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# Adjustable Bed Controller (ABC-220 Series)

## User's Manual

Elisync Technologies

designed by dadam MICRO INC.

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## LABELLING REQUIREMENTS (FCC Part 15.19 (a)(3))

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

## INFORMATION TO THE USER (Part 15.105(b))

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver
 is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## WARNING (Part 15.21)

The manufacturer is not responsible for any Radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

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# DOCUMENT HISTORY

| REVISION | DATE | COMMENTS |
|---|---|---|
| 1.0 | 2006.09.05 | 1st official version released. |
| 1.1 | 2006.09.28 | |
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**Elisync Technologies LLC.**

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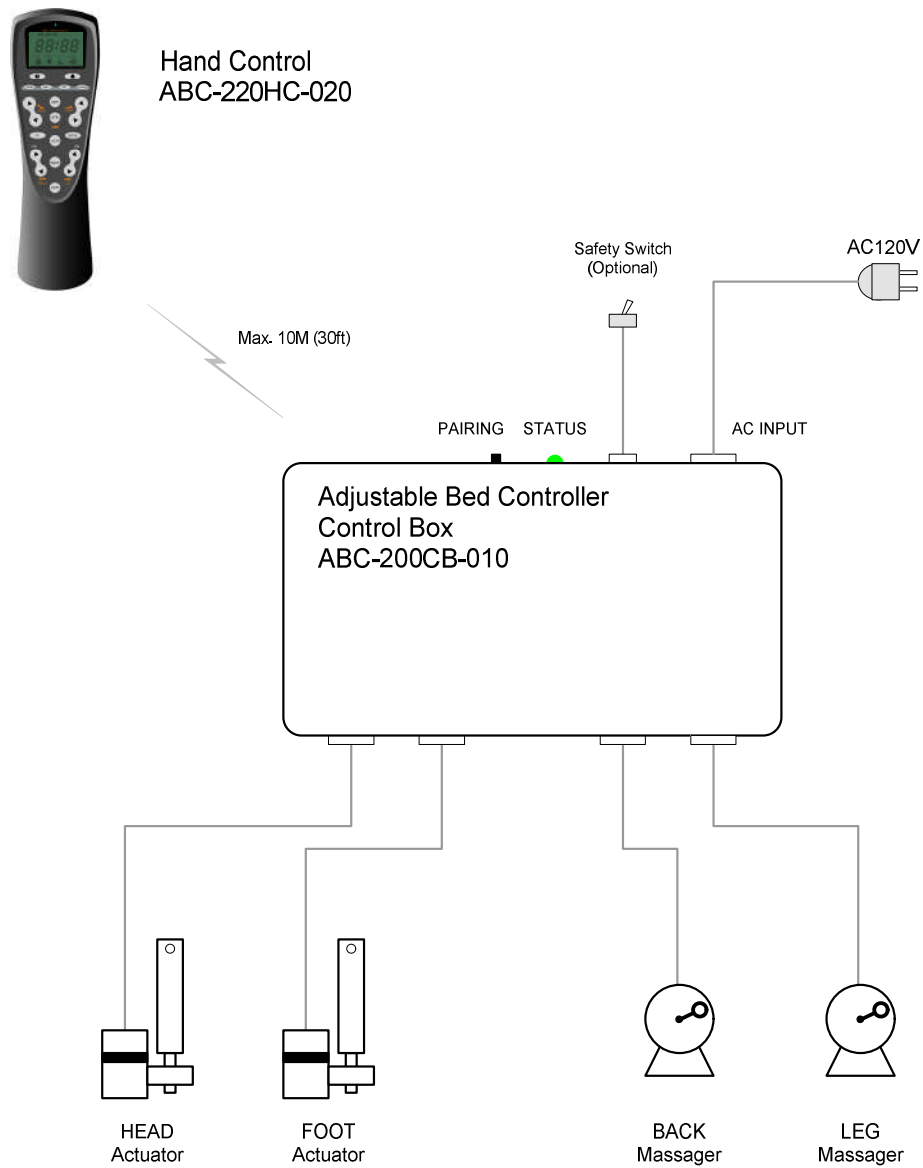# CONTENTS

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# 1. Introduction

## 1.1 Features

ABC-220 series adjustable bed controller is for adjust the bed to fit any position you like. With wireless hand control, you can raise your head and/or your feet to a position that most comfortable to you.

It controls the vibration motors for massage as well as the head and foot actuators. Various massage operation such as single massage, dual massage, and wave massage can be achieved with wireless hand control.

The hand control provides LCD screen to preset alarm actions such as beep sound, bed position change and scheduled massage function.

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## 1.2 Systems Configuration

Hand Control
ABC-220HC-020

Safety Switch
(Optional)

AC120V

Max. 10M (30ft)

PAIRING     STATUS                    AC INPUT

Adjustable Bed Controller
Control Box
ABC-200CB-010

HEAD                FOOT                              BACK              LEG
Actuator            Actuator                          Massager          Massager

# 2. Hand Control

## 2.1 Specification

| Item | Specification |
| --- | --- |
| Model | ABC-220HC-020 |
| LCD User Interface | TIME/ALARM Display & Setting |
| Bed Position Control | 2 Actuators: Head, Foot |
| Massage Function | 2 Massage Motors: Back, Leg |
| | Massage Mode: Manual / Wave |
| | Massage Intensity: 20~100% |
| | Wave Interval: 10~250cycle/min |
| | Timer: 30min |
| Radio Frequency | 315MHz (FCC Part C 15.231) |
| Radio Transmission Range | Max. 10 meters (30 feet) |
| Power Supply | DC 3V, 2 AA Alkaline Batteries |
| Dimension | 197 mm(H) x 62mm(W) x 30mm(D) |
| Weight | 95g |
| Operating Condition | Temperature: -10~60℃ |
| | Humidity: ≤ 85% RH |

## 2.2 Photo

## 2.3 Dimension

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# 3. Control Box

## 3.1 Specification

| Item | Specification |
|---|---|
| Model | ABC-200CB-010 |
| Bed Position Control | 2 Massage Motors: Back, Leg |
| Massage Function | 2 Massage Motors: Back, Leg |
| | Massage Mode: Manual / Wave |
| | Massage Intensity: 20~100% |
| | Wave Interval: 10~250cycle/min |
| | Timer: 30min |
| Radio Frequency | 315MHz (FCC Part C 15.231) |
| AC Power Input | AC120V, 1Phase, 60Hz |
| Dimension | 215mm(W) x 140mm(D) x 40mm(H) |
| Weight | 460g |
| Operating Condition | Temperature: -10~60℃ |
| | Humidity: ≤ 85% RH |

## 3.2 Photos
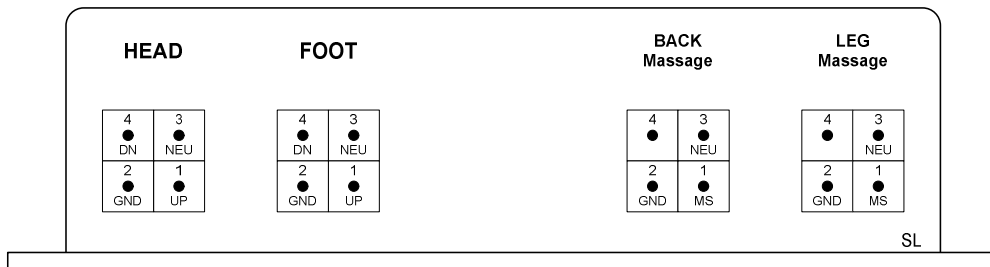


**[Front View]**



**[Rear View]**
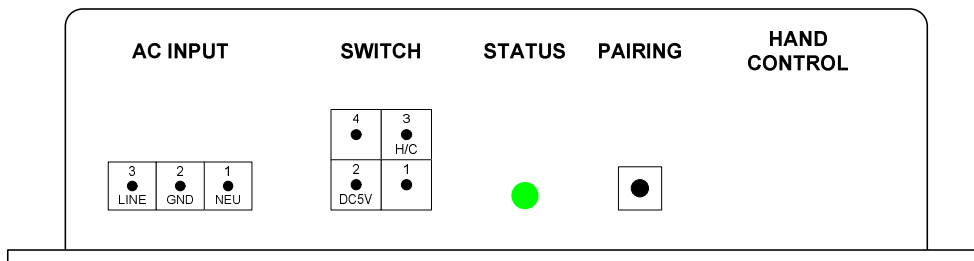
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## 3.3 Dimension (mm)
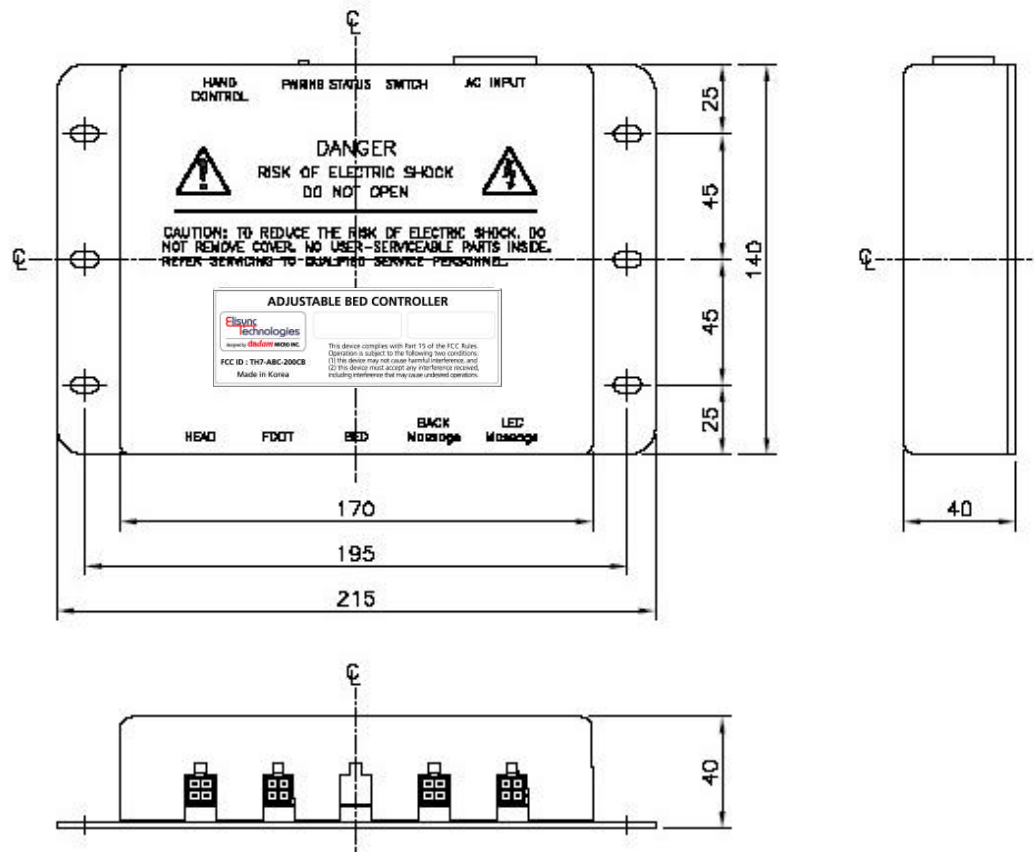
# 4. Control Box - Details

## 4.1 Front View Layout



## 4.2 Rear View Layout



## 4.3 ACTUATOR Connectors

- **PCB Header**
  - MOLEX 5569-4pins, Right Angle/Dual Row
- **Cable Receptacle**
  - MOLEX 5557-4pins, Dual Row
- **PIN Assignment**
  - Pin 1: UP
  - Pin 2: GND
  - Pin 3: NEUTRAL
  - Pin 4: DOWN

## 4.4 MASSAGE MOTOR Connectors

● **PCB Header**

- MOLEX 5569-4pins, Right Angle/Dual Row

● **Cable Receptacle**

- MOLEX 5557-4pins, Dual Row

● **PIN Assignment**
- Pin 1: MASSAGER
- Pin 2: GND
- Pin 3: NEUTRAL
- Pin 4: N/C

## 4.5 AC INPUT Connector

● **PCB Header**

- Hanlim LAB1143-03, Right Angle

● **Cable Receptacle**

- Hanlim CHB1143-03

● **PIN Assignment**
- Pin 1: NEUTRAL
- Pin 2: GND
- Pin 3: HOT(LINE)

## 4.6 Safety SWITCH (Optional)

● **PCB Header**

- MOLEX 5569-2pins, Right Angle/Single Row

● **Cable Receptacle**

- MOLEX 5557-2pins, Single Row

● **PIN Assignment**
- Pin 1: N/C
- Pin 2: DC5V
- Pin 3: Hand Control
- Pin 4: N/C

● **Ignoring Safety Switch**
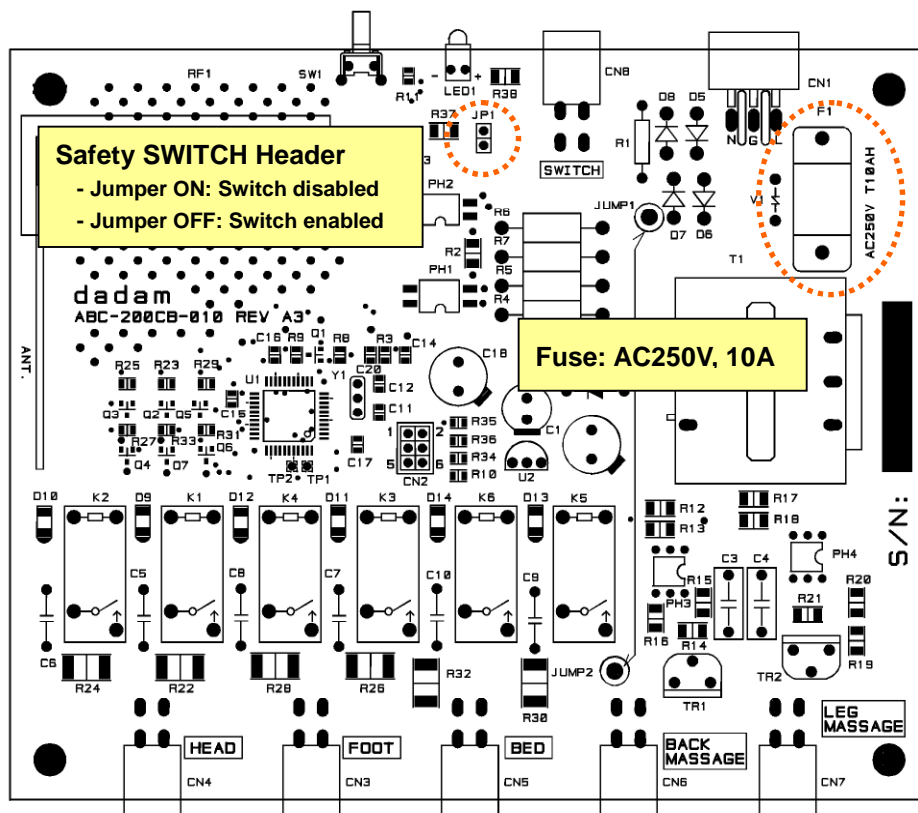- Safety switch is ignored by inserting jumper into JP1 header on PCB.

## 4.7 STATUS LED

● **GREEN LED**

- Power Status, Wireless Pairing Status

## 4.8 PAIRING Button

● For pairing between Hand Control and Control Box.
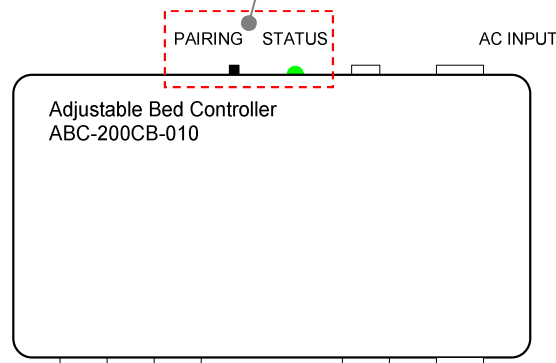
## 4.9 PCB Layout (Fuse, Header)

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# 5. System Setup Method

## 5.1 Wireless PAIRING Setup

1) In hand control, press and hold the USER button for 3 seconds to go into pairing mode. The RED INDICATOR light will begin to flash in 1 second interval. In pairing mode, the hand control continuously transmits its unique ID.
Press the USER button to stop the RED INDICATOR light flashing and exit from pairing mode.

2) In control box, press and release the PAIRING button to go into pairing mode. The control box goes into pairing mode and tries to finds any available ID transmitted from hand control. The pairing mode continued 2~5 seconds depending on wireless condition of hand control to be paired. **Unplugging and plugging the AC power cord also make control box go into pairing mode. This method is useful when you cannot access the PAIRING button easily when the control box is attached under the bed.**

3) When control box finds any available ID, the pairing process is done and the GREEN INDICATOR light is turned ON continuously.

❖ *Electronic ID*

*Each hand control has unique, factory-lasered 16-bit registration ID number that provides an absolutely unique identity, which guaranteed no two hand control alike.*

PAIRING    STATUS        AC INPUT

Adjustable Bed Controller
ABC-200CB-010

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# 6. Hand Control Operation

## 6.1 Bed Position

- **HEAD UP/DOWN Button** ●
  ✓ To raise the head of the bed, press and hold the HEAD-UP button. Release the button when you achieve the desired bed position.
  ✓ To lower the head of the bed, press and hold the HEAD-DOWN button. Release the button when you achieve the desired bed position.

- **FOOT UP/DOWN Button** ●
  ✓ To raise the foot of the bed, press and hold the FOOT-UP button. Release the button when you achieve the desired bed position.
  ✓ To lower the foot of the bed, press and hold the FOOT-DOWN button. Release the button when you achieve the desired bed position.

## 6.2 Bed Position Call

● **MAX Button**

✓ To make the bed its maximum position, press the MAX button. The head and foot position of the bed move automatically to the maximum position.

● **LEVEL Button**

✓ To make the bed flat, press the LEVEL button. The head and foot position of the bed move automatically until the bed become flat.

✓ If any button on the hand control excluding MAX or LEVEL button is momentarily pressed while the bed is moving, the bed is stop and the MAX or LEVEL function is not engaged.

● **TV & BOOK Button**

✓ Press the TV button to call the pre-programmed bed position. The bed moves automatically until the head and foot position reach to the pre-programmed TV position.

✓ Press the BOOK button to call the pre-programmed bed position. The bed moves automatically until the head and foot position reach to the pre-programmed BOOK position.

❖ *Power-up Bed Position*

*The bed position should be flat before power up the bed controller in order to pre-position call function to be operated correctly. If not, this function may not works correctly.*

## 6.3 Manual Massage Mode

- **Back Massage UP/DOWN Button**
  - ✓ Press the UP or DOWN button to activate back massage motor with 30 minutes timer.
  - ✓ The back massage motor starts with intensity level 5 for 1 second and then drops to last intensity level used.
  - ✓ Whenever UP button is pressed, the back massage intensity level is increased to 1 level higher. Whenever DOWN button is pressed, the back massage intensity level is decreased to 1 level lower.
  - ✓ The back massage is automatically turned off after 30 minutes.

- **Leg Massage UP/DOWN Button**
  - ✓ Press the UP or DOWN button to activate leg massage motor with 30 minutes timer.
  - ✓ The leg massage motor starts with intensity level 5 for 1 second and then drops to last intensity level used.
  - ✓ Whenever UP button is pressed, the leg massage intensity level is increased to 1 level higher. Whenever DOWN button is pressed, the leg massage intensity level is decreased to 1 level lower.
  - ✓ The leg massage is automatically turned off after 30 minutes.

- **STOP Button**
  - ✓ Press STOP button to turn off the back and leg massage simultaneously.
  - ✓ The back and leg massage intensities when you Stop the massage are saved in RAM until AC power is supplied to control box.

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## 6.4 Wave Massage Mode

● **WAVE Button**
✓ Press the WAVE button to activate the 'Wave Program 1' with 30 minutes timer.
✓ Press the WAVE button 2ⁿᵈ time to activate the 'Wave Program 2'.
✓ Press the WAVE button to toggle between Program 1 and Program 2 repeatedly.
✓ Press the WAVE button for 2 seconds to stop both massage motors. At the end of 30 minutes, both massage motors are automatically turned off.

● **STOP Button**
✓ Press STOP button to turn off the wave massage operation.
✓ The massage intensity and wave interval when you Stop the wave massage are saved in RAM until AC power is supplied to control box.

❖ *Wave Program 1*

*Both massage motors start and change intensity simultaneously speed 1,2,3,4,3,2, repeatedly. Leg massage starts 4,3,2,1,2,3.*

❖ *Wave Program 2*

*Both massage motors start and change intensity simultaneously speed 2,4,2,4 repeatedly. Leg massage starts 4,2,4,2 repeatedly.*

## 6.5 Time & Alarm Mode

● **To set CLOCK Time**

✓ Press and hold the ⊙ button for 2 seconds to go into Clock setting mode. The **HH** and **MM** will begin to flash in 1 second interval for 10 seconds.

✓ Press the **HOUR** button to increase and set the hour.

✓ Press the **MIN** button to increase ands set the minute.

✓ Press the ⊙ button again to exit from Clock setting mode.

● **To set ALARM Time**

✓ Press and hold the 🔔 button for 2 seconds to go into Alarm time setting mode. The **HH**, **MM** and '**Alarm Icon**' will begin to flash in 1 second interval for 10 seconds.

✓ Press the **HOUR** button to increase and set the hour.

✓ Press the **MIN** button to increase and set the minute.

✓ Press the 🔔 button again to exit from Alarm time setting mode.

● **To Set ALARM Mode**
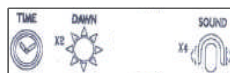
✓ Press the **ALARM** button to set alarm operation mode.

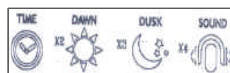✓ Whenever pressing **ALARM** button, 3 different alarm operation modes are displayed in sequence as below.

No alarm mode
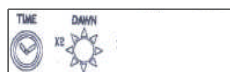
Massager is activated.

Massager and buzzer are activated.

Massager, buzzer and book bed position are activated.

● **To Stop ALARM operation**

✓ During alarm operation is activated, press any button to stop alarm operation.