



FEDERAL SIGNAL
Safety and Security Systems

Informer Tone-Alert Radio

Model I-SW

Software Programming Manual

Limited Warranty

This product is subject to and covered by a limited warranty, a copy of which can be found at www.fedsig.com/SSG-Warranty. A copy of this limited warranty can also be obtained by written request to Federal Signal Corporation, 2645 Federal Signal Drive, University Park, IL 60484, email to info@fedsig.com or call +1 708-534-3400.

This limited warranty is in lieu of all other warranties, express or implied, contractual or statutory, including, but not limited to the warranty of merchantability, warranty of fitness for a particular purpose and any warranty against failure of its essential purpose.



FEDERAL SIGNAL
Safety and Security Systems

2645 Federal Signal Drive
University Park, Illinois 60484

www.fedsig.com

Customer Support 800-548-7229 • +1 708 534-3400

Technical Support 800-524-3021 • +1 708 534-3400

All product names or trademarks are properties of their respective owners.

Contents

End User License Agreement	4
Limited Warranty	5
Safety Messages	7
General Description	8
Introduction	8
Safety Messages	8
Unpacking the Software	8
Operating Requirements	8
Ordering Information	9
Installing the Software	9
Connecting the RS232 Cable	12
Describing the I-SW Informer Programming Software	12
RF Alignment and Test Instructions	16
Required Equipment	16
Aligning and Testing the PDB.....	17
Preparation	17
Connections	17
Checking the VCO Frequency Range.....	18
Setting the Synthesizer on Frequency	18
Aligning the Receiver and Setting Squelch.....	18
Testing the Decoders	18
Getting Service	20

End User License Agreement

Important Read Carefully

This End User License Agreement (“Agreement”) is a legal agreement between you (either an individual or a single entity) and Federal Signal Corporation (“Federal”) for the I-SW software and all associated media, printed materials, and “online” or electronic documentation (collectively “Software Product”).

Software Product License

The Software Product is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The Software Product is licensed, not sold, to you pursuant to the terms of this Agreement.

Grant of License

This Agreement grants you the following rights:

Use of Software. You may install and use one copy of the Software Product on a single computer.

Backup Copy. You may also store or install a copy of the Software Product on a storage device, such as a network server, for backup purposes; however, you must acquire and dedicate a license for each separate computer from which the Software Product is used.

Description of Other Rights and Limitations

Not for Resale Software. Notwithstanding other sections of this Agreement, you may not resell or otherwise transfer for value any portion of the Software Product.

Limitations on Reverse Engineering, Decompilation, and Disassembly. You may not reverse engineer, decompile, or disassemble any portion of the Software Product.

Separation of Components. The Software Product is licensed as a single product. Its component parts may not be separated for use on more than one computer.

Rental. You may not rent, lease, or lend any portion of the Software Product.

Support Services. Federal may provide you with support services related to the Software Product (“Support Services”). Use of Support Services is governed by the Federal policies and programs described in the user manual, in “online” documentation, and/or in other Federal-provided materials. Any supplemental software code and all associated media printed materials, and “online” or electronic documentation provided to you as part of the Support Services shall be considered part of the Software Product and subject to the terms and conditions of this Agreement. With respect to technical information you provide to Federal as part of the Support Services, Federal may use such information for its business purposes, including for product support and development. Federal will not utilize such technical information in a form that personally identifies you.

Transfer of Rights. You may not transfer any right under this Agreement without the written consent of Federal.

Termination. Without prejudice to any other rights, Federal may immediately terminate this Agreement if you fail to fully comply with all of the terms and conditions herein. In such event and in addition to any other obligations arising from the termination of this Agreement, you must destroy all copies of the Software Product and all of its component parts.

Upgrades

If the Software Product is labeled as an upgrade, you must be properly licensed to use a product identified by Federal as being eligible for the upgrade in order to use the Software Product. A Software Product labeled as an upgrade replaces and/or supplements the product that formed the basis for your eligibility for the upgrade. You may use the resulting upgraded product only per the terms of this Agreement.

Copyright

All right, title, interest, and copyrights in and to the Software Product (including but not limited to any images, photographs, animations, video, audio, music, text, and “applets” incorporated into the Software Product), the accompanying printed materials, and any copies of the Software Product are owned by Federal. The Software Product is protected by copyright laws and international treaty provisions. You may copy the printed materials of the Software Product; provided, however, that any such copies are used for the sole purpose of in-house training on the use and operation of the Software Product.

U.S. Government Restricted Rights

The Software Product and documentation are provided with Restricted Rights. Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights at 48 CFR 52.227-19, as applicable.

Limited Warranty

Limited Warranty

Federal warrants that (a) the Software Product will perform substantially per the accompanying written materials for a period of one (1) year from the date of shipment of the Software Product by Federal and (b) any Support Services provided by Federal shall be substantially as described in applicable written materials provided to you by Federal. Some states and jurisdictions do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you. To the extent allowed by applicable law, implied warranties on the Software Product, if any, are limited to the period of one (1) year from the date of shipment of the Software Product by Federal.

Customer Remedies

Federal’s entire liability and your exclusive remedy shall be, at Federal’s option, either (a) return of the price paid, if any, or (b) repair or replacement of the Software Product that does not meet Federal’s Limited Warranty and which is returned to Federal with a copy of your receipt. This Limited Warranty is void if failure of the Software Product has resulted from accident, abuse, or misapplication. Any replacement Software Product will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer. Outside the United States, neither these remedies nor any product support services offered by Federal are available without proof of purchase from an authorized international source.

No Other Warranties

To the maximum extent permitted by applicable law, Federal disclaims all other warranties and conditions, either express or implied, including, but not limited to, implied warranties of merchantability, fitness for a particular purpose, title, and non-infringement, with regard to the software product, and the provision of or failure to provide support services. This

limited warranty gives you specific legal rights. You may have others, which vary from state/jurisdiction to state/jurisdiction.

Limitation of Liability

To the maximum extent permitted by applicable law, in no event shall Federal be liable for any special, incidental, indirect, or consequential damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use the software product or the provision of or failure to provide support services, even if Federal has been advised of the possibility of such damages. In any case, Federal's entire liability under any provision of this Agreement shall be limited to the amount actually paid by you for the software product; provided, however, if you have entered into a Federal support services agreement, Federal's entire liability regarding support services shall be governed by the terms of that Agreement. Because some states and jurisdictions do not allow the exclusion or limitation of liability, the above limitation may not apply to you.

Export Law Assurances

You acknowledge that the Software Product is subject to restrictions and controls imposed under the export control laws and regulations of the U.S.A. and any amendments thereof. You certify that neither the Software Product nor any direct product thereof is being or will be exported, acquired, shipped, transferred or re-exported, directly or indirectly, to (i) any country or region prohibited under such laws and regulations; (ii) any end user who you know or have reason to believe will utilize them in the design, development or production of nuclear, chemical or biological weapons; or (iii) any end user who has been prohibited from participating in the U.S.A. export transactions by any federal agency of the U.S.A. government. You also acknowledge that the Software Product may include technical data subject to export and re-export restrictions imposed by U.S.A. law.

Miscellaneous

If you acquired this product in the United States, this Agreement is governed by the laws of the State of Illinois.

You shall institute reasonable measures to ensure compliance with this Agreement. Upon the request of Federal, you shall provide reports as to usage as may be necessary to verify compliance with this Agreement. Federal shall have the right, upon reasonable notice, to inspect your facilities to verify compliance with this Agreement.

You expressly save and hold Federal, its subsidiaries, agents, and affiliates harmless from any and all liability of any kind or nature whatsoever to your customers, distributors, and third parties which may arise from your acts under this Agreement.

This Agreement constitutes the entire agreement with respect to the software product and supersedes any other agreement or discussions, oral or written. This Agreement may not be changed or waived except by a written amendment signed by you and an officer of Federal. No other person has the authority on our behalf to change or waive this Agreement.

A waiver by either party of any term or condition of this Agreement will not be deemed a waiver of the term for the future or of any subsequent breach of it.

The invalidity or unenforceability of any provision of this Agreement will not affect the validity or enforceability of any other provision. Such invalid or unenforceable provision

shall be deemed to be severed from this Agreement, and the Agreement shall be construed as if such provision was never inserted into it.

No action, regardless of form, arising out of this Agreement, may be brought by you more than two years after the facts giving rise to the cause of action have occurred, whether those facts by that time are known to or reasonably ought to have been discovered by you.

In this Agreement, words importing the singular include the plural and vice versa. Words importing gender, include all genders and words importing persons include corporations and vice versa. The division of this Agreement into sections and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement or any part of it.

Safety Messages

Listed below are important safety instructions and precautions you should follow:

Read and Follow Instructions

- Read all the safety and operating instructions before using the Informer Tone-Alert Radio.
- Follow all instructions in this manual and the Informer Series Installation and Operation Manual (part number 255334).

Retain Instructions

- Retain the safety and operating instruction for future reference.

Programming Warning

- Program after reading this manual.
- If programmed incorrectly, the Informer may fail to operate as intended.
- Only personnel thoroughly familiar with Informer operating instructions and the intended method of use should perform the programming.
- Test the Informer for proper operation after programming and before placing it into use.

RF Alignment Warning

- If the radio is aligned incorrectly, the Informer may fail to operate as intended.
- Only qualified radio technicians thoroughly familiar with the Informer's operating instructions, and the intended method of use should perform RF alignment.
- Test the Informer for proper operation after alignment and before placing it into use.

General Description

Introduction

The I-SW Informer programming software runs on the Microsoft® Windows® operating system. Its purpose is to configure the “personality” of the Informer and program into EEPROM memory. You can read the configuration parameters from the Informer using this software program.

The I-SW Informer software can program the complete operating system of the Informer into the Informer’s FLASH memory. This is useful for installing software upgrades. Perform all programming over a standard RS232 port without disabling the Informer. The software prompts the you to enter the appropriate parameter for each configuration item and saves the configuration to disk. All configuration information is viewable from a single screen. You can load saved configurations from disk, edit, and send it to the printer.

The application provides help prompts when you select a data entry point with the mouse. These prompts identify the type of information you need to enter and the range of allowable entries.

Safety Messages

Correctly program the Informer per the user’s specific application before placing it into use. Perform programming after reading this manual. Test the Informer for proper operation after programming and before placing it into use.

Develop a warning plan and train all users on using the warning system when the Informer is used for personnel warning applications.

Unpacking the Software

The Federal Signal model I-SW consists of the following:

- CD ROM containing the I-SW application program
- Serial programming cable to connect the Informer to the programming PC

Operating Requirements

The CCU minimum requirements for the I-SW Informer Programming Software:

- CD ROM drive
- 5 MB Hard Disk Drive or larger
- One RS-232 Serial Port
- Mouse pointing device
- AC surge suppression device

The I-SW Informer Programming Software is compatible with:

- Desktop Operating Systems: Windows®

Optional Requirements:

- Printer

Ordering Information

Table 1 Ordering Information

Part Numbers	Description
I-SW	Programming software

Installing the Software

The I-SW Informer Programming Software is distributed on removable media.

To install I-SW Informer Programming Software onto your computer:

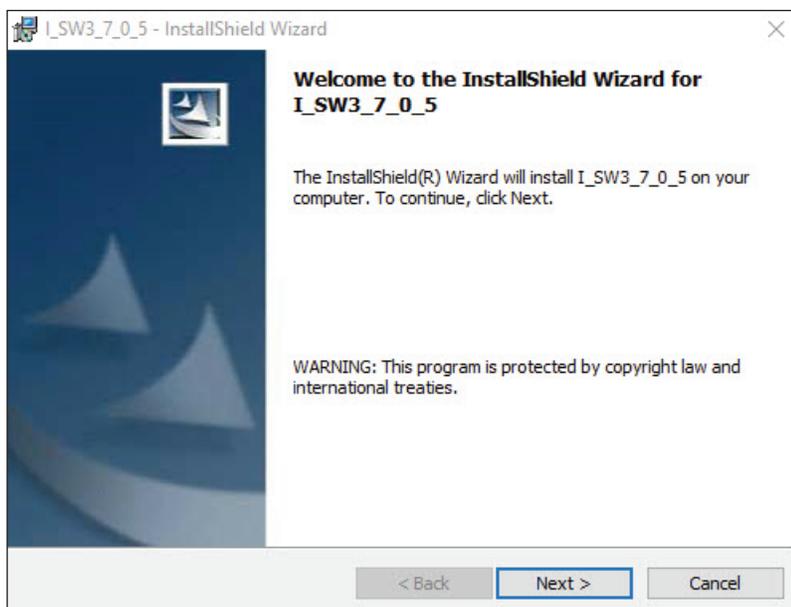
1. Insert the I-SW CD ROM into the target computer.
2. Copy the installation EXE file to the desktop for the target computer.
3. Double-click the EXE file to launch the automatic installation program.

NOTE: The installation program prompts you for information at various stages of the process. If you are not familiar with Windows® setup procedures, enter the default option for all prompts. On completion, the I-SW software is installed and appears on the Start Menu.

The following are the dialog boxes that appear when you go through the installation program.

4. Wait for the files to be extracted.

The following dialog box appears.



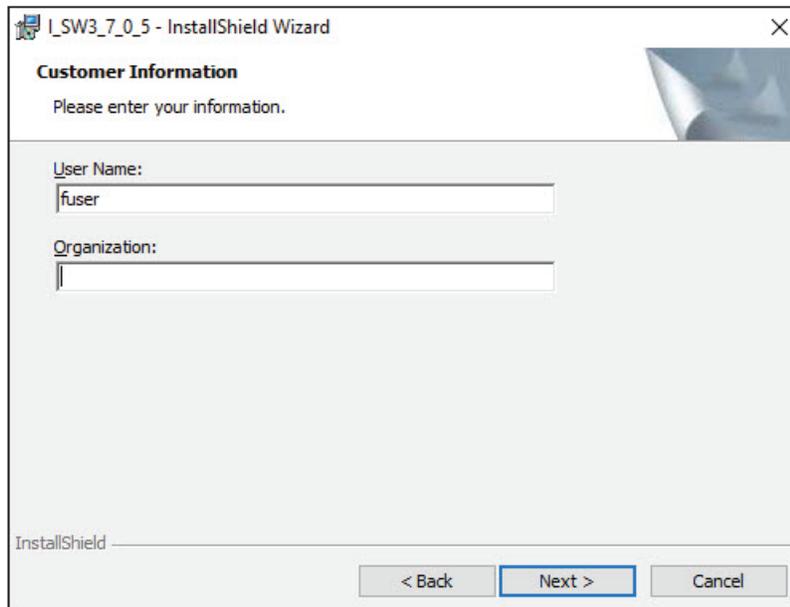
5. Click Next to continue.

The following dialog box appears.



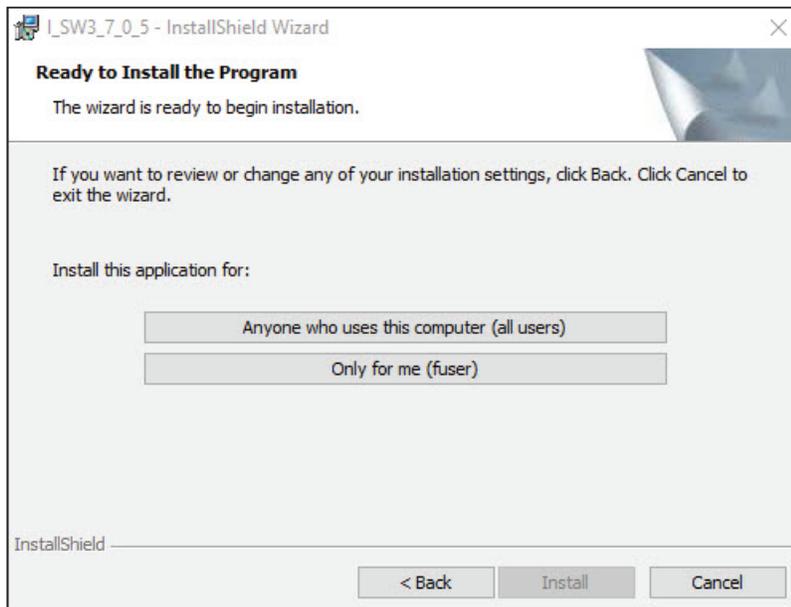
6. Select the I accept the terms of the license agreement option, and then click the Next button.

The following dialog box appears.



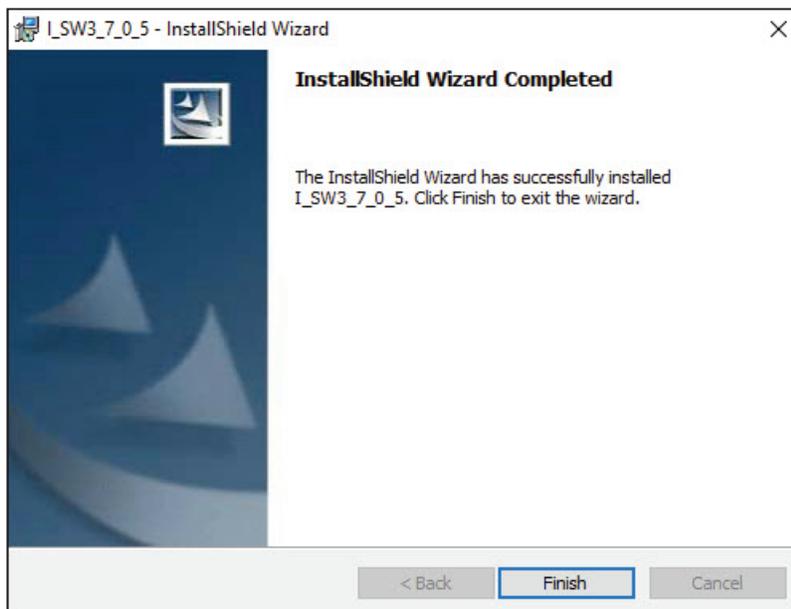
7. Type the User Name and Organization.
8. Click the Next button to install I-SW in the default folder.

The following dialog box appears.



9. Click the Anyone who uses this computer (all users) button, and then the Install button. Files begin to copy.

The following dialog box appears.



10. Click the Finish button.

Connecting the RS232 Cable

To connect the RS232 cable:

1. Connect the Informer to the serial port of the PC. Do this before programming the Informer so its programming data can be read by I-SW.
2. Plug the modular cable provided with I-SW into the Informer and plug the other end into the computer's serial port.
3. Select the appropriate port number using the Setup menu.

Describing the I-SW Informer Programming Software

To start the I-SW software, from the Start menu, select Federal Signal Corporation > I_SW.

The following dialog box appears.

The screenshot shows the 'I-SW Informer Programming Software Version 3.7.0.5* 10/06/14' window. The interface includes a menu bar (File, Setup, Help) and a toolbar with icons for file operations and a printer. The main area is divided into several sections:

- File Name:** A text input field.
- Unit Information:** Fields for 'Unit's Serial Number' and 'Unit's Software Version'.
- Channels:** A table for configuring four channels. Each channel has a 'Receive Frequency' field and a 'Digital or Tone Coded Squelch' dropdown menu. A 'Bandwidth' section at the bottom has radio buttons for 'Wideband' (selected) and 'Narrowband'.
- Tone Settings:** 'A' and 'B' Tone Length dropdowns, 'Disable Monitor' and 'Lock in Monitor' checkboxes, and 'Monitor Mode' with 'Squelch' and 'Carrier' checkboxes.
- Digital Zone#s:** A row of 16 checkboxes labeled 1 through 16, with a 'Digital Unit #' field to the right.
- Code Settings:** Fields for Code #1 through Code #6, each with a dropdown menu and associated tone/function settings.
- Relay Outputs:** A table with columns for 'Cancel', 'Test LED', 'Speaker', 'Audible Alarm', 'Relay Output #1', and 'Relay Output #2' for Codes #1 through #6.
- Encryption and Timing:** '128 Bit Encryption Key' and 'Digital Units Only' (each with a 4-digit display), 'Auto Reset Time' in seconds, 'Audible Alarm Length' in seconds, 'Speaker Timed Reset Time' in seconds, and 'Relay #1' and 'Relay #2' Timed Reset Times (On Time, Off Time, Total Time).

The following table describes the menu names for the I-SW Informer Programming Software.

Menu Name	Description
File > Open Customer File	Displays the Open dialog box. Select the name of a file to load and use to program other units
File > Save Customer File	Displays the Save As dialog box. Type in your file name to save.
File > Read from Unit	The software program reads the customer information from the Informer. <ol style="list-style-type: none"> 1. Plug the programming cable into the COM port connector on the back of the computer and into the programming connector on the back of the Informer. 2. Click the Red button, and the program will read the customer information from the Informer.
File > Program Unit	Programs the customer information into the Informer. <ol style="list-style-type: none"> 1. Select the Frequencies and Activation codes. 2. Click the Program Unit button. 3. Power on the Informer and plug in the programming cable. The programming cable plugs into the COM port connection at the back of the computer and into the programming connector on the back of the Informer. 4. Click the OK button to send the customer information to the Informer.
File > Print Label	Prints what is displayed in the I-SW Informer Programming Software dialog box.
File > Update Software	Updates the software. <ol style="list-style-type: none"> 1. File > Update Software opens a dialog box where you can select the Informer executable program (HEX file) for downloading into the unit. 2. Plug the programming cable into the COM port connection at the back of the computer and into the programming connector on the back of the Informer. 3. Click the OK button to update the software that runs the Informer.
File > Exit	Exits the dialog box.
Setup > Com Port	Select Com Port 1 through Com Port 10 to program the Informer. Displays Com Port 1 through 10. Select the appropriate Com Port the computer is using to connect to the Informer TAR.
Setup > Restore Default Colors	Restores the default colors on the dialog box.
Help	Opens help windows.

Describing the I-SW Informer Programming Software

The following table shows the available icons with their description.

Icon	Description
	Displays the Open dialog box. Select the name of a file to load and use to program other units. This option is also available from the File menu.
	Displays the Save As dialog box. Enter in your file name to save. This option is also available from the File menu.
	The software program reads the customer informer from the Informer TAR. This option is also available from the File menu.
	Writes the programming onto the Informer. This option is also available from the File menu.
	Prints what is displayed in the I-SW Informer Programming Software dialog box. This option is also available from the File menu.

The following table describes the fields on the I-SW Informer Programming Software dialog box.

Function	Description
File Name	Displays the current configuration file name loaded in the Informer.
Unit's Serial Number	Displays the unit's serial number. This field is read from the unit. The factory programs the serial number when the Informer is built. You cannot change the serial number.
Unit's Software Version	Displays the current version of the executable program loaded in the Informer.
Receive Frequency	Enter RF frequencies for four separate RF channels. Manually type in the RF frequency in MHZ.
Digital or Tone Coded Squelch	Each RF frequency can have either a digital or tone PL assignment. To select a PL, click the arrow on the right. Use InvDig for Normal DPL and Digital if DPL is inverted.
Bandwidth	Select if the unit is to receive wideband or narrowband signals.
Code #1 to #6	Set up to six different activation codes. For each code, select Cancel (Yes/No), Text LED (Yes/No), Speaker (None, Auto Reset, Timed Reset, or Manual Reset), Audible Alarm (None, Warble, Steady, Beep, Hi-Lo, Soft Warble, Soft Steady, Soft Beep, or Soft Hi-Lo), Relay Output #1 and #2 (None, Auto Reset, Timed Reset, or Manual Resent). Soft tones have a low-level audio output.
Disable Monitor	Check so the unit cannot enter monitor mode when the monitor button is pressed.
Monitor Mode Squelch	Check to enable the selection of PL or carrier based squelch.

Function	Description
Coding Scheme	<p>Select the type of coding scheme for each code. The possible selections are None, Single-Tone, Two-Tone, DTMF, Digital, and EAS.</p> <p>Single Tone: Possible length selections range from 0.5 to 8 seconds. To select, click the Single-Tone Length down arrow. Enter a tone frequency between 300 and 3000 Hz (2300 Hz for narrowband channels).</p> <p>Two Tone: Possible selections range from 0.5 to 8 seconds for the first tone and 0.25 to 8 seconds for the second tone. To select, click the Tone Length down arrow. Enter in tone frequencies between 300 and 3000 Hz (2300 Hz for narrowband channels) for each tone. If the frequencies of a tone pair are within 3% of each other, the boxes turn red to warn that the tones may be too close.</p> <p>DTMF: Enter any valid DTMF digit string from 1-12 digits. Precede the wildcard digits by the apostrophe character ('). The number key (#) is the default wildcard digit, which is accepted as a valid digit in addition to the digit preceded by the apostrophe character. For added security, use a minimum of three DTMF digits.</p> <p>Digital: Select any valid Commander function (1-50) from the drop-down list box. To activate the Informer, a matching Commander function must be decoded. To select, click any one or combination of 16 zones by clicking a check box. The zone selection applies to all digital Informer codes. Enter a unit number 0 to 255. Codes sent for this unit number activates the Informer. The Informer also decodes All-Call commands. (Federal Signal Digital decoding is an optionally purchased option.) Enter a Digital Unit Number to allow the Informer to be individually controlled. Blank or zero (0) = All-Call.</p> <p>EAS: For each EAS code, select a valid event code from the drop-down list box. Enter up to three EAS location codes. If the location code is programmed for one-ninth of the state, it responds when an activation for the entire state is sent as well. (EAS decoding is an optionally purchased option).</p>
128-Bit Encryption Key (I-FSK Option Only)	<p>Use the 128-Bit Encryption Key to decode encrypted transmissions from the Federal Commander Digital System. The key consists of 16 numbers that can range from 0-255. Each number must match the corresponding encryption key used at the Commander's base station encoder. An encryption key of all zeros disables encryption.</p> <p>Set each number to 0 if the Informer is programmed with V2.16 or earlier Hex code. Pre-encryption program files have an encryption code of 255 in all fields. I-SW (V2.20 and greater) software automatically converts encryption keys containing all 255s to 0 (encryption disabled) when the Informer is programmed. The Encryption Key is not used if Digital decoding is not used.</p>

Function	Description
Auto Reset Time	The number of seconds to wait before resetting after the carrier is dropped. Set from 0-127 seconds in 0.5-second steps, that is, 126.5 seconds.
Audible Alarm Length	The number of seconds the audible alarm will sound. Set from 0-254 seconds in 1-second steps.
Speaker Timed Reset Time	The number of seconds the Monitor function are active after an activation command is received. Set from 0-3600 seconds in 1-second steps. NOTE: The Audible Alarm Length time must expire before the speaker audio can be heard.
Relay #1 & Relay #2 Timed Reset	Sets the relay on duration, off duration, and total relay activation duration. Set the on and off times from 0-127 seconds in 0.5-second steps. Set the total time from 0-3600 seconds in 1-second steps. (Relay outputs are an optionally purchased option.)

RF Alignment and Test Instructions

NOTICE

PROPER ALIGNMENT REQUIRED: *The Informer has been aligned at the factory to cover the specified range of frequencies and should not require realignment if the unit is programmed to a frequency within this range. The ranges are 30-50 MHZ, 150-170 MHZ, and 450-470 MHZ.*

NOTICE

EQUIPMENT DAMAGE: *Always use appropriate ESD prevention to prevent damage to the Informer and test the Informer after programming.*

Required Equipment

A Communications Analyzer with the following features is required to align the radio:

- RF Signal Generator
- RF Frequency counter
- SINAD meter
- Modulation meter
- Voltmeter
- Oscilloscope (optional)

The appropriate encoders are required to encode: Tone, DTMF, CTCSS, EAS, or Digital codes as applicable.

Aligning and Testing the PDB

Preparation

To prepare the Informer for aligning and testing:

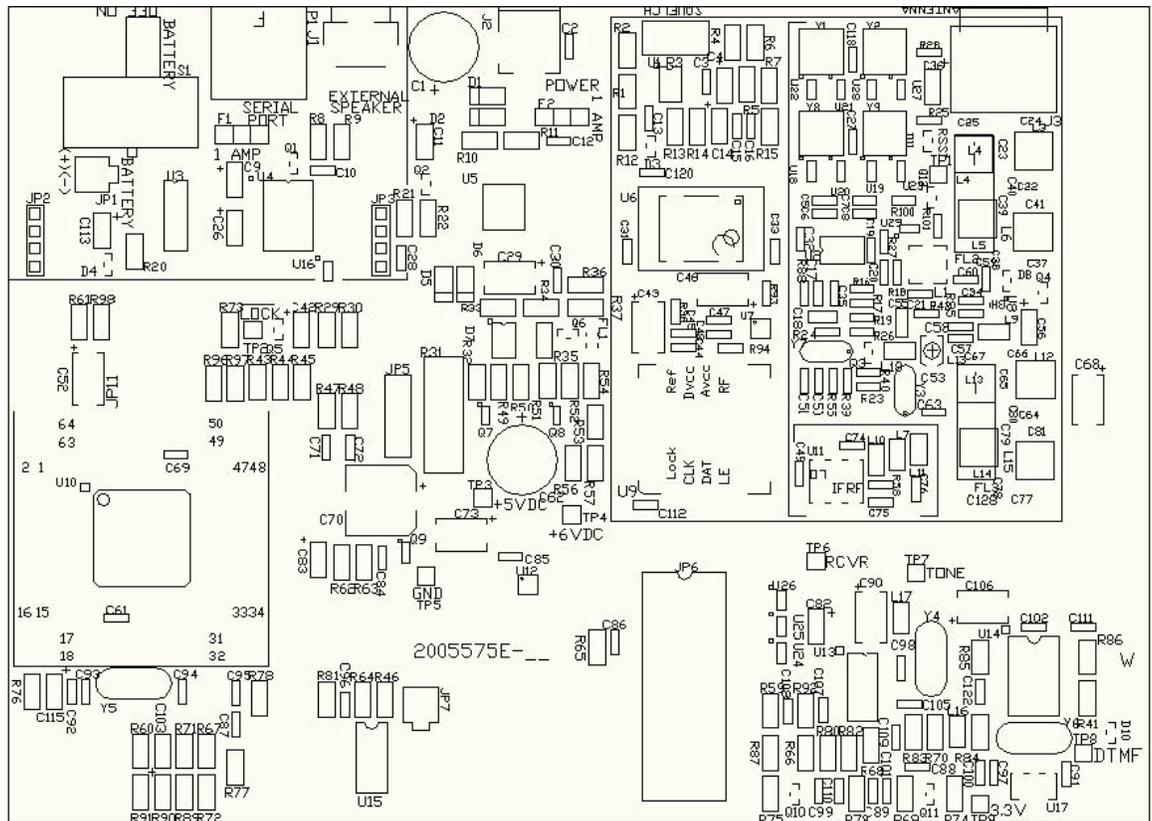
1. Verify that the RF frequency(s) and coding sequence(s) to be aligned and tested have been properly programmed into the Informer.
2. Remove the Informer PCB from the plastic housing.
3. Remove the battery connection from the PCB. Do not remove the keypad and speaker from the PCB.
4. Place on a non-conductive surface adjacent to the housing.

Connections

To connect the power supply to the Informer:

5. Connect the 9 Vdc power supply to the Informer.
6. Plug the power supply into the AC outlet.

Figure 1 Informer Test Point and Parts Location Drawing



Checking the VCO Frequency Range

7. Confirm the voltage on TP2 is less than 1 Volt indicating that the synthesizer is in lock.

Setting the Synthesizer on Frequency

8. Using a service monitor set in receive mode, monitor the frequency of the VCO by placing a pickup loop on top of the VCO/ Synthesizer, U9.

9. Set the VCO frequency to the receive frequency of - 21.4 MHz, unless the unit is a Low band VHF unit, then set the frequency to be 21.4 MHz + the receive frequency.
10. Adjust the frequency of the VCO using the trimmer cap in TCXO U6 until the frequency is within +/- 300 Hz.

Aligning the Receiver and Setting Squelch

For Low Band (30-50 MHz), High Band (150-170 MHz), and UHF (450-470 MHz), the units have been pre-tuned to cover these frequency ranges and require no further front end tuning. The discriminator, L1, and the I.F., C74, have been aligned by the factory, and should not need to be re-aligned when changing programming (steps 2 and 3).

To align the receiver and set squelch:

1. Inject a 100 μ V signal into the receiver and modulate the signal with a 1 kHz tone at 3 kHz (1.5 kHz for narrowband) deviation.
2. Monitor the receive audio at test point TP6 with an oscilloscope and carefully adjust coil L1 for the most level.
NOTE: The level at test point TP6 should be 900 mV_{p.p} +/- 200 mV.
3. Connect a distortion meter to TP6 and slowly adjust variable cap C74 for the lowest distortion. This value should be less than 3.0%.
4. Connect a SINAD meter to test-point TP6 and reduce the level of the RF signal from the service monitor until the SINAD meter reads 12 dB. This value should be less than 0.35 μ V for all bands.
5. Press the monitor button to monitor speaker audio. Adjust the squelch pot (R3) until squelch just breaks. Verify the 1 kHz tone is heard over the speaker when the unit is un-squelched and the speaker is muted when squelched.

Radio alignment is now complete.

Testing the Decoders

To test the decoders:

1. Set the RF level to 0.5 microvolts (μ V) for all decode tests.
2. Run the appropriate decode tests matching the programming of the Informer.

CTCSS

To test the CTCSS:

1. Perform this test with Monitor Mode Squelch selected when the Informer is programmed. Place the Informer in Monitor Mode.
2. Modulate the service monitor with the proper CTCSS tone at 750 Hz (375 Hz for narrowband) of deviation and inject a 1 kHz tone at 3 kHz (1.5 kHz for narrowband) deviation for a total deviation of 3.75 kHz (1.875 kHz for narrowband). Confirm that the 1 kHz is heard in the speaker when the CTCSS tone is present.
3. Remove the CTCSS tone and confirm that the speaker quiets.

Single Tone and Two-Tone Sequential

To test the Single Tone and Two-Tone Sequential:

1. Encode the appropriate Single or Two Tone sequential tones at 3 kHz (1.5 kHz for narrowband) deviation.
2. Confirm that the unit decodes each tone set and that the ALERT LED flashes unless the TEST LED is programmed to turn on.

NOTE: The TAR cannot decode two-tone codes while a tone is being generated by the TAR.

DTMF

To test the DTMF:

1. Set the encoder to send DTMF codes with a timing of 50 ms digit on time and 50 ms digit off time at 3 kHz (1.5 kHz for narrowband) of deviation.
2. Encode the appropriate DTMF strings as programmed into the Informer. Confirm that the unit decodes each set of DTMF codes, and that the ALERT LED flashes after each decode (unless the TEST LED is programmed to turn on).

EAS and Digital

To test the EAS and Digital:

1. Set the encoder to send EAS or Digital codes at 4 kHz (2 kHz for narrowband) of deviation.
2. Encode the appropriate EAS or Digital codes as programmed into the Informer.
3. Confirm that the unit decodes each set of codes and that the ALERT LED flashes after each decode (unless the TEST LED is programmed to turn on).

Checking the Power Supplies (Test if a supply problem is suspected)

To check the power supply:

1. Turn the Battery switch ON.
2. Confirm +6.75 to 6.90 Vdc at test point TP4.
3. Confirm +5 Vdc +/- 0.10 V at test point TP3.
4. Confirm that the Green AC POWER LED is on steady.
5. Unplug the wall transformer and confirm that the AC POWER LED starts to flash.
6. Reduce the voltage of the variable supply to 5.0 Vdc and confirm that the unit shuts off.

Testing the Display and Controls (Confirms proper re-assembly)

To test the display and controls:

1. Disconnect the service monitor from the unit.
2. Reassemble the Informer into the housing after alignment is complete.
3. Press the MONITOR button and confirm that the ALERT LED lights steady red. (Monitor must be enabled in software to perform this test.)

Getting Service

4. Press and hold the MONITOR button for longer than 5 seconds.
5. Confirm that squelch noise is heard in the speaker.
6. Press the Volume Up button and confirm that the volume of the noise goes up.
7. Press the Volume Down button and confirm that the volume of the noise goes down.
8. Press the RESET button and confirm the following actions occur:
 - Squelch noise is shut off.
 - Confirm that a beep is heard from the speaker.
 - Confirm that the TEST and the ALERT LED's (yellow and red) light momentarily.

End of Alignment and Test.

Getting Service

If you are experiencing any difficulties, contact Federal Signal Customer Care at 800-548-7229 or 708-534-3400 extension 5822 or Technical Support at 800-524-3021 or 708-534-3400 extension 7329 or through e-mail at techsupport@fedsig.com. For instruction manuals and information on related products, visit <http://www.fedsig.com/>.