

**E R A D**  
**P.O. Box 121715**  
**Ft. Worth, TX 76121**  
**Ph: 817-244-1761**  
**Fax: 817-244-1796**  
**Email: erad@flash.net**

**XT2004 Wireless Remote Transmitter**  
**418 MHZ**

**FCC ID: S9FXT2004**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions.

- (1) This device may not cause harmful interference and
- (2) this device must accept any interference received, including interference that may cause undesired operation

**IC: 5877A-XT2004**

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

**E R A D** has designed a Voice Controlled Wireless Remote Controller Transmitter and Receiver for use in the Clay(s) shooting industry. This system provides complete control and programming for Trap shooting, Skeet shooting, Five Stand, Sporting Clays, and Outdoor (Personal back yard systems), etc. The system is designed to provide Clubs and Individuals significant benefits over the current systems available and major benefits over manual pulling of the clays.

The XT2004 transmitter is the size of a credit card and a little over one quarter of an inch thick. It contains an "LCD" (Liquid Crystal Display) for the displaying of data to the shooter and a 16 position "Keypad" for control and data entry. Access to any given transmitter is through a personal "PIN" number limiting access to the individual owner. It is powered by 2 ea. "2450" button cell batteries, available from most all grocery stores, drug stores, Wal-Mart, Target stores etc. Life expectancy is approximately 1 year. The RC2004 receiver is approximately 6" x 4" x 1 1/2" thick, and is installed by simply connecting it in place of the pull cord. The receiver does NOT require batteries and may be permanently installed.

Installation of the XT2004 transmitter typically is by clipping (or Velcro) to the user above the shirt pocket on the opposite side from the mounting of the gun.

## Battery replacement:

- 1) To change the batteries first remove, if any, the Velcro clip from the back side and set it aside.
- 2) Remove the screw in the back of the unit and set it aside.
- 3) **CAREFULLY** separate the two halves of the case using your finger nail or a thin knife blade to approximately 1/4". If you are using a metal object, such as a knife blade, do **NOT** allow the blade to enter the case. You may short out a component and kill the unit.

**Note: You must separate the two halves equally or you will damage the alignment posts in each corner of the case. The top half will stay attached to the bottom half via the flexible interconnects between the keypad and the printed circuit board. DO NOT PULL ON THESE CONNECTIONS.**

- 4) Using your fingers, carefully lift the end corners (opposite from antenna), of the battery packs to lift the printed circuit board out of the bottom case. This will tilt the printed circuit board in the bottom case and allow you to remove the batteries. The antenna end of the pc board will still be in the bottom case with the antenna still passing thru the case.
- 5) Using an **NON** conductive item such as a q-tip push each battery out from the middle of the pc board. **MAKE** note of the **DIRECTION**, that is, top and bottom, of how the batteries are installed. **IF YOU INSTALL ONE OR BOTH OF THE BATTERIES UPSIDE DOWN IN THE UNIT YOU WILL VOID THE WARRANTY AND KILL THE UNIT.**
- 6) Pull the batteries out and install two (2) new CR2450 or equivalent batteries. **MAKE SURE** you install them with the (+) facing up as marked on the battery packs.

**Note:** There are a couple nonessential items that are not stored and will be reset when the batteries are removed. If you wish to retain these items push one of the old batteries partially out and remove the other completely. Upon installing the new battery in the open slot, **IMMEDIATELY** pull the other old battery out and replace it. By doing this the unit will never lose power and even the nonessential items will be retained.

- 7) Reassemble the unit.

## Functions include:

How to get started when the unit is in the "SLEEP" mode. Touch any key to wake the unit up and go to the section on (PIN\*NB) Pin Number.

\*\*\* SEL (Select key)

**Enters/Exits** the menu.

Use the (U/D/R/L) arrow keys to move through the menu.

\*\*\* (EDT) key (Edit key)

Typically used to **ACCEPT** or **ENTER** a functions.

\*\*\* MODE (Mode)

Allows the user to select from any of the following modes.

\*\*\* V\*MAN (Voice Manual mode)

Releases the bird via voice call but follows no "Game". The user touches the (OPT) key to initiate the load sequence, touches the command keys (1-6) they wish to load and then touches the (OPT) key to complete the function. The user then calls for the release of the bird. The system will simply repeat the sequence over and over or until changed.

\*\*\* V\*AUTO (Voice Auto, typical mode)

Releases the bird via voice call and follows the "Game" selected by the shooter.

\*\*\* COMPET (Competition mode)

Competition mode simply calls for the bird. Which station type or bird that is released is set by the judge. (See JUDGE mode)

\*\*\* JUDGE (Judge mode)

This is a SPECIAL mode available from the "Club" and MAYBE used by "Clubs/Judges" to control fields during competitions. This is NOT a mandatory mode for shooting competitions.  
See: XT2004\_Club.doc

\*\*\* GAME (Game selected)

Allows the user to select from any of the following games.

- \*\*\* Skeet
- \*\*\* Skeet international (Sets a 3.0 second random delay)
- \*\*\* Skeet doubles
- \*\*\* Trap
- \*\*\* Trap doubles
- \*\*\* Five stand beginner
- \*\*\* Five stand intermediate
- \*\*\* Five stand professional
- \*\*\* Sporting clays
- \*\*\* Custom

Note: The Custom mode allows the user to program up an explicit set of commands to produce a custom game.

\*\*\* VOLUME (Volume sensitivity) (Typical setting 650)

Using the (U/D/L/R) arrow keys allows the user to program the sensitivity of the XT2004 to the call of the bird. Note that this should be set as **HIGH** as possible and still release a bird when called. This will minimize the chances of the system releasing uncalled for birds. While in this mode the mic is automatically turned on and the shooter can TEST to see if the unit will see their voice. This testing **MUST** be done with the unit properly attached to the shooter and the gun **MUST** be mounted. If the unit sees your voice it will beep three times. This does **NOT** charge you for birds, and you may call as many times as you wish. Note that this test function only works if you are logged **OFF** the field. If you enter this mode while logged onto a field the test function will not work. It is **highly** recommended that the shooter speak up allowing for a high volume setting to minimize the chances of throwing unwanted birds, especially when talking.

\*\*\* DELAY (Delay time)

By using the (U/D/L/R) arrow keys, allows the user to program up a delay between calling for the bird and the actual release by the system in 2 hundredths of a second increments. (Max is 5\*20) or 5.20 seconds delay.

\*\*\* DLY\*FR (Delay \* Fixed or Random)

Allows the user to select up whether the (DELAY see above) is a fixed value or a random value.

\*\*\* DL\*FIX (Delay fixed mode)

The system will delay the release of the bird for the exact time interval set under the (DELAY time).

\*\*\* DL\*RND (Delay random mode)

The system will randomly delay the release of the bird not to exceed the value programmed under the (DELAY time).

\*\*\* CLUB (Club ID select)

Allows the user to select the "Club ID" of the club they are at. By touching the (EDT) key the user can check if any birds are available for release at this club. Touching the (L/A or R/A) keys at this time will show the next "Club ID". The unit will remain on the last "Club ID" that was selected AND the bird(s) were checked by touching the (EDT) key. With the use of a P.C. or the proper codes and information the "Club" can add birds purchased by the user. Within the "CLUB" function there are several other functions available from this location allowing the club to reprogram receivers for different field numbers and functionality, add or edit "Club ID(s)", turn on or off timer functions, change the "Negative Bird Setting", which is typically set at "0" (zero). This allows a shooter to actually go below zero for the birds purchased to the "Negative value" before the system will no longer release birds. This may be used by any club but an example of its use is a club that typically run on the "Honor system" and is typically unmanned most of the time, etc.

See: XT2004\_Club.doc

\*\*\* OTDOOR (Outdoor mode)

Does not require the purchase of birds to be able to release a bird. Note that this **mode** will only work with "Outdoor" receivers. This mode will NOT function with "Club" owned receivers.

\*\*\* PIN\*NB (Pin number)

Touching the (EDT) key allows for the unlocking/loading of your personal pin number for security purposes. Note that the unit knows which mode it is in and displays the opposite mode upon entering this function. If the unit is locked it will ask you first if you want to "UNLOCK" itself. By touching (EDT) you can accept this and then type in the "Pin Number", followed by touching the (EDT) key again to accept the number. If the unit accepts the code it will display "STD\*BY" (Stand By) and you are ready to use the unit. Note that if no keys are touched or no birds are thrown, it will go back to sleep in approximately 5 minutes. If the unit fails to accept the code it will display "FAILURE" and you must retype the code and touch (EDT) again.

Note, use the (EDT) "edit" key to accept the selected/entered data. Use the (SEL) "select" key to exit the current function.

By using the (ARROW) keys you may select any of the other two functions. If you wish to "EDIT" the "Pin Number" it will ask you to enter your current "Pin Number" before you can enter you "NEW" pin number. Upon entering your "NEW" pin number it will ask you to verify it a second time. If you fail to properly "VERIFY" it, it will return to asking you for a "NEW" pin number and expect you to properly "VERIFY" the number. At any time touching the (SEL) will exit you from the function.

\*\*\* UNLOCK (Unlock mode)

Allows the user to enter their personal pin number.

\*\*\* LOCK (Lock mode)

Allows the user to lock the unit eliminating unwanted use.

\*\*\* EDIT (Edit mode)

Allows the user to change the pin number. One must have the current pin number to be able to complete this function.

\*\*\* AM\*MIC (Auto Mic)

Allows for the automatically turning off of the mic each time the shooter completes a station. It is recommended that the unit be run in the "UNLOCK" mode as a minimum for Sporting Clays.

\*\*\* UNLOCK (Unlock mode)

Each time the unit throws the **last** bird on any given station it will turn the mic off. This can also be accomplished by touching the down arrow when logged onto a field. To turn the mic back on the user simply touches the up arrow.

\*\*\* LOCK (Lock mode)

Does NOT allow the unit to turn off the mic after completing a station. This can still be accomplished by touching the down arrow when logged onto a field. To turn the mic back on the user simply touches the up arrow.

\*\*\* SCORE (Score value, programming)

Displays and allows the keeping/programming of the shooters score. Each time the shooter logs onto a field this value is set to 25.

\*\*\* N/B (No Bird key)

If this key is pressed during this mode the score will be reset to zero (0) and the shooter may reload it to a specific value. If the shooter is going to shoot 4 rounds of TRAP they can load 100 in place of the 25.

\*\*\* OPT (Option key)

Each time the (OPT) "option" key is depressed the unit will subtract one from the count.

\*\*\* SEQ\*FR (Sequence \* Fixed or Random, CUSTOM game only)

Allows the user to select up whether the (Sequence of programmed commands see "LD\*CMD" below) is run in the fixed order as programmed or in a random order until all the commands have been used.

\*\*\* SQ\*FIX (Sequence fixed mode)

The system will release the birds in the exact sequence programmed under the "LD\*CMD" function.

\*\*\* SQ\*RND (Sequence random mode)

The system will randomly release the birds programmed under the "LD\*CMD" function until all the birds have been released.

\*\*\* LD\*CMD (Load Command, **CUSTOM game only**)

Allows the user to program their unit for the (CUSTOM) game.

\*\*\* POS\*99 (Position of command in game)

Using the (L/R/U/D) arrow keys, select the position 1,2,3,4,5, etc that you wish to load a command into. Touch the (EDT) key to accept the position and display the current command that is loaded in that position. Using the (L/R/U/D) arrow keys, select, change, the command you wish to load. Touch the (EDT) key to accept the command. The unit will automatically advance expecting you to load a time using the (L/R/U/D) arrow keys. Note that the LEFT and RIGHT arrow keys will change the time in 0.20 second steps while the UP and DOWN arrow keys will change the value in 0.02 second steps. This "Time" is how long the system will delay before releasing the bird when the command is called. Typically a time value other than zero would only be loaded if the CUSTOM game was going to be run in the automatic sequence mode. If you want to slow down the release of the bird you would normally use the DELAY mode to enter a release delay. Touching the (EDT) key will accept the time even if it is zero (0) and the unit will advance to the next position. You may repeat this procedure up to 73 times. At any given position you may load a station command allowing you to jump to that station to start or change the game. The last command loaded must be a (END) command identifying the end of the game. See appendix (A) for commands/order/position.

\*\*\* AUTO\*R (Automatic Run/Stop mode, **Custom mode only**)

If the "Run" mode is selected, the XT2004 transmitter will automatically run through the command/time sequence until the end of the sequence or until placed into the "Stop" mode.

\*\*\* \*LIFE\* (Life time birds)

By pressing the (OPT) key when NOT logged onto a field the unit will display and allows the keeping/programming of a running total of birds called for. By pressing the (OPT) key a second time the shooter can enter their pin number and reset the value to zero (0). This is a useful mode for a club to use if they own and distribute the transmitters to customers. By setting it to zero (0) before giving it to the customer the "Club" can look at the value after being returned by the shooter and know exactly how many birds or dollars the shooter called for. Without knowing the PIN NUMBER the user cannot reset the value.

\*\*\* NO\*BRD (No birds)

By pressing the (N/B) key when NOT logged onto a field the unit will display the number of times the user pressed the (N/B) key while logged onto a field. This value can only be reset by the "Club" when more birds are purchased.

## Keys include:

### \*\*\* (OPT) key (Option key)

By pressing this key when logged onto a field the "SCORE" will be decremented by one bird. If the game of Skeet (SKET\*S) is selected the unit will also back up once allowing the shooter to repeat the missed shot. If the missed shot was on a double, touching the key once will set the option to the going away bird (1st shot) and touching it a second time will set the option to the opposite bird, (second shot). Repeated pressing of the key will simply toggle between which "House, High or Low" it throws. Once the option shot is taken touching the key again will only decrease the score by one. See (\*LIFE\*) function for additional information.

### \*\*\* (N/B) key (No bird key)

By pressing this key when logged onto a field the unit will repeat the previous command and log the count to the No Bird function. Note that each time this key is pressed the shooter must throw a bird before the key will function again. See (NO\*BRD) function for additional information.

### \*\*\* (FLD) key (Field key)

By pressing this key (FLD), and entering the field number you are at, and then pressing (FLD) again you will log "ON" to a field. For example, by touching (FLD)(7)(FLD) you have just logged onto field seven and that is the only field that your unit will currently throw birds at. By touching (FLD)(FLD) again you have logged off the field. Or by touching (FLD)(0)(FLD). When logged OFF the field the display will show "STD\*BY". You **cannot** log OFF a field if you have entered the menu function. The display must show (END, MIC\*OF, or a Station Position) to log OFF the field.

### \*\*\* (STA) key (Station key)

By pressing this key, when logged onto a field, and typing the station number and touching (STA) again the unit will position itself to the first bird of that station.

\*\*\* (1/H) key (Number (1), High)

Loads the number one into the screen.

When logged onto a field, will throw Skeet (High), or any Trap bird(s).

\*\*\* (2/D) key (Number (2), Doubles)

Loads the number two into the screen.

When logged onto a field, will throw Skeet (Doubles), or any Trap bird(s).

\*\*\* (3/L) key (Number (3), Low)

Loads the number two into the screen.

When logged onto a field, will throw Skeet (Low), or any Trap bird(s).

\*\*\* (4) key (Number (4))

Loads the number one into the screen.

When logged onto a field, will throw Skeet (High), or any Trap bird(s).

\*\*\* (5) key (Number (5))

Loads the number two into the screen.

When logged onto a field, will throw Skeet (Doubles), or any Trap bird(s).

\*\*\* (6) key (Number (6))

Loads the number two into the screen.

When logged onto a field, will throw Skeet (Low), or any Trap bird(s).

\*\*\* (7) & (LEFT ARROW) (L/A)

Moves thought the menu items, selects certain values.

When logged onto a field, moves backwards thru commands.

\*\*\* (8) & (DOWN ARROW) (D/A)

Moves thought the menu items, selects certain values.

When logged onto a field, moves backwards thru commands.

\*\*\* (9) & (UP ARROW) (U/A)

Moves through the menu items, selects certain values.  
When logged onto a field, moves forward thru commands.

\*\*\* (0) & (RIGHT ARROW) (R/A)

Moves through the menu items, selects certain values.  
When logged onto a field, moves forward thru commands.

\*\*\* Programming mode:

A club owned unit can also be used to "Manually" program or reprogram a  
RC2004 receiver for a different function.  
See: XT2004\_Club.doc

## Mounting of unit:

- \*\*\* The XT2004 should be mounted ABOVE what is or would be the shirt POCKET on the opposite side from the mounting of the gun. It should be high up on your shoulder or clipped to the side of your collar. This should put the antenna end of the unit above the top of a typical shirt pocket.

## Typical use:

- \*\*\* Under normal use the only requirement that is repeated is to "Log" onto the field you are about to shoot on. This holds true for "Outdoor" units also. Each receiver is assigned a "Field Number". You "Log on" by touching the (FLD) key, entering the field number (for example .. (7) ..) and touching the (FLD) key again. The display will show "MIC\*OF" indication that the microphone is shut off.

Once on the station touching the (U/A) up arrow will turn the mic on and you are ready to shoot.

You log off the field in the same manner using field number (0) as the field code. You can also log off by simply touching (FLD)(FLD). When you "Log off" the microphone is automatically shut down. If you are at a different Club the user would call up the "Club ID" of the location they are at, "Log on" to the field, and proceed to shoot. Normally all the settings are saved and do NOT have to be selected each time. At anytime the user may log out of his or her "PIN" number locking down the unit so no one else can use it.

## Call of the bird:

- \*\*\* You may use any command you desire so long as you meet the minimum volume-function setting to release a bird. Examples are:

Pull, Mark, Pull it, Pup, Puulllll, etc.

However, if you are having trouble getting releases, the problem, more than likely is, you need to speak up slightly or move the unit higher up on your shoulder or collar, or both. Additionally, the use of the word "PUP" like puppy with the "py" left off seems to work extremely well. Remember, we are trying to detect your call for the bird and yet **NEVER** throw the bird when a gun is fired, gun echo occurs, a gun is closed, you are talking, the wind is blowing, etc. This is NOT an easy task.

## APPENDIX (A): Command order.

END

|        |        |        |        |
|--------|--------|--------|--------|
| SKH*xx | I5K*03 | I5J*03 | BUT*08 |
| SKL*xx | I5L203 | SCR*05 | BUT*09 |
| SKD2xx | I5M*04 | SCL*06 | BUT*10 |
| TRS*xx | I5N*04 | SCD206 | AAA*11 |
| TRD2xx | I5O*04 | SCR*06 | BBB*12 |
| B5A*01 | I5P204 | SCL*07 | CCC213 |
| B5B*01 | I5Q*05 | SCD207 | DDD214 |
| B5C*01 | I5R*05 | SCR*07 | EEE315 |
| B5D*01 | I5S*05 | SCL*08 | FFF316 |
| B5E*01 | I5T205 | SCD208 | GGG417 |
| B5F*02 | P5A*01 | SCR*08 |        |
| B5G*02 | P5B201 | SCL*09 |        |
| B5H*02 | P5C201 | SCD209 |        |
| B5I*02 | P5D*02 | SCR*09 |        |
| B5J*02 | P5E202 | SCR*10 |        |
| B5K*03 | P5F202 | SCD210 |        |
| B5L*03 | P5G*03 | SCR*10 |        |
| B5M*03 | P5H203 | SCL*11 |        |
| B5N*03 | P5I203 | SCD211 |        |
| B5O*03 | P5J*04 | SCR*11 |        |
| B5P*04 | P5K204 | SCL*12 |        |
| B5Q*04 | P5L204 | SCD212 |        |
| B5R*04 | P5M*05 | SCR*12 |        |
| B5S*04 | P5N205 | SCL*13 |        |
| B5T*04 | P5O205 | SCD213 |        |
| B5U*05 | SCL*01 | SCR*13 |        |
| B5V*05 | SCD201 | SCL*14 |        |
| B5W*05 | SCR*01 | SCD214 |        |
| B5X*05 | SCL*02 | SCR*14 |        |
| B5Y*05 | SCD202 | SCL*15 |        |
| I5A*01 | SCR*02 | SCD215 |        |
| I5B*01 | SCL*03 | SCR*15 |        |
| I5C*01 | SCD203 | BUT*01 |        |
| I5D201 | SCR*03 | BUT*02 |        |
| I5E*02 | SCL*04 | BUT*03 |        |
| I5F*02 | SCD204 | BUT*04 |        |
| I5G*02 | SCR*04 | BUT*05 |        |
| I5H202 | SCL*05 | BUT*06 |        |
| I5I*03 | SCD205 | BUT*07 |        |

## **APPENDIX (B): FCC instructions to the User:**

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

- \* Reorient or relocate the receiving antenna.
- \* Increase the separation between the equipment and receiver.
- \* Connect the equipment into an outlet on a different circuit.
- \* Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. Operation with non-approved equipment may result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.