



Industrial Wireless Remote Control Operation and Maintenance Manual

Classification: Confidential

Version: V10

Composed by Research & Development Department

Reviewed by: Zhang Guoqing

Approved by: Liu Yanyu

Date: 2025.7.8

Declaration

This product is an intrinsically safe wireless remote control device designed for use in explosive atmospheres. It may be operated in hazardous locations only after a formal assessment has confirmed its suitability, and all relevant national and industry safety regulations must be strictly observed.

Before using the remote control, please read the corresponding manual carefully and ensure a fully understanding of its contents to guarantee correct usage.

- The copyright of this manual is owned by the manufacturer. No individual or organization may reproduce, modify, distribute, or use it for commercial purposes in any form without prior written permission.
- Product specifications, structural design, and software functions are subject to change due to technical upgrades without prior notice. Please refer to the latest accompanying manual or the information published on the official website.
- The manufacturer has made every effort to ensure the accuracy of the information in this manual but assumes no legal liability for direct or indirect losses resulting from printing errors, omissions, or misunderstandings.
- Any operations, modifications, or uses not explicitly authorized in this manual are considered prohibited. Users must not disassemble, repair, or attempt to expand the functionality of the device without authorization.

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1. Overview

1.1. System Composition

RPP-WRC-V34 ex-proof remote control has the following major components:

- Remote control × 1 set
- Charger × 1
- Rechargeable battery (7.4V DC, 3200mAh) × 2
- Antenna × 1
- Operation manual × 1



Fig 1-1 Remote Control

1.2. Technical Requirements

Remote Control:

Item	Specifications
Casing Material	Flame retardant material
Dimensions	245 mm × 175 mm × 140 mm
Weight	≈1.5 kg (battery included)
Operation Interface	Marked keys & status indicator

Item	Specifications
Screen	3.5-inch OLED, green
Protection Grade	IP65 (dust and water proof)
Battery	7.4 V DC / 3200 mAh Lithium
Charging Voltage	Maximum 8.4 V DC (with original charger)

Wireless Specifications:

Item	Specifications
Frequency	9KHz~5.8GHz
Transmitting Power	≤ 30 dBm (1 W)
Effective Range	100 meters (with no obstacles and significant interference)
Working Temperature	$-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$

1.3. Controls and Indicators

Fig 1-2 shows the functions of the switch, buttons and indicators:

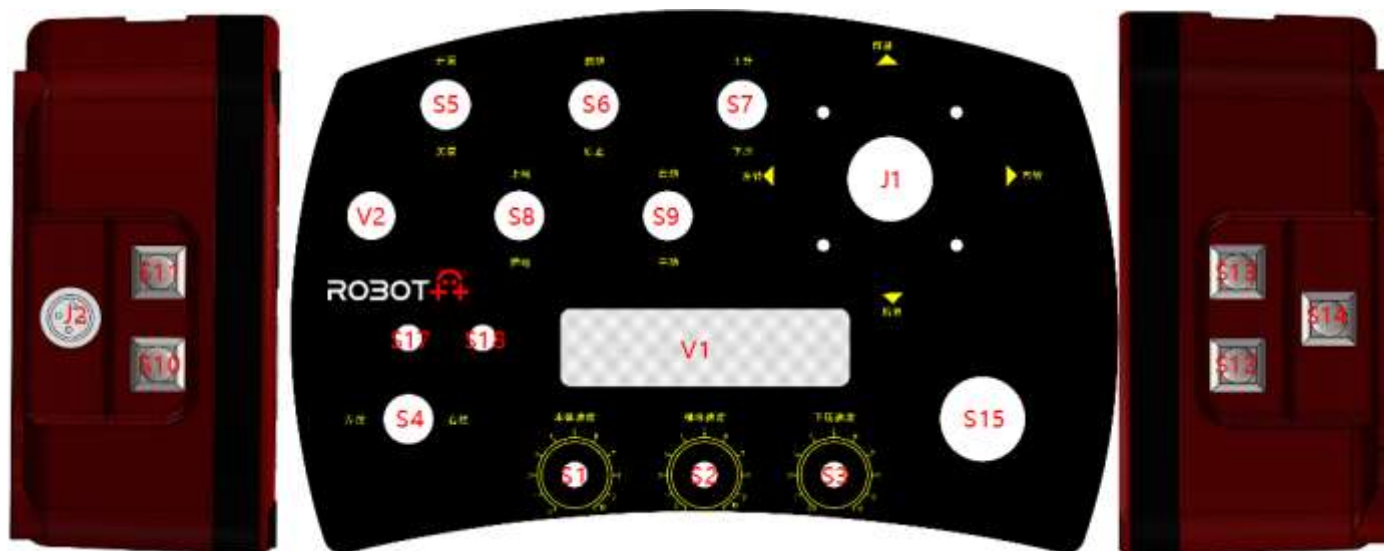


Fig 1-2 Remote Control Switches and Buttons

S1~S3	Knob: Analog output (0~255)
S4	3-position toggle switch, switching output
S5~S9	2-position toggle switch, switching output
S10~S13	Buttons, switching output
S14	Power on function: press and hold (2-3 seconds) to power on. Red indicator light (S17) blinks means there are some switches not reset. Reset the corresponding keys or buttons and restart the remote, until the screen lights up then S14 button can be released. V1 should displays normally.
S15	Emergency stop button and power off button, switching output
V1	Display screen to show information and status, can be customized
S17	Off by default. When it blinks, there are 2 possible situations: 1. The remote and signal receiver not connected, restart the receiver or the remote to try again. 2. Error occurs in the equipment, check the error codes
S18	Off by default. When it blinks, it indicates that the battery is low and should be changed.
J1	Robot movement and direction control. Hold to run under manual mode, trigger it to run under automatic mode.

The key definitions may vary depending on the product model and version. However, some key functions remain largely unchanged. For the explosion-proof wireless remote control, the instructions are as follows:

- S1: Robot Speed Knob
0–10 corresponds the speed of 0–10 m/min, used to stepless adjust the robot speed
- S2: Backward Horizontal Compensation (for horizontal operation under auto-mode)
To adjust the angle parameters that automatically correct the deviation of the robot during its backward movement
- S3: Forward Horizontal Compensation (for horizontal operation under auto-mode)
To adjust the angle parameters that automatically correct the deviation of the robot during its forward movement
- S4: When the equipment is equipped with a linear module and a recycling bag, by turning the S4 switch to the left, the linear module can be triggered to automatically move to the position of the recycling bag. Not effective for other equipment.
- S5: Solenoid Valve Control
Up-position: Actuate the solenoid valve. Reset (middle): Switch off the solenoid valve.
- S6: Arm / Linear Module Switch
Up-position: Start the swing arm or linear module (execute corresponding actions according to current operation mode)
Reset: Stop the swing arm or linear module immediately.
- S7: Operation module switch (Auto-mode)
Up-position: Robot will operate in automatic mode.
- S8: Robot Control Switch
Up-position: Enable the robot control and the robot will be ready to move.
- S9: Operation module switch (Cruise-mode)
Up-position: Robot will operate in cruise mode.

Standard Operation Process

1. Enable the control of the robot: Set the S8 control switch to the ON position and

- wait for 5 to 8 seconds. This is to confirm that the system has been ready to use
2. Set a low speed: rotate the S1 knob to a low-speed stage (1-3 recommended)
 3. Test run: move the robot shortly with forward, backward, left-turn and right-turn operations. Make sure the movement orders respond normally and correctly.
 4. Start the module: switch on the S6 switch to start the swing arm or linear module, wait for it to initialize or return to zero point
 5. Start the operation: After making sure all the modules are in normal condition, switch to the auto or cruise mode as needed (S7/S9), and gradually adjust to the speed required for the operation to carry out normal operations.

It is strictly prohibited to operate at high speed or commence formal operations before the trial run and limit calibration are completed;

During the operation, it is necessary to ensure that personnel remain within the safe area and avoid entering the robot's movement path.

2. Repair and Maintenance

To ensure that the remote control can operate safely and reliably for a long time in explosive hazardous environments, daily inspections and regular maintenance must be strictly carried out. All operators must be trained on the use of explosion-proof equipment and it is strictly prohibited to disassemble or perform unauthorized maintenance in hazardous areas.

2.1. Daily Inspections

When the wireless remote control is operating normally every day, the following items should be inspected, as shown in Table 1

Table 1 Daily Inspection

No	Item	Inspection Details & Requirements
1	Appearance	Check whether the casing has cracks, deformations, peeling paint or impact marks. Make sure that all fastening screws are not loose or missing
2	Structures	Check whether the button installation is firmly locked. Ensure that the sealing ring is not exposed, aged or misaligned, and verify that there is no looseness at the antenna interface

No	Item	Inspection Details & Requirements
3	Battery Status	Check if the battery has any bulging, leakage or strange smell. After power on, verify if the display voltage is greater than 7.0V (nominal 7.4V). If the battery is low on power, replace it with the original certified intrinsically safe battery immediately
4	Antenna Status	Check whether the antenna housing is damaged or bent, and whether the connections are secure; do not use broken or modified antennas
5	Respond Status	Operate each function key to ensure that the robot's movements are sensitive, without delay or mis-triggering. In case of signal interruption or malfunction, stop using it immediately and conduct an investigation.
6	Protection Grade	Check that there are no sand, water stains or corrosive residues in the key gaps, interfaces, and edges of the display screen, and ensure that the IP65 protection function is maintained

2.2. Regular Maintenance

- In addition to daily inspections, the remote control should undergo a comprehensive maintenance every 1 month, carried out by technicians with explosion-proof qualifications
- Clean the surface of the casing and the gaps between the buttons, using a dry soft cloth or an anti-static brush, and do not use organic solvents or high-pressure water for rinsing
- Check whether the internal connection terminals (only by professionals operating after the power is cut off in a safe area) are loose or oxidized
- Assess the battery life
- Record the maintenance results and compile, as a basis for equipment safety traceability

2.3. Battery Information

This remote control is equipped with an intrinsically safe lithium-ion battery pack,

and can only be used with the model and charging adapter specified by the manufacturer.

Item	Specifications
Model	7.4 V DC / 3200 mAh
Dimension	38 mm × 20 mm × 70 mm
Standard Charging Condition	Constant current 0.2C ($\approx$ 640mA) Constant voltage 8.4 V Cut-off current 0.01C ($\approx$ 32mA)
Standard Discharge Condition	Continuous current 0.2C ($\approx$ 640mA) Cut-off voltage 5.5 V
Working Temperature	Charging: 0 °C ~ +45 °C Discharge: -10 °C ~ +55 °C (RH 60% $\pm$ 25%)
Storage Temperature	$\leq$ 1 year: -10 °C ~ +25 °C $\leq$ 3 months: -20 °C ~ +40 °C $\leq$ 7 days: -20 °C ~ +60 °C

Battery Safety Requirements

The following regulations must be followed; otherwise, there may be risks of fire or explosion:

- ◆ Battery replacement or charging can only be performed in non-hazardous areas
- ◆ Non-original, damaged or bulging batteries are prohibited from use
- ◆ When charging, keep away from flammable materials and avoid direct sunlight
- ◆ Used batteries must be recycled in accordance with local regulations and must not be discarded randomly



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The information provided regarding product characteristics and applicability is for informational purposes only. The scope of products delivered and services rendered shall be exclusively determined by the subject matter of the specific contract. We assume no liability for errors or omissions. Technical data are subject to change without prior notice.

FCC Statement

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.

FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and consider removing the no-collocation statement.

This device complies with Part15 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.

Caution!

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.