

# FLEX 2JX

User's Manual



# Service Information

## Your New Radio System

Thank you for your purchase of ARC Flex 2JX radio remote control system. Without a doubt, our Flex 2JX system is the ultimate solution for providing precise, undeterred, and safe control of your material.

If your product ever needs modification or service, please contact our representative in your country or at the following location:

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## PRODUCT MANUAL SAFETY INFORMATION

Advanced Radiotech Corporation (ARC) offers a broad range of radio remote control product for material handling applications. This manual has been prepared by ARC to provide information and recommendations for the installation, use, operation and service of ARC's material handling products and systems (ARC Products). Anyone who uses, operates, maintains, services, installs or owns ARC Products should know, understand, and follow the instructions and safety recommendations in this manual for ARC Products.

The recommendations in this manual do not take precedence over any of the following requirements relating to cranes, hoists lifting devices or other material handling equipment which use or include ARC Products:

- Instructions, manuals, and safety warnings of the manufacturers of the equipment where the radio system is used.
- Plant safety rules and procedures of the employers and the owners of facilities where the ARC Products are being used.
- Safety standards and practices for the industries in which ARC Products are used.

This manual does not include or address the specific instructions and safety warnings of these manufacturers or any of the other requirements listed above. It is the responsibility of the owners, users and operators of the ARC Products to know, understand and follow all of these requirements. It is the responsibility of the employer to make its employees aware of all of the above listed requirements and to make certain that all operators are properly trained. **No one should use ARC Products prior to becoming familiar with and being trained in these requirements and the instructions and safety recommendations in this manual.**

## WARRANTY INFORMATION

For information on ARC's product warranties, please contact ARC representative nearest to you or visit [www.advanced-radiotech.com](http://www.advanced-radiotech.com).

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# 1. Introduction

The Flex 2JX radio remote control systems are designed for control of industrial equipment and machinery such as overhead traveling cranes, jib cranes, gantry cranes, tower cranes and other material handling equipment where wireless control is preferred.

Each Flex 2JX system consists of a transmitter belly box and receiver unit. Other standard-equipped accessories include one rechargeable battery pack, one charging station, one each transmitter waist and shoulder belt, one spare transmitter power key and user's manual.

List of notable features include:

- \* **62 user-programmable channels** – Advanced synthesized RF controls with 62 built-in channels.
- \* **Automatic channel scanning receiver** – No more hassle of climbing up the crane to change receiver channels. Transmitter channel can be changed directly on the transmitter via the LCD panel.
- \* **Transceiving RF modules** – The Flex 2JX system is capable of two-way communication between transmitter and receiver.
- \* **LCD readout** – All settings and system status information are displayed and executed via the LCD panel on transmitter and in receiver.
- \* **Goretex vent** – The transmitter is equipped with special Goretex vent to guard against water/vapor buildups inside transmitter enclosure.
- \* **Transmitter tilt function** – The transmitter is embedded with special tilt switch to guard against accidental crane movements when the transmitter is dropped.
- \* **Over one million unique serial numbers (20bit)** – Each and every Flex 2JX system has its own unique serial number; no repeats.
- \* **Advanced controls** – The Flex 2JX system utilizes dual advanced microprocessor controls with 32bit CRC and Hamming Code, which provide ultra-fast, safe, precise, and error-free encoding and decoding.
- \* **Unique I-Chip design** – The I-Chip functions in a way that is very similar to SIM cards used on mobile phones, with the ability to transfer system information and settings from one transmitter to another without the hassle of resetting the spares.
- \* **Fully sealed enclosures** – The transmitter and receiver enclosures are IP66 rated.
- \* **Infrared start/range limiting features** – The Flex 2JX transmitter is standard-equipped with infrared sensor for infrared start and infrared range limiting operation.
- \* **Other features** – Tandem operation, multi-receiver operation, random access operation, pitch and catch operation, and many others.
- \* **Full compliance** – All systems are fully compliant with the FCC Part-15 Rules, European Directives (Safety, EMC, R&TTE and Machinery), and Industry Canada Specifications (IC).

## 2. Radio Controlled Safety

### **WARNINGS and CAUTIONS**

Throughout this document **WARNING** and **CAUTION** statements have been deliberately placed to highlight items critical to the protection of personnel and equipment.

**WARNING** – A warning highlights an essential operating or maintenance procedure, practice, etc. which if not strictly observed, could result in injury or death of personnel, or long term physical hazards. Warnings are highlighted as shown below:



**WARNING**

**CAUTION** – A caution highlights an essential operating or maintenance procedure, practice, etc. which if not strictly observed, could result in damage to, or destruction of equipment, or loss of functional effectiveness. Cautions are highlighted as shown below:



**CAUTION**

### **WARNINGS and CAUTIONS SHOULD NEVER BE DISREGARDED.**

The safety rules in this section are not intended to replace any rules or regulations of any applicable local, state, or federal governing organizations. Always follow your local lockout and tagout procedure when maintaining any radio equipment. The following information is intended to be used in conjunction with other rules or regulations already in existence. It is important to read all of the safety information contained in this section before installing or operating the Radio Control System.

## 2.1 CRITICAL INSTALLATION CONSIDERATIONS



### WARNING

PRIOR TO INSTALLATION AND OPERATION OF THIS EQUIPMENT, READ AND DEVELOP AN UNDERSTANDING OF THE CONTENTS OF THIS MANUAL AND THE OPERATION MANUAL OF THE EQUIPMENT OR DEVICE TO WHICH THIS EQUIPMENT WILL BE INTERFACED. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH AND DAMAGE TO EQUIPMENT.

ALL EQUIPMENT MUST HAVE A MAINLINE CONTACTOR INSTALLED AND ALL TRACKED CRANES, HOISTS, LIFTING DEVICES AND SIMILAR EQUIPMENT MUST HAVE A BRAKE INSTALLED. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH AND DAMAGE TO EQUIPMENT.

AN AUDIBLE AND/OR VISUAL WARNING MEANS MUST BE PROVIDED ON ALL REMOTE CONTROLLED EQUIPMENT AS REQUIRED BY CODE, REGULATION, OR INDUSTRY STANDARD. THESE AUDIBLE AND/OR VISUAL WARNING DEVICES MUST MEET ALL GOVERNMENTAL REQUIREMENTS. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH AND DAMAGE TO EQUIPMENT.

FOLLOW YOUR LOCAL LOCKOUT TAGOUT PROCEDURE BEFORE MAINTAINING ANY REMOTE CONTROLLED EQUIPMENT. ALWAYS REMOVE ALL ELECTRICAL POWER FROM THE CRANE, HOIST, LIFTING DEVICE OR SIMILAR EQUIPMENT BEFORE ATTEMPTING ANY INSTALLATION PROCEDURES. DE-ENERGIZE AND TAGOUT ALL SOURCES OF ELECTRICAL POWER BEFORE TOUCH-TESTING ANY EQUIPMENT. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH AND DAMAGE TO EQUIPMENT.

THE DIRECT OUTPUTS OF THIS PRODUCT ARE NOT DESIGNED TO INTERFACE DIRECTLY TO TWO STATE SAFETY CRITICAL MAINTAINED FUNCTIONS, I.E., MAGNETS, VACUUM LIFTS, PUMPS, EMERGENCY EQUIPMENT, ETC. A MECHANICALLY LOCKING INTERMEDIATE RELAY SYSTEM WITH SEPARATE POWER CONSIDERATIONS MUST BE PROVIDED. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH OR DAMAGE TO EQUIPMENT.

## 2.2 GENERAL

Radio controlled material handling equipment operates in several directions. Cranes, hoists, lifting devices and other material handling equipment can be large, and operate at high speeds. Quite frequently, the equipment is operated in areas where people are working in close proximity to the material handling equipment. **The operator must exercise extreme caution at all times.** Workers must constantly be alert to avoid accidents. The following recommendations have been included to indicate how careful and thoughtful actions may prevent injuries, damage to equipment, or even save a life.

## 2.3 PERSONS AUTHORIZED TO OPERATE RADIO CONTROLLED CRANES

Only properly trained persons designated by management should be permitted to operate radio controlled equipment.

Radio controlled cranes, hoists, lifting devices and other material handling equipment should not be operated by any person who cannot read or understand signs, notices and operating instructions that pertain to the equipment.

Radio controlled equipment should not be operated by any person with insufficient eyesight or hearing or by any person who may be suffering from a disorder or illness, is taking any medication that may cause loss of equipment control, or is under the influence of alcohol or drugs.

## 2.4 SAFETY INFORMATION AND RECOMMENDED TRAINING FOR RADIO CONTROLLED EQUIPMENT OPERATORS

Anyone being trained to operate radio controlled equipment should possess as a minimum the following knowledge and skills before using the radio controlled equipment.

The operator should:

- have knowledge of hazards pertaining to equipment operation
- have knowledge of safety rules for radio controlled equipment
- have the ability to judge distance of moving objects
- know how to properly test prior to operation
- be trained in the safe operation of the radio transmitter as it pertains to the crane, hoist, lifting device or other material handling equipment being operated
- have knowledge of the use of equipment warning lights and alarms
- have knowledge of the proper storage space for a radio control transmitter when not in use
- be trained in transferring a radio control transmitter to another person
- be trained how and when to report unsafe or unusual operating conditions
- test the transmitter emergency stop and all warning devices prior to operation; testing should be done on each shift, without a load
- be thoroughly trained and knowledgeable in proper and safe operation of the crane, hoist, lifting device, or other material handling equipment that utilizes the radio control
- know how to keep the operator and other people clear of lifted loads and to avoid “pinch” points
- continuously watch and monitor status of lifted loads
- know and follow cable and hook inspection procedures
- know and follow the local lockout and tagout procedures when servicing radio controlled equipment
- know and follow all applicable operating and maintenance manuals, safety procedures, regulatory requirements, and industry standards and codes



### WARNING

**Keep away interference source to make sure performance integrate.**

The operator shall not:

- lift or move more than the rated load
- operate the material handling equipment if the direction of travel or function engaged does not agree with what is indicated on the controller
- use the crane, hoist or lifting device to lift, support or transport people
- lift or carry any loads over people

- operate the crane, hoist or lifting device unless all persons, including the operator, are and remain clear of the supported load and any potential pinch points
- operate a crane, hoist or lifting device when the device is not centered over the load
- operate a crane, hoist or lifting device if the chain or wire rope is not seated properly in the sprockets, drum or sheave
- operate any damaged or malfunctioning crane, hoist, lifting device or other material handling equipment
- change any settings or controls without authorization and proper training
- remove or obscure any warning or safety labels or tags
- leave any load unattended while lifted
- leave power on the radio controlled equipment when the equipment is not in operation
- operate any material handling equipment using a damaged controller because the unit may be unsafe
- operate manual motions with other than manual power
- operate radio controlled equipment when low battery indicator is on



## WARNING

THE OPERATOR SHOULD NOT ATTEMPT TO REPAIR ANY RADIO CONTROLLER. IF ANY PRODUCT PERFORMANCE OR SAFETY CONCERN ARE OBSERVED, THE EQUIPMENT SHOULD IMMEDIATELY BE TAKEN OUT OF SERVICE AND BE REPORTED TO THE SUPERVISOR. DAMAGED AND INOPERABLE RADIO CONTROLLER EQUIPMENT SHOULD BE RETURNED TO MAGNETEK FOR EVALUATION AND REPAIR. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH AND DAMAGE TO EQUIPMENT.

## 2.5 TRANSMITTER UNIT

Transmitter switches should never be mechanically blocked ON or OFF. When not in use, the operator should turn the transmitter OFF. A secure storage space should be provided for the transmitter unit, and the transmitter unit should always be placed there when not in use. This precaution will help prevent unauthorized people from operating the material handling equipment.

Spare transmitters should be stored in a secure storage space and only removed from the storage space after the current transmitter in use has been turned OFF, taken out of the service area and secured.

## 2.6 PRE-OPERATION TEST

**At the start of each work shift, or when a new operator takes control of the crane, operators should do, as a minimum, the following steps before making lifts with any crane or hoist:**

Test all warning devices.

**Test all direction and speed controls.**

Test the transmitter emergency stop.

## 2.7 BATTERIES



### WARNING

KNOW AND FOLLOW PROPER BATTERY HANDLING, CHARGING AND DISPOSAL PROCEDURES. IMPROPER BATTERY PROCEDURES CAN CAUSE BATTERIES TO EXPLODE OR DO OTHER SERIOUS DAMAGE. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH AND DAMAGE TO EQUIPMENT.

## 2.8 BATTERY HANDLING

Use only battery packs provided by ARC for the specific product.

Do not dispose of a battery pack in fire; it may explode.

Do not attempt to open the battery pack.

Do not short circuit the battery.

Keep the battery pack environment cool during charging operation and storage (i.e., not in direct sunlight or close to a heating source).

## 2.9 BATTERY CHARGING

For those transmitters equipped with battery chargers, please familiarize all users with the instructions of the charger before attempting to use.

Do not attempt to charge non-rechargeable battery packs.

Avoid charging partially discharged rechargeable batteries to help prolong battery cycle life.

Avoid charging the battery pack for more than 24 hours at a time.

Do not charge batteries in a hazardous environment.

Do not short the charger unit.

Do not attempt to charge a damaged battery.

Use only ARC charger unit for the appropriate battery pack.

Do not attempt to use a battery pack that is leaking, swollen or corroded.

Charger units are not intended for outdoor use.

## 2.10 BATTERY DISPOSAL

Before disposing of battery packs consult local and governmental regulatory requirements for proper disposal procedure.

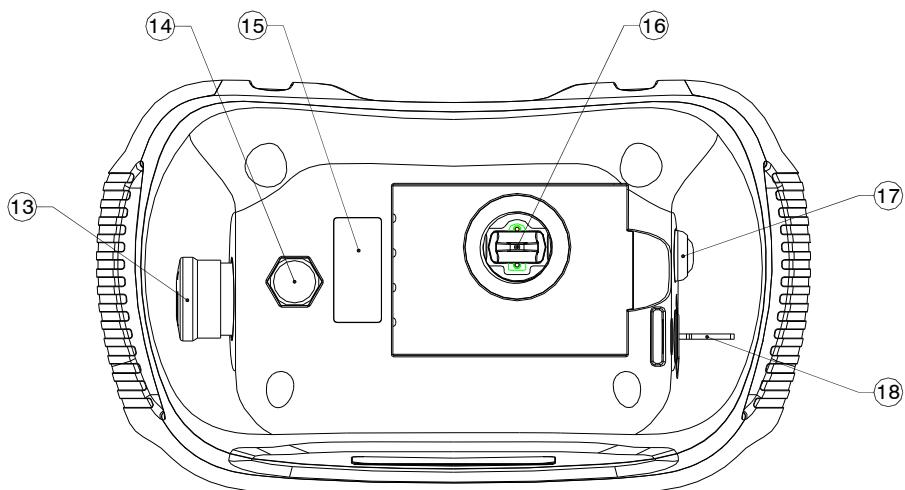
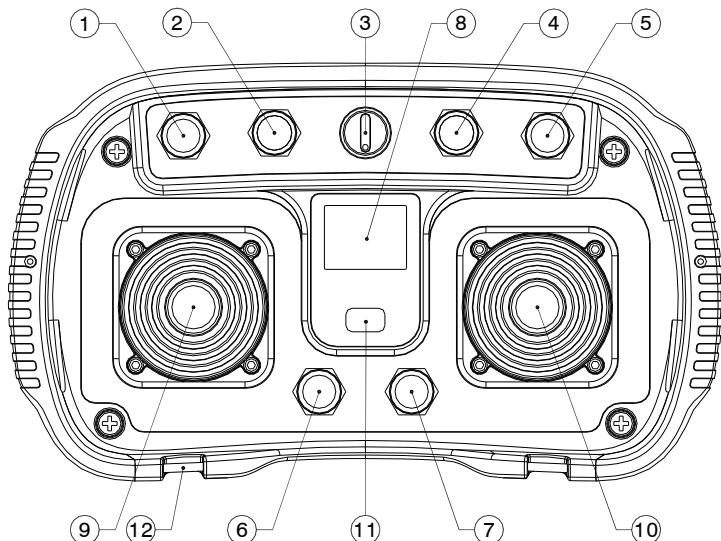
## 2.11 SPECIFIC SYSTEM WARNINGS

Below are some specific operating safety tips that should be strictly followed when operating a Flex 2JX system:

1. Check the Status LCD on the transmitter for any signs of low battery power.
2. Check the Status LCD on the transmitter for any signs of irregularities.
3. Make sure the system is not set to the same channel as any other Flex systems in use within a distance of 300 meters (900 feet).
4. Never operate equipment with two transmitters at the same time unless they are programmed to do so.

# 3. General System Information

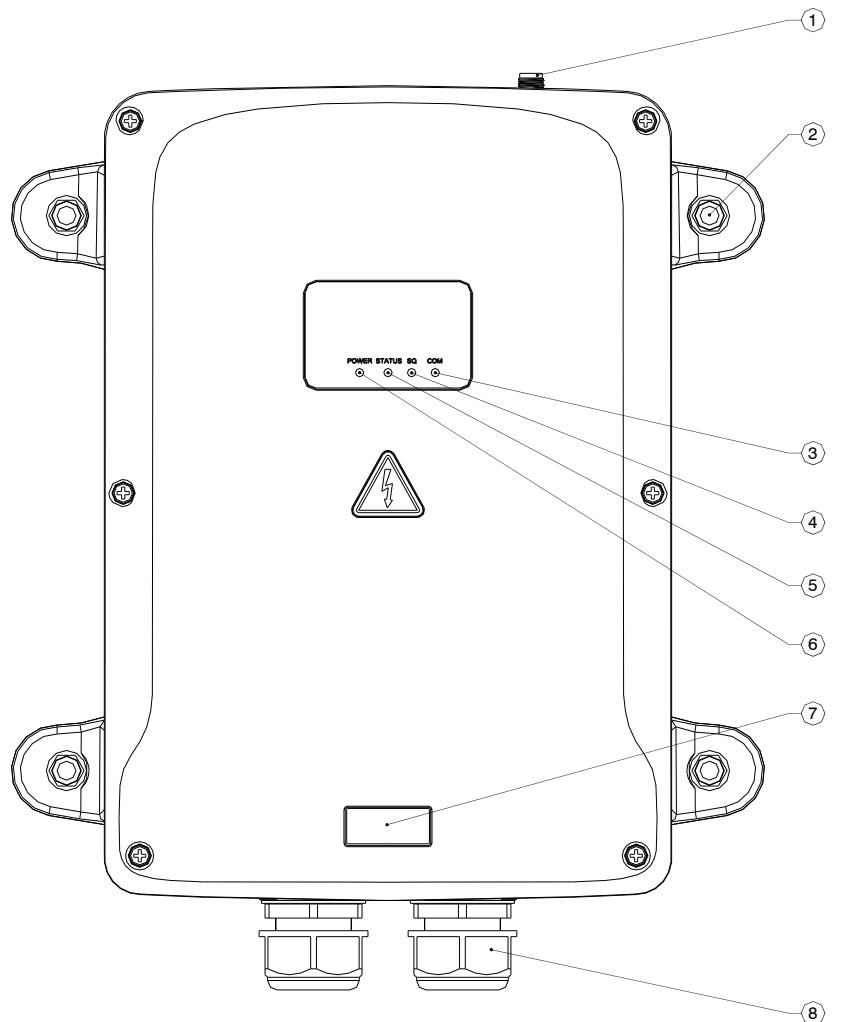
## 3.1 Transmitter



1. SW1 button or switch	7. SW7 button	13. E-Stop button
2. SW2 button or switch	8. LCD screen	14. Goretex vent
3. SW3 button or switch	9. Left (L) joystick	15. System information
4. SW4 button or switch	10. Right (R) joystick	16. I-Chip port
5. SW5 button or switch	11. Infrared sensor	17. START button
6. SW6 button	12. Shoulder strap clip	18. Power key

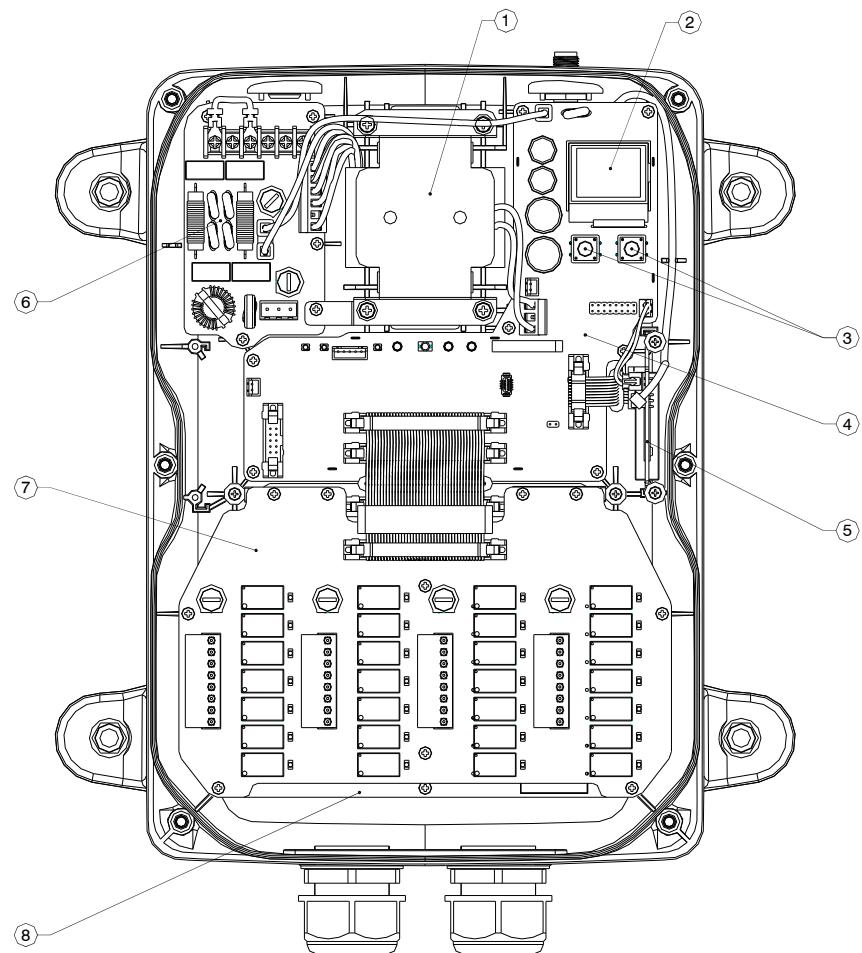
## 3.2 Receiver

### 3.2.1 External Illustration



1.	External antenna jack (optional)	5.	Status LED display
2.	Shock mount	6.	Power LED display
3.	COM LED display	7.	System information
4.	SQ LED display	8.	Cord grip

### 3.2.2 Internal Illustration



1.	Power transformer	5.	Receiving module
2.	LCD display	6.	AC line filter board
3.	PS1 & PS2 programming buttons	7.	Top relay board
4.	Decoder module	8.	Bottom relay board

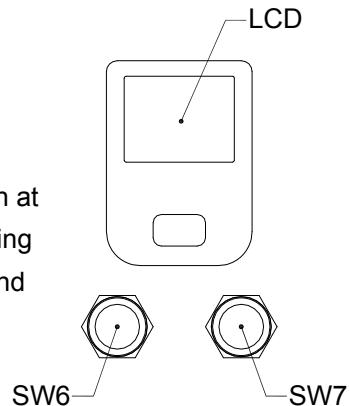
# 4. Function Settings

## 4.1 Transmitter

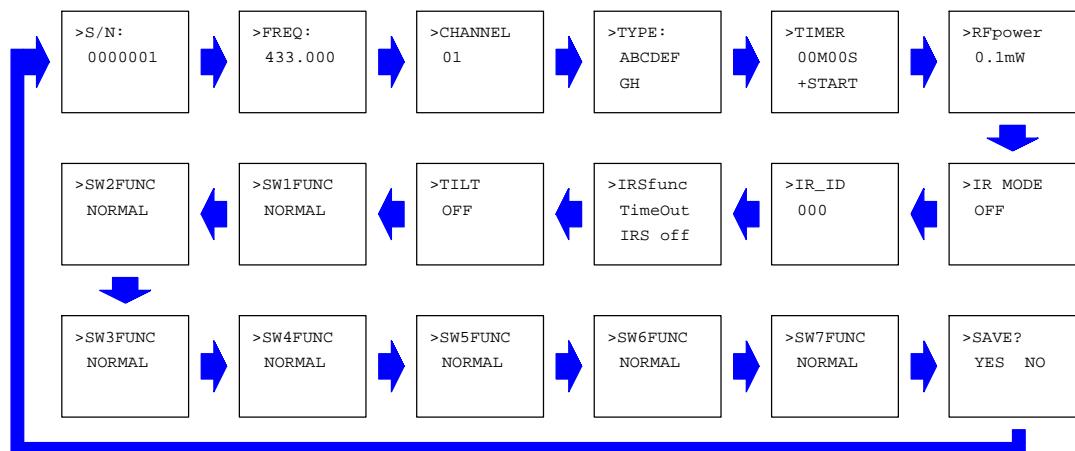
### 4.1.1 Programming Procedure

How to enter transmitter programming mode:

- 1) Turn on the transmitter power switch.
- 2) Do not press the green START button.
- 3) Press both SW6 and SW7 buttons below the LCD screen at the same time for up to 1 second to enter the Programming Mode. Setting Mode screen will show up for a brief second followed by the Serial Number screen (see below).



- 4) Serial number and frequency range can not be reprogrammed directly on the transmitter so press SW7 button repeatedly until you see the Channel Setting screen and so on.



- 5) Button functions:

SW6 button is the "Enter" or "Change" command.

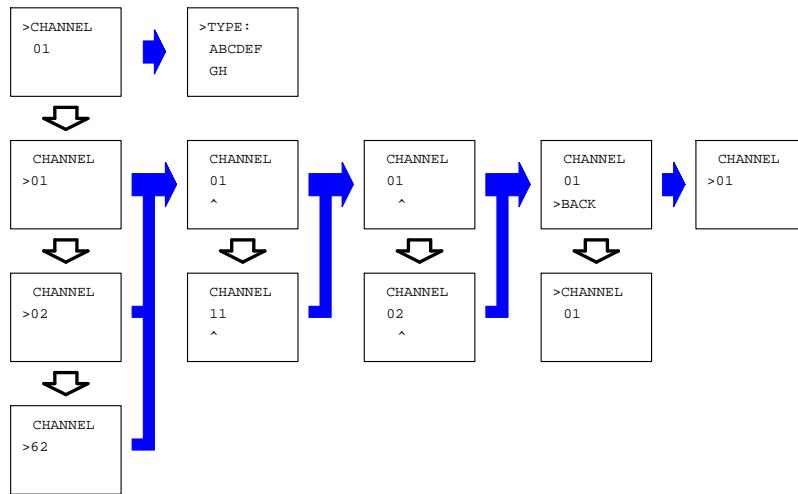
SW7 button is the "Next" command.

Press and hold SW7 and then SW6 to go back to the previous main menu.

## 4.1.2 Transmitter Channel

SW6 button  is the “Enter” or “Change” command.

SW7 button  is the “Next” command.

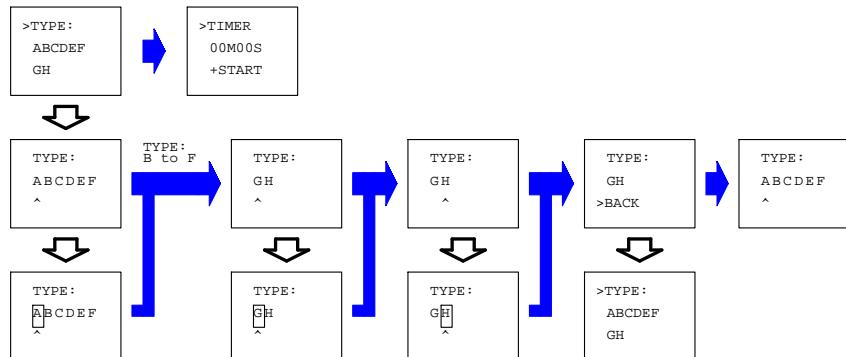


When transmitter channel is changed make sure the receiver channel is also set to the newly selected channel. Please refer to section 7.3 automatic channel scanning operating procedure if the receiver is set to “scan all channels” (see section 4.2.4).

## 4.1.3 Transmitter Type

SW6 button  is the “Enter” or “Change” command.

SW7 button  is the “Next” command.

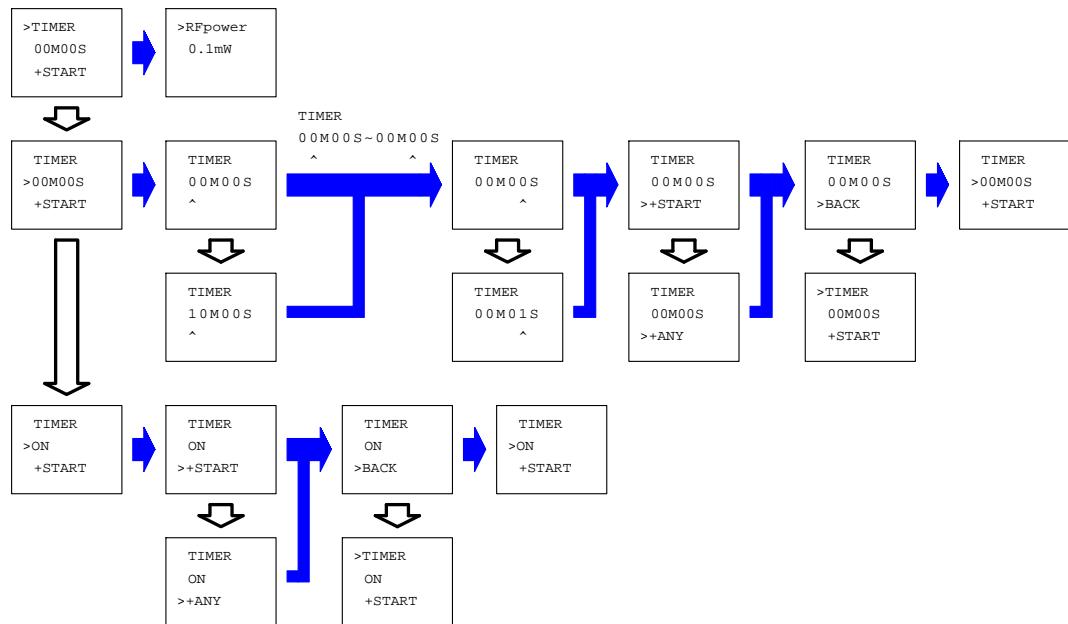


Transmitter Type is associated with functions such as tandem operation, random access operation, multi-receiver operation, etc... Please do not alter the factory settings unless authorized to do so.

#### 4.1.4 Transmitter Inactivity Timer

SW6 button  is the “Enter” or “Change” command.

SW7 button  is the “Next” command.



Transmitter inactivity timer is for setting transmission cutoff time when the transmitter is not in operation for a certain period of time. When set to 5 minutes (05M00S), the transmitter will seize transmission at 5.0 minutes after last transmitter operation.

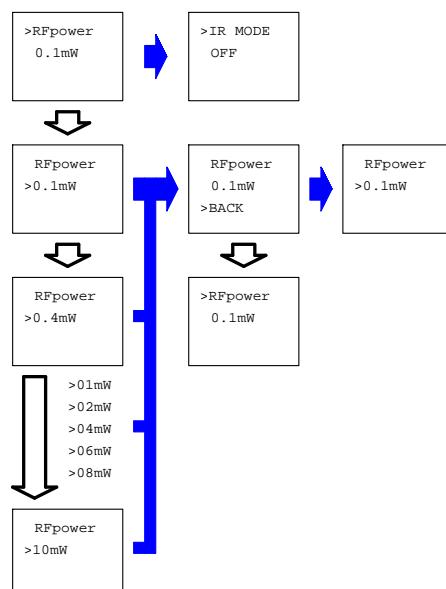
Select “ON” means the transmission is constantly on (inactivity timer disabled) until the e-stop button is pressed or when the transmitter power is switched off.

Select “+START” means after 5 minutes of transmitter inactivity you must press the green START button to continue operation. Select “+ANY” means after 5 minutes of transmitter inactivity operate the joysticks, buttons or switches to continue operation.

#### 4.1.5 Transmitter Output Power

SW6 button  is the “Enter” or “Change” command.

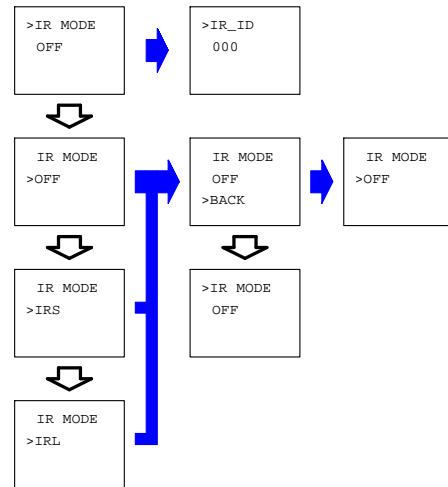
SW7 button  is the “Next” command.



#### 4.1.6 Transmitter Infrared Mode

SW6 button  is the “Enter” or “Change” command.

SW7 button  is the “Next” command.



Select “OFF” to disable infrared function.

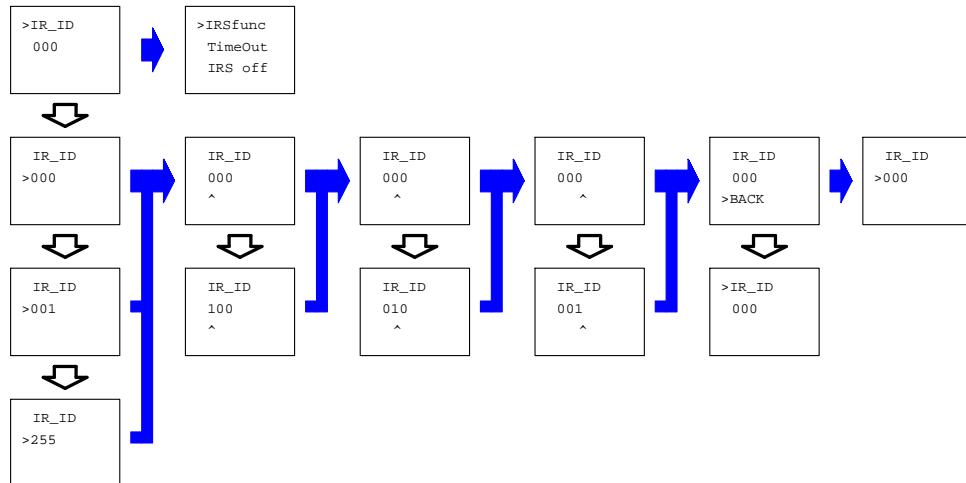
Select “IRS” to enable infrared START function.

Select “IRL” to enable infrared range limiting function.

#### 4.1.7 Transmitter Infrared ID

SW6 button  is the “Enter” or “Change” command.

SW7 button  is the “Next” command.

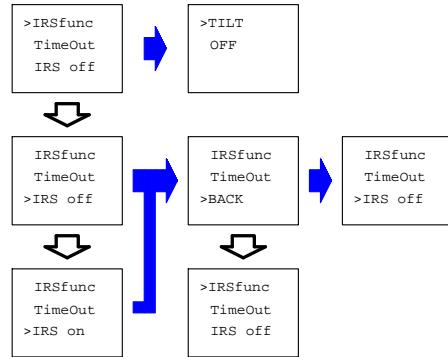


Make sure the infrared module on crane is set to same ID code as the transmitter.

Select “000” disables the ID code function hence any types of infrared modules can be used.

#### 4.1.8 Transmitter Infrared START Function

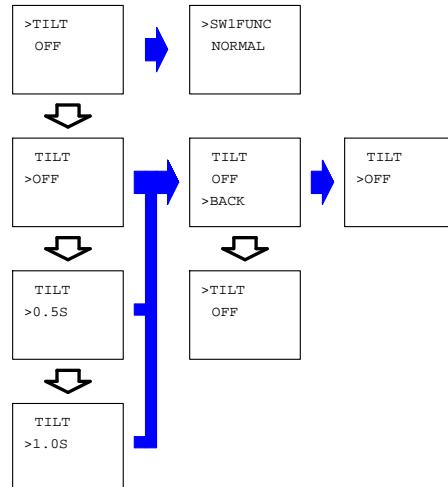
SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.



Select “IRS ON” if infrared START is required after every transmitter timeout (see section 4.1.4).  
Select “IRS OFF” if infrared START is not required after every transmitter timeout.

#### 4.1.9 Transmitter Tilt Function

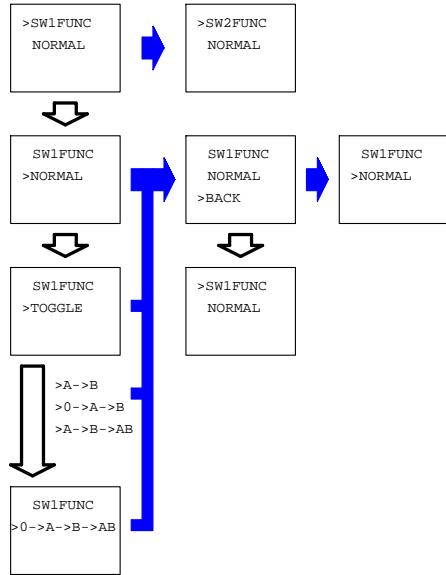
SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.



When TILT function is set to 0.5s (more sensitive) or 1.0s (less sensitive), the receiver mains are disconnected (opened) when the transmitter is tilted for more than 35~40 degrees. Select OFF disables the TILT function.

#### 4.1.10 SW1 Button Function

SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.



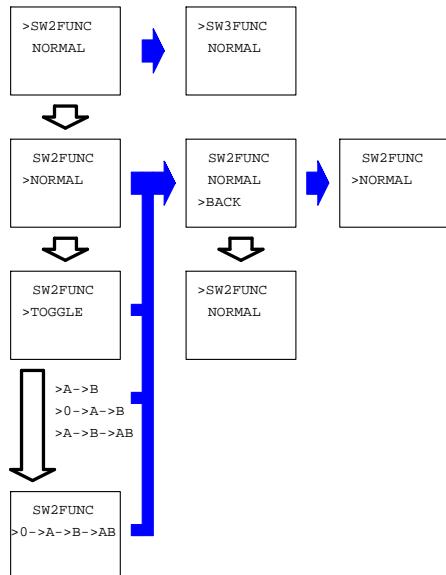
Select “NORMAL” the output relay becomes momentary contact.

Select “TOGGLE” the output relay becomes toggled contact.

**Important note:** If SW1 is equipped with a rocker switch then this SW1 button function and SW1 output relay function in receiver (see section 4.2.14) must both set to “NORMAL”.

#### 4.1.11 SW2 Button Function

SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

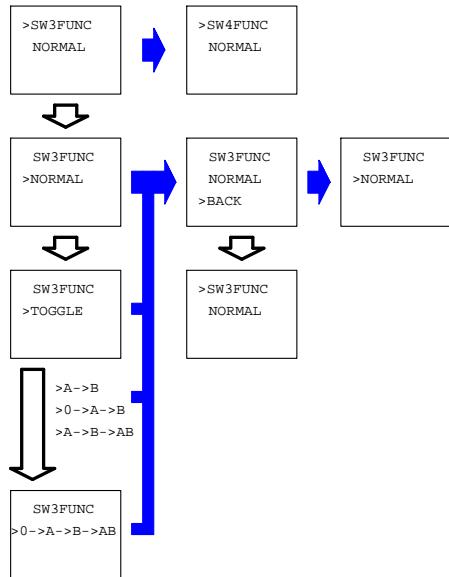
Select “TOGGLE” the output relay becomes toggled contact.

**Important note:** If SW2 is equipped with a rocker switch then this SW2 button function and SW2 output relay function in receiver (see section 4.2.15) must both set to “NORMAL”.

#### 4.1.12 SW3 Button Function

SW6 button  is the “Enter” or “Change” command.

SW7 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

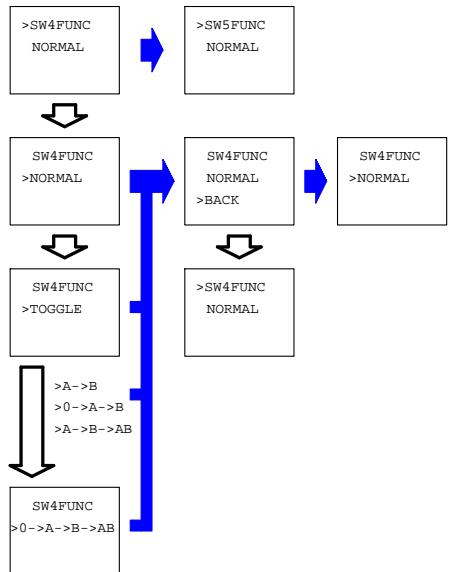
Select “TOGGLE” the output relay becomes toggled contact.

**Important note:** If SW3 is equipped with a rocker switch then this SW3 button function and SW3 output relay function in receiver (see section 4.2.16) must both set to “NORMAL”.

#### 4.1.13 SW4 Button Function

SW6 button  is the “Enter” or “Change” command.

SW7 button  is the “Next” command.



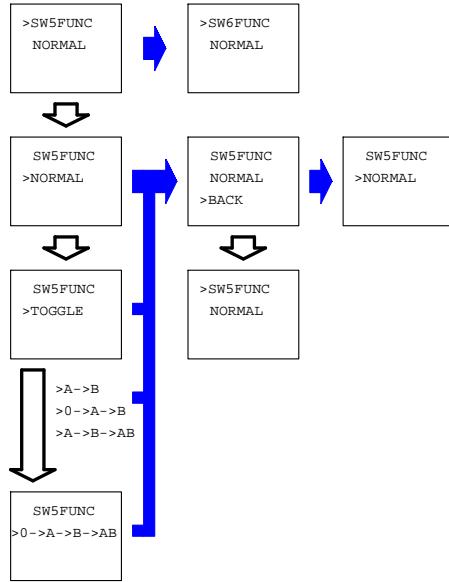
Select “NORMAL” the output relay becomes momentary contact.

Select “TOGGLE” the output relay becomes toggled contact.

**Important note:** If SW4 is equipped with a rocker switch then this SW4 button function and SW4 output relay function in receiver (see section 4.2.18) must both set to “NORMAL”.

#### 4.1.14 SW5 Button Function

SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.



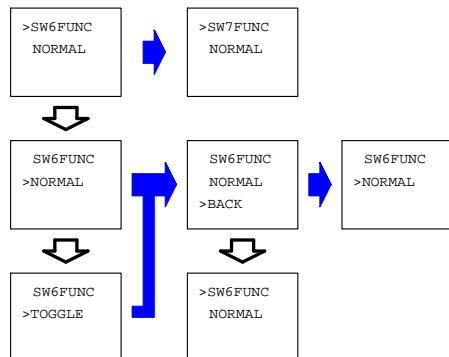
Select “NORMAL” the output relay becomes momentary contact.

Select “TOGGLE” the output relay becomes toggled contact.

**Important note:** If SW5 is equipped with a rocker switch then this SW5 button function and SW5 output relay function in receiver (see section 4.2.19) must both set to “NORMAL”.

#### 4.1.15 SW6 Button Function

SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.

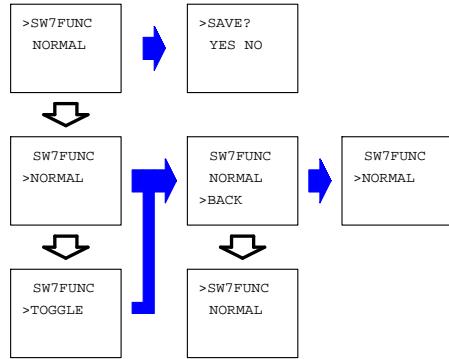


Select “NORMAL” the output relay becomes momentary contact.

Select “TOGGLE” the output relay becomes toggled contact.

#### 4.1.16 SW7 Button Function

SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.

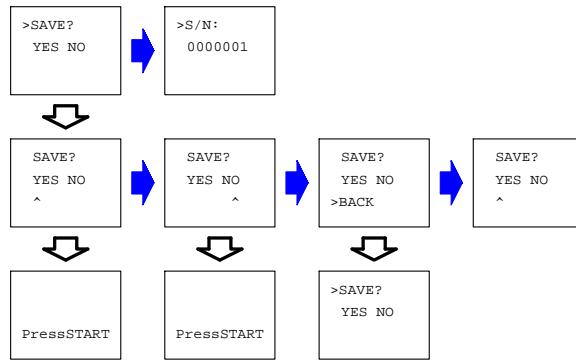


Select “NORMAL” the output relay becomes momentary contact.

Select “TOGGLE” the output relay becomes toggled contact.

#### 4.1.17 Save Function

SW6 button  is the “Enter” or “Change” command.  
SW7 button  is the “Next” command.

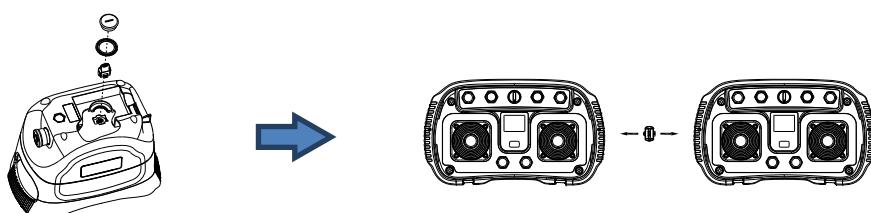


When you see the “PressSTART” screen it means the information is saved or not saved.

The system will exit the programming mode after 5 minutes of inactivity (info not saved).

#### 4.1.18 I-Chip Installation

Use a coin to unscrew the I-Chip cover by rotating it clockwise. The I-Chip is located under the battery compartment (see below).

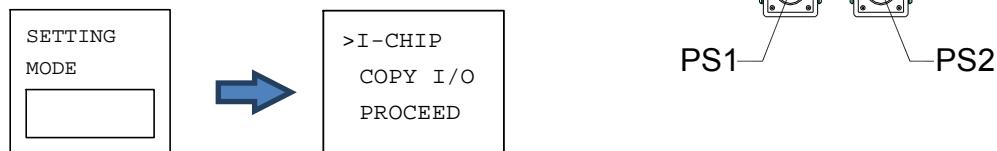


## 4.2 Receiver Unit

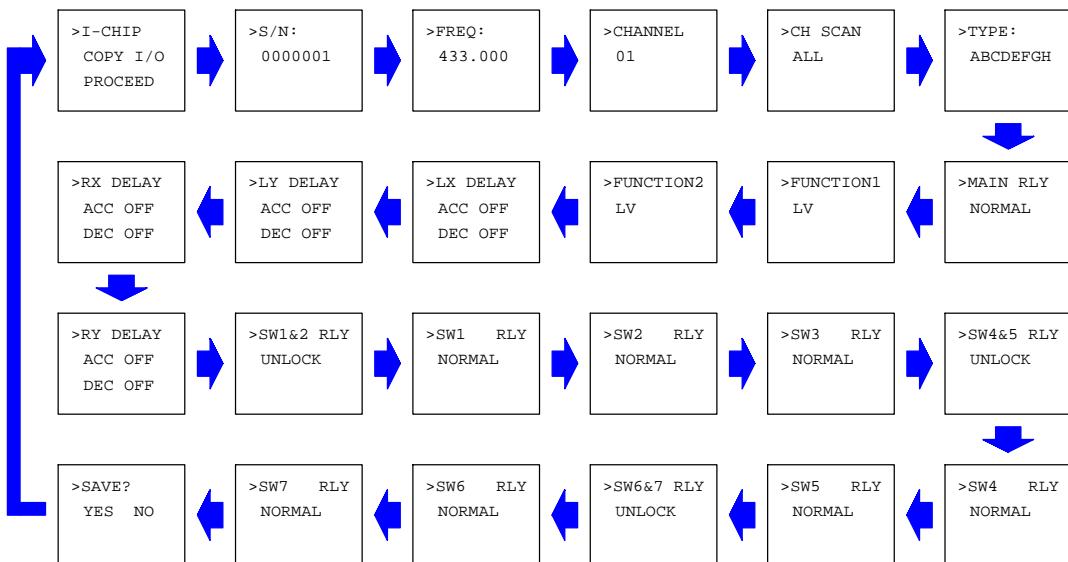
### 4.2.1 Programming Procedures

How to enter receiver programming mode:

- 1) Switch on the receiver power.
- 2) Press both PS1 and PS2 buttons below the LCD screen at the same time for up to 1 second to enter the Programming Mode. Setting Mode screen will show up for a brief second followed by the I-Chip Copy I/O (see below).



- 3) Serial number and frequency range can not be reprogrammed directly on the transmitter so press PS2 button repeatedly until you see the Channel Setting screen and so on.



- 4) Button functions:

PS1 button  is the "Enter" or "Change" command.

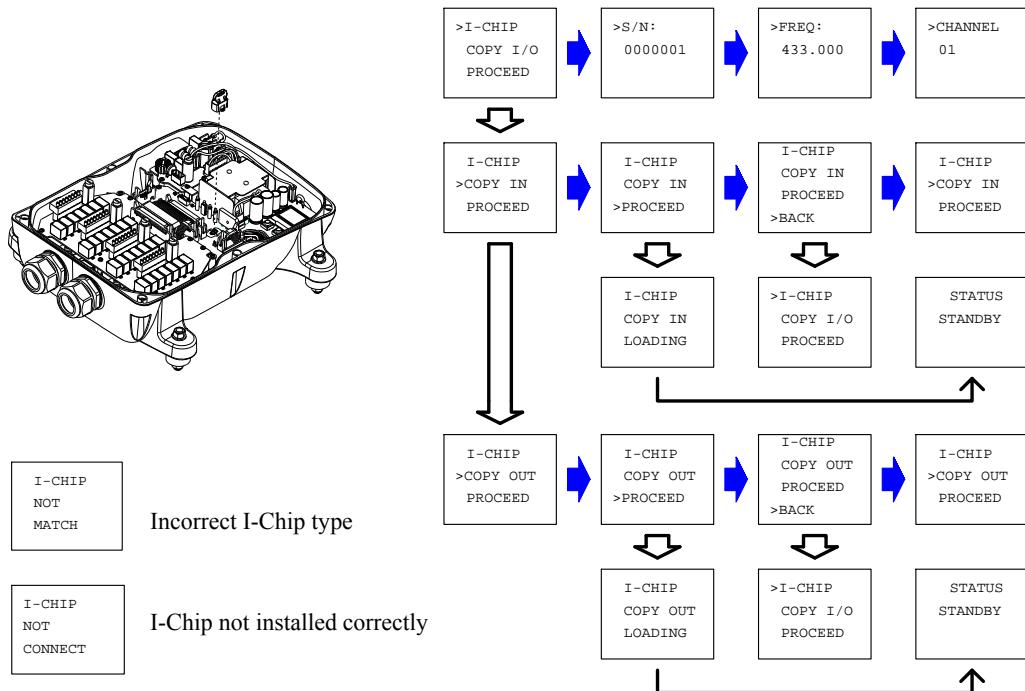
PS2 button  is the "Next" command.

Press and hold PS2 and then PS1 to go back to the previous main menu.

## 4.2.2 I-Chip Programming

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “COPY IN” to transfer I-Chip information from transmitter to receiver.

Select “COPY OUT” to transfer I-Chip information from receiver to transmitter.

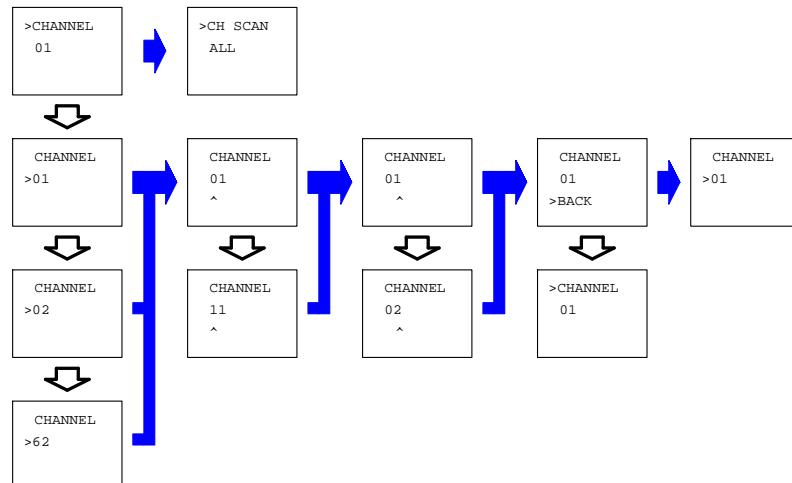
Select “Proceed” to begin transfer.

When transferring is completed the screen will display “STATUS STANDBY”.

## 4.2.3 Receiver Channel

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.

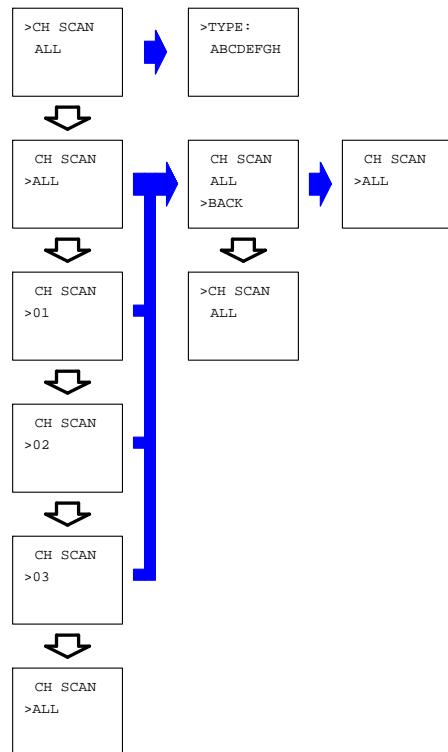


When receiver channel is changed manually make sure the transmitter channel is also set to the newly selected channel.

#### 4.2.4 Receiver Channel Scanning

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “01” the receiver only scans the channel set on section 4.2.3.

Select “02” the receiver scans the channel set on section 4.2.3 plus the next channel up (scans channel N and channel N+1).

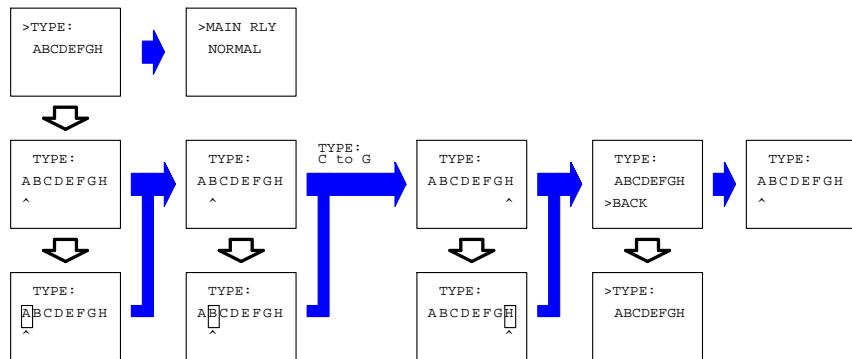
Select “03” the receiver scans the channel set on section 4.2.3 plus the next two channels up (scans channel N, channel N+1 and channel N+2).

Select “ALL” the receiver scans all 62 channels.

#### 4.2.5 Receiver Type

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.

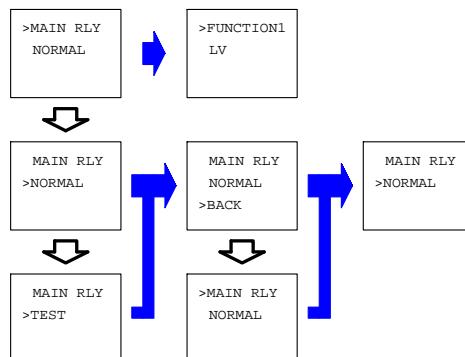


Receiver Type is associated with functions such as tandem operation, random access operation, multi-receiver operation, etc... Please do not alter the factory settings unless authorized to do so.

#### 4.2.6 Main Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



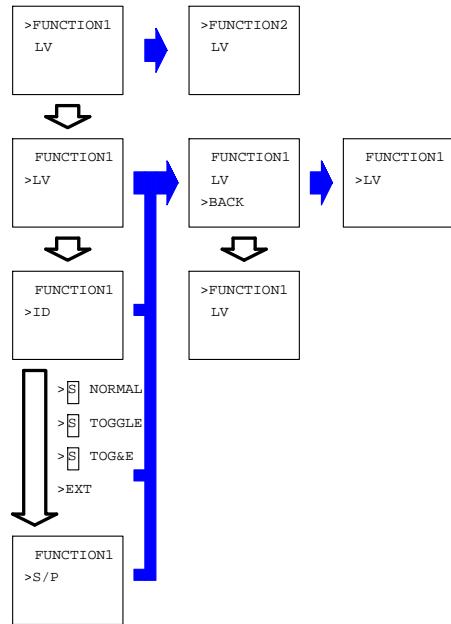
Select “NORMAL” for normal operation (receiver mains and all other outputs enabled).

Select “TEST” for system testing (receiver mains disabled and all other outputs enabled).

#### 4.2.7 Function Relay #1

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “LV” for receiver low voltage external warning output.

Select “ID” for receiver ID output (works simultaneously with all joystick motions and interlocking momentary contacts).

Select “NORMAL” the output relay becomes momentary contact when START button is pressed.

Select “TOGGLE” the output relay becomes toggled contact when START button is pressed.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

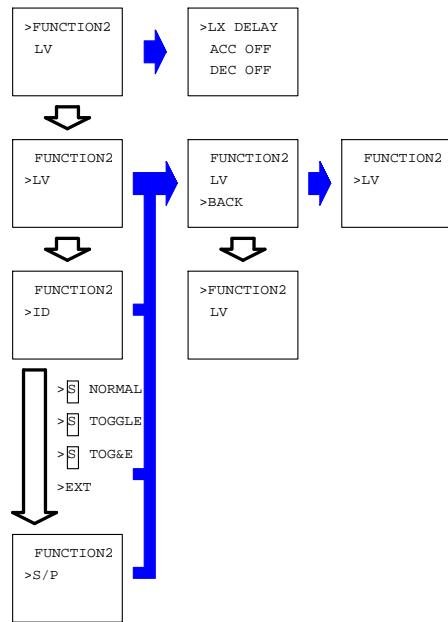
Select “EXT” the output relay works simultaneously with the receiver mains.

Select “S/P” the output relay closes when the green START button is pressed and opens only when transmitter power is switched off, not e-stop pressed.

#### 4.2.8 Function Relay #2

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “LV” for receiver low voltage external warning output.

Select “ID” for receiver ID output (works simultaneously with all joystick motions and interlocking momentary contacts).

Select “NORMAL” the output relay becomes momentary contact when START button is pressed.

Select “TOGGLE” the output relay becomes toggled contact when START button is pressed.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

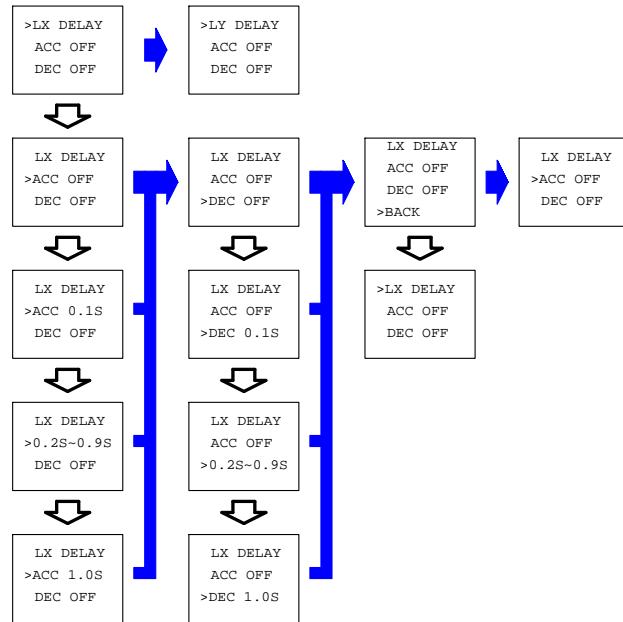
Select “EXT” the output relay works simultaneously with the receiver mains.

Select “S/P” the output relay closes when the green START button is pressed and opens only when transmitter power is switched off, not e-stop pressed.

#### 4.2.9 Joystick LX Acceleration and Deceleration Delay

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.

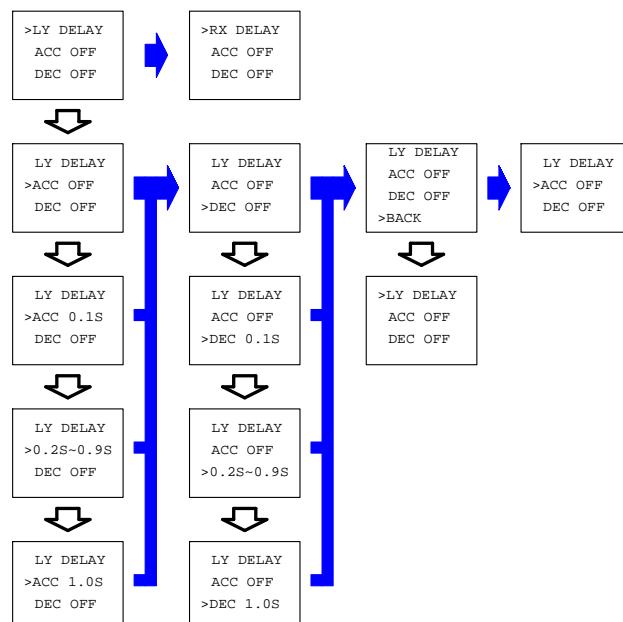


Joystick LX is the left joystick X axis.

#### 4.2.10 Joystick LY Acceleration and Deceleration Delay

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.

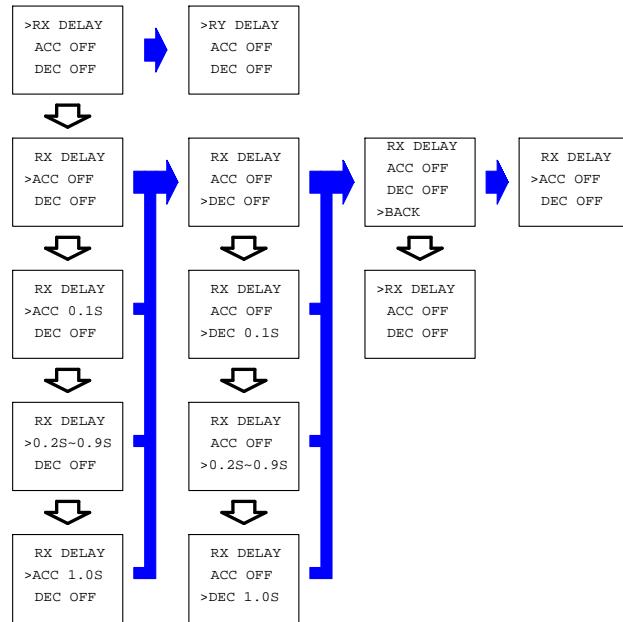


Joystick LY is the left joystick Y axis.

#### 4.2.11 Joystick RX Acceleration and Deceleration Delay

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.

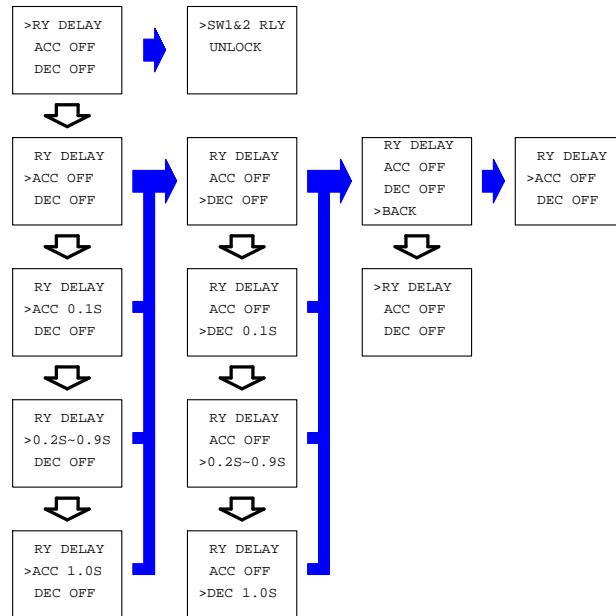


Joystick RX is the right joystick X axis.

#### 4.2.12 Joystick RY Acceleration and Deceleration Delay

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.

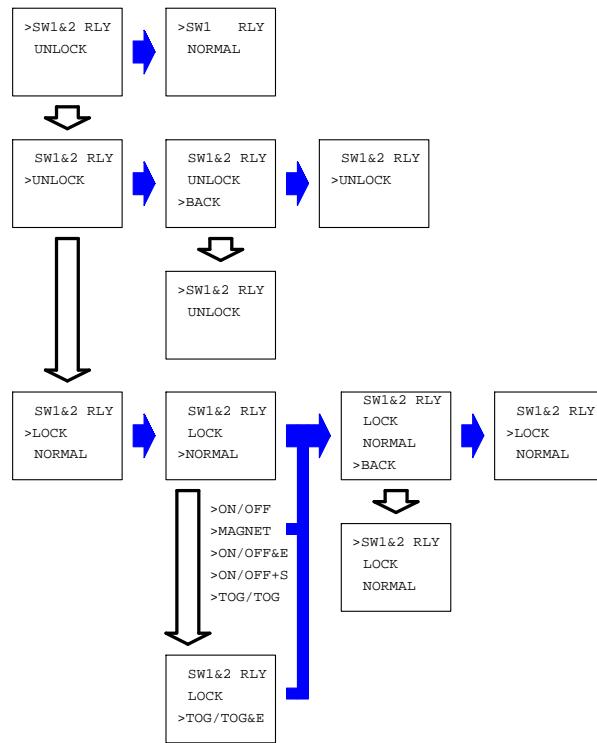


Joystick RY is the right joystick Y axis.

#### 4.2.13 SW1+SW2 Output Relays Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



“UNLOCK” means both SW1 and SW2 output relays are not interlocked.

“LOCK” means both SW1 and SW2 output relays are interlocked.

When “UNLOCK” is selected proceed to SW1 and SW2 output relay function (see section 4.2.14 and 4.2.15)

When “LOCK” is selected proceed to the selections listed below and disregard section 4.2.14 and 4.2.15)

Select “NORMAL” both output relays become interlocking momentary contacts.

Select “TOG/TOG” both output relays become interlocking toggled contacts.

Select “TOG/TOG&E” both output relays become interlocking toggled contacts affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “ON/OFF” both output relays become interlocking On and Off contacts.

Select “ON/OFF+S” both output relays become interlocking On and Off contacts. Must press the green START button along with the On or Off button to work.

Select “ON/OFF&E” both output relays become interlocking On and Off contacts affected by the e-stop command (output relay opens when e-stop button is pressed).

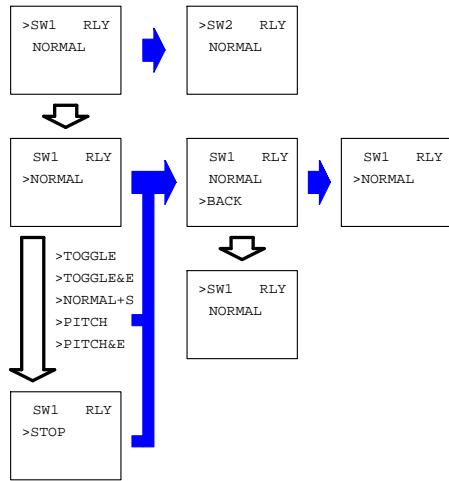
Select “MAGNET” the two output relays become interlocking Magnet ON and OFF contacts.

**Important note:** When one of the above is selected make sure the same SW1 and SW2 button function on transmitter are both set to “NORMAL” (see section 4.1.10 and 4.1.11).

#### 4.2.14 SW1 Output Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

Select “NORMAL+S” the output relay becomes momentary contact. Must press the green START button together to work.

Select “TOGGLE” the output relay becomes toggled contact.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “PITCH” SW1 button becomes the “Pitch” function in Pitch & Catch Operation.

Select “PITCH&E” SW1 button becomes the “Pitch” function in Pitch & Catch Operation. When Pitch command is initiated the receiver mains are disconnected.

Select “STOP” SW1 button becomes an auxiliary e-stop function. Press to disconnect the receiver mains and press START button to reconnect the receiver mains.

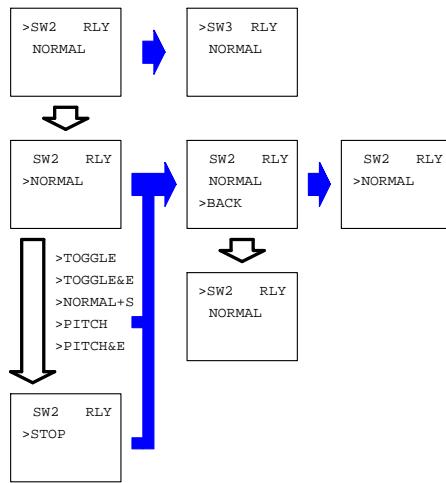
When select Pitch & Catch function make sure you set the spare transmitter to the next channel up and the receiver channel scanning to “02” (see section 4.2.4).

**Important note:** When one of the above is selected make sure the same SW1 button function on transmitter is set to “NORMAL” (see section 4.1.10).

#### 4.2.15 SW2 Output Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

Select “NORMAL+S” the output relay becomes momentary contact. Must press the green START button together to work.

Select “TOGGLE” the output relay becomes toggled contact.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “PITCH” SW2 button becomes the “Pitch” function in Pitch & Catch Operation.

Select “PITCH&E” SW2 button becomes the “Pitch” function in Pitch & Catch Operation. When Pitch command is initiated the receiver mains are disconnected.

Select “STOP” SW2 button becomes an auxiliary e-stop function. Press to disconnect the receiver mains and press START button to reconnect the receiver mains.

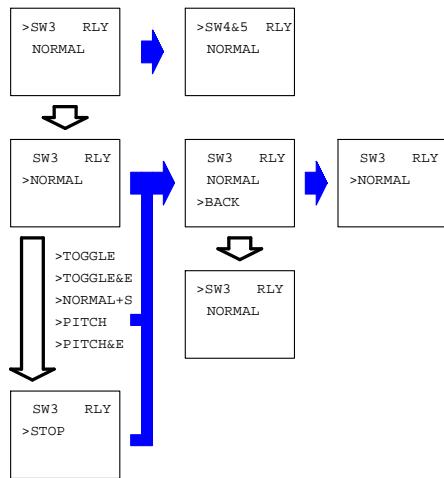
When select Pitch & Catch function make sure you set the spare transmitter to the next channel up and the receiver channel scanning to “02” (see section 4.2.4).

**Important note:** When one of the above is selected make sure the same SW2 button function on transmitter is set to “NORMAL” (see section 4.1.11).

#### 4.2.16 SW3 Output Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

Select “NORMAL+S” the output relay becomes momentary contact. Must press the green START button together to work.

Select “TOGGLE” the output relay becomes toggled contact.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “PITCH” SW3 button becomes the “Pitch” function in Pitch & Catch Operation.

Select “PITCH&E” SW3 button becomes the “Pitch” function in Pitch & Catch Operation. When Pitch command is initiated the receiver mains are disconnected.

Select “STOP” SW3 button becomes an auxiliary e-stop function. Press to disconnect the receiver mains and press START button to reconnect the receiver mains.

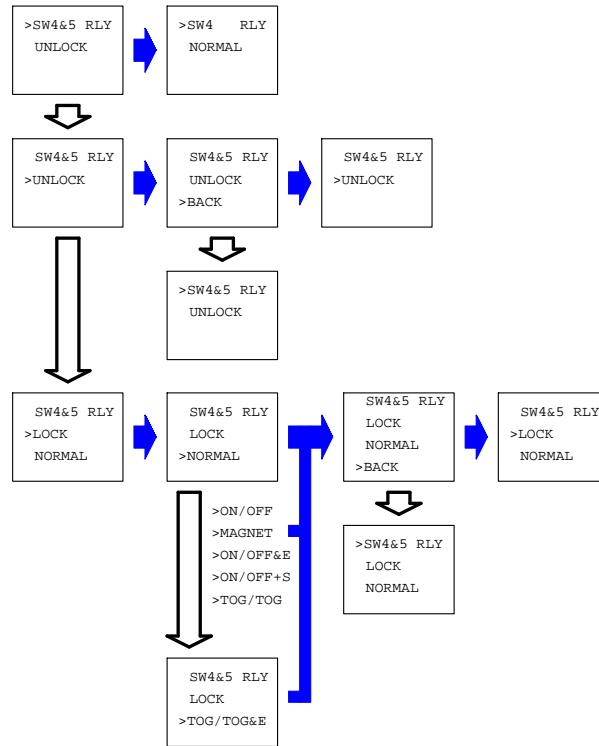
When select Pitch & Catch function make sure you set the spare transmitter to the next channel up and the receiver channel scanning to “02” (see section 4.2.4).

**Important note:** When one of the above is selected make sure the same SW3 button function on transmitter is set to “NORMAL” (see section 4.1.12).

#### 4.2.17 SW4+SW5 Output Relays Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



“UNLOCK” means both SW4 and SW5 output relays are not interlocked.

“LOCK” means both SW4 and SW5 output relays are interlocked.

When “UNLOCK” is selected proceed to SW4 and SW5 output relay function (see section 4.2.18 and 4.2.19)

When “LOCK” is selected proceed to the selections listed below and disregard section 4.2.18 and 4.2.19)

Select “NORMAL” both output relays become interlocking momentary contacts.

Select “TOG/TOG” both output relays become interlocking toggled contacts.

Select “TOG/TOG&E” both output relays become interlocking toggled contacts affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “ON/OFF” both output relays become interlocking On and Off contacts.

Select “ON/OFF+S” both output relays become interlocking On and Off contacts. Must press the green START button along with the On or Off button to work.

Select “ON/OFF&E” both output relays become interlocking On and Off contacts affected by the e-stop command (output relay opens when e-stop button is pressed).

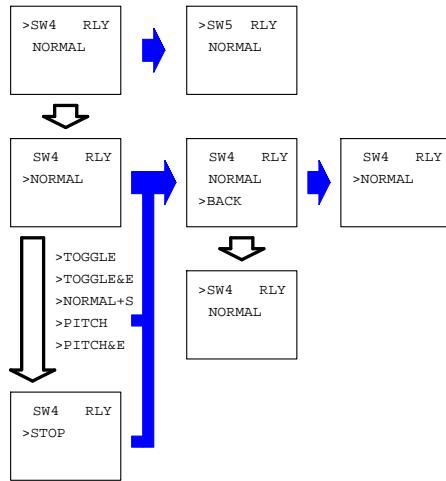
Select “MAGNET” the two output relays become interlocking Magnet ON and OFF contacts.

**Important note:** When one of the above is selected make sure the same SW4 and SW5 button function on transmitter are both set to “NORMAL” (see section 4.1.13 and 4.1.14).

#### 4.2.18 SW4 Output Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

Select “NORMAL+S” the output relay becomes momentary contact. Must press the green START button together to work.

Select “TOGGLE” the output relay becomes toggled contact.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “PITCH” SW4 button becomes the “Pitch” function in Pitch & Catch Operation.

Select “PITCH&E” SW4 button becomes the “Pitch” function in Pitch & Catch Operation. When Pitch command is initiated the receiver mains are disconnected.

Select “STOP” SW4 button becomes an auxiliary e-stop function. Press to disconnect the receiver mains and press START button to reconnect the receiver mains.

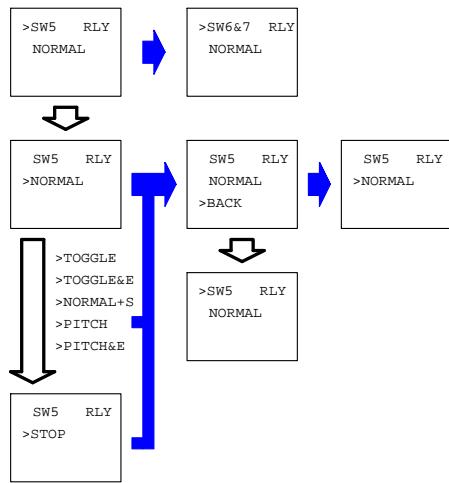
When select Pitch & Catch function make sure you set the spare transmitter to the next channel up and the receiver channel scanning to “02” (see section 4.2.4).

**Important note:** When one of the above is selected make sure the same SW4 button function on transmitter is set to “NORMAL” (see section 4.1.13).

#### 4.2.19 SW5 Output Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

Select “NORMAL+S” the output relay becomes momentary contact. Must press the green START button together to work.

Select “TOGGLE” the output relay becomes toggled contact.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “PITCH” SW5 button becomes the “Pitch” function in Pitch & Catch Operation.

Select “PITCH&E” SW5 button becomes the “Pitch” function in Pitch & Catch Operation. When Pitch command is initiated the receiver mains are disconnected.

Select “STOP” SW5 button becomes an auxiliary e-stop function. Press to disconnect the receiver mains and press START button to reconnect the receiver mains.

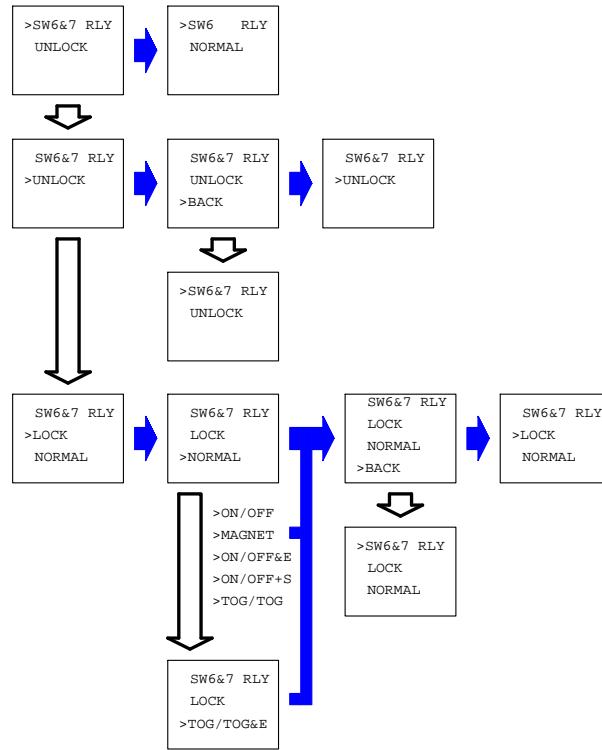
When select Pitch & Catch function make sure you set the spare transmitter to the next channel up and the receiver channel scanning to “02” (see section 4.2.4).

**Important note:** When one of the above is selected make sure the same SW5 button function on transmitter is set to “NORMAL” (see section 4.1.14).

## 4.2.20 SW6+SW7 Output Relays Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



“UNLOCK” means both SW6 and SW7 output relays are not interlocked.

“LOCK” means both SW6 and SW7 output relays are interlocked.

When “UNLOCK” is selected proceed to SW6 and SW7 output relay function (see section 4.2.21 and 4.2.22)

When “LOCK” is selected proceed to the selections listed below and disregard section 4.2.21 and 4.2.22)

Select “NORMAL” both output relays become interlocking momentary contacts.

Select “TOG/TOG” both output relays become interlocking toggled contacts.

Select “TOG/TOG&E” both output relays become interlocking toggled contacts affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “ON/OFF” both output relays become interlocking On and Off contacts.

Select “ON/OFF+S” both output relays become interlocking On and Off contacts. Must press the green START button along with the On or Off button to work.

Select “ON/OFF&E” both output relays become interlocking On and Off contacts affected by the e-stop command (output relay opens when e-stop button is pressed).

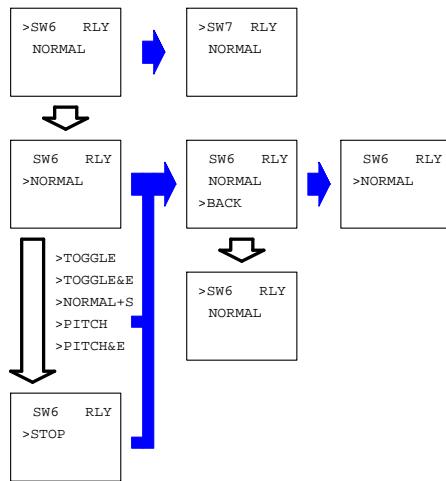
Select “MAGNET” the two output relays become interlocking Magnet ON and OFF contacts.

**Important note:** When one of the above is selected make sure the same SW6 and SW7 button function on transmitter are both set to “NORMAL” (see section 4.1.15 and 4.1.16).

#### 4.2.21 SW6 Output Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

Select “NORMAL+S” the output relay becomes momentary contact. Must press the green START button together to work.

Select “TOGGLE” the output relay becomes toggled contact.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “PITCH” SW6 button becomes the “Pitch” function in Pitch & Catch Operation.

Select “PITCH&E” SW6 button becomes the “Pitch” function in Pitch & Catch Operation. When Pitch command is initiated the receiver mains are disconnected.

Select “STOP” SW6 button becomes an auxiliary e-stop function. Press to disconnect the receiver mains and press START button to reconnect the receiver mains.

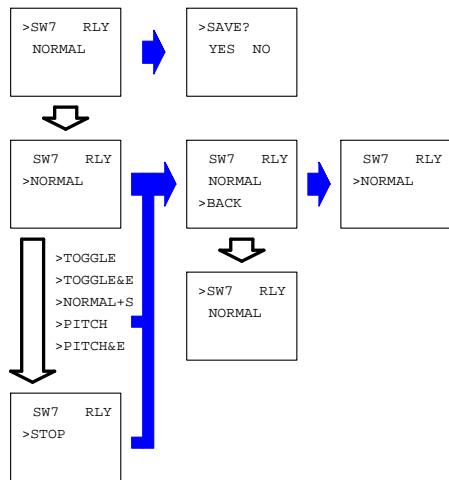
When select Pitch & Catch function make sure you set the spare transmitter to the next channel up and the receiver channel scanning to “02” (see section 4.2.4).

**Important note:** When one of the above is selected make sure the same SW6 button function on transmitter is set to “NORMAL” (see section 4.1.15).

#### 4.2.22 SW7 Output Relay Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



Select “NORMAL” the output relay becomes momentary contact.

Select “NORMAL+S” the output relay becomes momentary contact. Must press the green START button together to work.

Select “TOGGLE” the output relay becomes toggled contact.

Select “TOGGLE&E” the output relay becomes toggled contact affected by the e-stop command (output relay opens when e-stop button is pressed).

Select “PITCH” SW7 button becomes the “Pitch” function in Pitch & Catch Operation.

Select “PITCH&E” SW7 button becomes the “Pitch” function in Pitch & Catch Operation. When Pitch command is initiated the receiver mains are disconnected.

Select “STOP” SW7 button becomes an auxiliary e-stop function. Press to disconnect the receiver mains and press START button to reconnect the receiver mains.

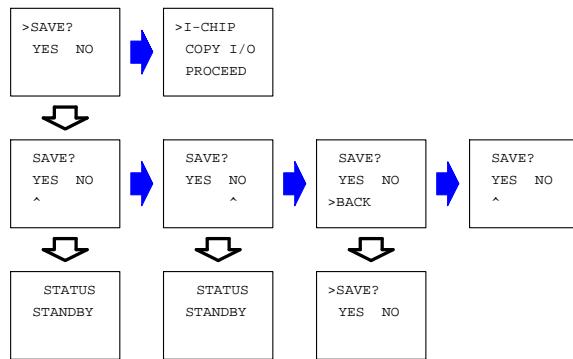
When select Pitch & Catch function make sure you set the spare transmitter to the next channel up and the receiver channel scanning to “02” (see section 4.2.4).

**Important note:** When one of the above is selected make sure the same SW7 button function on transmitter is set to “NORMAL” (see section 4.1.16).

### 4.2.23 Save Function

PS1 button  is the “Enter” or “Change” command.

PS2 button  is the “Next” command.



When you see the “STATUS STANDBY” screen it means the information is saved or not saved.

The system will exit the programming mode after 5 minutes of inactivity (info not saved).

### 4.2.24 Voltage Settings

Always check the voltage setting is correct for your application prior to installation.

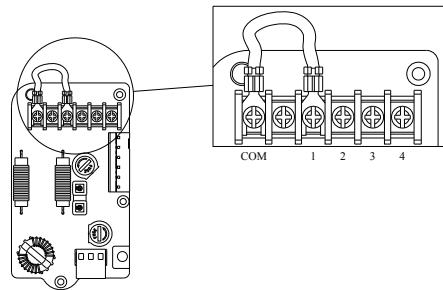
Position 1 → 110 ~ 120VAC

Position 2 → 220 ~ 240VAC

F1 ~ F8 Fuse @ 5.0 Amps

F9 ~ F10 Fuse @ 1.0 Amps

F11 ~ F14 Fuse @ 5.0 Amps

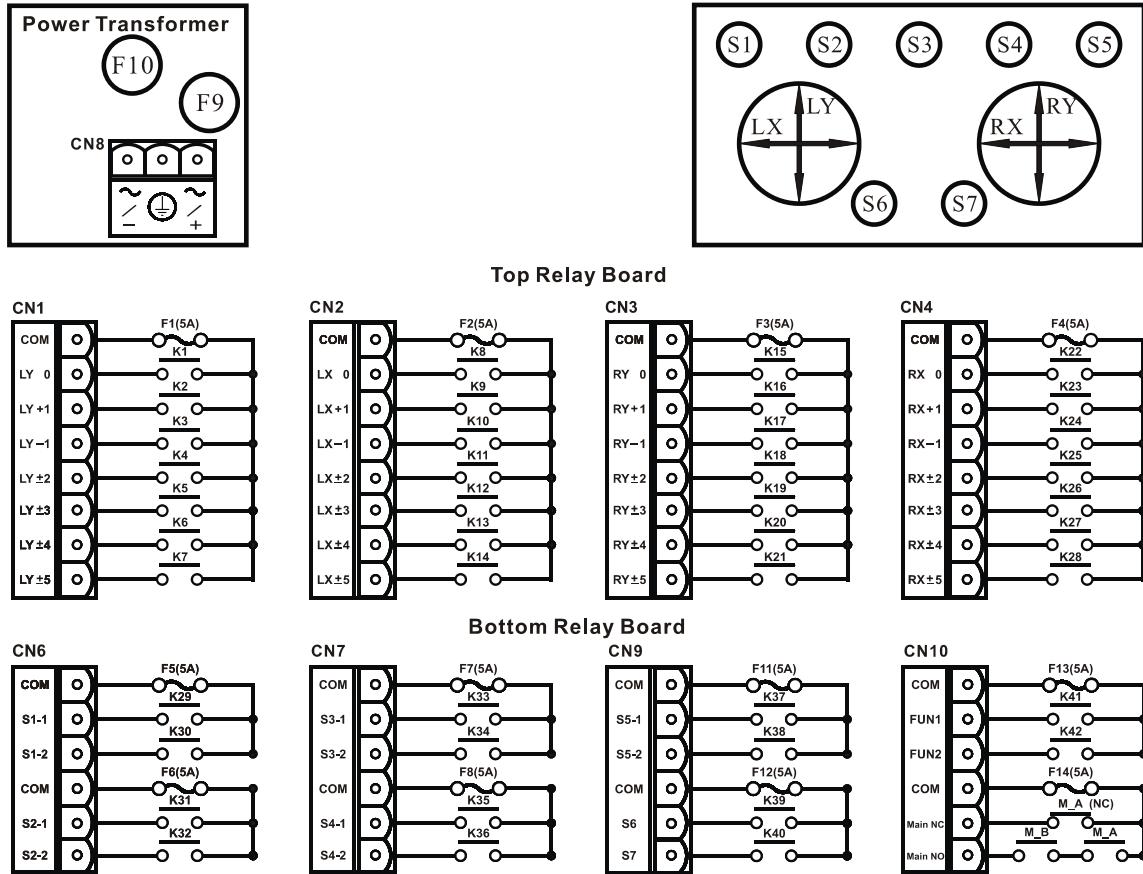


## 5. System Channels Table

Channel	Frequency	Channel	Frequency
01	433.000MHZ	32	433.775MHZ
02	433.025MHZ	33	433.800MHZ
03	433.050MHZ	34	433.825MHZ
04	433.075MHZ	35	433.850MHZ
05	433.100MHZ	36	433.875MHZ
06	433.125MHZ	37	433.900MHZ
07	433.150MHZ	38	433.925MHZ
08	433.175MHZ	39	433.950MHZ
09	433.200MHZ	40	433.975MHZ
10	433.225MHZ	41	434.000MHZ
11	433.250MHZ	42	434.025MHZ
12	433.275MHZ	43	434.050MHZ
13	433.300MHZ	44	434.075MHZ
14	433.325MHZ	45	434.100MHZ
15	433.350MHZ	46	434.125MHZ
16	433.375MHZ	47	434.150MHZ
17	433.400MHZ	48	434.175MHZ
18	433.425MHZ	49	434.200MHZ
19	433.450MHZ	50	434.225MHZ
20	433.475MHZ	51	434.250MHZ
21	433.500MHZ	52	434.275MHZ
22	433.525MHZ	53	434.300MHZ
23	433.550MHZ	54	434.325MHZ
24	433.575MHZ	55	434.350MHZ
25	433.600MHZ	56	434.375MHZ
26	433.625MHZ	57	434.400MHZ
27	433.650MHZ	58	434.425MHZ
28	433.675MHZ	59	434.450MHZ
29	433.700MHZ	60	434.475MHZ
30	433.725MHZ	61	434.500MHZ
31	433.750MHZ	62	434.525MHZ

# 6. Receiver Installation

## 6.1 Output Relay Contact Diagram



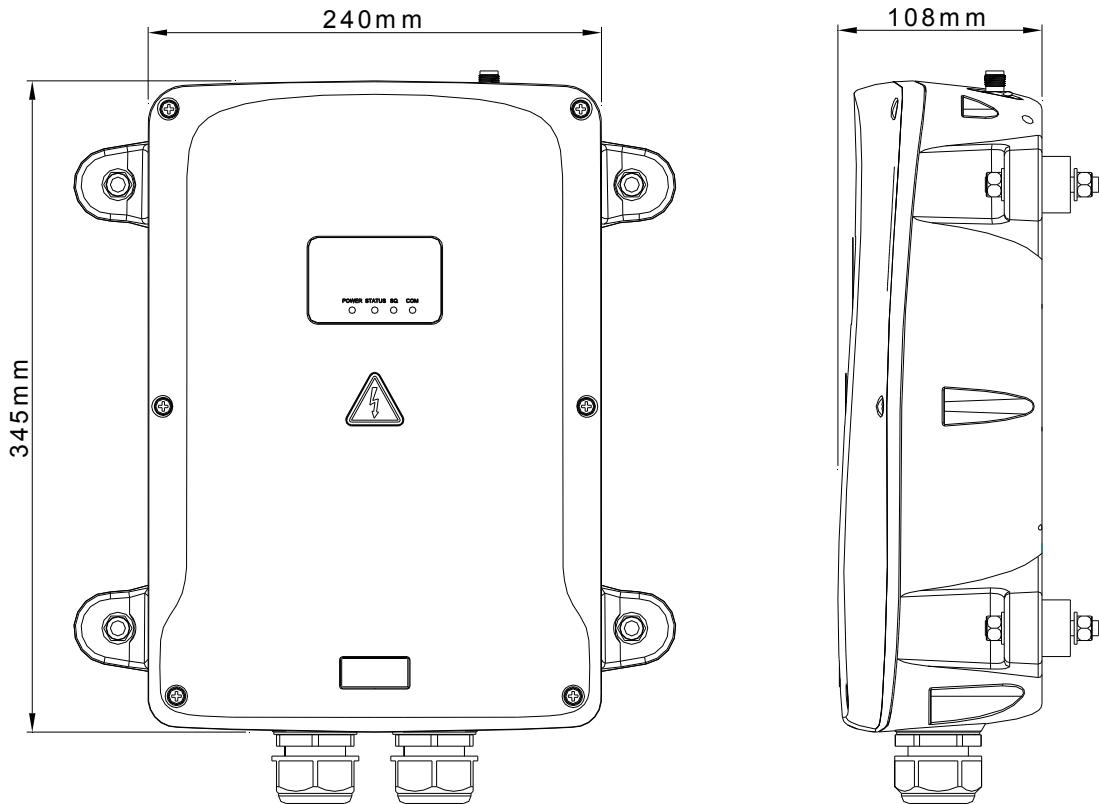
Please refer to section 4.2.24 for various input voltage settings.

Please refer to section 4.2.24 for all power fuse ratings.

## 6.2 Pre-Installation Precautions

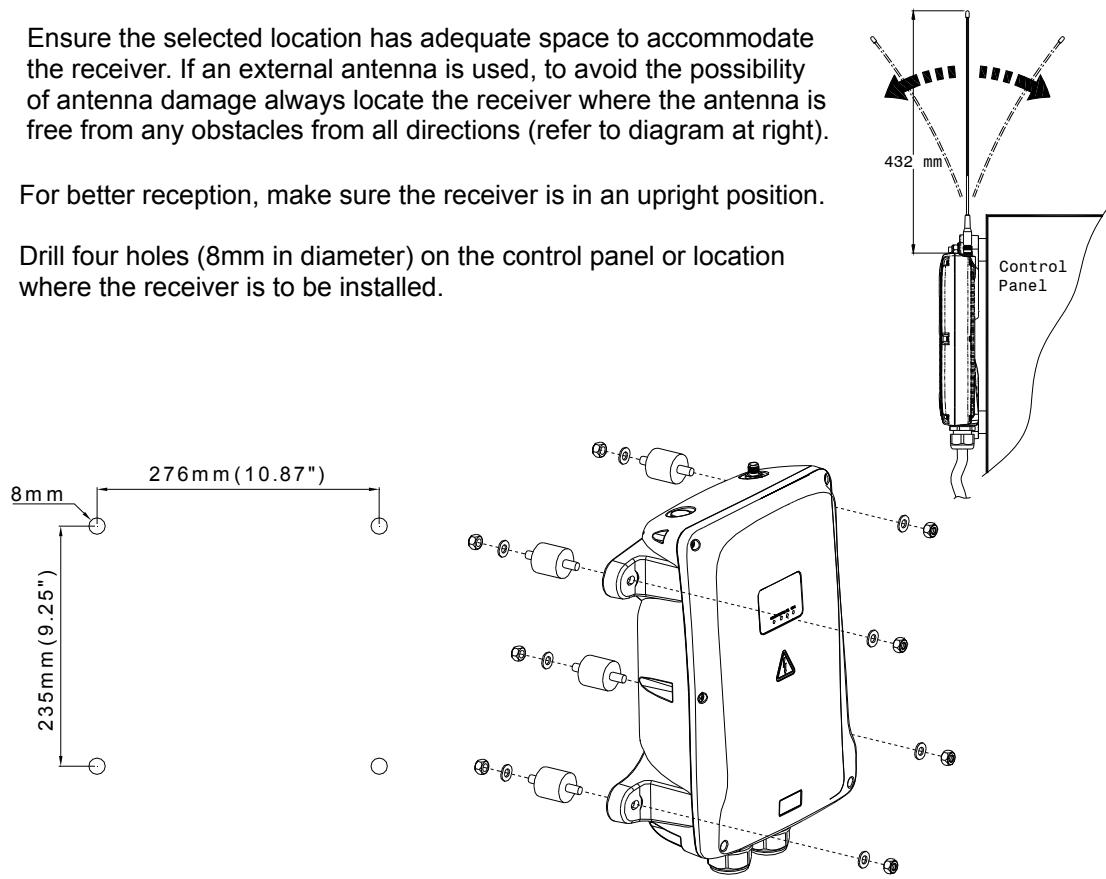
1. Make sure the transmitter and receiver have identical serial number/ID codes and channels.
2. Make sure the receiver is not set to the same channel as any other systems in use in the surrounding area.
3. Make sure that the crane or equipment is working properly prior to installation.
4. Make sure the power source to the receiver is set correctly.
5. Switch off the main power source to the crane or equipment prior to installation.

## 6.3 Step-By-Step Installation



1. For best reception the location of the receiver should be visible to the operator at all times.
2. The location selected should not be exposed to high levels of electric noise. Mounting the receiver next to an unshielded variable frequency drive may cause minor interference. Always locate the receiver as far away from the variable frequency drive as possible.

3. Ensure the selected location has adequate space to accommodate the receiver. If an external antenna is used, to avoid the possibility of antenna damage always locate the receiver where the antenna is free from any obstacles from all directions (refer to diagram at right).
4. For better reception, make sure the receiver is in an upright position.
5. Drill four holes (8mm in diameter) on the control panel or location where the receiver is to be installed.



6. Make sure the bolts are tightened after installation.
7. For system wiring please refer to section 6.1.

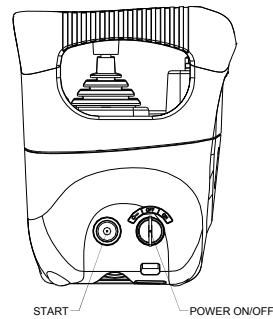
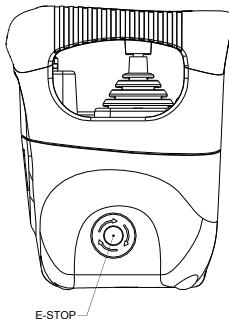
## 6.4 System Testing

1. Turn on the power source to the receiver and test the MAIN relay output by pressing the red emergency stop button and making sure that it properly opens and closes the mainline disconnect contactor.
2. Test the operation of each function to ensure it corresponds to the transmitter direction labels or the pendant it is replacing.
3. Test the limit switches (if any) to see if they are working properly.
4. If your new remote control is replacing an existing pendant, make sure it is completely disconnected and placed in a safe location to prevent unwanted control commands.

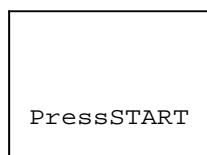
# 7. Operating Procedure

## 7.1 General Operating Procedure

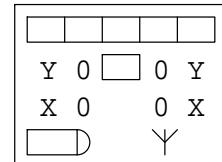
- a. Reset the red emergency stop button located on the left hand side of the transmitter by pulling it upward or rotating it clockwise.
- b. Turn on the transmitter power by inserting the black-colored key into the keyswitch slot located on the right hand side of the transmitter and rotate it clockwise to “On” position.



- c. After turning on the transmitter power the LCD screen will display “PressSTART”. Press the green START button next to the power keyswitch for up to one (1) second to activate (connect) the receiver mains.



→ Press Start →



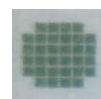
- d. Available icons:



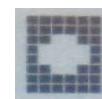
Main Screen



Start



Normal



Toggle



A



B



A+B

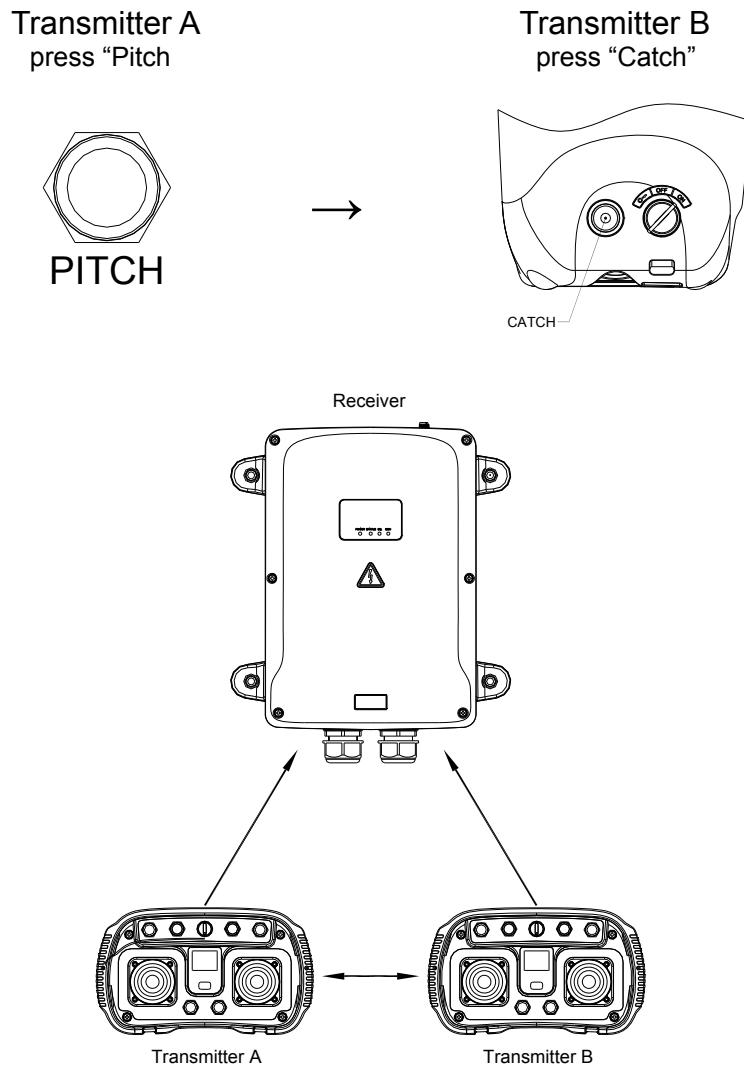


Infrared

- e. In case of an emergency, pressing the red e-stop button will immediately disconnect the receiver mains (LCD turns off). Pull it upward or rotate the red button clockwise to reset the e-stop button. Press the green START button for up to one (1) second to reconnect the receiver mains when “PressSTART” reappears on the LCD screen.
- f. After 5 minutes of inactivity the receiver mains are disconnected temporarily (depends on transmitter inactivity timer set on section 4.1.4). Press the green START button to reconnect the receiver mains and continue operation.
- g. Turn off the transmitter power by rotating the power key counter-clockwise to “Off” position; it will disconnect the transmitter power and the receiver mains altogether. Turn it further counter-clockwise to release the key.

## 7.2 Pitch & Catch Operating Procedure

In order for transmitter-B to take over the receiver, or vice versa, transmitter-A must press the "Pitch" button on the transmitter for up to one (1) second. This will release transmitter-A control of the receiver. Transmitter B then presses the green "Start/Catch" button to gain control of the same receiver.

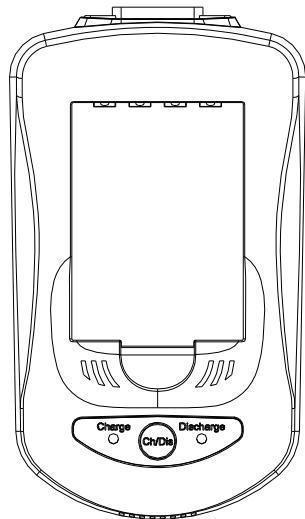


## 7.3 Automatic Channel Scanning Operating Procedure

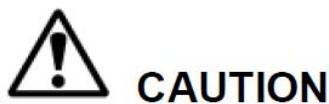
When transmitter channel is changed (see section 4.1.2) press the green START button for up to 60 seconds to re-connect with the receiver unit. Make sure the receiver unit is set to Scan “ALL” in the receiver channel scanning section 4.2.4.

## 7.4 Battery Charging Instruction

When battery pack is inserted it will automatically go into charging mode. Press the Charge/Discharge button to switch from charging to discharging, or vice versa.



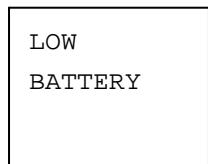
<b>Power On</b>	→ Charge LED blinks green 3 times.
<b>Charging</b>	→ Charge LED blinks green constantly.
<b>Discharging</b>	→ Discharge LED blinks red constantly.
<b>Fully charged</b>	→ Charge LED constant green.



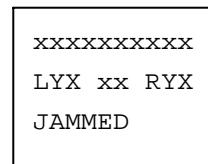
**RISK OF EXPLOSION IF BATTERY IS PLACED BY AN INCORRECT TYPE.  
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.**

# 8. Status and Warnings

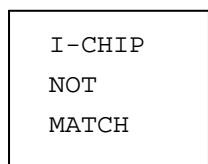
## 8.1 Transmitter



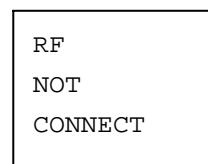
Battery low power



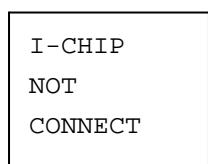
Bad joystick internal contact or contacts detected



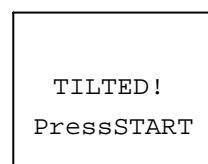
Incorrect I-Chip version



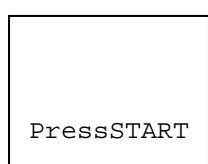
Transmitting module not installed



I-Chip not installed



Transmitter not in upright position



system not error

## 8.2 Receiver

### 8.2.1 LED Status Indications

Type	Display Type	Indication
1	Fast green blinks	Decoding in progress
2	Slow green blinks	Decoding on standby
3	Fast red blinks	Incorrect transmitter serial number and type
4	Two red blinks	Receiver MAIN jammed or defective
5	Three red blinks	Decoder module defective
6	Four red blinks + one green blink	Receiving module defective
7	Constant red	Receiver under-voltage, LV output relay activated

### 8.2.2 LED SQ Indications

Type	Display Type (Red)	Indication
1	On	Transmission received
2	Off	No transmission
3	Blinks intermittently	Other radio interference

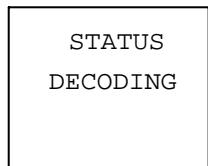
### 8.2.3 LED POWER Indications

Type	Display Type (Red)	Indication
1	On	Power to receiver
2	Off	No power to receiver

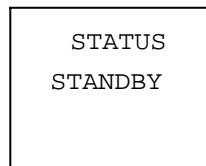
### 8.2.4 LED COM Indications

Type	Display Type (Red)	Indication
1	On	Power to relay Board
2	Off	No power to relay board

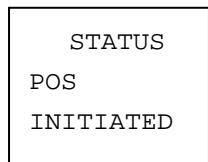
### 8.2.5 LCD Indications



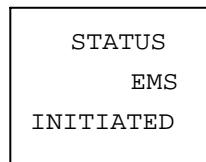
Decoding in progress



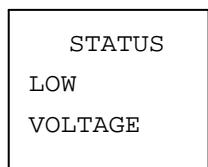
Decoder on standby



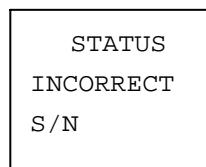
Transmitter power off



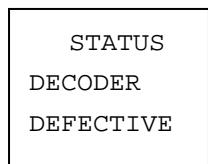
Transmitter e-stop  
command initiated



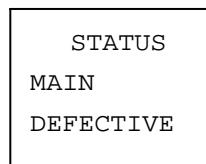
Receiver low input  
voltage



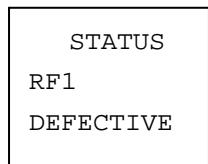
Incorrect serial number  
and type on transmitter



Decoder module defective



Main relay defective



Receiving module defective

## 9. Trouble Shooting Tips

Problems	Possible Reasons	Suggestions
<b>No response when transmitter is in operation</b>  <b>(Improper startup &amp; settings)</b>	Transmitter low battery	Check the transmitter battery level.
	Emergency stop button activated prior to startup	Prior to turning on the transmitter power make sure that the red emergency stop button is elevated.
	Improper startup procedure	Redo the startup procedure.
	Incorrect system channel	Check and make sure the transmitter and receiver are with same channel.
	Incorrect system serial number	Check and make sure the transmitter and receiver are with same serial number.
	System out of range	Make sure the startup procedure is initiated within 100 meters from the receiver location.
<b>No response when transmitter is in operation</b>  <b>(Damaged hardware)</b>	Defective transmitting and receiving module	Check the SQ display on the face of the receiver unit. If it does not light up when operating the transmitter then either the transmitting or receiving module is defective. Replace the transmitting module first then the receiving module.
	Defective encoder board or decoder module	If still no response after replacing the, transmitting and receiving modules then replace the transmitter encoder board. If still doesn't work then the decoder module is defective.
<b>No AC power to the receiver</b>	Incorrect input voltage	Make sure the source voltage is set correctly.
	Blown fuse	Check for any blown fuse.
	Incorrect wiring	Check input voltage connection.
<b>Outputs do not correspond to transmitter</b>	Incorrect output connection	Check the system wiring again.

# 10. System Specifications

Frequency Range	:	433 MHz
Channel Spacing	:	25.0 KHz
Number of Channels	:	62 channels
Modulation	:	Digital Frequency Modulation, 20bit address, 32bit CRC Parity Check and Hamming Code.
Encoder & Decoder	:	Microprocessor-controlled
Transmitting Range	:	>100 Meters / 300 Feet
Frequency Control	:	Synthesized PLL (Phase Lock Loop)
Receiver Type	:	Frequency Auto Scanning
Receiver Sensitivity	:	-116dBm
Antenna Impedance	:	50 ohms
Responding Time	:	50 Milliseconds (average)
Transmitting Power	:	2.0mW
Enclosure Type	:	NEMA-4X
Enclosure Rating	:	IP-66
Output Contact Rating	:	250V @ 8 Amps
Transmitter Operating Voltage	:	DC 6.0V
Receiver Power Consumption	:	30 VA (max)
Receiver Supplied Voltage	:	220-240VAC @ 50/60Hz
Charger Unit Power Consumption	:	5.0 VA(max)
Charger Unit Supplied Voltage	:	110~240VAC @ 50/60Hz
Operating Temperature	:	-25°C -- 50°C / -13°F -- 122°F
Transmitter Dimension	:	247mm (L) x 145mm (W) x 180mm (H)
Receiver Dimension	:	345mm (L) x 240mm (W) x 108mm (H)
Transmitter Weight	:	1.80kg (include battery pack)
Receiver Weight	:	3.65kg

# CE EU Declaration of Conformity CE

(EMC, R&TTE, SAFETY & MACHINERY)

*For the following equipment:*

Product	:	<u>Flex Series Radio Remote Control System</u>
Multiple Listee Model No.	:	<u>Flex 2JX</u>
Manufacturer's Name	:	<u>Advanced Radiotech Corporation</u>
Manufacturer's Address	:	<u>1F, 288-1, Hsin Ya Road, Chien Chen District</u>
		<u>Kaohsiung City, Taiwan</u>

We hereby declare, that all major safety requirements, concerning the CE Mark Directive 2006/42/EC and Low Voltage Directive 2006/95/EC, Electromagnetic Compatibility Directives 2004/108/EC, R&TTE Directive 1999/5/EC are fulfilled, as laid out in the guideline set down by the member states of the EEC Commission.

*The standards relevant for the evaluation of the electrical safety requirements are as follow:*

EMC	:	<u>EN 301 489-1 + EN 301 489-3</u>
R&TTE	:	<u>EN 300 220-2 V2.1.1</u>
SAFETY	:	<u>EN 60950:2006+A1+A11+A12</u>
MACHINERY	:	<u>EN 60204-32:2008, EN 13557:2003+A1:2008</u>
		<u>EN ISO 13849-1:2008 (PL=d), EN 60529 (IP66)</u>

*Test reports issued by:*

EMC	:	<u>SGS</u>
R&TTE	:	<u>SGS</u>
SAFETY	:	<u>SGS</u>
MACHINERY	:	<u>SGS</u>

*Person responsible for marking this declaration:*



Tom Jou / President

Name and signature of authorized person