



Mokar RSE

User Guide

Huali_SmartWay (Wuhan) Science and Technology Co., Ltd.



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1、 Document content

This document introduces the functions, interfaces, performance specifications and operation methods of Mokar RSE products developed by Huali_SmartWay (Wuhan) Science and Technology Co., Ltd., in order to provide reference for product users.

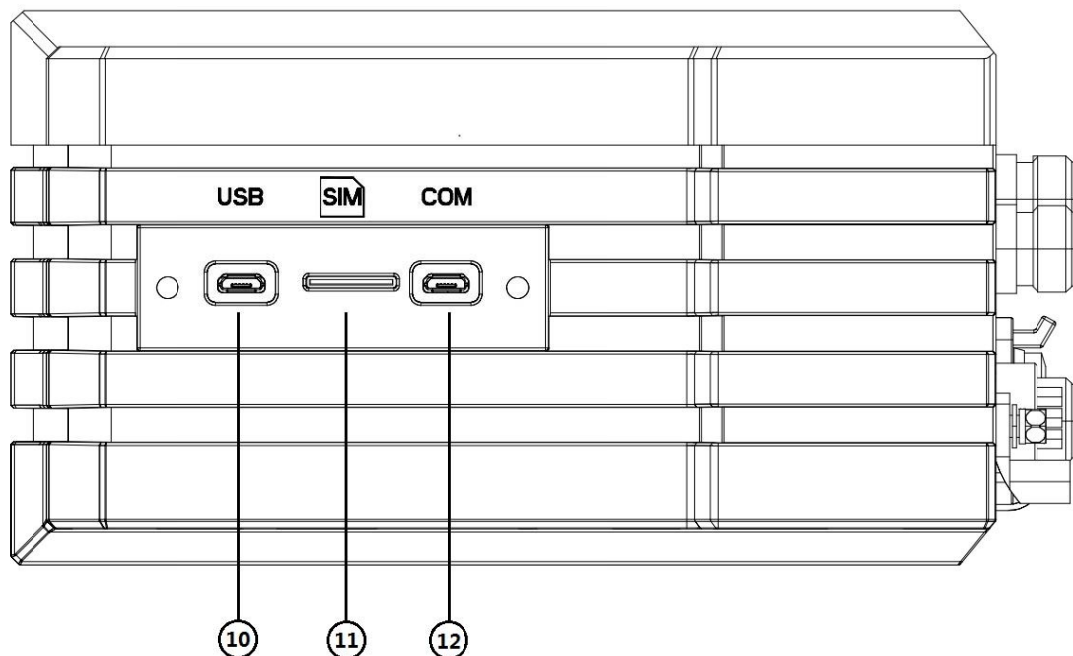
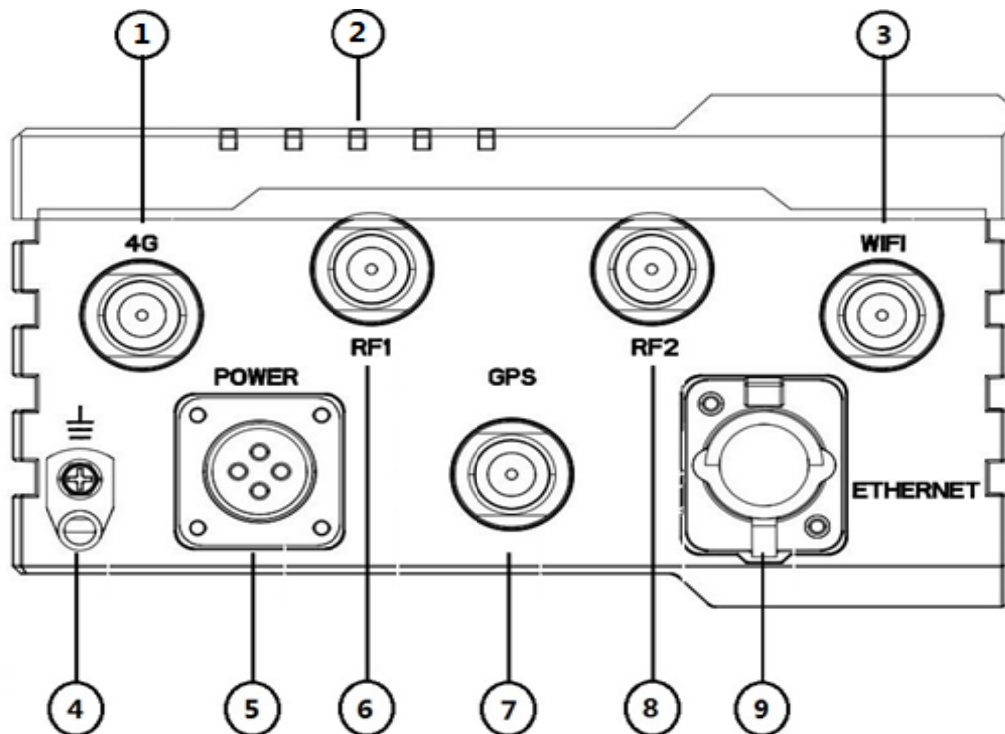
2、 Introduction of equipment

As a new generation of V2X roadside product, MOKAR RSE, with its advanced VANET wireless communication technology, can meet domestic and overseas requirements for different V2X applications in the fields of connected vehicle and intelligent traffic applications.

As a core product of infrastructure intelligentization for Connected Vehicle applications, Mokar RSE supports vehicle-road information real-time interaction. It is integrated with modularized DSRC V2X, GNSS, PoE Ethernet and other communication extensions (3G / 4G, etc.). With running applications based on MOKAR V2X WAVE protocol stack, it especially provides optimal application flexibility for V2X innovative services.



3、Interface Description



RSE Device Interface/Port Diagram

Interface/port description is as follows:

number	Interface/Port Description
1	4G Antenna interface



2	Device indicator
3	Wifi Antenna interface
4	Ground line
5	Power interface (Retain)
6	V2X Antenna interface 1
7	GPS Antenna interface
8	V2X Antenna interface 2
9	48V PoE interface
10	USB interface (OTG)
11	SIM Card Slots
12	Debug serial por

4、Specifications

WAN		
Mobile Network	WCDMA /FDD-LTE	
Band Support	WCDMA:B2/ B4/ B5 FDD-LTE:B2/ B4/ B12	
Power Class	Class3（24dBm+1/-3dB）for WCDMA bands Class3（23dBm±2dB）for LTE FDD bands	
Antenna connector	BNC	
GNSS		
GPS/QZSS Frequency	L1 C/A:1575.42MHz	
GLONASS Frequency	L10F: 1602Mhz	
BeiDou Frequency	B1: 1561.098MHz	
Galileo Frequency	E1B/C1: 1575.42MHZ	
Positioning accuracy	2.5m CEP 1.5m CEP(with SBAS)	
Sensitivity	Reacquisition	-160dbm
	Cold start	-148dbm
	Hot start	-157dbm
Time-To-First-Fix	Cold start	26s
	Hot start	3s
	Aided starts	1s
Antenna connector	BNC with active GPS Antenna	
V2X		
Frequency	5.850-5.925GHz	
Power	-10~23dbm	
Antenna connector	2* BNC	
WLAN		
Frequency	2.4GHz	



Max TX Power	11b	16dBm
	11g	15.5dBm
	11n	15dBm
Sensitivity	11b	-88dBm
	11g	-74dBm
	11n	-70dBm
Antenna connector		BNC
Operating Environment		
Operating Temperature		-40~+85℃
Operating Humidity		<95%RH
Protection grade		IP67 and NEMA 6

5、System operation instructions

5.1 Connection method

Mokar RSE device can be connected using a PC or laptop in the following two ways:

- SSH
- Serial port

1、Connect via SSH (user name and password are given in section 5.2)

a、Connect via Ethernet

[ssh root@192.168.253.10](#)(This IP is the factory default Ethernet IP address)

b、Connect via Wifi AP (SSID: IMASTER_XXXX PassWord: hL20170817)

[ssh root@192.168.10.1](#)(This IP is the factory default WiFi AP IP address)

2、Connect via Serial port

The default serial port baud rate is 115200

5.2 Default username and password

username: root

password: hL2017.moKar



5.3 System Upgrade

a、Use the WinSCP tool to save the system upgrade files (including upgrade.img.gz and upgrade.txt) to the system file path '/upgrade' through SSH.

b、Root account login system, use sysupgrade command 'sysupgrade' to do system upgrade

[sysupgrade](#) --- Do not clear user data

[sysupgrade -c](#) --- Clear user data

[sysupgrade -f](#) --- Restore to factory version

[sysupgrade -l](#) --- Check the upgrade result

c、Check the system version

```
root@ibox:/# cat version.txt
rse-ver:3.6.0.0
```

6、 Program operation instructions

6.1 Program installation

a、Use WinSCP tool to save the program upgrade file (install_RSE.run) to the system file path /var through SSH

b、Execute permissions to upgrade files

[chmod 777 install_RSE.run](#)

```
root@ibox:/var# chmod 777 install_RSE.run
```

c、Execute the upgrade file in /var

[./install_RSE.run](#)

```
root@ibox:/var# ./install_RSE.run
```

6.2 Common operations

a、Check program status

Execute the [./S99initapps.sh status](#) command in the /usr/local/install to view the working status of each process in the program.

running --- The process is working

stopped --- The process stops



```
root@ibox:/usr/local/install# ./S99initapps.sh status
Application Status
chronyd running
MokarCAND stopped
gpsd running
wsmd running
ldm running
v2xd running
appd running
hmid running
```

b、Stop the program

Execute the [./S99initapps.sh stop](#) command in the /usr/local/install

c、Starting program

Execute the [./S99initapps.sh start](#) command in the /usr/local/install

d、Restart program

Execute the [./S99initapps.sh restart](#) command in the /usr/local/install

7、Precautions

1. During the use of equipment, ensure that there are GNSS signals and 4G signals to ensure that the equipment modules can work normally.
2. When the equipment is used outdoors, attention should be paid to lightning protection, waterproof, and high temperature protection to avoid accidental damage to the hardware.
3. If there is a problem with the device, please contact our sales and technical support immediately.

8、Technical support and feedback

Question feedback mailbox: support@ismartways.com

FCC Regulations

(15C) 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.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

(15B) 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 FCC RF radiation exposure limits set forth for an uncontrolled environment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter and must be installed to provide a separation distance of at least 20cm from all persons.