

User Guide

Control Box CM43



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Revision	2024.03_V1.3
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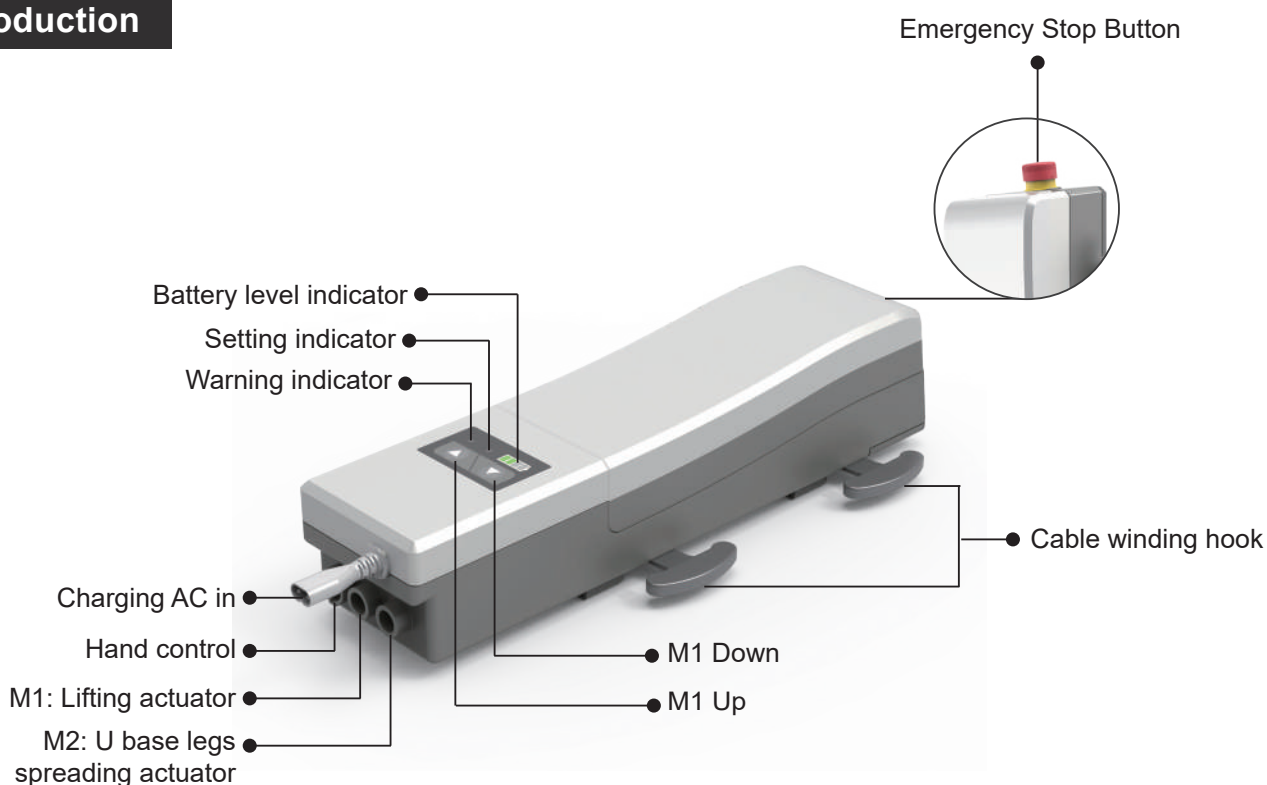
Technical changes may be made to improve the product without notice!



Notice

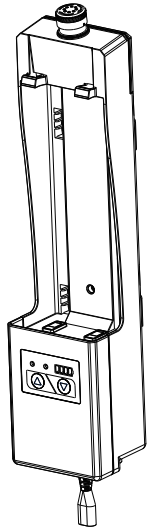
- Please do not expose the product to places where there is concern about overheating, fires, or direct sunlight.
- Please keep product away from places suspected of static electricity or water leakage to avoid electric shock or short circuit.
- The weight of the control box and battery is not light. In order to prevent falling damage or personal injury, please ensure that there is enough working space when installing the product, and install it firmly in an appropriate way.
- If you find that the product is overheating, smoking or smelling, please stop operating immediately and press the emergency stop button on the top of the control box. If abnormalities occur during charging, immediately unplug the power cord to stop charging. Do not ignore this situation, it may cause the danger of fire or electric shock.
- Do not damage or modify the power cord, or forcefully bend, pull, twist, or squeeze it.
- Do not touch the plug of the charging cable with wet hands, otherwise it may cause electric shock.
- Please press the emergency stop button before performing maintenance. And do not perform cleaning and maintenance during charging to avoid electric shock or injury.
- Use a soft and clean damp cloth to wipe the surface dirt. Do not use strong solvents or rinse directly with large amounts of water.
- The functions and parameters described in this user guide are based on the design of the CM43 standard version firmware. If it is a customized firmware, some content may be different.

I/O Introduction



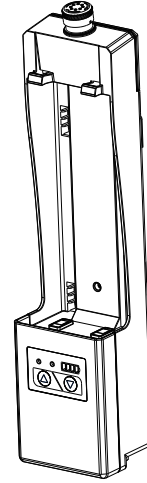
Part name

1. CM43 Control Box



With built-in charger

OR



Standard (Without built-in charger)

2. BT43 Battery Box



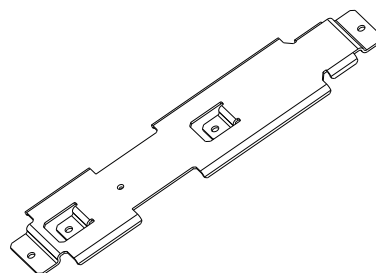
2.9Ah

OR



5.0Ah

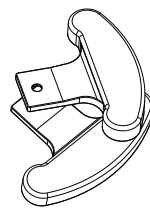
3. Mounting Bracket



4. Charging power cord



5. Cable winding hooks



6. Screws (ISO M3x12 mechanical screw*1, M3x10 self-tapping screws*2)



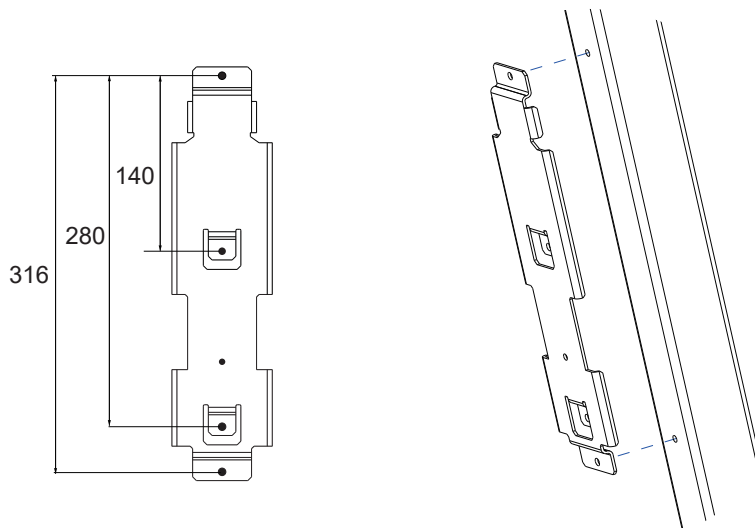
Remarks

- The included accessories will vary depending on the product options. Only CM43 with an internal charger comes with charging power cord, winding hooks, and M3x10 screws.

Installation

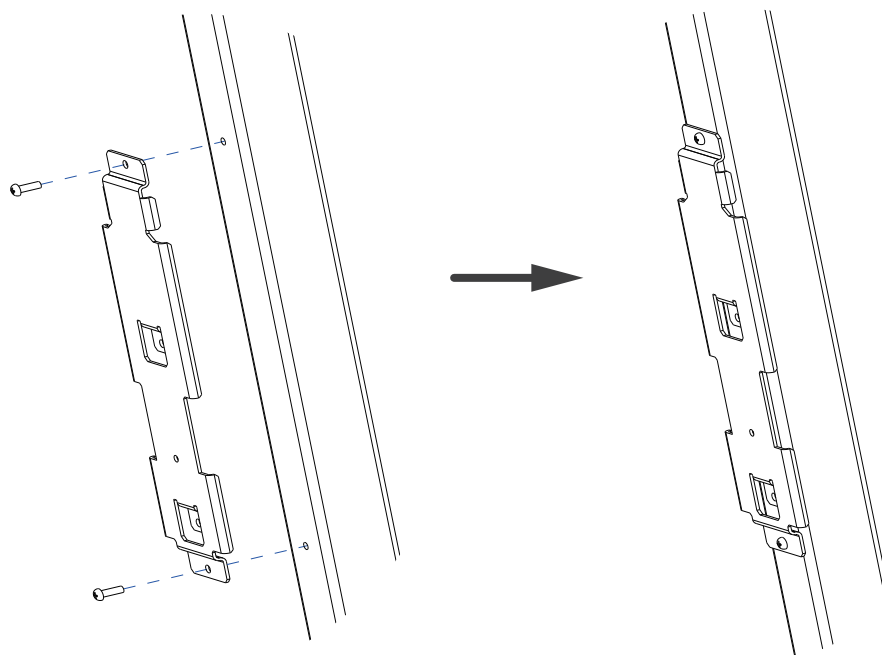
• Preparation for Mounting

Before installation, you must prepare two M6 screw holes with proper distance on the hoist to install the mounting bracket. Please make sure you have enough working space and proceed carefully. Please refer to the figure below for the hole distance of the mounting bracket.



• Installation of Mounting Bracket

1. Choose ISO mechanical thread M6 screws with a length of at least 20mm, which are sufficient to support the hanging weight of the product.
2. Please ensure the screws are tightened.

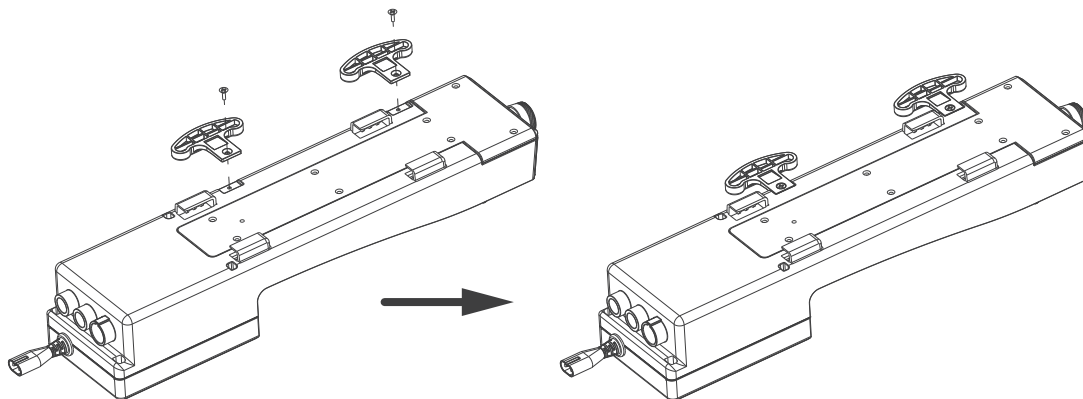


Notice

- The figure above takes the longest fixed hole distance as an example. Please take the top mounting hole as the origin according to actual application requirements, and choose one of the remaining three holes as the appropriate second fixing hole.

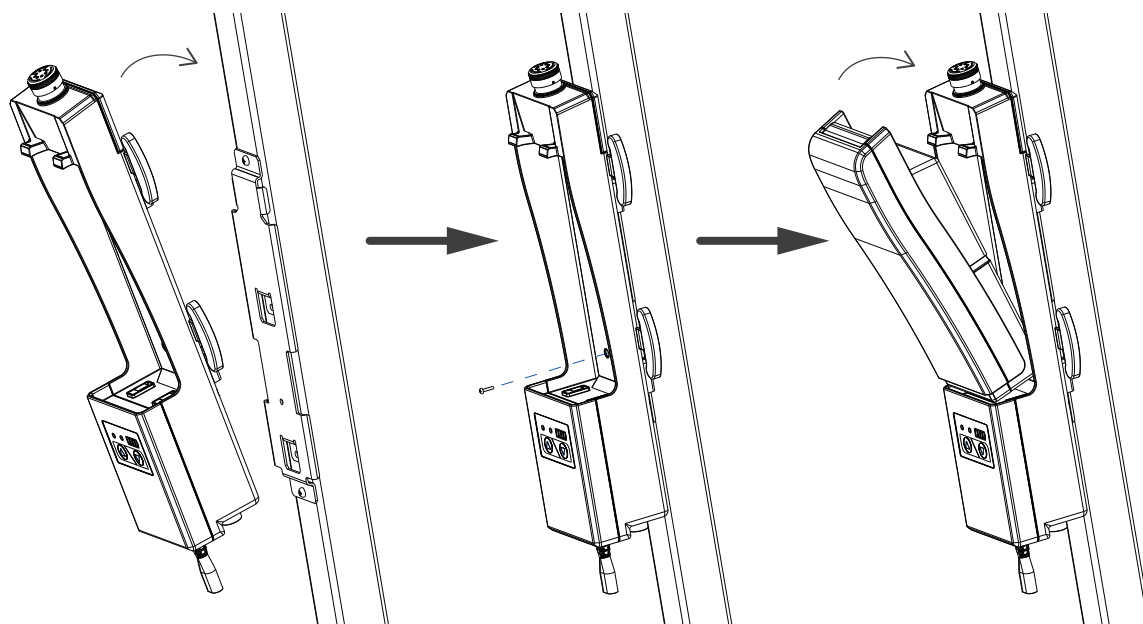
● Installation of Cable winding hook

1. If it is a CM43 with a built-in charger, use the supplied M3x10 (2) tapping screws to lock the hook on the control box; For the model without internal charger, please skip this step and continue.
2. Please ensure the screws are tightened.



● Fix CM43 on the hoist

1. Use the hook-shaped groove on the back of CM43 to hang on the mounting bracket
2. Lock the CM43 to the hoist with the attached M3x12 (1 pcs) screw
3. Press the Emergency Stop Button on the top of the CM43, and then place the BT43 battery box as shown in the figure below.



● Connect actuator and handset

1. After the actuator is installed, connect the plugs of the actuators and hand-control to the correct sockets of the CM43.
2. Manage and fix the cables to complete the installation.
3. Release the Emergency Stop Button to start the first operation (refer to Remarks)



Remarks

- The battery should be fully charged before using it for the first time. Refer to "Battery Charging" section for charging instructions.

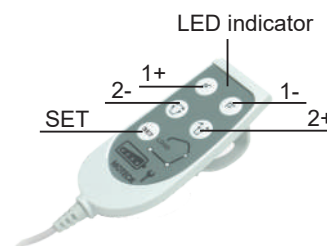
SET mode (Dedicated setting handset is needed)

• Enter SET mode

To enter the SET mode, press and hold the SET button for 2 seconds.

• Exit SET mode

Press and hold the SET button for 2 seconds, or if no button is pressed for more than 10 seconds, the set data will be saved automatically, and then exit the setting mode



Dedicated H2T setting handset




Notice

- If you press the emergency stop button or unplug the handset in SET mode, all newly set data will be deleted without saving.

• Over-current for lifting actuator

If the current consumption of the actuator exceeds the limit, CM43 will stop immediately. Therefore, in the SET mode, there are two methods to set the protection limit of the M1 actuator.

Method 1: Self detect and learning

1. The current consumption value of the actuator has a high correlation with the load weight. Therefore, before starting this detection learning function, please put the maximum weight that is required for normal use on the hoist.
2. Enter SET mode first, then press "1+" for 1 second to start detection learning.
3. Lifting actuator (M1) will extend automatically for 2.5 seconds. The indicator light  on H2T will turn on for 2.5 seconds.
4. During self-learning, the LED indicator on the CM43 will turn on in orange for 2.5 seconds.

Method 2: Manual setting

1. If you know the normal current consumption value of the actuator used with it, you can directly set it in this way.
2. Enter the setting mode, then press "2+" on the hand control to increase the overload current value.
3. Press "2-" on the hand control to reduce the overload current value.
4. The adjustable range is 6~11A. The current value will be display on the battery level bar on H2T and CM43.

Value	6A	7A	8.5A	9.5A	11A
Level bar on H2T					
Level bar on CM43					

● Over duty protection for lifting actuator (On/OFF)

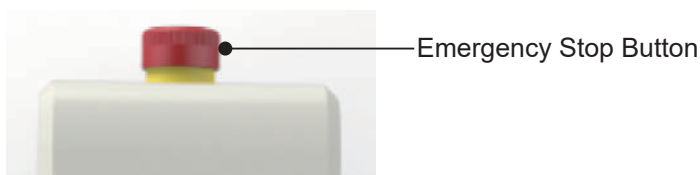
1. The actuator and the control box need to rest properly to dissipate heat to avoid damage caused by continuous and excessive operation. The control box has a protection function. When continuous operation is too long or the operation frequency is too high, it will perform protection and temporarily turn off operation.
2. The factory setting is active, and the LED indicator **LOAD** on H2T will light up. Under SET mode, you can press the 2+ and 2- buttons of the H2T hand control at the same time to turn off/on this protection function.

● Reset

1. Press "1+" & "1-" at the same time and hold for 2.5 seconds in SET mode, the system will return to all default settings, and there will be a long beep.
2. Default overload current: 8.5A for M1 actuator, 3A for M2 actuator.
3. Default value settings: Key tone off, over duty protection is active, current limit is 8.5A.

Operation

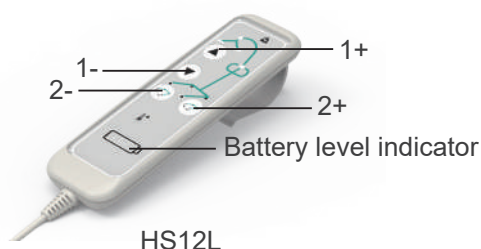
● Emergency Stop



1. Stop: Firmly press the red button until you hear a "click" sound, then the button locks and cuts off power. It stops the actuator immediately.
2. Release: Turn the red button in the clockwise direction to release the button, and the power will restore.

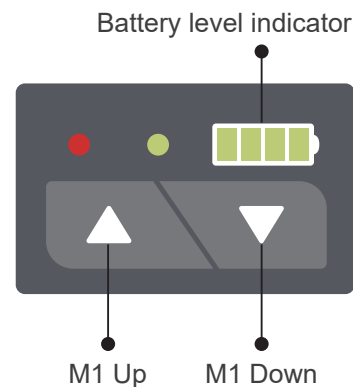
● General Control

1. Hold 1+ button, M1 actuator extends. Release the button to stop the movement.
2. Hold 1- button, M1 actuator retracts. Release the button to stop the movement.
3. Hold 2+ button, M2 actuator extends. Release the button to stop the movement.
4. Hold 2- button, M2 actuator retracts. Release the button to stop the movement.
5. When an actuator is operated under the normal situation, the LED indicator on CM43 (and battery level indication on HS12L) continuously lit green.
6. The control box is automatically powered off if it is not operated for 1 minute.



● **Spare control keys**

1. Keep pressing the M1 Up button and the lift actuator extends.
Release the button to stop the movement.
2. Keep pressing the M1 Down button, and the lift actuator retracts.
Release the button to stop the movement.



● **Battery level indication**

When the button on the handset is pressed to control the movement of the lift actuator, the LED will blink.

The battery level is indicated as below:

Indication on HS12L	Indication on CM43	Status
		Full battery level
		About 75% battery level
		About 50% battery level
		Can barely use, but charge it when there is a chance.
		Need to charge immediately

● **Battery Charging**

1. Charge with built-in charger

- After connecting the charging power cord, the charging function will be automatically activated, and the battery indicator of CM43 will blink. If the CM43 is connected to HS12L or H2T at this time, the battery indicator of the hand control will also blink.
- CM43 will automatically stop charging when fully charged. Before unplugging the charging power cord, the battery indicator lights of CM43 and HS12L will be continuously lit green.
- When fully charged, after unplugging the charging power cord or unplugging the AC plug, the CM43 control program will automatically optimize the settings, and the indicator will flash for about 15 seconds. During this period, the control box cannot be operated. Normal operation can be performed after the indicator stops flashing.



2. Charging with CH43 charging dock

- Remove the BT43 Battery Box from the control box and place it on the CH43 Charging Dock. After connecting the charging power cord, it will automatically start charging.
- The indicator on the CH43 lights up in orange when charging, and the indicator lights up in green when it is fully charged.



Notice

- Please fully charge the battery before using it for the first time, so that the battery can perform normally.
- The batteries must be charged at least every 3 month. Otherwise, batteries may be damaged due to over self-discharge.

• Switch ON/OFF for key tone

Function	Operation	Indication	
Key Tone	Press 2+, 2- buttons on handset for 3 seconds at the same time.	ON	The LED indicator blinks in green twice, beep once.
		OFF	The LED indicator blinks in green twice.



Remarks

- When the set is a 1-motor model, the hand control does not have the buttons to change the key tone setting, and the default is mute.

Status and Disposal

Item	Status	Reason	Disposal
1	<ul style="list-style-type: none"> During operation, the warning indicator blinks red (Fig. 1) 	Low battery alert	Charging battery
2	<ul style="list-style-type: none"> Beeps 4 times every 4 seconds. If it is not operated for 1 minute, the system will automatically power off and pause the buzzer sound. After pressing any key to wake up, the buzzer will continue to sound a low voltage alert. 	The battery voltage is low and it is still operable, but it needs to be charged immediately.	Charge the battery immediately.
3	<ul style="list-style-type: none"> The lifting actuator (M1) can only move down, not up, the warning indicator blinks red (Fig. 1) 	The battery voltage is too low, and protection has been activated to limit actuator operation	Charging battery at once
4	<ul style="list-style-type: none"> The LED indicator on CM43 blinks for 4 sec (Fig. 1) At this time, the indicator of usage warning on HS12L flashes for 2 seconds (Fig. 2) 	Lifting actuator (M1) is over used (more than 4 minutes of continuous operation)	Please stop the operation first, after a period of inactivity, the indicator of usage warning will be automatically turned off.
5	<ul style="list-style-type: none"> Press any key, the control box will make a short beep, and the actuator cannot be operated At the same time, the indicator of overload warning on HS12L keeps on (Fig. 2) 	Linear actuator is over load	Check the operating status, please remove obstructions or avoid improper operation. If this warning continues to occur, please call the agent for assistance.



Fig. 1



Fig. 2