

R1000M series wireless remote control _SPEC (production specification book).

V1.4

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1、 overview

R1000M series remote control is a switch type industrial wireless Remote Control independently developed by Zoomlion Productions, contains R1000M series transmitter and RMINI-M1 series receievr or RBS908-M1 series receievr aggregate, service sub-GHz communication, and has AFS and AFM function. This wireless Remote Control uses wireless communication technology with high reliability to transmit wireless Remote Control commands, with The advantages of reliable wireless Remote Control , low costs and easy services.

2、 Technical Indicators

2.1 Performance Indicators

Table 1 Performance indicators of R1000M series wireless Remote Control

project	Sub-item	index
Transmitter display	forming	1.8 inches, dot matrix LCD screen, resolution 128*64
Receievr display	forming	1 digital tube and 3 indicators
Receievr interface	CAN	RMINI-M1 series: 1 channel RBS908-M1 series: 2 channels
	Input	RMINI-M1 series: None RBS908-M1 Series: 4-way (2-way reserved not pasted) DI/PI/AI multiplexing: DI Default active-high, 0-32V voltage threshold PI frequency acquisition, support 0-2KHz AI 0-32V voltage input
	figure output	RMINI-M1 series: None RBS908-M1 Series: 4-channel HSO/PWM multiplexing, single-channel driving energy 3A,
	Analogue output	RMINI-M1 series: None RBS908-M1 Series: 2 channels (1 reserved unpasted) AO for output 0-5V analog signal
Power supply	transmitter	Built-in single 3000mAh 18650 battery

	Running voltage	Receievr: DC 24V (9-32V).
	Rated current	The transmitter $\leq 150\text{mA}$ @ 3.6V, and the receievr $\leq 50\text{mA}$ @ 24V
Wireless	frequency area	EU1: 433.05-434.79MHz US: 902-928MHz
	working distance	working sight distance $\geq 100\text{m}$
	Transmit power	EU5: $\leq 10\text{mW}$ US: $\leq 125\text{mW}$ (frequency hopping).
	signal degree of sensitivity	Better than -105dBm
	Frequency hopping functions	AFS (Automatic frequency Selection), AFM (Frequency Hopping Management function)
	Antennas	The transmitter is built-in, and the receievr is external
Battery performance	Operating time	battery service time ≥ 16 hours
Assurance	Emergency stop	Including active emergency stop and passive emergency function
Enclosure	Stuff	engineering plastic
environment	Operating	-20°C~70°C
	storage temperature	-40°C~85°C
	Operating dampness	0~95%, no condensation
	Levels of protection	Transmitter IP65, receievr IP67
Weld size	transmitter	206.2mmx64.5mmx42.3mm
	Receievr	RMINI-M1 series: 92mmx82mmx40mm RBS908-M1 series: 137.7mmx102mmx36.6mm

2.2 production function

2.2.1 Transmitter functions

2.2.1.1 Transmitter panel working

This wireless Remote Control requires 12 working buttons, which can be function customized according to customer needs.

2.2.1.2 Emergency stop switch

There is 1 emergency stop switch on the top of the transmitter, and the emergency stop switch is photographed, which is always off, noCut off the transmitter supply and report the system emergency stop information to the receievr.

2.2.1.3 Transmitter display screen

The wireless Remote Control transmitter supplies an LCD display for key pressesinformation prompts and other status information display.

2.2.1.4 Power on and off

Buttons can be customized according to user needs switch machine, emergency stop switch machine orblending switch machine function.

For example, when service key switch function:

When the power is off, press and hold the power button for more than 3s to turn the transmitter on.

When the power is on, press and hold the power button for more than 3s to turn off the transmitter.

When the charging interface is plugged in, the transmitter turns on.

Long time without working transmitter supply power failure.

2.2.2 RMINI-MI series receievr functions

2.2.2.1Overview of accept functions

The receievr machine communicates with the transmitter through wireless mode, and communicates with the host through 1-channel wired CAN communication mode, using the central integrated low-cost encloser. The interface is wicked out, and the antenna adopts an external antenna. wireless Remote Control receptor supports self-definition CAN bus communication.

2.2.2.2 Display of receievr status

The receievr supports 3-channel LED indicator light, 1-digit 8-segment digital tube for indicationIndication of whether the receievr is powered on and its status.

Indication light description:

Table 2 Definition of receiver indication lamp

serial number	Definition	color	description
1	Level 1 signal indication lamp	red	Solid: The binding timed out Normally off: receiver is normal
2	radiofrequency indication lights	green	Solid: Binding Normally off: Not binding
3	supply indication lights	red	Solid on: The supply is on Normally off: The supply is off

Digital tube display description:

Different figure display have different defect status, depending on the defect status. The corresponding figures are displayed, and small figures take precedence in case of multiple defects at the same time.

Table 3 Definition of 7 segments of receiver digital tube

Display	Definition	description
extinguish	The equipment is normal, dormant or shutdown	The digital tube goes out
1	Emergency stop status	There is emergency stop information
3	Inner communication is abnormal	function assurance the communication of the small MCU is abnormal
4	The high-drive chip is abnormal	The high-drive chip is abnormal
5	The CAN communication is abnormal	The CAN communication is abnormal

7	Wireless communication is abnormal	Wireless communication data is abnormal The highfrequency board communication is abnormal
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Different dot flashes frequency mean different meanings, as described in the table below

Table 4 Definition of dots in the receievr digital tube

How dots are displayed	Status reason
1 second on, 1 second off	The main power supply is supply, and the equipment is running normally
Solid on or off	The equipment is not working properly and may have crashed

2.2.3 RBS908-M1 series receievr functions

2.2.3.1 Overview of accept functions

The receievr contains 2 wired CAN and IO modules, 2 CAN supports bus resistance configuration, and IO modules contain multiple channelsinput as well as figure output and analogue output, which can meet a wide range of needsservice scenario requirements.

2.2.3.2 receievr machine commissioning function

The IO module is parameter modified function through the CAN bus to realize the control parameterCommissioning, calibration.

2.2.3.3 Receievr indication light

Table 5 Definition of receievr indication lamp

serial number	Definition	color	description
1	Secondary signal indication lamp	red	Solid: Invalid data Normally off: Effective data
2	Level 1 signal indication lamp	red	Solid: The binding timed out Normally off: receievr is normal
3	radiofrequency indication lights	green	Solid: Binding Normally off: Not binding
4	supply indication lights	red	Solid on: The supply is on Normally off: The supply is off

3、construction weld size

3.1 dimensional drawing

encloser is injection molded from engineering plastic and assembled with silicone step seal. shel exterior has no special treatment, no sharp burr and sharp edges. The nominal weld size of the shelf profile is as follows:

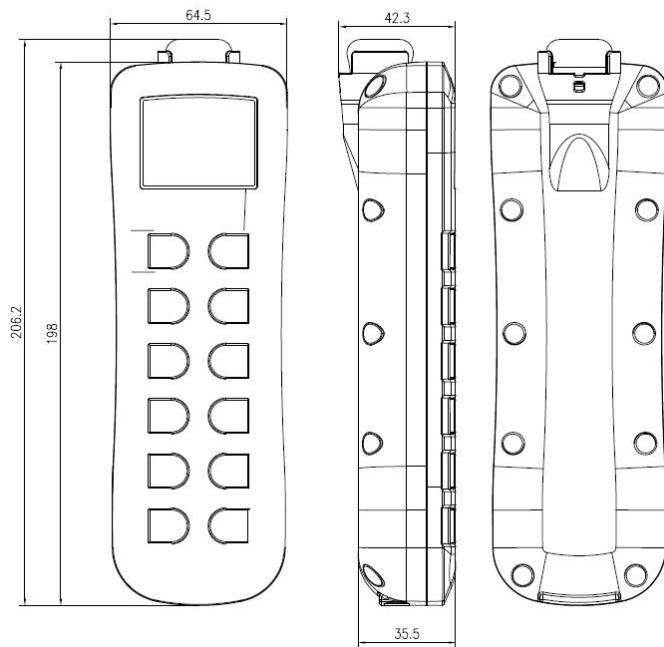


Figure 2 dimensional drawing of R1000M series transmitters

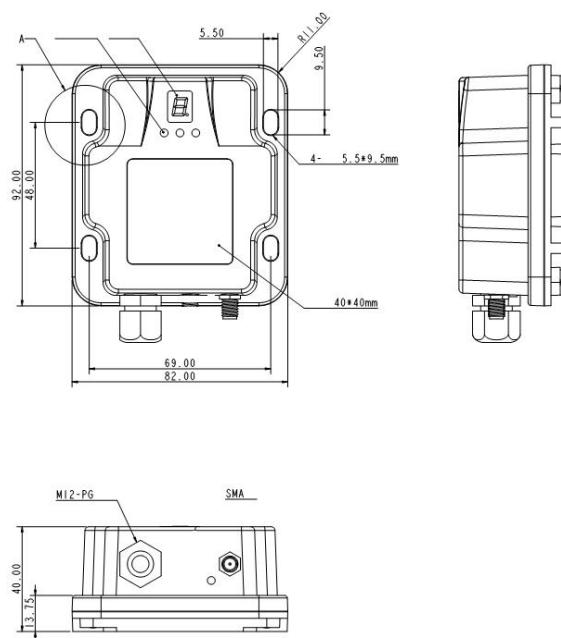


Figure 3 Dimensional drawing of RMINI-M1 series receiver

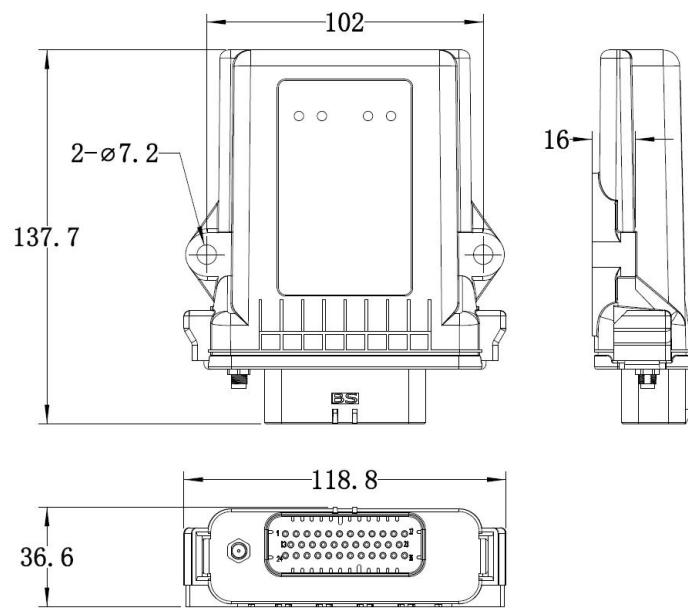


Fig.4 Dimensional drawing of RBS908-M1 series receiver system

3.2 receiver antenna dimensional drawing

receiver antenna are divided into two frequency bands, 915MHz and 433MHz, according to the service regions form. The antenna 915MHz antenna is a glue stick antenna, and the 433MHz has a glue bar antenna and glue stick antenna with 3 meter feeder are forming and optional, as shown in the figure below.

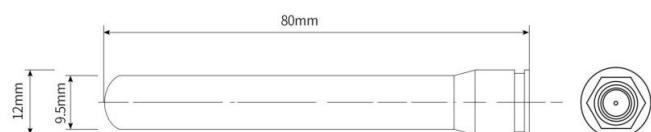


Figure 5 FCC: 915 MHz antenna dimensional drawing

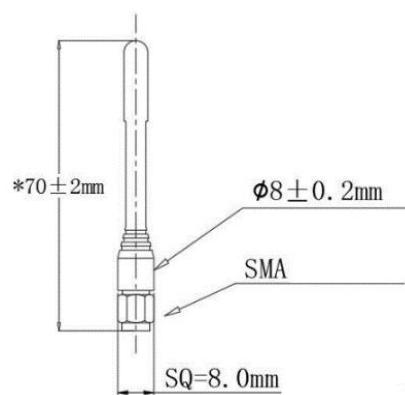


Figure 6 Dimensional drawing of CE: 433MHz antenna 1

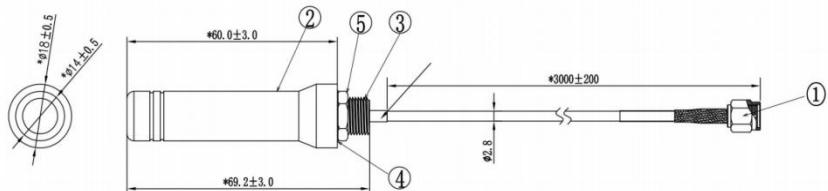


Figure 7 CE: dimensional drawing of 433MHz antenna 2

3.3 Conjunction and matching attachment plug, attachment plug wire diameter requirements

3.3.1 RMINI-M1 series receiver requirements

The receiver comes with a non-detachable cable with customizable cable lengths.

Host end harness butt attachment plug sheath model: Amphenol AT06-4S.

The terminal model is related to the wire gauge used, AT62-16-0622 is preliminarily recommended, please select according to the wire gauge comprehensively.

fastening the cable in the cable management duct and wick to the connection terminalConnection.

3.3.2 RBS908-M1 series receiver requirements

The receiver does not have its own cable, and the cable can be customized according to your needs, or you can make your own cable according to the supply jump model.

The host end wiring harness is plugged attachment plug sheath model: Tyco 776164.

The terminal model is related to the wire gauge used, the preliminary recommendation is 770520-1, the use of 0.50.5mm² AVSS, please services according to the actual situationSetting for services.

fastening the cable in the cable management duct and wick to the connection terminalConnection.

3.4 How to assemble

3.4.1 RMINI-M1 series receiver machine assemble mode

a. When M4 nuts have been reserved on the assemble liners, use 4 M4*25 machine threads to combination screw fasteningReceiver.

b. When there is no reserved M4 nut for the assemble liner, use 4 3.9*2 roundhead 5 drill tails to self-tap screw fasteningReceiver.

antenna erection position requirements: There is no obstruction around the antenna, and it is recommended to leave the groundThe elevation is more than 1.5 meters.

After antenna fastening assemble yoke, lead the feeder to the cabinetinner is connected to the receiver machine antenna interface, and the feeder is hogging at a minimumThe radius is 30mm, it is recommended to fasten the long feeder coil in a circle, and fastening the feeder with a cable tieon constructions.

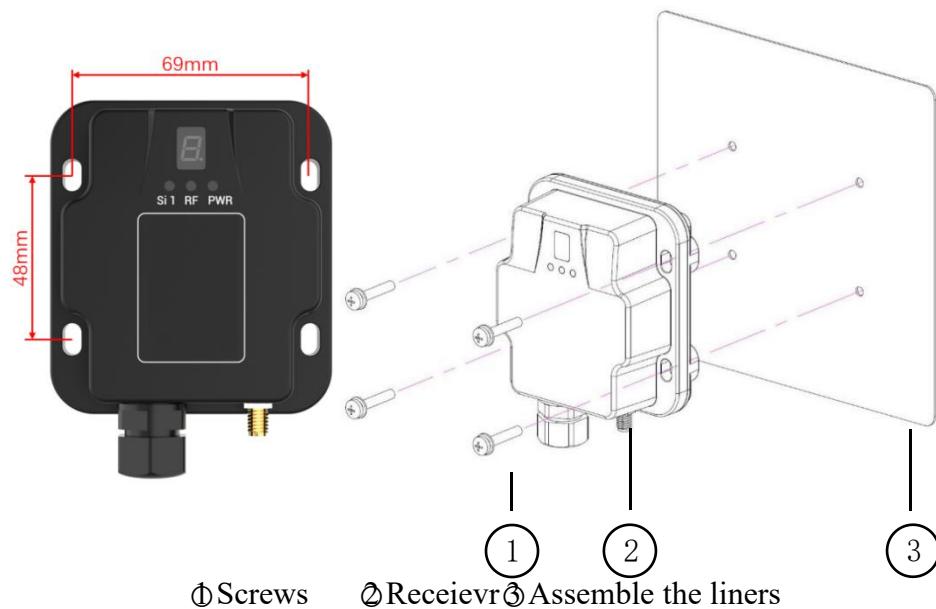


Fig.8 receiver machine assemble conventional diagram

3.4.2 RBS908-M1 series receiver assemble mode

- When M5 nuts have been reserved on the assemble liner, use 2 M5*30 machine threads to combination screwfastening receiver machine.
- When there is no reserved M5 nut for the assemble liner, use two 4.8*3 roundhead 2 drill tails to self-tap screw fastening Receiver.
- The mounting hole bay is 10.2mm.

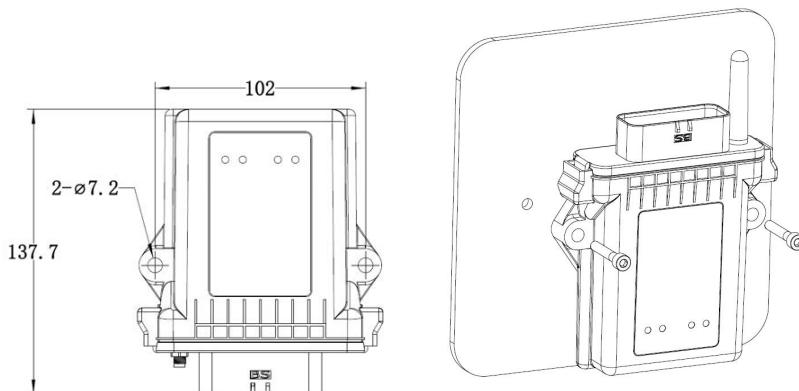


Fig.9 receiver machine assemble conventional diagram

4、interface definition

TABLE 6 CABLE interface definition of the RMINI-M1 series receiver machine

Signal name	Pin number	Functions	description	remark	color
+24V	A1	The supply is positive	24V supply input	Wireless Remote Control powered	
GND	A2	Supply negative	Supply ground	Wireless Remote Control powered	
CAN_H	A3	CAN_H	CAN communication interface	120ohm terminating resistance configuration	
CAN_L	A4	CAN_L	CAN communication interface	120ohm terminating resistance configuration	
ANT	Antenna mount	antenna interface	433/915MHz antenna interface, SMA Type K interface	Glue stick antenna, no external feeder	

Table 7 RBS908-M1 series receiver host interface definition

Signal name	Pin number	Functions	description	remark	color
CAN1_H	14	CAN1_H	CAN communication		
CAN1_L	13	CAN1_L			

CAN2_H	16	CAN1_H	CAN communication		
CAN2_L	15	CAN1_L			
HSO/PWM01	1	figure output reuse	High-side output/PWM output 01		
HSO/PWM02	5	figure output reuse	High-side output/PWM output 01		
HSO/PWM03	9	figure output reuse	High-side output/PWM output 01		
HSO/PWM04	12	figure output reuse	High-side output/PWM output 01		
24V_IN	21-23	The supply is positive	24V supply input	The wireless Remote Control receievr is powered	
GND	33-35	Supply negative	Supply ground		
DI//PI/AI01	26	Input multiplexing	DI/PI/AI input 01		
DI//PI/AI02	27	Input multiplexing	DI/PI/AI input 02		
DI//PI/AI03	28	Input multiplexing	Reserved (unpasted)		
DI//PI/AI04	29	Input multiplexing	Reserved (unpasted)		
AO01	24	Analogue output	AO output 01	0-5V analogue quantity output	
AO02	25	Analogue	Reserved (unpasted)		

productions department

		output			
obligate	2-4,6-8,10-11,17 -20,30-32	NC			
ANT	Antenna mount	antenna interface	433/915MHz antenna interface, SMA Type K interface		

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.

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.

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

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 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. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.