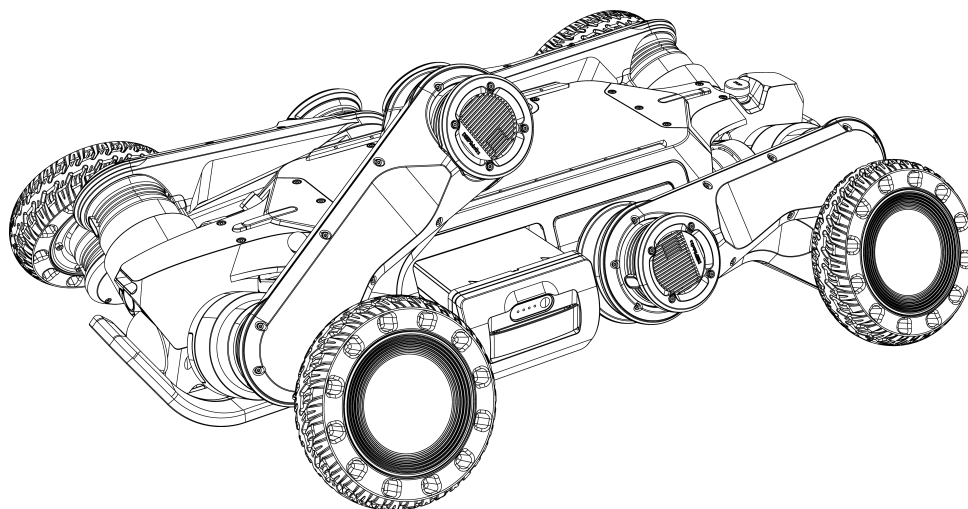


2.2 Charging

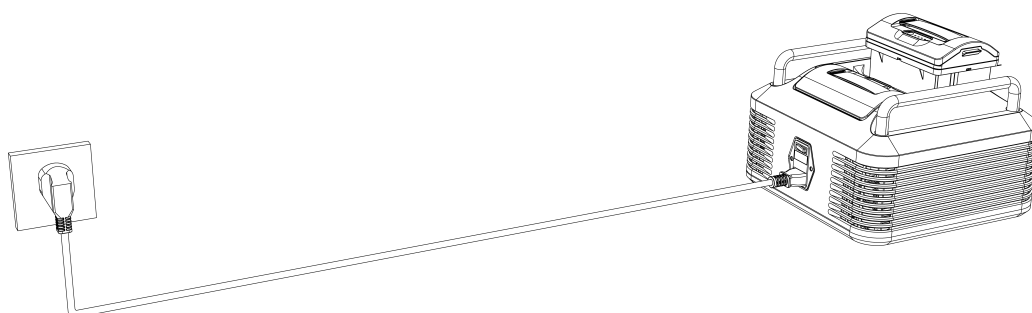
Lynx M20 Pro is powered by dual batteries, supports the replacement of any of these batteries while the robot is powered on. User can insert the battery into the charging hub for charging.

1. First, make the robot lie down, then lift the front/rear legs appropriately to ensure that the front/rear battery can be taken out smoothly. Hold the battery strap and pull it outward with appropriate force. The battery buckle will be unlocked by force, and then the battery can be removed from battery bin.



- It is recommended charge in an environment of 0°C ~40°C.
- During charging, please always pay attention to the battery and charging hub to prevent accidents, and disconnect the charging power in time after charging is completed.

2. Insert the battery into the Charging Hub(battery power button side facing inwards), then connect the Charging Hub to the mains (100V~240V) , Then turn on the Charging Hub's switch for charging.



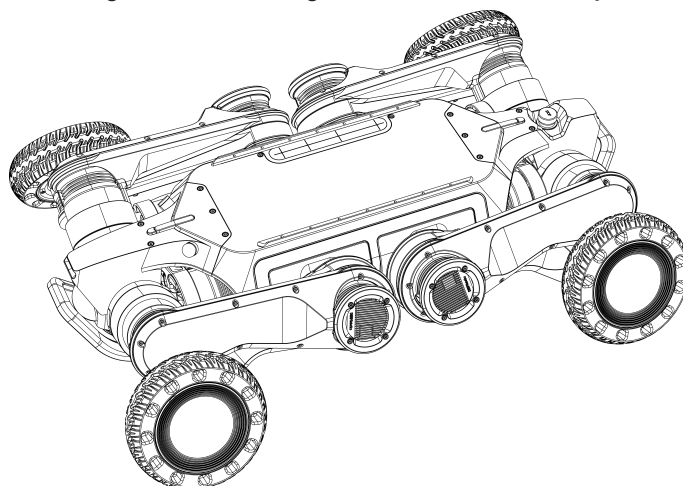
3. When charging, the battery LED lights will in a moving state and light on in turn, the number of lights on corresponds to the power already charged.

4. After finishing charging, the four battery LED lights off and the charger's light will turn green.

2.3 Start

2.3.1 Preparation

1. First, take the robot from the transport case and place it on a flat surface, as described in the section "2.1.2 Carrying".
2. When installing the front battery, lift the front legs appropriately to ensure that the battery can be inserted smoothly. When inserting the battery, it is necessary to place the battery forward into the battery bin (the battery LED and battery button above the battery strap). Pull the battery strap outward with one hand to unlock the battery buckle; lift the bottom of the battery slightly with the other hand and push it into the battery bin with appropriate force. Then loosen the battery strap, when the buckles on both sides of the battery strap are inserted into the battery bin, it indicates that the battery has been successfully installed. The rear side battery can be installed in the same way.
3. Adjust the robot pose as required (as shown in the picture below): Upper leg is tightly pressed against the lower leg, the lower leg and wheel naturally touch the ground.



2.3.2 Power on

Before power on the robot, please confirm that the hard emergency STOP button has not been triggered. If the hard emergency STOP button is triggered, troubleshoot the robot first. After ensuring that the machine can be operated normally, rotate the button in the direction indicated by the arrow on the button to release the hard emergency stop.

With the hard emergency STOP button not triggered, press, then press and hold the battery button until the battery LED flashes and stays on, indicating that the battery is powered, and the battery LED light shows the current battery level. Press the power button on the right side of the robot to start the robot. At this time, the power switch always lights up green.

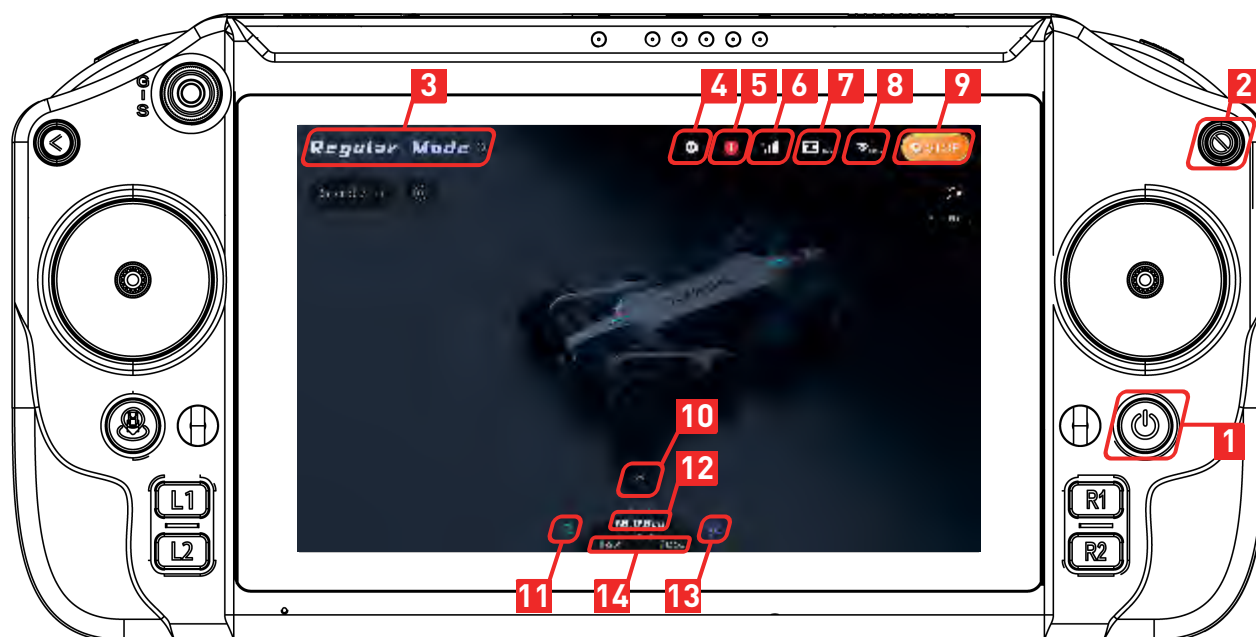
2.3.3 Connection

Press and hold the power button to turn on the controller (please ensure that the controller has enough power before use). The robot and controller have been paired and bound. After opening the "DEEP Robotics" app, the controller will automatically connect to the robot it is bound to.



2.4 Controller Operation

After starting the APP, you will automatically enter the control interface, as shown in the figure below:



Button	
① Controller Power	Press and hold to power on/off, and press once to wake
② STOP	Soft Emergency Stop, please refer to section 2.4.1
③ Control Mode	Press to switch control modes: Regular/Navigation/Assist
④ Settings	Settings:About Device/Sensor/Status/Accessibility & Convenience
⑤ Error List	Visible only when an error is triggered. Press to view and handle the error details
⑥ Mobile Network	Visible only when the controller has a mobile network connection, showing mobile data signal strength information
⑦ Robot Signal	Visible only when the controller is connected to the robot, showing connection signal strength and latency information
⑧ WiFi	Visible only when the controller is connected to the robot's WiFi, showing WiFi signal strength and latency information
⑨ STOP	Soft Emergency Stop
⑩ Expand / Close	Press to expand / close robot dashboard
⑪ Flashlight Indicator	The indicator lighting on/off indicates that the flashlight is enabled/disabled. When the dashboard is expanded, the left/right indicator lights being on indicate that the front/rear flashlight is active, respectively



Button	
⑫ Remaining	Estimated Remaining Operating Range
⑬ Camera Indicator	The indicator light turning on/off indicates that the camera is enabled/disabled. When the dashboard is expanded, the left/right indicator lights being on indicate that the front/rear camera is active, respectively
⑭ Battery Information	Left and right values indicate the remaining battery percentage of the front and rear sides
⑮ Sit/Stand	Stand up or sit down and the button displays the current status
⑯ Left Joystick	Control the robot to translate
⑰ Right Joystick	Control the robot to rotate
⑱ Speed Adjustment	Press the gear icon to enable speed adjustment. Slide the slider on the right to set the maximum speed
⑲ Gait	Press on the gait name to switch gait. The gait displayed in blue is the current gait
⑳ Flashlight	Press to control the lighting mode: Flashlight OFF / Front Flashlight / Rear Flashlight / All Flashlights
㉑ Camera	Press to switch the number of camera video streams: Single-View/Dual-View
㉒ Camera View	Press to switch the camera video streams displayed on the main interface: Front View/Rear View
㉓ Video	Record a video of the video streaming
㉔ Photo	Save images for the video streaming



Button	
②⑤ Auto Charging	After pressing, the robot automatically switches to navigation mode and executes autonomous charging tasks
②⑥ Forward Direction Indicator	The blue highlighted arrow indicates the direction of forward motion, i.e., the positive direction of motion
②⑦ Change Direction	After pressing, the robot will switch the direction of forward movement. For the forward direction, please refer to ②⑥
②⑧ Second Camera View	Visible when ②② Camera switches to Dual-View. Press ②② / ③④ to swap this view with the main interface view
②⑨ Joint Temperature	After pressing, the switch will be highlighted in blue and the joint temperature panel will be displayed
③⑩ Joint Parameters Panel	Display joint movement parameter information. Press on the leg name at the top to switch to view the joint parameters. The selected leg name is displayed in blue.
③① Joint Temperature Panel	Display joint temperature information. Press on the motor/driver to switch to view the joint module temperature. Warn/Error of the motor/driver is displayed in orange/red respectively.
③② Joint Parameters	After pressing, the switch will be highlighted in blue and the joint parameters panel will be displayed
③③ L1	Make the robot stand up or lie down, same as button ①⑤
③④ L2	Switch main screen camera view, same as button ②②
③⑤ R1	Shortcut key, set it in "Settings - Accessibility - Shortcut Key"
③⑥ R2	Shortcut key, set it in "Settings - Accessibility - Shortcut Key"

2.5 Setting Operation

After starting the APP, press the [④ Settings] button to enter the settings interface, as shown in the figure below



Button	
① About Device	View: Serial Number/Model/System Version/APP Version, and perform OTA
② Sensor	Can enable or disable: LiDARs/Wide Angle Cameras
③ Status	View: Motion/Posture/CPU/Battery status
④ Accessibility	Set: WiFi/Shortcut Key/Language

2.6 Emergency Operation

2.6.1 Soft Emergency Stop

If the robot's legs swing or shake violently and other abnormal phenomena occur during use, please start the soft emergency stop function on Controller to make the robot lie down. After troubleshooting, press the stand button again to operate the robot normally.

2.6.2 Hard Emergency Stop

Hard emergency stop button disables the joints power. Press the hard emergency stop button at the back rear of the robot, and the power button indicator light is off to indicate that the hard emergency stop has been triggered, which can avoid the robot from getting out of control. After troubleshooting the problem, if you need to release the hard emergency stop, please rotate the hard emergency stop button in the direction of the arrow on the button to release the hard emergency stop. If the hard emergency stop button pops

up, it means that the hard emergency stop has been released. After the hard emergency stop is released, the robot will automatically restart, and the controller will be temporarily disconnected. Once the robot has successfully restarted, the controller will automatically reconnect to the robot and the robot can continue to be used.



Once the hard emergency stop is triggered, it will cause the robot to lose all kinetic energy and thus fall to the ground. There is a risk of damaging the ground or the robot, so it is strictly forbidden to press the hard stop emergency button during normal movement!

2.6.3 Overtemperature

The system comes with temperature sensing. Once the robot runs for a long time and causes the motor, driver, battery or CPU to overheat, it will automatically enter the overheat protection state, and the robot will automatically stop moving and lie down on the spot. Wait for the robot to cool down and exit the overheat protection state before continuing to operate the robot.

2.6.4 Low Battery

When the robot's battery is below 20%, it will enter a low battery warning state, charge the robot immediately or replace the battery. When the battery level drops below 5%, the robot will trigger a low battery protection mode, where it will automatically lie down and will no longer respond to commands from the remote controller. Please replace the battery before continuing to use it.

2.6.5 Other Circumstances

- If the joints are still swinging after the robot falls down suddenly, wait 30 seconds after the robot joints have completely stopped moving before pressing the hard emergency stop button at the rear of the body.
- In case of a fire, do not use water to extinguish it. Please use foam fire extinguisher, dry powder fire extinguisher or carbon dioxide fire extinguisher nearby.
- If the soft emergency stop fails, robot smokes or is submerged in water, or other unexpected situations, please immediately power off the robot and wait until it's safe to identify the problem. Then please contact DEEP Robotics, and we will help to troubleshoot the problem and repair or change your robot. Pay attention to safety in use!
- If the robot falls, do not drag, push or flip it before triggering the hard emergency stop.

2.7 Power Off



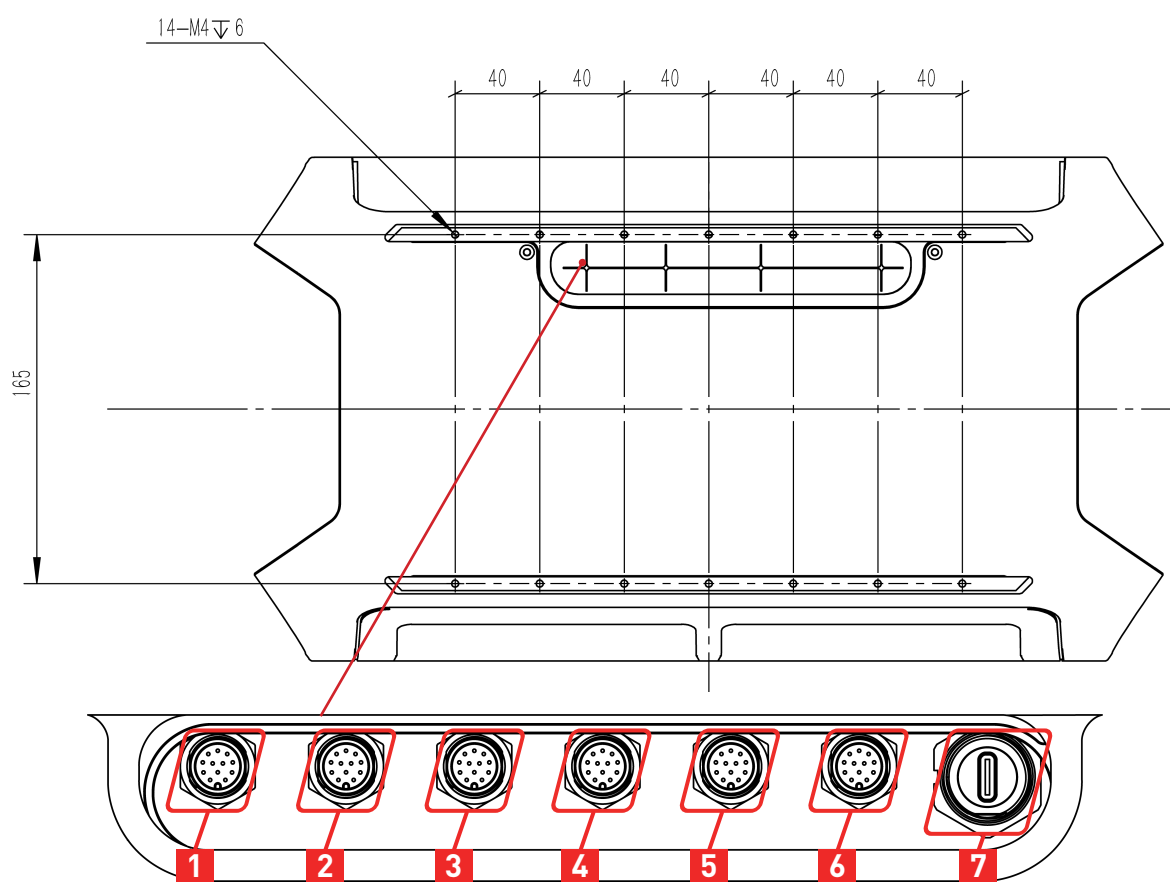
Make sure that the robot is sitting before the following operations.

Press the robot power button, the power button pops up, the power light and indicator light go out, and the robot shuts down. Press, then press and hold the battery power button until the battery LED light flashes once. Then the battery indicator light goes out, indicating that the battery has stopped providing power and the shutdown is complete.

2.8 Payload

The robot supports payloads installation and development. Users can screw devices into the thread holes on the back of robot (unit: mm).

The installation range of the load is limited to the area where the mounting rail is located, and the height is limited to 30cm, that is, the available installation range is 270mm × 165mm × 300mm. It is recommended that the weight of the mounting devices should not exceed 15kg.



Interface	
① 72V	④ LAN3+24V
② LAN1	⑤ LAN4+24V
③ LAN2+24V	⑥ LAN5+24V
	⑦ USB3.0(Type-C)



- When mounting devices on the back of the robot, the robot's motion performance may be affected. Please be sure to consult the after-sales personnel before installing.
- The maximum power supplied by the robot to the payload is 360W. Total power of 24V power supply not exceeding 250W.
- Please cover the aviation plug with its cover.

3 Precautions

3.1 Work Environment



- Do not operate the robot in environments with strong electromagnetic interference such as high-voltage cable, high-voltage transmission stations, base stations and television broadcasting towers, etc.
- Please do not operate the robot in environments with strong WiFi signal interference. Be sure to turn off all other WiFi signal source, and then use the joystick to operate the robot.
- Do not operate the robot in bad weather with fog, snow, lightning, sandstorms, windstorms, tornadoes, etc.
- Keep the robot in sight and keep it at least 2 meters away from people, water, open flames, etc at all times.
- Do not use robot on smooth surfaces such as ice, glass and tiles, If need to pass through smooth surfaces, please avoid violent movements to prevent the robot from slipping and falling.
- Do not run the robot on the edge of a high place to prevent it from falling from a height and causing damage.



The robot is IP66 protection rating only when two batteries are installed at the same time. The robot can completely prevent dust from entering and can withstand powerful water jets without harmful water penetration. But it does not support immersion, as damage caused by liquid infiltration due to immersion is not covered by the warranty. If water splashes, please wipe off the water stains on the surface of the equipment after use and store it. If the robot falls into water or is submerged in liquid, please stop using immediately, wipe off surface water stains, and contact after-sales for support.

3.2 Battery



- Before using the battery, carefully read the instruction manual and battery labels on the surface.
- Need to use the original battery charger(Such as Official Charging Hub, etc).
- Do not drop or strike batteries. Do not place heavy objects on the batteries or charger.



- Never use the battery in a humid environment and never immerse it in water or get it wet.
- When water is touched inside the battery, a decomposition reaction may occur, which may cause the battery to self-ignite or even explode. It is strictly forbidden to expose batteries to any liquid, never immerse them in water or get wet, and keep away from rain or wet environment. If the battery accidentally falls into water, immediately place the battery in a safe open area and keep it away from the battery until it is completely dry. Drying batteries should not be reused.
- Disassembly of batteries without authorization is prohibited. Once disassembled, no warranty is granted. DEEP Robotics is not responsible for battery accidents caused by privately disassembling batteries.
- Do not short-circuit the battery positive and negative.
- If not in use for a long time, please remove the battery from the robot, store it separately and charge it to 60%, so as to avoid over-discharging of the battery, which may cause damage to the battery cell and make it impossible to continue to use.
- Press and hold the battery button for 20 seconds until the battery indicator light flashes 5 times to put the battery into Storage Mode.
- In the Storage Mode, the battery can be stored for a long time, and it does not respond to the press operation of the button and the battery indicator light is always off. Charging the battery to exit the Storage Mode.
- When the battery is left for more than 3 months, it should be recharged to 60% to keep the battery active.
- If battery exhibits overheating, leakage, unusual odors, deformation or other anomalies in use or during storage, please stop using it immediately and stay away from the battery, and contact after-sales for further processing.
- Please refer to the battery instructions for details.

3.3 Other Precautions



- When carrying the robot, pay attention to the anti-pinch label on the robot and do not put your hands into the position where the anti-pinch label is attached!
- Do not lift the robot while it is moving to avoid unintended movements that could cause damage to robot or injury to people!



- Please do not download other unrelated APPs in the controller.
- It is strictly forbidden to disassemble the robot personally. Once disassembled, the warranty will be invalid!

4 FAQs

Q1: Is it normal for a robot to stop moving on its own?

A: Probably some kind of abnormality caused the robot to trigger its own protection mechanism, you can check the specific operation tips through the controller's APP. If it continues to fail to return to normal or does not display the abnormal handling prompts, please contact the after-sales service.

Q2: What if there is no response to the commands from APP after connected?

A: First confirm if the hard emergency stop is off. If the APP is still unable to control the robot, please restart the robot.

Q3: Can the robot continue to be used when its body or legs are askew after standing up?

A: At this time, do not control the robot to move. Please immediately trigger soft emergency stop to make the robot lie down. Then shut down and restart to try to control the robot to stand up again. If still abnormal, please contact the after-sales staff.

Q4: What if the robot falls down due to the loss of control of one of its legs?

A: First press [STOP] button on the controller to make it down. Then restart the robot. If it does not return to normal after restarting, please contact after-sales staff.

Q5: What if the video stream gets stuck after the robot falls?

A: Restart the robot. If the video stream is still black, please contact after-sales staff.

Q6: Is it normal that the battery LED lights are not lit after pressing the battery power button?

A: It may be that the battery has entered Storage Mode. Please refer to "2.2 Charging" to charge the battery and then try to see if the battery can be used normally. If it still cannot be used, please contact after-sales service.

Q7: What terrain can the robot adapt to?

A: The robot can be applied to gently uneven ground such as flat land and grass, and can also climb complex terrain such as stairs and slopes, but please avoid operating and using the robot in extreme terrain (such as too smooth surfaces such as ice, sharp or undulating terrain, near high edges, etc.).

Q8: What if encountering a problem that cannot be solved even after consulting this manual?

A: Please contact the after-sales staff promptly for help.

5 Transport & Storage

5.1 Transportation

When transporting the Lynx M20 Pro, please use the transport case specifically designed for it.



Before shipping the robot with transport case, remove the batteries from the robot. And when shipping, make sure the front of the transport case is facing up.

5.2 Storage

- Lynx M20 Pro requires a clean and dry storage environment of 0°C ~40°C .
- Robot power must be off, and if the robot will not be used for a long time, remove the batteries from the robot.
- Do not allow water or other liquids to drench the robot.
- It is strictly forbidden to place other objects within the joint rotation range.
- It is recommended to store Lynx M20 Pro in the transport case specifically designed for it to protect it from shock and vibration.
- Lynx M20 Pro must be placed in the transport case with its back facing up.
- For the precautions for battery storage, refer to the "3.2 Battery".

6 Service & Warranty

6.1 Warranty Policy

The warranty period for the major components of Lynx M20 Pro is as below.

Component Name	Warranty Period
Joint Module	Six Months
Replaceable Battery, Wide Angle Camera, Laser Rader, Control System, Other Electronic Components	One year

Tip: Shell, tyre and other fragile parts, and transport case and other accessories are not covered by warranty. If necessary, please consult after-sales support.

The warranty period starts from the date of receipt. Products or parts that meet the warranty period and the contents of the warranty will receive free after-sales service. If the product you purchased is beyond the warranty period, you can also get help from us by purchasing a separate service.

6.2 Warranty Coverage

Depending on the specific situation, we will repair or replace parts accordingly for the product you purchased. However, the following cases will not be covered by the free warranty, but you can still choose to have paid after-sales service, for which please consult the after-sales support for details.

- Damage caused by man-made non-product quality problems.
- Unauthorized modification, disassembly, shell opening, etc.
- Out of warranty.
- Damage caused by improper installation, use and operation (such as dropping, crushing, immersion, violent use, etc.) as required by the manual.
- Damage caused by use in excess of the safe weight capacity.
- Damage caused by self-repair or replacement of parts without official instructions.
- Damage caused by installing third-party products by yourself.
- Damage caused by the use of a non-original battery pack for power supply.
- Failure or damage due to force majeure factors such as typhoon, earthquake, fire, lightning strike, abnormal voltage.
- Damage caused by operating the robot in an environment with severe signal interference.
- Damage caused by improper handling of the robot on slippery surfaces such as glass and ice.
- Fallen damage caused by the use of a robot near a high edge.
- Fallen damage other than operate the robot on flat terrain.

- Damage caused by operation in environments such as sharp terrain and large undulations.
- Damage caused by forced operation of parts in the event of aging or damage.
- Damage caused by not keeping a safe distance when used in complex environments.
- There are obvious traces of dust, grit, water, and metal powder intrusion inside the robot.
- Damage caused by improper handling operations.
- Damage caused by violent or non-violent means applied to the robot when it exceeds its anti-interference limit.
- Due to operation errors, there are obvious marks of collision and scratches on the surface of the robot.

6.3 Repair Instructions

- Before getting after-sales service, please make sure to backup all data and delete important data to prevent data loss or leakage. DEEP Robotics is not responsible for the loss or leakage of any data contained in the product.
- When you obtain after-sales service from DEEP Robotics, you authorize DEEP Robotics to make any modification, delete data or restore factory settings for the purpose of after-sales service.
- Before sending it for repair, please contact after-sales support, DEEP Robotics will try to diagnose and solve your problem remotely.
- If the above methods cannot solve your problem, you can send it back to the robot for repair after verifying with after-sales support. You need to pay for the postage first when you send the product to DEEP Robotics. After DEEP Robotics receives the product in need of maintenance, the product will be tested to determine the problem and responsibility.
- If the problem is caused by defects in quality of the product itself, DEEP Robotics will be responsible for the testing fee, material fee, labor fee and the postage for sending back.
- If the product does not meet the conditions of free repair, you can choose to pay for repair, and the corresponding testing fee, material fee, labor fee and the postage for sending back will be paid by you. You can also choose not to repair and to send back the product, the corresponding postage and insurance fee will be paid by you.
- Considering environmental protection and safety, please do not send back seriously damaged batteries. If you have sent back, DEEP Robotics will scrap such batteries and will not return them back.
- If you provide an incorrect delivery address which results in non-delivery or rejection by the recipient, the adverse consequences and losses shall be afforded by you.
- To ensure your rights and interests, when you sign for the after-sale products sent by DEEP Robotics, please check carefully whether the products are intact. If there is any abnormality, please immediately take video or photos on the spot and contact DEEP

Robotics to get the solution. If there are unresolved after-sale problems, please also contact DEEP Robotics immediately, otherwise it is regarded as the end of this after-sale service without dispute.

- ※The final interpretation of these after-sales terms and conditions belongs to DEEP Robotics.
- ※Please contact us if you have any questions before obtaining after-sales service.
- ※These after-sales terms and conditions are only used in Chinese mainland, and the after-sales policies of other countries or regions are subject to local laws.

7 Disposal

- The disposal of waste robots and parts shall be carried out in accordance with the corresponding national laws and regulations on the recycling of waste electrical and electronic products.
- In particular, the use or disposal of lithium batteries contained in robots is subject to national laws and regulations governing the disposal of batteries.

DEEP Robotics

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