

Mokar RSE

User Guide

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



CATALOGUE

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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

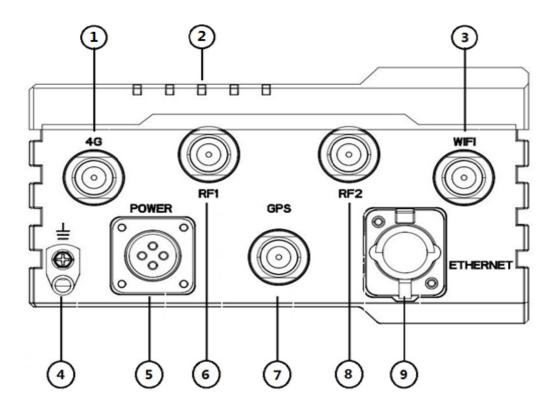
As a new generation of V2X roadside product, MOKAR RSE, with its advanced VANET wireless communication technology, can meet domestic and overseas requirements for different V2X applications in the fields of connected vehicle and intelligent traffic applications.

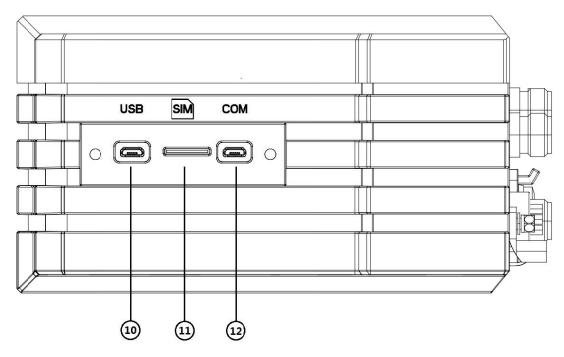
As a core product of infrastructure intelligentization for Connected Vehicle applications, Mokar RSE supports vehicle-road information real-time interaction. Itis integrated with modularized DSRC V2X, GNSS, PoE Ethernet and other communication extensions (3G / 4G, etc.). With running applications based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

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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	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 WCDl Class3 (23dBm \pm 2dB) for LTE FDI				
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)				
	Reacquisition	-160dbm			
Sensitivity	Cold start	-148dbm			
	Hot start	-157dbm			
	Cold start	26s			
Time-To-First-Fix	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				

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	11b	16dBm			
Max TX Power	11g	15.5dBm			
	11n	15dBm			
	11b	-88dBm			
Sensitivity	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) <u>ssh root@192.168.10.1</u>(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



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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

```
<u>sysupgrade</u> --- Do not clear user data

<u>sysupgrade -c</u> --- Clear user data

<u>sysupgrade -f</u> --- Restore to factory version

<u>sysupgrade -l</u> --- 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
```

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```
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 <u>./S99initapps.sh start</u> 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.