



## Flex Mini System Radio Control Equipment Instruction Manual



**MAGNETEK**  
MATERIAL HANDLING  
**ENRANGE**

0-FLEX-MINI-ME\_R0  
February 2014

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# SERVICE INFORMATION

## Your New Radio System

Thank you for your purchase of Magnetek's Enrange™ 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 one of our representatives at the following locations:

### U.S. Service Information

For questions regarding service or technical information contact:  
1.866.MAG.SERV  
1.866.624.7378

### World Headquarters:

Magnetek, Inc.  
N49 W13650 Campbell Drive  
Menomonee Falls, WI 53051

**Telephone:** 1.800.288.8178  
**Website:** [www.magnetekmh.com](http://www.magnetekmh.com)  
**e-mail:** [info@magnetekmh.com](mailto:info@magnetekmh.com)

### Fax Numbers:

**Main:** 1.800.298.3503  
**Sales:** 1.262.783.3510  
**Service:** 1.262.783.3508

Magnetek, Inc. has additional satellite locations for Canada and the United States. For more information, please visit <http://www.magnetekmh.com>.

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## PRODUCT MANUAL SAFETY INFORMATION

Magnetek, Inc. (Magnetek) offers a broad range of radio remote control products, control products and adjustable frequency drives, and industrial braking systems for material handling applications. This manual has been prepared by Magnetek to provide information and recommendations for the installation, use, operation and service of Magnetek's material handling products and systems (Magnetek Products). Anyone who uses, operates, maintains, services, installs or owns Magnetek Products should know, understand and follow the instructions and safety recommendations in this manual for Magnetek 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 Magnetek 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 Magnetek Products are being used,
- Regulations issued by the Occupational Health and Safety Administration (OSHA),
- Applicable local, state or federal codes, ordinances, standards and requirements, or
- Safety standards and practices for the industries in which Magnetek 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 Magnetek 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 Magnetek 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 Magnetek's product warranties by product type, please visit [www.magnetekmh.com](http://www.magnetekmh.com).

# 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.

# 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.

## 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.

## 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.

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

## **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.

## **PRE-OPERATION TEST**

At the start of each work shift, or when a new operator takes control of the equipment, operators should do, as a minimum, the following steps before operation:

Test all warning devices.

Test all direction and speed controls.

Test the transmitter stop function.

# 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.

## BATTERY HANDLING

Use only batteries approved by Magnetek for the specific product.

Do not dispose of batteries in fire; it may explode.

Do not short circuit the batteries.

For intrinsically safe environments only use specified Magnetek intrinsically safe batteries.

## BATTERY DISPOSAL

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

## SPECIFIC SYSTEM WARNINGS

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

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



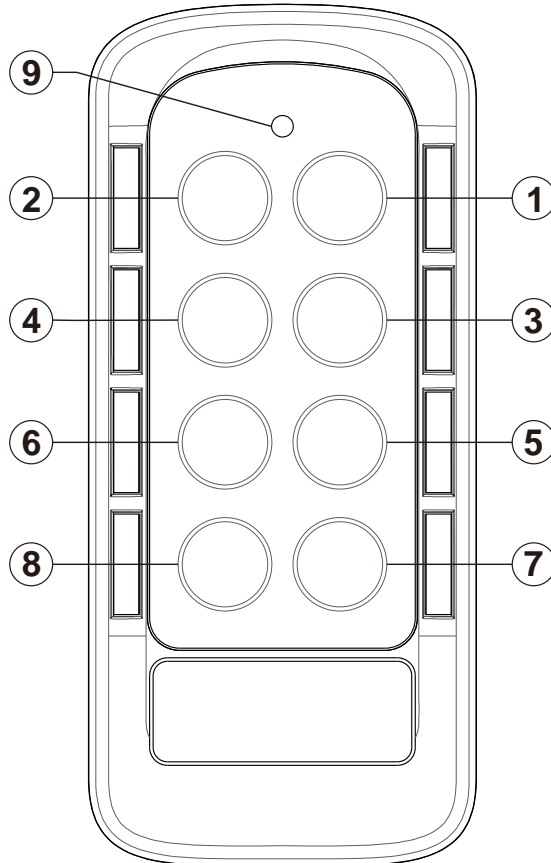
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# 1. GENERAL SYSTEM INFORMATION

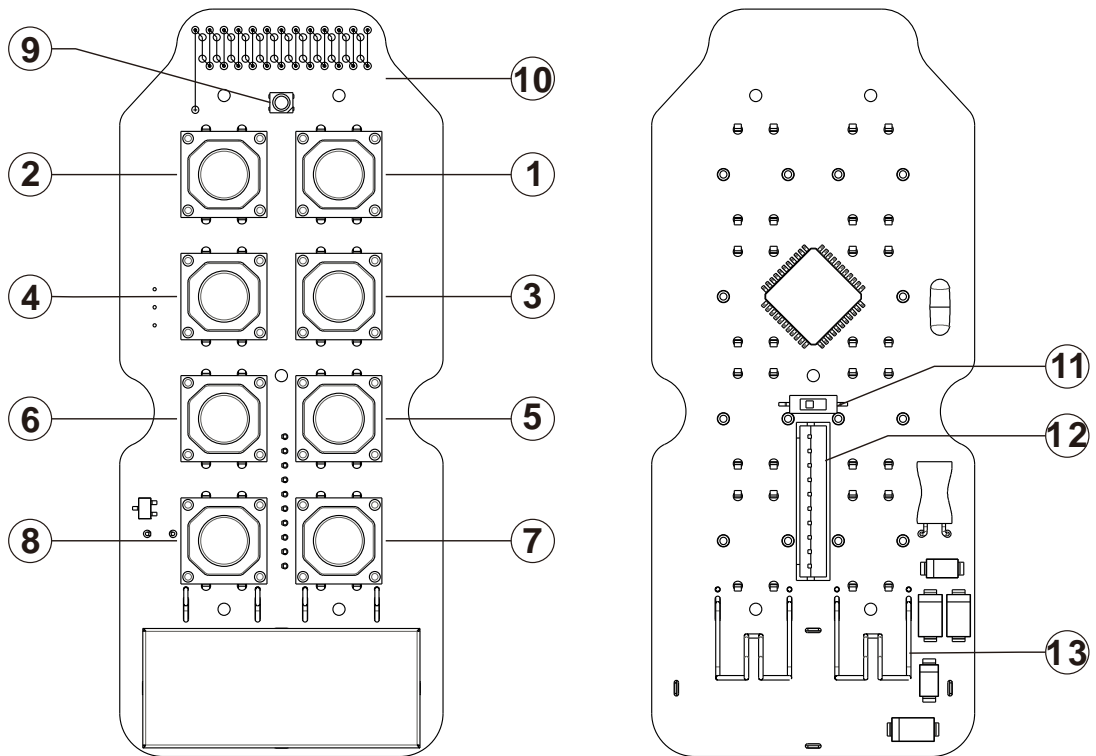
## 1.1 TRANSMITTER

### 1.1.1 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      |
| 5. Button #5 (PB5) |                    |

## 1.1.2 Internal Illustration

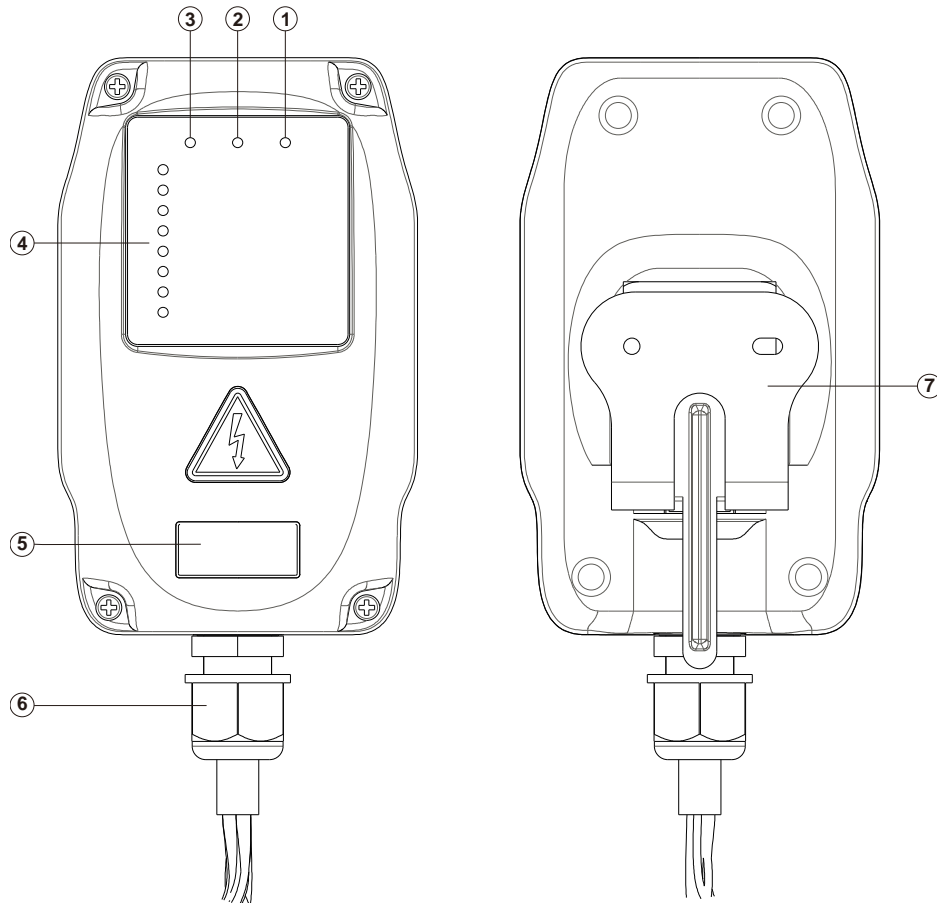


1. Button #1 (PB1)
2. Button #2 (PB2)
3. Button #3 (PB3)
4. Button #4 (PB4)
5. Button #5 (PB5)
6. Button #6 (PB6)
7. Button #7 (PB7)

8. Button #8 (PB8)
9. Status LED
10. RF + Encoder Board
11. Function Dip-switch
12. Programming Port
13. Battery Contacts

## 1.2 RECEIVER

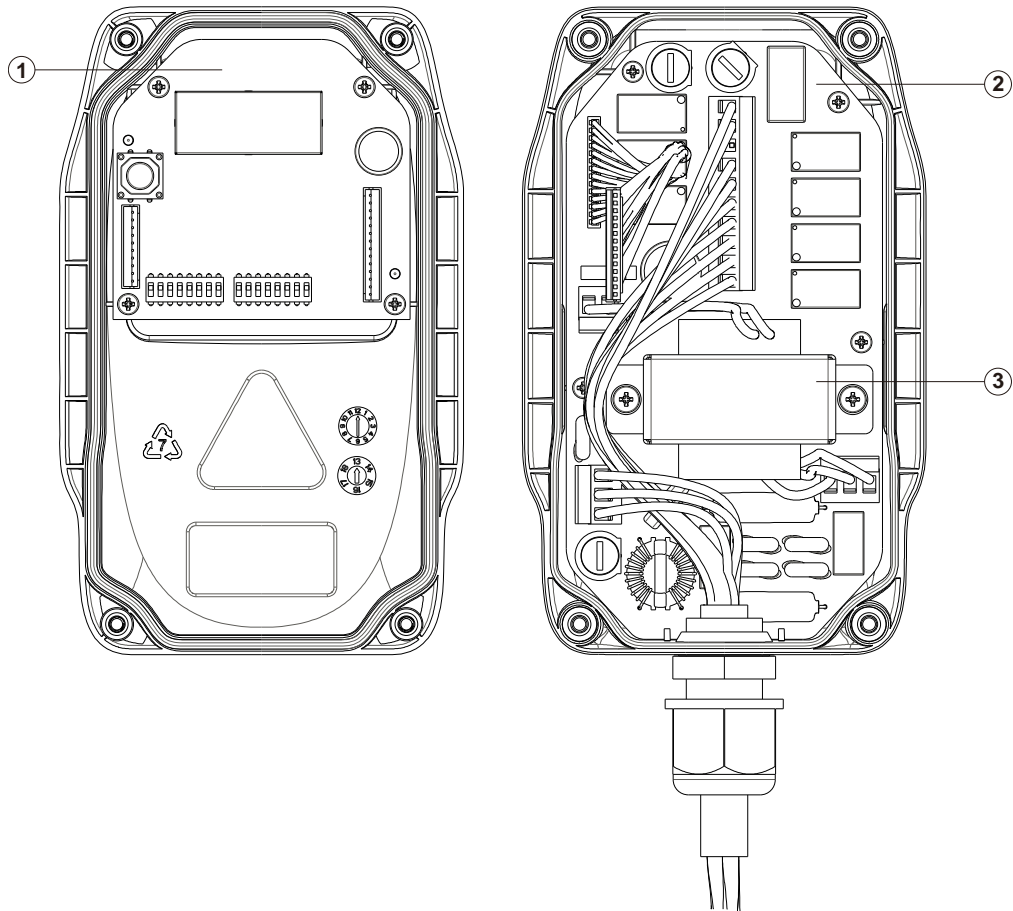
### 1.2.1 External Illustration



1. COM LED
2. Status LED
3. Power LED
4. Output Relays LED

5. System Information
6. Cord Grip
7. Mounting Bracket

## 1.2.2 Internal Illustration

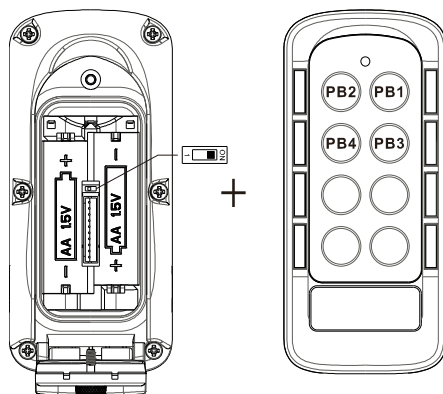


1. RF + Decoder Board
2. AC Line Filter + Relay Board
3. Power Transformer

# 2. FUNCTION SETTINGS

## 2.1 TRANSMITTER

### 2.1.1 Channel Settings



Enter transmitter function setting mode by moving the function dip-switch 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 1.0 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 press and hold PB3 for up to 5.0 seconds to activate the receiver auto-scanning function (receiver Status LED blinks green if activated). Verifying the receiver auto-scanning activation by pressing PB4. When green light is shown on the Status LED the receiver auto-scanning function is activated, if not, then press and hold PB3 again for up to 5.0 seconds to activate the receiver auto-scanning function one more time. Make sure the receiver power is turned on during the process. Exit transmitter function setting mode by taking out the batteries and move the function dip-switch back to “off” position. Then reinsert the batteries and press any button (keypad type 1), On/Off button (keypad type 2) or the Start button (keypad type 3) for up to 10 seconds so that the receiver is able to search and lock onto the newly selected transmitter channel.

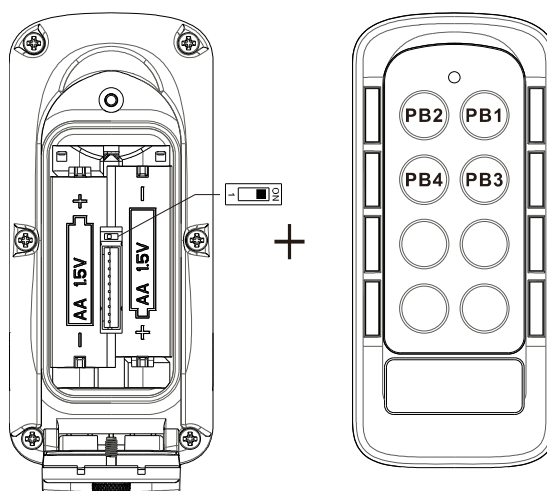
**Note 1:** when selecting a new channel make sure each button press do not exceed 3.0 seconds.

**Note 2:** when transmitter keypad is set to type 1 the receiver must be reset (turn off and back on) or execute the channel setting process 5 minutes after receiver inactivity.

### **Important Note:**

When you are changing the transmitter channel you must also change the receiver channel at the same time prior to exiting the transmitter function setting mode (see instruction above). If you exit the transmitter function setting mode without pressing PB3 for up to 5.0 seconds to activate the receiver auto-scanning function then you would have to change the transmitter channel back to its previous setting and redo the channel setting process again.

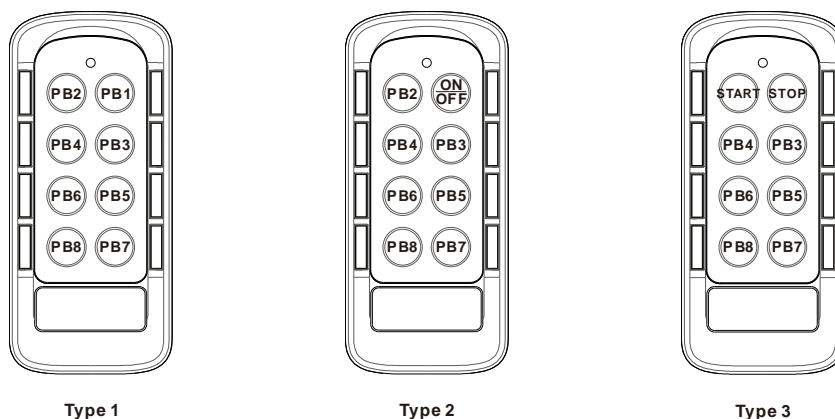
## 2.1.2 Keypad Type Settings



Enter transmitter function setting mode by moving the function dip-switch 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 1.0 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.

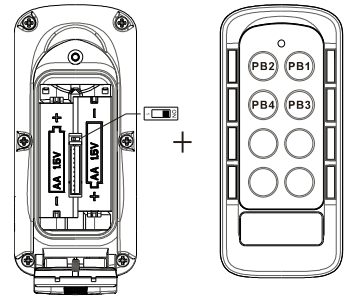
Now select new keypad type by pressing PB1 and PB2 on the transmitter. Press PB1 to increment the units (+1) and PB2 to increment the tens (+10). For example, press PB1 two times for keypad type 2 and three times for keypad type 3. When finished the Status LED will display the newly selected keypad type.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

**Note:** when selecting a new keypad type make sure each button press do not exceed 3.0 seconds.

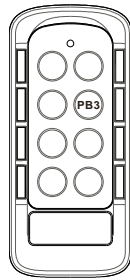


## 2.1.3 Remote Pairing

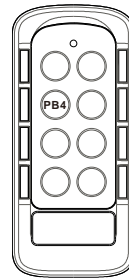
Enter transmitter function setting mode by moving the function dip-switch located inside the battery compartment to “on” position. Reinsert the two batteries and press PB1 to power up the transmitter. At this point the Status LED will display a series of red, green and orange blinks showing the current software version. Then press and hold PB3 and PB4 at the same time for up to 1.0 second to go into the remote pairing mode (Status LED orange and then off).



### TX to TX Pairing:



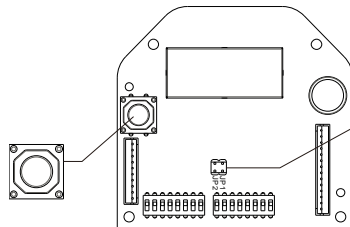
Output data – original transmitter  
(Press and hold PB3)



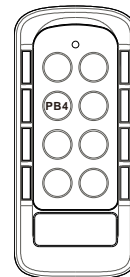
Receiving data – new transmitter  
(Press and hold PB4)

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 dip-switch on both transmitters back to “off” position.

### RX to TX Pairing:



Output data - receiver  
(Press and hold PB1)



Receiving data – transmitter  
(Press and hold PB4)

**JP1 Open Method:** After entering the remote pairing mode, output receiver data by press and hold PB1 located on the decoder board 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 dip-switch back to “off” position.

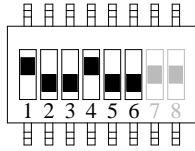
**JP1 Short Method (Press PB1 not required):** After entering the remote pairing mode, press PB1 on the transmitter and then press and hold PB3 for up to 5.0 seconds to activate receiver data output mode (Status LED green blinks). Then press and hold PB4 on the transmitter until the Status LED turns to constant green (RX to TX pairing complete). Exit transmitter function setting mode by taking out the batteries and move the function dip-switch back to “off” position. Make sure the RX to TX pairing process is executed within a distance of 10 meters from one another.

**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 5 minutes after receiver inactivity.

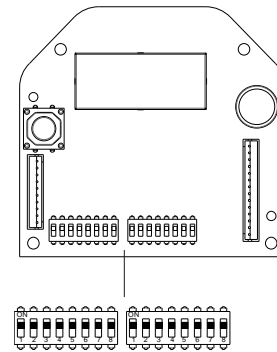


## 2.2 RECEIVER

### 2.2.1 Dipswitch Settings



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



#### Dipswitch #1 (right) :

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

#### Dipswitch #2 (left) :

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 dip-switch #1 setting.

Dip 5-8 set to "1": Button pair interlocked. When set to interlocked pair you must reconfigure dip-switch #1 below.

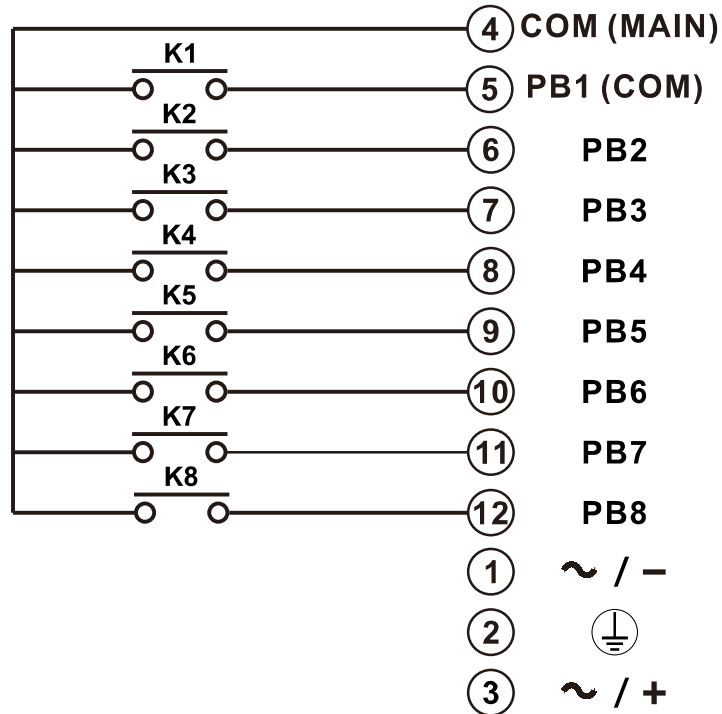
#### Dipswitch #1 (right) :

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

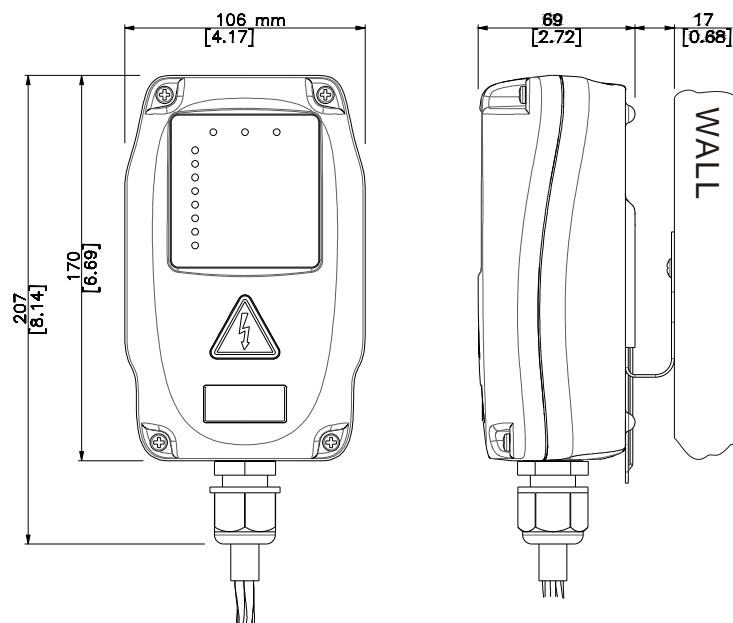
### 2.2.2 Fuse Ratings

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	2.0A

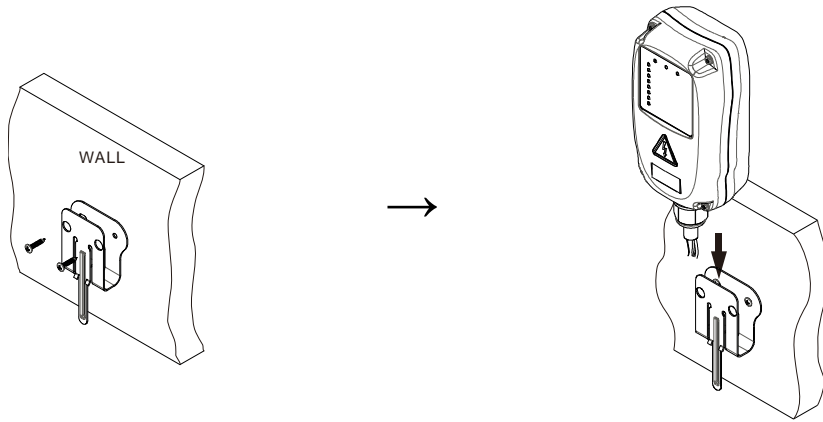
### 3. RECEVIER INSTALLATION



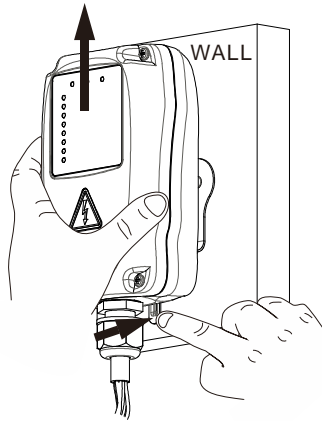
- \* ( ) For keypad type #2 and type #3 setups.
- \* For 9~36VDC power supply, wire #1 corresponds to the negative charge (-) and wire #3 corresponds to the positive charge (+); wire #2 is for GROUND.



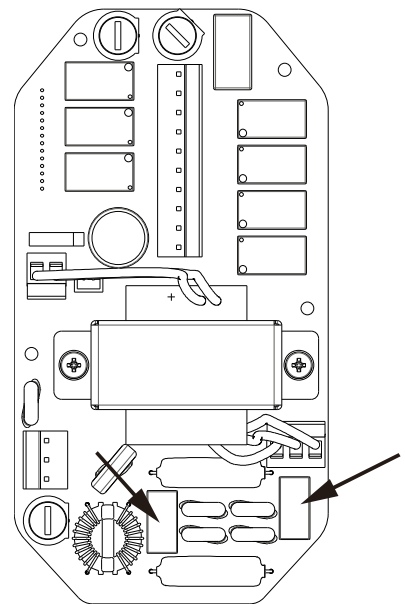
Secure the mounting bracket to the wall or equipment via two screws (not provided with the system). Slide down the receiver along the guided track to secure the receiver to the mounting bracket (see below). Make sure the screws are tightened after installation.



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



Remove the two components shown on the right with arrows pointed to it when 380VAC~460VAC power transformer is used.

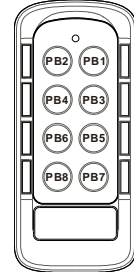


# 4. OPERATING PROCEDURE

## General Operating Procedure

### Keypad Type 1:

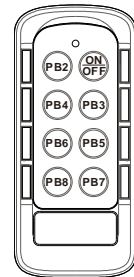
The transmitter is powered on and operated by pressing any button on the keypad (green blinks on Status LED). The transmitter goes into sleep mode after 5 minutes of inactivity (buttons not pressed). Press any button to wake up the transmitter and continue operation.



Type 1

### Keypad Type 2:

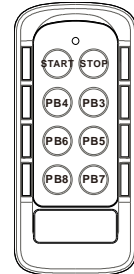
The transmitter is powered on by pressing the On/Off button one time for up to 2.0 seconds (green on Status LED); the receiver main is also activated at the same time. The Status LED will blink green every 4 seconds thereafter for up to 5 minutes when no buttons are pressed (transmitter standby). After 5 minutes the transmitter will go into sleep mode. Press the On/Off button for up to 1.0 second to wake up the transmitter and continue operation. Shut off the transmitter power by pressing the On/Off button for up to 2.0 seconds (red on Status LED and then off); the receiver main is also deactivated at the same time. The system will not work when pressing any buttons prior to initiating the On/Off command (Status LED blinks 2 red).



Type 2

### Keypad Type 3:

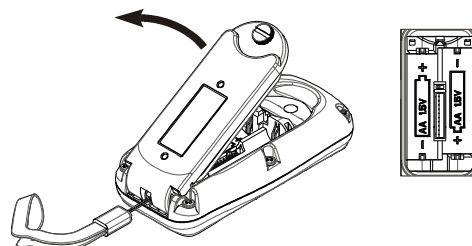
The transmitter is powered on by pressing the Start button one time for up to 2.0 seconds (green on Status LED); the receiver main is also activated at the same time. The same Start button becomes an auxiliary function thereafter. The Status LED will blink green every 4 seconds thereafter for up to 5 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 1.0 second to wake up the transmitter and continue operation. Shut off the transmitter power by pressing the Stop button for up to 2.0 seconds (red on Status LED and then off); the receiver main is also deactivated at the same time. The system will not work when pressing any buttons prior to initiating the Start command (Status LED blinks 2 red).



Type 3

## Changing Transmitter Batteries

Changing transmitter batteries 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.



# 5. 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	Receiver Low voltage

## 6. SYSTEM SPECIFICATIONS

Frequency Range	:	433~434MHz
Frequency Deviation	:	50 KHz
Number of Channels	:	32 channels
Modulation	:	Digital Frequency Modulation based on Manchester Code, 24bit address, and 8bit CRC Parity Check.
Encoder & Decoder	:	Microprocessor-controlled
Transmitting Range	:	>50 Meters / 164 Feet
Frequency Control	:	Synthesized PLL
Receiver Sensitivity	:	-104dBm
Antenna Impedance	:	50ohms
Responding Time	:	50mS
Transmitting Power	:	1mW
Enclosure Type	:	NEMA-4X
Enclosure Rating	:	IP66
Output Contact Rating	:	250V @ 8 Amps
Transmitter Operating Voltage	:	3.0VDC
Transmitter Power Consumption	:	5~22mA
Receiver Power Consumption	:	40~220mA
Receiver Supply Voltage	:	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)