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**XPLORER**

**USER MANUAL**

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## LEGAL NOTICE

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All features, specifications, and the information included in this manual are subject to change without notice or obligation. Optoelectronics, Inc. reserves the right to change or modify the Xplorer without notice or obligation to notify any person or organization of such changes.

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The Optoelectronics logo is a registered trademark of Optoelectronics, Inc.

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160 West Camino Real #233

Boca Raton, FL 33432

**The Xplorer is covered under**

**U.S. Patent No.**

**5,471,402**

## FCC NOTICE

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The Xplorer contains Nickel Cadmium rechargeable batteries that must be recycled or disposed of properly. Use of the improper power adapter may cause damage to the Xplorer battery pack or charging circuitry.

\*In compliance with US FCC Regulations, an Xplorer shipped in the U.S. is disabled in the following frequency bands: 824.010 - 848.970MHz and 869.010 - 893.970MHz.

\*Except for FCC approved users.

### FCC NOTICE

**This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to the radio of television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:**

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

**Note: Optoelectronics is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the users authority to operate the equipment.**

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# CAUTION



**WARNING - Maximum input voltage is 12VDC.** Automotive voltages may exceed 12V causing damage to internal circuitry. Damage resulting from excessive input voltage is readily apparent and will not be covered under warranty. Units returned for warranty service that have damage resulting from excessive supply voltages will incur service charges.

**WARNING - Maximum antenna input signal is +15dBm (50mW).** Under no circumstances should the Xplorer be directly connected to an RF transmitter or be used in close proximity to a radio transmitter of more than 5 watts. Damage to the input amplifier circuitry is readily apparent and will not be covered under warranty. Units returned for warranty service that have damage to the input circuitry will incur service charges.

**This manual covers connection and operating instructions for the Optoelectronics Xplorer™. The Optoelectronics Xplorer™ is covered under U.S. Patent Number 5,471,402.**

# INTRODUCTION

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The Xplorer is a completely unique nearfield test receiver. It is not a single frequency radio receiver in the conventional sense, or a high speed scanner. It is actually a frequency sweeper using multiple swept harmonic LO frequencies that enable the Xplorer to lock on to virtually any two-way FM signal in less than one second. Its unique frequency conversion system allows it to search for and acquire new frequencies much more quickly than a conventional receiver.

Nearfield refers to the relative strength of a transmitter as compared with the background RF floor. The nearfield refers to an approximate distance where the signal strength radiating from an antenna is relatively strong. As you approach an antenna, the observed signal strength increases to a point where its amplitude becomes greater than any other signal sources. At this point you are in the nearfield of the transmitter. The Xplorer will pick up signals in the nearfield of a transmitter.

Because of its high rate of sweeping, the Xplorer is essentially a self tuning receiver. The primary reason for a nearfield receiver is to trade distance for speed. A conventional scanning receiver will receive signals from greater distances than the Xplorer but suffers from being able to scan only 25 to 100 frequencies per second. It could take several minutes to several hours to tune an unknown frequency using a scanner. (An FCC data base search shows over 5,000 licensed transmitters within 5 miles of the Optoelectronics facility.)

The self tuning feature along with its measurement and decoding capabilities makes the Xplorer valuable for testing two-way radios. The Xplorer is also able to locate strong RF signals located nearby in order to evaluate interference. The Xplorer is useful for checking commercial FM wireless microphones and other low power transmitters, as well as commercial two way radios.

### **WARRANTY**

Products under warranty must be returned, transportation prepaid, to Optoelectronics' Boca Raton Service Center. All parts replaced and labor performed under warranty are at no charge to the customer.

### **NON-WARRANTY**

Products not under warranty must be returned, transportation prepaid, to Optoelectronics' Boca Raton Service Center. Factory service will be performed on a time and materials basis at the service rate in effect at the time of repair. A repair estimate prior to commencement of service may be requested. Return shipping will be added to the service invoice and is to be paid by the customer.

### **RETURN POLICY FOR REPAIRS**

The Optoelectronics Service Department will provide rapid turnaround of your repair. Enclose complete information as follows:

1. Copy of sales receipt if under warranty.
2. Detailed description of problem(s).
3. Complete return address and phone number (UPS street address for USA).
4. Proper packaging (insurance recommended). Note: Carriers will not pay for damage if items are improperly packaged.
5. Proper remittance including return shipping, if applicable (Visa/MasterCard number with expiration date, Money Order, etc.).

Address all items to:

**Optoelectronics, Inc.**  
**Service Department**  
**160 West Camino Real #233**  
**Boca Raton, FL 33432**

Note: Optoelectronics is not responsible for packages lost or damaged during shipment.

If in question, contact the factory for assistance. Service Department: (954) 642-8997



## TROUBLESHOOTING

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Following are a list of questions and/or suggestions when encountering certain problems. If your question is not covered on this page please contact the Optoelectronics Service Department at 954-642-8997, Monday - Friday, 9:00AM - 5:00PM Eastern time.

Q: My Xplorer does not seem to be locking onto any signals, what am I doing wrong?

A: If using the external squelch mode check to make sure squelch is not turned too far to the left or right.. If using internal squelch switch to external squelch Also, try different antennas.

Q: I have tried all of the above and it still does not seem to lock onto any signals, even if I key a transmitter next to it. Why?

A: The Xplorer could have a damaged front end amplifier. Excessive RF input can damage the amplifiers.

Q: Every now and then it seems to lock onto the harmonic of the fundamental frequency. Why?

A: When the Xplorer is sweeping it is sensing the harmonic as being 15dB above the background RF, therefore it will lock onto the harmonic. This generally happens when testing a radio a few feet away from the Xplorer. Either turn the squelch up or move away from the transmitter a few more feet.

Q: Why does the Xplorer lock onto a frequency after I have locked it out individually and blocked it out in blocks mode?

A: Go to CONFIG mode and make sure that both lockouts and blocks are turned on.

Q: Why won't my Xplorer automatically store the frequency information when it locks onto a signal?

A: Go to CONFIG mode and make sure that Auto Store is turned on.

Q: How do I get my Xplorer to stay locked on a frequency without it sweeping for another signal?

A: Go to CONFIG mode and turn Auto Hold on.

Q: Is there a way to reset my Xplorer?

A: Yes. Turn the Xplorer off. When you go to turn it on again press the FNCTN / SHIFT and MODE/POWER button all at the same time. This will reset all parameters back to factory defaults. All data in memory, lockouts etc.. will be lost.

## SPECIFICATIONS

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<b>Frequency Range:</b>	30MHz - 2GHz (Cellular Frequencies Blocked except for FCC Approved Users)
<b>Modulation:</b>	FM, Deviation < 100KHz
<b>Frequency Response:</b>	50-3000Hz
<b>Auto Sweep Time:</b>	<1 Second (with Lockouts and Blocks turned off)
<b>Input Impedance:</b>	50 Ohm
<b>Connector:</b>	Female BNC
<b>Sensitivity:</b>	350uV @ 450MHz (typical)
<b>Display:</b>	Two line, 16 character LCD with EL Backlight
<b>Inputs/Outputs:</b>	3.5mm stereo headphone jack, 2.5mm CI5 jack, 3.5mm RS232 jack
<b>Power:</b>	Battery: Internal Rechargeable 6V 700mAH NiCad, 5 cell 1.2V per cell
<b>Battery Charging Time:</b>	8-10 hours
<b>Adapter/Charger:</b>	12VDC, 500mA current, center positive connector
<b>Signal Decoding:</b>	52 CTCSS tones, 106 DCS codes, 16 DTMF digits
<b>LTR Decoding:</b>	Area: 1 digit, Go To: 2 digits, Home: 2 digits, ID: 3 digits, Free: 2 digits
<b>CTCSS Acquisition Time:</b>	600 milliseconds (0.6 seconds)
<b>DCS Acquisition Time:</b>	350 milliseconds (0.35 seconds)
<b>DTMF Digit Rate:</b>	10 digits per second
<b>Frequency Display:</b>	10 digit with 1Hz resolution
<b>Signal Strength:</b>	50 segment bargraph, relative reading, uncalibrated.
<b>Real Time Clock:</b>	Internal Calibration Adjustment

# FRONT PANEL

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## SHIFT •

Use in conjunction with UP/DOWN arrow buttons in VFO and Frequency BLOCKS mode to set frequency.

## FNCTN •

Use in conjunction with UP/DOWN arrow buttons to change decode modes in sweep mode and also to change other parameters.

## SKIP/LOCK OUT •

Press to resume sweep when locked onto a signal. Also use with SHIFT button to lockout current frequency displayed.

## HOLD/STORE •

Press in Sweep Mode to Hold next frequency found. H replaces sweep indicator. H replaces sweep indicator. Press SHIFT and HOLD to store current or next frequency along with any decode information in memory.

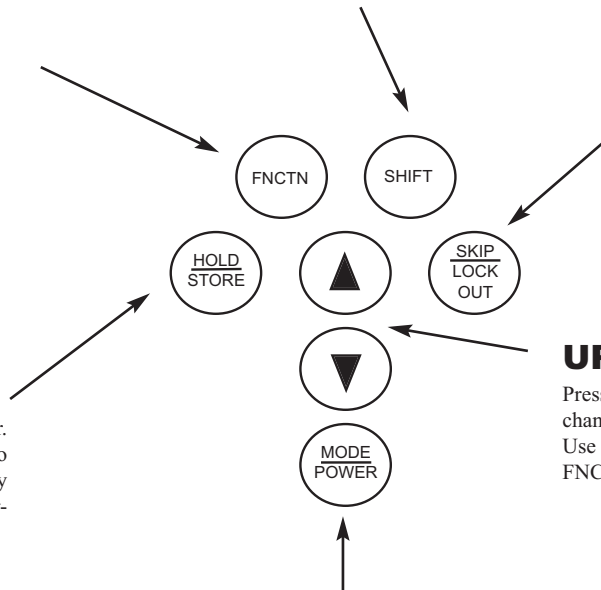
## UP/DOWN ARROW •

Press the UP/DOWN arrow buttons to change parameters in the different menus. Use in conjunction with SHIFT and/or FNCTN buttons to change parameters.

## MODE/POWER •

Press to turn on the Xplorer. Press and hold four seconds to turn off. Press repeatedly to scroll through different modes.

*This diagram is only meant to give the user the basic functions of the various buttons. This is not a complete list of functions for each button. Please consult the rest of the manual for each function.*



As is the case with just about any type of communications receiver, accessories play a big role in how well the instrument performs. Optoelectronics has a variety of accessories to choose from to enhance the performance of the Xplorer. As mentioned earlier in this manual, it is very important to try different antennas in varying RF environments to see what works best. Below is a list of accessories offered by Optoelectronics. There are many other after market antennas, filters, pre-amps etc.. that may also provide benefit to the Xplorer.

### ANTENNAS

RD27 rubber duck antenna	26-150MHz
RD150 rubber duck antenna	145-165MHz
RD440 rubber duck antenna	440-480MHz
RD800 rubber duck antenna	500-1000MHz
DB32 stubby antenna	100-2000MHz
BB85 rubber duck antenna	100-2000MHz
TA100S telescoping antennna	100-600MHz
Cell Lock antenna	824MHz-2GHz

The BB85 and DB32 antennas are very good all band antennas. They allow the Xplorer to lock onto many different signals. The BB85 is an excellent antenna for VHF frequencies. The DB32 is very convenient for its size. It has proven to work very well in the UHF ranges.

### FILTERS

N100 FM notch filter	88-108MHz
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The N100 provides approximately 30 dB of attenuation in the FM broadcast band. It does a very good job of blocking out the RF from your local FM stations. Reducing the background RF from FM transmitters by 30dB allows the Xplorer to lock onto signals from a much greater distance. Even if the Xplorer is not locking onto FM stations, the RF from those transmitters is still present and can prevent the Xplorer from locking onto signals in the nearfield. Since the Xplorer locks onto signals that are 15dB above the background RF floor, reducing the RF from FM stations by 30dB will have a significant effect on the way the Xplorer locks onto frequencies.

## CAPABILITIES

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The pick up distance data provided is intended to be an indication as to what the user can expect in a real world situation. As with any nearfield device the performance over distance is heavily influenced by the RF environment.

The testing below was at the Optoelectronics factory in Boca Raton. A radius search in the FCC database shows approximately 5000 licensed transmitters within a 5 mile radius. In particular there is a UHF paging system in a Hospital 1/4 mile away and an FM radio transmitter two miles away. The RF floor is at approximately -50 dB. This should be a typical RF environment for testing the Xplorer. Remember though, results can differ widely depending on the particular environment.

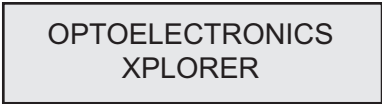
10 Watt UHF	Approximately 1000 feet
5 Watt UHF	Approximately 500-800 feet
1 Watt UHF	Approximately 250-350 feet
500mW UHF	Approximately 100-250 feet
50mW VHF	Approximately 50-150 feet

Some Transmitters the Xplorer Will Not Pick Up:

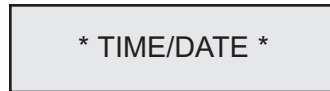
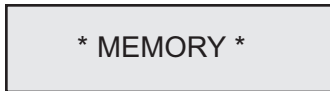
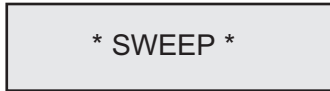
The Xplorer does not demodulate AM so this will exclude CB and Aircraft transmissions. Digital modulation from digital cordless phones and digital cellular phones is also excluded. Discontinuous sources using on-off keying such as, garage door openers, radio control signals, and keyless entry transmitters will not work with the Xplorer.

**POWER UP**

1. Press the red MODE/POWER button once firmly to turn the Xplorer on. The initialization screen will be displayed for two seconds. Press and hold the MODE/POWER button down for four seconds to turn the unit off.



2. One of the seven operating modes will be displayed for two seconds. The mode that will be displayed will be the one previously selected.
3. There are seven operating modes in the Xplorer. Press the MODE/POWER button to scroll through the modes.



## IMPORTANT INFORMATION

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# IMPORTANT INFORMATION / PLEASE READ

Sweep mode is where all the action takes place with the Xplorer. It is important to understand how the various settings will affect the way the Xplorer operates. There are three functions of the Xplorer that will greatly influence how effective the Xplorer is for you. Those are Squelch, Blocks, and Lockouts.

### **SQUELCH**

This is the most critical of all settings. The factory default is set for internal squelch. This is a setting determined at the factory to be the best for the Xplorer in most normal RF environments. You have no physical control over the squelch from the knob when it is set for internal squelch. If you elect to change to external squelch and control via the knob please note that the squelch does not operate like the squelch of a conventional receiver. You cannot adjust for noise level. You will need to adjust to determine where the optimal setting is for your particular RF environment by noting when it starts to lock onto signals as you make adjustments. Setting the squelch too high or too low can adversely affect the way the Xplorer locks onto signals. In many cases, this will prevent the Xplorer from locking onto any signals in the nearfield.

Because the Xplorer locks onto a signal that is 15dB above the background RF floor, there are occasions when it may lock onto the harmonic of the actual fundamental frequency. The reason it does so is while the Xplorer was sweeping it detected that signal as being 15dB above the background RF floor. You may notice this happens when testing a radio within a few feet of the Xplorer. In this case, it is recommended that the squelch be adjusted higher so as to eliminate the harmonics.

### **BLOCKS**

It is very important that you use this mode to its full potential. This mode allows you to lock out entire bands of frequencies, such as the FM radio stations. Program in the frequency range of 88-108MHz and EXCLUDE from your sweep. This does not eliminate the background RF from the frequencies you wish to block out. It only tells the Xplorer not to lock onto any of those frequencies. The RF from these transmitters may still be present and can still affect how the Xplorer operates. What you have done is eliminated the need to lock out each individual frequency as it is captured by the Xplorer.

To connect the Xplorer to your computer for data downloading use the optional CBDS serial cable and Opto Suite Pro software.

The Opto Suite Pro software is useful for programming all of your settings and managing stored data. The software is compatible for use under Microsoft Windows 95/98/ME/NT4/2000/XP/Vista.

The following information can be downloaded to the computer:

- Frequency
- Hits
- Time
- Date
- Signal Strength
- CTCSS
- DCS
- LTR
- DTMF



## REACTION TUNE & PCR1000 VOLUME/SQUELCH

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1. Press the MODE/POWER button until \*CONFIG\* is displayed.
2. Press the UP/DOWN arrow buttons until INTERFACE is displayed. Press and hold the FNCTN button and press the UP/DOWN arrow buttons to change the interface type to REACTION TUNE.
3. Press the UP/DOWN arrow buttons until RECEIVER is displayed. Press and hold the FNCTN button and press the UP/DOWN arrow buttons to select either CI-5, AR8000 or PCR1000.
4. Select CI-5 for tuning all ICOM (excluding PCR1000), Radio Shack, Optoelectronics and Uniden receivers.
5. Select AR8000 for tuning the AR8000 or AR8200.
6. Select PCR1000 for tuning the ICOM PCR1000.

When Reaction tuning the ICOM PCR1000 the RS232 jack on top of the Xplorer will be used. The CI5 jack will be used to interface to all other receivers.

***IMPORTANT: The Xplorer sends an initialization command to the receiver when powered on. Once the proper modes have been selected and the two units are connected by the appropriate cable, the receiver that you wish to Reaction Tune must be turned on first, then the Xplorer.***

### PCR1000 VOLUME/SQUELCH

As mentioned, the Xplorer can not only Reaction tune the ICOM PCR1000, it will control the volume and squelch of the receiver once it has been tuned.

1. To adjust the volume and squelch of the PCR1000 press the MODE/POWER button until \*CONFIG\* is displayed. Press the UP/DOWN arrow buttons until PCR1000 SQUELCH is displayed.
2. Press and hold the FNCTN button and press the UP/DOWN arrow buttons to adjust the squelch.
3. Press the UP/DOWN arrow buttons until PCR1000 VOLUME is displayed. Press and hold the FNCTN button and press the UP/ARROW buttons to adjust the volume.

# IMPORTANT INFORMATION / PLEASE READ

Alternatively, the Blocks mode allows you to lock in an entire range of frequencies. For instance, let's assume that you wanted to narrow your sweep area down to 400-480MHz. The most effective way to do so is program that range of frequencies in one of the ten blocks and INCLUDE as part of your sweep. The Xplorer still sweeps its entire frequency range of 30MHz - 2GHZ, however it will only lock onto a signal in that range if it is present, therefore ignoring all other signals detected. Please consult the BLOCKS section of the manual for more detailed information.

### **LOCKOUTS**

This mode allows you to lockout individual frequencies as you desire. When initially using the Xplorer, it may be necessary to spend a few minutes locking out unwanted frequencies. Many of these frequencies can be eliminated in the aforementioned BLOCKS mode. Those frequencies that are not programmed into the blocks mode may then be immediately locked out as the Xplorer captures the signal. As you move in to different areas it may be necessary to lock out more unwanted signals that have been introduced. Taking the time to do this in the beginning will greatly enhance the performance of the Xplorer.

### **OTHER ENHANCEMENTS TO CONSIDER**

Antennas and front end filters play a big part in the performance of the Xplorer. Not all antennas are alike and it is recommended you use different antennas to achieve different results. Using dual and tri band antennas such as our DB32 and BB85 are great for picking up many different types of signals. However, it is important to note that while they may work well for an entire range, they are typically better in some frequency ranges than others. If you are sweeping for signals in a narrow bandwidth then it may be more advantageous to use an antenna that is cut for a specific range, ie: 144-165MHz.

The N100 FM notch filter provides up to 30dB of attenuation in the FM broadcast band. As mentioned before, the Xplorer locks onto a signal that is 15dB above the background RF floor. Eliminating up to 30dB of RF from FM stations can play a big part in the success of the Xplorer. This will allow you to lock onto signals from a greater distance, or lock onto low power transmitters that could not originally be detected due to the background RF.

## MODES

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\* SWEEP \*

1. Press the red MODE/POWER button until \*SWEEP\* is displayed. The sweep indicator bar in the top right hand corner of the display will move back and forth when in sweep mode. When the Xplorer locks onto a signal the sweep indicator will stop and the frequency of the signal that was captured will be displayed on the top line of the LCD.
2. The bottom line of the LCD displays either Signal Strength, CTCSS decode, DCS decode, or DTMF decode. To switch between the different decode modes press and hold the FNCTN button and press either the UP / DOWN arrow buttons. *The Xplorer also decodes LTR. To activate LTR decoding consult the CONFIG section of this manual.*

### VOLUME ADJUSTMENT

1. Adjust the volume knob in a clockwise direction to increase and in a counterclockwise direction to decrease the volume levels.

### SQUELCH ADJUSTMENT

*(Please note that there is a manual and automatic squelch adjustment.)*

1. Press the MODE/POWER button so that the CONFIG menu is displayed. Press the UP/DOWN arrow button so that Squelch Control is displayed.
2. Press the FNCTN and either the UP/DOWN arrow buttons at the same time to switch between External and Internal. Select External for manual squelch adjustment and select Internal for automatic *(set at factory)* squelch adjustment.

### HOLD / SKIP

1. Press the HOLD/STORE button to hold the the frequency currently being received. An “H” will replace the sweep indicator in the top right hand corner of the display. To resume sweeping press the SKIP/LOCKOUT button.

### SWEEP DISPLAY

The Xplorer has a unique ability to display the frequency in two ways. MEASURED FREQUENCY or CHANNEL FREQUENCY. The MEASURED frequency is the actual frequency detected by the Xplorer. Example: 154.2548 The CHANNEL frequency is the actual channel the frequency is on. Example: 154.2550 To switch between the two press the MODE/POWER button until \*CONFIG\* is displayed. Press the UP/DOWN arrow buttons until SWEEP DISPLAY is displayed. Select either MEASURED or CHANNEL by pressing and holding the FNCTN button and pressing either the UP/DOWN arrow buttons.

## REACTION TUNE

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The Xplorer has the ability to Reaction Tune many different receivers to the frequency it has captured. While the Xplorer does demodulate the audio itself, there are times when it would be beneficial to have a conventional receiver interfaced to the Xplorer. For instance, if you locked onto a signal with the Xplorer and were in a mobile situation, it is possible that the transmitter will move out of range very quickly. In this case the receive sensitivity of a conventional receiver allows you to stay locked onto the signal longer, therefore allowing you to monitor the audio for a longer period of time.

The Xplorer has three different Reaction Tuning settings depending upon the receiver that is being interfaced.

- 1. CI5:** Following are the current CI-5 compatible receivers that the Xplorer is capable of Reaction Tuning.  
ICOM R10, R7000, R7100, R8500 and R9000.  
Radio Shack PRO 2005/2006 (with OS456/Lite installed), Radio Shack PRO 2035/2042 (with OS535 installed).  
Optoelectronics R11 and OptoCom.  
The ICOM R10 and R7100 require special default settings for Reaction Tuning with the Xplorer.  
ICOM R10: Baud Rate = 9600, TRN = ON, CI-V ADDRESS = 52  
ICOM R7100: Baud Rate = 9600, Transceive Mode = ON
- 2. AOR:** The Xplorer will Reaction Tune the AOR AR8000 and AR8200.
- 3. PCR1000** The Xplorer will Reaction Tune the ICOM PCR1000. In addition, it has the ability to control the volume and squelch of the PCR1000 after it has been tuned.

### Cables Required For Reaction Tune

ICOM R10, R7000, R7100, R8500, R9000  
Optoelectronics R11  
AOR AR8000  
AOR AR8200  
ICOM PCR1000  
ICOM R20

CBCI5  
CBRT  
RT8000  
RT8200  
CBPCR  
Custom cable

## MODES

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\* TIME/DATE \*

The Xplorer has a real time clock with a lithium battery back up.

- 1.** To view the current time and date press the MODE/POWER button until \*TIME/DATE\* is displayed.
- 2.** To change the time and date press the MODE/POWER button until \*CONFIG\* is displayed.
- 3.** Press the UP/DOWN arrow buttons until YEAR is displayed. To change the value press and hold the FNCTN button and press either the UP/DOWN arrow buttons.
- 4.** Repeat step three to change the value for MONTH, DAY, HOURS, MINUTES or SECONDS.

\* VFO \*

1. Press the MODE/POWER button until \*VFO\* is displayed. This mode allows you to tune the Xplorer to one specific frequency.
2. Press and hold the SHIFT button and press either the UP/DOWN arrow buttons to change the MHz portion of the frequency.
3. Press either the UP/DOWN arrow button to change the kHz portion of the frequency.

***The MHz portion of the frequency may be adjusted in 1, 5, or 10MHz steps. The kHz portion of the frequency may be adjusted in 5, 10, 12.5, 25, 30, 50 and 100kHz steps.***

1. To adjust the MHz step size press the MODE/POWER button until \*CONFIG\* is displayed.
2. Once in the configuration menu press either the UP/DOWN arrow button until VFO COARSE is displayed.
3. Press and hold the FNCTN button and press either the UP/DOWN arrow button to change the step size from 1, 5, or 10MHz.
4. To adjust the kHz step size press the UP/DOWN arrow button until VFO FINE is displayed.
5. Press and hold the FNCTN button and press either the UP/DOWN arrow button to change the step size from 5, 10, 12.5, 25, 30, 50 and 100KHz.
6. Press the MODE/POWER button until \*VFO\* is displayed. Follow the instructions from the beginning of this section to change the frequency.

# MODES

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## \* CONFIG \*

1. Press the MODE/POWER button until \*CONFIG\* is displayed. Configuration mode is where all parameters are set.
2. To switch between the parameters shown below press either the UP/DOWN arrow buttons.
3. To change the attribute of a given parameter press and hold the FNCTN button and press either the UP/DOWN arrow buttons.

### PARAMETERS

BACKLIGHT  
INTERFACE  
RECEIVER  
AUDIO  
DTMF  
AUTO HOLD  
LOCKOUTS  
BLOCKS  
VFO FINE  
VFO COARSE  
CLEAR LOCKOUTS  
CLEAR BLOCKS  
CLEAR MEMORY  
AUTO STORE  
CAPTURE  
SECONDS  
MINUTES  
HOURS  
DAY  
MONTH  
YEAR  
NRZ DECODE  
SQUELCH CONTROL  
SWEEP DISPLAY  
PCR1000 VOLUME  
PCR1000 SQUELCH

### ATTRIBUTE SELECTIONS

ON, OFF, AUTO  
CI-5 COMMAND, REACTION TUNE  
CI-5, AR8000, PCR1000  
ON, OFF  
ON, OFF  
ON, OFF  
ON, OFF  
ON, OFF  
5, 10, 12.5, 25, 30, 50, 100kHz  
1, 5, 10MHz  
EMPTY, FNCTN+UP TO CLEAR  
EMPTY, FNCTN+UP TO CLEAR  
EMPTY, FNCTN+UP TO CLEAR  
ON, OFF  
EVERY, UNIQUE  
00-59  
00-59  
00-23  
1-31  
1-12  
2000-2099  
DCS, LTR  
INTERNAL, EXTERNAL  
CHANNEL FREQ, MEASURED FREQ  
UP/DOWN  
UP/DOWN

## \*MEMORY \*

2. When Auto Store mode is on the Xplorer will automatically record frequency, hits, time, date, audio on/off, and DTMF on/off. If you wish to store additional data, such as decode data, press the SHIFT and HOLD/STORE buttons at the same time after the signal has been captured.

### RECORDING EVERY / UNIQUE FREQUENCIES

The Xplorer has the ability to store EVERY frequency captured into a separate memory location with a separate time and date stamp, even if it is a duplicate frequency. This can be useful when surveying sites over a period of time to determine exactly when an active frequency is transmitting.

Choosing to record UNIQUE frequencies in memory will log a frequency in a separate memory with a separate time and date stamp. As that frequency is captured again the hit counter will start logging hits. When that frequency is viewed in memory it will display the frequency in one memory location with the number of times it was hit thereafter.

1. Press the MODE/POWER button until \*CONFIG\* is displayed. Press the UP/DOWN arrow buttons until CAPTURE is displayed.
2. Press and hold the FNCTN button and press either the UP/DOWN arrow buttons to switch between EVERY and UNIQUE.

### CLEAR MEMORY

1. To clear all memory locations press the MODE/POWER button until \*CONFIG\* is displayed.
2. Press the UP/DOWN arrow buttons until CLEAR MEMORY is displayed. Press the FNCTN button and the UP arrow button at the same time to clear the memory.

*Note: While scrolling frequencies in memory, the Xplorer will re-tune to the frequency that is indicated in memory. If that signal is active you will be able to hear the audio..*



## MODES

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### \* MEMORY \*

The Xplorer has 1000 memory locations with up to 65,000 hits per memory. Shown below are the 12 fields of data that can be stored in the memory of the Xplorer.

1	Frequency in MHz
2	Hits
3	Time
4	Date
5	Audio ON/OFF
6	DTMF ON/OFF
7	Signal Strength
8	CTCSS
9	DCS
10	DTMF
11	LTR

### MANUAL RECORDING

1. To manually record data into memory press the SHIFT and HOLD/STORE button at the same time as a frequency is captured while in SWEEP mode.
2. All data that was present at the time of logging to memory will be stored even if it was not on the display at the time the signal was captured.

### AUTOMATIC RECORDING

1. To enable automatic storing of data to memory the AUTO STORE function must be ON. Press the MODE/POWER button until \*CONFIG\* is displayed. Press the UP/DOWN arrow buttons until AUTO STORE is displayed. Press and hold the FNCTN button and press the UP./DOWN arrow buttons to turn ON/OFF.

**\* LOCKOUTS \***

You may lockout up to 1000 individual frequencies as they are received in sweep mode. Frequencies may also be locked out in VFO mode.

1. Press the MODE/POWER button until \*CONFIG\* is displayed.
2. Press the UP/DOWN arrow buttons until LOCKOUTS is displayed.
3. Press and hold the FNCTN button and press the UP/DOWN arrow button to turn lockouts ON/OFF. *(To lockout frequencies in sweep or VFO mode lockouts must be ON).*
4. Press the MODE/POWER button until \*SWEEP\* is displayed.
5. To lockout a frequency that is currently displayed press and hold SHIFT button and press the SKIP/LOCKOUT button.
6. To lockout a frequency in VFO mode press the MODE/POWER button until \*VFO\* is displayed. Enter the desired frequency according to the instructions given in the VFO section of this manual. Press and hold the SHIFT button and press the SKIP/LOCKOUT button.
7. To view the frequencies that have been locked out press the MODE/POWER button until \*LOCKOUTS\* is displayed.
8. Press the UP/DOWN arrow buttons to view frequencies currently in the lockout memory.
9. Individual frequencies may be unlocked. Those frequencies with an \* beside MHz are locked out. To unlock a specific frequency press and hold the FNCTN button and press either the UP/DOWN arrow buttons. The \* will no longer be displayed. To lock out a frequency again after it has been unlocked simply repeat this step so that the \* is once again displayed next to the frequency.
10. To clear all lockouts currently in memory press the MODE/POWER button until \*CONFIG\* is displayed. Press the UP/DOWN arrow buttons until Clear Lockouts is displayed.
11. Press and hold the FNCTN button and press the UP arrow button to clear all frequencies from the lockout memory.

## \* BLOCKS \*

The Xplorer has 10 frequency blocks numbered 0-9, located in the BLOCKS menu. This function is very convenient for locking out a band of frequencies like FM stations, TV stations, etc... It is also convenient for locking in a band of frequencies that you may wish to test exclusively.

- 1.** Press the MODE/POWER button until the \*CONFIG\* menu is displayed. Press the UP/DOWN arrow buttons until BLOCKS is displayed. Press and hold the FNCTN button and press the UP/DOWN arrow buttons to turn BLOCKS ON/OFF.
- 2.** Press the UP/DOWN arrow buttons until VFO FINE is displayed. To change the desired step size press and hold the FNCTN button and press the UP/DOWN arrow button.
- 3.** Press the UP/DOWN arrow buttons until VFO COARSE is displayed. To change the desired step size press and hold the FNCTN button and press the UP/DOWN arrow button.
- 4.** Press the MODE/POWER button until \*BLOCKS\* is displayed.
- 5.** Each block has 3 parameters: Press and hold the FNCTN button and press either the UP/DOWN arrow buttons to scroll through these three parameters which are A frequency, B frequency and either INCLUDE, EXCLUDE or OFF.
- 6.** Starting at block 0 press and hold the FNCTN button and press the UP/DOWN arrow button until A is displayed.
- 7.** Press and hold the SHIFT button and press the UP/DOWN arrow button to change the MHz portion of the block. Press and hold the HOLD/STORE button and press the UP/DOWN arrow buttons to change the kHz portion of the block.
- 8.** Press and hold the FNCTN button and press the UP/DOWN arrow buttons until B is displayed.
- 9.** Repeat step 7 to enter the desired frequency in B.
- 10.** Press and hold the FNCTN button and press the UP/DOWN arrow buttons until either OFF, INCLUDE or EXCLUDE is displayed.
- 11.** Press and hold the SHIFT button and press the UP/DOWN arrow buttons to change between OFF, INCLUDE or EXCLUDE.
- 12.** To clear all blocks set in this mode press the MODE/POWER button until \*CONFIG\* is displayed.
- 13.** Press the UP/DOWN arrow button until CLEAR BLOCKS is displayed. Press and hold the FNCTN button and press the UP arrow button to clear all blocks.

## \* BLOCKS \*

### INCLUDE

To INCLUDE a block of frequencies means the Xplorer will receive and display all frequencies within that block. All frequencies that fall outside that block will not be received by the Xplorer even if the RF from those frequencies is present.

### EXCLUDE

To EXCLUDE a block of frequencies means the Xplorer will reject all frequencies within that block. All frequencies that fall outside that block are able to be received by the Xplorer.

### OFF

To turn a block OFF means that it is disabled and all frequencies that are entered in a block that has been turned off can now be received by the Xplorer

### INCLUDE AND EXCLUDE

If a band of frequencies are excluded and included in separate blocks then the block order (0-9) takes precedence in the Xplorer's reception of those frequencies. For example: If 145.000 MHz - 155.000 MHz is in BLOCK 0 that is set for EXCLUDE, and is also in BLOCK 1 set for INCLUDE then BLOCK 0 takes precedence over BLOCK 1 and 145.000 MHz - 155.000 MHz is excluded from reception.

*It is recommended that this mode be used to its full potential. Using the blocks mode to EXCLUDE farfield signals not normally desired for reception is highly recommended. This eliminates the need to lockout those unwanted frequencies individually as you lock onto them in sweep mode. Additionally, it must be noted that excluding frequencies in BLOCKS mode does not act as a filter for the background RF. The RF from those frequencies is still present and can have an adverse effect on the Xplorer's ability to lock onto frequencies. Therefore, it is recommended that external filters such as the Optoelectronics N100 FM notch filter be utilized to eliminate the background RF of unwanted signals. Doing so will greatly improve the performance of the Xplorer.*