

FLEXMini

Instruction Manual



Service Information

Your New Radio System

Thank you for your purchase of ARC Flex Mini radio remote control system. Without a doubt, our Flex Mini 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.

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1. 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:



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:



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.

1.1 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.

1.2 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.

1.3 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.

1.4 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

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 CONCERNS 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 ARC FOR EVALUATION AND REPAIR. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH AND DAMAGE TO EQUIPMENT.

1.5 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.

1.6 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.

1.7 BATTERIES



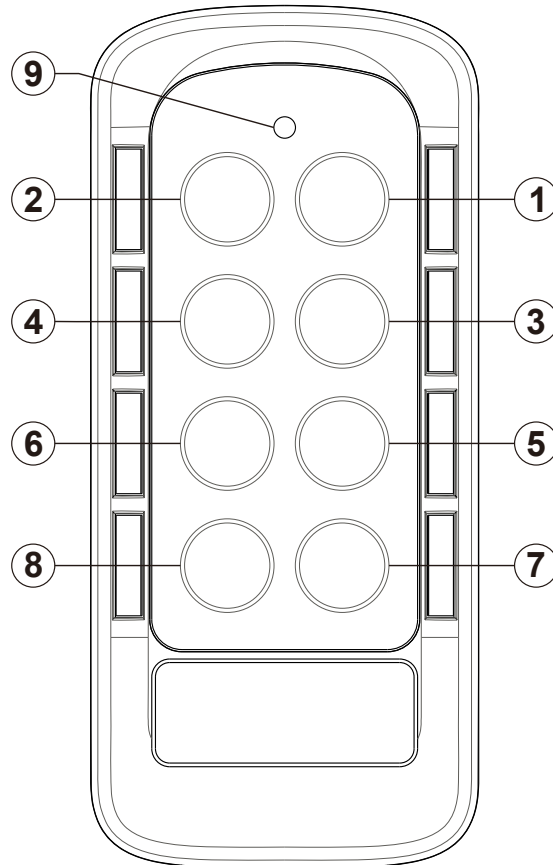
WARNING

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. General System Information

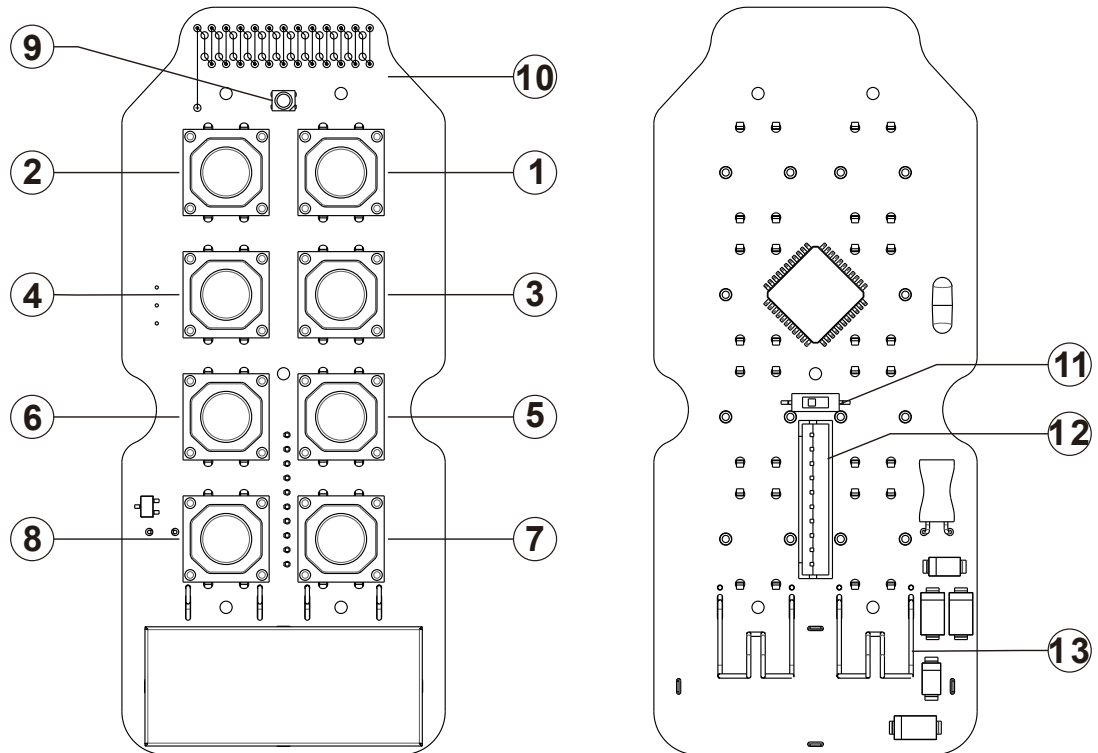
2.1 Transmitter

2.1.1 External Illustration



- | | |
|--------------------|-------------------------|
| 1. Button #1 (PB1) | 6. Button #6 (PB6) |
| 2. Button #2 (PB2) | 7. Button #7 (PB7) |
| 3. Button #3 (PB3) | 8. Button #8 (PB8) |
| 4. Button #4 (PB4) | 9. Status LED Indicator |
| 5. Button #5 (PB5) | |

2.1.2 Internal Illustration

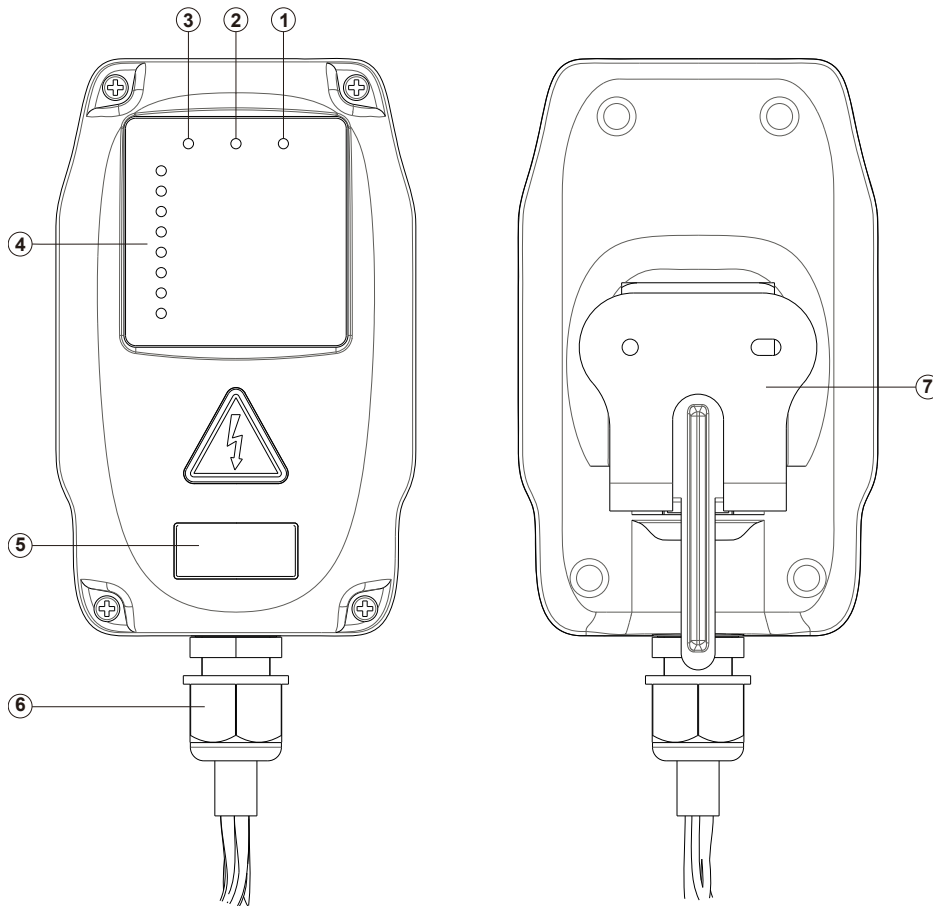


1. Button #1 (PB1)
2. Button #2 (PB2)
3. Button #3 (PB3)
4. Button #4 (PB4)
5. Button #5 (PB5)
6. Button #6 (PB6)
7. Button #7 (PB7)

8. Button #8 (PB8)
9. Status LED Indicator
10. RF/Encoder Board
11. Function Dipswitch
12. Programming Port
13. Battery Contacts

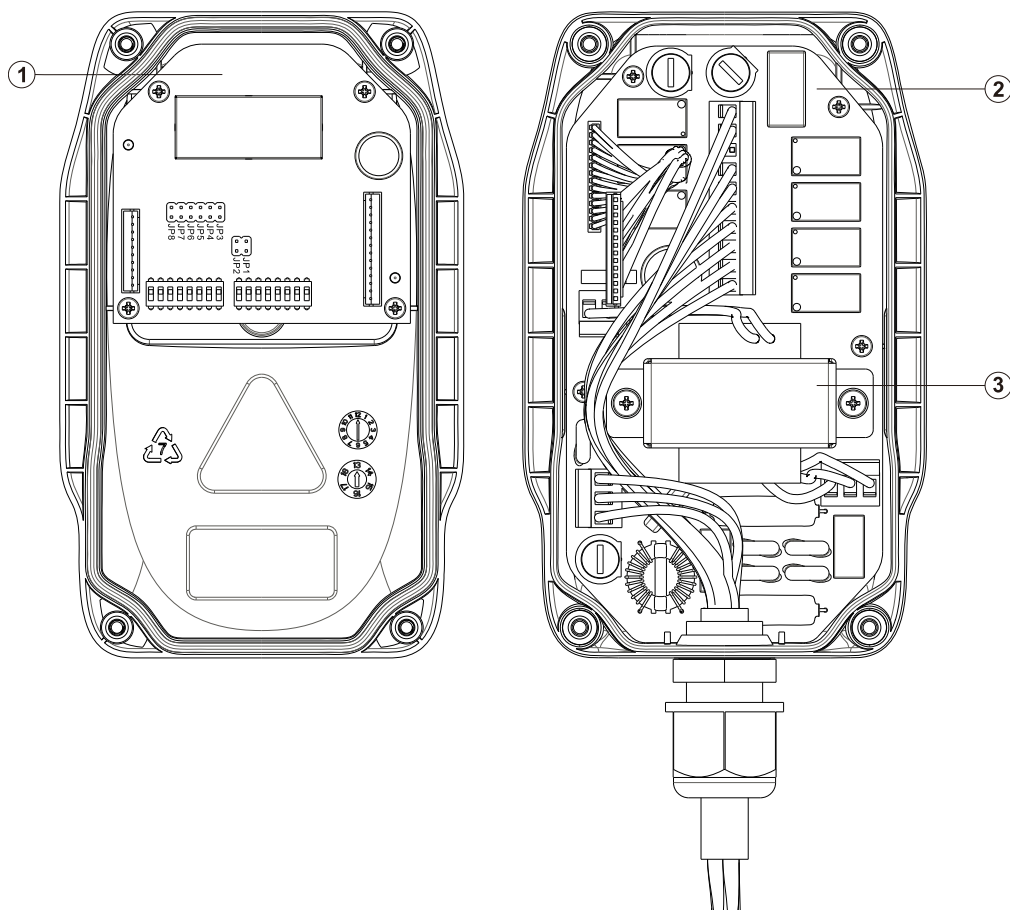
2.2 Receiver

2.2.1 External Illustration



- | | |
|--------------------------------|-----------------------|
| 1. COM LED Indicator | 5. System Information |
| 2. Status LED Indicator | 6. Cord Grip |
| 3. Power LED Indicator | 7. Mounting Bracket |
| 4. Output Relay LED Indicators | |

2.2.2 Internal Illustration

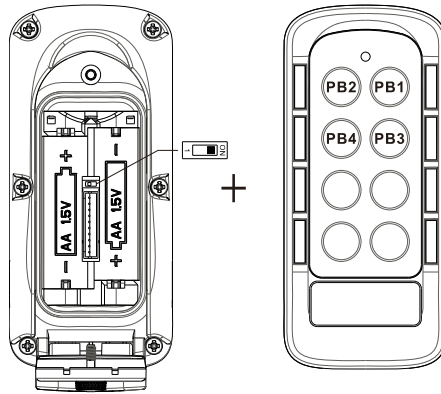


1. RF/Decoder Board
2. AC Line Filter/Relay Board
3. Power Transformer

3. Function Settings

3.1 Transmitter

3.1.1 Channel Settings



Enter transmitter Function Setting Mode by moving the function dipswitch located inside the battery compartment to “on” position. Reinsert the two batteries and press PB1 to power up the transmitter. At this point the Status LED will display a series of red, green and orange blinks showing the current software version. Then press and hold PB3 for up to 1 second to go into the transmitter Channel Setting Mode. At this point the Status LED will display a series of green and red blinks showing the current system channel. A green blink represents the tens (+10) and a red blink represents the units (+1). For example, one (1) green blink followed by five (5) red blinks is channel 15.

Now select new channel by pressing PB1 and PB2 on the transmitter. Press PB1 to increment the units (+1) and PB2 to increment the tens (+10). For example, press PB2 two times and then PB1 four times is channel 24. When finished the transmitter Status LED will display the newly selected channel. Then you “must” transfer the newly selected channel to the receiver by press and hold PB3 for up to 10 seconds or until the transmitter Status LED turns off, the transferring process is completed. Make sure the receiver power is turned on during the process. **Skip this process if changing receiver channel is not required.** Exit transmitter Function Setting Mode by taking out the batteries and move the function dipswitch back to “off” position.

Note 1: when selecting a new channel, make sure each button press does not exceed 3 seconds.

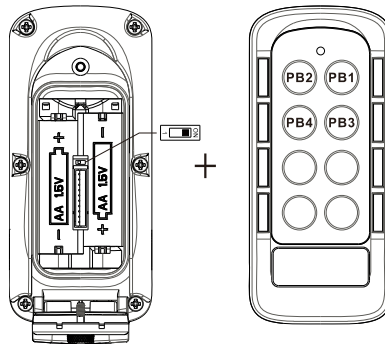
Note 2: do not press PB3 for up to 10 seconds if you do not want to change the receiver channel.

Note 3: when transmitter keypad is set to type 1 the receiver must be reset (turn off and back on) or execute the channel setting process 1 minute after receiver inactivity.

Important Note:

Press and hold PB3 for up to 10 seconds to transfer the newly selected transmitter channel to the receiver is strictly required if you intend to change the entire system channel (both transmitter and receiver) during the process. The entire system channel will no longer match if this transferring process is skipped, resulting in new transmitter channel vs. old receiver channel. In this case you would have to change the newly selected transmitter channel back to its previous setting by reentering the transmitter Function Setting Mode and then press and hold PB1 and PB3 at the same time for up to 2 seconds; this will reset the newly selected transmitter channel back to its previous setting. Or perform section 3.1.4 Receiver-to-Transmitter Pairing process; this will transfer the receiver channel to the transmitter.

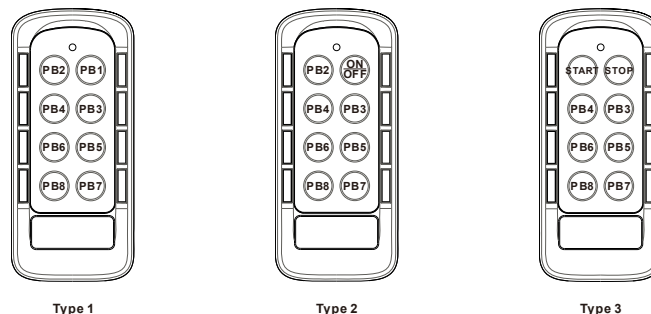
3.1.2 Keypad Type Settings



Enter transmitter Function Setting Mode by moving the function dipswitch located inside the battery compartment to “on” position. Reinsert the two batteries and press PB1 to power up the transmitter. At this point the Status LED will display a series of red, green and orange blinks showing the current software version. Then press and hold PB4 for up to 1 second to go into the Keypad Type Setting Mode. At this point the Status LED will blink red showing the current keypad type. A green blink represents the tens (+10) and a red blink represents the units (+1). For example, two (2) red blinks is keypad type 2.

Now select new keypad type by pressing PB1 and PB2 on the transmitter. Press PB1 to increment the units (+1) and PB2 to increment the tens (+10). For example, press PB1 two times for keypad type 2 and three times for keypad type 3. When finished the Status LED will display the newly selected keypad type. Exit transmitter Function Setting Mode by taking out the batteries and move the function dipswitch back to “off” position.

Note: when selecting a new keypad type, make sure each button press does not exceed 3 seconds.



Type 1

Type 2

Type 3

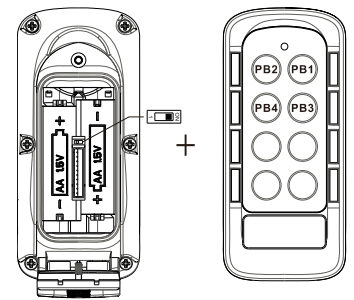
3.1.3 Transmitter Inactivity/Sleep Timer Settings

After entering transmitter Function Setting Mode, press and hold both PB2 and PB4 at the same time for up to 1 second (Status LED orange) and then let go (Status LED displays current sleep timer setting). A green blink represents the tens (+10), a red blink represents the units (+1) and an orange blink represents constant ON (sleep mode disabled). For example, one (1) green blink followed by five (5) red blinks is 15 minutes.

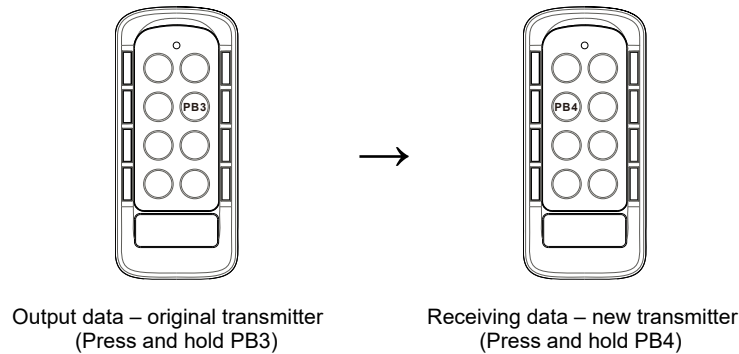
Select new timer value by pressing PB1, PB2 or PB3+PB4 on the transmitter. Press PB1 to increment the units (+1), PB2 to increment the tens (+10) and PB3+PB4 to constant ON (sleep mode disabled). For example, press PB2 two times and then PB1 four times is 24 minutes. Make sure each button press is executed within 3 seconds. The timer value available for programming is 1~60 minutes and constant ON so if set to 60+ minutes the sleep timer setting will automatically default to constant ON (sleep mode disabled). When finished the transmitter Status LED will display the newly selected sleep timer value. Exit transmitter Function Setting Mode by taking out the batteries and move the function dipswitch back to “off” position.

3.1.4 Remote Pairing

Enter transmitter Function Setting Mode by moving the function dipswitch located inside the battery compartment to “on” position. Reinsert the two batteries and press PB1 to power up the transmitter. At this point the Status LED will display a series of red, green and orange blinks showing the current software version. Then press and hold PB3 and PB4 at the same time for up to 1 second to go into the Remote Pairing Mode (Status LED orange and then off).

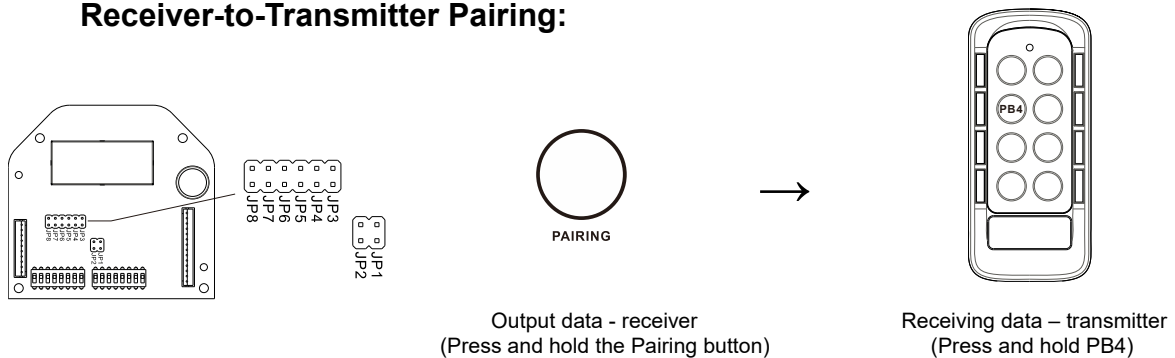


Transmitter-to-Transmitter Pairing:



After entering the Remote Pairing Mode, output data (original transmitter) by press and hold PB3 and receive data (new transmitter) by press and hold PB4 both at the same time. When the Status LED on the new transmitter (receiving data end) turns to constant green while the buttons are still pressed down the pairing is completed. Exit transmitter Function Setting Mode by taking out the batteries and move the function dipswitch on both transmitters back to “off” position.

Receiver-to-Transmitter Pairing:



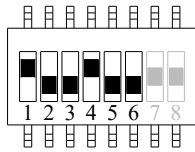
JP1 Open Method: After entering the Remote Pairing Mode, output receiver data by press and hold the Pairing button located on the receiver cover and receive data by press and hold PB4 on the transmitter, both at the same time. When the transmitter Status LED turns to constant green while both buttons are still pressed down the pairing is completed. Exit transmitter Function Setting Mode by taking out the batteries and move the function dipswitch back to “off” position.

JP1 Short Method (press Pairing button not required): After entering the Remote Pairing Mode, press PB1 on the transmitter one time and then press and hold PB3 for up to 6 seconds. The Status LED blinks green when PB3 is pressed. Let go of PB3 when green blinks are no longer shown on the Status LED; the pairing is completed. Exit transmitter Function Setting Mode by taking out the batteries and move the function dipswitch back to “off” position. **Make sure the pairing process is executed within distance of 10 meters from one another and no other active receivers nearby. During pairing process, the receiver MAIN relay must be deactivated (when set to keypad type 2 and type 3).**

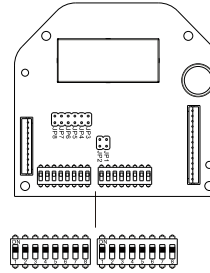
Note: when transmitter keypad is set to type 1 while performing RX-to-TX remote pairing the receiver must be reset (turn off and back on) or execute the RX-to-TX remote pairing 1 minute after receiver inactivity.

3.2 Receiver

3.2.1 Dipswitch Settings



Top position → "1"
Bottom position → "0"



Dipswitch #1 (on the right) - Normal & Toggled Settings :

Position	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8
Set to "0"	PB1 Normal	PB2 Normal	PB3 Normal	PB4 Normal	PB5 Normal	PB6 Normal	PB7 Normal	PB8 Normal
Set to "1"	PB1 Toggled	PB2 Toggled	PB3 Toggled	PB4 Toggled	PB5 Toggled	PB6 Toggled	PB7 Toggled	PB8 Toggled

Toggled function maintain contact when transmitter power is turned off (keypad type 2) or Stop button is pressed (keypad type 3).

Dipswitch #2 (on the left) - On & Off and Interlocked Settings :

Position	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8
Set to "1"	PB1&2 On & Off	PB3&4 On & Off	PB5&6 On & Off	PB7&8 On & Off	PB1&2 Interlocked	PB3&4 Interlocked	PB5&6 Interlocked	PB7&8 Interlocked

Set to "0": According to dipswitch #1 setting.

Dip 5~8 set to "1": Button pair interlocked. When set to interlocked pair you must reconfigure dipswitch #1 listed below.

On & Off function turns to "Off" when transmitter power is turned off (keypad type 2) or Stop button is pressed (keypad type 3).

Dipswitch #1 (on the right) - Normal and Toggled Interlocked Settings :

Position	Dip 1&2	Dip 3&4	Dip 5&6	Dip 7&8
Set to "00"	PB1&2 Normal/Normal Interlocked	PB3&4 Normal/Normal Interlocked	PB5&6 Normal/Normal Interlocked	PB7&8 Normal/Normal Interlocked
Set to "01"	PB1&2 Toggled/Toggled Interlocked	PB3&4 Toggled/Toggled Interlocked	PB5&6 Toggled/Toggled Interlocked	PB7&8 Toggled/Toggled Interlocked

Dipswitch #2 (on the left) - ID Function Settings (keypad type 3) :

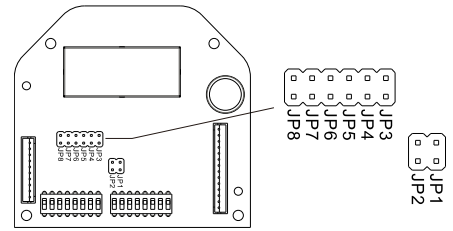
Position	Function	Position	Function
Set to "00001001"	K2 output relay closes when PB7 & PB8 is pressed.	Set to "00001101"	K2 output relay closes when PB3 & PB4 or PB7 & PB8 is pressed.
Set to "00001010"	K2 output relay closes when PB5 & PB6 is pressed.	Set to "00001110"	K2 output relay closes when PB3 ~ PB6 is pressed.
Set to "00001011"	K2 output relay closes when PB5 ~ PB8 is pressed.	Set to "00001111"	K2 output relay closes when PB3 ~ PB8 is pressed.
Set to "00001100"	K2 output relay closes when PB3 & PB4 is pressed.		

When a button pair is set to the ID function the corresponding button setting on dipswitch #1 must set to "0".

When set to ID function the START/AUX function on keypad type 3 is disabled (auxiliary function replaced by ID function).

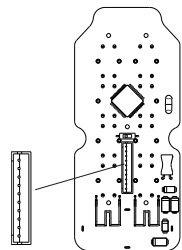
3.2.2 Jumper Settings

- JP1 Open** → Remote pairing function (press Pairing button required).
- JP1 Short** → Remote pairing function (press Pairing button not required).
- JP2 Open** → System normal.
- JP2 Short** → Display receiver software version.
- JP3 Open** → Normal toggled function set on the dip-switches.
- JP3 Short** → All toggled functions set on the dip-switches deactivates when shutting off the transmitter power (keypad type 2) and when the Stop button is pressed (keypad type 3).
- JP4 ~ JP8** → Reserved for future functions.

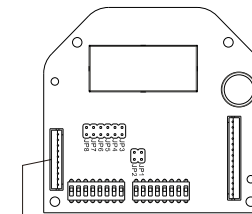


3.2.3 External Programming

Other settings not listed in this manual can be programmed via the IR programmer unit. Please contact ARC representative for more details.



Transmitter



Receiver

Other available functions set via the IR programmer unit:

- 1) On & Off function not affected by the transmitter power On/Off and Stop command.
- 2) Magnet On/Off function.
- 3) On + Start / Off + Start function (keypad type 3 only).
- 4) Transmitter power output.

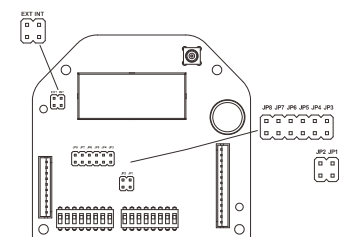
3.2.4 Fuse Ratings

Fuse #	110~120VAC	220~240VAC	380~400VAC	410~460VAC	24VAC	42 & 48VAC	9~36VDC
F2 & F3	5.0A	5.0A	5.0A	5.0A	5.0A	5.0A	5.0A
F1	0.5A	0.5A	0.5A	0.5A	1.0A	1.0A	3.0A

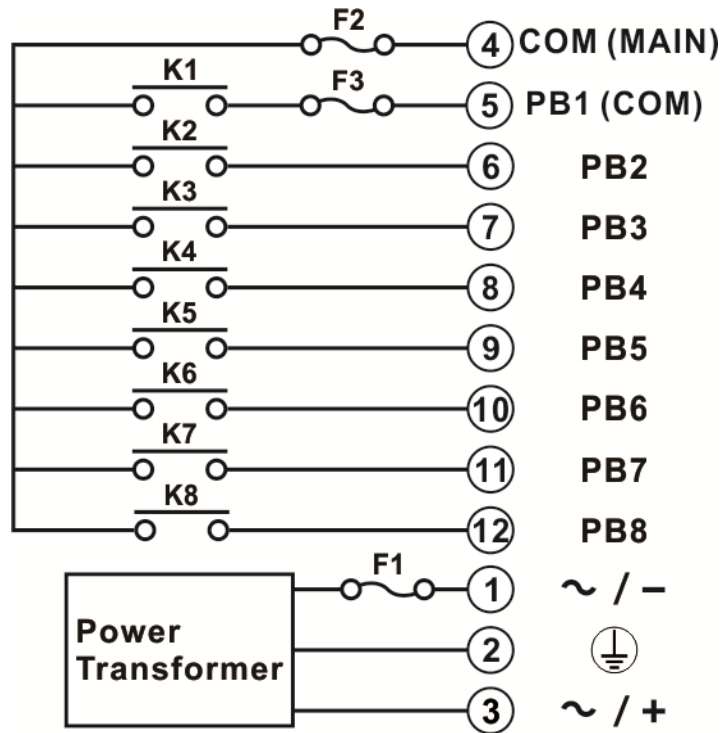
3.2.5 Using External Antenna (optional)

Please make sure to set the jumper to “EXT” when external antenna is connected. Receiver cover with preinstalled antenna connector and decoder board with provision for external antenna connection is required.

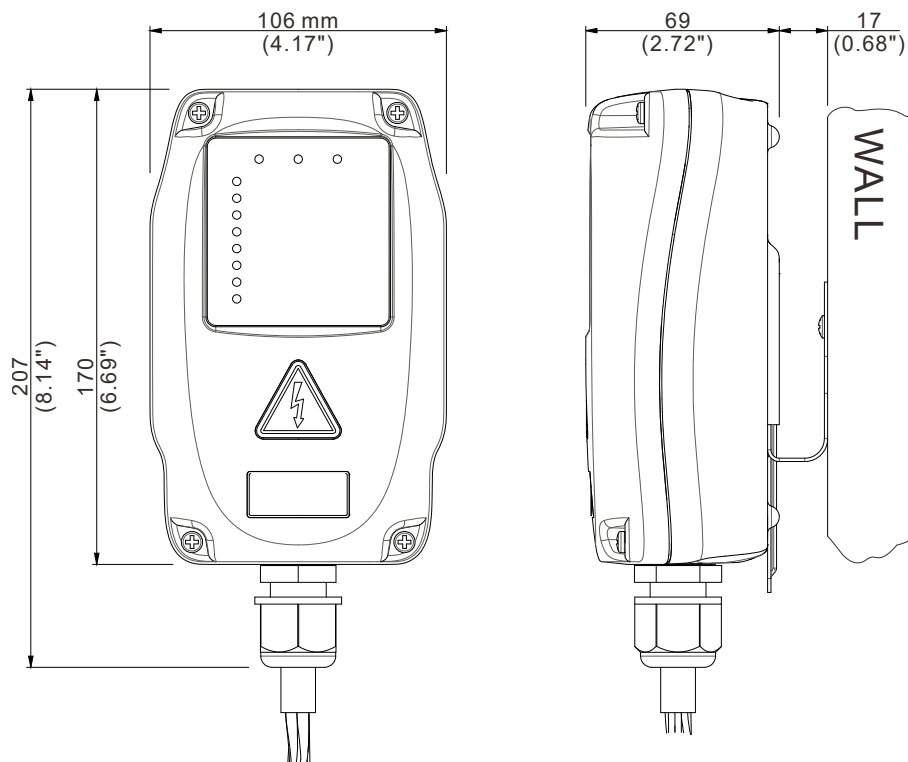
- INT** → Internal antenna used
- EXT** → External antenna used



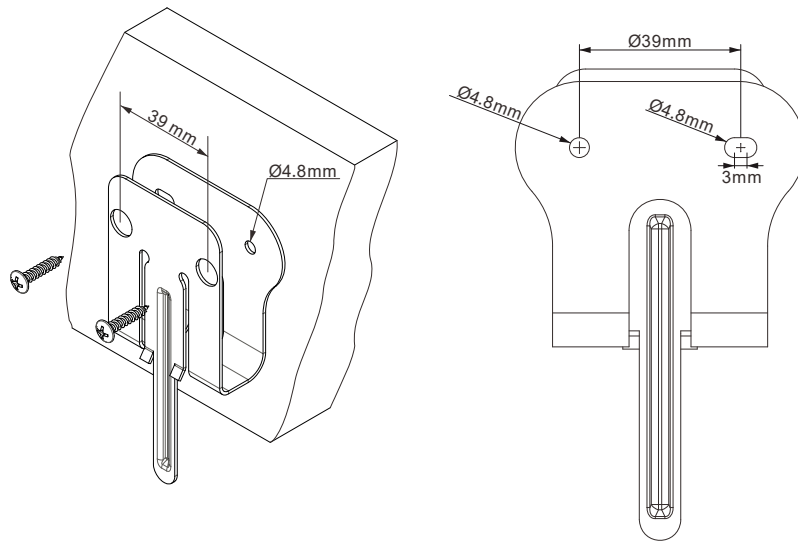
4. Receiver Installation



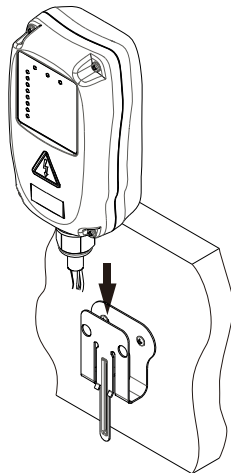
- * () For keypad type 2 and type 3 setups.
- * For 9~36VDC power supply, wire #1 corresponds to the negative charge (-), wire #3 corresponds to the positive charge (+). Wire #2 or green/yellow wire is for AC ground.



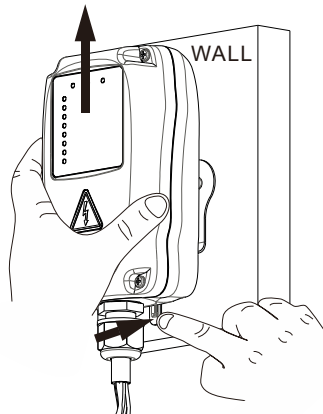
Secure the mounting bracket to the wall or equipment via two screws (not provided with the system).



Slide down the receiver along the guided track to secure the receiver to the mounting bracket (see below). Make sure the screws are tightened after installation.



Remove the receiver by pressing down the bracket release and pull the receiver upward until it clears the guided track (see below).

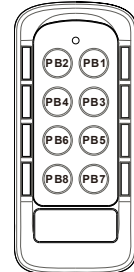


5. Operating Procedure

General Operating Procedure

Keypad Type 1:

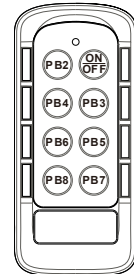
The transmitter is powered on and operated by pressing any button on the keypad (green blinks on Status LED). The transmitter goes into sleep mode after 5 minutes of inactivity (buttons not pressed). Press any button to wake up the transmitter and continue operation.



Type 1

Keypad Type 2:

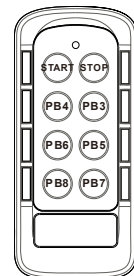
The transmitter is powered on by pressing the On/Off button one time for up to 1 second (green on Status LED); the receiver MAIN relay is also activated at the same time. The Status LED will blink green every 4 seconds thereafter for up to 5 minutes when no buttons are pressed (transmitter standby). After 5 minutes the transmitter will go into sleep mode. Press the On/Off button for up to 1 second to wake up the transmitter and continue operation. Shut off the transmitter power by pressing the On/Off button for up to 1 second (red on Status LED and then off); the receiver MAIN relay is also deactivated at the same time. The system will not work when pressing any buttons prior to executing the On/Off command (Status LED blinks 2 red).



Type 2

Keypad Type 3:

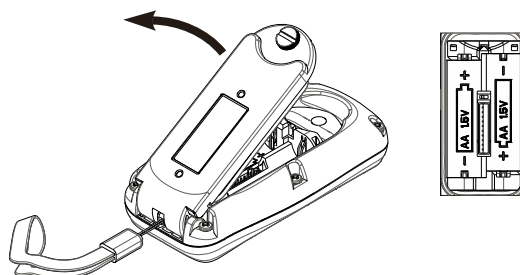
The transmitter is powered on by pressing the Start button one time for up to 1 second (green on Status LED); the receiver MAIN relay is also activated at the same time. The same Start button becomes an auxiliary function thereafter. The Status LED will blink green every 4 seconds thereafter for up to 5 minutes when no buttons are pressed (transmitter standby). After 5 minutes the transmitter will go into sleep mode. Press the Start button again for up to 1 second to wake up the transmitter and continue operation. Shut off the transmitter power by pressing the Stop button for up to 1 second (red on Status LED and then off); the receiver MAIN relay is also deactivated at the same time. The system will not work when pressing any buttons prior to executing the Start command (Status LED blinks 2 red).



Type 3

Changing Transmitter Batteries

Changing transmitter batteries (“AA” alkaline battery x 2) by unscrewing the battery cover located on the backside of the transmitter counterclockwise. During battery installation make sure the batteries are installed correctly, “+” to “+” charge and “-” to “-” charge. Also make sure the screw is tightened after battery installation to avoid water, moisture, dirt, grease, or other liquid penetration.



6. Status & Warnings

Transmitter Status Light Indications

Type	Display Type	Indication
1	1 red blink	Transmitter low battery Change battery immediately
2	Constant red	Transmitter power off due to low battery condition
3	2 red blinks	Button jammed or defective (for keypad type 2 & type 3 setups only)
4	Green blinks	Transmission in progress
5	1 green blink every 4 seconds	Transmitter on standby (for keypad type 2 & type 3 setups only)

Note on Type 3 above: a jammed or defected button is shown by 2 red blinks on the Status LED when pressed. For example, when 2 red blinks are shown on the Status LED, press all buttons one at a time to see which one is jammed or defective. A good working button will not display any lights on the Status LED when pressed while a jammed or defected button will blink 2 red when pressed.

Receiver Status Light Indications

Type	Display Type	Indication
1	Fast green blinks	Decoding in process
2	Slow green blinks	Decoding on standby
3	Constant red blinks	Incorrect serial number/ID code received
4	Constant red	Receiver Low voltage

Receiver COM Light Indications

Type	Display Type	Indication
1	Constant red	Power to the relay board
2	Off	No power to the relay board

Receiver POWER Light Indications

Type	Display Type	Indication
1	Constant red	Power to the receiver
2	Off	No power to the receiver

7. System Specifications

Frequency Range	:	433MHz, 471MHz or 480MHz
Frequency Deviation	:	50 KHz
Number of Channels	:	32 channels
Modulation	:	Digital Frequency Modulation based on Manchester Code, 24bit address and CRC Parity Check.
Encoding & Decoding	:	Microprocessor-controlled
Operating Range	:	>50 Meters / 164 Feet
Frequency Control	:	Synthesized PLL
Receiver Sensitivity	:	-104dBm
Antenna Impedance	:	50ohms
Responding Time	:	50mS (average)
Transmitting Power	:	5mW
Enclosure Type	:	NEMA4
Enclosure Rating	:	IP66
Output Contact Rating	:	250V @ 8 Amps
Transmitter Operating Voltage	:	3.0VDC
Transmitter Power Consumption	:	5~22mA
Receiver Power Consumption	:	7VA (max)
Receiver Voltage Available	:	9~36VDC 24VAC 42VAC 48VAC 110~120VAC 220~240VAC 380~400VAC 410~460VAC
Operating Temperature	:	-25°C ~ 75°C / -13°F ~ 167°F
Transmitter Dimension	:	120mm (L) x 54mm (W) x 28mm (H)
Receiver Dimension	:	170mm (L) x 106mm (W) x 69mm (H)
Transmitter Weight	:	160g / 5.6oz (include batteries)
Receiver Weight	:	1.0kg/ 2.2lb (include output cable)

CE EU Declaration of Conformity CE

(RED, LVD & Machinery)

For the following equipment:

Product : Flex Mini Series Radio Remote Control System
Multiple Listee Model No. : Flex Mini
Manufacturer's Name : Advanced Radiotech Corporation
Manufacturer's Address : No.3, South 1st Road, Chien Chen District,
Kaohsiung, Taiwan

We hereby declare, that all major safety requirements, concerning the CE Mark Machinery Directive 2006/42/EC, Low Voltage Directive 2014/35/EU (LVD) and Radio Equipment Directive of 2014/53/EU (RED) 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:

RED (EMC) : EN 301 489-1 V2.2.0 + EN 301 489-3 V2.1.1
RED (RF) : EN 300 220-1 V3.1.1 + EN 300 220-2 V3.1.1
LVD : EN 60950-1+A1+A11+A12
OTHERS : EN 60529 (IP66)

Test reports issued by:

RED (EMC) : SGS
RED (RF) : SGS
LVD : SGS
OTHERS : SGS

Person responsible for making this declaration:



Tom Jou / President
Name and signature of authorized person