



ELECTRIC CHAIN HOIST

FreeHoist-1000kg Model Series

INSTALLATION, OPERATING, & MAINTENANCE MANUAL



Selected models comply with the requirements of
EN 17206 and IGWV SQ P2 (D8+).



Mode China

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General information

The information contained in this manual cannot be copied, modified or used in any other way without the written consent of Mode China (the manufacturer). The final interpretation rights belong to Mode China.

This manual is applicable to the FreeHoist electric chain hoists in 1000 kg rated load versions (**FreeHoist-1000kg** model series). Any variations in product structure or technical parameters between the model series are specified at the corresponding points in this document.

Before using the electric hoist, the operator should read and understand all warnings, cautions, instructions and notices in this manual. Improper operation or disregard of the warnings in this manual may cause serious personal injury and property damage.

This manual should be stored in a safe, dry place where it can be easily reached when required.

Signal Words:

The following signal words and symbols are used to identify safety messages in these instructions.

DANGER

The DANGER symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

The WARNING symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

The CAUTION symbol indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury and damage to product.

NOTICE

The NOTICE symbol indicates a potentially hazardous situation which, if not avoided, could result in damage to property or environment.

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1 Introduction

1.1 About the manual

Proper use of this product ensures operational safety, while incorrect operation may give rise to various potential hazards. Therefore, we recommend that you take time to read these instructions carefully, as it is critical to the safe and efficient operation of the product.

This manual is applicable to the FreeHoist electric chain hoists in 1000 kg rated load versions. Any variations in product structure or technical parameters between the model series are specified at the corresponding points in this document.

Understanding the content of these instructions can effectively prevent product damage caused by improper operation, and more importantly, avoid injuries to personnel in the vicinity of the product. Meanwhile, it helps you identify and anticipate potential risks and master methods to avoid such risks.

These instructions provide a clear understanding of your responsibilities during product use. It also offers recommendations and methods for the safe and efficient operation and maintenance of the product, helping to ensure that the product remains in safe operating condition throughout its entire service life.

It should be noted that these instructions are not a substitute for professional training. The product owner must ensure that all operators receive appropriate training before using the product and is responsible for complying with all applicable and current safety standards, rules and other relevant regulations.

NOTICE

All personnel involved in the operation, repair and maintenance of the product must read and understand the content of these instructions before performing relevant work, and strictly comply with the information, recommendations and warnings provided herein.

This document and all information contained herein are the exclusive property of Mode China (the manufacturer) and constitute non-public, confidential and proprietary trade secrets. Without the Company's explicit written consent, no entity or individual may reproduce, disclose to third parties, modify or use this document and the information contained herein for any other purpose by any means.

1.2 Definitions of terms

All trademarks, brand names and product names mentioned in this manual are the property of their respective owners.

The following terms and definitions are used in these instructions:

Terms	Definitions
CE marking	A marking indicating that the product complies with the corresponding CE regulations

Terms	Definitions
Chain hoist	A machine which is used for lifting and lowering the load using chain (The chain shall be deemed a component of the hoist product)
Controller	A suspended controller or other controllers used by operator for sending instructions to product
Electrical panel	A panel which is used to control the motor power supply through electrical circuits
Emergency braking	A brake that can be executed by operator or automatically in case of power failure
Inspection	A scheduled, systematic examination of the product performed at regular intervals to ensure safety and extend service life.
Inching	An operation that realizes minimal movement of hoist through pressing direction button repetitively and instantaneously
ISO	International Organization for Standardization
Load cell	A sensor which monitors the suspended load weight for overload protection
Main isolation switch	A power switch which is used to turn on/off the power supply
Operators	Personnel who have received a brief introduction from the employer on the work related to the use of technical equipment in accordance with the operation instructions and whose scope of operation conforms to the description in these operation instructions
Professional personnel	Personnel who are authorized and trained as required to perform relevant operations
Power supply	An energy device that supplies power to the motor
Qualified personnel	Personnel who possess the necessary qualifications such as theoretical and practical knowledge of hoist and are capable of evaluating the safety of installation and application. The personnel who are authorized for product maintenance include the manufacturer's service engineers, as well as certified and trained assembly personnel
Rated load capacity	The load capacity of product under the given operation conditions
Sling	A component used to connect the hook to the load when the hook cannot directly lift the load

1.3 Terms of warranty

The hoist you purchased is subject to the following limited warranty. Mode China warrants its electric chain hoists for a period of one year from the date of delivery, with the terms and conditions specified below:

Warranty period: one year from the date of delivery. Due to reasons beyond the dealer's control

in special situations, a request for warranty extension must be submitted.

Warranty coverage: This warranty includes the cost of replacement parts and transportation fees, as well as provision of video guidance for maintenance. The detailed warranty coverage parts are listed as below:

No.	Warranty Scope List
1	Electric motor
2	Gear assembly
3	Structural components of exterior housing (e.g., motor casings, brake end covers, gearbox end covers, sealing plates)
4	Upper and lower electronic limit switch
5	Chain guide, chain notch plate, lifting sheave(sprocket).
6	Chain
7	Hook
8	Chain bag
9	Brake
10	PCBs
11	Buttons, sockets
12	Battery

General warranty conditions: The warranty applies only to quality issues arising from proper operation and maintenance in accordance with this manual and the product instructions. This warranty does not cover failures caused by overloading beyond the rated capacity, misuse, negligence, accidents or repairs performed without authorization from Mode China. Product damage caused by human factors or external forces, rather than material or manufacturing defects of the product itself, is not covered by this warranty. This warranty does not entitle the user to any form of deduction from payments related to the product. To maintain warranty coverage, the user must use only the chain and other components supplied directly by Mode China (the manufacturer). The product must not be modified without the written official confirmation of Mode China. Otherwise, the warranty will be void. Meanwhile, the manufacturer shall not be liable for any accidents, personal injuries or physical/property damage arising from such unauthorized modifications or the incorporation of Third-Party Products.

Warranty conditions for chain: After receiving and unpacking the product, the chain must be used and maintained in accordance with the provisions of these instructions and maintenance records must be retained. In the event of a chain fracture, contact the after-sales service of Mode China within 30 minutes to report the incident. Provide the product nameplate, site of use, details of the lifted load, and information on personnel and property losses. Take on-site videos and photos (including panoramic views and close-up shots of the fracture point). Preserve the whole fractured chain. The above information must be submitted to Mode China after-sales personnel for analysis and handling.

Warranty conditions for battery: After receiving the product, the user must immediately inspect the battery for physical integrity. If any external damage, deformation, housing cracks, or leakage is detected, do not install or use the battery. Please contact Mode China official support immediately. The warranty of the battery shall be invalidated in the following circumstances:

- Any physical damage caused by impact, dropping, crushing, severe vibration or abnormal external forces

- Operation or storage in inappropriate working temperatures (including extreme cold or hot environments), high humidity, corrosive environments or water immersion outside the officially specified range (mentioned in 5.5.4)
- Charging the battery by using non-OEM chargers unauthorized by Mode China
- Leaving the battery charging for an unnecessary long period or overdischarging (leaving the battery in a depleted state for a long period) and failure to perform routine maintenance, such as periodic charging, as recommended in the official manual (mentioned in 5.5.4)
- Unauthorized disassembly of the battery casing, breaking the anti-tamper seals, modifying the internal structure or unauthorized series/parallel connection for non-specified hoist equipment
- The natural degradation of lithium battery capacity over time and cycle count (normal wear and tear that does not exceed the specified fault threshold within the warranty period)

In addition, the manufacturer's warranty terms shall be invalidated in the following circumstances and the manufacturer shall be exempt from liability for any resulting accidents, personal injuries or physical/property damages:

- Failure to operate and maintain the product in accordance with applicable installation manuals, operator manuals, user manuals, maintenance manuals, relevant recommendations and other manuals, guidelines or advice from the manufacturer regarding product maintenance and operation from time to time
- Occurrence of lateral load pulling, shock loading, eccentric loading or overloading during use
- Exposure to accidental events
- Improper repair, handling or storage of the product
- Exposure of the product to harmful chemical environments
- Use of the product under abnormal operating conditions that were not confirmed in writing to Mode China prior to the manufacturer's issuance of a quotation
- Losses determined by the manufacturer in its sole discretion to be caused by other factors not attributable to defects in materials or workmanship

A limited warranty card of the product can be found in appendix C. The warranty card must be presented together with the OEM invoice when requesting warranty service.

2 Specifications of the Product

2.1 Product use

This product is a general-purpose lifting machine designed to perform regular lifting operations within the scope specified by the product liability class. Modifications or use for other purposes are only permitted with the manufacturer's written approval. This type of machinery is suitable only for general manufacturing scenarios and not for harsh environments. If you have any questions, contact Mode China or its authorized representative.

During use, position the product directly above the load (keeping it perpendicular to the load) to avoid lateral pulling force. Lateral pulling not only poses a risk of property damage but also accelerates the wear of the lifting machine. In addition, never use this product to pull or drag loads horizontally. Always lift the load off the ground before performing any moving operations.

DANGER

Lifting people is prohibited:

This product must not be used for lifting, supporting or transporting people. Any attempt to lift people with this hoist may result in death, serious injury or property damage. Mode China assumes no liability for any injury or damage resulting from such misuse.

Modifying the product without the manufacturer's permission may pose safety risks and invalidate the product warranty. Any major modification of product must be authorized by the manufacturer in writing. The examples of such modification include (but not limited to):

- Welding or otherwise attaching new components to the product.
- Installing connecting devices for special material handling (e.g., devices for load rotation)
- Altering load-bearing components
- Replacement or modification of main components such as chain.

CAUTION

Property loss risk: The products can be damaged.

Modifications to the product structure or performance parameters or installation of additional components, are permitted only with the manufacturer's approval. Do not use the electrical hoist as a welded grounding platform.

2.2 Product identification

Technical specifications of the product can be found on the product nameplate (Figure 1), including the product serial number. The nameplate of the electrical hoist is located on the main body. The table below explains each item displayed on the product nameplate.

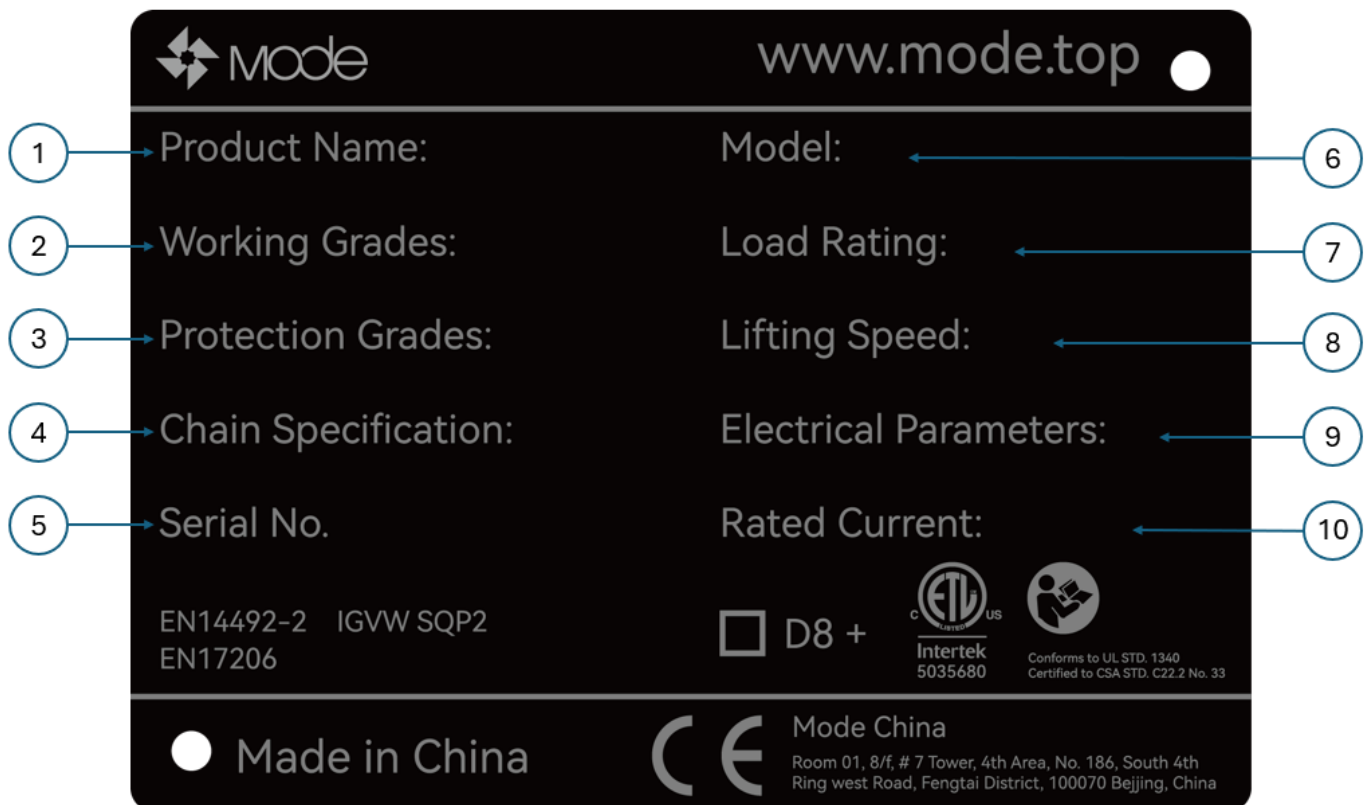


Figure 1 Electrical hoist nameplate of the product

No.	Descriptions
1	Product name
2	The working level of the product
3	The protection grade of the product
4	Diameter and pitch of chain used
5	General product identification No.
6	Product model
7	Rated lifting capacity of product
8	Product ascending/descending speed
9	Battery voltage (Power supply)
10	The rated current of the product

NOTICE

Before operating the product, make sure that the operator has read the nameplate of the product. And the data parameters match the intended use. The nameplate should always remain legible and complete, otherwise it should be replaced with a new one.

2.3 The product

2.3.1 The electric hoist

Figure 2 shows the main components of the product Freehoist-1000kg. The table below lists the name of the components.

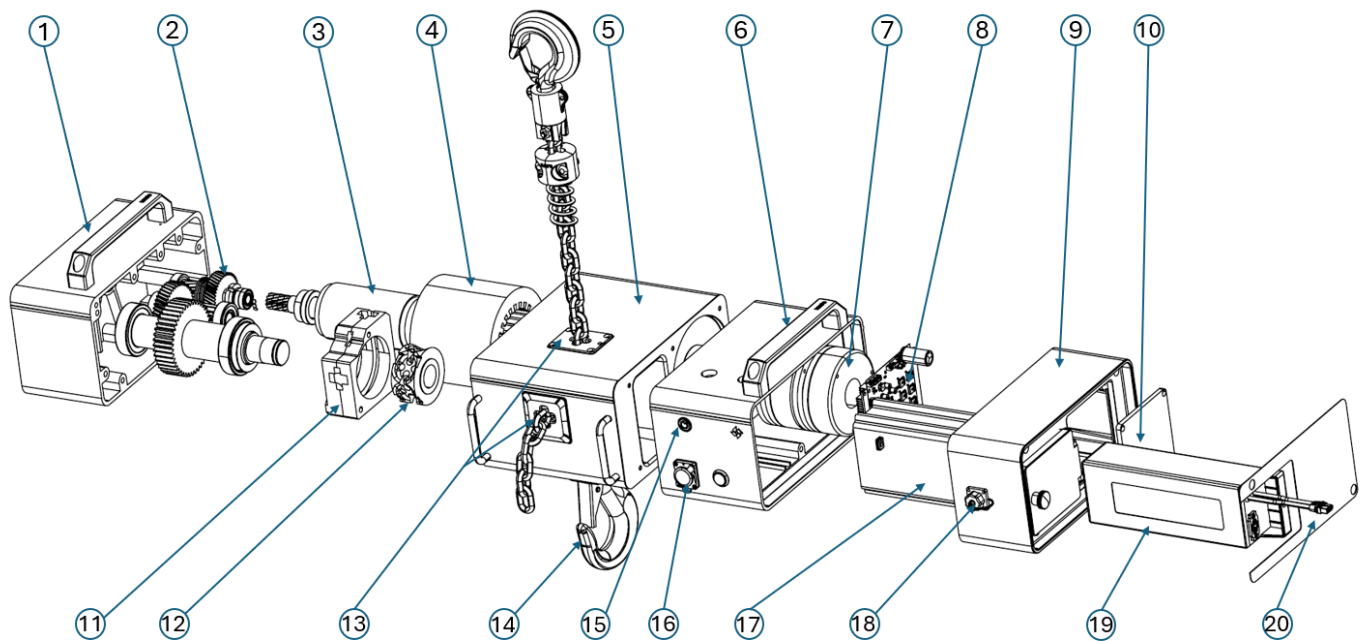


Figure 2 Main components of FreeHoist-1000kg

No.	Name	No.	Name
1	Gearbox housing	11	Chain guide
2	Gearbox	12	Chain wheel
3	Rotor	13	Chain guide plate
4	Stator	14	Hoist hook
5	Sprocket housing	15	Power switch
6	Brake housing	16	External wired control socket
7	Electromagnetic brake	17	Battery compartment with hatch
8	PCB	18	External charging socket
9	Extended electric housing	19	Li-ion Battery
10	Electrical access port	20	Decal

2.3.2 Chain transmission

The chain drive consists of a chain guide, a sprocket and a chain. This chain is specially designed for hoist. The chain is made of high-strength alloy steel with the standard black color. The chain tolerance is precisely adaptive to the chain transmission. Please lubricate the chain as specified, in order to maximize its service life. When replacing the chain, it may also be necessary to partially or completely replace other components of the chain transmission system. Only order and use the OEM components.

2.3.3 Control of the hoist with a wired pendant

The direction control layout varies with each product. Each function of direction control is represented by symbol. Operator should understand the meaning of each symbol, in order to operate the product safely.

WARNING

Pressing the wrong control button on the controller may cause the product to move unexpectedly, potentially resulting in death, serious injury or severe damage to the product.

When operating the product, properly press the control button on controller to realize expected movement direction and action of product.

When using a wired pendant for hoist motion control, first ensure that the surrounding environment is safe and poses no risk of injury to personnel. As shown in Figure 3 Sockets and buttons on the hoist surface, press the main power button of the hoist first. Once the red main power indicator lights up, the machine is energized. At this point, the hoist must remain stationary, otherwise press the power button immediately to disconnect the power. Next, press the wired control switch and insert the wired pendant cable into the external wired control socket. The button should be in the popped-up state as shown in the figure 3. The hoist must still remain stationary at this moment. The hoist should move only when the corresponding button on the wired pendant is pressed and stop when the button is released, otherwise press the power button immediately.

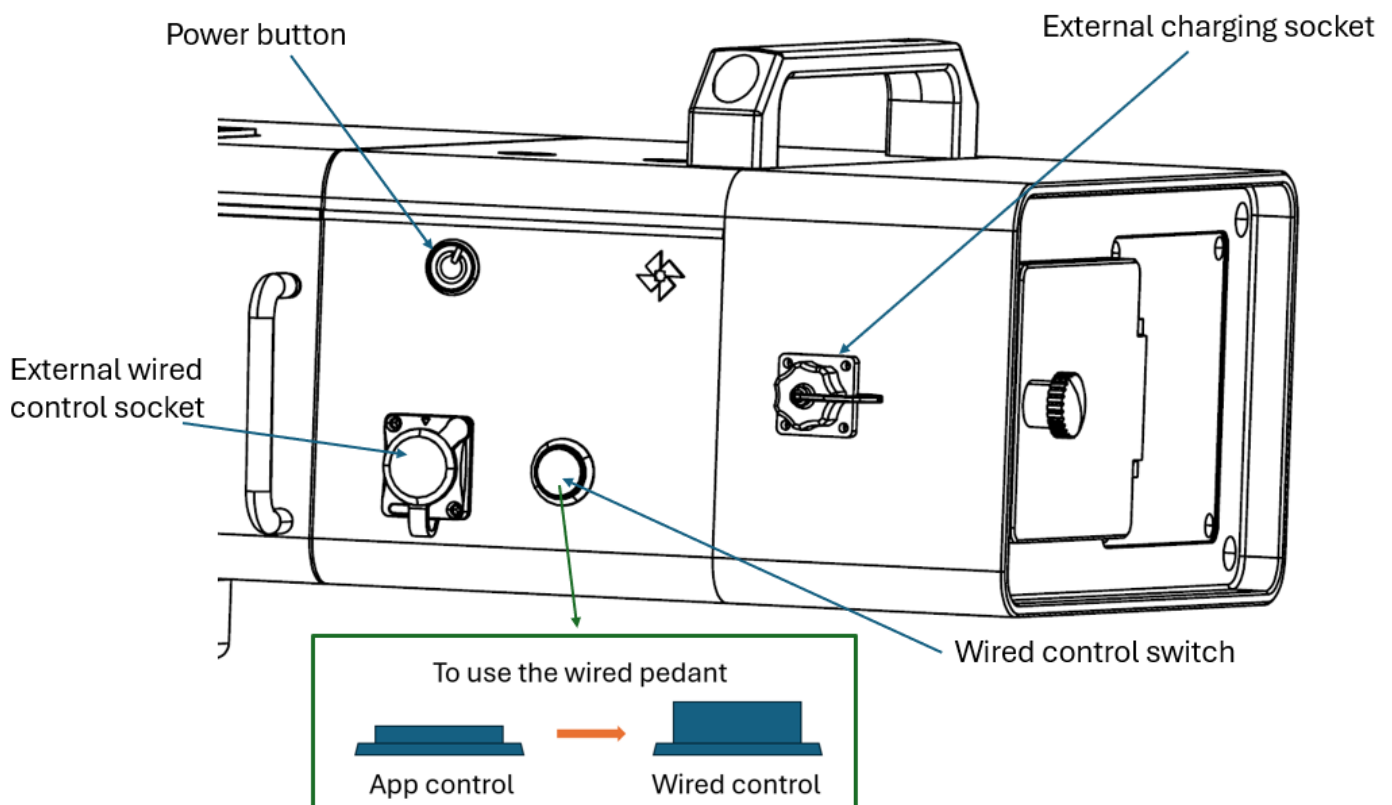


Figure 3 Sockets and buttons on the hoist surface

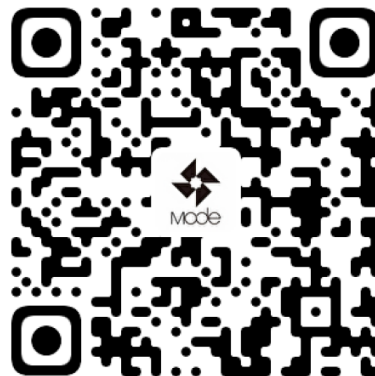
2.3.4 Control of the hoist via mobile APP

The hoist can also be controlled using a mobile device with Wi-Fi capability, which requires downloading the **Mode Controller** app. The app can be downloaded from the app store by scanning the QR code shown in figure 4. FreeHoist utilizes a wireless connection for networked cluster control. Users do not need to perform any additional settings on the FreeHoist or the OEM router. Upon powering on, FreeHoist will automatically search for and connect to a specific wireless signal source. The app already includes the necessary tutorials. Please be sure to familiarize yourself with the tutorials before performing any mobile operations.

The basic router parameters are listed as following:

- WIFI: WIFI 6 or above
- Speed: 300 Mbps or above
- Transmission standard: 802.11ax/ac/n/a 2*2 & 802.11ax/n/b/g 2*2

- Wireless frequency band: only 5GHz, do not activate dual-frequency optimization
- The default WIFI SSID is **MODE_Router_5G** and WIFI Password is **mode123456**
- Router wireless signal radius: maximum 100 meters with no obstacles
- Maximal access terminals: 128 terminals with the OEM Router



APP Download

Figure 4 QR Code for APP download

WARNING

Please note that the default wireless router settings match the hoist's system credentials. To ensure cyber security and protect your hoist from unauthorized operation, changing the default administrator username and its password as well as the WIFI SSID and its password at first use is mandatory. The process is mentioned in 3.4.2.

NOTICE

You must strictly memorize or make a written record of the newly set device name and password. If the new credentials are lost, each FreeHoist must be manually reset (see 5.5.5) individually, which is a time-consuming process.

2.3.5 Safety functions of the product system

When the hoist exceeds the effective control distance of WIFI during operation, the hoist will automatically stop running to avoid the situation that the hoist cannot be controlled beyond the effective control range. During the linkage process of multiple hoists, if one hoist is disconnected and unable to operate, other hoists will stop running within maximum 2 seconds to avoid the possibility of hoists being out of synchronization and causing danger. Additionally, during group control operation, should any hoist cease operation for any reason, all hoists in the group will synchronously stop within maximum 2 seconds, ensuring synchronization stability and overall system safety.

When the hoist is connected, it only establishes a unique connection with the first connected App, and the subsequent connected App needs to wait for the hoist to be completely disconnected from the first connected App before pairing and connecting again, avoiding the danger of a possible multi-person operation conflict. When the battery power is lower than 50%, the power indicator light of the hoist will flash to remind the user to replace the battery to avoid power failure during the work. When a phone call comes in during the operation of the hoists, the App will force all of the hoists to stop, so as to avoid the situation that the hoists are out of sync during the phone call.

For FreeHoist models compliant with the D8+ certification, an additional load cell is utilized to display the weight of the load hook directly within the App. When the hoist is idle (no movement commands are given), the load cell transmits and updates the weight data to the App frequently. This enables operators to verify that the entire lifting system is properly balanced while the load is stationary. During lifting or lowering operations, control signals take absolute highest priority. To ensure uninterrupted control and optimal response times, the load cell temporarily stops broadcasting weight updates to the App until the movement ends. Furthermore, the FreeHoist units equipped with a load cell feature an overloaded protection that triggers if the load exceeds 1.25 times the rated load capacity, preventing potential accidents caused by overloading.

2.3.6 Power supply and charging

The FreeHoist-1000kg is equipped with a DC motor driven by a rechargeable Lithium-Ion battery rated at 36V DC, 5000 mAh, and 180 Wh. The standard configuration includes a battery charger with an output of 42 V/2 A and a power rating of 84 W. This standard charger can be used for charging the battery individually (when removed from the hoist). Alternatively, the battery can be charged while inside the hoist via the external charging socket for short periods.

NOTICE

If long-term or continuous charging via the external charging socket is required, please use the specialized 38 V, 2 A, 76 W charger provided optionally by Mode China.

CAUTION

The battery charger is designed strictly for 100-240V single-phase AC power supply. DO NOT connect the charger to a three-phase grid (for example, 208V 3-phase grid in north America). Connecting to an incompatible phase configuration or voltage level will cause permanent damage to the charger and invalidates the warranty.

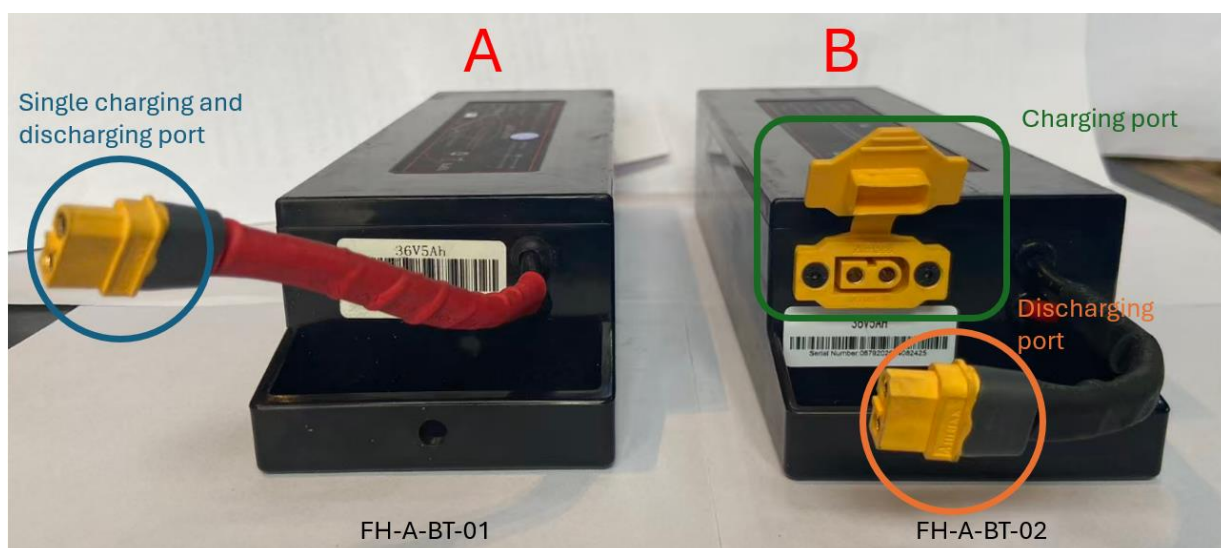


Figure 5 Two different battery types with different port configuration

The FreeHoist-1000kg series offers so far two types of batteries (as shown in figure 5):

- Battery Type A (Left, **FH-A-BT-01**): Features a single-port configuration, where both charging and discharging are conducted through a single integrated cable.

- Battery Type B (Right, **FH-A-BT-02**): Features a dual-port configuration, separating the charging and discharging channels. It is equipped with an integrated discharge cable as well as a flip-cover charging socket on the casing.

Both battery variants are compatible and can be used to power all FreeHoist models. To charge the battery directly while it remains inside the battery compartment of FreeHoist, the specific FreeHoist model must be equipped with the matching compartment interface designed for each battery type as shown in figure 6. When using an OEM charger to charge battery type B outside the battery compartment, only the charging port (with flip-cover) should be used.

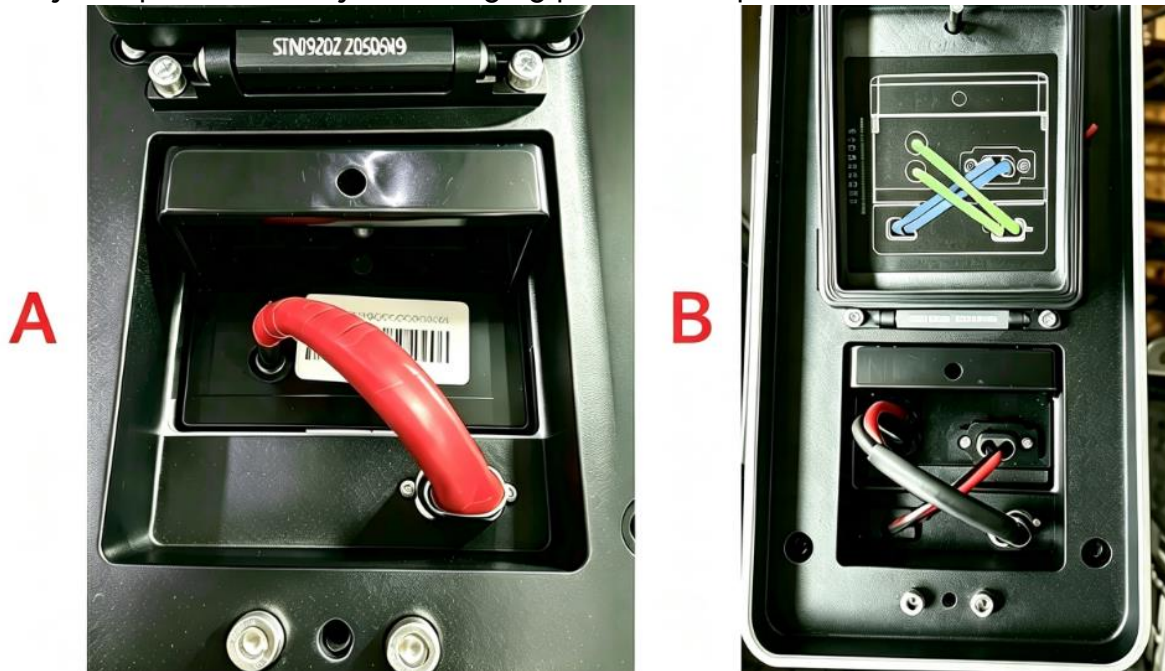


Figure 6 The wire connection for two battery variants inside FreeHoist

2.4 Standards and directives

The design and manufacture of this product series complies with relevant European and international standards and directives. Some of the models meet the requirements of standards such as CSA (Canadian Standards Association), UL (Underwriters Laboratories) and CE Marking (European Conformity), where applicable. Some of the models also meet the requirements of the D8 Plus classification and conform to the IGWV Quality Standard SQ P2 (the German industry standard for electric chain hoists in entertainment technology). For detailed certifications of the relevant models, please contact Mode China or its local representative. The Declaration of Conformity for this product can be found in Appendix B.

NOTICE

In line with our policy of continuous product improvement, specifications and designs are subject to change without notice. However, for certified product series, any modification directly affecting the certified safety-critical components or certification status will be strictly managed in accordance with applicable regulatory standards.

A set of technical documents is available for this product, such as machine drawings, electrical drawings, spare parts manual etc. Each serves different purposes and targeting different audiences. Please contact your supplier to receive the related document. For further information, please contact the manufacturer's local representative or Mode China.

NOTICE

Please store technical documents in a safe, dry and easily accessible place.

2.5 Responsibilities of customers

All product owners must ensure that operators fully understand the work-related hazards and the methods to avoid hazards. Operators should conduct on-site risk assessments at each work phase or before each shift. The assessment process shall ensure that operators clarify the work content and potential risks before starting work.

- Identify the potential hazards that may affect you, your colleagues, environment, product or working method during the process of performing tasks.
- Assess risks and take necessary measures to eliminate or reduce them.

Only qualified personnel are permitted to perform product operations and other related tasks. The product owner's responsibilities include:

- Providing training and guidance to operators.
- Verifying the effectiveness of training methods.
- Verifying operators' operational capabilities and skill levels.
- Regularly monitoring and evaluating operators' work performance.

PPE (Personal Protective Equipment) is proposed in this section to ensure operators' safety. Always comply with local regulations and workplace requirements and use only approved and recognized PPE. The operators or other personnel near the product must wear PPEs to keep safety.

While conducting installation, inspection or maintenance at a high place, please follow the fall protection procedure specified in local laws and regulations. Fall protection measures and equipment are designed for protecting the personnel on or near the equipment from falling. The personnel must use the properly installed safety belt when the equipment has no maintenance platform or fence. The safety belt is fastened at the specific fixing point of building or equipment to prevent falling. The product owner must ensure that proper and safe fixing point or provide proper manned elevator. The personnel must learn how to arrange and fix ladder before use.

All accidents or near-miss incidents involving the manufacturer's products, as well as safety-related situations such as unauthorized modifications, loss of manuals and safety labels, neglected maintenance or misuse of the product, must be reported. Immediately contact the local manufacturer's representative or Mode China to make the report. Such reporting is mandatory to ensure employees have safe working conditions, provide necessary information for risk assessment and promote product improvement.

2.6 Operation conditions

If the operating environment is inconsistent with the environment designated while placing an order, please contact Mode China for solutions to ensure that product can be used in all operating environments. When you plan to use this product in a special environment or handle dangerous substances, please consult Mode China or the manufacturer's representative. For example, molten metal is regarded as a dangerous substance. Other examples of abnormal environment conditions include windy area, areas prone to earthquake and corrosive gas.

WARNING

It is dangerous to use hoist in any environment other than the designed one. Moreover, use in the environment above will shorten the service life of hoist and increase the maintenance requirements. This product should be used in the designed environment only. For any query, please contact Mode China or the manufacturer's representative.

The Standard FreeHoist is rated for standard industry environments under the following conditions:

- The ambient temperature is specified in the order confirmation book. In general, the ambient temperature is between -20°C (-4°F) and +60°C (140°F).
- The product shall not be exposed to any corrosive substance or explosive atmosphere.
- Special hazards may occur when using the product in areas prone to earthquake.
- The relative air humidity shall not exceed 90%.

NOTICE

This hoist is available with optional configurations to meet the requirements of special-use environments, including outdoor applications. For application-specific questions, contact Mode China or your authorized manufacturer's representative.

2.7 Forbidden uses

Prohibited use of this product includes but is not limited to the followings:

- Explosive environments.
- Load exceeds the max. working load.
- Hoisting or transporting personnel using this product.
- Transporting the loads with personnel nearby.
- Moving the loads or hanging the load above personnel.
- Releasing load when the load is not balanced.
- Dragging or pulling load.
- Sideload, lifting, pulling or tightening the product along with straight line between load and electrical hoist.
- Removing safety lock from the hook.
- Contacting chain during hoisting.
- Tying a knot on load rope or chain or shortening them by using bolt or screw.
- Using the loose end of load chain to lift the load.
- Operating the product when chain is twisted.
- Operating a damaged product.
- Using the slipping clutch as a functional limit switch or weighing device.
- Approaching the slipping clutch during normal operation.
- Using the product as grounding reference for welding.
- Using abnormal/defective battery or non-OEM battery

WARNING

If using the product above its capacity or operating condition limits, death, major injury or property loss may occur. Please use the product within its load level or operating conditions.

Dismantling or modifying safety device may result in safety device fault, death, severe injury

or property loss. Do not dismantle or modify any safety device on the hoist, unless otherwise approved by manufacturer in advance.

For more information, please refer to the section of product description and operation conditions. For any doubt, please contact the Mode China or the manufacturer's representative.

2.8 Safety

2.8.1 The emergency stop

The emergency stop button locks when it is pushed. Please rotate the button in the printed arrow direction to reset the emergency stop button. Rotate the release buckle to bounce the button to normal reset position. The emergency stop shall be not used as power switch.

WARNING

Pushing the emergency stop button may result in swinging of the load, unbalanced loads or other un-intended movements, thus causing death, severe injury or property loss. Please use the emergency stop button in emergencies only. Only personnel familiar with the position of the emergency stop button can operate the equipment.

Some parts of the product may still have voltage even after the power button is turned off. High voltage may result in electric shock, severe injury or even death. Pay attention to the function of main isolation switch.

Sudden power failure may occur when turning off main power switch. The sudden power failure may lead to load swinging, thus causing death, severe injury or damage to product or load. Do not turn off main power switch while moving the load.

2.8.2 The Lockout-Tagout-Tryout procedure

Before performing any maintenance, repair or inspection, strictly follow the Lockout-Tagout-Tryout (LOTO) procedure as listed below to prevent accidental start-up or release of stored energy:

- 1) Shut down the hoist and disconnect it from the power supply. Identify all energy isolation points.
- 2) Attach a personal lock and a warning tag to the control device. The hoist must not be operated until the lock is removed.
- 3) Keep the key to the lock with you at all times while performing the work.
- 4) When multiple persons are working on the same machine, each person shall apply their own personal lock using an approved multi-lock hasp.
- 5) Use an approved voltage tester to verify that no voltage is present.
- 6) Verify that all other forms of energy have been properly isolated using an approved method.
- 7) Attempt to operate the machine using the normal controls. If the energy isolation is effective, the hoist should not start and no part should move or activate.
- 8) Safely release any stored or residual energy that could pose a hazard during the work.
- 9) After all work is completed, remove all locks and tags before restoring power.

WARNING

Stored energy may remain in rotating parts, moving parts, or the load after shutdown. Unintended release can cause death or serious injury. Follow LOTO procedures. Do not operate the product during installation or maintenance. Never operate any control when locked or tagged out.

2.8.3 Noise

The hoist generates audible noise during operation. The total sound pressure level in the operating area is the superposition of noise from all sources around the operator. The main noise of hoist comes from component vibration, structural vibration and sound reflecting surfaces.

When the distance between the operating position and the hoist and related moving components exceeds 5 meters (16 feet), the average combined sound pressure level at the operating position during the operation of the hoist and its associated components is generally not more than 75 dB(A). The sound pressure level may increase when operator approaches noise source.

WARNING

Prolonged exposure to noise above 80 dB (A) may result in hearing impairment. Wear the approved hearing protection device. When operating hoist in environments with excessive noise levels, hearing protection devices must be worn as required.

2.8.4 Personnel

To avoid hazardous situations and adverse consequences, all operation and maintenance work must be performed by professional personnel. The task examples listed below are only permitted to be carried out by trained personnel. For detailed information on risks associated with tasks, refer to the corresponding operation guide sections, which also include methods for safely performing the tasks. Tasks requiring special skills and training include but are not limited to maintenance of electrical system.

WARNING

Improper operation or maintenance procedure may result in severe injury or even death. Professional skills and special training on task and working method are required in operation and maintenance procedure. Untrained operators shall not operate or maintain the hoist. Always follow the operating instructions and use appropriate personal protective equipment according to task requirements.

3 Installation and commissioning

Before installation, carefully read all relevant sections of this document, especially the safety section. Ensure that installers possess the appropriate qualifications and skills, strictly follow the installation steps and ensure the installation process is safe, compliant and meets quality requirements.

3.1 General installation safety

- 1) Ensure that installation personnel have professional capability and qualification and have received sufficient guidance before carrying out the installation work.
- 2) Ensure that loading, trial run and commissioning are conducted correctly. Check if the handover log is filled correctly.
- 3) Ensure that product components, electrical connection and steel structures have passed inspection and are proved to have no defect
- 4) Verify whether you have received all relevant documents attached with the hoist from the supplier. Check if the documents match the products you receive.
- 5) Ensure that the tools and hoist can be used for installation based on the sales contract. When working aloft, please use proper safety measures and equipment to prevent falling of objects.
- 6) Please leave enough time for installation and test.
- 7) Prevent the unauthorized personnel and bystanders from walking on or below the workplace. The parts and tools may fall down and cause injury. Prevent components and tools from falling or causing personal injury and ensure that safe area is wide enough.
- 8) Ensure personnel are not struck, crushed or pinched by moving machinery. Protect the work area from moving machines, auto doors or adjacent hoists. Prevent accidental startup during installation and maintenance. Keep adequate space, use protective devices on moving parts, never bypass safety devices and take precautions to avoid wrong-direction movement during testing.
- 9) Check if power voltage and frequency conform to the hoist requirements and check if the installed bus matches the hoist.
- 10) Ensure that the reserved operating environment and space of hoist can realize all functions of the product.
- 11) Check if the provided parts conform to the drawings, instructions, list of parts and structure measurement after installation and before commissioning. Discuss with the supplier immediately about the nonconforming items.
- 12) Articles which are not properly fixed on hoist, such as tools and dismantled components, may move accidentally and fall down, thus causing severe consequences. The components should be lowered to the ground as soon as possible while dismantling the hoist.
- 13) Check if there are electrical hazards in operation area and the surrounding area and take measures to minimize the hazards. Only the trained personnel can perform the electrical work using safe method.
- 14) Please provide proper fire extinguisher when on-site welding is required. Do not use any product structure or component for grounding.

3.2 Installation preparations

3.2.1 Transportation, packaging and delivery scope

The product is transported in a package. Before installing the hoist, visually check if the package you receive is intact and check if the delivery contents match your order. If not, please contact your supplier.

Both the chain block and chain should be hoisted out from the package, for the chain bag is not fixed on the chain block during transportation of chain. Connect the chain bag with the hoist.

CAUTION

If using the hoist outdoors, water may accumulate in the chain bag, thus damaging the hoist and chain. Any accumulated water must be removed from the chain bag. The chain must then be dried and lubricated.

3.2.2 Product treatment

Please check the hoist weight prior to hoisting, in order to select a proper hoist and prevent overload. The hoist weight can be found in the packing list, technical document or hoist nameplate. In general, the auxiliary lifting device or certain lifting device can be used for lifting the hoist. The common lifting equipment is chain and sling. Each hoist should clearly indicate the rated capacity which must be approved by the authority responsible.

WARNING

The auxiliary hoist can be damaged by overload. When the equipment has failure, the load may fall down, causing severe injury or even death. Only the lifting equipment that clearly shows the rated load capacity and approved by authority can be used. Do not try to lift the load unless the load weight is confirmed below the rated load capacity of auxiliary lifting device.

Always follow the instructions of equipment manufacturer and local authority. The hoist manufacturer is not responsible for the lifting safety of accessories provided by other manufacturers.

Loosen the anti-slip thread of the connecting ring on the chain bag, mount the ring onto the machine body lifting ring. After installation, tighten the anti-slip thread of the connecting ring securely.

3.3 Installation steps

- 1) Unpack the product and dispose of the packaging materials in accordance with environmental protection requirements.
- 2) Check the completeness of the delivered items.
- 3) Connect power supply to the hoist.
- 4) Adjust the position of lower hook, where necessary.

- 5) Before using the product for the first time, please carry out commissioning, inspection and testing.

WARNING

The overloaded components may result in fault, severe injury, death or product damage. When the electrical hoist is used as expected, the suspension or support structure of electrical hoist must be designed based on the max. load that is caused by operation of electrical hoist.

WARNING

The electrical hoist may fall down and cause severe injury, death and product damage. Do not pull the load at an angle with the electrical hoist that has fixed suspender, such as suspension hook or suspension bracket. The electrical hoist must be suspended by means of a flexible connection. The rigid suspension device must be protected against inclined tensile force. When electrical hoist is provided with suspension bracket, do not move the electrical hoist or leave it unattended when the suspension bracket is opened.

Connect the hoist to the support structure:

- 1) Dismantle the clip and pin at one side of suspension bracket.
- 2) Connect the suspension bracket to the support structure.
- 3) Cross the pin through the suspension and suspension bracket. Fix the fastener with clip.

CAUTION

The electrical hoist can be tilted when suspension bracket is not installed properly. The chain transmission may wear prematurely when the electrical hoist is suspended out of alignment. Ensure the installation of suspension part matches the chain winding arrangement of electrical hoist. The special accessories (if any) mounted on the electrical hoist should be balanced.

Adjust lower hook position:

Ensure that the lower hook has contact with ground at the lower limit position while determining the hook path or hoisting height. Fix the chain stop on the 25th and 10th chain link at the unloaded and loaded end of chain. Please reduce the hoisting height according to the steps below.

- 1) Lower the hook onto ground to loosen the chain.
- 2) Stop the chain hoist, press the power button. Ensure that the power button will not be turned on again.
- 3) Dismantle the chain bag.
- 4) Dismantle the chain stop at the chain bag end.
- 5) Install the chain stop directly at the desired length position.
- 6) Put the chain in the chain bag. Connect the chain bag to the hoist.
- 7) Power on the hoist.
- 8) Move the hook to check the adjustment of lower hook position.
- 9) Run the chain on the entire hook path after adjustment.

3.4 Commissioning

During commissioning, the operator shall wear appropriate personal protective equipment (PPE)

and take necessary fall protection measures when working at height. Only tools rated for the applied voltage and compliant with VDE EN 60900 shall be used. Lockout and tagout procedures must be applied to prevent unauthorized use of the equipment and access to the workplace by unauthorized personnel shall be avoided where reasonably practicable.

All relevant local regulations governing hoist commissioning and safety shall be strictly observed and only qualified personnel are permitted to operate the hoist. Verify that all mechanical and electrical equipment have been installed in accordance with the site acceptance test (SAT) checklist. Clearly demarcate the area where commissioning, driving, testing and loading operations will be carried out and notify all personnel in the vicinity to prevent them from entering the danger zone. Identify any potential collision risks between the hoist and structures, obstacles, equipment or personnel and take appropriate measures to mitigate such risks. If a manned access platform is required, the operator must be familiar with its operation and safety instructions before use. Prepare for load testing in accordance with local regulations, noting that the test load typically ranges between 90% and 130% of the rated capacity. Ensure adequate lighting in the work area as specified in DIN EN 12464 to guarantee safe operation.

3.4.1 Check before the first operation

- 1) Support structure: Verify that the support structure is complete and that its load capacity meets the requirements of the chain hoist.
- 2) Lubrication: The chain is delivered without lubrication. Initial lubrication is required as part of commissioning preparation. Carefully lubricate the chain before operating the hoist.

CAUTION

The chain and other parts of chain transmission may be worn earlier when initial lubrication is not conducted. Insufficient lubricating may greatly shorten the service life of chain and the entire chain transmission. Wear will occur immediately after start of chain hoist. Therefore, the chain may have fault and result in fault or load reduction of machine. Please lubricate the chain carefully before and after the first running.

- 3) Bolted connection: Verify that all bolted and mechanical connections are secure, including the connection between the hoist frame and suspension parts, and between the suspension parts and the trolley (if applicable). Use a torque wrench set to the proper value.
- 4) Electrical connection: With the product unpowered, ensure that all electrical connections comply with the wiring diagram and local requirements, paying particular attention to those affecting safety and control. Also check that all wiring and connectors are intact and secure. Ensure the battery has sufficient charge to sustain the entire duration of the operation.

NOTICE

The FreeHoist operates on a 36V DC power supply, which falls under Safe Extra-Low Voltage (SELV) and does not require an external protective grounding (PE) connection to the earth grid. In the unlikely event of an internal insulation fault or electrical leakage, the system's integrated short-circuit protection will immediately trigger and cut off the power supply to ensure maximum operational safety.

- 5) Chain: Inspect the chain for damage or twisting caused during transportation. Also check the chain stopper on the idle chain and verify that it is securely fixed to the chain.
- 6) Hook: Visually inspect the hook to ensure no transport damage. Verify that the hook latch is present, in good condition, and closes automatically. Check that the forged hook body rotates freely. Measure the hook opening and record this value as a reference for future wear measurement.

3.4.2 FreeHoist and router initialization

To ensure operational safety and prevent unauthorized access, the default credentials (such as username, device name, passwords, etc.) for both the FreeHoist and the router must be customized reset before the first-time use. Please follow the steps below (For a more visual guide on how to reset the initial authentication credentials, detailed instructions are provided in Appendix D):

- 1) *Download the mobile App:* Download the **Mode Controller App** (as referenced in Section 2.3.4) onto the mobile device intended for hoist control via the official app store.
- 2) *Connect to the router:* Power on the official OEM router configured by Mode China. No additional configuration is required at this stage. Connect your mobile device to the router using the default WIFI SSID **MODE_Router_5G** and WIFI Password **mode123456**.
- 3) *Power on the hoists:* Turn on all FreeHoist units that require initialization and password updates. Once powered, all active FreeHoist units will automatically search for and connect to the router that shares their default device name and password.
- 4) *Batch modify credentials via App:* Open the app and select the **FreeHoist** page from the home screen. A list of all connected FreeHoist units will be displayed. Tap the corresponding icons to select all the hoists you wish to initialize. Following the in-app tutorial, tap the **Gear (Settings) icon** in the upper-right corner to enter the configuration menu and change the device name and password.

NOTICE

The user must strictly memorize or make a written record of the newly set device name and password. If the new credentials are lost, each FreeHoist must be manually reset (see 5.5.5) individually, which is a time-consuming process.

- 5) *Network disconnection:* Once the new device name and password are confirmed, all configured FreeHoist units will automatically go offline from the current router network and begin searching for a new router that matches their updated credentials.
- 6) *Update router settings:* Locate the login details on the back of the router, log into the router Admin interface using your mobile device, and change the **Wi-Fi SSID(Wi-Fi Name)** and **Wi-Fi password** to match the new device name and password you just created.

CAUTION

It is highly recommended to reset the router's admin login password at this time to prevent unauthorized personnel from tampering with the network settings, which could pose severe safety hazards.

- 7) *Restart and verify:* The router will restart automatically after the credentials update confirm. Once the reboot is successful, all FreeHoist units will automatically reconnect to the router.

- 8) *Wi-Fi connection:* Connect the mobile device with the new router credential data (new Wi-Fi SSID and its password). Open the App interface again. You are now ready to safely control all the selected FreeHoist units.

3.4.3 Before hoisting

Check if the load is balanced and safely fixed on the hoisting point. The load can slide or separate when it is not suspended. When hoisting is started, lift the load off ground and check if load is balanced. When load is not balanced, lower it and adjust the hoisting point.

- Do not use the lifting equipment that is not designed for this purpose. The lifting equipment must be used according to the manufacturer's instructions.
- Do not use the damaged lifting equipment. Inspect all lifting equipment carefully before use.
- Do not use the lifting equipment when its rated capacity is unclear. Only the lifting equipment approved by authority can be used.
- Do not lift the load which exceeds the rated capacity of lifting equipment.
- Do not lift the load unless it is properly connected to the lifting equipment.
- The operator and bystander should keep away from dangerous area during hoisting. Do not apply pressure on personnel.

3.4.4 Test the hoist without load

- 1) Check electrical connections, correct the phase sequence if necessary
- 2) Check the controller, if hook movement matches the button markings
- 3) Test the emergency stop button
- 4) Listen for abnormal noise during operation
- 5) Check if the hoisting brake ascends/descends normally. The brake distance is normal when the brake distance is 2 or less chain links.

3.4.5 Test the hoist with load

Before using the product, verify that it operates as intended, that it is only run at or below the rated load capacity and that safety devices (e.g., overload protection) function correctly. Also observe product behavior under improper use.

- 1) Measure the power supply: At 100% load, verify that the voltage does not drop below the minimum value (typically -5%).
- 2) Check braking: The brake should engage normally. Brake travel is acceptable if stopping distance is 2 chain links or less.
- 3) Check motor current: At rated load, current should be balanced across all phases and must not exceed the motor's rated value.
- 4) Check running temperature: If the hoist stops due to thermal overload, determine the cause before retesting.

3.5 After Commissioning

Visually inspect the hoist and other components for any damage incurred during commissioning and testing. Ensure all tools and materials used during installation have been removed from the hoist and the track. Confirm that the operator and supervisor understand the necessity of user training (which may be detailed by the manufacturer's authorized service agency in a separate agreement). Verify that all accompanying documents are complete, correctly filled out, and that the reference data matches the nameplate. Prepare the commissioning log and store it together with other hoist documents.

Precautions:

- Additional commissioning tests may be required by local regulations. Ensure the product complies with all applicable local requirements.
- Test all optional functions before putting the product into service.
- When multiple hoists are required to lift the same load simultaneously, do not mix hoists from different brands.

4 Operation

4.1 Safety during operation

Do not use the mechanical limit switch to stop the movement on purpose. Before reaching the mechanical limit, stop the movement through the control device on wired pendant. For any fault while using the product, press the emergency stop button and contact the director. Heat will be generated while motor is running, even if there's no load. Please run the motor at the rated speed, for more heat will be generated at a low speed. Cool the motor regularly to avoid overheat. The temperature controller will prevent further operation when motor is overheated.

WARNING

Operating the product below or near the load may result in the danger of load falling. The falling load may cause severe injury or even death of personnel below or near the load. Ensure that no one stands below or near the load while operating the product.

Always operate the product under the designed operation condition. The hoist owner and operator are responsible for operating the hoist in accordance with safety specifications, as the manufacturer does not directly control or participate in its use. Only authorized qualified personnel who have read, understood and demonstrated sufficient knowledge of these instructions and proper operation/ maintenance are permitted to operate the hoist.

4.2 Inspection before operation

A series of pre-use inspections shall be completed prior to each operation to ensure operational safety. Such inspections shall be conducted by qualified personnel and documented in writing for future reference. Detailed inspection content is described in the Appendix A.

4.3 Start the hoist

WARNING

***Danger of uncontrolled movement
It may result in severe injury or even death when operating the hoist while it is not safe. Do not operate the product until it is safe.***

Please execute the following steps to operate the hoist with **mobile App**:

- 1) Press the power button on the hoist body.
- 2) Open the App on the mobile device. The FreeHoist unit shall connect automatically and be shown in the user interface.
- 3) See if the displaying weight information is correct. For abnormal weight information display, please contact Mode China or its local representative for further support.
- 4) Tap the icon of connected hoist to select it, and test the up, down function as well as the virtual emergency stop button. Tap the icon once more to deactivate the selection.
- 5) Press the power button on another FreeHoist unit surface and repeat the steps above.

- 6) After all required FreeHoist units are registered in the App. The FreeHoist units are ready to be grouped and operated.

4.4 Load handling

4.4.1 Load evaluation

Please confirm the load weight before hoisting, in order to avoid overload. Ensure that the load weight does not exceed the rated load capacity of hoist and its accessories before hoisting is allowed. Do not use the overload device to determine whether the load can be hoisted. For example, the overload device such as slipping clutch (if applicable) is not sufficient to determine whether the load can be hoisted. The load that does not trigger overload device may still exceed the rated load capacity.

DANGER

Hoist failure may occur when the hoisted load exceeds the rated load capacity of hoist and its accessories. When hoist fails, the load may fall down and result in severe injury or even death.

Do not try to hoist the load that exceeds the rated capability of hoisting equipment. Do not use an overload device to determine whether the load can be hoisted.

4.4.2 Load balance

Unbalanced load may cause toppling or damage of hoisting equipment. Adjust the position of the hook, sling and safety belt to balance the load, so that the total tensile force is applied at the gravity center of load. Ensure that load is balanced. Check if the load is balanced correctly before hoisting the load. When load is unbalanced, first lower the load and then adjust the hoisting point.

The center of gravity is usually in line with the center of the load. The gravity center of eccentric balance load leans towards the heavier end. The load balance remains unchanged as long as the load object does not move around.

WARNING

Multi-Hoist Synchronization: During multi-hoist operations, the load must be distributed evenly across all units to prevent individual hoist overloading. Continuous synchronization must be maintained throughout the entire movement.

WARNING

Attempting to push or pull unbalanced loads directly with your hands may result in hand crushing or injury from falling loads or even cause the load to fall, leading to death or serious injury. Do not try to balance the unbalanced load with hands. Lower the load and adjust the hoisting point.

4.4.3 Impact on load

The hoist and accessories are designed for bearing the load weight gradually and stably. They do not apply to the situation when load weight increases or decreases suddenly. Impact load may occur when the load on hoist increases or decreases suddenly, resulting in chain elongation and deformation, gear tooth surface wear or overheating failure of the brake pads.

CAUTION

Impact on load may damage the product or load. Even if there is no visible damage on the surface, internal components may have sustained harm. Always maintain smooth operation during use and avoid any actions that may generate impact.

After impact load, the hoist must be disassembled and inspected by the authorized maintenance personnel or manufacturer-certified technicians (including inspection of the chain, brake and gearbox) to ensure that it can be used safely. Do not use the hoist unless it is confirmed safe after inspection.

4.4.4 Loading

The load is connected to the product through certain non-fixed hoisting accessory. The common non-fixed hoisting accessory is chain, steel wire rope and hoisting belt. Operators shall select suitable lifting accessories based on the load weight and shape, and strictly follow the accessory manufacturer's instructions (e.g., rated load of slings, restrictions on usage angles).

The hoisting device should be placed on the load-bearing surface of hook only, in order to avoid damaging the hook. The hoisting device is therefore located at the lowest point of hook.

CAUTION

Always follow the instructions provided by hoisting equipment manufacturer when using a non-fixed hoisting accessory. Do not use the chain as the sling to connect the load.

Ensure that the hook safety catch is closed, and check if the safety lock is subject to any action force from load. The load weight must be concentrated at the center line of hook forged piece, so the hook handle will not be bent by the load. Do not tip load the hook to lift any object. Check if the load is balanced and safely fixed on the hoisting point. The suspended load should not slide, fall down or fall off automatically. The chain hoist must be directly placed above (vertical to) the load, to avoid lateral tensile force. Do not drag the load along the ground. While the load is moving, observe its status constantly, to ensure that it does not collide with any object or falls down from the hoisting device.

WARNING

- ***Do not drag the load or side load the hoist.***
- ***Do not twist the load chain.***
- ***Do not shake the load on purpose.***
- ***Do not add any load to the loaded hook.***

- ***Do not pull the hook to the top position or the bottom position. It is not allowed to use mechanical limit switch as operation limit, which may cause damages, hazards or accidents.***
- ***Do not lift the hook to the upper limit position or stay at this position for a long period. It may damage the rubber parts of mechanical upper/lower limit switch when hook stays at the upper limit position.***

4.4.5 Load lifting and lowering

Ensure that all hoists are prepared prior to hoisting. Do not move the goods unless they are properly connected to the hoisting equipment.

WARNING

Ensure that no one stands below or near the load while operating the product. Both operator and bystanders should stay away from the dangerous area during hoisting. Do not put heavy objects onto human body.

Stay clear of the chain or sling during hoisting. Body parts may be caught or injured by hook block or hoist. Severe injury or even death may occur when body parts are caught or trapped by hook block or hoist.

Hold UP button until the load almost leaves the ground, check the load balance. Then keep holding UP button until the load reaches the target height. To avoid collision with objects, do not lift the load to an unnecessary height.

Before lowering the load, ensure that there are no personnel or obstacles in the landing area. Do not move the load unless the load is properly connected to the hoisting device. Press DOWN button to lower the load until the hoisting device is loose, without colliding with the load.

4.4.6 Unloading

Remove the load from the hook with hands. Do not try to remove the load from the hook by hoist. The safety buckle on hook should prevent the load from being removed from the hook by accident.

4.5 Operation of hoisting limit switch

When the mechanical limit switch is triggered, the hook should only be able to move in the opposite direction. The hoisting height is restricted by the chain stops on both ends of chain. The motor will be powered off and brake is started automatically. The hook movement will stop when the elastic buffer contact on stopper is reached.

CAUTION

Mechanical limit switches are emergency safety devices only and must not be used as operational stop switches. Always stop the movement using the controller before the chain stop reaches the hoist body.

4.6 Shutdown the hoist

Inspect the following after each shift to ensure that the hoist is safe:

- 1) Ensure that no load is suspended on the hook.
- 2) Stop the hook at a position where damage cannot be done to personnel or traffic. However, do not stop the hook at the upper safety limit position.
- 3) Turn off the power button on the electric chain hoist. And take the battery out of the FreeHoist unit.
- 4) Check if the product has visible damages.
- 5) Report all defects and abnormal conditions of product and operation to your director and record them in logbook.

4.7 Remote power on/off

After the hoist has lifted all required equipment and load to the desired position, the user can remotely cut off the main power supply to the driver board while remaining power to the Wi-Fi board active for signal receiving. This function extends the usable runtime per battery charge and prevents unnecessary battery discharge during standby.

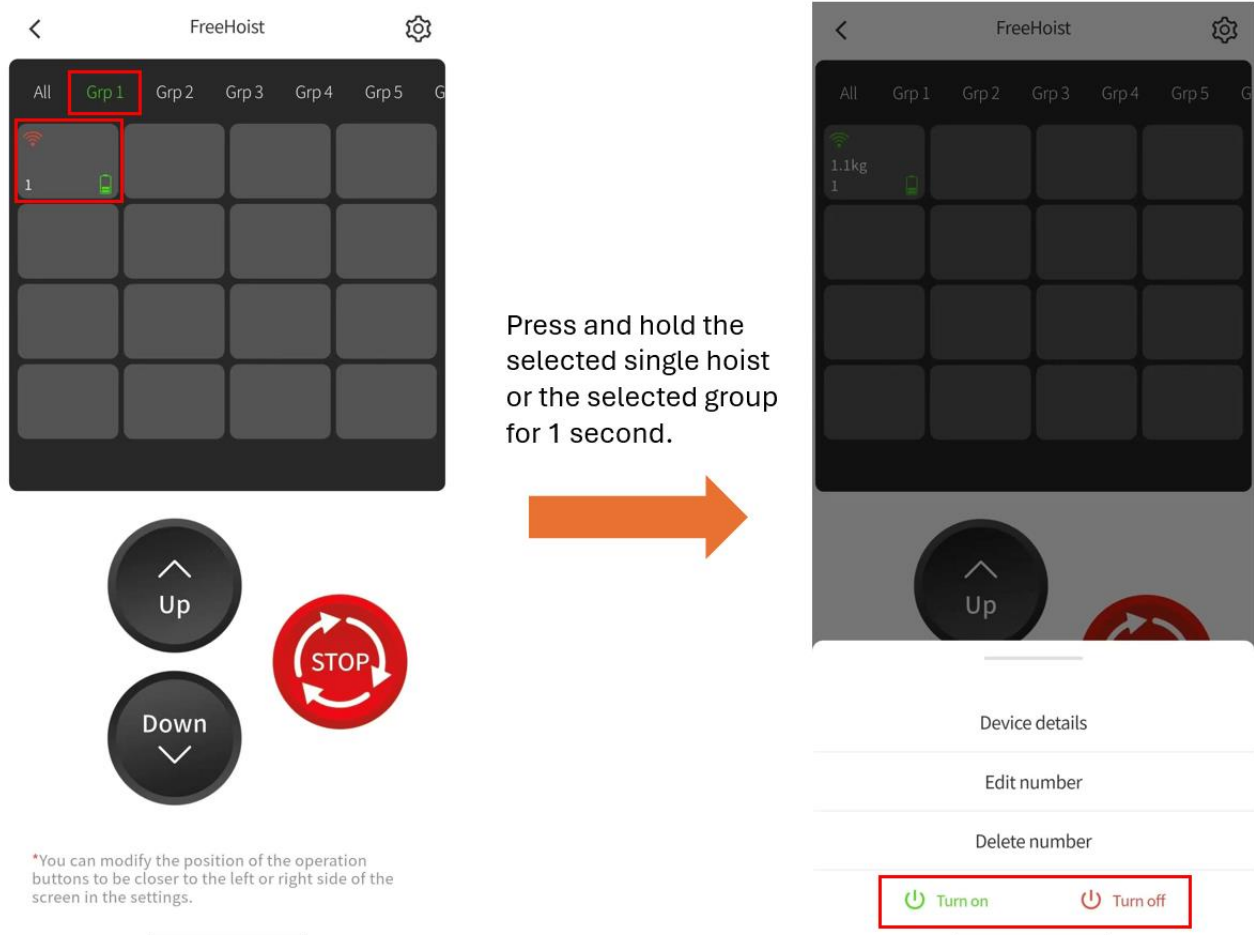


Figure 7 Enable the remote power on/off

As shown in the figure 5, press and hold the selected single hoist or the selected group for 1 second, and the interface on the right side of the figure will appear. The **Turn on** and **Turn off** buttons at the bottom of this interface enable the remote power on/off function. When the hoist is in standby mode with this function activated, only the Wi-Fi board remains powered for signal reception.

Since the brake mechanism is designed to be normally closed (engaging when power is off) and requires power to open, the load remains securely suspended even when the hoist is remotely powered off, ensuring absolute safety under standby conditions.

CAUTION

Please carefully review the maximum standby time of the hoist (including when the remote power on/off function is enabled) and always allow for a sufficient safety margin. Failure to do so may result in the battery being fully depleted, leaving the hoist unable to lower the load.

5 Maintenance and inspections

5.1 Safety during maintenance

WARNING

Read the general safety instructions at the beginning of these instructions and in this chapter. Special safety information is provided in the component-specific instructions.

The safety information provided here is universal. Comply with all safety information during the maintenance. Complying with safety instructions can protect life and health of the personnel and prevent damages to products and environment. Always comply with the local safety rules and regulations.

- Wear the approved PPEs suitable for maintenance tasks. Do not wear loose clothes, tie or open-toed shoes. Tie up the long hair.
- Follow the anti-falling procedure.
- Do not put any flammable material (such as oil drum) on the product. Comply with proper fire prevention and protection measures.
- Pay attention to the hot parts. Some parts, such as motor, may become hot during use. Check if these parts are cooled prior to maintenance.
- Keep a safe distance from all dangerous areas, especially when testing the live parts and removing the protective cover.
- Disassemble the components according to these instructions. Otherwise, the machine may show a fault, error or not operate properly. It is forbidden to disassemble components beyond the scope. Do not take actions which may affect the safety or integrity of any component.
- When a major defect is found during maintenance, do not operate the product before the defects are corrected.

5.2 Maintenance preparations

The product owner should organize regular inspection and maintenance of the product, to ensure its long-term safety, reliability, durability, operability and warranty. The owner shall retain the maintenance and use records (logs) related to products. The new parts and materials must conform to the quality standard specified by the manufacturer. Please use OEM spare parts ordered from Mode China or its representatives. The owner shall ensure full compliance with the specification.

WARNING

Irregular and improper maintenance of product or use of defective product may result in severe injury, death or product damage. Maintain the product regularly according to the manufacturer's instructions. Do not use the non-OEM products.

Unauthorized alternation or modification of product may result in severe injury, death or product damage and warranty failure of product. The manufacturer does not bear any liability for the accident due to unauthorized alteration of product. The product can be

modified only after permitted by the manufacturer. Any modification of product and its performance should be approved by the manufacturer in writing.

Only authorized and approved maintenance personnel can carry out the detailed inspection required in regular overhauling and inspection. The approved servicing personnel include the well-experienced service technicians approved by Mode China or the manufacturer's representative. Regular maintenance and inspection must be conducted according to the inspection and maintenance plan. The product inspection and maintenance plan is provided by product manufacturer. Mode China or the manufacturer's representative has authorized and approved the servicing personnel for product maintenance.

The product owner or operator must check the hoist before every operation, and where necessary. The servicing personnel authorized and approved by owner should lubricate the product at the necessary interval.

This product comes with a standard IP65 protection rating. Follow relevant procedures while opening the cover of chain hoist for maintenance, in order to maintain the IP grade of product. If the electrical hoist is used in an environment that exceeds the scope of IP65 protection, there is a risk of equipment malfunction. Prolonged exposure of the electrical hoist to rainwater must be avoided.

CAUTION

Check if the housing seal is damaged when reassembling the cover of chain hoist. If necessary, replace the cover or seal to maintain IP grade.

5.3 General overhaul plan

The Design Working Period (DWP) and General Overhaul (GO) program described in this section is based on European standards (FEM 9.755, ISO 12482, and EN 14492-2). These requirements are intended for jurisdictions that recognize or require those standards.

For equipment operated in the United States, the DWP/GO program is **not a mandatory** regulatory requirement. U.S. owners and users shall comply with applicable OSHA regulations and recognized consensus standards, including ASME B30.16, ASME HST-1, and, where applicable, ANSI E1.6-2. The manufacturer recommends use of the DWP/GO program as an additional lifecycle management tool to enhance long-term safety and reliability.

The DWP indicates the theoretical remaining service life of the hoist as a percentage. As the hoist is used, the DWP decreases based on operating hours, load spectrum and number of lifting cycles.

The theoretical service life of the electrical hoist complies with ISO M5 (FEM 2M) standard, corresponding to a full-load operating duration of 1600 hours. After reaching 90% of the theoretical service life (1440 hours), a General Overhaul (GO) must be performed by the manufacturer or an authorized service provider. If no GO has been performed within a period of 5 years, an assessment shall be carried out by a qualified person to determine whether a GO is required. After the overhaul, the hoist receives a new DWP and can continue to be used safely. Regular DWP monitoring must be performed by qualified personnel in accordance with ISO 12482-1 and recorded in the hoist logbook.

WARNING

Always record and check the DWP of the electric chain hoist in the logbook. Using defective chain hoist may result in severe injury, death or equipment damage. When the DWP of electric chain hoist drops to zero or a negative value, do not use the electric chain hoist before GO service.

The consumed DWP (S) is determined using the following formula:

$$S = T * k_m$$

Where:

- S (consumed DWP): The theoretical operating hours already used (expressed in hours).
- T (Actual Running Time): The cumulative duration the motor has been in operation, regardless of the load (expressed in hours).
- k_m (Load Spectrum Factor): A factor representing the load intensity during operation. It is calculated based on the cubic mean of the loads lifted relative to the hoist's rated capacity (WLL). If the exact load spectrum is unknown, a factor of $k_m = 1$ (representing continuous full-load operation) should be used for a conservative safety estimate.

The k_m is typically determined using the Cubic Mean Method, which accounts for the varying intensity of loads handled by the hoist over its operating history. The formula is as follows:

$$k_m = \sqrt[3]{\sum \left[\left(\frac{P_i}{P_{max}} \right)^3 * \frac{t_i}{T} \right]}$$

Where:

- P_i : The actual load applied during a specific operating interval.
- P_{max} : The rated load capacity of the hoist (Working Load Limit / WLL).
- t_i : The duration of operation under load P_i .
- T : The total cumulative operating time.

According to FEM 9.755, the additional factor listed in the table below is combined with k_m to form the coefficient used to calculate the DWP (Design Working Period).

Operation condition	Additional factor
With counter	1.1
Without counter	1.2
Unknown operation mode	1.5

The remaining period of use can be calculated using the following table:

- 1) Write down the working duration (in hours) in the load column (If the load falls between two tabulated values, the larger value should generally be selected).
- 2) Fill out the additional factor according to the actual situation.
- 3) Calculate the Real period use with both multipliers. For example, the product has been operated with $\frac{1}{2}$ load (x0.125) and without counter (x1.2) for 6 hours. The real period use should be calculated as $6 * 0.125 * 1.2 = 0.9$ (hours).
- 4) Subtract the current real period use from the previous remaining use to obtain the new remaining use, then record and sign it.

In addition to the inspection and work specified in the inspection and maintenance plan, the following parts must be replaced during overhauling: sealing elements, oil or lubricant in the gearbox, limit switches and PCBs (including wires and connection pins). The following parts should be carefully checked for wear, deformation as well as damage and replaced if necessary:

hook, bearing, sprocket, chain, brakes, gears as well as gearbox frame.

The small parts (such as screws and gaskets) which need replacement in maintenance and assembly are not listed separately. The overhauling conducted by the manufacturer or authorized professional company satisfies the conditions for continuous running of chain block. The same hoist machinery can be provided with no more than two overhauls.

Further use is approved when the conditions of further use are written by professional personnel into the test and inspection manual. Please confirm the completion of overhauling in the test and inspection manual and write in the time section of further use according to FEM 9.755.

5.4 Inspections

Mode China is providing a general summary on inspections below as a courtesy. However, It is the owner and/or users' responsibility to determine which inspections are necessary, for their application, to meet all local and general standards and regulations. To ensure safe operation and maximize the service life of the hoist, the hoist owner shall perform two categories of inspections as defined in ANSI E1.6-2 and recommended by ESTA: frequent inspection and periodic inspection.

Frequent inspections are visual examinations conducted by the operator or designated personnel at regular intervals determined by the service classification. These checks are typically performed whenever the hoist is being prepared for use, checked in or out, or set up. No written records are required for frequent inspections.

Periodic inspections are more thorough examinations that must be performed by a qualified person at least once a year, with more frequent intervals required for hoist used in heavy or severe service conditions. These inspections require dated records to be maintained on file (logbook).

This product is supplied with a maintenance logbook for recording all service and inspection activities to help prevent accidents. As an integral part of the product, the logbook must be kept with the hoist at all times and updated after each maintenance event. Do not remove or discard any pages from the logbook. The logbook contains the complete maintenance history of the hoist and must be transferred to any new owner upon change of ownership.

The logbook should contain:

- Product reference data: product details, ownership and the personnel eligible for hoist operation.
- Faults found in daily inspection, as well as the corrective measures.
- Inspection and lubrication records.
- Maintenance records.
- Records of status monitoring unit or timer.
- Calculation of DWP and remaining service life.

NOTICE

The owner (bearing the main responsibility), operator and servicing personnel must always update the logbook.

5.5 Maintenance specification

5.5.1 Suspension details

The chain hoist is provided with ball bearing swivel hook. Check the suspension status, like evidence of damage or crack, regularly. Measure the two dimensions of suspension hook shown in figure 7 according to the given factory value.

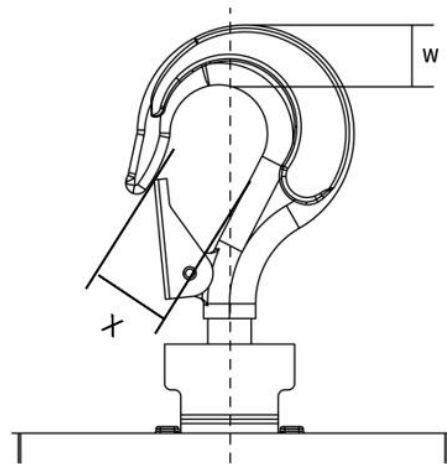


Figure 7 Measurement of suspension hook

The suspension hook meets the standard EN 1677-2. The dimensions of “X” and “W” should be in the given range in table below.

Dimension	FreeHoist-1000kg	
	Metric [mm]	Imperial [in]
W [mm]	32 +/- 1	1.26 +/-0.04
X [mm]	32 +/- 2	1.26 +/-0.08

In accordance with ASME B30.10 and the specific characteristics of this product, the corresponding suspension part shall be replaced when the hook throat opening deformation exceeds 5% of the original factory dimension, or when wear at the load-bearing point of the hook or the bracket exceeds 5%.

5.5.2 The electromagnetic brake

DANGER

Before executing any inspection, ensure the hoist is completely powered off and the power battery has been removed to prevent accidental startup or electrical shock.

Remove the load (if any) attached on the hook. Dismantle the brake end cover as following:

- 1) **Power Off & Prep:** Ensure the power is completely turned off and remove the battery pack. Peel off the reusable decal carefully on the side of the extended housing as shown in figure 8.

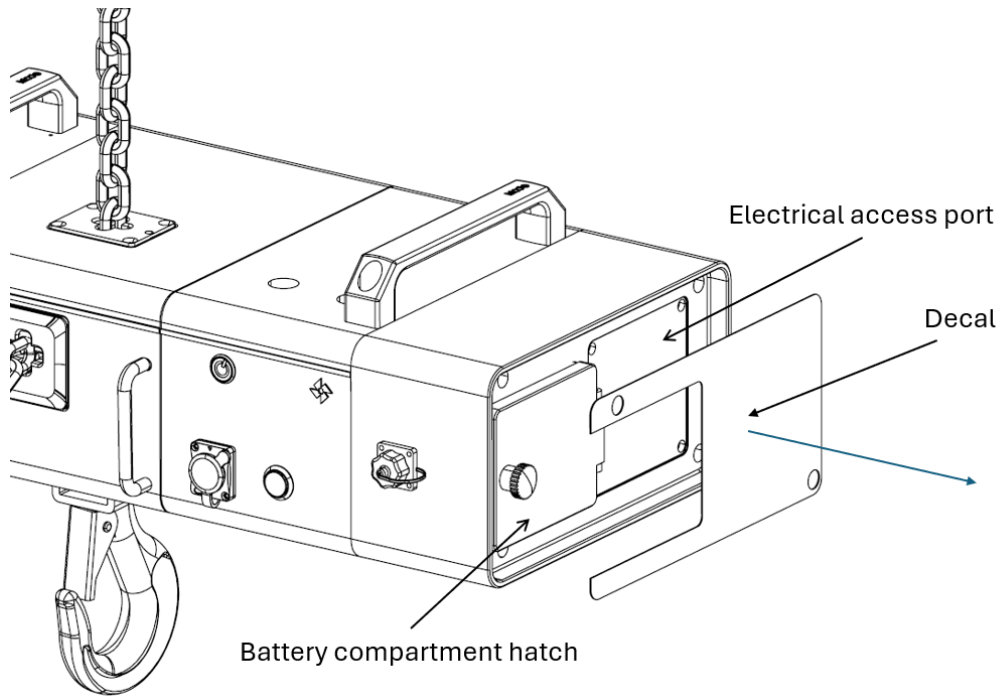


Figure 8 Peel the decal from the extended housing off

- 2) **Remove access cover:** Unscrew the electrical access port cover and remove it from the housing.
- 3) **Remove waterproof gasket:** Open the battery compartment cover. Carefully remove the waterproof gasket by hand as shown in figure 9.



Figure 9 remove waterproof gasket of the electrical access port

CAUTION

The gasket must be replaced with a new one to maintain the IP rating.

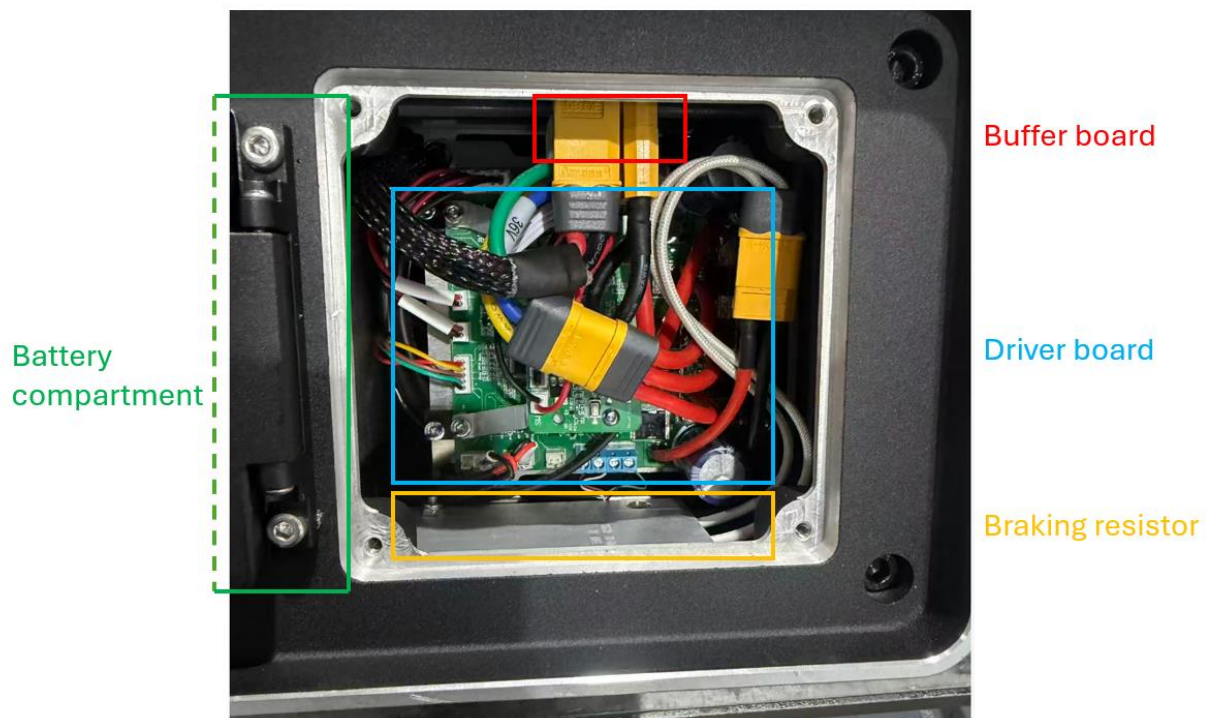


Figure 10 Inside configuration of extended housing

- 4) **Disconnect electrical cables:** The configuration inside the electrical access port is shown as figure 10. Disconnect the three cable connectors shown in figure 11:
- A: The cable between the battery compartment and the buffer board.
 - B: The cable between the buffer board and the driver board.
 - C: The cable between the driver board and the braking resistor.

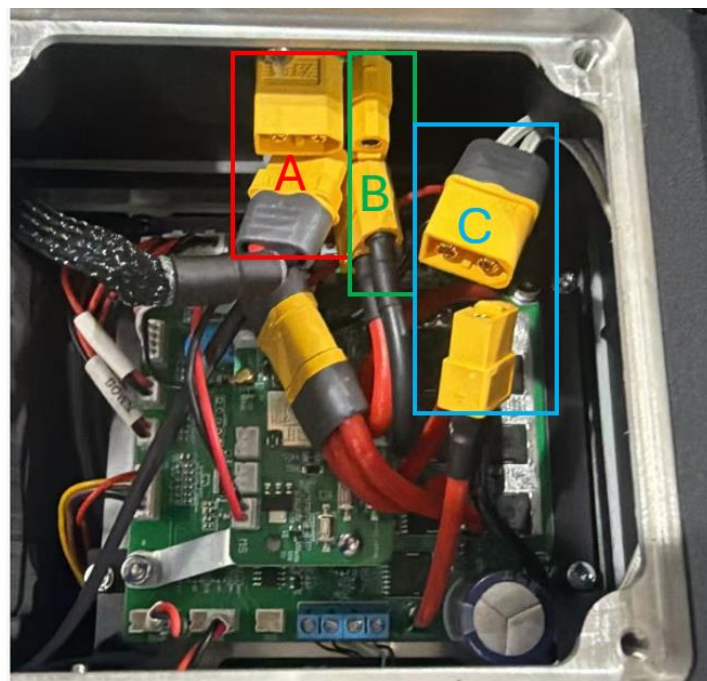


Figure 11 Three cable connectors to be disconnected

- 5) **Dismount extended housing:** Unscrew the four corner screws on the extended housing. Carefully remove the extended housing assembly together with the integrated battery compartment.

- 6) **Brake inspection:** The electromagnetic brake is now accessible for inspection and maintenance. It is not necessary to remove the two screws on the brake housing for routine maintenance.

Figure 12 and the table below specify the required torque values for bolts that may need to be removed and retightened during the maintenance process.

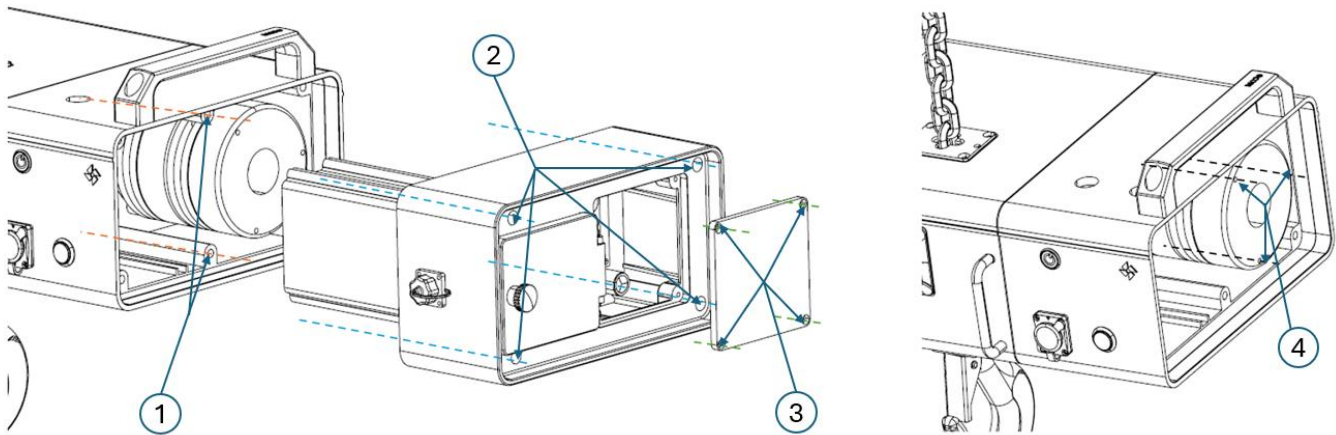


Figure 12 Bolts on housing of the hoist

No.	Position	Screw*	Torque	Quantity
1	Brake housing	M6x130	9.6 Nm	2
2	Extended housing	M6x230	7 Nm	4
3	Electrical access port	M4x8	3 Nm	4
4	Electromagnetic brake	M5x105	6.2 Nm	3

*Dimensions in Metric units, **NOT** Imperial.

The DC disk brake is supplied through a rectifier circuit. It operates according to the failsafe principle. If there is a power failure, the brake acts automatically so that the load is held securely in every position. To shorten the braking distance, the brake is operated in a DC circuit. No manual adjustment of the springs or air gap for the DC disc brakes of the MODE FreeHoist-1000kg is required.

The service and safety brakes operate completely independently of one another. They are arranged in sequence on the motor pinion shaft. The brake on the motor side is the service brake; the one on the cover side is the safety brake. Both brakes are DC spring-applied disc brakes operating on the closed-circuit principle. The configuration of the two brakes is shown below in figure 14.

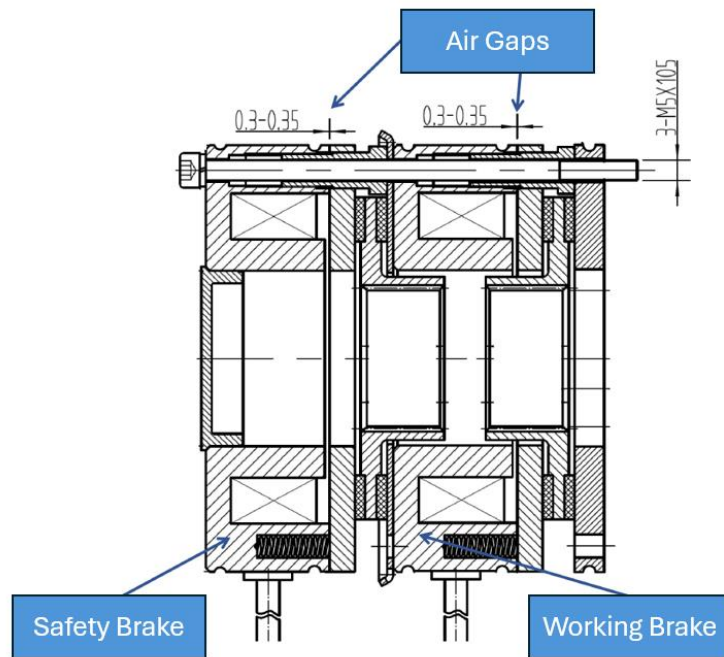


Figure 14 Configuration of two electromagnetic brakes in FreeHoist

There are two primary methods for inspecting the electromagnetic brake. Depending on operational requirements or the service environment, either method may be selected: **Load Check** or **Air Gap Check**.

Method 1: Load Check

Test procedure:

- 1) **Prepare the load:** Suspend a test load equal to the rated Working Load Limit (WLL) of 1000 kg onto the hoist hook.
- 2) **Execute test cycles:** Carry out five consecutive lifting and lowering operations.
- 3) **Control lift height:** Ensure the lifting and lowering height for each cycle is strictly controlled within the range of 0.5–1 meter.

Acceptance criteria:

- **Braking distance:** During the lowering process, when the brake is engaged under the nominal load, the load must come to a complete stop within a braking distance of less than approximately two chain link lengths (figure 13). Any distance within this threshold is considered normal.
- **Braking behavior:** The deceleration must be smooth. When the load is stopped during lowering, it should not experience any sudden jerking or violent shaking.

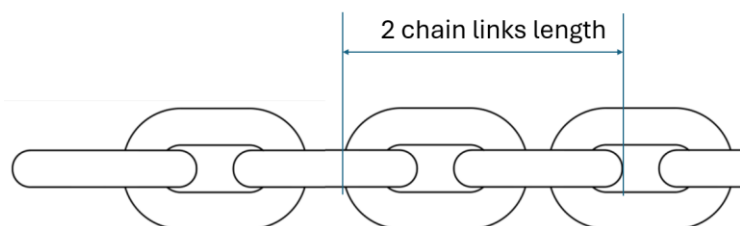


Figure 13 The length of two chain links

Method 2: Air Gap Check

Test procedure:

- 1) **Prepare the Tool:** Select a 0.4 mm feeler gauge from a standard gauge set.

- 2) **Measure the Gap:** Insert the 0.4 mm feeler gauge into the brake air gap as illustrated in Figure 15.
- 3) **Multi-Point Verification:** Measurements must be taken at three points evenly distributed around the circumference of the brake to ensure uniform clearance.



Figure 15 Air gap measure

Acceptance Criteria:

For the electromagnetic brakes used in FreeHoist-1000kg, the nominal air gap is 0.25 mm, while the maximum allowed air gap is 0.35mm. If the 0.4 mm feeler gauge cannot be inserted into the air gap at all three measured points, the brake air gap is within the normal tolerance range, and the brake passes the inspection.

Reassembly Instructions & Critical Precautions

When reassembling the components after inspection and maintenance, strictly adhere to the following precautions to ensure hoist safety and maintain IP grade integrity:

- The brake replacement: Please install the dual electromagnetic brake assembly exactly as shown in the figure 16. Pay strict attention to the orientation of the two friction discs to ensure they are not installed backward. Additionally, verify the correct positioning and alignment of the friction surfaces on the intermediate friction plate, and ensure no components are left out during reassembly.
- Cable Protection: When remounting the extended housing back onto the hoist body, be extremely careful not to pinch, crimp or crush any cables underneath the battery compartment. Ensure all wire harnesses are neatly routed within their designated channels.
- Gasket Replacement (Critical for IP Rating): The sealing gasket between the extended housing and the brake housing must be replaced with a new one from OEM. The waterproof gaskets under the electrical access port screws must also be replaced.

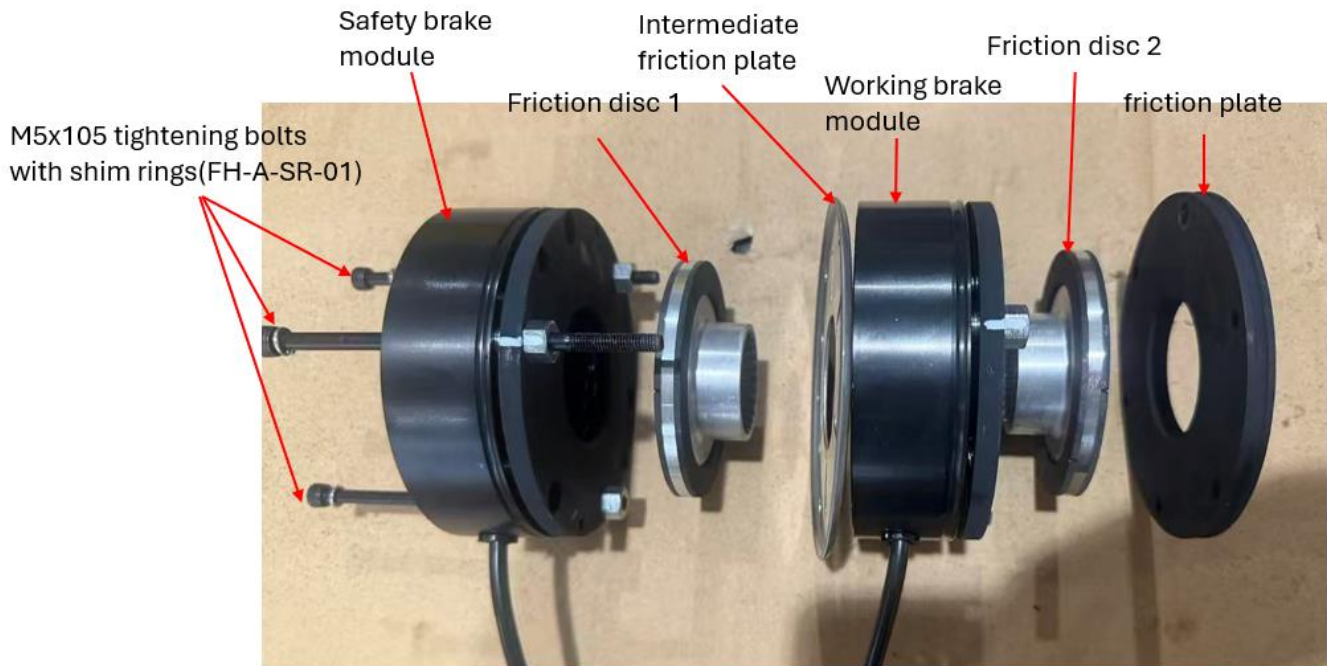


Figure 16 Dual-Brake assembly sequence

- Torque Specifications: When tightening all screws and fasteners during reassembly, you must refer back to the Fastener Torque Specifications table (Figure 12). Apply the exact specified torque to prevent loose connections or stripped threads. And do not forget the waterproof gaskets and washers as well as the shim rings.
- Correct Wiring Reconnection: When reconnecting the electrical cables (referenced in Step 4 of the disassembly procedure), ensure every connector is plugged into its correct counterpart. Double-check all wiring configurations before securing the housing; cross-wiring or improper seating of connectors may cause permanent damage to the control boards upon power-up.

5.5.3 Chain maintenance

Check the chain regularly to see if there is wear, rust or corrosion. Check if the chain link has excessive pitting, corrosion, scratch, bump, twisting or wear. When chain or chain link has worn more quickly or other damages, replace them with the new OEM chain.

WARNING

Do not perform any surface treatment or modification to the chain. This may cause functional failure. Mode China disclaims all liability for any warranty claims, personal injury or property damage resulting from such unauthorized actions.

- 1) Visually check whether the chain has a notch, scratch, welding slag or corrosion. Check if the chain has twisted chain link or if the chain is loose.
- 2) Check if the surface of bearing between chain links has wear.
- 3) Measure the thickness (d) of chain links on certain points of chain and calculate the dimensions as shown in figure 17.

Description	Chain size	FreeHoist-1000kg all model	
		Metric [mm]	Imperial [in]
Chain size notation	$d \times t$	7.1 x 21	.279 x .827
Wire diameter (nominal)	d_n	7.1	0.279
Pitch (chain link length)	t	21	0.827
Minimal wire diameter (10% wear limit)	d_{m_min}	6.4	0.252
11-chain-link length (nominal)	L_{11}	245	9.65
11-chain-link length (reached maximum 2% elongation)	L_{11max}	250	9.843

- a) d_n = Nominal wire thickness.
b) t = Total internal length of 1 chain link; center-to-center link length (pitch)
c) $d_m = (d_1 + d_2)/2$. d_{m_min} is the minimum allowed wire thickness.
d) L_{11} is the total length of 11 chain links when a new chain is straightened.
e) L_{11max} is the max. allowed length of 11 chain links, defined as the nominal value L_{11} plus 2%.

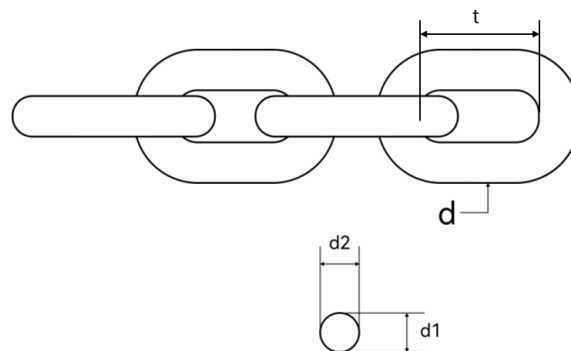
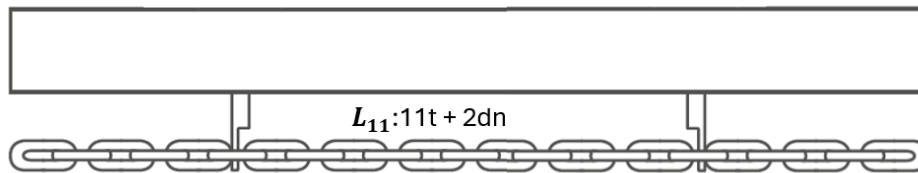


Figure 17 Measurement of chain thickness

WARNING

Use of an incorrect chain size may result in chain/sprocket mismatch, overload fracture or detachment, which can cause severe equipment damage, property loss or personal injury.

A specific length L_{11} of 11 chain links should be measured to check if the chain reaches its end of service life. If the actual L_{11} length exceeds the nominal L_{11} value by 2%, the chain status is considered as end of service life and should be replaced with a new one. A special limit gauge or a caliper can be used for a quick inspection on the L_{11} length ($11t + 2d_n$). Straighten the chain and set the caliper or limit gauge to the nominal value of L_{11} . Then insert the measuring pins of the vernier caliper or the limit gauge across 11 consecutive chain links, as illustrated in the figure 18. If the measuring pins cannot be inserted through the straightened chain, the chain has reached its end of service life.


Figure 18 Measurement of L_{11}

For periodic inspection of chain:

Check	Method	Replacement criterion	Limits
Check 1 Wire Wear:	Measure wire diameter with calipers	REPLACE if d is less than 6.4mm(0.252in)	10% wear
Check 2 Chain Link Stretch:	Straighten 11 chain links and measure the length with calipers or gauge	REPLACE if L_{11} is greater than 250mm(9.843in)	2% elongation
Check 3 Visual:	Visually inspect all chain links	REPLACE if cracks, corrosion, bends or twists are found	Defects

WARNING

Failure to perform initial chain lubrication may cause premature wear of the chain and other chain transmission components. This can significantly shorten the service life of the chain and the entire transmission system, which may ultimately lead to chain failure. Such wear can begin immediately after the hoist is put into use. Therefore, carefully and thoroughly lubricate the chain before operating the chain hoist.

The accompanying chain is not lubricated when chain hoist leaves factory, to ensure cleaner installation procedure. The chain is not lubricated even if you feel oil on it, which is just anti-corrosion protection. Initial lubricating of chain is a part of commissioning of new chain hoist.

Chain lubrication is to ensure sufficient amount of the lubricant between the chain links. Apply lubricant (grease or oil) on the contact surface between the chain links. Clean the surface before applying the lubrication layer and the lubrication should be carried out when there is no load.

- 1) Remove the load (if any) attached on the hook. Pull the hook downwards, until the chain leaves the chain bag and the chain bag is empty.
- 2) Clean the chain, wipe it dry and remove any rust.
- 3) Lubricate the chain. Apply lubricant to the chain from top to bottom. Apply the lubricant evenly on the chain. The correct lubricating point is shown in figure 19.
- 4) After lubricating is done, move the hook up and down for 3~4 times within the full length of chain. Do not add any load on the hook.

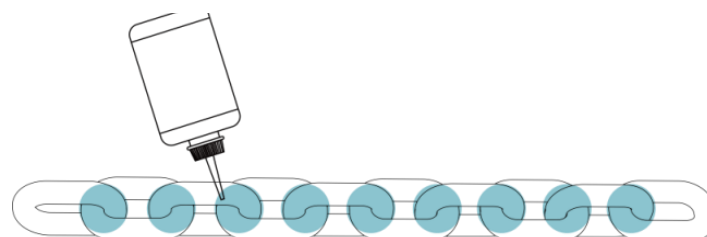


Figure 19 lubricating point between the chain links

Recommended chain lubricant(trademark of respective owners):

STABYLAN 2001 from *FUCHS LUBRICANTS GERMANY GmbH*

Lubriplate® Bar and Chain Oil 10-R from *Fiske Bros. Refining Co.*

or other equal lubricant. If you have questions, please contact Mode China or its local representatives.

5.5.4 The storage of the battery

If the battery system is not used for more than 10 days, disconnect the battery from the load power supply to prevent battery power consumption. For extended periods of non-use, the battery should be removed and stored with warning label separately, please charge power of the battery pack to about 50%. Idle battery packs should be fully charged to 100% every two months to sustain battery health and prolong their operational lifespan.

The lithium battery used in this FreeHoist is a high-capacity power battery, which differs significantly from ordinary household batteries. Special attention must be paid during charging and storage to ensure safe operation and battery life. The battery pack should be stored separately from the hoist in a dry place at room temperature (0°C-35°C/32°F-95°F), relative humidity (45%-85%), and atmospheric pressure (70kPa~106kPa). Large temperature variations should be avoided (do not store them close to heat sources, avoid long-term exposure to direct sunlight, etc.). Consult local authorities and/or insurance companies regarding the storage of relatively large quantities of lithium batteries.

The integrated Battery Management System (BMS) strictly regulates the operational tolerances of the 36V 5000mAh power battery. During charging, high-temperature protection triggers a cut-off at 50°C (122°F) and recovers at 45°C (113°F), while low-temperature protection triggers at 0°C (32°F) and recovers at 5°C (41°F). During discharging, high-temperature protection cuts off at 70°C (158°F) and recovers at 60°C (140°F), whereas low-temperature protection activates at -20°C (-4°F) and restores functionality at -15°C (5°F). Furthermore, the battery operates within a safe voltage range of 32V to 42V during live hoist operation, but can statically maintain a voltage range between 28V and 42V during storage.

NOTICE

Allowing the battery voltage to sit near the absolute storage minimum of 28 V for extended periods may cause deep discharge damage, so maintaining a storage capacity of 40% to 60% remains mandatory.

5.5.5 The PCBs

The control system of the FreeHoist integrates three Printed Circuit Boards (PCBs) to manage power distribution, motor driving and wireless communications:

- **Driver Board:** Mounted directly onto a dedicated aluminum heat sink. This assembly is suspended vertically above the electromagnetic brake and secured firmly to the brake housing.
- **Wi-Fi Board:** Suspended and elevated directly above the Driver Board, rigidly secured via standoff supports as illustrated in figure 20.
- **Buffer Board:** Installed and secured flat against the internal side wall of the extended housing.

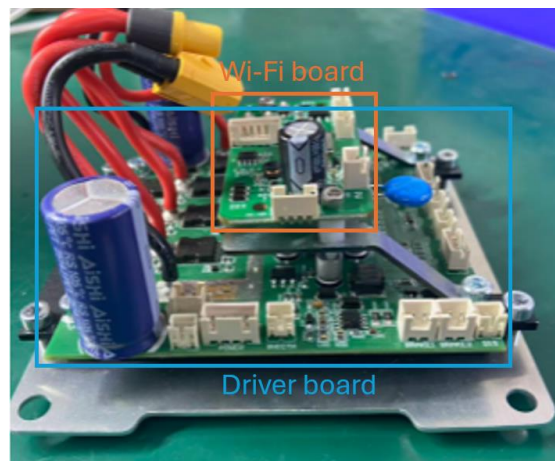


Figure 20 Wi-Fi Board suspended above the Driver Board

Individual PCBs are highly sensitive electronic components. In the event of a suspected PCB malfunction, firmware issue or hardware failure, please contact Mode China or its local representative immediately to receive specialized technical support, professional troubleshooting guidance and authorized service documentation. Unauthorized servicing will invalidate the product warranty and may compromise the safety functions of the hoist.

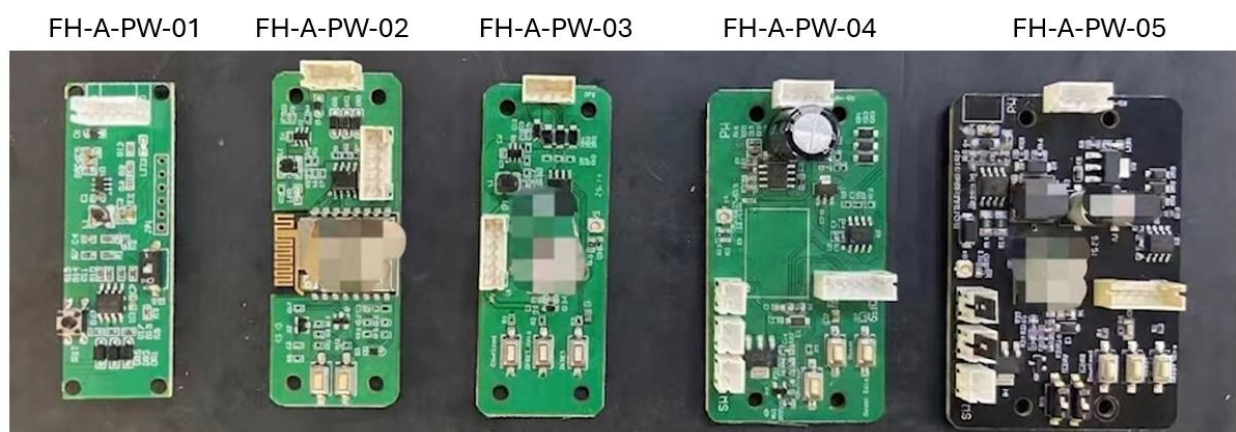


Figure 21 Five Wi-Fi Board variants

Currently, there are five different variants of the Wi-Fi board available (as illustrated in Figure 21). Among these variants, the Wi-Fi boards equipped with the password reset functionality feature three physical buttons labeled as shown in figure 22: **Reset**, **Reset Data**, and **Download**.

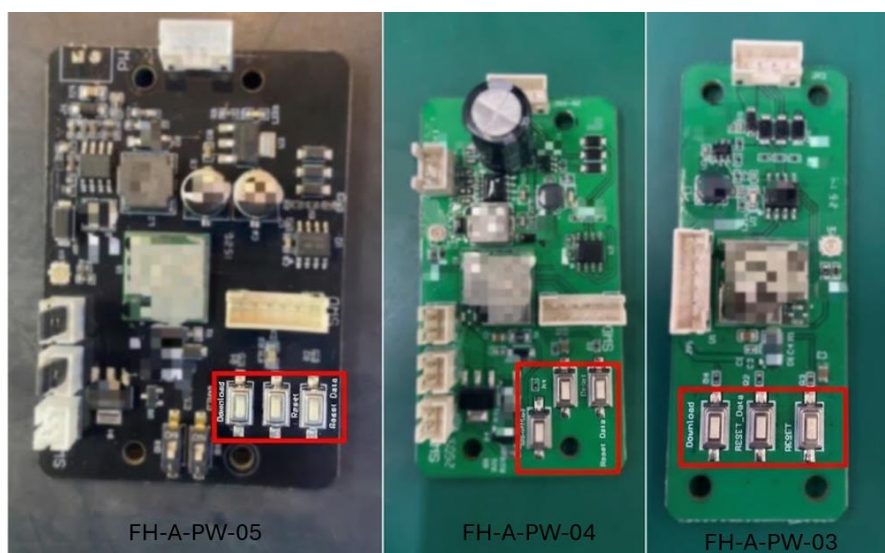


Figure 22 Physical buttons for factory reset functionality

To restore the Wi-Fi board to its factory default settings, execute the following steps precisely in sequential order:

- 1) **Verify Power Status (Pre-condition):** Ensure the hoist is powered on and the status indicator LED on the Wi-Fi board is on.
- 2) **Hold Reset Data:** Press and hold down the **Reset Data** button continuously.
- 3) **Trigger Reset:** While maintaining your hold on the **Reset Data** button, press and release the **Reset** button once.
- 4) **Release and Complete:** Wait for one second, then release the **Reset Data** button. The Wi-Fi board will now be restored to its initial factory default configuration.

5.5.6 Spare parts

As shown in the figure 23 and 24 below, these waterproof gaskets and washers are single-use components and must be replaced every time during the reassembly process.

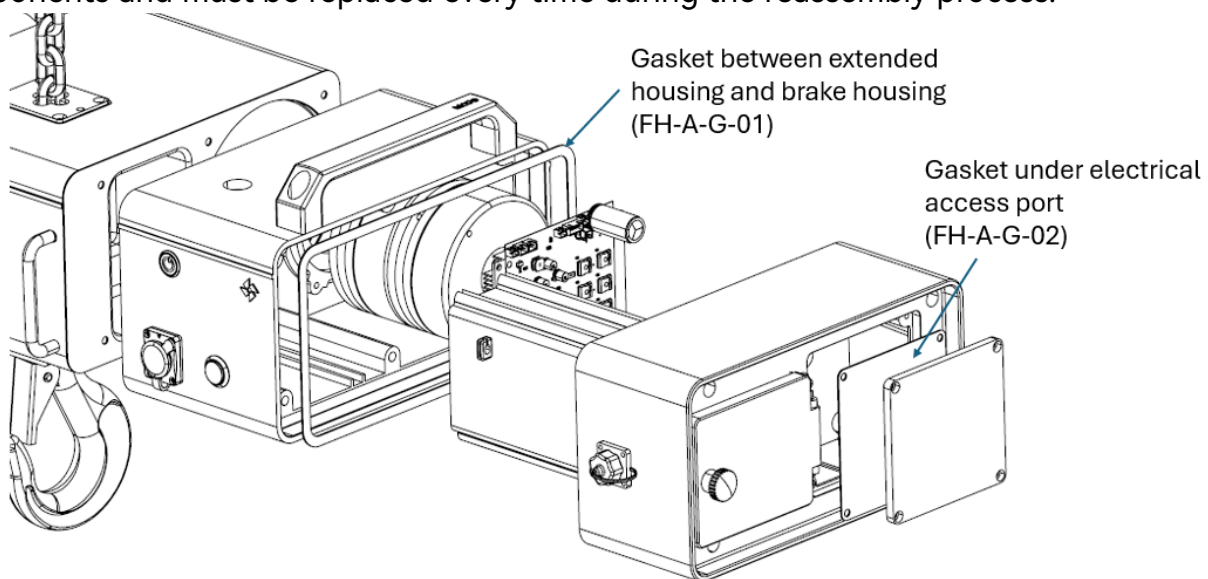


Figure 23 Waterproof gaskets

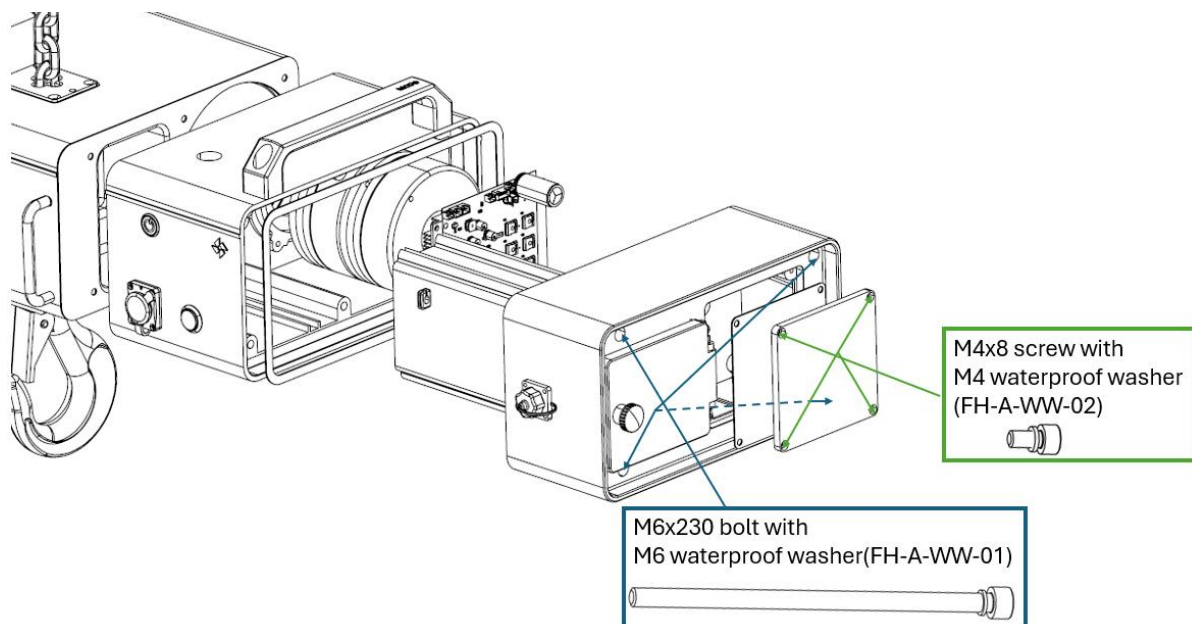


Figure 24 Screws and bolts with waterproof washers

NOTICE

Failure to replace the gaskets and washers during reassembly may cause the housing to lose its IP waterproof rating, leading to internal moisture or electrical damage.

6 Troubleshooting

Problems	Possible cause	Solution
The hoist cannot be started	Wire inside disconnected.	Open the electrical access port and check the connections.
	The temperature exceeds the working temperature of the battery.	Wait for the battery to cool down.
	The battery is low. The power button indicator blinks.	Replace the battery with another one in good condition.
	The driver board is damaged or defect.	Contact Mode China or its representative for support or replacement.
	Remote Turn off enabled.	Check in the App and select the FreeHoists with red signal symbol. Press the selected FreeHoists for 1 second. And enable the remote Turn on (mentioned in 4.7).
The hoist fails to lift the load.	Hoist is overloaded.	Reduce or remove the load.
	Position limit switch is activated.	Check around the position limit switch for obstacles.
The load does not stop promptly after release of controller button.	Brake pad may have wear.	Inspect the brake (mentioned in 5.5.2) and replace the brake when necessary.
The connection via App is not possible.	Wrong device name or password.	Check the device name or password of App and router again. Or reset the FreeHoist(last step)(mentioned in 5.5.5).
	Using hotspot instead of router connecting more than 4 FreeHoists.	Use the router, or reduce the quantity of FreeHoists under 4.
	Buffer board defect. The power button indicator blinks fast.	Contact Mode China for buffer board replacement.
	The FreeHoist is connected with another device.	Check other mobile device.
	The Wi-Fi board is defective or the antenna is disconnected.	Check the Wi-Fi board connection through the side cutout inside battery compartment. Contact Mode China or its representative for Wi-Fi board replacement.
Battery cannot be charged.	High/low-temperature protection.	Wait for cooling/warming.
	The battery charging/discharging port configuration does not match the using FreeHoist while charging inside the battery compartment.	Check the wire connection and battery as well as the port configuration inside battery compartment of the current FreeHoist (See 2.3.6).

Problems	Possible cause	Solution
Loadcell displays incorrectly.	Loadcell needs calibration.	Contact Mode China or its representatives.
	Overload protection is miss activated.	Check the App settings or contact Mode China or its representatives.
Problem with synchronization between FreeHoists.	Connection problem, incorrect router settings.	Check the router settings. (correct router frequency only 5Ghz)
	Difference in parameter settings inside App.	Contact Mode China or its local representatives for support.
Abnormal noises are heard while the load is moving.	The chain components are improperly or insufficiently lubricated.	Lubricate the chain components.
	The chain may have wear.	Check the entire chain. Replace the chain, if necessary.
	Sprocket or chain guide plate may have wear.	Replace the sprocket or chain guide plate.
	Obstacles in sprocket or chain guide	Stop the operation immediately and remove the obstacles thoroughly without load.

DANGER

The power supply must be completely disconnected before opening the hoist housing. Failure to do so may result in electric shock, which can cause severe injury or even death.

7 Dismantling

Take the following safety instructions for disassembling the product:

- Follow the safety precautions while disassembling the product. Only experienced servicing personnel are allowed to disassemble the product.
- The product owner should assign one person for disassembly process. Such personnel should guide and monitor the process.
- All control devices should be powered off. The main isolation switch must be turned off. The product must have electrical isolation before disassembly.
- Ensure that all personnel understand the disassembly conditions prior to disassembly.
- The owner shall prevent unauthorized personnel and bystanders from walking through or below the workplace. Leave a spacious enough, safe area, to avoid injuries due to falling parts or tools.
- Use safe tools and machines for disassembly.
- Ensure that the disassembled fasteners and parts will not fall down.
- Pay attention to the ambient environment. For example, do not disassemble the product when the weather may affect disassembly safety.

The disassembly sequence is opposite to assembly. Please refer to assembly and disassembly instructions for the proper sequence. After the product is disassembled, the owner or disassembly person should recover the operation area to the normal use condition. For details, please contact the product manufacturer.

Material	Waste Disposal Method
Metal	Recycling.
Electronic and electromechanical components	Some electrical components can be regarded as hazardous waste. Collect and recycle the electronic and electro-mechanical components respectively.
Battery	The battery and other energy storage components may contain hazardous substances. Collect these objects separately and recycle them by local laws and regulations.
Plastic	Recycle the plastic as energy or send the plastic to refuse landfill.
Chemicals	Do not spray chemicals such as lubricant, grease or liquids to ground, soil or sewage. Store the waste oil and grease in the specified vessel. For details of chemical waste treatment, refer to the MSDS of chemicals. You can request the MSDS from the chemical manufacturer.
Packaging materials	Repeated use or recycling of packaging materials, such as plastic, wood and paper board.
Rubber	Recycle the rubber by local laws and regulations.

Appendix A Frequent and periodic inspections for the electric hoist

Service classifications	Frequent inspections	Periodic inspections
Severe	Daily (before each use) to weekly	Every 3 months
Normal	Weekly	Annual
Standby	Weekly to monthly	Annual
Rental service	Prior to next use or rental	Annual
Out of service	Prior to reintroduction into service	Prior to reintroduction into service

Inspection items:

	Components	Items
Frequent inspections	Hoist overall	a) Check the overall operating conditions of hoist and visual check for damage or oil leakage.
	Chain	b) Visual check for deformation, scratch, corrosion and lubrication condition . Lubricate the chain if necessary (refer to 5.5.3). Check if the chain has twisted chain link or if the chain is loose.
	Chain guide plate	c) Check the chain guide plate for any foreign objects or debris (such as cables, fabric, etc.).
	Chain stop	d) Check if the chain stop is correctly and firmly fixed.
	Suspension hook	e) Check if the suspension hook has scratch, chiseling mark and twisting, the throat of hook has any deformation, the saddle or load-bearing point of hook is worn and rotation of the hook is smooth.
	Warning marks	f) All warning marks should be intact and easy to read.
	Controller	g) Check if function is normal.
	Chain bag	h) Visually inspect the suspension hooks of the chain container and the surrounding fabric for any sign of wear or abrasion.
	Brake	i) Check if it works in both directions and its brake path within normal distance (2 chain links).
	Battery	j) Visual inspection to check for swelling, damage or deformation, damaged interfaces/connectors/wires, and illegible or missing labels.
	Noise	k) Check for abnormal noise.
Periodic inspections	All items in frequent inspections.	
	Chain	a) Measure the wear of chain. Measure the specific length L_{11} mentioned in 5.5.3 with a caliper or a limit gauge at different random sections along the chain at least 5 times. Measure the thickness d of the 3 random chain links in different sections of the chain and compare it with the $d_{m.min}$. Annual link by link inspection of the chain for evidence of excessive interlink wear and damage.
	Battery	b) Check the status of all batteries with specified tools, especially the long period non-use batteries. Charge them if necessary as mentioned in 5.5.4.
	Limit switch	c) Check if function is normal for ascending and descending. Search for possible wear.

	Components	Items
	Suspension hook	d) Check if the suspended hook has scratch, deformation or wear. Measure the two dimensions of the hook parts mentioned in 5.5.1 and compare them with the original value recorded on the logbook in the first operation. If the deformation exceeds 5% for the “X” and 5% for the “W”, the hook should be replaced immediately.
	Wiring	e) Check the conditions of circuit and connectors.
	Brake	f) Check the air gap of the brake as mentioned in 5.5.2. Proper brake adjustment if necessary.
	Chain wheel	g) Evidence of damage or excessive wear of the lift wheel and hook block sheave chain pockets.
	Load-bearing structure	h) Check the status of bolted connection and load-bearing structure. Check the status and installation of fixed parts. Check bearings for excessive wear or damage.

Appendix B Declaration of Conformity

DECLARATION OF CONFORMITY EG-KONFORMITÄTSERKLÄRUNG

Business name of the manufacturer: Mode China
Firmenbezeichnung des Herstellers:

Full address of the manufacturer: Room 01, 8/f, #7 Tower, 4th Area, No.186, South 4th Ring west Road, Fengtai District, 100070, Beijing, P.R.China
Vollständige Adresse des Herstellers:

Name and address of the person (established in the Community) compiled the technical file:
Name und Adresse der Person (innerhalb der Gemeinschaft), die das technische Datenblatt erstellt hat
Name : Gowow GmbH
Address: Tal 44, 80331 Munich, Germany

We declare that the machinery
Wir erklären hiermit, dass die Maschine

product name: **Electric Chain Hoist**
Produktbezeichnung:

commercial name: **Electric Chain Hoist**
Handelsbezeichnung:

function: **Lifting goods and equipments**
Funktion:

model: FreeHoist-1000kg
Modell:

serial number:
Seriennummer:

fulfills all the relevant provisions of directives
entspricht allen relevanten Anforderungen folgender Richtlinien
2006/42/EC

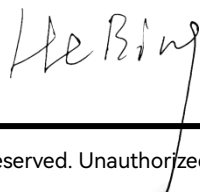
tested in accordance with below standards
wurde gemäß folgender Normen geprüft

SQP2:2024
EN 17206:2020
EN 17206:2020/AC
EN ISO 12100:2010
EN 14492-2:2006+A1
EN 60204-32 :2008
EN 14492-1:2006+A1/AC:2010
EN 301489-1 V 2.2.3:2019

EN 301489-3 V2.3.2:2023
EN 301489-17 V 3.3.1:2024
EN IEC 61000-6-2:2019
EN 300328 V 2.2.2:2019
EN 301893 V 2.1.1:2017
EN 300440 V 2.1.1:2017
EN IEC 62311:2020

place and date of the declaration: Room 01, 8/f, #7 Tower, 4th Area, No.186, South 4th Ring west Road, Fengtai District, 100070, Beijing, P.R.China 2026.04.10
Ausstellungsort und Datum der Erklärung:

signature of the person:
Unterschrift des Ausstellers:



Appendix C After-sales service card

Limited Warranty Card

Thank you for choosing our products! This card is required for product maintenance. Please fill out this card carefully, so that we can provide you with prompt and efficient after-sales service.

Customer Information

Company name			
Contact person		Phone number	
Postal address			
Postal code		Country	
Product model		Purchase date	
Invoice number		Delivery date	
Serial number		Remarks	

Maintenance Information

Maintenance record	1	2	3
Date of service request			
Fault description			
Date of inspection			
Service technician			
Repair actions			
Comments			

Warranty terms and conditions:

This Limited Warranty applies to Mode electric chain hoists manufactured by Mode China. For warranty terms and conditions, please refer to Section 1.3 of the operation manual.

Contact information for after-sales service and order of spare parts:

Customer service hotline: +86 010-86781888
Address: Room 01, 8/f, # 7 Tower, 4th Area,
No. 186, South 4th Ring west Road,
Fengtai District, 100070, Beijing
Email: service@modehoist.com
Website: www.mode.top

Appendix D FreeHoist, mobile device and router initialization

1

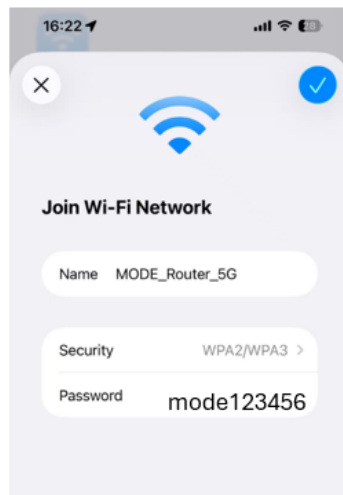


APP Download

2

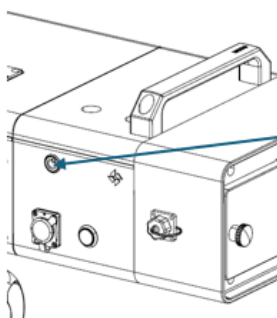


Turn on router



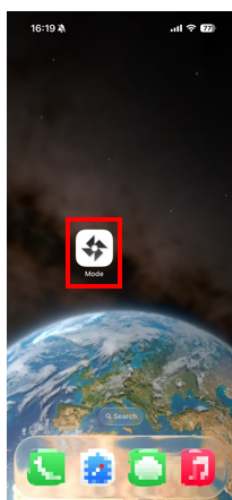
Connect your mobile device to the Router with the default name and password via Wi-Fi.

3

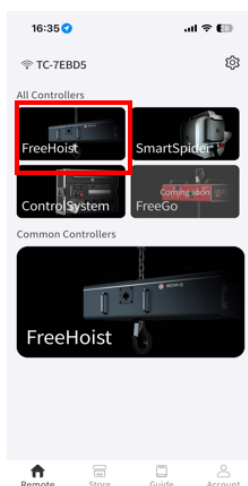


Press the power buttons of all the FreeHoists to be initialized.

4



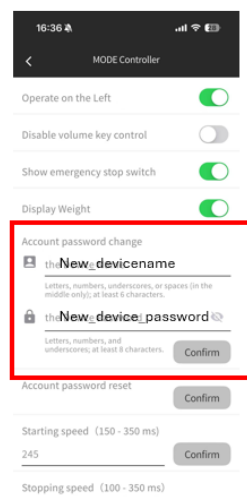
Open **Mode App**



Tap **FreeHoist**



Tap to select the FreeHoists which are supposed to be initialized



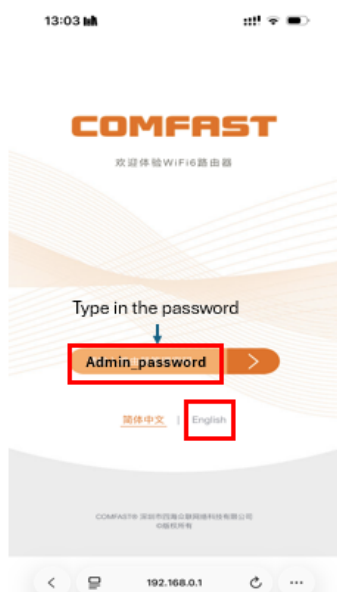
Set the new password and device name. **Make a record or screenshot** before tap confirm.

5



Press the power button twice to restart the FreeHoists. The credentials of the FreeHoists will be updated. The FreeHoists will then be disconnected from the router after changing the device name and password.

6



Now open the browser on your mobile device (here in example of COMFAST Router)

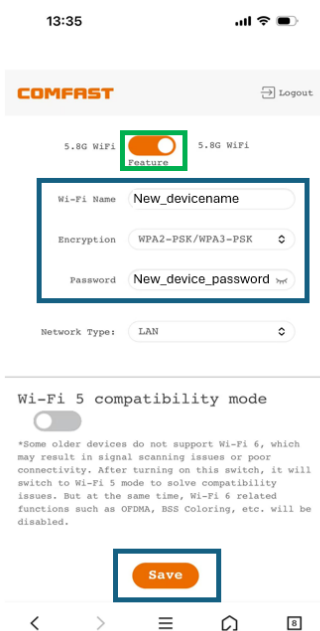
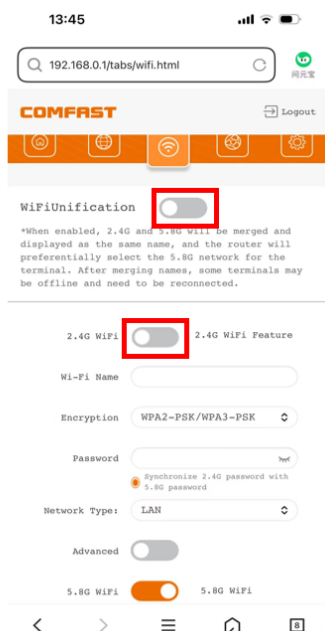
- 1) Type "192.168.0.1" in the address field
- 2) Choose the preferred language
- 3) Login in with the Admin password which you can find on the label of the router



Wireless frequency settings

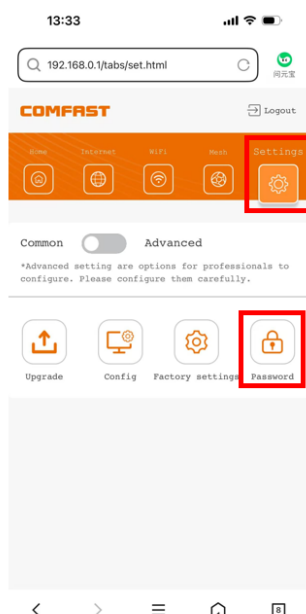
Once logged in, you will find the status and parameters of the router in **Home** tab, tap **WiFi** tab to set the wireless frequency.

6

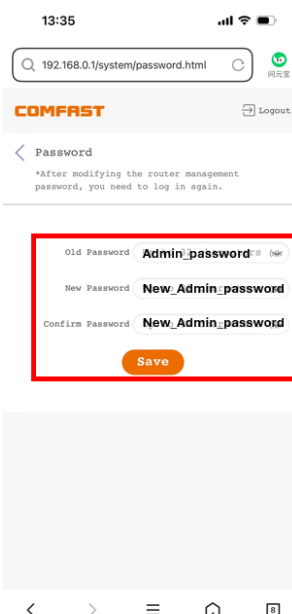


Please disable the **WiFiUnification** and **2.4G WiFi**. Meanwhile, scroll down and enable the **5.8G WiFi**.

Give the **new device name** and **device password** from step 4 in the field. Then save it.



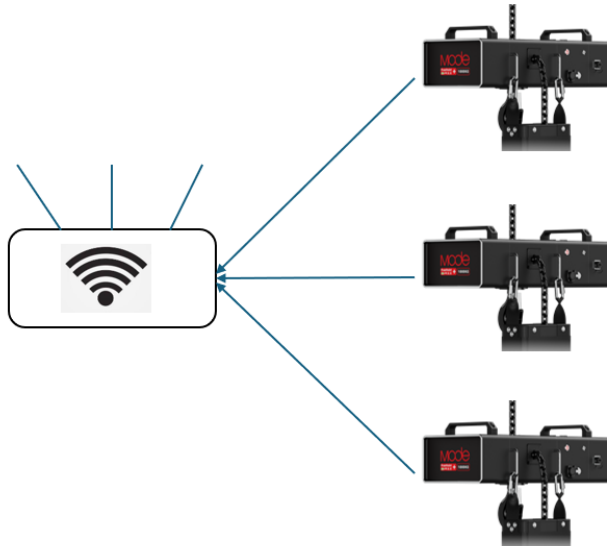
Go to **Settings** tab, and press the **Password** icon.



Change your **Admin_password** to **New_Admin_password**.

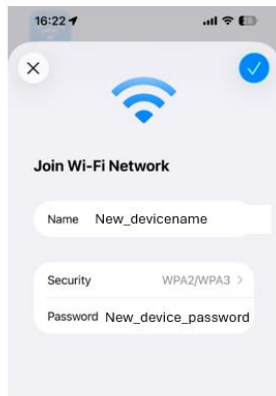
Press the **Save** button and wait for the automatic restart of the router.

7



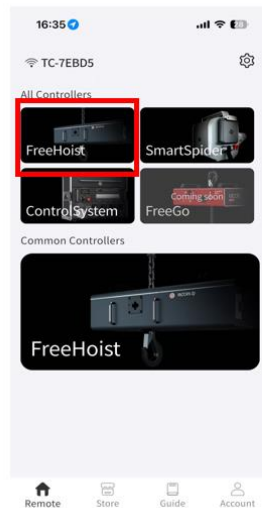
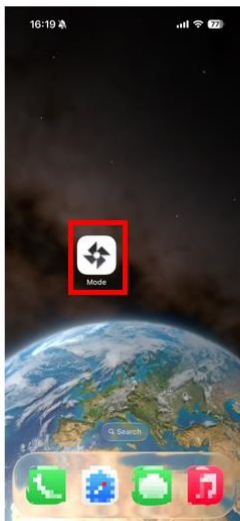
After the automatic reboot of the router, the initialized FreeHoists will reconnect to the router automatically.

8



Connect the mobile device to the router with the customized new device name and new device password.

9



Go back to the App, and now you can view all initialized FreeHoists.

The FreeHoists can now be operated individually or in customized group.

*You can modify the position of the operation buttons to be closer to the left or right side of the screen in the settings.

Mode China
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