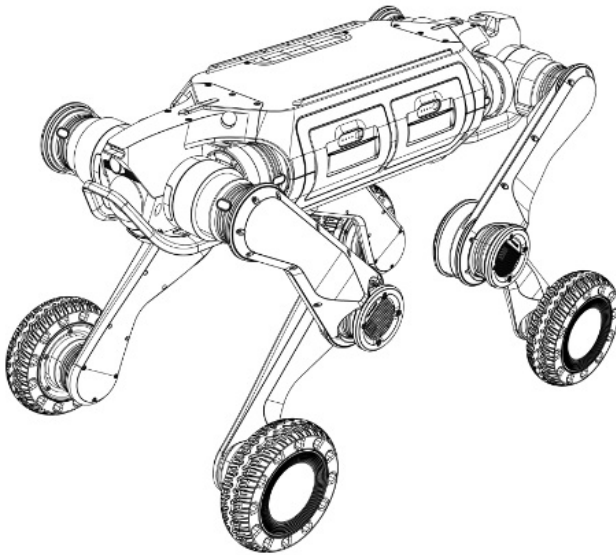


DEEP Robotics LYNXM20 Pioneering Innovation and Application Series User Manual

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DEEPRobotics



LYNX M20 Pro

User Manual V1.0.5-2(2025.11.27)

Statement

- This manual is the information asset owned by Hangzhou Yunshenchu Technology Co.,Ltd. (hereafter referred to as DEEP Robotics) and any reproduction of part or all of this manual is strictly prohibited without the permission of DEEP Robotics.
- This manual explains the basic components, transportation and storage, specific operations, exception handling, and technical specifications of “Lynx M20 Pro”. Be sure to read and understand this manual carefully before operating the robot.

- Basic information on safe use is described in detail in the “Reading Tips”, so be sure to read this part thoroughly to ensure proper use.
- The diagrams and photographs in this manual are representative examples and may differ in details from the product purchased.
- This manual may be modified as appropriate for product improvements, specification changes, etc.
- The contents of this manual do not exclude the possibility of misremembering or omission. If this manual is damaged or lost or if you have questions about the contents of this manual, please contact us promptly.
- Failure caused by unauthorized disassembly or modification of the product by the customer is not covered by our warranty, see “Service & Warranty” for details.

Reading Tips

Description of Symbol

Before use (installation, transportation, maintenance, inspection), please be sure to read and master this manual, and familiarize yourself with the equipment and safety matters before you start using it. The safety matters in this manual are divided into three kinds: “Caution”, “Mandatory” and “Prohibition”. Even the contents of “Caution” may have serious consequences depending on the situation, so any of these safety matters are extremely important and should be strictly observed.



Caution

Usage tips or operational recommendations. Improper using or operating the robot may cause damage to it.



Mandatory

Matters that must be observed.



Prohibition

Matters prohibited. Misoperation is dangerous and may cause injury to operators or damage to the robot.

Get Help

For more resources to assist you in using Lynx M20 Pro proficiently, you can also visit DEEP Robotics' corporate website: <http://www.deeprobotics.cn>.

Important Safety Tips



Before starting the robot, please ensure that all people and objects present are more than 2 meters away from the robot to avoid collisions.



- When the robot passes through stairs or slopes, do not stand on the stairs, platforms, or slopes below the robot to avoid personal injury when it falls.
- When the robot swaying legs, shaking violently or other abnormal phenomena occur in use, press [STOP] button on the controller to activate the soft emergency stop protection, so that the moving robot enters a protective state. The robot will automatically get down. After identifying the problem, cancel Emergency STOP to operate the robot normally.

FCC Statement

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

For Wheeled-legged Quadruped Robot: This robot complies with FCC radiation exposure limits set forth for an uncontrolled environment. This robot should be installed and operated with minimum distance 20cm between the radiator of the robot & your body.

EU Conformity Statement



Hereby, [Hangzhou Yunshenchi Technology Co.,Ltd.] declares that the radio equipment is in compliance with Directive 2014/53/EU.

EU Declaration of Conformity: [https://deep-website.oss-cn-hangzhou.aliyuncs.com/app/EU declaration-M20-20251127.pdf](https://deep-website.oss-cn-hangzhou.aliyuncs.com/app/EU%20declaration-M20-20251127.pdf)

RF Exposure Information

- This Wheeled-legged Quadruped Robot has been tested and meets applicable limits for Radio Frequency (RF) exposure.
- This Wheeled-legged Quadruped Robot must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Power:

- 2.4GHz:2412MHz to 2472MHz:17.68dBm
- 5GHz: 5180MHz to 5240MHz:12.98dBm
- 5.8GHz:5745MHz to 5825MHz:11.84dBm

RF	TYPE	Operation Frequency
2.4G SRD	Receiver	2400-2483.5MHz
5.8G SRD	Receiver	5750-5820MHz

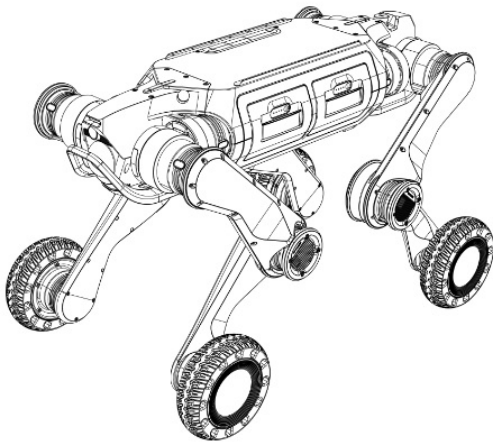
Introduction

Overview

Lynx M20 Pro is a wheeled – legged quadruped robot with 4 motors on each leg, a total of 16 degrees of freedom (DOF), and a variety of movement methods. The robot is equipped with 2 wide-angle cameras, 2 laser radars, and 3 industrial-grade high-performance hosts for motion control, environmental perception calculation, navigation and inspections.



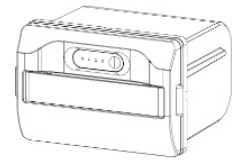
Product List



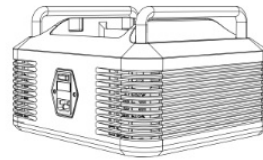
Robot ×1
(without battery)



Controller ×1



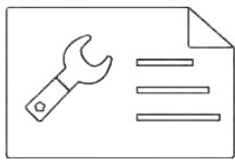
Repalceable Battery ×2



Charging Hub ×1



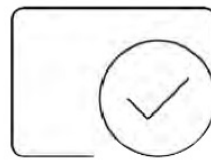
Transport Case ×1



Warranty Card ×1



User Manual ×1

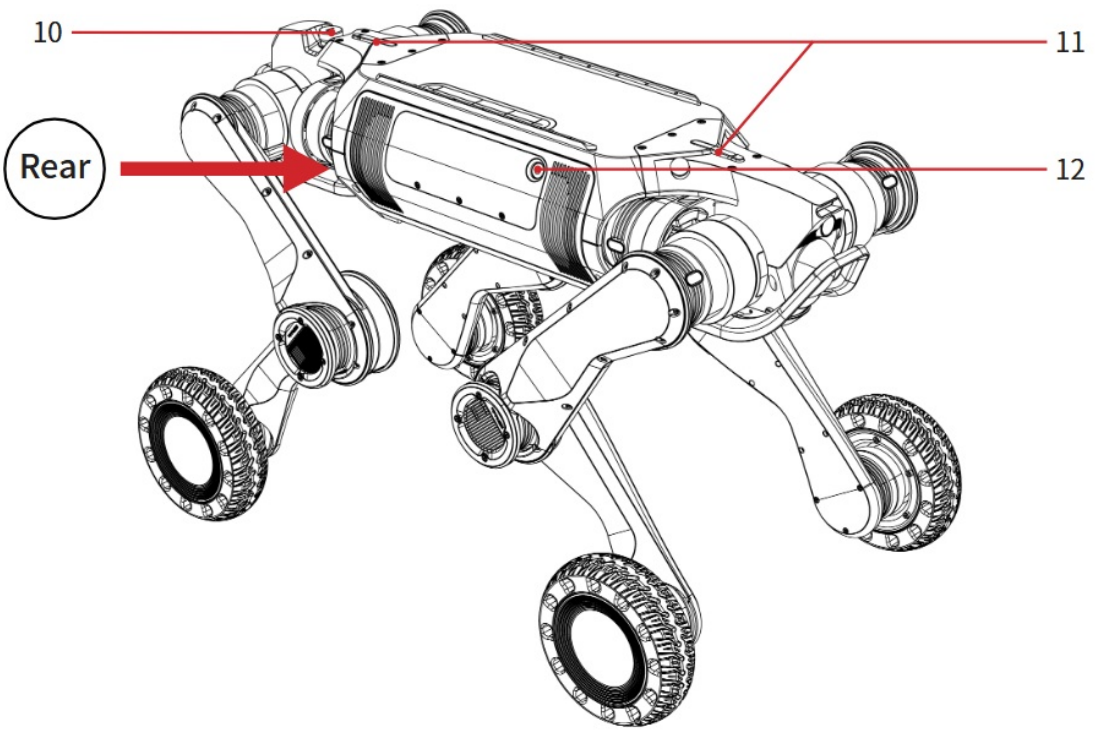
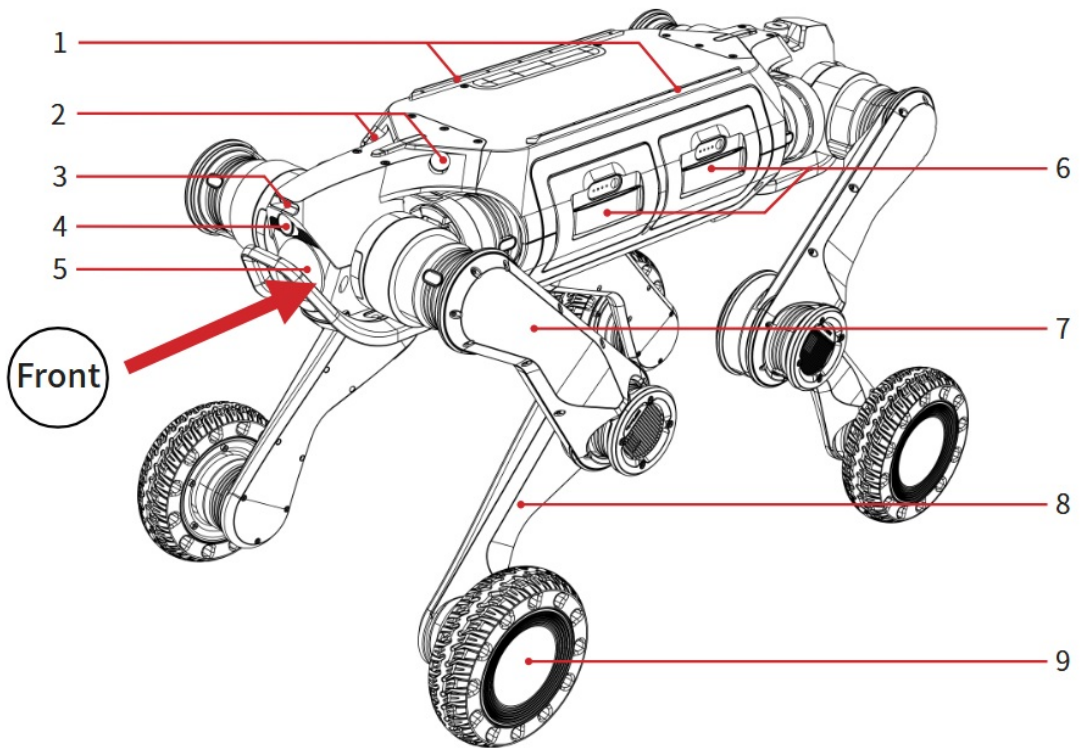


Certificate ×1



Cable Kit ×1

Product Parts



- 1. Mounting Rails
- 2. Controller's Antenna
- 3. Flashlight
- 4. Wide-Angle Camera
- 5. Laser Radar
- 6. Replaceable Battery
- 7. Upper Leg
- 8. Lower Leg
- 9. Wheel
- 10. Hard Emergency STOP
- 11. Indicator Light
- 12. Power

※The robot features a front–rear symmetrical design. The side with the controller's antenna is the front of the robot, while the side with the hard emergency stop button is the rear.

Main Specifications

Robot Dimensions	
Standing Size (Length × Width × Height)	820mm×430mm×570mm
Sitting Size (Length × Width × Height)	820mm×600mm185mm
Tyre Size	7 inches
Weight	35kg

Electric Parameters	
Battery Capacity	4.5Ah (Each battery,Ideal data in an environment at 25°C)
Nominal Battery Voltage	72V
Charger Input Voltage	100V~240V
Charger Output	84/3A (for single battery)
Charging Time	1.5h~2h (Each battery, Supports simultaneous charging of dual batteries)
Power Supply	72V; 24V; 5V(USB)
Communication Interface	Ethernet; WiFi; USB3.0
Autonomous Charging	Supported (Optional)

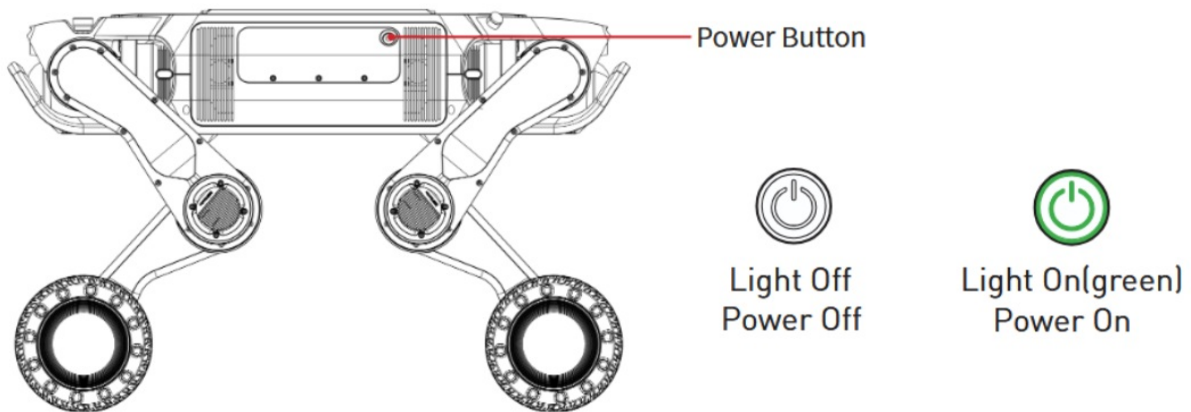
Locomotion Parameters	
Maximum Speed	5.0m/s (Data from extreme test, which is not disclosed for safety reasons, and the actual product speed is limited to 3.0m/s)
Maximum Working Speed	2.0m/s
Maximum Slope	±45°(Varies depending on flooring material)
Maximun Continuous Stair Height	25cm
Maximun Continuous Stair Slope	±45°
Maximum Climbable Single Step Height	80cm
No-load Runtime	3h (Dual battery powered)
Payload Runtime	2.5h (Dual battery powered)

Locomotion Parameters	
Payload	15kg
Maximum Payload	50kg (Data from extreme test)
Sensor Parameters	
LiDAR	x2
Wide-angle Camera	x2
Flashlight	x2
Other	
Ingress Protection	IP66 (With two batteries)
Operating Temperature	-20°C ~55°C

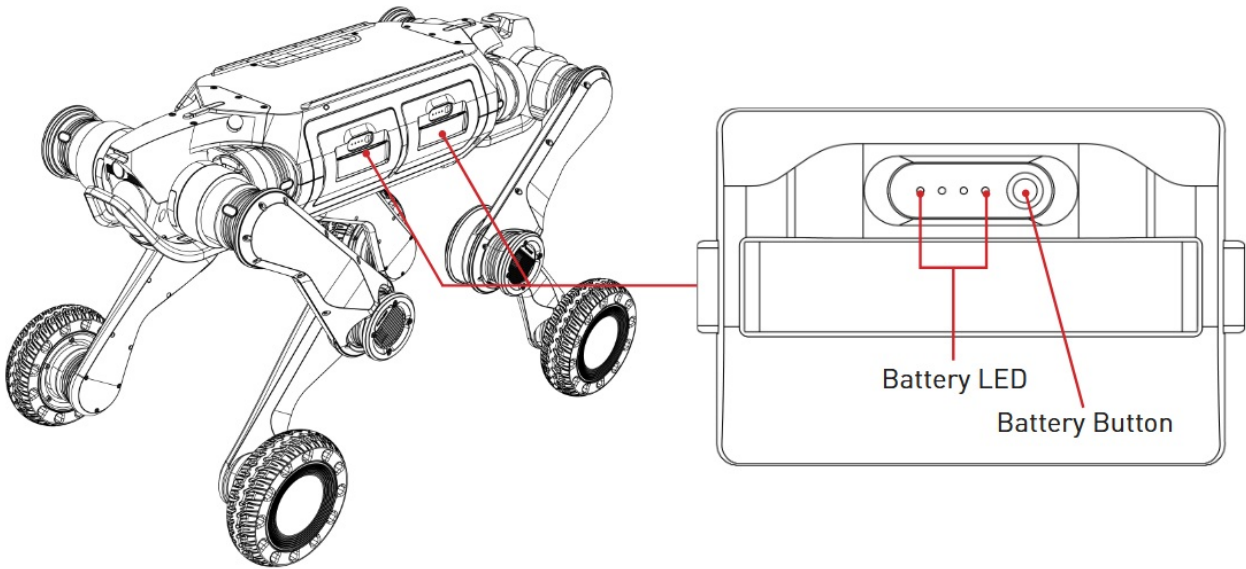
※ Data above are measured under ideal conditions and dual battery powered mode, the actual results may be biased.

Description of Lighting

Power



Battery



○ OFF	● ON	☼ FLASHING	⋯ MOVING
Status		Meaning	
● ● ● ●	Four lights on	Power > 75%	
● ● ● ○	Three lights on	50% < Power < 75%	
● ● ○ ○	Two lights on	25% < Power < 50%	
● ○ ○ ○	One light on	10% < Power < 25%	
☼ ☼ ☼ ☼	Four flashing lights	3% < Power < 10%	
☼ ○ ○ ○	One light flashing slowly	Power < 3%	
⋯ ⋯ ⋯ ⋯	Moving light, light on in turn	Charging, lights show % charge	

Indicator light

There is an indicator light on the front and rear of the robot's back. The light language of the indicator light is shown below:

When only one indicator light is on:

Light Status	Robot Status and Meaning
White lights on	The robot is in regular mode
Blue lights on	The robot is using navigation and is in an autonomous standing or autonomous locomotion state

※Two indicator lights correspond to the head and tail directions respectively, and the illuminated light indicates the forward direction of the robot's movement.

When two indicator lights are on:

Light Status	Robot Status and Meaning
White moving lights	The robot are waiting for the APP to connect or connecting
White lights on	Connected, and the robot is sitting
Green moving lights	The robot is charging on the charging dock, the number of lights illuminated indicates the battery level on the same side; the light being off indicates that the corresponding battery is not installed or powered. The battery not in the state of powered will not be charged
Yellow lights on	The robot is in hard emergency stop protection state Continuous abnormal warning, you can view the specific abnormal warning information on the controller
Yellow flashing lights	In assist mode, the robot detects a risk of collision with surrounding obstacles.
Red lights on	Continuous abnormal protection, you can view the specific abnormal protection information on the controller

Mode and Gait

Usage Mode	
Regular	Robot is completely controlled by the user through the controller
Assist	The perception host will monitor the surrounding environment and assist the user in controlling the robot
Navigation	Robot moves autonomously and can not be controlled with the controller

Gait	
Basic	Suitable for conventional structured terrain (Max speed:2.0m/s)
Stair	Suitable for climbing stairs, but not for walking on flat ground
High Obstacles	Supports climbing platforms not exceeding 80cm in height, but does not support climbing stairs

Operation

Preparation

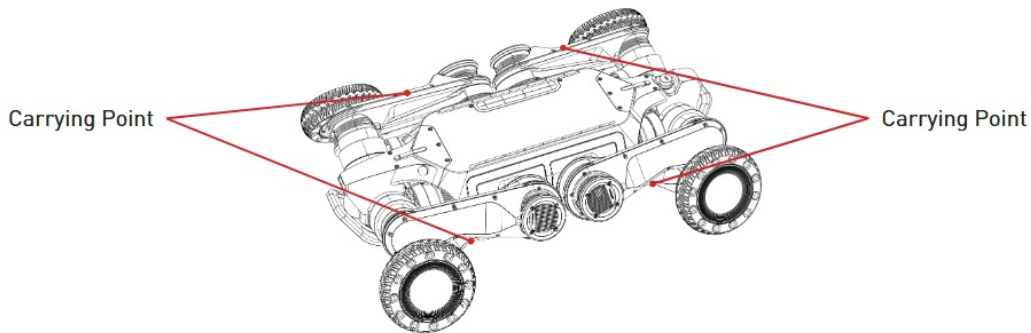
Environment



- Please ensure that operators and non-operators present have read the manual carefully and understand the basic operating instructions and safety precautions.
- Before start the robot, ensure that all people or objects present are more than 2 meters away from the robot to avoid collisions.
- Please use the robot in an environment of -20°C $\sim 55^{\circ}\text{C}$.

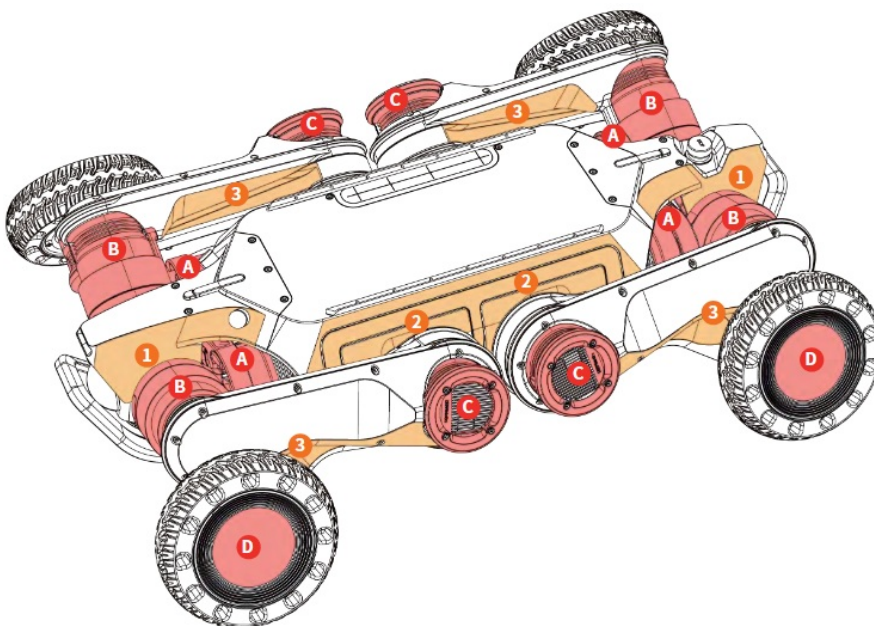
Carrying

Lynx M20 Pro weights approximately 35kg and it is recommended that two people carry it: One person stands at the front of the robot, firmly gripping both the lower and upper legs on each side with both hands; another person stands at the rear of the robot and adopts the same method to assist in completing the carrying task.



- Power off Lynx M20 Pro and carry it gently.
- Keep your hands away from easy pinch points and the range of motion of joints prevent pinching or scratching.
- The metal components of the robot's legs that have just finished running are hot, so please wait until it cools down to suitable temperature before carrying.

The robot's high temperature and pinch points are shown in the figure below:



- ※ Red letters indicate areas prone to high temperatures, and orange numbers mark easy pinch points.
- ※ , , correspond to the HipX, HipY, and Knee joints, respectively. indicates the hub surface connected to the wheel joint. These areas, especially the joint modules and surrounding metal parts, may become hot after operation, DO NOT TOUCH!

※① : Gap between the shell of the head/tail and the adjacent joint. ② : Gap between the lower leg and the body side cover. ③ : Gap between the upper and lower leg.

※Note: Pinch points on the right side of the robot are not fully marked in the diagram. However, since the robot is symmetrically designed, the right side mirrors the left.

※The pinch points listed above are not exhaustive. Please refer to 2.1.2 when carrying the robot.

Checking



- Press the power button once to check the battery. It is suggested to start the robot when both batteries are installed.
- Make sure the controller is fully charged.
- Make sure there is no visible damage to the exterior of the robot.
- Make sure the emergency stop button can be triggered.



If the robot parts are aging or damaged, please do not start the robot and contact the after-sales staff in time.

Documents / Resources

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LYNX M20 Pro
User Manual V1.0.0-202005.11.071

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User Manual · LYNXM20, 2BFQD-LYNXM20, Pioneering Innovation and Applicatio Series,
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