated only under the following environmental and structural conditions:

Operating Temperature:	0 to 40 degrees Centigrade (32 to 104 degrees Fahrenheit)
Storage Temperature:	-10 to 50 degrees Centigrade (14 to 122 degrees Fahrenheit)
Relative Humidity (non-condensing):	10 to 90% at 24 degrees Centigrade (75 degrees Fahrenheit)
Static Discharge:	10 KV or less
Electromagnetic Interference:	0.3 V/ft. or less
Ventilation:	At least three inches above and to the sides of the IX-CML/IX-EXPML and power supply
Floor Strength:	200 lbs. per sq. ft.
System Power Supply Input Voltage (IX-PWSL):	120 VAC +/- 10% 60 Hz

Software Setup

PC Programmer Compatibility Chart -- ADIX

System Software Version	3.12	3.41B	3.51A	3.51	4.00	5.20	5.40	6.10	7.00	8.00	9.00	9.30	9.40	10.00
	3.41		3.52A	3.52	4.01				7.10	8.10				
CPU16, 4.50						x	x							
CPU16, 4.51						x	x							
CPU16, 4.52						x	x							
CPU16, 4.60								x						
CPU16M, 4.70									x					
CPU32, 5.00	x	x		x										
CPU32, 5.10	x	x		x										
CPU32, 5.20	x	x		x										
CPU32, 5.22	x	x		x										
CPU32, 5.23	x	x		x										
CPU32, 5.24	x	x		x										
CPU32, 5.25	x	x		x										
CPU32, 5.26				x										
CPU32, 5.27				x										
CPU32, 5.30					x									
CPU32, 5.31					x									
CPU32, 5.31B					x									
CPU32, 5.32					x									
CPU32, 5.50						x	x							
CPU32, 5.51						x	x							
CPU32, 5.52						x	x							
CPU32, 5.6X								x						
CPU32-1/M, 5.7X									x					
CPUP/ HW6.0x										x				
CPUP/ HW6.1X											x	x		
CPUP/HW 6.2X												x		
CPUP/HW 6.3X												x		
CPUP/HW 6.40													x	
CPUP/HW 7.00														x

PC Programmer Compatibility Chart -- ADIX ACD

ACD Software Version	3.41B	3.51 3.52	4.00 4.01	RPC5 V0.53	5.00	5.20	6.10	7.00 7.10	ACD 1.01	ACD 2.01	ACD 3.00	ACD 4.00,4.01	ACD 4.22
CPU32, 4.10-ACD	x	x							x				
CPU32, ACD 1.5X	x	x							x				
CPU32, ACD 2.0X			x							x			
CPU32, ACD 2.10T				x							x		
CPU32, ACD 2.1X					x	x					x		
CPU32, ACD 2.21							x				x		
CPU32-1, CPU32M, ACD 2.31											x		
CPUP/HW ACD 6.00, 6.1x												x	x
CPUP/HW ACD 6.2x													x
CPUP/HW ACD 6.3x													x
CPUP/HW ACD 6.40													x
CPUP/HW ACD 7.00													x

Database Conversion Programs

Database conversion can only be performed on Software Versions 4.50 and higher. Iwatsu does not support software prior to version 4.50 for upgrade purposes.

PC Conversion Software	Conversion Requirements
DBC5U.EXE V3.10	Corrected Version of Conversion Program. Use instead of V3.00 when upgrading system software in the following configurations: 1) Upgrading from 4.5X to 4.62 2) Upgrading from 5.5X to 5.6X 3) Upgrading from ACD 2.1X to 2.2X (not necessary to use ADBCXU.EXE also.)
DBC6U	Use when upgrading system software in the following configurations: 1) Upgrading from 4.6X to 4.7X 2) Upgrading from 5.6X to 5.7X
DBC7U	Use when upgrading system software from 4.7X/5.7X to 6.0X
DBC9U	Use when upgrading system software from 6.0X to 6.1X, 6.2X, and 6.3X
DBC10U	Use when upgrading system software from 6.4X

ADIX Database Conversion Program (DBC9U)

This conversion program converts ADIX Software Versions 6.1X, 6.2X, 6.3X and 6.4X to Software Version 7.00. If your system is using a software version prior to 6.1X you must first convert your database to 6.1X.

Use the table below to determine which conversion programs you need to upgrade the software to version 7.00:

ADIX Software Conversion Program Table		
Current Software Version	Run These Conversion Programs	PC Programmer Version
V. 5.00-5.27, ACD 1.XX	1) Run DBCU3 Run DBC4U Run DBC5U Run DBC6U Run DBC7U Run DBC8U Run DBC9U Run DBC10U	RPC V. 3.51 or 3.52
V. 5.3X, ACD 2.0X	2) Run DBC4U Run DBC5U Run DBC6U Run DBC7U Run DBC8U Run DBC9U Run DBC10U	RPC V. 4.00
V. 4.5X, 5.5X, ACD 2.1X	3) Run DBC5U Run DBC6U Run DBC7U Run DBC8U Run DBC9U Run DBC10U	RPC V. 5.00
V 4.61, 4.62, 5.61, 5.62, ACD 2.2X	1) Run DBC6U 2) Run DBC7U 3) Run DBC8U 4) Run DBC9U 5) Run DBC10U	RPC V. 6.10
V. 4.71, 4.75, 5.71, 5.73, ACD 2.3X	1) Run DBC7U 2) Run DBC8U 3) Run DBC9U 4) Run DBC10U	RPC V. 7.00, 7.10
V. 6.0x, ACD 6.0x	1) Run DBC8U 2) Run DBC9U 3) Run DBC10U	RPC V. 8.10
V.6.1x, 6.2x, 6.3x, 6.4x	1) Run DBC9U 2) Run DBC10U	RPC V. 9.30
V.7.00	1) Run DBC10U	RPC V. 10.0

ADIX ACD Database Conversion Program (ADBC3U)

This conversion program is only required for ADIX ACD systems with software versions prior to version ACD 6.0x. It converts ADIX ACD Software Versions 2.1X, 2.2X, and 2.3X to Software Version 7.00. If your system is using a software version prior to 2.1X, you must first convert your database to 2.2X before running ADBC3U. If your system is using Software Version 6.1x, no conversion is necessary.

Use the table below to determine which conversion programs you need to upgrade to ADIX ACD Software Version 7.00:

ADIX ACD Software Conversion Program Table			
Current Software Version	Run These Conversion Programs	Compatible PC Programmer Version	Compatible ACD PC Programmer Version
V.1XX	1) Run ADBC 2) Run ADBC2U 3) Run ADBC3U	RPC V. 3.51 or 3.52	V. 1.02
V.20X	1) Run ADBC2U 2) Run ADBC3U	RPC V. 4.00	V. 2.01
V.2.1X	1) Run ADBC3U	RPC V. 5.00	V. 3.00
V.2.21	1) Run ADBC3U	RPC V. 6.10	V. 3.00
V.2.31	1) Run ADBC3U	RPC V. 7.10	V. 3.00

* V 1.01 of ADBC.U.EXE (used to convert ACD V1.XX to V2.0X) will default the data in Class 19.10. To prevent this from occurring use ADBC.U.EXE version 1.02.

Database Check Programs

This software is used to search for duplicate logical port numbers and numbering conflicts.

Database Check Program	Use to Check
CHK3A.EXEV1.0X	Use for databases on CPUL-1 cards (CPU16) with 4.0X to 4.2X software and CPU32 cards with 5.0X to 5.2X software.
CHK4U.EXEV1.00	Use for databases on CPU16 cards with 4.3X software and CPU32 cards with 5.3X software.
CHK5U.EXEV2.00	Use for databases on CPU16 cards with 4.5X software and CPU32 cards with 5.5X software.
CHK6U.EXEV3.00	Use for databases on CPU16 cards with 4.6X software and CPU32 cards with 5.6X software.
CHK7U	Use for databases on CPU16 cards with 4.7X software and CPU32 cards with 5.7X software.
CHK8U	Use for databases on CPUP/HW w/ IX-CPU20/ MEM-M/MEM-L cards with 6.0X software.
CHK9U	Use for databases on CPUP/HW w/ IX-CPU20/ MEM-M/MEM-L cards with 6.1X, 6.2X and 6.3X software.
CHK10U	Use for databases on CPUP/HW Rev 1 or B with 6.4 and 7.0 software.

Running PC Programmer

Important: The following code is needed in the Config.Sys file for ADIX PC Programmer Version 10.0 to work:

- DEVICE=C:\WINDOWS\HIMEM.SYS
 - DEVICE=C:\WINDOWS\EMM386.EXE
 - DOS=HIGH,UMB
-

Note: Before running ADIX PC Programmer, exit Windows® 3.1X or reboot your Windows® 95/98 system in MS-DOS mode. To reboot a Windows® 95/98 system in MS-DOS mode, choose Shut Down from the Start menu, then select "Restart the computer in MS-DOS mode".

- **To run ADIX PC Programmer 10.0/ADIX ACD PC Programmer 4.22 from the floppy disk:**
 1. Insert the diskette containing the ADIX PC Programmer 10.0/ADIX ACD PC Programmer 4.22 in a floppy disk drive.
 2. At the DOS prompt, type A: and press <Enter>.
 3. For ADIX PC Programmer 10.0, type RPC9U and press <Enter>
or
For ADIX ACD PC Programmer 4.22, type ACD4U and press <Enter>.

The ADIX PC Programmer Main menu displays.

- **To run ADIX PC Programmer 10.0/ADIX ACD PC Programmer 4.22 from the PC hard drive:**
 1. Create a new directory on your PC hard drive for ADIX PC Programmer 10.0/ADIX ACD PC Programmer 4.22.
 2. Insert the diskette containing the ADIX PC Programmer 10.0/ADIX ACD PC Programmer 4.22 in your PC floppy disk drive.
 3. Copy all files from the floppy disk drive to the directory created in Step 1.
 4. From an MS-DOS prompt at the directory created in Step 1, complete one of the following steps:
 5. For ADIX PC Programmer 10.0, type RPC9U and press <Enter>
or
For ADIX ACD PC Programmer 4.22, type ACD4U and press <Enter>.The ADIX PC Programmer Main menu displays.

Converting the Database

Step-by-Step Instructions

The conversion process consists of eight separate parts that must be performed in order.

PART 1 - Database Download Before upgrading the system software, the current system configuration and all classes of the customer's database must be downloaded and backed up.

- **To download the current customer database:**

1. Start the PC Programmer that is compatible with your current software (refer to **Ensuring Compatibility** in the **Software Setup** section of this bulletin), and establish a data link with the ADIX system.
2. Download the system configuration and all classes of the customer's database to a unique file name. Example: SYSOLD
3. Files are created with the filename entered above followed by one of the extensions listed below:

PC Programmer Version	File Extension
5.XX	GUA through GUQ and GUZ
6.XX	HUA through HUS and HUZ
7.XX	IUA through IUU and IUZ
8.XX	JUA through JUX and JUZ
9.1X, 9.2X and 9.3X	KUA through KUX and KUZ
9.40	LUA through LUZ
10.00	MUA through MUZ

Note: In PC Programmer 9.x, a file with an .XXX extension is created when the configuration is downloaded. This file contains system information and does not affect system upgrade operations.

4. Terminate the data link and exit the PC Programmer.
5. Backup these files before continuing with the conversion process.

PART 2 - ADIX Database Conversion One or more conversions are required to make the database files downloaded in Part 1 compatible with the new system software. Software versions **prior** to 6.1x must be converted to 6.1x before being converted to 7.00. Follow the procedure below that corresponds to the software version currently installed in your system.

Step A - Migrating from Software Versions 4.5X/5.5X to 4.6X/5.6X

You must have database files with an extension of GUA through GUQ and GUZ.

1. Start database conversion program DBC5U (V3.10).
2. A source file location is requested. Enter the drive and filename containing the database files downloaded in **Part 1 - Database Download** and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: SYS562

4. When the conversion is complete, press <Enter>. Twenty files are created with the new database filename followed by an extension of HUA through HUS and HUZ. Example:
SYS562.HUA

Your database files (*.HU*) are now compatible with Software Version 4.6X/5.6X. Class 24 - Caller ID/ANI Conversion Data and Class 25 - DNIS Conversion Data have been created and initialized with each item set to its default value. Proceed to Step B.

Step B - Migrating from Software Versions 4.6X/5.6X to 4.7X/5.7X

You must have database files with an extension of HUA through HUS and HUZ.

1. Start database conversion program DBC6U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 1 - Database Download or the files converted in Step A with HUA through HUS and HUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: SYS562

4. When the conversion is complete, press <Enter>. Twenty files are created with the new database filename followed by an extension of IUA through IUU and IUZ. Example:
SYS563.IUA

Your database files (*.IU*) are now compatible with Software Version 4.7X/5.7X. Proceed to Step C.

Note: Conversion program DBC7U automatically assigns the IX-CPUP/HW serial port (Physical Port 227/483) as the next available MISC logical port number based on your system's configuration.

Step C - Migrating from Software Versions 4.7X/5.7X to 6.0

You must have database files with an extension of IUA through IUU and IUZ.

1. Start database conversion program DBC7U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 1 - Database Download or the files converted in Step B with IUA through IUU and IUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: SYS57X

4. When the conversion is complete, press <Enter>. Twenty files are created with the new database filename followed by an extension of JUA through JUX and IUZ. Example: SYS57X.JUA

Your database files (*.JU*) are now compatible with Software Version 6.00.

Step D - Migrating from Software Versions 6.0x to 6.1X, 6.2X and 6.3X

You must have database files with an extension of JUA through JUX and JUZ.

1. Start database conversion program DBC8U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 1 - Database Download or the files converted in Step C with JUA through JUX and JUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: SYS60X

4. When the conversion is complete, press <Enter>. Twenty-four files are created with the new database filename followed by an extension of KUA through KUX and KUZ. Example:
SYS60X.KUA

Your database files (*.KU*) are now compatible with Software Version 6.40.

Step E - Migrating from Software Versions 6.1X, 6.2X and 6.3x to 6.40

You must have database files with an extension of KUA through KUZ.

1. Start database conversion program DBC9U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 1 - Database Download or the files converted in Step D with KUA through KUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: SYS64X

4. When the conversion is complete, press <Enter>. Twenty-four files are created with the new database filename followed by an extension of LUA through LUZ. Example: SYS64X.LUA

Your database files (*.LU*) are now compatible with Software Version 6.40.

Step F - Migrating from Software Versions 6.4X

You must have database files with an extension of KUA through KUX and KUZ.

1. Start database conversion program DBC9U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 1 - Database Download or the files converted in Step E with KUA through KUX and KUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: SYS70X

4. When the conversion is complete, press <Enter>. Twenty-four files are created with the new database filename followed by an extension of MUA through MUX and MUZ. Example: SYS70X.MUA

Your database files (*.MU*) are now compatible with Software Version 7.00.

Step G - Migrating from Software Versions 6.4X to 7.00

You must have database files with an extension of MUA through MUZ.

1. Start database conversion program DBC10U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 1 - Database Download or the files converted in Step F with MUA through MUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files.

4. When the conversion is complete, press <Enter>. Twenty-four files are created with the new database filename followed by an extension of MUA through MUZ.

Your database files (*.LU*) are now compatible with Software Version 7.00

PART 3 - ADIX ACD Database Download (For ADIX ACD Systems Only) Before upgrading the software, the current system configuration and all ACD classes of the customer's database must be downloaded.

To download the current ADIX ACD database:

1. Start the ACD PC Programmer that is compatible with your current software (See the table on page 26) and establish a data link with the ADIX system.
2. Select CONFIGURATION EDIT and create a configuration to match the customer's PBX system configuration (for example, System Size 1, 120 Stations, 64 Trunks). Save this configuration using a unique file name. Example: ACDOLD
3. Download all classes of the customer's ACD database to the same filename used in Step 2.
4. Terminate the data link and exit the ACD PC Programmer.
5. Seven files are created with the original database filename followed by an extension of AUA through AUF and AUZ (ACD RPC V1.02), BUA through BUF and BUZ (ACD RPC V2.01), CUA through CUF and CUZ (ACD RPC V3.0X) or DUA through DUF and DUZ (ACD RPC V4.22). Example: ACDOLD.DUA
6. Backup these files before continuing with the conversion process.

Note: If your system was running ADIX ACD Software Version 6.0X or higher, no further database conversion is required. Skip Part 4 and proceed to Part 5. However, if your system was operating with ADIX ACD software prior to version 6.0X, the ADIX ACD database must be converted. Proceed to Part 4.

PART 4 - ADIX ACD Database Conversion (For ADIX ACD Systems Only) Part 4 is only required for ADIX ACD Systems prior to Software Version ACD7.0x. One or more versions are required to make the database files downloaded in Part 3 compatible with the new system software. Follow the procedure below that corresponds to the software version currently installed in your system.

Step A - Migrating from Software Version 1.XX to 2.0X

1. Start database conversion program ADBCUI.
2. A source file location is requested. Enter the drive and filename containing the database files downloaded in Part 3 - ADIX ACD Database Download and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: ACD20

4. When the conversion is complete, press <Enter>.

Seven files are created with the new database filename followed by an extension of BUA through BUF and BUZ. Example: ACD20.BUA

Your ACD database files (*.BU*) are now compatible with Software Version 2.0X.

Step B - Migrating from Software Version 2.0X to 2.1X, 2.2X and 2.3X

You must have database files with an extension of BUA through BUF and BUZ.

1. Start database conversion program ADBC2U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 3 - ADIX ACD Database Download or the converted files with BUA through BUF and BUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: ACD21

4. When the conversion is complete, press <Enter>.

Seven files are created with the new database filename followed by an extension of CUA through CUF and CUZ. Example: ACD21.CUA

Your ACD database files (*.CU*) are now compatible with ACD Software Version 2.1X, 2.2X and 2.3X.

Step C - Migrating from Software Version 2.1X, 2.2X and 2.3X to 6.40 ACD

You must have database files with an extension of CUA through CUF and CUZ.

1. Start database conversion program ADBC3U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 3 - ADIX ACD Database Download or the converted files with CUA through CUF and CUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: ACD6

4. When the conversion is complete, press <Enter>.

Seven files are created with the new database filename followed by an extension of DUA through DUF and DUZ. Example: ACD6.DUA

Your ACD database files (*.DU*) are now compatible with ACD Software Version 6.40.

Step D - Migrating from Software Version 6.40 to 7.00ACD

You must have database files with an extension of DUA through DUF and DUZ.

1. Start database conversion program ADBC4U.
2. A source file location is requested. Enter the drive and filename containing either the database files downloaded in Part 3 - ADIX ACD Database Download or the converted files with DUA through DUF and DUZ extensions and press <Enter>.
3. A destination location is requested. Enter the drive and filename where you want the converted database files copied to and press <Enter>.

Note: Use a unique filename for the new files. Example: ACD7

4. When the conversion is complete, press <Enter>.

Seven files are created with the new database filename followed by an extension of EUA through EUF and EUZ. Example: ACD7.EUA

Your ACD database files (*.EU*) are now compatible with ACD Software Version 7.00.

PART 5 - Database Check Program (CHK10U). The database check program searches for numbering plan conflicts and duplicate logical port numbers. This program also checks for conflicts in the ACD database files.

To run the database check program:

1. Insert the diskette containing the database check program in your PC's floppy disk drive and type CHK10U.
2. A file location is requested. Enter the drive and filename containing the new converted database (extension of MUA through MUZ) and press <Enter>.

When the search is complete, errors display on the PC monitor. A text file (*.ERR) listing the errors is also created.

PART 6 - System Software Replacement When Parts 1 through 5 of the migration process are complete, the new IX-CPUP/HW (REV R or REV 1) Controller Card with either an IX-CPU20/ MEM-M (REV R or REV 1) or IX-CPU20/ MEM-L (REV R or REV 1) CPU/Memory Module programmed with Software Version 7.00 may be installed in the system.

Note: Software version 7.00 is compatible with only the IX-CPUP/HW (REV R or REV 1) Controller Card with either an IX-CPU20/ MEM-M (REV R or REV 1) or IX-CPU20/ MEM-L (REV R or REV 1) CPU/Memory Module. If your system has a IX-CPUP/HW Controller Card with either an IX-CPU20/ MEM-M or IX-CPU20/ MEM-L CPU/Memory Module that are not REV R or REV 1, Iwatsu will provide a replacement at no additional charge. Please inform Customer Service when ordering the upgrade.

To replace CPU and System Software:

CAUTION

Make sure that the main power switch is turned OFF and unplug the AC power cord from the AC outlet before installing the new software.

1. Power down the ADIX, ADIX-M, ADIX-S, or ADIX APS system.
2. Remove the CPU card from the IX-CM (ADIX), IX-CMM (ADIX-M/ADIX-S) or IX-CML (ADIX APS).
3. Remove the highway card (IX-HWCL, IX-HWCE) from the IX-CM (ADIX).

Note: If you are upgrading a Full Size ADIX system (IX-CM) to Version 7.00, you are required to purchase a new IX-CPUP/HW (REV R or REV 1) Controller Card with either an IX-CPU20/ MEM-M (REV R or REV 1) or IX-CPU20/ MEM-L (REV R or REV 1) CPU/Memory Module. Older type ADIX CPU cards are not compatible with Version 7.00 software. The IX-HWCL or IX-HWCE is not required with the use of the IX-CPU/HW card.

4. Complete one of the following steps:

If system is an:	Set Strapping Jack CN5 on the IX-CPUP/HW (REV R or REV1)card to:
ADIX (IX-CM)	OFF (refer to EBA-98001 or ADIX Technical Manual, 5th Edition for details)
ADIX-S/M (IX-CMM)	ON (refer to EBA-98001 or ADIX Technical Manual, 5th Edition for details)
ADIX APS (IX-CML)	OFF

5. Complete one of the following steps:

If system is an:	Install the IX-CPUP/HW (REV R or REV1)with IX-CPU20/ MEM-M (REV R or REV1) or IX-CPU20/ MEM-L (REV R or REV1) in the:
ADIX (IX-CM)	IX-CM slot labeled HWC.
ADIX-S/M (IX-CMM)	IX-CMM slot labeled CPU.
ADIX APS (IX-CML)	IX-CML slot labeled CPU.

6. After the new IX-CPU/HW (REV R or REV 1) with IX-CPU20/ MEM-M (REV R or REV 1) or IX-CPU20/ MEM-L (REV R or REV 1) with Software Version 7.00 has been installed, default the system (refer to EBA98001 or ADIX Technical Manual, 5th Edition for details on defaulting the system).
7. When the default is complete, access the programming mode through the Primary Attendant Key Telephone. Check Class 01 Items 06 and 07 to determine the number of stations and trunks reported to the system memory during default.
8. Using PC Programmer Version 10.00, check the number of station and trunk ports registered in the converted database files from Part 2. The number of station and trunk ports in steps 7 and 8 must be the same.

IF THE NUMBERS DO NOT MATCH, STOP HERE AND CALL THE IWATSU TECHNICAL SUPPORT CENTER (1-800-955-8581) for instructions to correct this situation.

If the numbers match, go to Part 7.

PART 7 - Converted ADIX Database Upload Upload the converted database files created in previously in Part 2 - ADIX Database Conversion using PC Programmer Version 10.00.

To upload the converted database:

1. Start PC Programmer Version 10.00 and establish a data link with the ADIX system.
2. Upload the new, converted configuration from the PC to the ADIX. When the configuration upload is complete, terminate the data link.
3. Wait 10 seconds after terminating the data link, or wait until the Code 4 LED on the CPU or alarm panel stops flashing.
4. Reset the system.
5. When the reset is complete, establish a data link. Select System Data Upload. Upload All Classes.
6. When Classes 02 through 17, 24 through 30 are uploaded, terminate the data link and exit the PC Programmer.
7. Reset the ADIX system.
8. The PBX software upgrade is now complete. For customers with ACD software, proceed to Part 8. Conduct a thorough test of system operations.

PART 8 - Converted ADIX ACD Database Upload. Upload the converted database files created in Part 4 - ACD Database Conversion (file extensions EUA through EUF and EUZ) using ACD PC Programmer Version 7.00.

To upload the ACD database:

1. Start the ACD PC Programmer (ACD4U) and establish a data link with the ADIX system.
2. Select System Data Upload and upload All Classes.
3. When the upload is complete, terminate the data link and exit the ACD PC Programmer.
4. Wait 10 seconds after terminating the data link, or wait until the Code 4 LED on the CPU or alarm panel stops flashing.
5. Reset the ADIX system.

The entire software upgrade is now complete. Conduct a thorough test of system operations.

Grounding Requirements

The ADIX is a sound and reliable communications system that is not inherently subject to ground related problems. The ADIX is, however, a sophisticated electronic CPU-controlled product that is susceptible to environmental factors that will and can affect system performance and component integrity. Before adding components for the Omegatrek Wireless System, you must ensure that your ADIX, ADIX-S/M, or ADIX APS is properly grounded.

The ADIX system must be connected to an effective earth ground potential for proper system operation. The system must be properly grounded to dissipate external environmental and electrical interference such as static discharge, radio frequency interference, electromagnetic interference, electrical surges, lightning surges, and transient high voltage.

This is particularly important in any installation that has off premise cabling, networked systems, station repeaters, feeder cables, underground cables and multi-vendor, multi-product installations. All products and equipment connected or integrated to the ADIX system must be grounded to the same ground potential.

Items to consider when grounding the system:

- Request isolated ground receptacles for all telephone equipment in new construction.
- Any rise in ground potential, or power induction of electrical current induced in twisted pair telephone cable when using feeder cables will not be properly drained if the system is not grounded.
- Any transient rise in ground and voltage potential due to lightning or commercial electrical surge will not be properly drained if the system is not grounded.
- The shortest and most direct path to ground provides a lower impedance connection (resistive and inductive) to earth.
- Ground all equipment that is connected to the ADIX system. This will provide improved ground equalization between products in a multi-product installation.
- Equipment will be damaged to some degree if the system is subject to adverse electrical surges or spikes if the equipment is not grounded.
- Effective earth potential is required to operate analog, DID, Ground Start, E&M and SLT OPX circuits as earth potential is used as the basic means of signaling.
- Effective ground reference is important in multi-product installations to prevent ground loops from occurring.

Note: An optional lightning arrester unit (Iwatsu ARST-S) installed on CO lines is recommended in areas where lightning is common. This will protect trunk interface cards.

Earth Ground

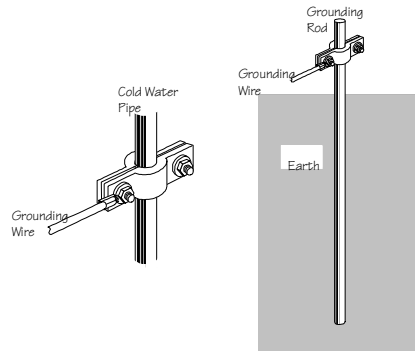


Figure 28. System Ground

Common Module

Using the AC Power Cord Ground Conductor

Once it has been determined and verified that the electrical outlet that the system is connected to is a dedicated and isolated telecommunications earth ground as defined by the National Electrical Code and the TIA / EIA as stated above, the electrical power cord ground conductor can be used as the system's reference to earth ground potential.

This means that the ground receptacle of the outlet is connected directly to a dedicated ground conductor that is secured to an effective earth ground of known potential. This is defined in detail the articles above.

If the origin or quality of the electrical outlet ground is suspect, or is known not to have been wired in accordance with the National Electrical Code and the TIA / EIA as stated above, the AC Power Cord Ground is to be considered a poor ground. In that case, an external ground conductor must be used as the effective ground reference as defined below.

Use of an External Ground Conductor

An external ground conductor must be used as the system's reference to an effective earth ground if it has been determined that the AC Power Outlet Ground is ineffective or is not a dedicated telecommunications quality ground as defined by National Electrical Code and the TIA / EIA.

The use of cold water pipes that have historically been used for ground reference should be avoided. The prevalent use of PVC pipe in most construction today renders this ground source unreliable. It should also be noted that the use of a copper water pipe is prohibited by many building codes.

The grounding conductors must be a minimum of 12 AWG. Use wire that is either green or green and yellow striped. Use crimp terminals for all stranded wire.

Note: All grounding used in the ADIX System installation shall comply with the standards defined in National Electrical Code, NFPA 70, Article 250, and the Telecommunication Industry Association / Electrical Industry Association (TIA/ EIA) Telecommunications Ground Procedures, Article 607, including cabinets, feeder cables, network connections, and off-premise stations. Copies of the TIA / EIA, Article 607 may be purchased by contacting the EIA Standards Sales Office, at 202-457-4966.

Grounding the ADIX

Figure 28 illustrates the proper ground termination points for the ground straps between the IX-CM and IX-EXPM units and the earth ground conductor attached to the power supply.

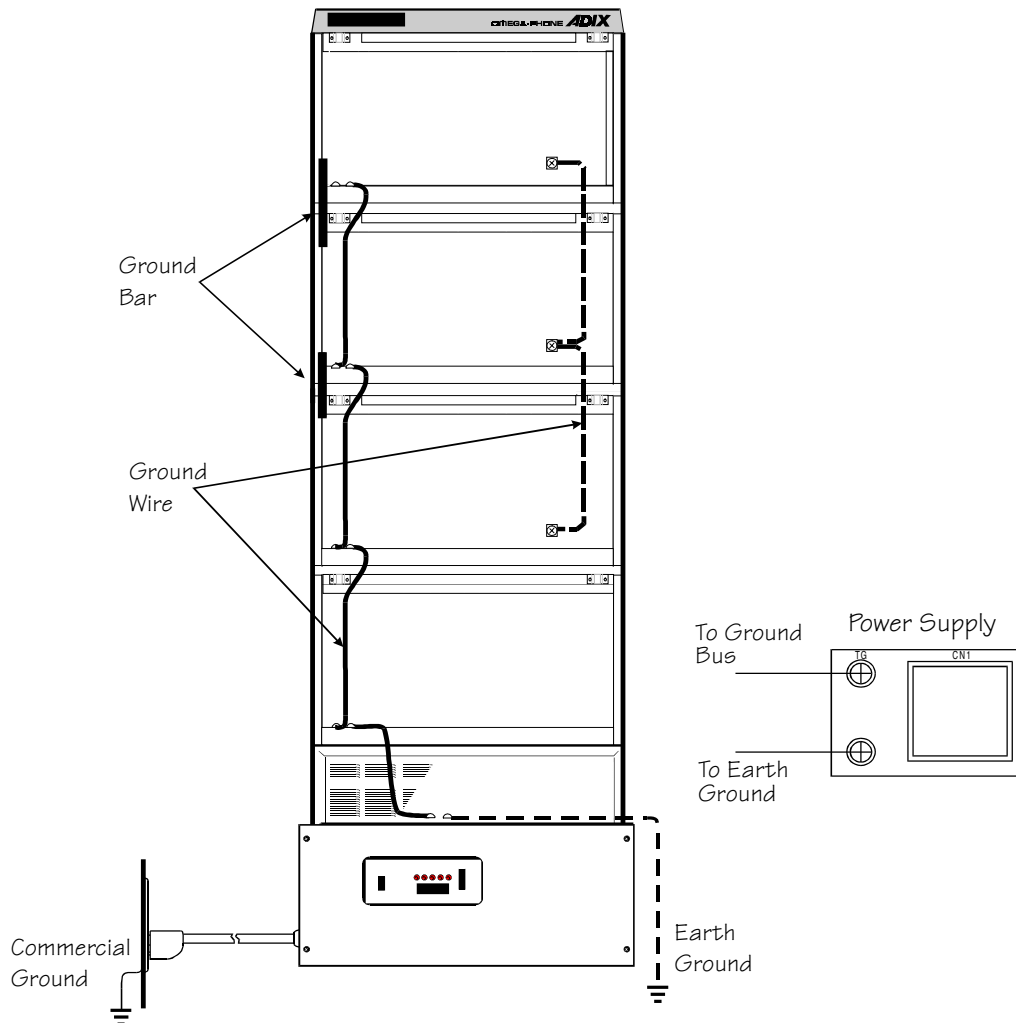


Figure 29. ADIX SYSTEM GROUNDING

Note: A separate grounding conductor must be run if the AC outlet ground is not effective.

Grounding the ADIX-S and ADIX-M

Figure 29 illustrates the proper ground termination points for ground straps between the IX-CMM and IX-EXPMM units and the earth ground conductor attached to each power supply. Grounding must comply with the general rules for grounding contained in Article 250 of the National Electrical Code, NFPA 70, and Article 607 of the TIA/ EIA Standard.

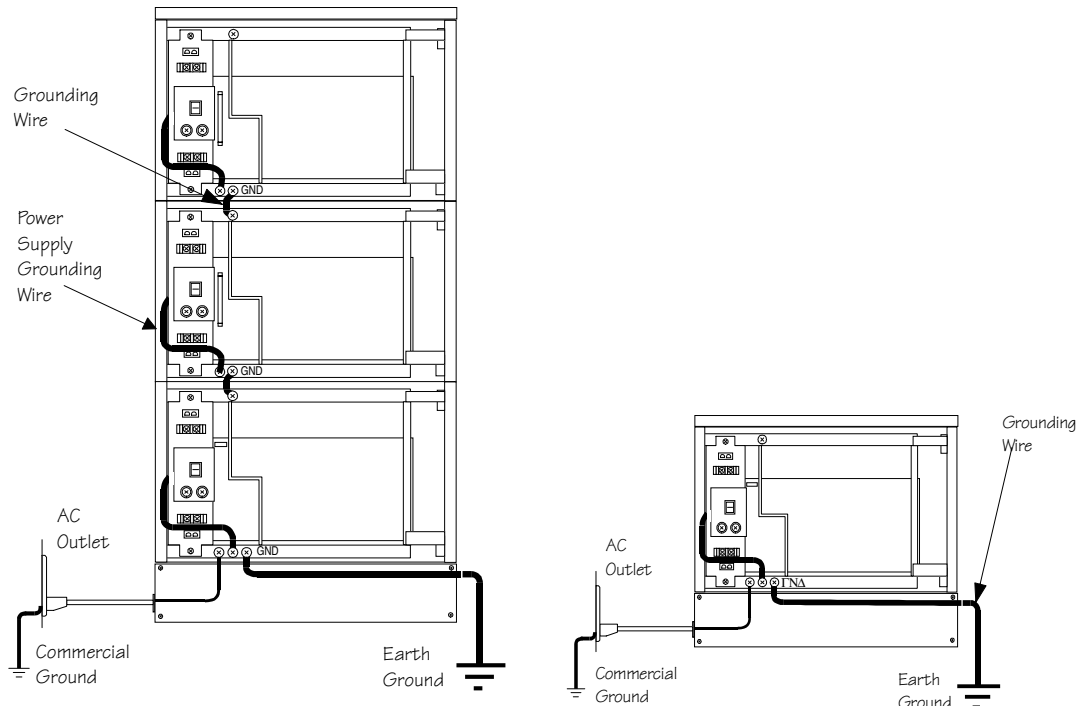


Figure 30. ADIX-S/M SYSTEM GROUNDING

Note: A separate grounding conductor must be run if the AC outlet ground is not effective. If it is determined that a separate grounding conductor is required, precautions must be taken through voltage and current measurements that a ground loop condition does not exist between the electrical ground and the earth ground conductor. Also consider the following:

1. An external ground conductor should always be considered when using ground start trunks.
2. An external ground conductor should always be considered when the system is installed in an environment that is likely to have high RF or EMI density. For example, near a radio stations with a local transmitter.
3. The use of a cold water pipe as a ground is not permitted by some utilities and facilities. Check with your local utility or building manager before using a cold water pipe as a ground.

Grounding the ADIX APS

The ground conductor of the AC Power Cord is to be secured on the bottom of the Common Module frame as illustrated in Figure 30. Grounding must comply with the general rules for grounding contained in Article 250 of the National Electrical Code, NFPA 70, and Article 607 of the TIA/ EIA Standard.

The ground conductor is to be secured on the bottom of the IX-CML Common Module frame as illustrated in Figure 30. The opposite end of the ground conductor must be bonded to an effective earth ground potential as illustrated in Figure 30. The conductor must be bonded to an earth ground rod of a known potential.

When one or more IX-EXPML units are added to the IX-CML, the ground connecting jumper wire that is provided with the IX-EXPML must be used. The ground connecting jumper wire provides continuity from the frame of the IX-CML to the frame of each IX-EXPML. Ground wires must be connected individually to the ground screws on each IX-CML common module, IX-EXPML1 and IX-EXPML2 expansion module.

If the ground wires are joined at any point, instead of being secured separately, their common impedance will render the grounding less effective against interference.

Figure 30 illustrates the proper ground termination points for ground straps between the IX-CML common module, IX-EXPML1 and IX-EXPML2 expansion modules and the earth ground conductor attached to each power supply.

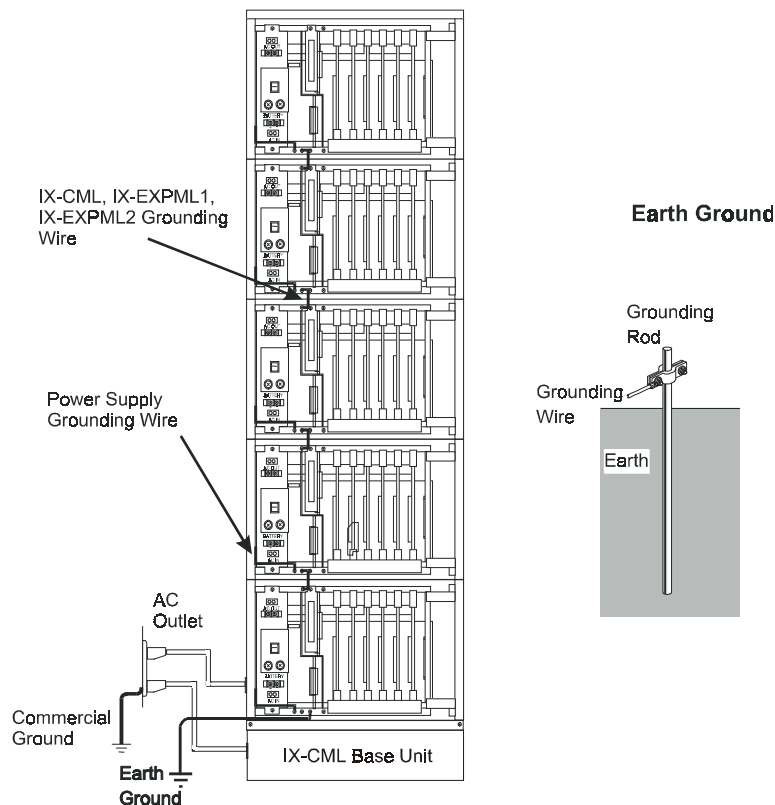


Figure 31. ADIX APS Grounding

Configuring the IX-4CSUB-3 Card

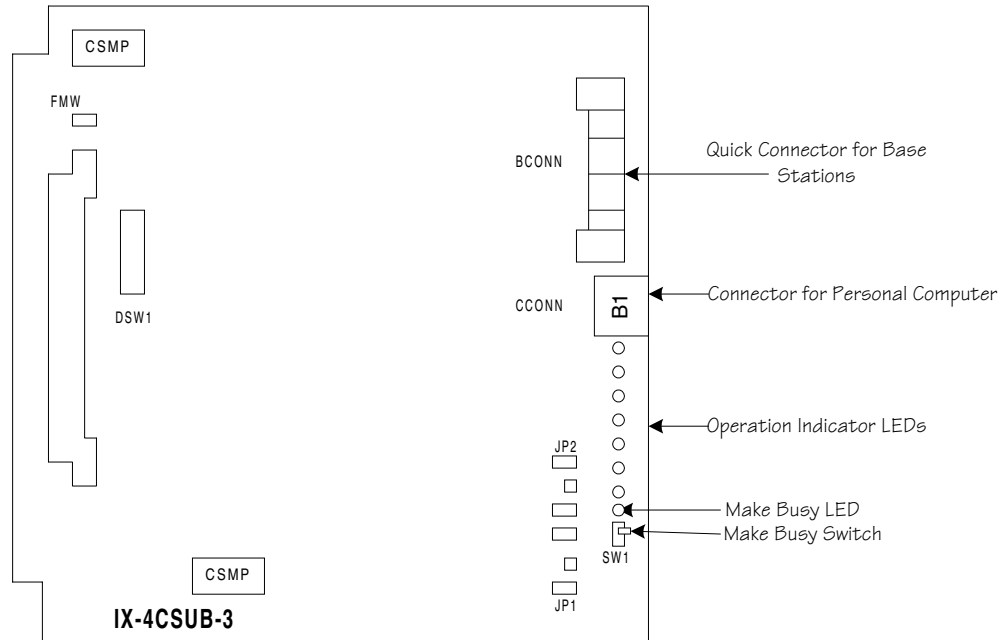


Figure 32. IX-CSUB-3 Card

1. Turn Switch DSW1 positions 3 & 8 on. For dual highway installations, also turn on position 7. Turn DSW1 position 7 off if you are installing the IX-CSUB-3 card into a single highway slot.
2. Cut the jumper wires to match the power supplied to the IX-BS5 base stations.
3. The shielded wires on the ADIX end are connected to the frame ground through the IX-4CSUB-3 card. Cut the shielded wires on the base station end to the edge and leave them open.

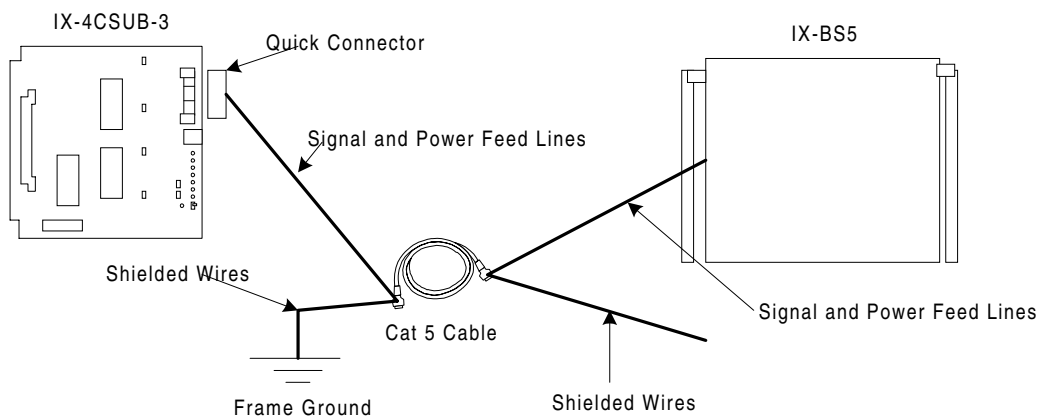


Figure 33. Cutting and Connecting Shielded Wires

- Though the ADIX normally supplies -26 V to the IX-B5 base station, the IX-4CSUB-3 card provides an external power source to it in case the ADIX APS needs an additional power supply. In order for the IX-4CSUB-3 card to supply -26 V to the base station externally, modify the settings of the strapping jacks J1 and J2 and jumpers J401 and J402 on the IX-4CSUB-3 card.

Strapping Jack / Jumper	Internal Power	External Power
Jacks J1 and J2	Open	Closed
Jumpers J401 and J402	Closed	Open

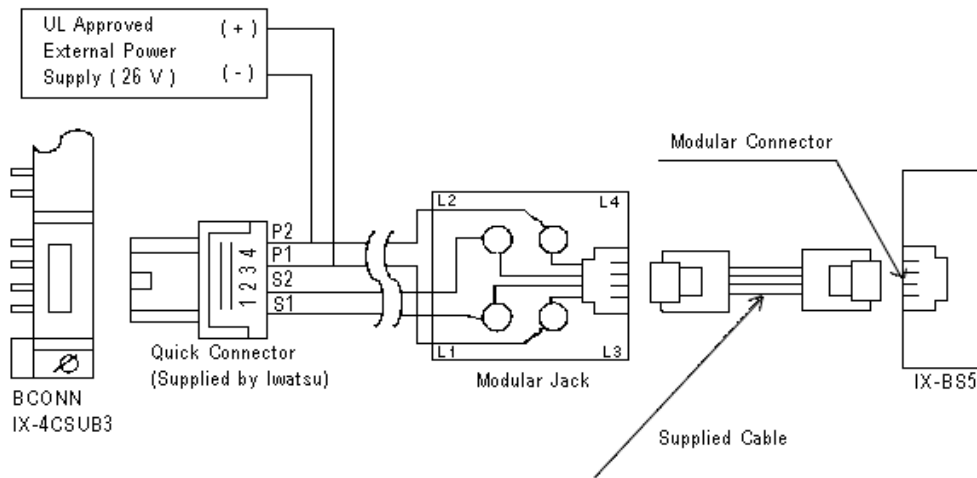


Figure 34. Connecting a Base Station with External Power Supply

Configuring the IX-BS5 Base Station

Use the IX-BS5 base station only with the IX-4CSUB-3 card.

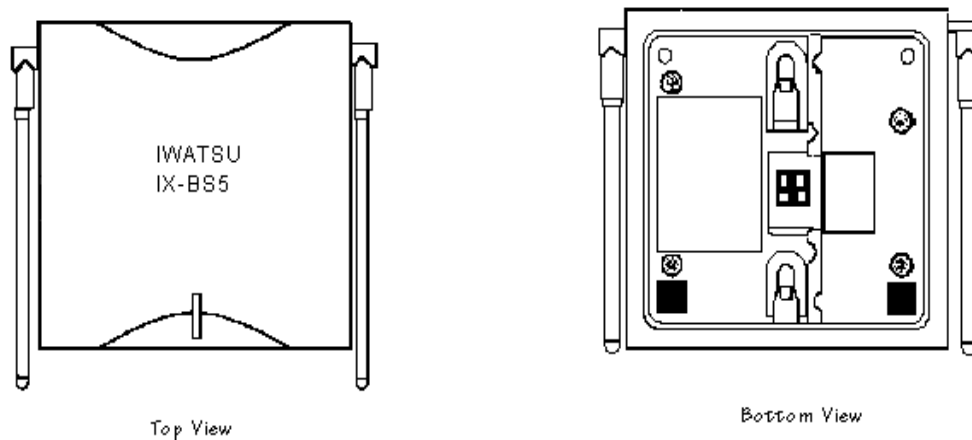


Figure 35. IX-BS5 Base Station Top and Bottom Views

Installation Conditions

CAUTION

The IX-BS5 has been certified as a mobile device as per FCC Section 2.1091. In order to comply with the FCC RF exposure requirements, the IX-BS5 must only be installed with approved antennas and a minimum separation distance of 18 inches must be maintained from the antenna to any nearby people.

- Each IX-BS5 base station should be placed at least ten feet from the usual locations of IX-PS6 portable stations.
- Base stations in the same cell should be placed approximately four feet from one another. They must be placed at least 3.3 feet apart in order to comply with FCC Part 15 regulations for Omegatrek.
- Base stations should be placed at least thirty-three feet away from base stations in other cells.

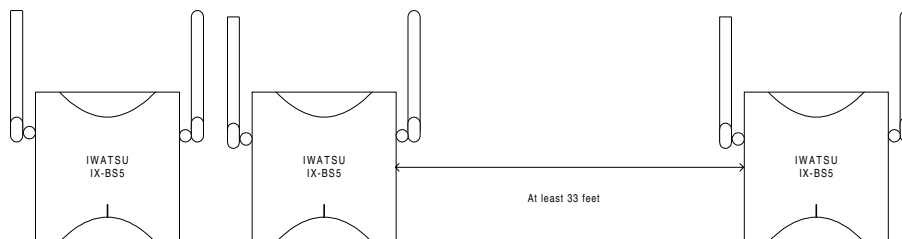


Figure 36. Base Station Placement in Relation to Cells

- When using two or more base stations in a cell, give the primary and secondary base stations the same ID before connecting them to the same IX-4CSUB-3 card.
- You can connect one primary base station and up to three secondary base stations to one IX-4CSUB-3 card.

- Up to 32 portable stations per primary base station can be in stand-by mode at one time, but that number should be kept to fewer than sixteen due to shared resources issues.
- The number of portable stations with simultaneous key lamp indication changes on their individual keys should be kept to four or fewer due to system speed issues. The last portable station to have a lamp indication change is about 1.5 seconds later than the first one.
- Including many cells in one main cell group is not recommended. Keep the number of primary base stations per main cell group to 10 or fewer. Notification signals may be delayed if many incoming calls are received at the same time.

Configuration Procedures

1. Determine the number and placement of primary base stations and secondary base stations after you have established the number of portable stations, the number of simultaneous conversations needed, and the location of your cells.
2. Remove the plastic tabbed plate from the bottom right of the IX-BS5. See Figure 36.
3. Set the base station ID switches using the SW1 and SW2 [1-5] DIP switches. Primary base stations in cells have unique primary base station IDs that are numbered from 1 to 108.
4. Set the operation mode as either primary or secondary using SW2 [6].
 - To make the base station a primary base station, set switch SW2 [6] to OFF. The primary setting is the default setting for this switch. Because a primary base station transmits and receives control information on the control channel, three voice channels are available. There should be one primary base station in each cell.
 - To make the base station a secondary base station, set switch SW2 [6] ON. Four voice channels are available for a secondary base station. Up to three base stations can be secondary base stations in a cell. These secondary base stations are connected to the same IX-4CSUB-3 card to which the primary base station is connected.

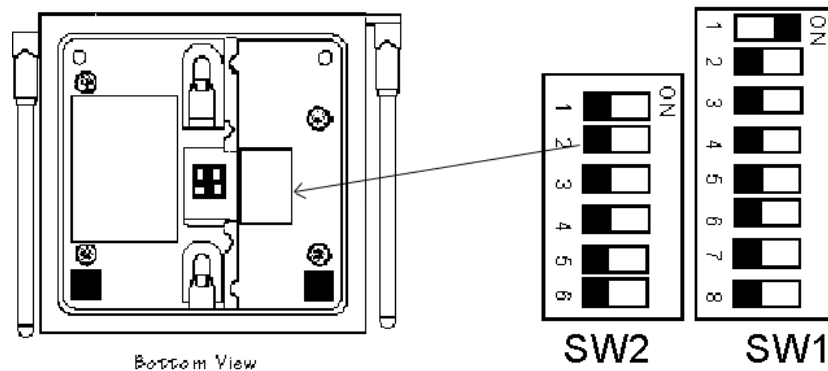


Figure 37. IX-BS5 Base Station Switch Settings

Configuring the IX-BSREP Repeater

Repeaters are used to extend the distance that a radio signal can travel between the ADIX APS and a base station.

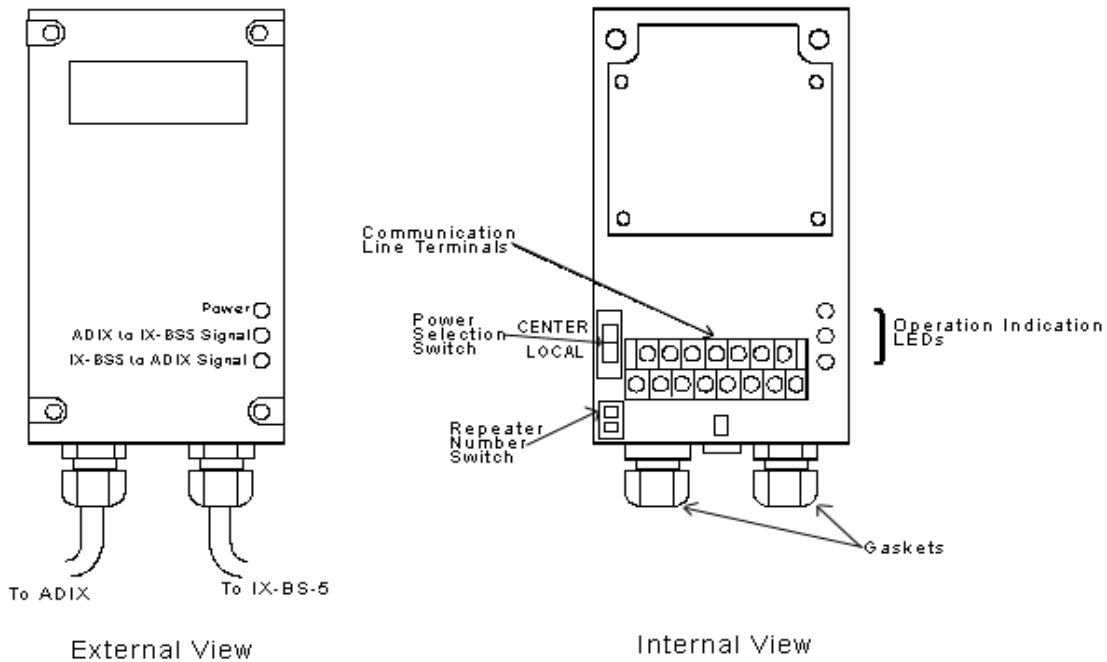


Figure 38. IX-BSREP Repeater

Configuration Procedure

1. Use a Phillips head screwdriver to remove the bottom of the IX-BSREP.
1. Set the repeater number switch to either 1 or 2.
 - If one repeater is used for a base station, set the repeater number to 1.
 - If two repeaters are used for a base station, set the repeater number of the one closer to the ADIX APS to 1, and set the repeater number of the one closer to the base station to 2.



Figure 39. Repeater Number Settings

2. Set the power selection switch to LOCAL.
3. Attach a Valcom VP-624B local power supply unit to the terminal pair L0 as shown below. The VP-624B is a receptacle mount power supply designed to be used with a third wire grounded receptacle.

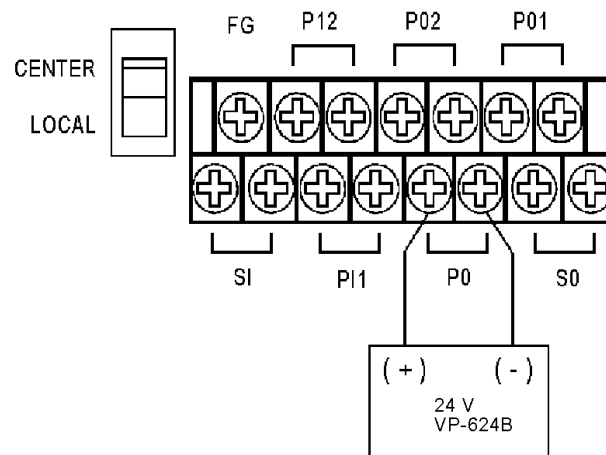


Figure 40. Power Supply Connection

4. Connect earth ground to a local ground screw terminal using 14AWG ground wire. Use this item only with a duplex receptacle equipped with a centerscrew. The polarity does not matter.
5. Leave the terminal pairs PI1 and PI2 (used to connect a power source from the ADIX APS) open.
6. The cable length between the VP-624B and the IX-BSREP should not exceed ten feet. Use only cables made with UL-recognized wire rod with VW-1 marking.
7. Secure the Valcom VP-624B unit using the receptacle cover screw.
8. Connect the communication line terminals. Pull the cables through a gasket and cap, then turn the cap to tighten the cables. Connect the cables to the terminals as shown below.

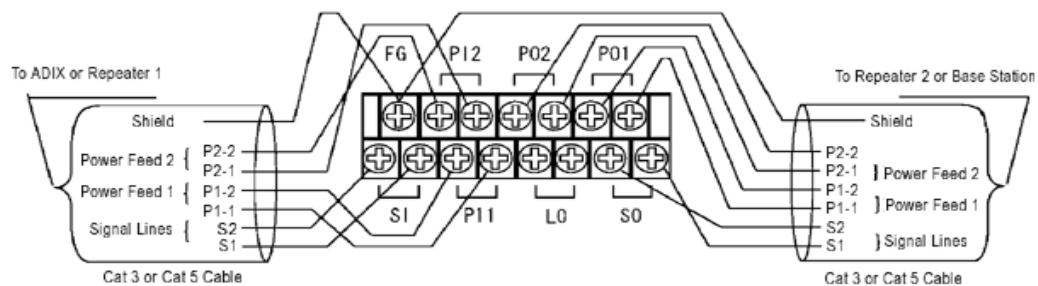


Figure 41. Communication Line Connection

9. Connect the external power line.
10. Check the Operation Indicator LEDs
 - The Power LED lights when power is supplied.
 - The ADIX to IX-BS5 LED lights when the data transmission from the ADIX APS is normal.
 - The IX-BS5 to ADIX LED lights when the data transmission from the base station is normal.

IX-PS6 Portable Station Configuration

Portable Station Installation Conditions

- Up to 96 portable stations per IX-4CSUB-3 card can be in stand-by mode at once.
- Up to 32 portable stations per primary base station can be in stand-by mode at once.
- The number of portable stations in the stand-by mode per primary base station should be kept to 16 or fewer.
- The number of portable stations with simultaneous key lamp indication changes on their individual keys should be kept to 4 or fewer. The last portable station to have a lamp indication change is about 1.5 seconds later than the first one. This restriction varies depending upon whether key lamp indications change on multiple portable stations and how often changes are made.
- The total number of individual keys on the portable stations in the standby mode per primary base station should be kept to 64 or fewer.

Maintenance Mode

Omegatrek has a maintenance mode that can display the associated base station, measure the EMF strength and show frame error rate. These features are very helpful during the installation process to determine locations of the base stations.

To enter the maintenance mode before you turn the portable station on, hold the [Feat] and [2] key and then press the [Power] key. When the station is on, you can use the following features:

- To measure receive level and frame error rate (FER), press [Feat] + [1]. The receive level displays on the top line of the portable station's LCD, and the frame error rate displays on the bottom line.
- To display the carrier number and slot number, press [Feat] + [2]. The carrier number displays on the top line of the portable station's LCD, and the slot number displays on the bottom line.
- To display the cell number, press [Feat] + [3]. The cell number displays on the top line of the portable station's LCD.
- To display the main cell number, press [Feat] + [4]. The main cell number displays on the top line of the portable station's LCD.
- To display the Omegatrek ID, press [Feat] + [5]. The Omegatrek ID displays on the top line of the portable station's LCD.

Omegatrek System Installation

Installing an Omegatrek System with a New ADIX

1. Set S1, switches 6, 7, and 8 on the IX-CPUP/HW card to OFF. These switch settings must be changed for the Omegatrek system to become functional.
2. Insert the card in a slot of the ADIX. The IX-CSUB is a 16 port card. When installing the IX-CSUB in a single highway slot it must be in an odd numbered slot of the highway and the next slot must be left open. Check the card placement information provided in the **System Planning** section of this manual for more information.
3. Connect IX-BS5 base stations to the BCONN connectors with cables. Connect pins 1 and 2 on IX-CSUB-3 to pins 4 and 5 of the base station.
4. Check the LED indicators on the IX-4CSUB-3 card. As you connect base stations, BS1 - BS4 LEDs on the IX-4CSUB-3 card should turn on.
5. Connect the base station to the modular jack, which is connected to the ADIX APS with cable. Use the cables specified in the table below to connect the IX-4CSUB-3 card to IX-BS5 base stations.

Item	Condition	Remarks
Cable Type	0.5 mm or more in diameter	Cat 3 or Cat 5 Cables
Shielding	Use shielded cables if the length exceeds 984 feet.	Use bundled, shielded cables
Number of Pairs in Pair Cables	1-3 pairs (2-6 wires)	Signal Lines: 1 pair Power Feed Lines: Up to 2 pair

6. If you are connecting a base station using two pair cables, and the ADIX APS power supply to is connected to a common external power supply, refer to Figure 41.

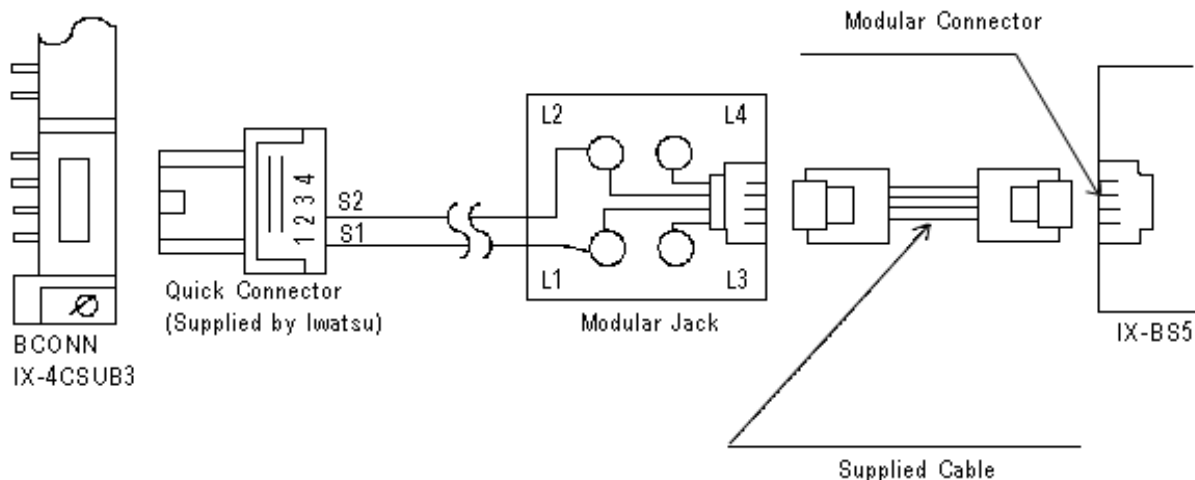
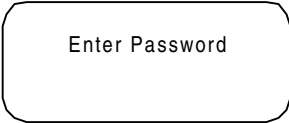


Figure 42. Connecting IX-BS5 Base Station Using Two Pair Cables

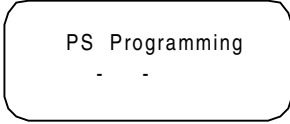
7. Check the LED Indicators on the base station after the base station is connected.
 - A steady red light indicates that the connection with the ADIX APS is normal.
 - A steady green light indicates that the base station is communicating with a portable station.

8. Adjust the antennas on the base stations so that they point upright. If the base station is mounted on a wall, tilt the antennas approximately 30 degrees.
9. If you default a new system at this point, the system builds wight portable station ports automatically in the slot where the IX-4CSUB-3 card is installed.
10. Set the Base Station Attributes in Class 32, Item 01, Element 1 of Database Programming. The Base Station Attribute number is the number that previously entered as the ID number through SW1 of the base station.
11. Default the ADIX system. The base station's LED should light up red. Each of the four green LEDs on the IX-4CSUB-3 card should flash quickly for each base station attached to the card.
12. Register each portable station. All portable stations must be registered before they can be used. To complete portable station registration, complete the following steps:
 - From a Programming Telephone (SATT), press the {Idle} + [FEAT] + [#] + [1] keys. Enter Password displays on the LCD.



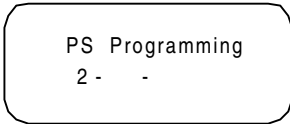
Enter Password

- Enter the Password [5] + [6] + [2] + [2]. PS Programming displays on the LCD.



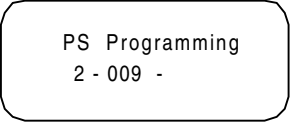
PS Programming
- -

- Enter the Programming Level, either [0] or [2]. 0 is initial data clear; 2 is data initialization.



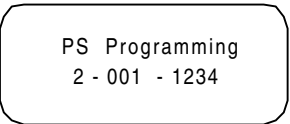
PS Programming
2 - -

- Enter the Station Logical Number, which must be entered as 3 digits.



PS Programming
2 - 009 -

- Enter the PS Programming Password. The Programming Password is composed of four digits ranging from 0000 to 9999, and the value is not related to any other password in an ADIX.

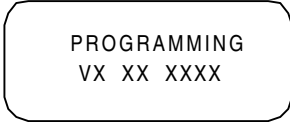


PS Programming
2 - 001 - 1234

- Press Enter.

13. From the portable station being programmed, complete the following steps:

- Before you can register the portable station, it must be in the programming mode. To enter programming mode, hold the [8] and [#] keys while turning the phone on. The following screen displays on the portable station's LCD after a link is established with the programming base station.



PROGRAMMING
VX XX XXXX

- When a link is not established with the programming base station, the following message displays on the portable station.



LINK FAILED

- After a link has been established, the portable station displays a request for the system number.
- Enter the System Number [1] - [9]. You can have up to 9 Omegatrek IDs stored in a portable station. The password screen displays.
- Press the [Hold/Menu] Enter Key.
- Enter your password 0000-9999. This password is same password as set above in the ADIX.
- Press the [Hold/Menu] Enter Key.
- After programming is completed successfully, the following displays on the LCD.



COMPLETED

- If the portable station's programming fails, the following screen displays:



FAILED
H

- If the programming completes successfully, the status returns to {Enter Programming Level}. If programming fails, an error code displays.

HH indicates error code as follows				
1:	SO data error		7:	LCH refused
2:	Time out		8:	Link not established
3:	Initialize error		9:	Link disconnected
4:	Authorization error		0:	FER error
5:	DL released		11:	PSID not agreed
6:	LCH not established		2:	Others

14. Use Class 10, Item 02 in database programming to set the extension number for the portable station.
15. Select the appropriate key pattern number for the Omegatrek system in Classes 10 and 12 in Database Programming. Pattern 101 adapts for the portable station. The default key pattern is illustrated below.

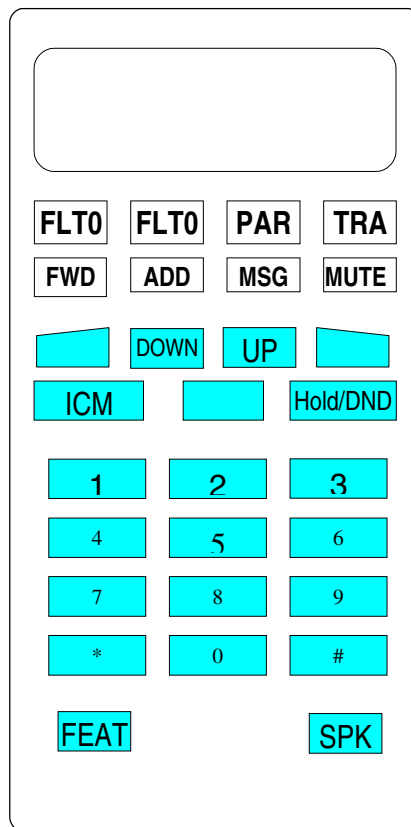


Figure 43. IX-PS6 Portable Station Default Key Pattern

16. Select Class 32, Item 04 in database programming to set the programming base station. If the base station is set as logical number 1, you need not set this item.
17. Turn on the portable station. Make sure that the antenna pictogram is displayed and that the extension number is shown on the LCD.

Wall Mounting the Base Station

1. Determine the placement of the base station.
2. The cardboard holder used to brace the base station in its shipping package contains two screws, two spacers, and an extra telephone line. Remove these items from the cardboard holder.
3. If a telephone wall mounting bracket exists at the installation site, remove any protruding jacks from the bracket and secure the base station to the bracket by placing the indicated indented areas on the back of the base station to the existing protruding bracket screws. Proceed to step 7.

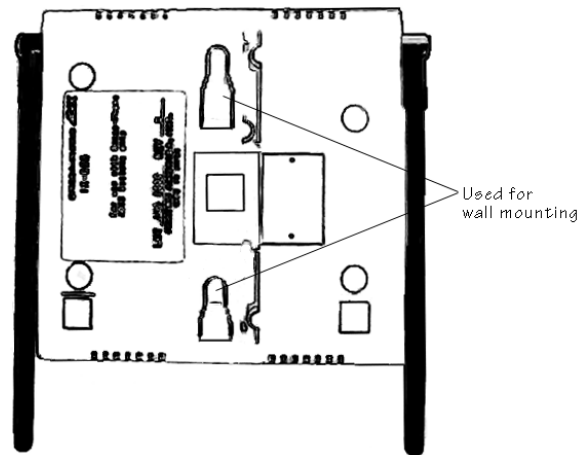


Figure 44. Base Station Wall Mounting Holder

4. If a telephone wall mounting bracket does not exist at your installation site, use the template on the following page to determine the screw placement on the wall. Hold the template to the wall and use a pencil or pen to mark the wall where the screws will be inserted.
5. Use a Phillips head screwdriver to place the screw and spacer in the wall as indicated in Figure 43.

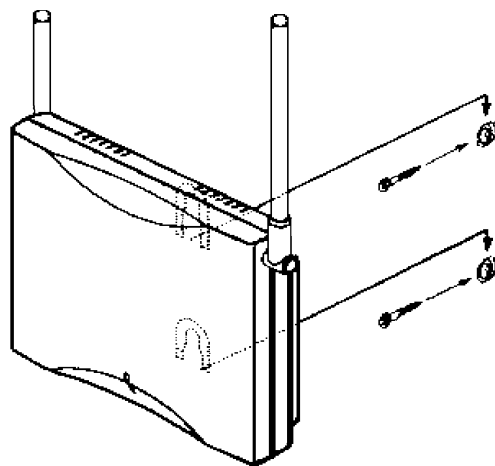


Figure 45. Base Station Mounting

6. Attach the base station to the wall.
7. Tilt the antennas approximately 45 degrees from upright.

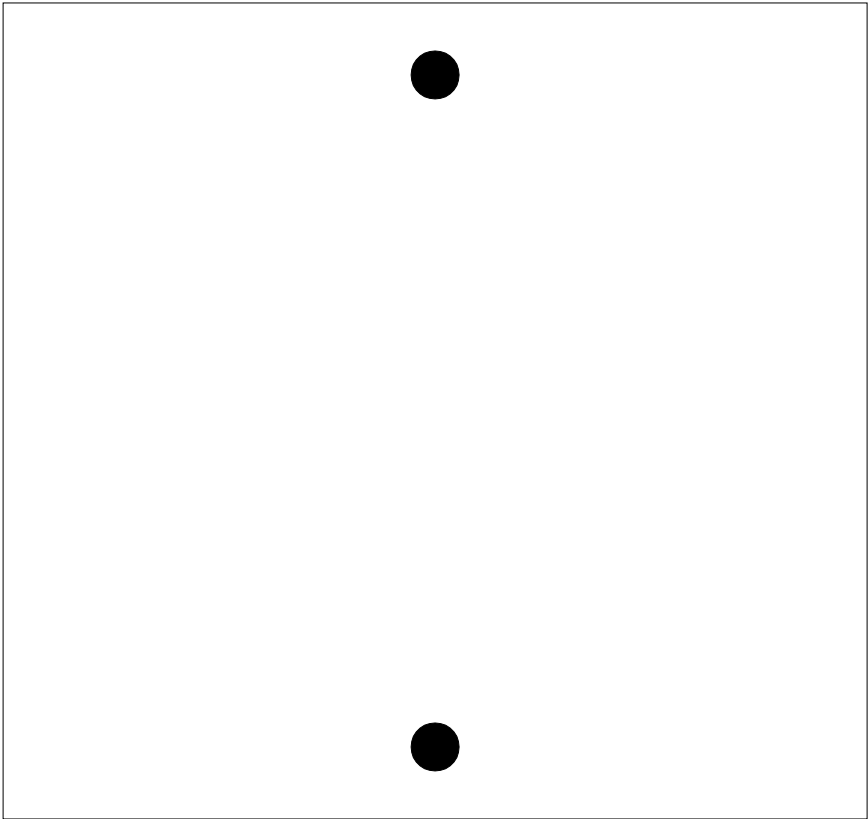


Figure 46. Base Mounting Installation Template

Wall Mounting the IX-BSREP

The IX-BSREP packaging contains a mounting bracket, short metal anchor screws, and long metal anchor screws that can be used to mount the IX-BSREP unit on the wall.

To wall mount the IX-BSREP unit:

1. Use a Phillips head screwdriver to attach the metal wall mounting bracket to the IX-BSREP unit as illustrated in Figure 45.
2. Attach the IX-BSREP and the wall mounting bracket to the wall using a Phillips head screwdriver and the long anchor screws.

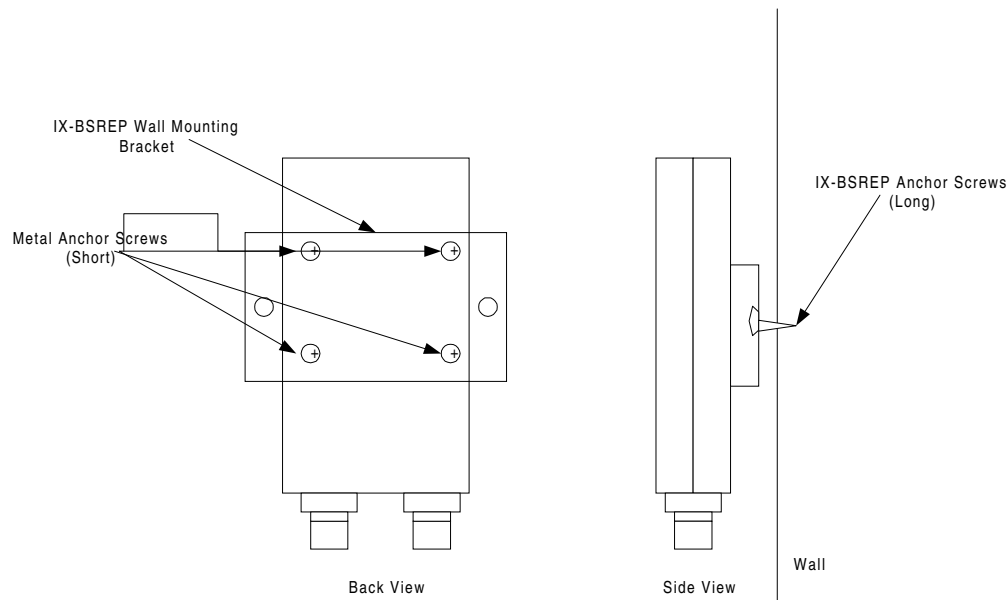
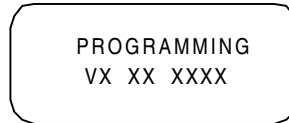


Figure 47. Wall Mounting the IX-BSREP

Portable Station Key Assignment

To make a portable station key assignment:

1. Enter programming mode by holding the [8] and [#] keys while turning the phone on. The following screen displays on the portable station's LCD after a link is established with the programming base station.



2. Define the key patterns in both a personal station and the system.
3. To make Key Assignments to the multipurpose keys, program the key patterns in Class 10.12 for each portable station.

Key Assignment Number	Key Data
63	One Touch Key
64	Redial/Clear
72	Speaker
73	Shift Right
74	Shift Left
75	Zone
76	Mute
77	PB Dial
78	Message Readout
79	Key Display
80	Alert Cancellation
92	Feature
93	Short Flash
94	Long Flash
95	Flash
97	Hold/Menu
98	Send Intercom
99	End/Power

4. Define the Key Numbers and Key Pattern Types in Class 14.01.
5. Define Group Key Assignments for each Group Call Area.
6. You can define a maximum of 127 All Call Areas in seven Group Call Areas created for each All Call Area.
7. To make group key assignment to the flexible keys, key patterns (selected from 64 key patterns) must be programmed in Class 32.02 for each Group Call Area.
8. Define the key numbers and types of the 64 key patterns in Class 32.01.
9. When a flexible key is verified for the assigned feature ([FEAT][FEAT][#][9]), the portable station displays the name of the feature programmed in Key Assignment. If the key is not programmed with a feature in Key Assignment, the portable station displays the name of the feature programmed in Group Key Assignment. If no feature is programmed to the key, the operation is canceled.
10. Verify the status of the Eight Line Keys (L1-L8) with the above operation.

IX-PS6 Portable Station Key Labels

The portable station includes a set of adhesive labels that can be used to label assigned keys with functions that you have programmed. These labels include 21 clear labels with the most common functions pre-printed and six white labels that other functions can be written or typed on.

To use these labels:

1. If the function for which you need the label is not pre-printed, write or type the function name on a blank label.
2. Peel the needed label from the adhesive sheet.
3. Affix the label over the key with the designated function.

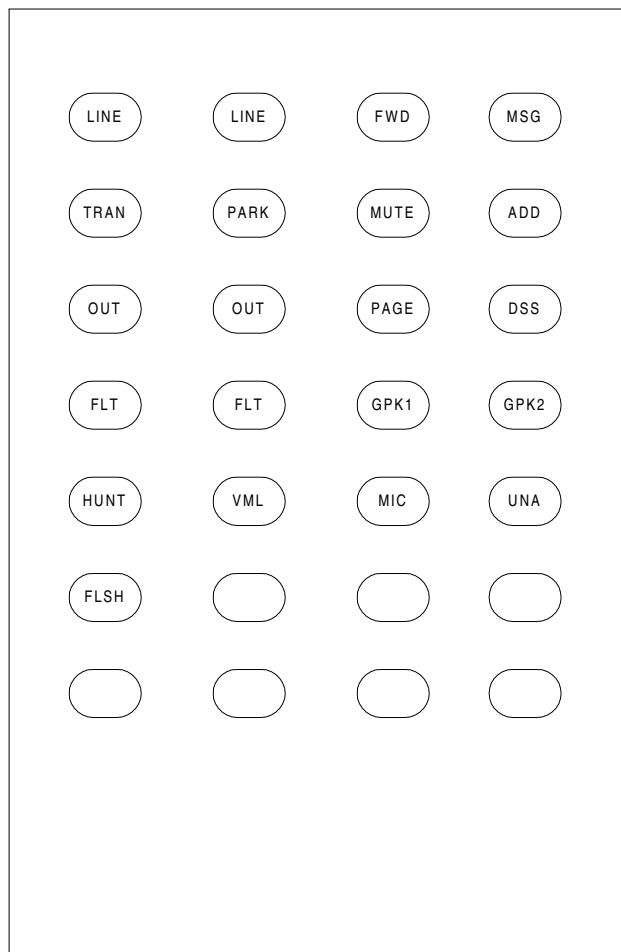


Figure 48. Adhesive Key Labels for Portable Station

IX-PS6 Portable Station Battery Installation

The life of the battery in the IX-PS6 portable station varies with usage, but is generally about one year. If the battery cannot be recharged by the battery charger included with the portable station, or if it drains quickly after a full recharge, it should be replaced with a new battery.

To install a new battery in a portable station:

1. If the portable station is ON, press and hold the Power key for more than one second to turn it OFF.
2. Remove the battery cover.

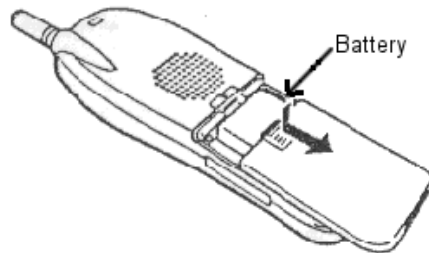


Figure 49. Battery Removal

3. Unplug the connector and remove the old battery.
4. Plug the new battery into the connector and place the battery snugly into the compartment.
5. Replace the battery cover.
6. Put the portable station on the charger and charge the battery for more than seven hours.

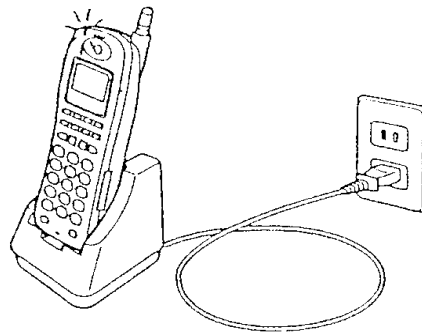


Figure 50. Charging the IX-PS6

WARNINGS

Make sure the portable station is OFF before replacing the battery.

Do not use any battery charger other than the one included with the portable station

Keep the battery away from fire. Do not overheat the battery.

Do not use any battery other than those manufactured for the portable station.

Troubleshooting and Setup Verification

Troubleshooting the Omegatrek System

This section details some of the most common problems encountered during the Omegatrek installation process describes how to solve some major issue for the installation.

Problem	Solution
Some portable stations are not functioning.	Check the number of lines being used simultaneously in the portable stations' cell group. Primary base stations have three lines available, and each secondary base station in the cell adds four lines to the total lines available. If you have a primary base station with one secondary base station in a cell, and seven portable stations are in use, and eighth base station will not function in that cell.
A base station does not work properly or is not functioning.	Check the distance between each base station. Base stations must be placed at least four feet away from each other in order to avoid problems with cross modulation.
Portable stations are not receiving signal at a distance smaller than the portable station/base station limit stated in this document.	As a general rule, a portable station should be able to receive transmissions from a base station at a distance of 300 feet. However, an office environment can affect the distance that a signal can reach due to fluctuations of electromagnetic waves.
A portable station near a base station is often receiving a channel with inferior voice quality.	If the base station that the portable station is near is busy, the portable station will use any available base station, even if the base station that it will use is a larger distance away than desired.
Transmissions from portable stations to other portable stations are unstable.	If there are multiple ADIX systems installed near one another, instability in portable station transmissions may result.
The LED on the surface of BS doesn't appear as solid red.	Make sure that the connecting cable connects from S1 on the quick connector to L1 in the module connector and that S2 from the quick connector connects to L2 in the module connector.
	Use another cable.
The OPE LED (the top one) doesn't light solid green or the ALM lamp (the second one) lights solid red.	Confirm that the IX-4CSUB-3 DSW is set properly. 3 and 8 should be ON if you are using a single highway, and 3, 7, and 8 should be ON if you are using a double highway. All other switches should be set to OFF.
	Switches 6,7 and 8 in S1 on the IX-CPUP/HW card must be set to OFF.

Troubleshooting the Omegatrek System (Cont'd)

Problem	Solution
BS1~BS4 LED on a IX-4CSUB-3 flashes slowly (The cycle is 0.5sec)	Check dipswitch settings on the IX-CPUP/HW and IX-4CSUB-3 cards.
	BS1~BS2 LEDs indicate the status of each IX-BS5. If an IX-BS5 is not connected the LED doesn't appear
	Confirm that the Omegatrek ID is set. You can confirm it with several tools, including PC programmer.
	Confirm the number of power downs. This number is one of the factors used to generate the Omegatrek Activation code. Check this number using the PC Programmer memory dump at A00CH(2byte). If this value is different from the value used to generate the Omegatrek Activation code, recreate the code and upload it to the system again. Reset the system.
	Confirm that the number of IX-BS5s connected to the system is the same as the number used to generate the Omegatrek Activation code. If it is not, upload the number to the system again and perform a system reset.
	Confirm that the IX-BS5 logical numbers are set correctly for each IX-BS5, and that none are duplicated. The number is set using the long set of dipswitches on the bottom of each IX-BS5. The numbering functions in binary code.
Wireless programming doesn't work because you cannot enter the SETTING screen.	Confirm that the IX-BS5 logical number has been programmed in Class 32 Item 04. The default is 1.
Wireless programming doesn't work because PGT or PS display the error messages.	Confirm that the station logical number has been entered from PGT.
	Confirm that you used the same password (4 digits) between PGT and programmed portable station.
Some keys on IX-PS6 (such as [Feat]) do not work.	Confirm that key pattern 101 has been chosen as the pattern for the IX-PS6

IX-4CSUB Operation Indicator LEDs

Name of LED	Indicated Pattern	Status
OPE	Slow flashing (0.5sec ON/0.5sec OFF)	In the process of turning ON
	Stable ON	Working
ALM	Slow flashing (0.5sec ON/0.5sec OFF)	Problem with CSSP
	Stable ON	Problem with one or more base station(s)
BS1~BS4	Moderate flashing (0.3sec ON/0.2sec OFF)	Base station has been removed
	Slow flashing (0.5sec ON/0.5sec OFF)	Base station is not operational due to problem
	Stable OFF	Base station is not connected
	Anomalous flashing (0.1sec ON/0.9 OFF)	Primary base station works but is not used
	Anomalous flashing (0.1sec ON/0.1sec OFF/0.1 sec ON/1.7 sec OFF)	Secondary base station works but is not used
	Stable ON	Base station is in use
BSY	Fast flashing(0.1sec ON/0.1 sec OFF0)	Make busy state
	Stable ON	Busy state
RUN	Stable ON	Running under high traffic situation

Portable Station LEDs

Type	Light Pattern	Status
Line Keys (Backlight)	Two Quick Blinks While ON (Green)	Your portable station is in use.
	ON (Red)	Another portable station in the group is in use.
	Flashing (Red)	Your portable station is receiving a call.
	Slow Flashing (Red)	A call is on hold on another extension.
	Slow Flashing (Green)	A call is on hold on your extension.
Dial Pad (Backlight)	ON (Green)	You are operating the dial pad keys.
Incoming Call/ Charge Lamp	ON (Green)	The battery is almost fully charged.
	ON (Red)	The battery is being recharged.
	Slow Flashing (Red)	Your battery cannot be recharged.
	Flashing (Red)	Your portable station is receiving a call.

Database Programming Guide

Class 01

Class.Item	Description	Change	Function
01.03<TRKLxxx-3>	Wireless Definition	New Definition	
01.03<TRKLxxx-3>	Omegatrek ID	New Item	
01.06	No. of System Station Ports		

Class 04

Class.Item	Description	Change	Function
04.70.01	Redirected Number Routing	New Item	

Class 08

Class.Item	Description	Change	Function
08.05 Group # (1-60) Dial	All Ring Group	New Value	

Class 32

Class.Item	Description	Change	Function
32.01	Base Station Attribution	New Class and Item	
32.02	Base Station Type	New Class and Item	
32.03	Ring Response Timeout	New Class and Item	
32.04	Programming Base Station	New Class and Item	
32.05	Reorder Tone Duration	New Class and Item	
32.06	Main Cell Group Tenant	New Class and Item	
32.07	Ring Retry Timer	New Class and Item	
32.08	Common Key Pattern	New Class and Item	

Class 33

Class.Item	Description	Change	Function
33.01	Common Key Assignment	New Class and Item	

Class 34

Class.Item	Description	Change	Function
34.01	Portable Station ID	New Class and Item	
34.02	Cell Group Tenant Number	New Class and Item	
34.03	Common Key Pattern	New Class and Item	
34.04	Echo Suppressor	New Class and Item	

Port Definition

Class 01 Item 03

Class 01 Item 03 - Port Definition is used to define the type of terminal attached to each physical port and to assign a logical number to the IX-PS6 portable station.

Each portable station installed in the system must be associated with a unique physical port in the system. This physical port may reference a card slot with an IX-4CSUB-3 installed or any open card slot in the system. In Class 01.03, every Omegatrek IX-PS6 portable station must be assigned a logical port number.

Card slots in which IX-4CSUB-3 cards are installed default with eight ports assigned as data=0-7-2 wireless station.

DSS Display

Class/Item	Element Field	Description	Data Field
01.03	<PRT097>	Port Definition	0-7-2-097

Programming Field Description

Data Field 1:	Meaning:	Port Classification
	Range:	0 = Station
Data Field 2:	Meaning:	Station Type
	Range:	7 = Wireless Station
Data Field 3:	Meaning:	Port Detail
	Range:	2 = PS-KT
Data Field 4:	Meaning:	Logical Port Number
	Range:	001 - 448

Related Databases:

Associated: 01.06 Station Size

Hardware Required:

IX-4CSUB-3, IX-BS5

System Station Ports

Class 01 Item 06

Class 01 Item 08 - System Station Ports is used to record the maximum number of station logical ports available to the system. The value displayed in the data field is entered automatically at the time of system default.

In order to expand the maximum number of station ports after system default, program the Class 01.06 data field to equal the previous number of station ports plus the number of station ports being added.

A reset is required to effect any changes programmed in Class 01.06.

DSS Display

Class/Item	Element Field	Description	Data Field
01.06		Station Number	123456789

Programming Field Description

Data Field:	Meaning	Total number of station ports available in the system.
	Range:	0 - 400 Depending upon system size
	Default:	Varies depending on the number of station cards initially installed.

Related Databases:

Required:	None.
Associated:	01.03 Port Definition; 01.04 Port Configuration;. 01.07 Number of System Trunk Ports

Related Operation:

System Reset.

Related Hardware:

IX-POMT (Power-On Maintenance Tool)

Omegatrek ID

Class 01 Item 08

Class 01 Item 08 - Omegatrek ID is used to reference the unique Omegatrek ID to the ADIX. This number is required to calculate the UTAM code for the wireless phones during initial installation or a system shutdown lasting over six hours.

The Omegatrek ID is assigned by the Iwatsu America repair department and identifies the system for Iwatsu America. Dealers may view the Omegatrek ID in order for the number's use as an Omegatrek Activation Code, but they cannot change the number.

DSS Display

Class/Item	Element Field	Description	Data Field
01.08		Omegatrek ID	123456789

Programming Field Description

Data Field: Range: 000000001 - 999999999
Default: **None**

Related Database:

32.02 Base Station Type

Related Hardware:

IX-PS6 Portable Station

Redirected Number Routing

Class 04 Item 70

Class 04 Item 70 - Redirected Number Routing is used to change the routing in Class 25 from DNIS to RNI. The ADIX uses the RNI for routing instead of DNIS with both BRI and PRI lines.

The RNI (Redirected Number) is the directory number of forwarding party. This number is used by answering services to determine where the call was forwarded from. This allows the customer to ID the call with out having to purchase DID numbers for each client. If an RNI is not in the setup message, the DNIS is used for routing.

When the RNI routing is enabled, all displays of the DNIS number are replaced with the RNI. This replacement includes Voice Mail packets, ACD event stream and the CSTA output.

DSS Display

Class/Item	Element Field	Description	Data Field
04.70	<NUM01>	Redirected Number Routing	0

Programming Field Description

Data Field:	Meaning:	Time in milliseconds a one-shot relay will remain closed during operation.
	Range:	0 - 1 0 = Disabled (DNIS) 1 = Enabled (RNI)
	Default:	0

Related Database:

25.01 DNIS Incoming Number; 25.02 DNIS Conversion Number; 25.03 DNIS Number ID;
25.05 DNIS Conversion Digits; 25.06 DNIS Conversion Starting Position; 25.07 DNIS Enabled
ISDN Trunk

Related Operation:

DNIS Routing

All Ring Hunt Group

Class 08 Item 05

Class 08 Item 05 - All Ring Hunt Group is used to ring a maximum of 32 phones simultaneously. You may choose select 2 (All) in addition to 0(Terminal) or 1(Distributed) to select the ring method for any Hunt Group.

If 2 (All) is chosen from the range, all stations included in a Hunt Group (up to 32 stations) ring simultaneously.

DSS Display

Class/Item	Element Field	Description	Data Field
08.05	<GRP01-01>	All Ring Group	0

Programming Field Description

Element Field Data: Meaning: Sets the Ring Method of the Hunt Group
 Range: 0 - 2
 0 = Terminal
 1 = Distributed
 2 = All Ring
 Default: 0

Related Database:

Required: 04.20 Elements 31-52 VSS Recording Time; 04.20 Element 59 UCD Message Interval; 04.20 Element 60 UCD Disconnect Timer; 04.34 UCD Answer Time; 04.71 Element 02 UCD Back Tone; 04.71 Element 05 UCD Overflow Timer; 07.02 UCD/Hunting Group Access Number; 08.02 Hunt Group Station; 11.34 DIL to Hunt Group.

Associated: 01.03 Port Definition; 01.04 Port Configuration; 04.12 Camp-On Duration; 04.55 True Attendant Position; 11.26 Attendant Intercept Line.

Hardware Required:

IX-CPUL-1, IX-CPU16, IX-CPU16M, IX-CPU32, IX-MSGU, IX-CMSG-1, IX-CMSG, IX-EMCH.

Base Station Attribution

Class 32 Item 01

Class 32 Item 01 - BS Attribution is used to assign a primary base station to a cell group.

To optimize the signal reception, the Omegatrek Wireless System is installed using a cell configuration. A cell is the area covered by radio signals from a base station. Signal strength in a cell should be strong enough for users of the Omegatrek Wireless System to carry on normal conversations.

Each primary base station provides telephone coverage for a cell. In an open area without a secondary base station, a cell covers a circular area of about 328 feet from the primary base station. Realistically, radio signals can be blocked by many objects in a normal office setting, so the radius of the cell may only extend to about 165 feet in a general office environment.

DSS Display

Class/Item	Element Field	Description	Data Field
32.01	Logical Port Number of IX-BS5 Base Station	BS Attribution	001-1-00

Programming Field Description

Element Field 1 (e1): Meaning: Main Cell Group
Range: 1 - 127
Default: 1

Element Field 2 (e2): Meaning: Sub Cell Group
Range: 1 - 8
Default: 1

Element Field 3 (e3): Meaning: Cell Number
Range: 0 - 31
Default: 0

Related Databases:

32.08 Common Key Pattern; 33.01 Common Key Pattern Assignment; 34.03 Common Key Pattern

Hardware Required:

IX-4CSUB-3

Base Station Type

Class 32 Item 02

Class 32 Item 01 - Base Station Type is used to assign a unique Omegatrek ID to the ADIX. This number is used to reference the unique Omegatrek ID to the ADIX. This number is required to calculate the UTAM code for the wireless phones during initial installation or a system shutdown lasting over six hours. It must be set to 1.

The Omegatrek ID is assigned by the Iwatsu America repair department and identifies the system for Iwatsu America. Dealers may view the Omegatrek ID in order for the number's use as an Omegatrek Activation Code, but they cannot change the number.

WARNING

Even though this item's range is from 1 to 3, the value of this field **MUST** be set to 3.

DSS Display

Class/Item	Element Field	Description	Data Field
32.01	<NUM001>	Base Station Type	3

Programming Field Description

Data Field:	Meaning:	Sets the type of the base station
	Range:	1-3
	Default:	1

Related Database:

01.08 Omegatrek ID

Ring Response Timeout

Class 32 Item 03

Class 32 Item 03 - Ring Response Timeout Sets the amount of time the base station will try to locate a portable station before timing out and returning a busy tone.

DSS Display

Class/Item	Element Field	Description	Data Field
32.03		PS Ring-Resp To	10

Programming Field Description

Data Field:	Meaning:	Time in seconds a base station rings a portable station before timing out.
	Range:	0 - 255 Seconds 0 = Unlimited
	Default:	10

Related Operation:

Programming Base Station

Class 32 Item 04

Class 32 Item 04 - Programming Base Station is used to assign the logical number of the base station that is used to program the portable station and register Omegatrek ID. If only one base station is connected to the system and the base station is set to logical number 1, do not change this setting.

If more than one base station is connected to the system, enter the desired base station's identification number (set on SW1 of the base station) in the range of this item. After you have completed this setting, Turn on a portable station and ensure that the antenna pictogram is displayed and that the extension number is shown on the LCD.

DSS Display

Class/Item	Element Field	Description	Data Field
32.04		PS Programming BS	1

Programming Field Description

Data Field:	Meaning:	Base Station used to program portable stations and register Omegatrek IDs
	Range:	1 - 100
	Default:	1

Related Databases:

32.08 Common Key Pattern Number; 34.01 PS System ID; 34.02 Main Cell Tenant Number;
34.04 Echo Suppressor

Reorder Tone Duration

Class 32 Item 05

Class 32 Item 05 - Reorder Tone Duration is used to set the duration that portable stations will hear reorder tone if a voice channel is not available. If this value is set to any number other than 0, a voice channel is used for setting the time.

DSS Display

Class/Item	Element Field	Description	Data Field
32.05		PS Discon Tn Dur	0

Programming Field Description

Data Field:	Meaning:	Duration that portable stations will hear reorder tone if a voice channel is not available.
	Range:	0 - 255 Seconds 0 = Unlimited
	Default:	0

Related Operation:

Main Cell Tenant Group

Class 32 Item 06

Class 32 Item 06 - Main Cell Tenant Group is used to assign a tenant group to the main cell group. This data exist to divide wireless areas by main cell groups.

In a divided main cell group, a portable station with a different tenant number cannot be used. To have valid wireless tenant, you must also set Class 34.02 in database programming.

DSS Display

Class/Item	Element Field	Description	Data Field
32.06	<NUM001>	Main Grp Tenant #	1

Programming Field Description

Data Field:	Meaning:	Main Cell Group Tenant Group
	Range:	0-255 0 = Free
	Default:	0

Related Database:

34.02 Main Cell Tenant Number

Related Operation:

Optional: Reserve BS Channels

Ring Retry

Class 32 Item 07

Class 32 Item 07 - Ring Retry is used to set the number of times a base station will try to ring a portable station if it is out of range.

DSS Display

Class/Item	Element Field	Description	Data Field
32.07		PS Ring Retry	0

Programming Field Description

Data Field:	Meaning:	Number of times a base station will try to ring a portable station if the portable station is out of range.
	Range:	0 - 255 Retry Times 0 = No Retries 255 = Unlimited
	Default:	0

Related Operation:

Common Key Pattern

Class 32 Item 08

Class 32 Item 08 - Common Key Pattern is used to assign a one of the common key patterns to a sub-cell group. Each portable station can use common key if the portable station is in sub-cell group set in the portable station data.

Setting up a common key pattern for base stations improves system performance by limiting the number of individual keys in use at one time. Individual keys are keys that must have a signal sent from the base station to the personal station to function. These keys include CO[n] keys, FLOAT[n] keys, and GROUP PARK[n] keys.

If you have more than 640 individual keys (80 portable stations), use this class to set up a common key pattern. If you have fewer than 640 individual keys, you may use Class 14 to set up your key patterns.

DSS Display

Class/Item	Element Field	Description	Data Field
32.08	<NUM001-1>	Comm Key Patt #	1

Programming Field Description

Data Field:	Meaning:	Base Stations Common Key Pattern.
	Range:	1 - 64
	Default:	1

Related Databases:

14.01 Station Flexible Key Assignment; 32.01 Base Station Attribution; 33.01 Common Key Pattern Assignment; 34.03 Common Key Pattern

Required Hardware:

IX-BS5, IX-PS6

Common Key Pattern Assignment Class 33 Item 01

Class 33 Item 01 - Common Key Pattern Assignment is used to assign features to the eight programmable keys on the portable stations. Select the feature to be assigned in Field 1, then select the key number to which to assign the feature in Field 2.

Portable stations in the same sub-cell group have the same key lamp indications and the same key pattern assignment of the cell group keys. Use the Classes 32.08 and 34.03 to assign each station to a sub-cell group.

DSS Display

Class/Item	Element Field	Description	Data Field
01.08	<NUM01-01>	Common Key Asgn	001 - 0001

Programming Field Description

Data Field 1: Meaning: Key Pattern Number
 Range: 1 - 64

Data Field 2: Meaning: Key Number
 Range: 1 - 8

Related Databases:

Required: 32.08 Common Key Pattern; 34.03 Common Key Pattern

Related Hardware:

IX-PS6

PS System ID

Class 34 Item 01

Class 34 Item 01 - PS System ID is used to associate a station logical port defined as a wireless station in Class 01.03 (data=0-7-2) with an Omegatrek IX-PS6 portable station by referencing the BARCODE number located inside the IX-PS6 battery compartment.

To enter the IX-PS6 Portable Station ID number, use only the last nine digits of the bar-code.

DSS Display

Class/Item	Element Field	Description	Data Field
34.01	<EXTL001>	PS ID	123456789

Programming Field Description

Data Field:	Meaning:	System ID Number
	Range:	000000001 - 268435455
	Default:	None

Required Hardware:

IX-PS6

Main Tenant Number

Class 34 Item 02

Class 34 Item 02 - Main Cell Tenant Number is used to assign the tenant number of the Main Cell Group to be used by the portable station

DSS Display

Class/Item	Element Field	Description	Data Field
34.02	<EXTL001>	Main Grp Tenant #	123456789

Programming Field Description

Data Field:	Meaning:	Main Tenant Cell Group
	Range:	0 - 255 0 = Free
	Default:	0

Related Database:

32.06 Main Cell Tenant Group

Common Key Pattern

Class 34 Item 03

Class 34 Item 03 - The Common Key Pattern used by the portable station includes both the standard keys and several multipurpose keys on the portable station Key assign

When a flexible key is verified for the assigned feature, the portable station displays the name of the feature programmed. If the key is not programmed with a feature in Key Assignment, the portable station displays the name of the feature programmed in Group Key Assignment. If no feature is programmed to the key, the operation is canceled.

DSS Display

Class/Item	Element Field	Description	Data Field
34.03	<EXTL001>	Com Key Patt #	1

Programming Field Description

Data Field:	Meaning:	Common Key Pattern Number
	Range:	1 - 64
	Default:	1

Related Database:

32.01 Base Station Attribution; 32.08 Common Key Pattern; 33.01 Common Key Pattern Assignment

Required Hardware:

IX-BS5, IX-PS6

Echo Suppressor

Class 34 Item 04

Class 34 Item 04 - Echo Suppressor is used to enable or disable Echo Suppression on the portable station that is connected to the analog station or trunk. If an echo occurs during a conversation and the data = 1, the system attempts to eliminate the echo. However, a large echo may not be suppressed properly.

An echo is caused by transmit audio going back to the receiver through the two-wire-to-four-wire conversion circuit. Especially in PHS-compliant systems, the echo sounds unnatural because of the total 10 msec delay between the portable station and the base station. An echo suppressor or an echo canceller is used to reduce the echo.

An echo suppressor detects transmitted audio signals and suppresses the echo by reducing the sidetone signals sent to the receiver during transmission.

DSS Display

Class/Item	Element Field	Description	Data Field
34.04	<EXTL001>	Echo Suppressor	0

Programming Field Description

Data Field:	Meaning:	Echo Suppression
	Range:	0 - 1
		0 = Disable
		1 = Enable
	Default:	0

Related Operation:

