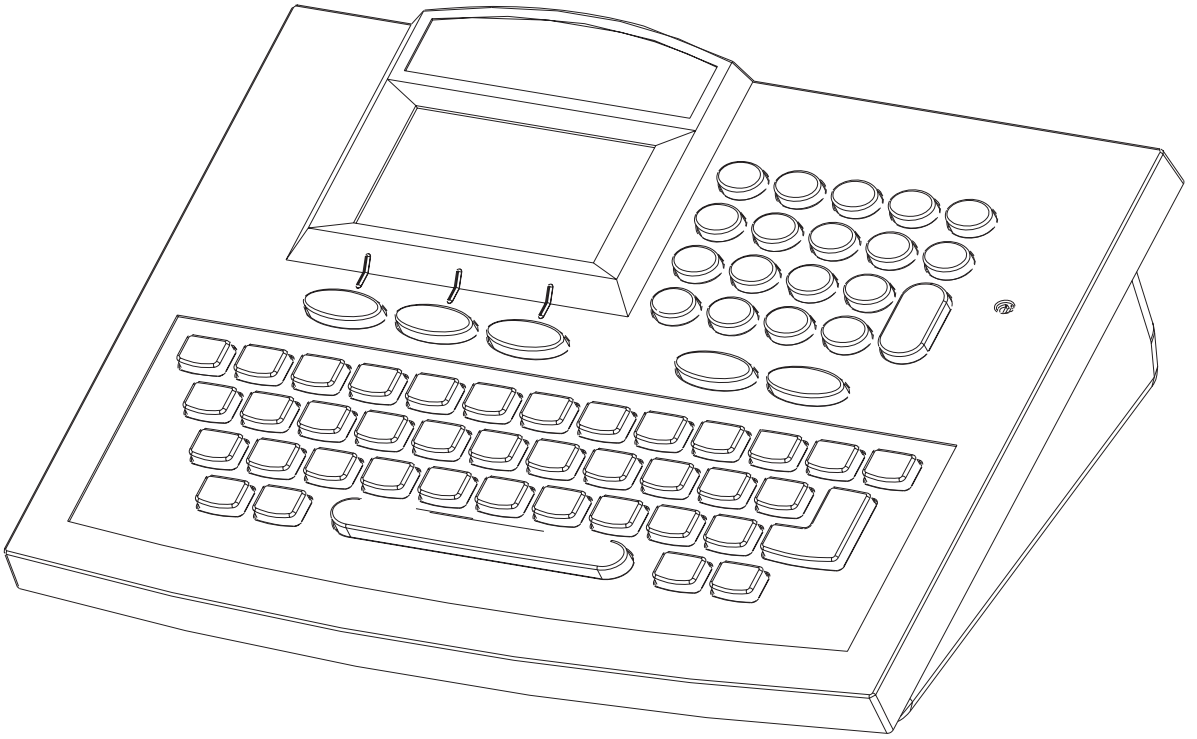

People Tracker™ Basic, People Tracker Plus™, and People Tracker Plus™ Encoder Users Guide

People Tracker™

Covers: People Tracker™ Basic, People Tracker Plus™, and People Tracker Plus™ Encoder

Users Guide

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Contents

About This Guide

This guide provides all the information you need to setup, install, and use a People Tracker or People Tracker Plus with a basic configuration.

This guide is intended to be used by the installers and system administrators who are responsible for installing, configuring and maintaining this local area paging unit; consequently, it assumes a basic working knowledge of paging equipment and radio transmitters.

Conventions

Table 1 and Table 2 list several conventions used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Informative Note	Information that describes a important features or instructions. Also used to point out helpful shortcuts.
	Caution	Information that alerts you to potential loss of data or potential damage to the device.
	Warning	Information that alerts you to potential personal injury.

Table 2 Text Conventions

Convention	Description
Screen Text	This typeface represents information as it appears on the display of the unit.
Keyboard Keys	This typeface represents the key names of the keys on the keyboard.
Words in *italics*	Italics are used to: ■ Emphasize a point ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names and menu commands.

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1 Overview of the People Tracker

This section contains introductory information about the People Tracker and some of it's features. It covers the following topics:

- People Tracker/Plus Top View Detail
- People Tracker Rear View Detail
- People Tracker Plus Rear View Detail
- People Tracker Plus Encoder Rear View Detail
- People Tracker/Plus Bottom View Detail
- People Tracker Display Detail
- People Tracker Feature Overview

Top View Detail

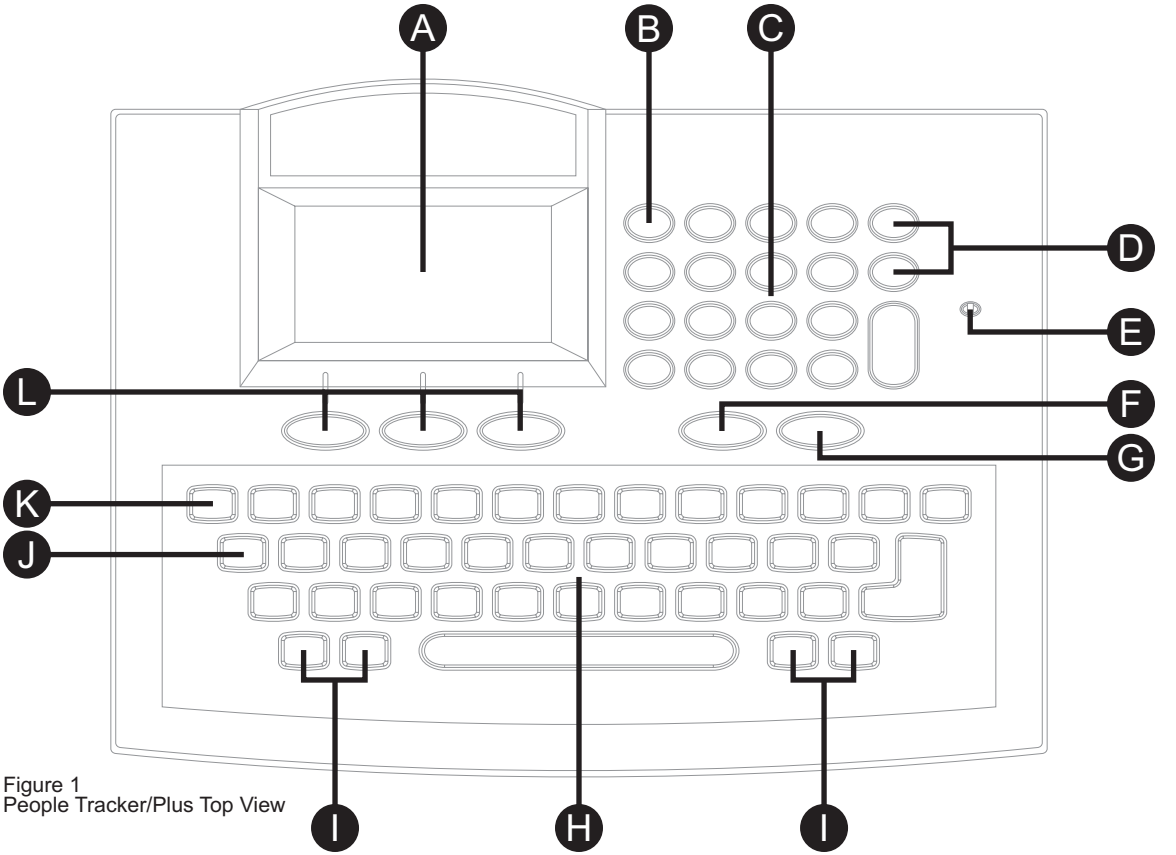

Figure 1
People Tracker/Plus Top View

A	LCD Screen
B	LCD Backlight On/Off Button
C	Numeric Keypad
D	LCD Contrast Controls
E	Microphone (Plus/Encodr Models Only)
F	Cancel Button
G	Send Button
H	QWERTY Keyboard (Plus/Encoder Models Only)
I	Cursor Keys (Plus/Encoder Models Only)
J	Alternate Character Key (Plus/Encoder Models Only)
K	Talk Button (Plus/Encoder Models Only)
L	Soft Function Keys

Rear View Details

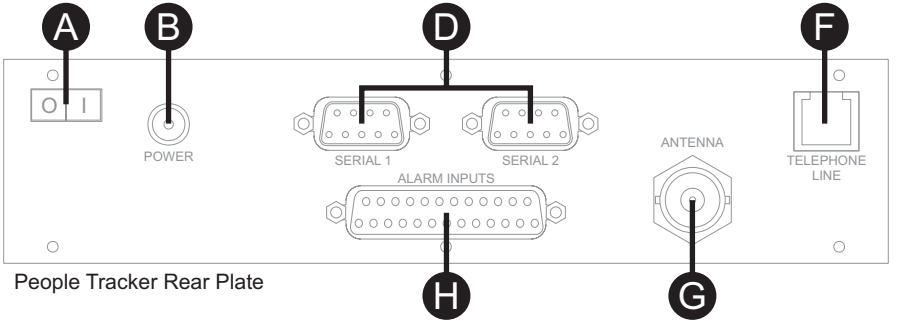

Figure 2 People Tracker Rear Plate

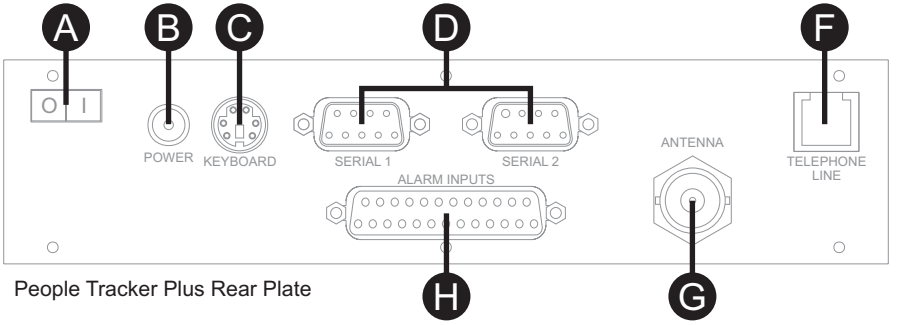

Figure 3 People Tracker Plus Rear Plate

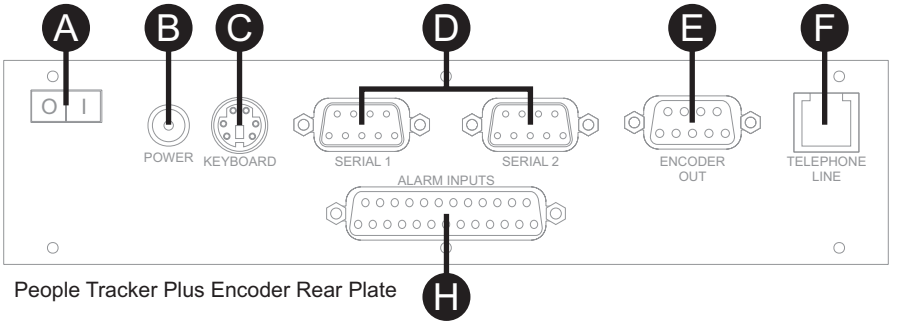

Figure 4 People Tracker Plus Encoder Rear Plate

A	Power Switch
B	Power Connector
C	Keyboard Connector (Plus Models Only))
D	RS-232 Serial Ports
E	Encoder Output (Encoder Model Only))
F	Telephone Line Jack
G	Antenna Connector (Non-Encoder Models Only)
H	Alarm Inputs

Bottom Detail

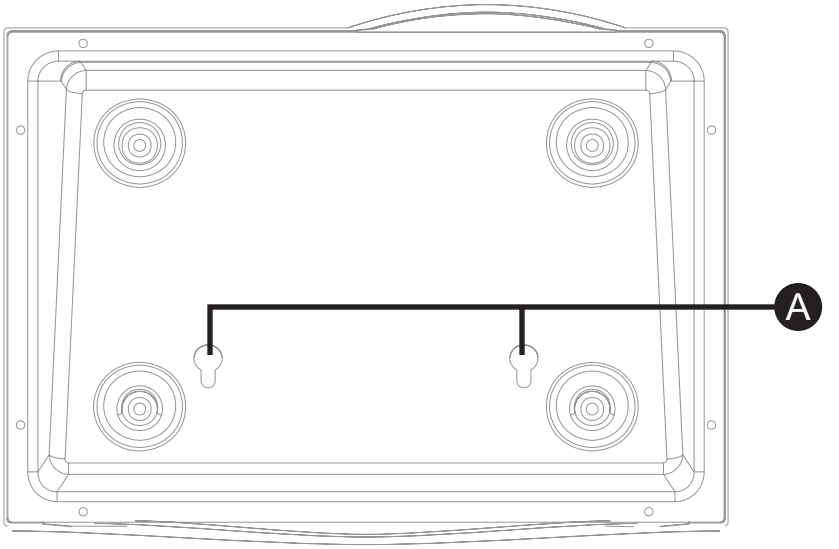

Figure 5 Bottom Detail - All units

A Keyholes for wall mounting

Display Detail

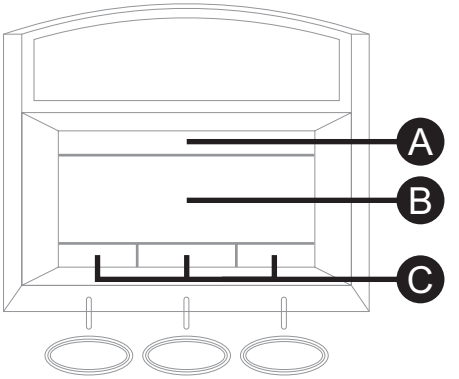

Figure 6 Display Detail

A Status Bar - Displays Date and Time, as well as occasional status information about the unit
B General Display Area
C Soft Key Labels - These are context sensitive and change depending on the current mode of operation

Features

- Voice, alphanumeric, numeric and tone paging capable (voice and alphanumeric available on Plus models only)
- Integrated silicon rubber keypad/keyboard
- User friendly "qwerty" keypad on Plus models.
- Additional port for standard keyboard plug in on Plus models
- Selectable 2 or 5 watt transceiver (450 - 470 Mhz)
- Built-in easy to read 64 x 128 line backlit LCD display
- Accommodates up 1000 pagers
- POCSAG 512, 1200 and 2400 baud rate.
- 2 RS232 Data ports for multilevel use
- Supports TAP, Motorola's COMP1 or COMP2 protocols
- Telephone line for easy access from any touch tone telephone
- Group paging for alerting multiple pagers with a single message
- Voice prompts for easy telephone access
- 16 alarm inputs (optically isolated) individually selectable as normally open or normally closed. Can mix both wet and dry contacts.
- Encoder only version for higher power applications
- Maximum page length: 240 characters
- Maximum preprogrammed alarm message: 240 characters
- Maximum number of pager groups: 24
- Maximum number of pagers per group: 1000

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2 Installation

This section contains covers the various issues regarding installing the People Tracker. It covers the following topics:

- Choosing the right location
- System Assembly
- Tabletop installation
- Wall mount installation

Choosing the Right Location

One of the most important things to consider when installing a local area paging system is location. Location can affect both the systems accessability, as well as its usability and effectiveness.

For small area installation, like a restaurant or a bar the location is more flexible, as the required effective paging region is likely far smaller than the systems capability. For larger regions, like campuses, placement of the transmitter can be far more critical, as placing the transmitter at one end, can result in a dead zone at the other end of the area. As a general rule the transmitter should be located as close as possible to the center of the required paging area, to achieve the best coverage.

The transmitter should not be placed near large metal objects, as the metal can block and absorb the transmitters signal, reducing both the range and effectiveness of the unit. This can pose a problem in commercial buildings where steel construction is used. In such installations it may take several tries to find the location that works best.

The unit should also be placed where it is accessible, in order to be an effective tool for your operation. Never place the unit where it may be submerged, or otherwise get wet. Examples of places to avoid would be on a counter next to, or near a sink, on a bar top, where drinks can be spilt on the unit. The choice of location should be both dry, and clear of any obstructions. Placement on a host/hostess podium or a desk are both examples of good locations for the transmitter.

System Assembly

There is little assembly required in order to make the unit function. Simply attach the antenna to the BNC whip antenna connector (Non-Encoder models). And connect the Power supply to the power connector.

Warning: Never attach an antenna where the rubber coating is broken or cracked, exposing the internal wire. Doing so may result in personal injury if a person was to com into contact with the exposed area while the unit is transmitting.

Note: You may use a 50ohm extension cable to locate the antenna further away from the unit. Be aware that doing so will result in power loss, thus decreasing the effective range of the unit. Remember to take this into account when planning your system.

Caution: Use only the manufacturer supplied power supply. Attaching an unqualified supply may result in damage to the unit.

Make any additional connections to the unit at this time as well before the unit is powered on.

Tabletop Installation

If the unit is assembled for tabletop (factory default) then no further action is required other than to place the unit in it's desired location. If the unit is set-up for wall mount, and you wish to convert it back to tabletop, please refer to the wall mount installation instructions on how to rotate the base.

Wall-Mount Installation

In order to mount the unit onto a wall, the base of the unit must first be flipped in it's orientation. In order to do so, place the unit upside down on a soft cloth to protect the top surface.

⚠ Caution: Observe electrostatic discharge precautions when dismantling the unit. Be sure that you and the unit are both sufficiently grounded.

You will need a phillips (star) head screwdriver to perform these tasks.

Step 1. Remove the 8 screws, as indicated in the figure, fastening the base to the unit top.

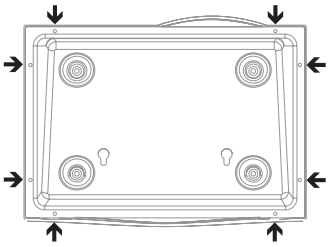

Figure 7 Screw Location Detail

Step 2. Holding both the top and base with your hands, in the assembled position, carefully flip the unit right side up again.

Step 3. With the unit facing you in the normal orientation, carefully lift the left edge of the top separating it from the base. You will note there is a short cable at the right edge connecting the two parts.

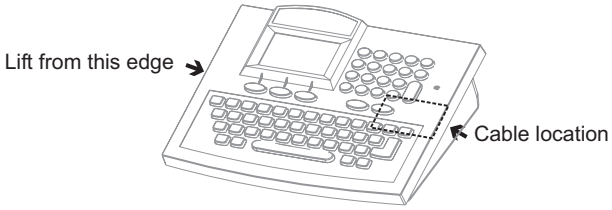

Figure 8 Cable Location & Lift Point

Step 4. Carefully detach the cable from connector J4 on the base only, leaving it attached to the top of the unit.

Step 5. Rotate the base so that it is in the reverse orientation of where you started. The rear panel connectors should now be facing you.

Step 6. You will see that J5 is now in the position where J4 was. Re-attach the cable, to connector J5 being sure that all the connector pins are in the cable connector. Be sure that the cable is fully inserted at both ends.

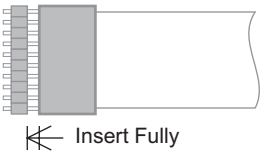

Figure 9 Keyboard Connector Detail

Step 7. You will see that J5 is now in the position where J4 was. Re-attach the cable, to connector J5 being sure that all the connector pins are in the cable connector. Be sure that the cable is fully inserted at both ends.

Step 8. Again Holding both the top and base with your hands, in the assembled position, carefully flip the unit upside down again.

Step 9. Replace the 8 screws you removed in step 1. Be careful not to over-tighten or strip the threads.

Step 10. Install two #10 screws onto the wall where you wish to mount the unit. Use the provided hole location diagram in Appendix E to properly locate the screws on the wall. Due to the weight of the unit, butterfly anchors are recommended over the usual plastic inserts, when mounting on a drywall wall. If at all possible try to have at least one of the screws in a stud. Install the screws so that about 1/8 of an inch of the shank of the screw is still exposed.

Step 11. Carefully hang the unit on the wall by inserting the heads of the screws into the keyhole openings on the back of the unit.

3 Configuration

This section contains configuration information about the People Tracker. It covers the following topics:

- Powering on the unit for the first time
- Basic system configuration
- Setting the radio transmission options
- Adding pagers to the database
- Creating pager groups
- Configuring the serial ports
- Configuring the telephone port
- Configuring the Alarm Inputs
- Setting the system time
- Setting a system password
- Performing a range test

Powering on for the First Time

When first powering on the People Tracker, after unpacking, you will be presented with a message that reads "No Pagers have been configured, Run setup now?". Press the *YES* soft key to enter setup mode.

Once in setup mode, you will be presented with a menu of 9 items, you can navigate the list by using the *UP* and *DOWN* soft keys, or the cursor keys on the Plus models. You will note that the list will scroll at either end when you try to navigate beyond the edge of the display area. the pointers on either side of the display indicate which option will be selected when you press enter. You can exit setup mode by pressing the Cancel button from the setup menu.

Alternatively, you can also select items by pressing their corresponding number on the keypad.

On power up you may see a message that reads "Clock Battery Failed, Run Setup now?" instead. This is not an error, only that the unit reacted the stopped clock instead of the empty database (The unit ships form the factory with the clock stopped). If after setting the clock and powering off this message persists, refer to the section on changing the clock battery.

Basic System Configuration

Before being able to transmit any pages you will need to setup some system wide options. The *SYSTEM CAP* is the base part of the capcode that applies to all the POCSAG pagers used with this system. The SYSTEM CAP consists of the first four digits of the seven digit pager capcode, all pagers used on this system must have the same first four digits. If you are planning on using voice paging (Plus models only) you must set the *CODE PLAN* which defines the set of tones used to address the analog pagers.

To set these options, from the setup menu, navigate to the SYSTEM OPTIONS (Item 0) menu item and press **ENTER**.

To change the SYSTEM CAP simply type the numbers in on the numeric keypad. The digits will scroll in from right to left.

To change the CODE PLAN simply press the corresponding code plan code letter on the QWERTY keyboard. Refer to Appendix C for the codes. The codes are the same as the Motorola code plan table.

When done press send to save your settings. You can press cancel to return to the setup menu without saving any changes.

Configuring the Encoder and Radio

Before sending your first page you may also need to alter the encoder and radio options. Navigate to the "Encoder Setup" option from the main setup menu (Item 8) and press *ENTER*. This will present the Encoder and Radio setup menu. Pressing Cancel from this menu will return you to the Setup menu.

POCSAG Options

The POCSAG options menu allows you to set the transmission baud rate to your pagers. This setting should match what your pager is capable of receiving. You can toggle through the available baud rates by pressing the BAUD soft key.

The POCSAG options menu also allows you adjust the "Preamble Guard", The preamble guard basically lengthens the transmission preamble in 32bit increments. You press the GUARD soft key to change this setting The values will cycle from 0-16.

Press Send to save your changes, or Cancel to return to the encoder setup menu. You must also cycle the power on the unit before the changes will take effect.

Two-Tone Options

The Two-Tone options menu allows you to adjust the timings for Two-Tone Sequential voice paging mode (Plus versions only). the Tone A and Tone B times refer to the A/B signaling tones respectively. The Tone C options allows you to set the Long Tone B/C time. Gap allows you to set the time between the tones and Delay sets the delay from when the last tone is transmitted to when the Mic can be enabled for voice transmission. To change any of these settings, simply move the pointers to the appropriate field and type the new value using the numeric keypad, the digits will scroll right to left. Press Enter or Send to save the settings and return to the previous menu.

Transmit Options

The Transmit options menu allows you to transmission characteristics for the particular radio, or your environment.

Caution: Exceeding the radios maximum transmit time or duty cycle may damage the radio.

Warning: Never set the radio to more than 50% duty cycle. Doing so may expose the operator to harmful amounts of radio waves.

The Max on time defines the absolute maximum amount of time the PTT line should be held by the encoder. The Min off time defines the absolute minimum amount of time to wait in between transmissions. The Delay setting defines how much time to wait from when PTT is asserted to when data can be presented to the radio. Finally the Duty Cycle setting defines how long to wait between transmissions relative to PTT on time for the last transmission, This setting will be overruled by the MIN OFF time if the calculated time is shorter. Pressing Enter will save the options.

Radio Options

The Radio Options menu allows you to adjust the Radios transmit frequency and bandwidth. This option is available only on the NON-Encoder versions of the People Tracker equipped with a factory installed radio.

For normal operation the radio settings are locked, in order to change the settings the unit must be unlocked first. In order to unlock the unit, Navigate to the Radio Options menu, and press the UNLOCK soft key. You will now be required to cycle the power on the unit in order to enable programming of the radio. Once unlocked you can change the frequency

simply by typing in the desired frequency. You can also select the bandwidth setting between narrow to wide here using the soft keys. Your transmit frequency *MUST* be a multiple of the selected frequency step, If it is not, change the frequency step to match. If none of the frequency steps can be divided evenly into your desired frequency, you will need to select another frequency. To save your settings press the SEND button, and cycle the power to the unit again, to return the radio to normal operating mode.

Note: You will only be able to set a frequency that is ±4MHz of the center frequency of the unit.

Adding Pagers to the System

To add pagers to the system navigate to the "Configure Pagers" (Item 1, this should also be the default position) item in the setup menu, and press **ENTER**.

Once in the pager configuration mode, you will be prompted for a pager number. A pager number is always 3 digits on this system ranging from 000-999. Then number is simply entered form the numeric keypad.

Note: The pager number is a logical number, and does not need to be the last three digits of the Capcode on the pager itself, although this is the most common use.

Once you have entered your three digit pager number and pressed **ENTER**, the display will return with the configuration of that pager entry in the database. If the pager is inactive then it will simply show "Active: No" on the screen. Use the Enable soft key to enable the pager (or the Disable soft key to disable it). You can press **CANCEL** to return to the Pager Number Entry field, if you wish to abandon adding/editing the currently selected pager.

Note: When you disable a pager all of it's settings will be lost, and when you re-enable it, it will come up with the default settings.

Once the pager has been enabled, the screen will display a few more lines of information; The pager type, and it's capcode. To change the pager type press the TYPE soft key to cycle through the type options {Tone Only, Numeric Only, Alpha-Numeric (and Voice on plus models)}.

Note: On non-plus models you will still get the alpha-numeric option, this refers to the coding format used to transmit to the pagers only, and will not allow you to send true alpha-numeric pages to the pager.

To change the capcode, simply type in the pager number on the numeric keypad. The digits will scroll left to right as you do so. The capcode digits here *must* match the last 3 digits of the capcode programmed into your pager.

Press **SEND** to save the pager to the database

If you have a group of pagers with sequential capcodes and wish to assign them sequentially there is a shortcut you can use. When prompted for the pager number, enter the starting 3 digit pager number then press the **hyphen** '-' key and enter the ending 3 digit pager number. The rest of the configuration follows as above, except the capcode you enter is for the first pager in the range. The capcode will be incremented by one for each subsequent pager until the end of the range.

To view the groups a pager is assigned to, press the 'GROUPS' softkey when editing the pager.

To View what pagers are assigned in the system press the 'VIEW PGR' softkey at the "Enter Pager Number" prompt in configuration mode.

Adding Pager Groups

Creating/Editing pager groups is very similar to creating/editing a pager. The main difference is that a pager group has a 2 digit code (00-23).

Note: These are system generated pager groups, this is different than assigning a group capcode to the pagers, which is the recommended method as it is more efficient for transmission. If using a group capcode, the group is entered the same way as an individual pager. Using the system generated groups will result in a unique transmission for each pager in the group, so it's recommended to keep the groups small (Although you are not limited to this and can have all 1000 pagers in a single group).

To Add/Edit a pager group you will use the same "Configure Pagers" setup item. Only you will need to enter the two digit group code instead of the three digit pager code.

The group setup behaves much in the same way as pager setup, except there is no capcode field. *You cannot configure pagers of different types into the same group.* Press **SEND** to enable the group in the database. Then enter the group code again to return & add pagers to the group.

Once you have enabled and set the group type, press the PAGERS soft key to add and remove pagers from the group. Using the *REMOVE (ADD)* soft keys you can toggle between the two modes of operation. The unit will not allow you to accidently configure a pager of the incorrect type into the group. Just as you can create pagers by defining a range, you can also assign them to groups using the same method. Pressing **ENTER** will add the selected pager(s) to the group and return you to the group edit menu, to add/remove additional pagers press the *PAGERS* soft key again.

Note: There is no way to tell if a pager is in a group or not, so it's best to track this info separately on a configuration sheet for your system.

To View What pagers have been assigned to a group. In the Group Editor, press the 'PAGERS' softkey, and then the 'LIST' softkey.

To view what groups in the system have been assigned press the 'VIEW GRP' softkey at the "Enter Pager Number" prompt when in configuration mode.

Note: Some systems do not support 2 digit pager ID's which are used by the People Tracker. To overcome this, Groups can be aliased as a regular pager with a 3 digit ID. To set up an alias, at the "Enter Pager Number" prompt in configuration mode, enter in the 3 digit ID you wish to use as the alias, and press Enter. Press the Enable to enable the Entry, if not already enabled. Then press the 'TYPE' soft key, until the pager type reads as 'Group Alias'. Then, using the numeric keypad, simply enter in the 2 digit group code for the group you are aliasing.

Configuring the Serial Ports

The People Tracker comes equipped with two identical serial ports for connection to external devices like alarm panels or other paging entry devices. Both ports are independent of each other and must be configured separately. To configure a serial port, navigate to the port you wish to edit in the setup menu (items 6 and 7) and press ENTER.

The current port settings will be displayed if the port is enabled, otherwise only the port status is displayed. to change any of the settings use the up and down keys to select the item and press the *CHANGE* soft key to scroll through the available settings for that item. The baud, data bits, stop bits, and parity settings are pretty straight forward. The only thing to know here is that they must match the settings of the device you are connecting that port to.

The Protocol field gives you three options {Comp1, Comp2, and TAP/PET} The Comp1 protocol requires a pager number to be able to send the incoming data to a single pager. The pager field will be displayed when Comp1 is selected as the protocol, and hidden otherwise. To enter the pager number, navigate to that field, and type in the 3 digit pager number, the digits will scroll right to left as you type them.

Press SEND to save the settings.

Configuring the Telephone Port

The People Tracker comes equipped with a telephone port, that allows for pages to be entered remotely via any Touch-Tone® Telephone.

To enable the remote entry option via telephone navigate to the "Telephone Port" option (Item 5) in the setup menu and press ENTER.

The *CHANGE* soft key is used to change the settings for any non-numeric settings. While for the numeric fields the keypad is used to change the setting. The default setting for ring cadence should be fine for most phone systems.

Ring cadence defines the minimum *space* time in between rings to help the system interpret lines with special rings as a single ring. Cadence is defined in 100's of mS.

The Max Retries field defines how many times a user is allowed to retry sending a page before the system ends the call.

The Call timeout defines how many seconds to wait for the user to respond, before hanging up.

The Tone Only field defines if Tone only pages are allowed to be generated remotely over the phone line.

The play greeting options allows you to disable the initial part of the greeting message, resulting in the system starting immediately with "Enter Pager Number" when a call is received.

The voice prompts option allows you to disable the verbal prompts and replace them with a simple 'beep'. Set this option to 'No' if you want the beeps.

Warning: When connecting the phone line, connect the line to the back of the People Tracker before connecting it to the wall. The telephone line can contain harmful voltages, and may cause personal injury if the exposed contacts on the cable are touched while the line is plugged into the wall.

Configuring the Alarm Inputs

The People Tracker comes equipped 16 optically isolated contact inputs. The inputs can be either wetted voltage or dry voltage contacts, as well as individually selectable as normally open or normally closed.

Caution: Be sure to make all connections while the unit is powered off, to prevent damage to the unit.

Warning: If using wetted voltage contacts, be sure to power off the supply to the contact loop as well to avoid personal injury.

For wetted voltage contacts connect the ground side of the contact to the ground pins on the alarm input connector. For Dry contacts connect the common side to the +5v supply pins of the Alarm input connector.

To configure the alarms, navigate to the “Configure Alarms” item in the setup menu (item 2) and press Enter.

You will then be prompted for the alarm input to configure enter the contact number (01-16) and press enter.

Use the CHANGE softkey to change any of the settings, with the exception of the Pager number, where the keypad is used.

You can individually define each contact as normally Open (N.O.) or Normally Closed (N.C.). You can also assign a unique message (up to 240 characters each) for when the contact goes active (On) and optionally when it goes inactive (Off).

Assigning messages to the inputs. when you select to edit a message you will be brought to an editor that will display the currently programmed message. you can use the cursor keys to navigate throughout the text to edit portions. The DEL key deletes the currently highlighted character. If the cursor position is after the last character in the message, then the DEL key acts like a backspace and deletes the last character in the message. Typing new characters will always insert them at the current cursor position. Pressing Enter or Send will save the message.

Note: After editing a particular input. It’s settings will not be saved until Save or Send is pressed at the “Alarm Number:” prompt.

Setting the Time

To change the date and or time on the unit navigate to the “Set Time” option in the setup menu (Item 3). Using the cursor keys navigate to the field to where you wish to start editing the date and time, and press enter. Then using the numeric keypad start entering the new values. Each field accepts two digits and will scroll them from right to left as you enter them. After each two digits you enter the field pointer will automatically advance to the next field. Press the Spacebar or SPC key to toggle between AM & PM. Pressing enter again will return you to navigation mode.

Note: In navigation mode, the numeric keypad acts like the cursor keys. Notice the arrows on the 2, 4,6 & 8 keys.

To save the new date and time, press the SET soft key.

Adding a Setup Password

The People Tracker offers the ability to lock unauthorized users from changing the systems configuration. This is done by setting a password. To set a password navigate to the “set Password” item in the setup menu (Item 4) and press Enter. To clear a currently stored password press the CLEAR soft key. The password may be any combination letters and digits up to 20 characters in length.

Note: Do not forget your password, or you will no longer be able to change the settings of your system.

Performing a Range Test

Once you have successfully configured your system, you will likely want to perform a range test to find the reception limits of your installation. To Run a range test navigate to the “System Options” menu (Item 0) and press Enter. Then press the RANGE soft key.

Using the Int+ and Int - soft keys you can increase or decrease the interval in between transmissions. Using the numeric keypad enter the pager number of the pager you will be using for the test.

Note: You must use a numeric or alpha numeric pager to run this test. And the pager must be configured into the pager database.

Once you have everything set, press the START soft key. Once started the system will send pages with an sequentially increasing count as the message on every interval, until the stop soft key is pressed.

4 Operation

This section describes how to use the People Tracker for everyday operation. This section is provided if the user of the system is not the same as the administrator. It's purpose is to only cover the details necessary to perform day to day operation of the unit. It covers the following topics:

- General Operating Information
- Sending a Tone-Only Page
- Sending a Numeric Page
- Sending an Alphanumeric Page
- Sending a Voice Page

General Paging Information

Once the People Tracker has been configured by the system administrator it is ready for use. When powered on the system will come up in normal operating mode, and prompt the user to “Enter a Pager Number”.

A pager number is a three digit code ranging from 000-999 or a two digit code ranging from 00-23. The two digit code corresponds to a group of pagers, as set up by the administrator, while the three digit code corresponds to the individual pagers themselves.

After entering your desired two or three digit code press ENTER. The system will automatically determine the pager type and bring up the appropriate options.

Refer to the following sections on the specifics for each paging type.

Sending a Tone Page

A tone-only page is the most basic of the page types. It requires no further input from the user. Once the appropriate pager number has been entered and the user presses ENTER or SEND. The page will be delivered to the pager.

Pressing CANCEL instead of SEND or ENTER will abort the message and return the user to an empty Prompt for the pager number.

Sending a Numeric Page

Sending a numeric page requires two steps. First the user must enter the pager number (This step is common to all paging formats). Once the pager number has been entered The user is prompted to enter a numeric message. At this point the unit will only accept input from the numeric keypad. If after entering several characters, you notice a mistake you can use the cursor keys (plus models only) to navigate backwards to make a correction. You can also press the NAV soft key, to change the numeric keypad from keypad mode into cursor mode. The current state of the keypad mode is displayed in the top left corner of the screen in the status bar. You can switch back to Numeric mode by pressing the NUM soft key.

While editing/entering the new character is always inserted at the current cursor location. Pressing the DEL key will result in the character at the current cursor position to be deleted. If the curser is sitting after the last character, then DEL will delete the last character.

Pressing ENTER or SEND will cause the page to be transmitted. The current page can be aborted by pressing CANCEL instead.

Sending an Alphanumeric Page

Sending an alphanumeric (text) page requires two steps. First the user must enter the pager number (This step is common to all paging formats). Once the pager number has been entered The user is prompted to enter a text message. If after entering several characters, you notice a mistake you can use the cursor keys to navigate backwards to make a correction.

While editing/entering the new character is always inserted at the current cursor location. Pressing the DEL key will result in the character at the current cursor position to be deleted. If the curser is sitting after the last character, then DEL will delete the last character.

Pressing ENTER or SEND will cause the page to be transmitted. The current page can be aborted by pressing CANCEL instead.

Sending a Voice Page

Sending a voice page (Plus models only) is somewhat different than the other formats. When you type in the number for a voice pager, like a tone only page, the signal is sent immediately. The screen should read "Signaling Pager", this will take several seconds. Once the pager has been signaled, the screen will change to "Press TALK When Ready". At this point the user needs to press the **TALK** button on the keyboard to activate the Microphone, The status in the top left will show "ON AIR" when the radio is ready and will remain as long as the talk button is held. When TALK is pressed, the microphone is active, and anything said will be broadcast to the pager. It's important to remember that as long as the talk button is held, the radio is transmitting. It is ok to release TALK between sentences or thoughts, when you are ready to continue again, simply press TALK again.

Note: Pressing TALK at any time will activate the microphone and broadcast whatever the microphone picks up. Any pagers in monitor mode will then pick this up. The talk button acts the same way as it would on a CB radio.

Note: If the radio is currently transmitting or the airwaves are busy, pressing the TALK button will not show ON AIR in the status, but rather "RADIO BUSY". If this occurs, release the talk button, wait a few seconds and try again. Always pay attention to the status line when pressing TALK. Unless the status shows ON AIR the radio will not be transmitting.

Sending a Page from a Telephone

When the system answers the call you will be greeted and prompted to “Enter pager number”. Enter the pager number by typing the three digit pager code. For groups enter the asterisk ‘*’ as the first digit.

If the pager number is incorrect or invalid, the system will inform you and prompt you again for the pager number. This will repeat until either the number entered is valid, or the retry count is exceeded, at which point the system will hang up.

If a valid pager number was entered, you will be prompted to “Enter numeric message”. After entering your numeric message hang up to send the page.

Note: If you have more than one page to send, press the * key at the end of your message to send the page and return to the Pager number prompt. The system will respond by saying “Your page has been sent” and then will prompt you for the next pager number.

Note: If the pager is tone only, the system will immediately send the page and inform you that it was sent.

The system will repeat the above cycle, until the call time limit has been reached, or the page count has been exceeded. When one of the above conditions are met, the system will respond by saying “Goodbye” and hanging up.

Note: if you need to cancel a page during the message phase, press the pound key ‘#’. The system will acknowledge by saying “Message canceled”, and then return to the pager number prompt.

5 Care and Maintenance

This section describes how to clean and maintain the unit, for continued operation. It covers the following topics:

- Cleaning Precautions
- LCD Care
- Replacing the Clock Battery

Cleaning Precautions

When cleaning the People Tracker stay away from abrasive cloths or pads, and avoid solvents. Both may affect the finish on the People Tracker, resulting in an undesirable look. Solvents may also remove or dissolve the rubber keys on the keypad.

Should cleaning be required to remove a stubborn spot, or a sugary spot, try to remove it first using warm water and a cotton swab. Mild dishwashing detergent may also be used, be sure to remove any excess soap when done.

Do not allow any liquids to seep into the keyboard, doing so will result in the keys sticking, possibly rendering the keyboard unuseable. Should an accidental spill happen, immediately remove power from the unit, and try to remove as much of the spill as possible. Then allow sufficient time for any seepage to dry before re-applying power.

Never clean the unit with the power or phone line connected.

For light dust, a feather duster is best, or a soft damp cloth.

LCD Care

The People Tracker contains a small LCD display for a user interface. Never apply pressure to the LCD window. The underlying display consists of a thin piece of glass, and if cracked will result in the display becoming unuseable.

Should you need to clean the lense, use a soft cloth, preferably one suitable for plastic eyeglasses. You can also use an eyeglass cleaner with the cloth if you need.

When cleaning, gently rub the surface to avoid scratches. If using a cleaning solution, use it sparingly to avoid seepage under the edges. It is best to apply the solution to the cleaning cloth, rather than to the lense surface directly.

When positioning your People Tracker, never place it in direct sunlight, doing so will fade the finish, and can damage the LCD as well.

Replacing the Clock Battery

In order to replace the clock battery, the the unit must first be opened. In order to do so, place the unit upside down on a soft cloth to protect the top surface.

The clock uses a standard CR2032 3V coin cell battery, you should be able to purchase replacements from any battery store, or electronics shop.

Before beginning the process, be sure you have a replacement battery. The unit will continue to operate correctly with the dead battery, only the time will be lost with loss of power.

Caution: Observe electrostatic discharge precautions when dismantling the unit. Be sure that you and the unit are both sufficiently grounded.

You will need a phillips (star) head screwdriver, and a small slot screwdriver to perform these tasks.

Step 1. Remove the 8 screws, as indicated in the figure, fastening the base to the unit top.

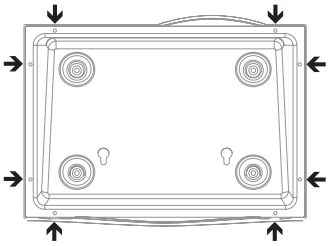

Figure 10 Screw Location Detail

Step 2. Holding both the top and base with your hands, in the assembled position, carefully flip the unit right side up again.

Step 3. With the unit facing you in the normal orientation, carefully lift the left edge of the top separating it from the base. You will note there is a short cable at the right edge connecting the two parts. Do not disconnect this cable.

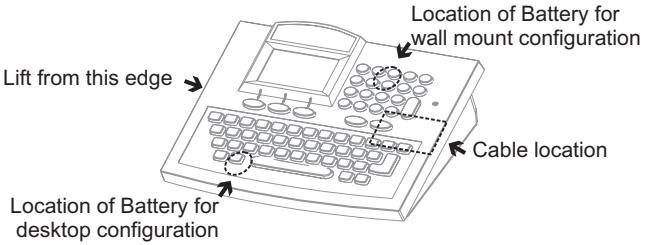

Figure 11 Cable Location & Lift Point & Battery Location

Step 4. Using the small slot screwdriver, insert the tip to the slot on the lower (outer) edge of the battery holder, then tilt the screw-driver to pop up the battery. Use caution here, using excessive force can damage the battery holder.

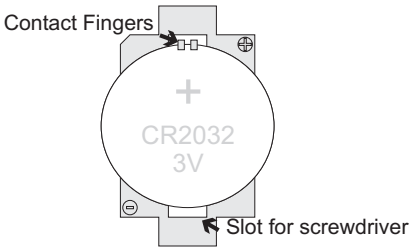

Figure 12 Battery Holder Detail

Step 5. Insert the new battery into the holder, Sliding in the one edge under the contact fingers, and then pressing down to snap in the other edge. Make sure that the + symbol on the battery is facing up.

Step 6. Close the top back down onto the base. Then, holding both the top and base with your hands, in the assembled position, carefully flip the unit upside down again.

Step 7. Replace the 8 screws you removed in step 1. Be careful not to over-tighten or strip the threads.

A Compliance and Safety

Compliance Notice

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

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Safety

This product complies with FCC RF exposure limits set forth for an uncontrolled environment. To comply with FCC RF exposure requirements, keep at least 33 cm (13 in) separation distance from the antenna and the human body (excluding extremities of hands, wrist and feet).

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B Connector Pin-Outs

Power Connector

The power connector is a common 2.5mm barrel connector. Input is 12VDC @ 25Watts.

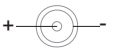


Figure 13 Power Connector Detail

Table 3 Power Connector Pin-Out

Pin	Label	Description
Center	Pos (+)	Positive power terminal.
Shell	Neg (-)	Negative supply terminal

Caution: Do not use another power supply, other than the one provided with the unit. Doing so may result in damage to the unit.

Keyboard Connector

The keyboard connector is compatible with most modern personal keyboards. This interface is not compatible with the newer USB keyboards. This connector is available on the plus and encoder models only.

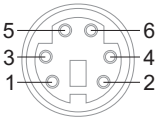


Figure 14 Keyboard Connector Detail

Table 4 Keyboard Connector Pin-Out

Pin	Label	Description
1	KBDAT	Keyboard Data
2	NC	No Connect
3	Gnd	Power Ground
4	Vcc	5V Supply
5	KBCLK	Keyboard Clock
6	NC	No Connect

Serial Ports 1 and 2

The serial ports are compatible with standard RS-232 devices, provided that no hardware handshaking is required. The port is configured with a DTE pin-out, without any handshake lines implemented. The connector is an industry standard DB-9M.

DTE: Data Terminal Equipment (example a computer)
DCE: Data Communication Equipment (example a modem)

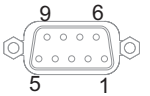


Figure 15 Serial Port Connector Detail

Table 5 Serial Port Connector Pin-Out

Pin	Label	Direction	Description
1	DCD	In	Data Carrier Detect (Not Implemented)
2	RXD	In	Receive Data
3	TXD	Out	Transmit Data
4	DTR	Out	Data Transmit Ready (Not Implemented)
5	SG	-	Signal Ground
6	DSR	In	Data Send Ready (Not Implemented)
7	RTS	Out	Request To Send (Not Implemented)
8	CTS	In	Clear To Send (Not Implemented)
9	RI	In	Ring Indicator (Not Implemented)

Note: Treat all the not implemented pins as do-not-connects.

Table 6 9 to 25 Pin Mapping

DB-9 Pin	Label	DB-25 Pin	Description
1	DCD	8	Data Carrier Detect (Not Implemented)
2	RXD	3	Receive Data
3	TXD	2	Transmit Data
4	DTR	20	Data Transmit Ready (Not Implemented)
5	SG	7	Signal Ground
6	DSR	6	Data Send Ready (Not Implemented)
7	RTS	4	Request To Send (Not Implemented)
8	CTS	5	Clear To Send (Not Implemented)
9	RI	22	Ring Indicator (Not Implemented)

Table 7 Straight Through Cable Connection (Male to Female Cable)

People Tracker				***DCE Device***	
Pin	**Label**			**Label**	**Pin**
2	RXD	———	———	RXD	2
3	TXD	———	———	TXD	3
5	SG	———	———	SG	5
7	RTS	——X		RTS*	7
8	CTS	——X		CTS*	8
1	DCD	——X	X———	DCD	1
4	DTR	——X		DTR**	4
6	DSR	——X		DSR**	6
9	RI	——X	X———	RI	9

Table 8 NULL Cable Connection (Female to Female Cable)

People Tracker Pin	Label		Label	*DTE Device* Pin
2	RXD	⟷	RXD	2
3	TXD	⟷	TXD	3
5	SG	⟷	SG	5
7	RTS	⟷	RTS*	7
8	CTS	⟷	CTS*	8
1	DCD	⟷	DCD**	1
4	DTR	⟷	DTR**	4
6	DSR	⟷	DSR**	6
9	RI	⟷	RI	9

* Only required for RTS/CTS Only or Full Hardware Handshaking and Flow Control
** Required for Full Hardware Handshaking and Flow Control

Note: In some cases the above loopback connections may not trick a device requiring hardware handshaking into communicating with the People Tracker.

Encoder Output Port

The encoder output connector provides direct access to the POCSAG encoder in the People Tracker. The only required connections are Data, PTT, and Gnd. All other pins should be left unconnected. The connector is an industry standard DB-9F. This connector is available on the encoder models only.

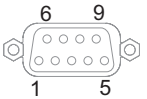


Figure 16 Encoder Out Connector Detail

Table 9 Encoder Out Connector Pin-Out

Pin	Label	Direction	Description
1	Data	Out	Audio/Data Signal (1V p-p)
2	RES	-	Reserved
3	PTT	Out	Push To Talk
4	Gnd	-	Power/Signal Ground (Required)
5	+12V	-	12V Supply Out
6	RES	-	Reserved
7	RES	-	Reserved
8	RES	-	Reserved
9	RES	-	Reserved

Note: Treat all the reserved pins as do-not-connects.

Caution: The People Tracker asserts the PTT line by connecting it to the ground pin when active. This is the normal mode of operation for most radios. If the transmitter you are using requires a different method of asserting PTT, you must place some isolation circuitry in between the two units, or you may damage the transmitter and/or the People Tracker.

Alarm Input Connector

The alarm inputs are accessed through an industry standard DB-25F connector. This connector provides each of the channel inputs as well as power for dry contacts, and a common ground for wetted voltage contacts.

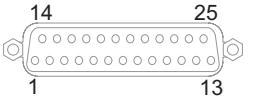


Figure 17 Alarm Input Connector Detail

Table 10 Alarm Input Connector Pin-Out

Pin	Label	Description
1	ALRM01	Alarm Inputs (5-30V allowed input voltage)
2	ALRM02	
3	ALRM03	
4	ALRM04	
5	ALRM05	
6	ALRM06	
7	ALRM07	
8	ALRM08	
9	ALRM09	
10	ALRM10	
11	ALRM11	
12	ALRM12	
13	ALRM13	
14	ALRM14	
15	ALRM15	
16	ALRM16	
17	VCC	+5 Volt Supply (use with Dry Contacts)
18	VCC	
19	VCC	
20	VCC	
21	GND	Common Ground (use with Wetted Contacts)
22	GND	
23	GND	
24	GND	
25	GND	

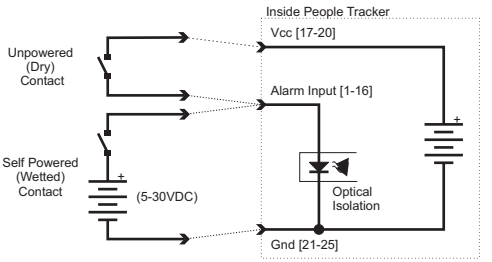


Figure 18 Alarm Input Connection Detail & Schematic Representation

C Code Plan and Tone Codes

Code Plans

The following table illustrates how the 3 digit code is broken down into the 2 tones necessary to address the pager by code plan. The first digit selects a tone group pair, The tone group pair defines which tones actually will be used. The second and third digits select the individual tones from each group (second digit is the 'A' tone and third digit is the 'B' tone). Currently there are no 'I', 'O', or 'X' code plans defined. The 'A' plan is also commonly referred to as the General Encoding plan.

Table 11 Code Plan Table

	First Digit																			
	0		**1**		**2**		**3**		**4**		**5**		**6**		**7**		**8**		**9**	
Plan	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*
A	4	2	1	1	2	2	1	2	4	4	5	5	2	1	4	5	5	4	2	4
B	2	4	1	1	2	2	3	3	1	2	1	3	2	1	3	1	2	3	3	2
C	-	-	1	1	2	2	1	2	4	4	1	4	2	1	4	1	2	4	4	2
D	-	-	1	1	2	2	1	2	1	5	5	5	2	1	5	1	2	5	5	2
E	-	-	1	1	2	2	1	2	2	1	1	6	6	6	6	1	2	6	6	2
F	-	-	1	1	1	3	3	3	4	4	3	1	1	4	4	1	3	4	4	3
G	-	-	1	1	1	3	3	3	3	1	5	5	1	5	5	1	3	5	5	3
H	-	-	1	1	1	3	3	3	3	1	1	6	6	6	6	1	3	6	6	3
J	-	-	1	1	1	4	4	1	4	4	5	5	1	5	4	5	5	4	5	1
K	-	-	1	1	1	4	4	1	4	4	1	6	6	6	6	1	4	6	6	4
L	-	-	1	1	1	5	5	1	1	6	5	5	6	6	6	1	5	6	6	5
M	-	-	2	3	2	2	3	3	4	4	3	2	2	4	4	2	3	4	4	3
N	4	2	2	3	2	2	3	3	3	2	5	5	2	5	5	2	3	5	5	3
P	4	2	2	3	2	2	3	3	3	2	2	6	6	6	6	2	3	6	6	3
Q	-	-	2	4	2	2	4	2	4	4	5	5	2	5	4	5	5	4	5	3
R	-	-	2	4	2	2	4	2	4	4	2	6	6	6	6	2	4	6	6	4
S	4	2	2	5	2	2	5	2	2	6	5	5	6	6	6	2	5	6	6	5
T	4	2	3	4	4	3	3	3	4	4	5	5	3	5	4	5	5	4	5	3
U	4	2	3	4	4	3	3	3	4	4	3	6	6	6	6	3	4	6	6	4
V	4	2	3	5	5	3	3	3	3	6	5	5	6	6	6	3	5	6	6	5
W	4	2	4	6	6	4	5	6	4	4	5	5	6	6	4	5	5	4	6	5
Y	-	-	7	7	8	8	9	9	7	8	7	9	8	7	9	7	8	9	9	8
Z	-	-	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9

Tone Groups

The following table lists the tone frequencies for each of the tone groups referenced in the code plan table. The corresponding tone code is also provided on the second line of each entry. The tone code is required for group paging, you will need this code if you are using long tone B for group paging.

Table 12 Tone Groups

	2nd/3rd Digit									
Group	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	330.5 **6991**	349.0 **7071**	368.5 **7147**	389.0 **7219**	410.8 **7287**	433.7 **7351**	457.9 **7412**	483.5 **7470**	510.5 **7525**	539.0 **7576**
2	569.1 **7625**	600.9 **7672**	634.5 **7716**	669.9 **7758**	707.3 **7797**	746.8 **7834**	788.5 **7870**	832.5 **7903**	879.0 **7935**	928.1 **7965**
3	1092.4 **8046**	288.5 **6771**	296.5 **6818**	304.7 **6863**	313.0 **6907**	953.7 **7980**	979.9 **7994**	1006.9 **8007**	1034.7 **8021**	1063.2 **8034**
4	321.7 **6950**	339.6 **7032**	358.6 **7110**	378.6 **7183**	399.8 **7253**	422.1 **7319**	445.7 **7382**	470.5 **7441**	496.8 **7498**	524.6 **7551**
5	553.9 **7601**	584.8 **7649**	617.4 **7694**	651.9 **7737**	688.3 **7778**	726.8 **7816**	767.4 **7852**	810.2 **7887**	855.5 **7920**	903.2 **7950**
6	1122.5 **8059**	1153.4 **8070**	1185.2 **8082**	1217.8 **8093**	1251.4 **8104**	1285.8 **8115**	1321.2 **8126**	1357.6 **8136**	1395.0 **8146**	1433.4 **8155**
7(A)	358.9 **7111**	398.1 **7248**	441.6 **7372**	489.8 **7483**	543.3 **7584**	602.6 **7674**	668.3 **7756**	741.3 **7830**	822.2 **7896**	912.0 **7956**
8(B)	371.5 **7158**	412.1 **7291**	457.1 **7410**	507.0 **7518**	562.3 **7615**	623.7 **7702**	691.8 **7781**	767.4 **7852**	851.1 **7917**	944.1 **7974**
9(Z)	346.7 **7062**	384.6 **7204**	426.6 **7332**	473.2 **7447**	524.8 **7551**	582.1 **7645**	645.7 **7730**	716.7 **7806**	794.3 **7875**	881.0 **7936**

Tone Codes

This table lists the tone frequency codes for selected tones. The Code column contains the four digit code that is needed when configuring a voice pager group, and using that particular tone for the long tone B/C tone.

The ACTUAL column lists the tone that the unit will produce, The %err column shows the amount of error the actual tone has from the desired ideal tone. The MOT column shows PASS for any tone that is within ±0.5% of the Ideal tone, this is the allowed variance for Motorola pagers. The GE column lists PASS for any tone that is within ±7.5KHz of the ideal tone, this is the allowed variance for GE pagers.

Table 13 Tone Frequency Codes

Freq	Code	Actual	%Err	MOT	GE
67.0	1041	66.997	0.004	Pass	Pass
69.3	1289	69.300	0.000	Pass	Pass
69.4	1299	69.396	0.005	Pass	Pass
71.9	1550	71.901	-0.001	Pass	Pass
74.4	1784	74.405	-0.006	Pass	Pass
77.0	2010	76.994	0.008	Pass	Pass
79.7	2230	79.694	0.008	Pass	Pass
82.5	2443	82.495	0.007	Pass	Pass
85.4	2649	85.397	0.003	Pass	Pass
88.5	2854	88.496	0.005	Pass	Pass
91.5	3040	91.508	-0.009	Pass	Pass
94.8	3230	94.805	-0.005	Pass	Pass
97.4	3371	97.409	-0.009	Pass	Pass
100.0	3504	100.000	0.000	Pass	Pass
103.5	3673	103.498	0.002	Pass	Pass
107.2	3840	107.204	-0.004	Pass	Pass
110.9	3995	110.889	0.010	Pass	Pass
114.8	4149	114.811	-0.009	Pass	Pass
118.8	4295	118.793	0.006	Pass	Pass
123.0	4439	123.001	-0.001	Pass	Pass
127.3	4576	127.291	0.007	Pass	Pass
131.8	4710	131.787	0.010	Pass	Pass
136.5	4841	136.500	0.000	Pass	Pass
141.3	4965	141.283	0.012	Pass	Pass
146.2	5084	146.199	0.001	Pass	Pass
151.4	5201	151.378	0.015	Pass	Pass
156.7	5313	156.691	0.006	Pass	Pass
159.8	5375	159.795	0.003	Pass	Pass
162.2	5421	162.180	0.013	Pass	Pass
165.5	5483	165.508	-0.005	Pass	Pass
167.9	5526	167.898	0.001	Pass	Pass
171.3	5585	171.292	0.005	Pass	Pass
173.8	5627	173.792	0.005	Pass	Pass
177.3	5684	177.305	-0.003	Pass	Pass
179.9	5725	179.921	-0.012	Pass	Pass
183.5	5779	183.486	0.008	Pass	Pass
186.2	5819	186.220	-0.011	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
189.9	5871	189.897	0.001	Pass	Pass
192.8	5911	192.827	-0.014	Pass	Pass
196.6	5961	196.618	-0.009	Pass	Pass
199.5	5998	199.521	-0.011	Pass	Pass
202.7	6037	202.675	0.012	Pass	Pass
203.5	6047	203.500	0.000	Pass	Pass
206.5	6083	206.526	-0.013	Pass	Pass
210.7	6131	210.704	-0.002	Pass	Pass
218.1	6211	218.055	0.021	Pass	Pass
225.7	6289	225.734	-0.015	Pass	Pass
229.1	6322	229.148	-0.021	Pass	Pass
233.6	6364	233.645	-0.019	Pass	Pass
241.8	6436	241.779	0.008	Pass	Pass
244.7	6461	244.738	-0.016	Pass	Pass
250.3	6506	250.250	0.020	Pass	Pass
254.1	6536	254.065	0.014	Pass	Pass
258.8	6572	258.799	0.000	Pass	Pass
266.0	6624	265.957	0.016	Pass	Pass
273.3	6675	273.373	-0.027	Pass	Pass
280.0	6718	279.955	0.016	Pass	Pass
280.8	6723	280.741	0.021	Pass	Pass
281.8	6730	281.849	-0.017	Pass	Pass
282.2	6732	282.167	0.012	Pass	Pass
288.5	6771	288.517	-0.006	Pass	Pass
294.7	6807	294.638	0.021	Pass	Pass
296.5	6818	296.560	-0.020	Pass	Pass
304.7	6863	304.692	0.003	Pass	Pass
307.8	6880	307.882	-0.027	Pass	Pass
312.6	6905	312.695	-0.031	Pass	Pass
313.0	6907	313.087	-0.028	Pass	Pass
321.4	6948	321.337	0.020	Pass	Pass
321.7	6950	321.750	-0.016	Pass	Pass
330.5	6991	330.469	0.009	Pass	Pass
335.6	7014	335.570	0.009	Pass	Pass
339.6	7032	339.674	-0.022	Pass	Pass
346.7	7062	346.741	-0.012	Pass	Pass
349.0	7071	348.918	0.023	Pass	Pass
350.5	7077	350.385	0.033	Pass	Pass
358.6	7110	358.680	-0.022	Pass	Pass
358.9	7111	358.938	-0.010	Pass	Pass
366.0	7138	366.032	-0.009	Pass	Pass
368.5	7147	368.460	0.011	Pass	Pass
371.5	7158	371.471	0.008	Pass	Pass
378.6	7183	378.501	0.026	Pass	Pass
382.3	7196	382.263	0.010	Pass	Pass
384.6	7204	384.615	-0.004	Pass	Pass
389.0	7219	389.105	-0.027	Pass	Pass
398.1	7248	398.089	0.003	Pass	Pass
399.2	7251	399.042	0.040	Pass	Pass
399.8	7253	399.680	0.030	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
410.8	7287	410.846	-0.011	Pass	Pass
412.1	7291	412.201	-0.025	Pass	Pass
416.9	7305	417.014	-0.027	Pass	Pass
422.1	7319	421.941	0.038	Pass	Pass
426.6	7332	426.621	-0.005	Pass	Pass
433.7	7351	433.651	0.011	Pass	Pass
435.3	7355	435.161	0.032	Pass	Pass
441.6	7372	441.696	-0.022	Pass	Pass
445.7	7382	445.633	0.015	Pass	Pass
454.6	7404	454.545	0.012	Pass	Pass
457.1	7410	457.038	0.013	Pass	Pass
457.5	7411	457.457	0.009	Pass	Pass
457.9	7412	457.875	0.005	Pass	Pass
459.0	7415	459.137	-0.030	Pass	Pass
470.5	7441	470.367	0.028	Pass	Pass
470.8	7442	470.810	-0.002	Pass	Pass
472.5	7446	472.590	-0.019	Pass	Pass
473.2	7447	473.037	0.034	Pass	Pass
474.8	7451	474.834	-0.007	Pass	Pass
483.5	7470	483.559	-0.012	Pass	Pass
487.5	7478	487.329	0.035	Pass	Pass
489.8	7483	489.716	0.017	Pass	Pass
495.0	7494	495.049	-0.010	Pass	Pass
495.8	7496	496.032	-0.047	Pass	Pass
496.8	7498	497.018	-0.044	Pass	Pass
502.5	7509	502.513	-0.003	Pass	Pass
507.0	7518	507.099	-0.020	Pass	Pass
510.5	7525	510.725	-0.044	Pass	Pass
510.7	7525	510.725	-0.005	Pass	Pass
512.0	7527	511.771	0.045	Pass	Pass
517.5	7538	517.598	-0.019	Pass	Pass
517.8	7538	517.598	0.039	Pass	Pass
524.6	7551	524.659	-0.011	Pass	Pass
524.8	7551	524.659	0.027	Pass	Pass
530.0	7561	530.223	-0.042	Pass	Pass
532.5	7565	532.481	0.003	Pass	Pass
539.0	7576	538.793	0.038	Pass	Pass
540.7	7579	540.541	0.029	Pass	Pass
543.3	7584	543.478	-0.033	Pass	Pass
547.5	7591	547.645	-0.027	Pass	Pass
549.0	7593	548.847	0.028	Pass	Pass
553.9	7601	553.710	0.034	Pass	Pass
554.0	7601	553.710	0.052	Pass	Pass
562.3	7615	562.430	-0.023	Pass	Pass
562.5	7615	562.430	0.013	Pass	Pass
564.7	7619	564.972	-0.048	Pass	Pass
568.0	7624	568.182	-0.032	Pass	Pass
569.1	7625	568.828	0.048	Pass	Pass
571.0	7628	570.776	0.039	Pass	Pass
577.5	7638	577.367	0.023	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
582.1	7645	582.072	0.005	Pass	Pass
584.8	7649	584.795	0.001	Pass	Pass
588.0	7654	588.235	-0.040	Pass	Pass
589.7	7656	589.623	0.013	Pass	Pass
592.5	7660	592.417	0.014	Pass	Pass
600.0	7671	600.240	-0.040	Pass	Pass
600.9	7672	600.962	-0.010	Pass	Pass
601.0	7672	600.962	0.006	Pass	Pass
602.6	7674	602.410	0.032	Pass	Pass
604.2	7676	603.865	0.055	Pass	Pass
607.5	7681	607.533	-0.005	Pass	Pass
609.0	7683	609.013	-0.002	Pass	Pass
615.8	7692	615.764	0.006	Pass	Pass
617.4	7694	617.284	0.019	Pass	Pass
622.5	7701	622.665	-0.027	Pass	Pass
623.7	7702	623.441	0.041	Pass	Pass
625.0	7704	625.000	0.000	Pass	Pass
631.0	7712	631.313	-0.050	Pass	Pass
631.5	7712	631.313	0.030	Pass	Pass
634.5	7716	634.518	-0.003	Pass	Pass
637.5	7720	637.755	-0.040	Pass	Pass
643.0	7726	642.674	0.051	Pass	Pass
645.7	7730	645.995	-0.046	Pass	Pass
650.0	7735	650.195	-0.030	Pass	Pass
651.9	7737	651.891	0.001	Pass	Pass
652.0	7737	651.891	0.017	Pass	Pass
652.5	7738	652.742	-0.037	Pass	Pass
653.0	7738	652.742	0.040	Pass	Pass
662.3	7749	662.252	0.007	Pass	Pass
667.5	7755	667.557	-0.009	Pass	Pass
675.0	7763	674.764	0.035	Pass	Pass
676.0	7764	675.676	0.048	Pass	Pass
668.3	7756	668.449	-0.022	Pass	Pass
669.9	7758	670.241	-0.051	Pass	Pass
672.0	7760	672.043	-0.006	Pass	Pass
680.0	7769	680.272	-0.040	Pass	Pass
681.0	7770	681.199	-0.029	Pass	Pass
682.5	7771	682.128	0.054	Pass	Pass
688.3	7778	688.705	-0.059	Pass	Pass
691.8	7781	691.563	0.034	Pass	Pass
692.0	7781	691.563	0.063	Pass	Pass
693.0	7782	692.521	0.069	Pass	Pass
697.0	7787	697.350	-0.050	Pass	Pass
697.5	7787	697.350	0.021	Pass	Pass
700.0	7790	700.280	-0.040	Pass	Pass
701.0	7791	701.262	-0.037	Pass	Pass
707.3	7797	707.214	0.012	Pass	Pass
707.4	7797	707.214	0.026	Pass	Pass
712.5	7802	712.251	0.035	Pass	Pass
716.1	7806	716.332	-0.032	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
716.7	7806	716.332	0.051	Pass	Pass
725.0	7814	724.638	0.050	Pass	Pass
726.8	7816	726.744	0.008	Pass	Pass
727.1	7816	726.744	0.049	Pass	Pass
727.5	7817	727.802	-0.042	Pass	Pass
732.0	7821	732.064	-0.009	Pass	Pass
735.0	7824	735.294	-0.040	Pass	Pass
740.0	7828	739.645	0.048	Pass	Pass
741.0	7829	740.741	0.035	Pass	Pass
741.3	7830	741.840	-0.073	Pass	Pass
742.5	7831	742.942	-0.060	Pass	Pass
746.8	7834	746.269	0.071	Pass	Pass
749.0	7836	748.503	0.066	Pass	Pass
750.0	7837	749.625	0.050	Pass	Pass
757.5	7844	757.576	-0.010	Pass	Pass
761.3	7847	761.035	0.035	Pass	Pass
765.0	7850	764.526	0.062	Pass	Pass
767.4	7852	766.871	0.069	Pass	Pass
770.0	7855	770.416	-0.054	Pass	Pass
772.0	7856	771.605	0.051	Pass	Pass
772.5	7857	772.798	-0.039	Pass	Pass
775.0	7859	775.194	-0.025	Pass	Pass
776.0	7860	776.398	-0.051	Pass	Pass
787.5	7869	787.402	0.013	Pass	Pass
788.5	7870	788.644	-0.018	Pass	Pass
794.3	7875	794.913	-0.077	Pass	Pass
795.4	7875	794.913	0.061	Pass	Pass
799.0	7878	798.722	0.035	Pass	Pass
800.0	7879	800.000	0.000	Pass	Pass
802.5	7881	802.568	-0.009	Pass	Pass
804.0	7882	803.859	0.018	Pass	Pass
810.0	7887	810.373	-0.046	Pass	Pass
810.2	7887	810.373	-0.021	Pass	Pass
817.5	7892	816.993	0.062	Pass	Pass
822.0	7896	822.368	-0.045	Pass	Pass
822.2	7896	822.368	-0.020	Pass	Pass
825.0	7898	825.083	-0.010	Pass	Pass
832.0	7903	831.947	0.006	Pass	Pass
832.5	7903	831.947	0.066	Pass	Pass
832.9	7904	833.333	-0.052	Pass	Pass
834.0	7904	833.333	0.080	Pass	Pass
847.5	7914	847.458	0.005	Pass	Pass
850.0	7916	850.340	-0.040	Pass	Pass
851.1	7917	851.789	-0.081	Pass	Pass
852.0	7917	851.789	0.025	Pass	Pass
855.5	7920	856.164	-0.078	Pass	Pass
856.0	7920	856.164	-0.019	Pass	Pass
862.0	7924	862.069	-0.008	Pass	Pass
862.5	7924	862.069	0.050	Pass	Pass
870.5	7930	871.080	-0.067	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
871.0	7930	871.080	-0.009	Pass	Pass
875.0	7933	875.657	-0.075	Pass	Pass
876.0	7933	875.657	0.039	Pass	Pass
877.0	7934	877.193	-0.022	Pass	Pass
877.5	7934	877.193	0.035	Pass	Pass
879.0	7935	878.735	0.030	Pass	Pass
881.0	7936	880.282	0.082	Pass	Pass
882.0	7937	881.834	0.019	Pass	Pass
885.0	7939	884.956	0.005	Pass	Pass
886.0	7940	886.525	-0.059	Pass	Pass
892.0	7943	891.266	0.082	Pass	Pass
892.5	7944	892.857	-0.040	Pass	Pass
900.0	7948	899.281	0.080	Pass	Pass
903.1	7950	902.527	0.063	Pass	Pass
903.2	7950	902.527	0.075	Pass	Pass
907.5	7953	907.441	0.006	Pass	Pass
910.0	7955	910.747	-0.082	Pass	Pass
911.5	7955	910.747	0.083	Pass	Pass
912.0	7956	912.409	-0.045	Pass	Pass
922.5	7962	922.509	-0.001	Pass	Pass
923.0	7962	922.509	0.053	Pass	Pass
925.0	7963	924.214	0.085	Pass	Pass
928.1	7965	927.644	0.049	Pass	Pass
930.0	7966	929.368	0.068	Pass	Pass
933.0	7968	932.836	0.018	Pass	Pass
937.5	7971	938.086	-0.063	Pass	Pass
941.0	7973	941.620	-0.066	Pass	Pass
944.1	7974	943.396	0.075	Pass	Pass
949.0	7977	948.767	0.025	Pass	Pass
950.0	7978	950.570	-0.060	Pass	Pass
952.4	7979	952.381	0.002	Pass	Pass
952.5	7979	952.381	0.012	Pass	Pass
953.7	7980	954.198	-0.052	Pass	Pass
956.0	7981	956.023	-0.002	Pass	Pass
967.5	7987	967.118	0.039	Pass	Pass
970.0	7989	970.874	-0.090	Pass	Pass
975.0	7991	974.659	0.035	Pass	Pass
977.2	7992	976.562	0.065	Pass	Pass
979.8	7994	980.392	-0.060	Pass	Pass
979.9	7994	980.392	-0.050	Pass	Pass
980.0	7994	980.392	-0.040	Pass	Pass
982.5	7995	982.318	0.018	Pass	Pass
990.0	7999	990.099	-0.010	Pass	Pass
991.0	7999	990.099	0.091	Pass	Pass
992.0	8000	992.063	-0.006	Pass	Pass
993.0	8000	992.063	0.094	Pass	Pass
996.8	8002	996.016	0.079	Pass	Pass
997.5	8003	998.004	-0.051	Pass	Pass
1000.0	8004	1000.000	0.000	Pass	Pass
1006.9	8007	1006.036	0.086	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
1011.6	8010	1012.146	-0.054	Pass	Pass
1012.5	8010	1012.146	0.035	Pass	Pass
1023.0	8015	1022.495	0.049	Pass	Pass
1025.0	8016	1024.590	0.040	Pass	Pass
1026.0	8017	1026.694	-0.068	Pass	Pass
1027.5	8017	1026.694	0.078	Pass	Pass
1034.7	8021	1035.197	-0.048	Pass	Pass
1036.0	8021	1035.197	0.078	Pass	Pass
1040.0	8023	1039.501	0.048	Pass	Pass
1041.2	8024	1041.667	-0.045	Pass	Pass
1042.5	8024	1041.667	0.080	Pass	Pass
1047.1	8026	1046.025	0.103	Pass	Pass
1050.0	8028	1050.420	-0.040	Pass	Pass
1055.0	8030	1054.852	0.014	Pass	Pass
1057.5	8031	1057.082	0.039	Pass	Pass
1058.0	8031	1057.082	0.087	Pass	Pass
1060.0	8032	1059.322	0.064	Pass	Pass
1061.0	8033	1061.571	-0.054	Pass	Pass
1062.9	8034	1063.830	-0.087	Pass	Pass
1063.2	8034	1063.830	-0.059	Pass	Pass
1070.0	8037	1070.664	-0.062	Pass	Pass
1075.0	8039	1075.269	-0.025	Pass	Pass
1077.5	8040	1077.586	-0.008	Pass	Pass
1082.0	8042	1082.251	-0.023	Pass	Pass
1083.9	8043	1084.599	-0.064	Pass	Pass
1084.0	8043	1084.599	-0.055	Pass	Pass
1087.5	8044	1086.957	0.050	Pass	Pass
1089.0	8045	1089.325	-0.030	Pass	Pass
1091.0	8046	1091.703	-0.064	Pass	Pass
1092.4	8046	1091.703	0.064	Pass	Pass
1093.0	8047	1094.092	-0.100	Pass	Pass
1100.0	8049	1098.901	0.100	Pass	Pass
1102.5	8050	1101.322	0.107	Pass	Pass
1110.0	8054	1111.111	-0.100	Pass	Pass
1117.5	8057	1118.568	-0.096	Pass	Pass
1120.0	8058	1121.076	-0.096	Pass	Pass
1122.1	8058	1121.076	0.091	Pass	Pass
1122.5	8059	1123.595	-0.098	Pass	Pass
1124.0	8059	1123.595	0.036	Pass	Pass
1125.0	8060	1126.126	-0.100	Pass	Pass
1127.0	8060	1126.126	0.078	Pass	Pass
1130.0	8062	1131.222	-0.108	Pass	Pass
1132.5	8062	1131.222	0.113	Pass	Pass
1137.0	8064	1136.364	0.056	Pass	Pass
1140.2	8065	1138.952	0.109	Pass	Pass
1147.5	8068	1146.789	0.062	Pass	Pass
1150.0	8069	1149.425	0.050	Pass	Pass
1153.4	8070	1152.074	0.115	Pass	Pass
1160.0	8073	1160.093	-0.008	Pass	Pass
1161.4	8073	1160.093	0.113	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
1162.5	8074	1162.791	-0.025	Pass	Pass
1164.0	8074	1162.791	0.104	Pass	Pass
1170.0	8077	1170.960	-0.082	Pass	Pass
1175.0	8078	1173.709	0.110	Pass	Pass
1177.0	8079	1176.471	0.045	Pass	Pass
1180.0	8080	1179.245	0.064	Pass	Pass
1185.2	8082	1184.834	0.031	Pass	Pass
1191.4	8084	1190.476	0.078	Pass	Pass
1197.0	8086	1196.172	0.069	Pass	Pass
1200.0	8087	1199.041	0.080	Pass	Pass
1202.3	8088	1201.923	0.031	Pass	Pass
1209.0	8090	1207.729	0.105	Pass	Pass
1217.8	8093	1216.545	0.103	Pass	Pass
1219.0	8094	1219.512	-0.042	Pass	Pass
1225.0	8096	1225.490	-0.040	Pass	Pass
1232.0	8098	1231.527	0.038	Pass	Pass
1237.5	8100	1237.624	-0.010	Pass	Pass
1246.0	8103	1246.883	-0.071	Pass	Pass
1250.0	8104	1250.000	0.000	Pass	Pass
1251.4	8104	1250.000	0.112	Pass	Pass
1261.0	8107	1259.446	0.123	Pass	Pass
1270.0	8110	1269.036	0.076	Pass	Pass
1275.0	8112	1275.510	-0.040	Pass	Pass
1285.8	8115	1285.347	0.035	Pass	Pass
1287.0	8115	1285.347	0.128	Pass	Pass
1300.0	8119	1298.701	0.100	Pass	Pass
1304.0	8121	1305.483	-0.114	Pass	Pass
1305.0	8121	1305.483	-0.037	Pass	Pass
1306.0	8121	1305.483	0.040	Pass	Pass
1321.2	8126	1322.751	-0.117	Pass	Pass
1325.0	8127	1326.260	-0.095	Pass	Pass
1333.5	8129	1333.333	0.012	Pass	Pass
1336.0	8130	1336.898	-0.067	Pass	Pass
1344.0	8132	1344.086	-0.006	Pass	Pass
1350.0	8134	1351.351	-0.100	Pass	Pass
1352.0	8134	1351.351	0.048	Pass	Pass
1357.6	8136	1358.696	-0.081	Pass	Pass
1358.0	8136	1358.696	-0.051	Pass	Pass
1361.0	8137	1362.398	-0.103	Pass	Pass
1362.1	8137	1362.398	-0.022	Pass	Pass
1375.0	8140	1373.626	0.100	Pass	Pass
1387.5	8144	1388.889	-0.100	Pass	Pass
1395.0	8146	1396.648	-0.118	Pass	Pass
1400.0	8147	1400.560	-0.040	Pass	Pass
1403.0	8148	1404.494	-0.107	Pass	Pass
1423.5	8153	1424.501	-0.070	Pass	Pass
1425.0	8153	1424.501	0.035	Pass	Pass
1433.4	8155	1432.665	0.051	Pass	Pass
1446.0	8158	1445.087	0.063	Pass	Pass
1449.0	8159	1449.275	-0.019	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
1450.0	8159	1449.275	0.050	Pass	Pass
1465.0	8163	1466.276	-0.087	Pass	Pass
1472.9	8165	1474.926	-0.138	Pass	Pass
1475.0	8165	1474.926	0.005	Pass	Pass
1477.0	8165	1474.926	0.140	Pass	Pass
1479.1	8166	1479.290	-0.013	Pass	Pass
1488.4	8168	1488.095	0.020	Pass	Pass
1500.0	8171	1501.501	-0.100	Pass	Pass
1513.5	8174	1515.151	-0.109	Pass	Pass
1525.0	8176	1524.390	0.040	Pass	Pass
1530.0	8177	1529.052	0.062	Pass	Pass
1537.5	8179	1538.462	-0.063	Pass	Pass
1540.0	8179	1538.462	0.100	Pass	Pass
1544.0	8180	1543.210	0.051	Pass	Pass
1550.0	8181	1547.988	0.130	Pass	Pass
1553.0	8182	1552.795	0.013	Pass	Pass
1555.2	8182	1552.795	0.155	Pass	Pass
1556.7	8183	1557.632	-0.060	Pass	Pass
1575.0	8187	1577.287	-0.145	Pass	Pass
1587.0	8189	1587.302	-0.019	Pass	Pass
1598.0	8191	1597.444	0.035	Pass	Pass
1600.0	8191	1597.444	0.160	Pass	Pass
1606.0	8193	1607.717	-0.107	Pass	Pass
1608.0	8193	1607.717	0.018	Pass	Pass
1625.0	8196	1623.377	0.100	Pass	Pass
1628.3	8197	1628.665	-0.022	Pass	Pass
1633.0	8198	1633.987	-0.060	Pass	Pass
1640.0	8199	1639.344	0.040	Pass	Pass
1642.0	8199	1639.344	0.162	Pass	Pass
1644.0	8200	1644.737	-0.045	Pass	Pass
1650.0	8201	1650.165	-0.010	Pass	Pass
1664.0	8204	1666.667	-0.160	Pass	Pass
1669.0	8204	1666.667	0.140	Pass	Pass
1670.0	8205	1672.241	-0.134	Pass	Pass
1675.0	8205	1672.241	0.165	Pass	Pass
1687.2	8208	1689.189	-0.118	Pass	Pass
1687.5	8208	1689.189	-0.100	Pass	Pass
1700.0	8210	1700.680	-0.040	Pass	Pass
1717.1	8213	1718.213	-0.065	Pass	Pass
1723.0	8214	1724.138	-0.066	Pass	Pass
1725.0	8214	1724.138	0.050	Pass	Pass
1728.0	8215	1730.104	-0.122	Pass	Pass
1733.7	8216	1736.111	-0.139	Pass	Pass
1743.0	8217	1742.160	0.048	Pass	Pass
1747.0	8218	1748.252	-0.072	Pass	Pass
1750.0	8218	1748.252	0.100	Pass	Pass
1751.0	8218	1748.252	0.157	Pass	Pass
1775.0	8222	1773.050	0.110	Pass	Pass
1781.5	8223	1779.359	0.120	Pass	Pass
1784.0	8224	1785.714	-0.096	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
1795.6	8226	1798.561	-0.165	Pass	Pass
1800.0	8226	1798.561	0.080	Pass	Pass
1805.0	8227	1805.054	-0.003	Pass	Pass
1820.0	8229	1818.182	0.100	Pass	Pass
1825.0	8230	1824.818	0.010	Pass	Pass
1830.0	8231	1831.502	-0.082	Pass	Pass
1830.5	8231	1831.502	-0.055	Pass	Pass
1837.5	8232	1838.235	-0.040	Pass	Pass
1847.0	8233	1845.018	0.107	Pass	Pass
1850.0	8234	1851.852	-0.100	Pass	Pass
1860.0	8235	1858.736	0.068	Pass	Pass
1865.0	8236	1865.672	-0.036	Pass	Pass
1869.0	8236	1865.672	0.178	Pass	Pass
1875.0	8237	1872.659	0.125	Pass	Pass
1877.5	8238	1879.699	-0.117	Pass	Pass
1881.0	8238	1879.699	0.069	Pass	Pass
1900.0	8241	1901.141	-0.060	Pass	Pass
1901.0	8241	1901.141	-0.007	Pass	Pass
1912.0	8242	1908.397	0.188	Pass	Pass
1925.0	8244	1923.077	0.100	Pass	Pass
1930.2	8245	1930.502	-0.016	Pass	Pass
1950.0	8248	1953.125	-0.160	Pass	Pass
1975.0	8251	1976.285	-0.065	Pass	Pass
1980.0	8251	1976.285	0.188	Pass	Pass
1981.0	8252	1984.127	-0.158	Pass	Pass
1985.0	8252	1984.127	0.044	Pass	Pass
1987.0	8252	1984.127	0.145	Pass	Pass
1987.5	8252	1984.127	0.170	Pass	Pass
1989.0	8253	1992.032	-0.152	Pass	Pass
1995.0	8253	1992.032	0.149	Pass	Pass
2000.0	8254	2000.000	0.000	Pass	Pass
2010.0	8255	2008.032	0.098	Pass	Pass
2025.0	8257	2024.292	0.035	Pass	Pass
2043.8	8259	2040.816	0.146	Pass	Pass
2049.0	8260	2049.180	-0.009	Pass	Pass
2050.0	8260	2049.180	0.040	Pass	Pass
2051.6	8260	2049.180	0.118	Pass	Pass
2073.0	8263	2074.689	-0.081	Pass	Pass
2075.0	8263	2074.689	0.015	Pass	Pass
2094.5	8265	2092.050	0.117	Pass	Pass
2100.0	8266	2100.840	-0.040	Pass	Pass
2110.0	8267	2109.705	0.014	Pass	Pass
2116.0	8268	2118.644	-0.125	Pass	Pass
2121.0	8268	2118.644	0.111	Pass	Pass
2125.0	8269	2127.660	-0.125	Pass	Pass
2143.8	8271	2145.923	-0.099	Pass	Pass
2150.0	8271	2145.923	0.190	Pass	Pass
2151.0	8272	2155.172	-0.194	Pass	Pass
2155.6	8272	2155.172	0.020	Pass	Pass
2164.0	8273	2164.502	-0.023	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
2175.0	8274	2173.913	0.050	Pass	Pass
2196.0	8276	2192.982	0.137	Pass	Pass
2200.0	8277	2202.643	-0.120	Pass	Pass
2205.0	8277	2202.643	0.107	Pass	Pass
2212.2	8278	2212.389	-0.009	Pass	Pass
2225.0	8279	2222.222	0.125	Pass	Pass
2239.4	8281	2242.153	-0.123	Pass	Pass
2247.0	8281	2242.153	0.216	Pass	Pass
2250.0	8282	2252.252	-0.100	Pass	Pass
2253.0	8282	2252.252	0.033	Pass	Pass
2255.0	8282	2252.252	0.122	Pass	Pass
2260.0	8283	2262.443	-0.108	Pass	Pass
2271.7	8284	2272.727	-0.045	Pass	Pass
2274.0	8284	2272.727	0.056	Pass	Pass
2275.0	8284	2272.727	0.100	Pass	Pass
2292.0	8286	2293.578	-0.069	Pass	Pass
2300.0	8287	2304.147	-0.180	Pass	Pass
2325.0	8289	2325.581	-0.025	Pass	Pass
2334.6	8290	2336.448	-0.079	Pass	Pass
2341.8	8290	2336.448	0.229	Pass	Pass
2350.0	8291	2347.418	0.110	Pass	Pass
2354.0	8292	2358.490	-0.191	Pass	Pass
2361.0	8292	2358.490	0.106	Pass	Pass
2375.0	8293	2369.668	0.224	Pass	Pass
2400.0	8296	2403.846	-0.160	Pass	Pass
2401.0	8296	2403.846	-0.119	Pass	Pass
2425.0	8298	2427.185	-0.090	Pass	Pass
2433.0	8298	2427.185	0.239	Pass	Pass
2437.0	8299	2439.024	-0.083	Pass	Pass
2440.0	8299	2439.024	0.040	Pass	Pass
2447.6	8300	2450.980	-0.138	Pass	Pass
2450.0	8300	2450.980	-0.040	Pass	Pass
2465.0	8301	2463.054	0.079	Pass	Pass
2468.2	8301	2463.054	0.208	Pass	Pass
2475.0	8302	2475.248	-0.010	Pass	Pass
2500.0	8304	2500.000	0.000	Pass	Pass
2523.0	8306	2525.252	-0.089	Pass	Pass
2525.0	8306	2525.252	-0.010	Pass	Pass
2550.0	8308	2551.021	-0.040	Pass	Pass
2556.9	8308	2551.021	0.230	Pass	Pass
2575.0	8310	2577.320	-0.090	Pass	Pass
2600.0	8312	2604.167	-0.160	Pass	Pass
2610.0	8312	2604.167	0.223	Pass	Pass
2612.0	8313	2617.801	-0.222	Pass	Pass
2625.0	8314	2631.579	-0.251	Pass	Pass
2640.0	8315	2645.503	-0.208	Pass	Pass
2650.0	8315	2645.503	0.170	Pass	Pass
2672.9	8317	2673.797	-0.034	Pass	Pass
2675.0	8317	2673.797	0.045	Pass	Pass
2688.0	8318	2688.172	-0.006	Pass	Pass

Table 13 Tone Frequency Codes (continued)

Freq	Code	Actual	%Err	MOT	GE
2694.0	8318	2688.172	0.216	Pass	Pass
2700.0	8319	2702.703	-0.100	Pass	Pass
2704.0	8319	2702.703	0.048	Pass	Pass
2725.0	8321	2732.240	-0.266	Pass	Pass
2750.0	8322	2747.253	0.100	Pass	Pass
2792.4	8325	2793.296	-0.032	Pass	Pass
2799.0	8325	2793.296	0.204	Pass	Pass
2800.0	8325	2793.296	0.239	Pass	Pass
2807.0	8326	2808.989	-0.071	Pass	Pass
2925.0	8333	2923.977	0.035	Pass	Pass
2840.0	8328	2840.909	-0.032	Pass	Pass
2850.0	8329	2857.143	-0.251	Pass	Pass
2856.0	8329	2857.143	-0.040	Pass	Pass
2875.0	8330	2873.563	0.050	Pass	Pass
2898.0	8331	2890.173	0.270	Pass	Fail*
2900.0	8332	2906.977	-0.241	Pass	Pass
2925.0	8333	2923.977	0.035	Pass	Pass
2932.0	8333	2923.977	0.274	Pass	Fail*
2950.0	8335	2958.580	-0.291	Pass	Fail*
2975.0	8336	2976.190	-0.040	Pass	Pass
3000.0	8337	2994.012	0.200	Pass	Pass
3025.0	8339	3030.303	-0.175	Pass	Pass
3050.0	8340	3048.781	0.040	Pass	Pass
3062.0	8341	3067.485	-0.179	Pass	Pass
3075.0	8341	3067.485	0.244	Pass	Fail*
3100.0	8343	3105.590	-0.180	Pass	Pass
3106.0	8343	3105.590	0.013	Pass	Pass
3125.0	8344	3125.000	0.000	Pass	Pass
3150.0	8345	3144.654	0.170	Pass	Pass
3197.0	8348	3205.128	-0.254	Pass	Fail*
3215.0	8348	3205.128	0.307	Pass	Fail*
3329.0	8354	3333.333	-0.130	Pass	Pass
3339.0	8354	3333.333	0.170	Pass	Pass
3446.0	8359	3448.276	-0.066	Pass	Pass
3487.0	8361	3496.503	-0.273	Pass	Fail*
3568.0	8364	3571.428	-0.096	Pass	Pass
3694.0	8369	3703.704	-0.263	Pass	Fail*
3824.0	8373	3816.794	0.188	Pass	Pass

D Technical Specifications

General

Power Supply:	External 12V 25W Regulated DC
Telephone Interface:	RJ-11 Feamle (standartd POTS)
Telephone Signalling:	DTMF
Ring Load:	REN TBD
Database:	1000pagers maximum 24 groups, up to 1000pagers per group
Message Length:	240 character maximum
Message Buffer:	~2Kb
Alarms:	16 Optically Isolated contact inputs
Seial Signalling:	RS-232 levels
Serial Inputs:	2 independant ports, supporting COMP1, COMP2, and TAP.
Serial Speed:	300 - 115,200 bps
Serial Flow Control:	None/Software
External Keyboard:	Standard PS/2
Built-In Keyboard:	24 Key keypad (all models) 64 key alpha keypad (plus models)
Display Type:	LCD Backlit White on Blue)
Display resolution:	128x64 (~84 Characters)
Configuration Storage:	Non-Volatile EEPROM & FLASH
Clock Backup:	3V lithium cell (Cr2032)

Encoder

Encoding Formats:	POCSAG (digital), Two-Tone Sequential (Analog)
Message Types:	Tone / Numeric / Alphanumeric (POCSAG) Voice (two-tone)
Transmission Rate:	512, 1200, 2400

Radio

Frequencies:	450-470MHz Selectable
Squelch Format:	CTCSS
TX Channel Spacing:	10KHz / 12.5 KHz Selectable
TX Bandwith:	Selectable, Narrow/Wide
TX Power:	2 or 5 Watts (±10%)
Frequency Stability:	±2.5 ppm
RX Channel Spacing:	10KHz/12.5 KHz Selectable
RX Sensitivity:	0.5µV for 12dB SINAD
RX Intermodulation:	60dB
RX Image:	50dB
RX Selectivity:	60dB
FM hum and noise:	40dB or better

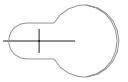
Physical

Dimensions:	Approx(W x D x H) 240 x 165 x 83 mm [9.5 x 6.5 x 3.25 in.]
Weight:	Approx 2.25kg [5lbs.]
Operating Range:	0 - +50 °C [+32 - +122 °F]
Storage Temp.:	-40 - +70 °C [-40 - +160°F]
Humidity (Non-Condensing):	0-95%

E Wall Mounting Template

Template

Use the marking template on the lower part of this page to mark the hole locations for wall mounting the People Tracker.



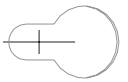


Figure 19 Wall Mounting Template

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