FA715

Frequency Agile™ 900MHz

Survey Kit

User Manual

02032

ISO 9001 CERTIFIED COMPANY

MADE IN USA

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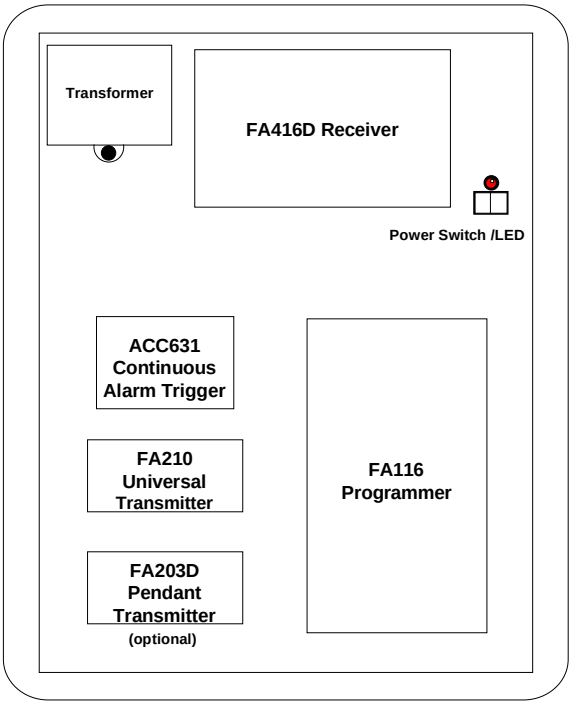
Overview

The FA715 wireless survey kit is a portable, easy-to-use system for both site surveys and customer demonstrations. With the FA715, convincing demonstrations can be quickly and easily given. Sites can be surveyed to determine optimal location of Invonics *Frequency Agile™* receivers, repeaters and transmitters.

Equipment

FA416D receiver, FA116 programmer, FA210 universal transmitter, ACC631 continuous alarm trigger and FA203D double-button pendant transmitter (optional). The unit is battery-powered for portability, or can be powered with the included 12VAC transformer.



Preparation

The FA715 survey kit has been pre-programmed at the factory so that minimal set-up is required before customer demonstrations or site surveys may be performed. No programming is necessary unless additional devices are to be added. For instructions on transmitter programming, see the manuals for the FA416 receiver and FA116 programmer included with the survey kit documentation. To reconfigure the ACC631 Continuous Alarm Trigger ("CAT"), see "Appendix B: ACC631 Continuous Alarm Trigger" (page 6).

The ACC631 "CAT" is included in the survey kit to permit efficient site surveys by one technician. To understand the purpose and utility of the CAT, it is necessary to understand a little about how signals are transmitted between transmitter and receiver. The FA210 transmitter sends an alarm message when the external contacts change state. Alarm transmissions consist of 24 separate signal "rounds" sent on shifting frequencies. The CAT creates a near-continuous stream of alarm transmissions by tripping the transmitter, waiting a short period and tripping it again. This permits the technician to read signal strengths at locations around the site.

The FA715 may be powered by battery (located behind the FA416 receiver panel) or by the AC Transformer. To use the transformer, remove the retaining screw and carefully unpack the power cord from the edges of the casing foam. Always re-secure the transformer with the screw when moving or shipping the survey kit. After extended demonstration or survey work using the battery, recharge the battery by plugging in the transformer with the power switch off. In normal use, the battery should be re-charged 1 hour per each hour of use. Full re-charge of a dead battery requires about 7 days.

Using the FA715 survey kit

1. Determine where the receiver will be located in the final installation. Place the FA210-ACC631 in this location. To activate the ACC631, press the button. If "LED ON" is selected, the **TRANSMIT LED** should illuminate after about 20 seconds, then will toggle on and off for the selected test interval. To change configuration of the device, see "Appendix B: ACC631 Continuous Alarm Trigger" (page 6).
2. Switch the FA715's power on using the switch located in the recess just below the carrying handle. The display on the programmer will read "INOVONICS FA416 FREQUENCY AGILE". Enter "**3446**" on the programmer. The display will indicate "Press ENTER for POINT STATUS". Press **ENTER**. Check signal strength with the receiver and transmitter at the same location.
3. Determine where the transmitters will be installed. Beginning at the transmitter location nearest to the intended receiver location, carry the survey kit to each of these locations and check the signal strength of received transmissions.
4. Select "Point Status" on the FA116 programmer and press **ENTER**. The display should indicate 'POINT 1'. As soon as the ACC631 begins to create alarm transmissions (usually within 30 seconds), the programmer will chirp repeatedly and the display will indicate the level of the received signal in the form 'GOOD SIGNAL' or 'WEAK SIGNAL'. Press **ENTER** again to cause the programmer to display the raw signal strength data. The data will be shown in the form 'SIG: -nnn MAR: +nn'. The negative number displayed for SIG is the approximate average signal strength in dBm, while the positive number displayed for MAR is the approximate average margin between the peak strength of the received signal versus the level of background noise. For signal strength, numbers closer to 0 indicate stronger signals, and for signal margin, larger numbers represent greater margins[*]. [Refer to detailed discussion of signal level and margin in the FA116 user manual.] The programmer will chirp each time a transmission is decoded by the receiver and displayed. For best results, wait until several readings have been obtained from the receiver. If the receiver does not receive a signal from the transmitter within 2 minutes of entering the signal level mode, move the receiver to a location nearer the transmitter to verify that the transmitter is, in fact, functioning. If the transmitter is functioning, the environment may be 'tough' for an RF installation. In the event this should occur, it is likely that the problem can be solved by installing an FA525 repeater on the site to provide enhanced range and reliability.
5. Once the signal level for a particular location has been determined, switch off power to the survey kit. Proceed to the next transmitter location and repeat step 5. By methodically moving from nearest to farthest transmitters, it will be possible to determine where FA525 repeaters may be needed. If signal strength is too low* at a given point, move back toward the receiver and pick a tentative location for a repeater, then move the ACC631-FA210 transmitter to this location and continue the survey. Remember that the repeater must be located and oriented so that it can maintain a good signal link with the receiver. Additional repeater locations can be determined in the same manner.
6. When all transmitter locations have been surveyed, return the transmitter to the survey case. **Make sure the power to the survey kit is switched off.** When the battery voltage starts to get low, the red LED near the power switch will become dim and eventually will fail. If the battery should become totally discharged, it will be necessary to leave the unit plugged in for at least a week with the power OFF to recharge the battery. Otherwise, 1 hour of charge time with the power OFF for each hour of use is recommended.

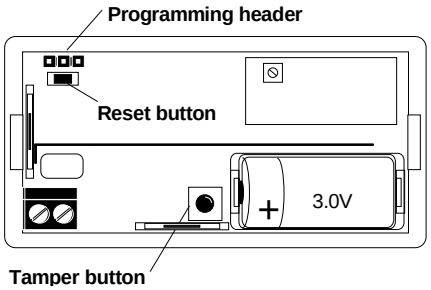
[*] Note: Signal strength readings may be erroneous if the transmitter is very close to the receiver.

Appendix A: FA210 Universal Transmitter

Programming the FA210

1. Switch on the FA715's power using the switch located in the recess just below the carrying handle. The display on the programmer will read "INOVONICS FA416 FREQUENCY AGILE". Enter "**3446**" on the programmer. The display will indicate "Press ENTER for POINT STATUS". Press either arrow key until the display shows ""Press ENTER to Program PT". Press **ENTER.**
2. Key in the transmitter point number and press **ENTER.**
3. Accept transmitter options by pressing **ENTER** to acknowledge the displayed value; or press arrow keys to change options. When prompted "ENTER TO PROGRAM "A" TO REVIEW", press **ENTER.** (If the point was just being reviewed--and if no values were altered--press **EXIT** once to return to program options, twice to leave program mode.)
4. When prompted "CONNECT TX+RESET", connect the programming cable from the programming device to the transmitter programming header.
5. Press the transmitter reset button.
6. Disconnect the programming cable.

NOTE: The FA210 transmitter retains programming data in non-volatile memory. It does not require reprogramming after loss of power. Install new battery and press reset button to re-initialize the transmitter and restore programming.



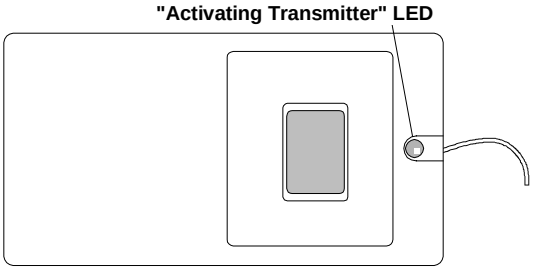
External contacts:	N/O or N/C
Minimum contact closure duration:	1.5 seconds
EOL:	as needed ("No" when using CAT)
Typical battery life:	4 years
Battery type:	Duracell DL123A 3.0V lithium
(Battery is always supervised)	

Appendix B: ACC631 Continuous Alarm Trigger

Overview

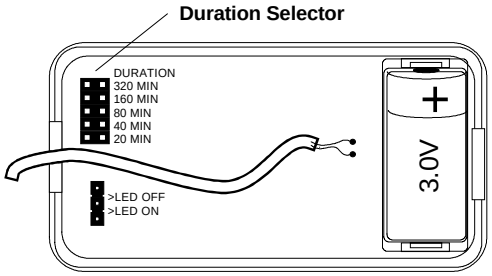
The ACC631 Continuous Alarm Trigger ("CAT") is used with the FA715 survey kit to aid in efficient and accurate site surveys and/or range tests.The CAT keeps a universal transmitter in nearly continuous transmission by toggling every 8 seconds between open and closed contacts. Cycling is repeated for user-selected intervals from 20 to 320 minutes. Default setting is 20 minutes.

The user surveys sites by activating the transmitter and CAT at the location chosen for receiver installation and taking the FA715 (or other portable receiver-programmer combination) to projected transmitter locations, where the received signal strength is read from the FA116 programmer.



Changing the Test Period Interval of the ACC631

1. Open the unit by depressing the latch above the LED with a small screwdriver. Slide the rear housing a short distance up the contact cable for convenient access.
2. Move the jumper on the 3-pin header to select "LED On" or "LED Off" during test cycling. (LED off conserves the battery.)
3. Move the jumper on the Duration header to select 20-, 40-, 80-, 160- or 320-minute test interval.
4. Close the housing. Minimize stress at contact cable solder pads by leaving some slack in the cable inside the housing.



Using the ACC631

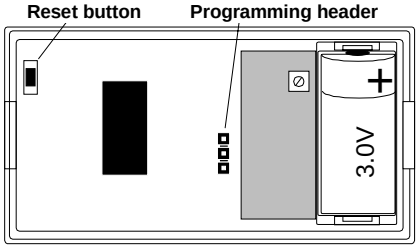
1. Connect the leads from the CAT to the terminal block on any Inovonics universal transmitter (FA200, FA200W, FA210 or FA210). Polarity does not matter.
2. Press the button on the CAT. The red "Activating Transmitter"LED will come on for approximately 10 seconds. (There may be an initial delay of up to 20 seconds.)
3. The CAT will continue to cycle at 8-second intervals between open and closed circuit . This keeps the transmitter in a state of nearly continuous transmission.
4. The cycle will continue for the interval determined by location of the Duration Selector.
5. To disable or reset the unit, remove the battery.

Appendix C: FA203D Pendant Transmitter

Programming the FA203D

1. Switch on the FA715's power using the switch located in the recess just below the carrying handle. The display on the programmer will read "INOVONICS FA416 FREQUENCY AGILE". Enter "**3446**" on the programmer. The display will indicate "Press ENTER for POINT STATUS". Press either arrow key until the display shows ""Press ENTER to Program PT". Press **ENTER.**
2. Key in the transmitter point number and press **ENTER.**
3. Accept transmitter options by pressing **ENTER** to acknowledge displayed value; or press arrow keys to change options. When prompted "ENTER TO PROGRAM "A" TO REVIEW", press **ENTER.** (If the point was just being reviewed--and if no values were altered--press **EXIT** once to return to program options, twice to leave program mode.)
4. When prompted "CONNECT TX+RESET", connect the programming cable from the programming device to the transmitter programming header.
5. Press the transmitter reset button.
6. Disconnect the programming cable.

NOTE: The FA203D retains programming data in non-volatile memory. It does not require re-programming after loss of power. Install new battery and press reset button to re-initialize the transmitter and restore programming.



Switch type:	N/O
Internal Contact:	No
Typical battery life:	2 yrs @ 60-sec check-in
Battery type:	Sanyo 3.0V LiMn CR14250

(Battery is always supervised)

Appendix D: Warranty & Disclaimer

Inovonics Corporation ("Inovonics") warrants its products ("Product" or "Products") to conform to its own specifications and to be free of defects in materials and workmanship under normal use for a period of twenty-four (24) months from the date of manufacture. Within the warranty period Inovonics Corporation will repair or replace, at its option, all or any part of the warrantied product. Inovonics will not be responsible for dismantling and/or reinstallation charges. To exercise the warranty, the User ("User", "Installer" or "Consumer") must be given a Return Material Authorization ("RMA") Number by Inovonics. Details of shipment will be arranged at that time.

This warranty does not apply in cases of improper installation, misuse, failure to follow installation and operating instructions, alteration, abuse, accident or tampering, and repair by anyone other than Inovonics.

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express, or implied, including any warranty of merchantability or fitness for a particular purpose. Inovonics will not be liable to anyone for any consequential or incidental damages for breach of this warranty or any other warranties.

This warranty will not be modified, varied or extended. Inovonics does not authorize any person to act on its behalf to modify, vary or extend this warranty. This warranty will apply to Inovonics Products only. All other products, accessories or attachments used in conjunction with Inovonics equipment, including batteries, will be covered solely by their own warranty, if any. Inovonics will not be liable for any direct, incidental or consequential damage or loss whatsoever, caused by the malfunction of Product due to products, accessories, or attachments of other manufacturers, including batteries, used in conjunction with Inovonics Products.

This warranty does not warrant the replacement of batteries that are used to power Inovonics Products.

The User recognizes that a properly installed and maintained security system may only reduce the risk of events such as burglary, robbery, personal injury and fire. It does not insure or guarantee that there will be no death, personal damage and/or damage to property as a result. **Inovonics does not claim that the Product may not be compromised and/or circumvented, or that the Product will prevent any death, personal and/or bodily injury and/or damage to property resulting from burglary, robbery, fire or otherwise, or that the Product will in all cases provide adequate warning or protection.**

Inovonics Corporation shall have no liability for any death, injury or damage, however incurred, based on a claim that Inovonics Products failed to function. However, if Inovonics is held liable, directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, Inovonics' maximum liability will not in any case exceed the purchase price of the Product, which will be fixed as liquidated damages and not as a penalty, and will be the complete and exclusive remedy against Inovonics.

Warning: The User should follow all installation, operation and maintenance instructions. The User is strongly advised to conduct Product and systems tests at least once each week. Changes in environmental conditions, electric or electronic disruptions and tampering, may cause the Product to not perform as expected.

Warning: Inovonics warrants its Product to the User. The User is responsible for exercising all due prudence and taking necessary precautions for the safety and protection of lives and property wherever Inovonics Products are installed. Inovonics strongly advises the User to program Products to be supervised whenever used in applications affecting life safety. Users are warned that unsupervised devices are subject to undetected failure due to malfunction, battery failure, tampering, or changes in environment.

Additional products from *Inovonics*

Vision Plus™ Security system

FA2525	C2020 Vision Plus control panel, C103 executive keypad, FA400 receiver

Frequency Agile™ Slave Receivers

FA401	Single-channel, single output
FA401R	Single-channel, single relay output
FA416	16-points / 4-output
FA416D	16-points / 4-output with display
FA464DR	64-points / 16-relay outputs

Enhancing Components

FA116	Executive Programmer for FA416 / FA464 / C404
FA516	display module for FA416
FA525	Intelligent repeater
FA540	relay module (5 Form C relays - for FA416)
FA541	individual Form C relay with terminals
ACC630	transfer programmer

Frequency Agile™ Transmitters

FA200(W)	universal transmitter (optional)
FA202	smoke detector / transmitter
FA203(S/D)	pendant transmitter (Single or Double Button)
FA204	pendant transmitter
FA205(S/D)	beltclip transmitter (Single or Double Button)
FA206	Sharpshooter PIR / transmitter
FA207	glassbreak detector / transmitter
FA209	billtrap transmitter
FA210(W)	reduced-size universal transmitter (optional)
FA250	high-power universal transmitter

Inovonics Wireless Corporation
315 CTC Blvd
Louisville CO 80027
(800)782-2709
FAX: (303)939-8977
E-MAIL: support@inovonics.com

www.inovonics.com