REMOTE CONTROLLER

Digital Remote Control System

USER'S MANUAL

HCT-820 / HCR-4873

HANGIL CONTROL Co., Ltd.

TABLE OF CONTENTS

1. INTRODUCTION

1-1. Overview

HC-820 is a wireless remote controller consisting of a portable transmitter, a receiver, an antenna and rechargeable batteries
This is generally applicable to hoist cranes, gantry cranes, bogies and general industrial machines.

1-2. Product Advantages

- Improvement in Operation Efficiency
- Working in Safety
- Improvement in Working Environment
- Reduction of Worker force

2. FEATURES

2-1. Multi-Frequency

Radio frequency (RF) of the transmitter and the receiver is changeable with simple action in the job site

2-2. Auto Power-off Function

When the transmitter is not operation more than 3 minutes, power turned off to prevent discharging of the battery

2-3. Water-proof, Dust-proof and Wide Operating Temperature Range

This transmitter has water-proof, dust-proof function and wide operating temperature ranges from -30°C to +70°C.

2-4. Low-voltage Warning Function

When the transmitter's battery is discharged lower than 4.5V, the battery (BAT) lamp blinks twice per second

2-5. Assigned Own Code Number (Address Code)

Each transmitter has assigned own code number (Address Code) among 4,096 Electronic Key Code Numbers to prevent any electronic interferences.

2-6. Enough Distance for Operation

The operating distance of transmitter is 70 meters which is enough to operate and be in safe operation.

3. CONFIGURATIONS

3-1. Basic Parts

Transmitter (HCT-820) ---------- 1 SET
Receiver (HCR-4873) ---- ---------- 1 SET
Receiving Antenna (for 173MHz) ---------- 1 EA
Charger (HCG-4814) ---------- 1 EA
Rechargeable Battery (HCB-4814) ---------- 1 PACK

3-2. Spare Parts

Rechargeable Battery (HCB-4814) ---------- 1 PACK
Fuse (250V 0.5A) ---------- 5 EA
Screws (3*5) ---------- 5 EA
PVC Cover for Case ---------- 1 EA

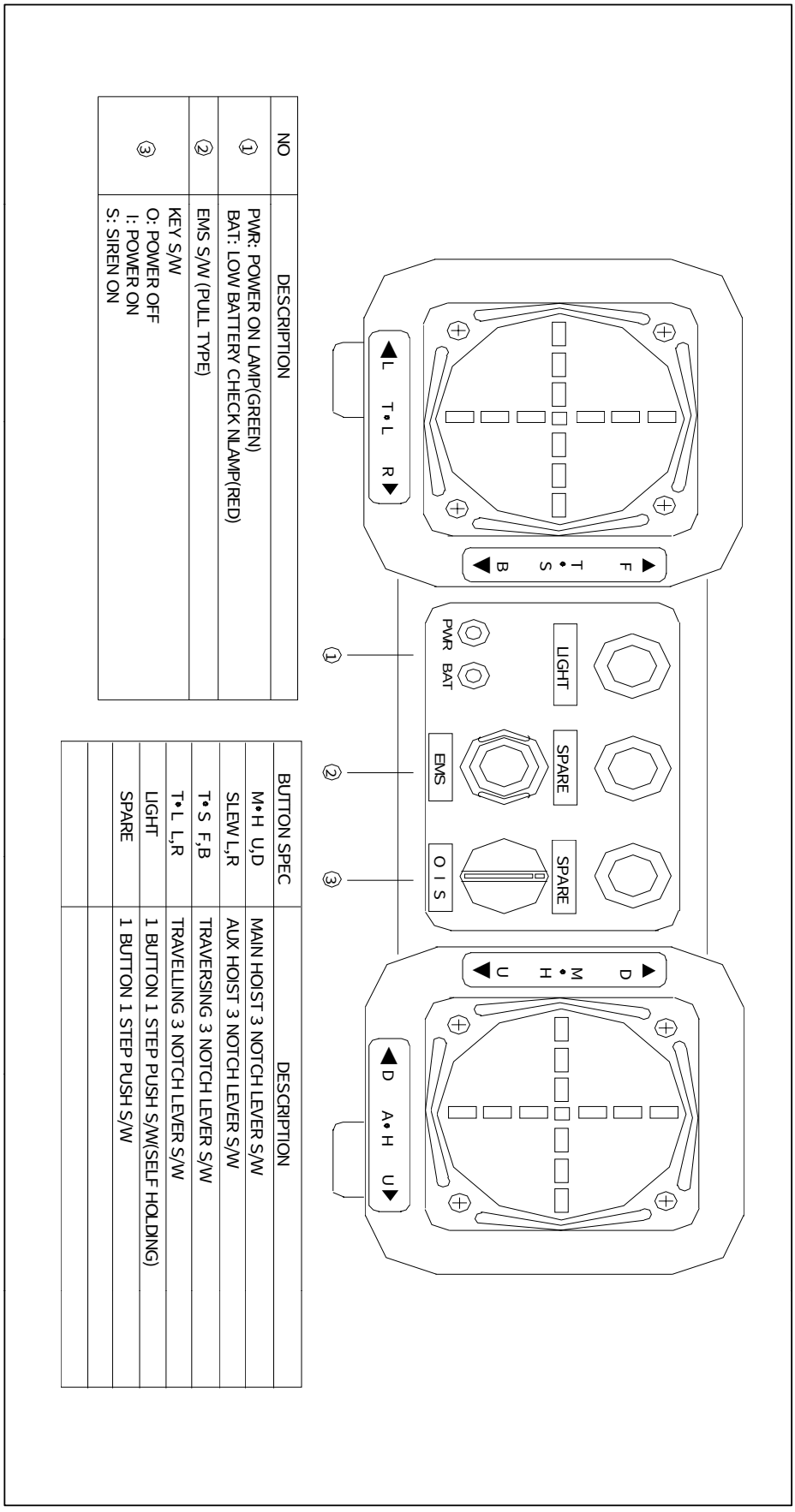
4. SPECIFICATIONS AND DRAWING

4-1. Specifications

MODEL	TRANSMITTER	RECEIVER
	HCT-820	HCR-4873
FREQUENCY	173.6250 MHz ~173.7875 Mhz	
TYPE of EMISSION	F2D	
RF POWER	Under 5Mw & 10mW	
RF BANDWIDTH	173 MHz	
OSCILLATION METHOD	PLL / X-tal	
MODULATION METHOD / DATA TRANSFER RATE	MSK / 2400bps	
INTERMEDIATE FREQUENCY	1st : 21.650 MHz, 2nd : 450 kHz	
COMMUNICATION METHOD	SIMPLEX	
NUMBER of CHANNELS	21 Channels (Frequency Separation: 12.5 kHz)	
MULTIPLYING METHOD	2nd Mix (Multiplying 10.6 kHz * 2)	
POWER AMPLIFIER	2 Stages	
EMISSION ANGLE	360°	
OPERATING TEMPERATURE	-30°C ~ +70°C	
WEIGHT (GROSS)	1520g	30kg
INPUT POWER	DC4.8V(PACK)	AC85V~264V 50/60Hz
NOMINAL SWITCHING CAPACITY	AC250V 5A	

4-2. Drawing

- HCT-820 (Transmitter)

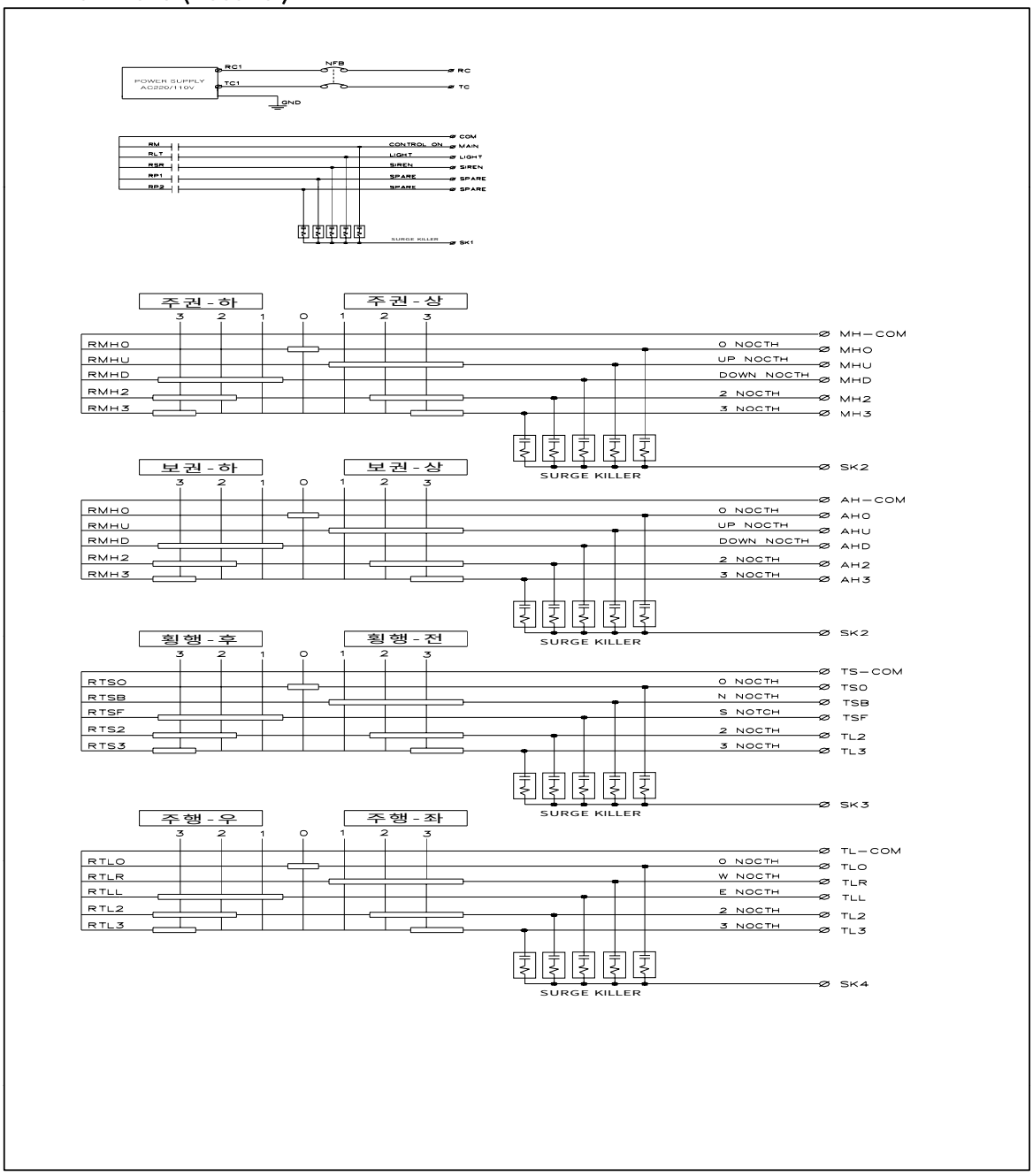


NO	DESCRIPTION
①	PWR: POWER ON LAMP(GREEN) BAT: LOW BATTERY CHECK NLAMP(RED)
②	EMS S/W (PULL TYPE)
③	KEY S/W O: POWER OFF I: POWER ON S: SIREN ON

BUTTON SPEC	DESCRIPTION
M•H U,D	MAIN HOIST 3 NOTCH LEVER S/W
SLEW L,R	AUX HOIST 3 NOTCH LEVER S/W
T•S F,B	TRAVERSING 3 NOTCH LEVER S/W
T•L L,R	TRAVELLING 3 NOTCH LEVER S/W
LIGHT	1 BUTTON 1 STEP PUSH S/W(SELF HOLDING)
SPARE	1 BUTTON 1 STEP PUSH S/W

4-3. Drawing

- HCR-4873 (Receiver)



5. INSTALLATION AND SETUP

This equipment operates normally after wireless communications between the transmitter and the receiver which is the same Frequency Channel and Address Code.

5-1. Setup for the Radio Frequency (RF) Channel

The Radio Frequency (RF) channel must adjust the same frequency between the transmitter and the receiver.
Open the case of the transmitter and the receiver; see the Channel Switch is adjusted the same channel number according to the table as below.

*기기명:HCT-820

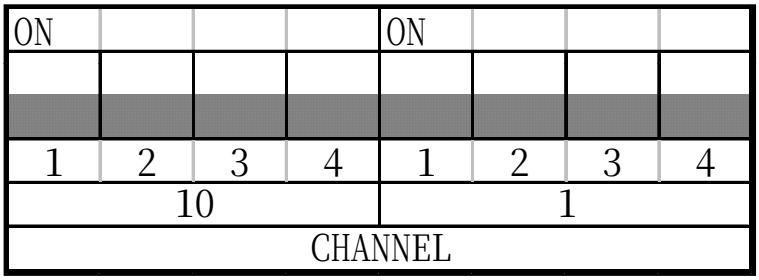
CHANNEL NO		설정 주파수(㎒)
10	1	
0	0	173.6250
0	1	173.6375
0	2	173.6500
0	3	173.6625
0	4	173.6750
0	5	173.6875
0	6	173.7000
0	7	173.7125
0	8	173.7250
0	9	173.7375
0	A	173.7500
0	B	173.7625
0	C	173.7750
0	D	173.7875
TOTAL		14 CH

NOTICE

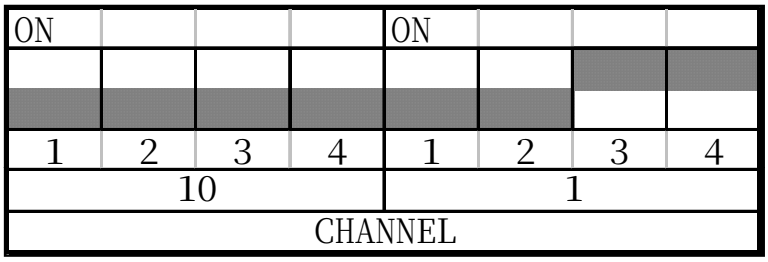
DO NOT CHANGE the RF Channel and the Address Code Switch at Site
because of an Accident.

If Necessary to Change Any Switch, Contact Us (Engineering Departmaent)before Change.

If Any Abnormality or Problemis Found While Using the Transmitter and the Receiver,
Stop its Use, and Call to your Local Dealer or Our Factory.



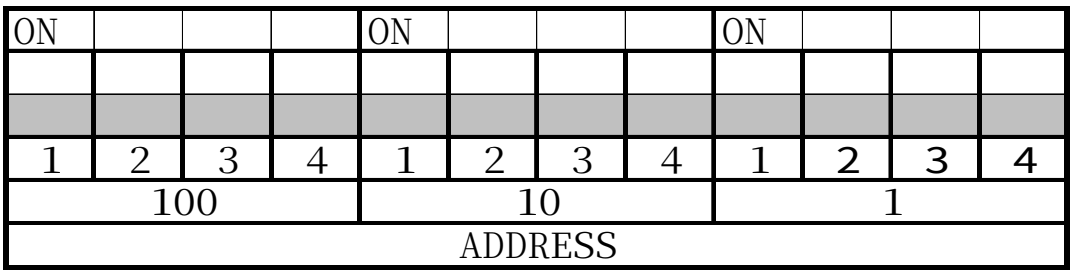
Eg. Refer to the settings of the Channel Switch and frequency as below.



5-2. Setup for the Address Code

The address Code must adjust the same code between the transmitter and the receiver.

Open the case of the transmitter and the receiver; see the Address Code Switch is adjusted the same position.



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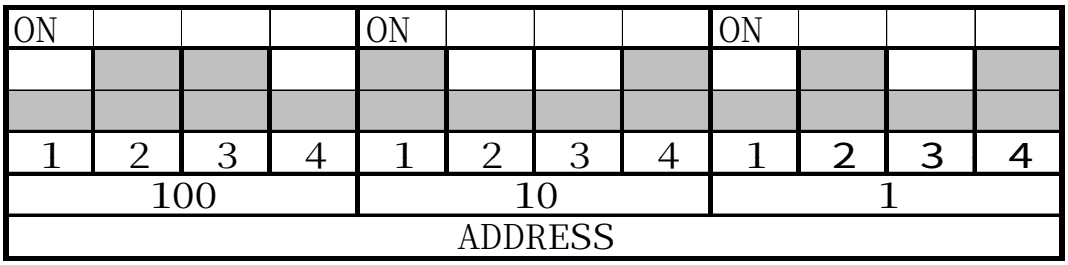


6. OPERATING PROCESS

6-1. Starting for Transmitter and Receiver

-. Check the condition with these steps.

1) Open the case of the receiver and turn no the Power Switch.
2) Pull the red EMS(Emergency Stop Switch) button at the bottom of the transmitter, and turn on the Key Switch to the siren('I' position).

WARNING
IN AN EMERGENCY, PUSH THE EMS (EMERGENCY STOP SWITCH0 BUTTON TO SHUT DOWN.
Operate after check the causes and remove them.

6-2. Operating for Transmitter and Receiver

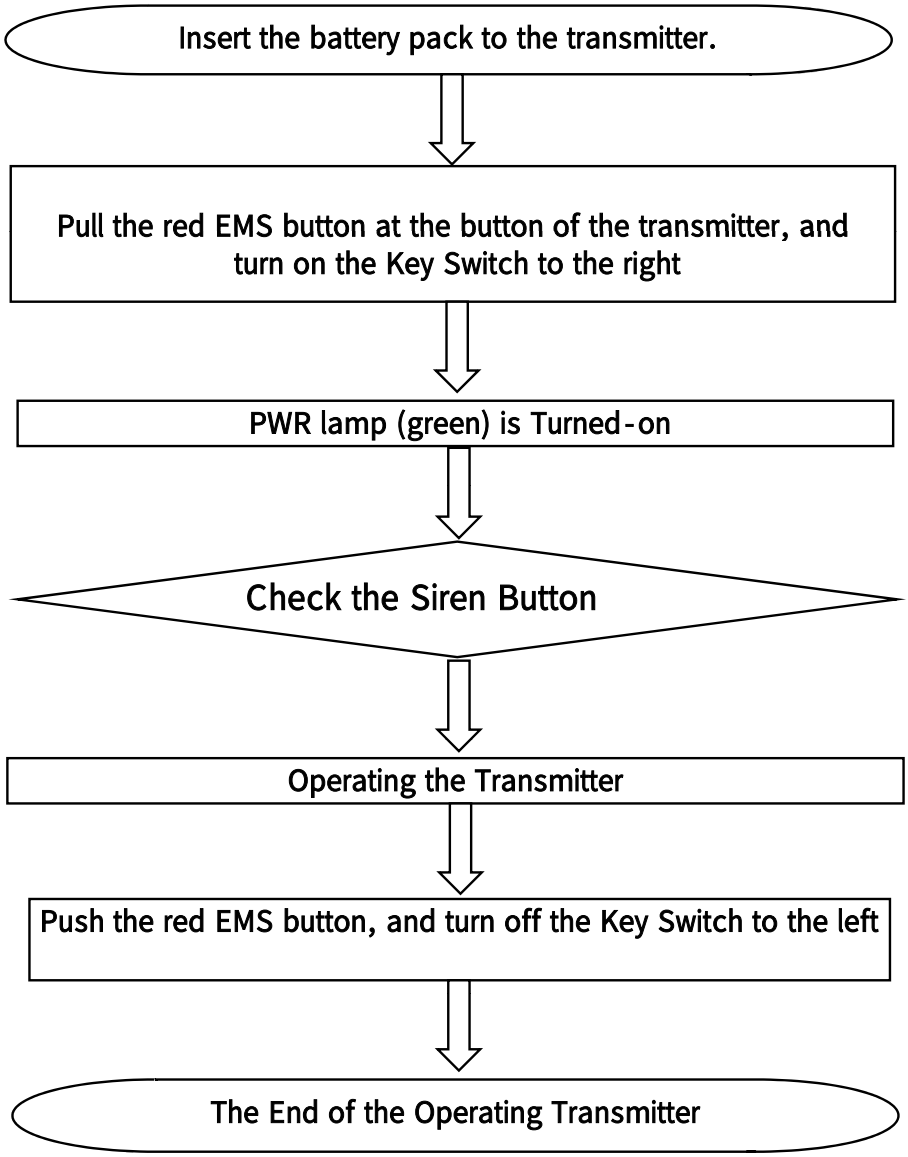
1 Push or pull the lever in the direction of "U"(Up) on the transmitter.
2 Push or pull the lever in the direction of "D"(Down) on the transmitter.
3 Push or pull the lever in the direction of "F"(Forward) on the transmitter.
4 Push or pull the lever in the direction of "B"(Backward) on the transmitter.
5 Push or pull the lever in the direction of "L"(LEFT) on the transmitter.
6 Push or pull the lever in the direction of "R"(Right) on the transmitter.

⇨ The PWR lamp (green) on the transmitter and the Relay's lamp in the receiver blinks.

WARNING

- Operating Only the Workers Being Trained as Operator's Training Course.
- Take Checkup and Training Regularly.
- Be Sure to Operate the Shortest Distance and See it the Freight is Locked in Safety.
- See what the Crane and the Transmitter Move the Same Direction.
- Never to Operate Out of Sight. (Be Sure to Operate in Sight of the Crane and the Freight.)

7. OPERATING FLOWCHART



8. MAINTENANCE

NOTICE
- Checkup Every Functions One by One.
- Replace the Worn Parts of the Transmitter and the Receiver Regularly.
- Take Checkup Spare Parts Regularly.
- If Replacing any Parts, Turn Off the Power.
- Keep the Antistatic Bag the PCB of the Transmitter and the Receiver.

8-1. Weekly Maintenance

1. Check abrasion and operating condition of each Button Switches.
2. Operating condition of EMS (Emergency Stop Switch) Button.
3. Check any external abrasion of the transmitter.
4. Charging state of the batteries.
5. Checking life cycle of the batteries.
6. Contacting state of batteries.

8-2. Monthly Maintenance

Monthly Maintenance of the transmitter

1.Every Connectors state of every units.
2. Check foreign material or dust inside the transmitter
3. Broken state of the dust proof transmitter cover.
4. State of the battery case

8-3. Monthly Maintenance of the receiver

1. Every Connectors state of every units.
2. Check foreign material or dust inside the receiver.
3. Joint state of the clamp screw of the receiver.
4. State of the output relay and the fuse.
5. Joint state of the output terminal board.
6. Joint state of the IC terminal pins.
7. Contact state of antenna
8. Operation state of each operation lamp.
9. The fixing state of all fixed dip switches.

9. TROUBLESHOOTING GUIDE

1. PWR Lamp is Turned-off but PWR Switch is Turned-on
2 Not Operating Transmitter but PWR Lamp is Turned-on
3. A function doesn't operate
4. BATTERY'S LIFETIME IS CONSIDERABLY REDUCED
5. Not Operating from a Distance

No.	ITEMS	CAUSE	ACTION
1	PWR Lamp is Turned-off but PWR Switch is Turned-on	Low Voltage of the Battery	Replace the Battery
		Bad or Poor Connection in the Transmitter or the Receiver	Check Connection
		Bad or Poor Connection of the Battery	Check Connection
		Working in Auto Power-off Circuit	Turn Off and Turn On the EMS(Emergency Stop Switch) Button, then Turn On the Power Switch
2	Not Operating Transmitter but PWR Lamp is Turned-on	Power Switch is Turned-Off in the Receiver	Turn On the Power Switch in the Receiver
		Breakdown of Fuse	Replace the Fuse
		Bad Button	Replace the Button
		Bad Relay	Replace the Relay
		Bad or Poor Connection of the Transmitter	Check or Replace the Bad Parts
3	A function doesn't operate	contact failure of the transmitter s/w	REPLACE CONNECTION PARTS
		RELAY OF RECEIVING POWER DISCONNECTED	
4	BATTERY'S LIFETIME IS CONSIDERABLY REDUCED		
5	Not Operating from a Distance	Bad or Poor Connection of the Antenna	Check or Replace the Antenna
		Bad RF Module	Replace the RF Module
6	OTHERS	EXAMINATION WITH THE NAKED EYE	CHECK THE BROKEN PARTS BY A SHOCK AND MAINTENANCE
		NO CAUSES FOUND	REQUEST WARRANTY SERVICE

10. CHARGER AND BATTERY

10-1. Features

- Wide Range Voltage Battery Charging (AC100V~220V)
- High Capacity NiMH (Nickel Metal Hydride) Rechargeable Battery
  (NiMH (Nickel Metal Hydride) batteries have high energy density and deliver up to double the capacity of NiCd (Nickel Cadmium) batteries of similar size.)
- Indicate Battery Charging State with the LED Lamp
- Pack and Unpack Easily with the Coin Screw on the Battery
- Slim Type Battery
- High Reliability

10-2. Configurations

- Charger: HCG-4814 ---------- 1 EA
- Batteries: HCB-4814 <NiMH (Nickel Metal Hydride) Battery> ------- 2 Packs
- Adapter: AC100V~220V, 60Hz / DC12V 1A ---------- 1 EA

10-3. Charge/Discharge Characteristics

- Charging Time: about 2 hours
- Discharge Capacity (Discharge Time): about 22 hours (at full charging)
- Long Service Life: 300~1,000 charge/discharge cycles
- Charging/Discharging Temperature: 0°C~40°C

10-4. Usage of the charger

1. Contact the power to AC 220V.
2. In put one battery to charger.
3. The red lamp light on to start charging.
4. The green lamp on when the charging goes 90%.
   Please more charge for 1 hour.(full charging)
5. Please charge at – 10~40
6. If the batteries life time shorter than usual, push the discharge switch to discharge.
7. Look out the foreign material to the connection part.
8. Take careful the foreign material is at the bolt make them hard to move.