



Remote Controller

DMRC

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1. Safety Regulations

1.1 Installation and Safe Operation Instructions

- 1.The entire remote control system must be installed by a professional electrician, strictly following the attached circuit diagram for wiring.
- 2.It is prohibited to dismantle any outer shells of the remote control system without authorization, as this may compromise device sealing or normal operation.
- 3.When using the remote control system, ensure the vehicle operates in a safe environment with good visibility. Personnel must not pass through danger zones beneath the vehicle's load.
- 4.When the remote control system is not in use, promptly turn off the remote controller and ensure it is always supervised by a professional to prevent unauthorized use.
- 5.In the event of an emergency while using the remote control system, immediately press the emergency stop button on the remote controller.
- 6.In case of faults within the remote control system itself, contact Wuhan Duman Intelligence Technology Co., Ltd. professionals for assistance in troubleshooting.
- 7.Always pay attention to the direction of the vehicle's boom arms when operating with the remote control system and maintain optimal visibility of the vehicle.
- 8.When repairing or replacing components of the remote control system, use only original Duman parts. Failure to do so may compromise the safety of the remote control system and void subsequent warranty services.
- 9.Before each operation, after powering on the remote controller, check the status of the emergency stop switch, remote controller indicator lights, and alarm area on the remote controller screen. Ensure everything is correct before proceeding with normal operation.

1.2Usage Precautions

- 1.When operating the remote controller, ensure the Start/Horn button is functional. Always press the Start/Horn button to enter normal operation mode.
- 2.During rainy conditions, take waterproof measures for the remote controller to prevent direct exposure to rain.

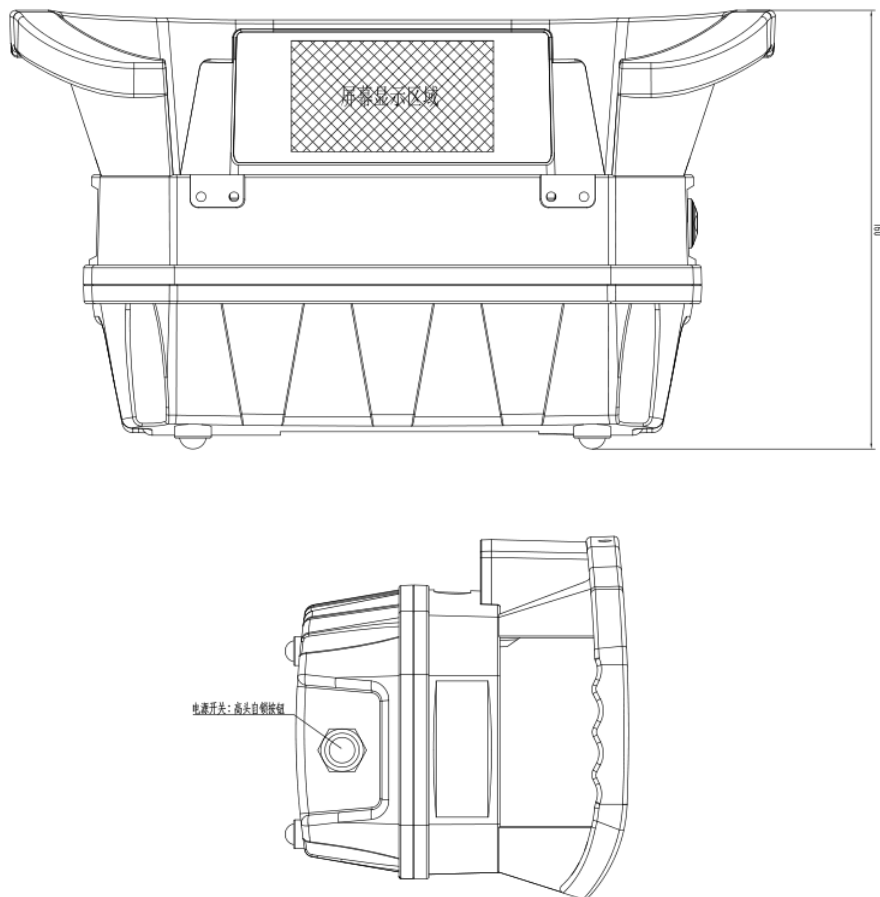
3.To perform an emergency stop, quickly press the emergency stop button and turn off the electrical control power switch.

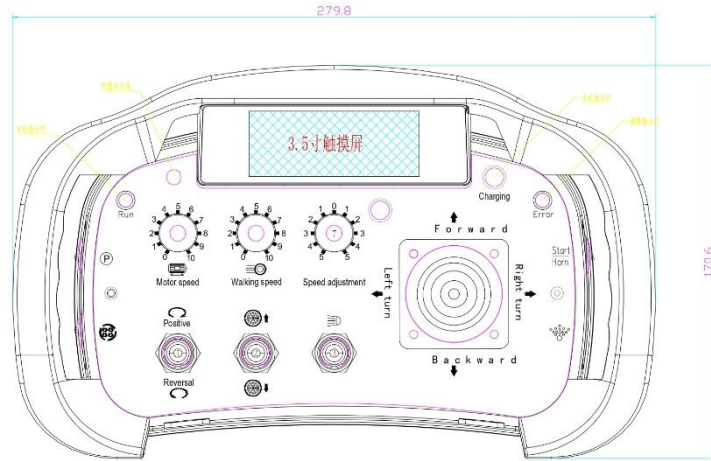
4.The emergency pump is for emergency use only and should not be used for extended periods.

2. Equipment Instructions

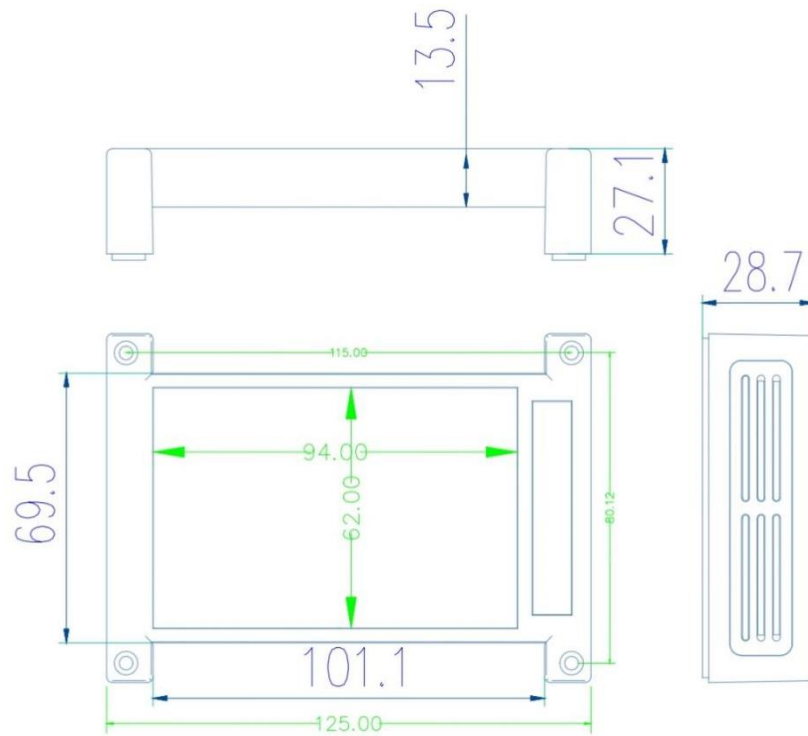
2.1 Equipment Dimensions and Appearance

2.1.1 Remote Controller Dimensions



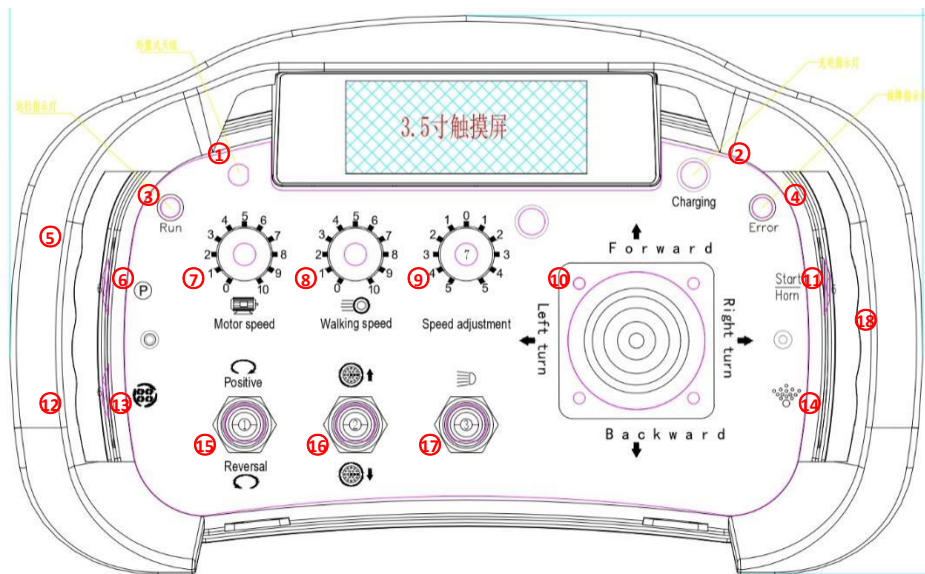


2.1.2 Receiver Dimensions



2.2 Remote Controller Function Introduction

2.2.1 Function Button Descriptions Based on Marked Numbers



1. Antenna

2. **Charging Indicator Light:** Lights up during charging.

3. **Running Indicator Light:** Normally green when wireless communication is normal; flashes green during normal operation; turns solid red when the emergency stop button is pressed or wireless communication is disconnected.

4. **Fault Warning Light:** Turns red when the emergency stop is pressed or communication is disconnected.

5. Type-C Charging Port

6. **Brake Button:** Press once to stop motor operation.

7. **Grinding Motor Speed Knob:** The higher the setting, the faster the grinding motor speed.

8. **Travel Motor Speed Knob:** The higher the setting, the faster the travel motor speed.

9. **Travel Motor Fine-Tuning Knob:** Adjust left or right.

10. **Universal Joystick:** Up to move the grinding machine forward, down to move backward, left to turn left, right to turn right.

11. **Start Button:** Press to make the running indicator light flash green, indicating that remote operation is possible.

12. **Power Switch:** Press to turn on the remote controller.

13.**Grinding Plate Jog**: Press once to move the grinding plate, release to stop.

14.**Water Spray Switch**: Press once to spray water, press again to stop.

15.**Grinding Forward/Reverse**: Flip up for forward rotation, flip down for reverse.

16.**Grinding Plate Lift/Lower**: Flip up to lift, flip down to lower.

17.**Lighting Switch**: Flip up to turn on lighting, flip down to turn off.

18.**Emergency Stop Button**: Press to stop all operations.

After wireless communication is established, press the Start/Horn button to enter normal mode, with the left indicator light flashing green.

2.2.2 Remote Control System Operating Steps

Step 1: Power on the receiver.

Step 2: Turn on the power switch on the left side of the remote controller, and wireless communication will automatically begin to establish a connection.

Step 3: Check the left running indicator light on the remote controller panel. A solid green light indicates that wireless communication has been established normally.

Step 4: Press the Start/Horn button on the right side of the remote controller. The horn will sound, and the left running indicator light will flash green, indicating that remote operation is possible.

Step 5: Operate the corresponding functions of the boom arms as needed to complete the work at height.

Step 6: After the operation, retract the boom arms to their shortest and lowest position, place them on the boom seat, turn off the engine, and finally turn off the power of the remote controller and receiver to shut down the entire electrical control system.

2.2.3 Lithium Battery Usage and Maintenance for Remote Controller

1. Always use the original charger for charging, as incorrect chargers may affect battery life and potentially cause safety issues.
2. Avoid complete discharge. After automatic shutdown, do not force a restart; remember to charge promptly.
3. When not in use for extended periods, remove the battery and store it in a cool, dry place. If stored for a long time, charge the battery to above 40%.
4. To maximize lithium battery performance, use it frequently to keep the electrons within the battery in constant circulation. If the battery is not used frequently, remember to perform a complete charge and discharge every 3 months.
5. Even when not in use, lithium batteries will lose capacity over time, so it's best to use them as soon as they are purchased.
6. If the charger output voltage is higher than specified, it may deform (bulge) the battery cell's internal structure, causing a short circuit.
7. External circuit shorts or compression can cause the battery cell to heat up, resulting in internal shorts and reduced battery life.
8. Do not expose to temperatures above 60°C.
9. Keep away from fire sources to prevent explosion.

Battery Warranty

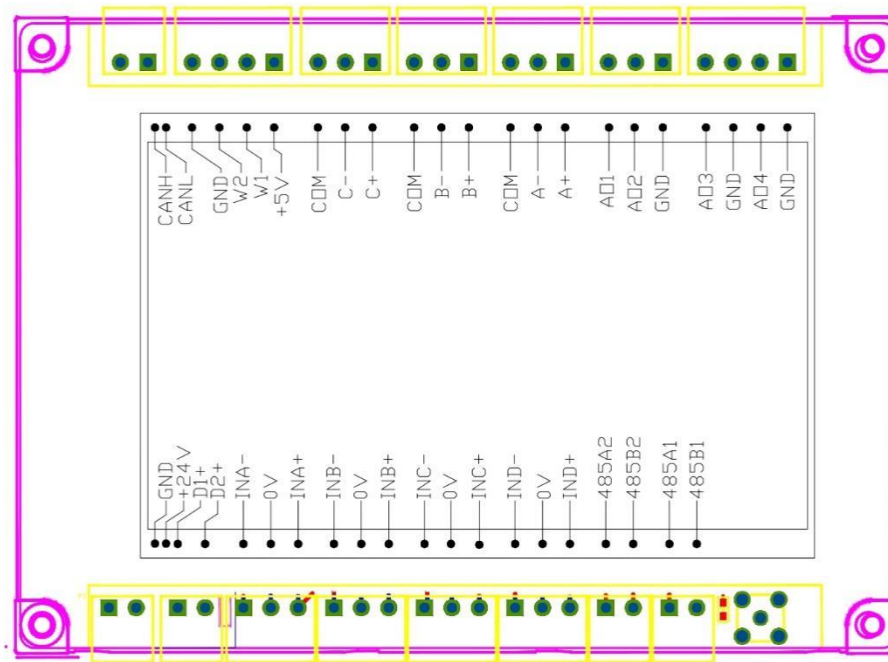
1. Under non-human damage conditions, the lithium battery has a warranty period of 6 months.
2. Batteries charged with non-original chargers will not be covered by the warranty.
3. Batteries short-circuited due to water ingress in the remote controller will not be covered by the warranty.
4. Batteries with shortened usage time due to remote controller drops, impacts, or other external forces will not be covered by the

2.2.4 Remote Control Indicator Status Table

Indicator Status	Description
Left indicator green constant	Normal wireless communication standby mode after powering on remote control and receiver
Left indicator flashing slowly every 1s	Normal operation mode after pressing Start/Horn on the remote control
Both left and right indicators red	Wireless communication abnormal
Right indicator red constant	Emergency stop button pressed
Right indicator flashing slowly green	Low battery
Both indicators flashing fast every 0.5s	Wireless RF board abnormal
Left indicator flashing fast after Start/Horn	Joystick not in neutral position

2.3 Receiver Introduction

2.3.1 Wiring Diagram



2.3.2 Receiver Interface Description

- 1.W1, W2 connect to a 10k potentiometer; GND, +5V supply power to the potentiometer.
- 2.When the remote control 15 button is flipped up, A+ and COM are connected; when flipped down, A- and COM are connected.
3. When the remote control 10 joystick is flipped up, B+ and COM are connected, C- and COM are connected. When flipped down, B- and COM are connected, C+ and COM are connected.
- 4.When the remote control 17 switch is flipped up, D1+ and D2+ are connected; when flipped down, D1+ and D2+ are disconnected.

5.Remote control ⑦ knob: 0-10 settings correspond to a 0-10V linear voltage signal output from AO1.

6.Remote control ⑧ knob: 0-10 settings correspond to a 0-5V linear voltage signal output from AO3 and AO4.

7. Information processing for other remote control knobs and buttons is transmitted to the vehicle through the receiver's CAN and RS-485 communication. Specific protocol details need to be discussed with the manufacturer.

3 Technical Parameters

3.1 Remote Control Technical Parameters

Item	Parameter	Item	Parameter
Switch Points	9	Frequency Range	420-450MHz
Analog Joysticks	4	Frequency Interval	1.25MHz
Indicators	3	Transmission Power	10dBm
Display	3.5" Color Screen	Reception Sensitivity	-115dBm
Emergency Stop	1	Communication Distance	100m
Power Switch	1	Encoding Method	CRC+Hamming+Manchester+Reed-Solomen
Battery	7.4V Rechargeable Lithium Battery	Anti-interference	Automatic Frequency Hopping
Battery Capacity	5000mah	Communication Direction	Bidirectional
Runtime	12H	Panel Screen Printing	According to Drawings
Dimensions	290*170*160mm	Carrying Method	Shoulder Strap
Enclosure Material	High-strength Engineering Plastic	Temperature Range	-30—60℃
Transmitter Antenna	Exterior Cylindrical Rod	Protection Level	IP65

3.2 Receiver Technical Parameters

Shell material	Plastic			temperature range	-40—85℃				
Supply voltage	DC 9V ~ 32V			Degree of protection					
port type	AI	DI	PI	DO	PWM	AO	CAN	485	wireless
Number of ports	2	8	0	7	0	4	1	2	1

4 Simple troubleshooting

Fault conditions	fault analysis	terms of settlement
The system does not respond after starting the remote control	Remote control is not powered on	- Carefully check whether the battery is damaged, or the contact point has pollutants that cause poor contact - Replace a full battery - Contact our after-sales service if necessary
The green indicator on the right side of the remote control flashes slowly for 1 second	Low battery	- Replace a full battery - Contact our after-sales service if necessary
The left indicator of the remote control is always red, and the right indicator is always red	Abnormal wireless communication	- Check whether the external antenna of the remote control is tightened - Check whether the external antenna of the receiver is tightened - Contact our after-sales service if necessary

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5 FCC Statement BT

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

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

Changes or modifications 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: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.