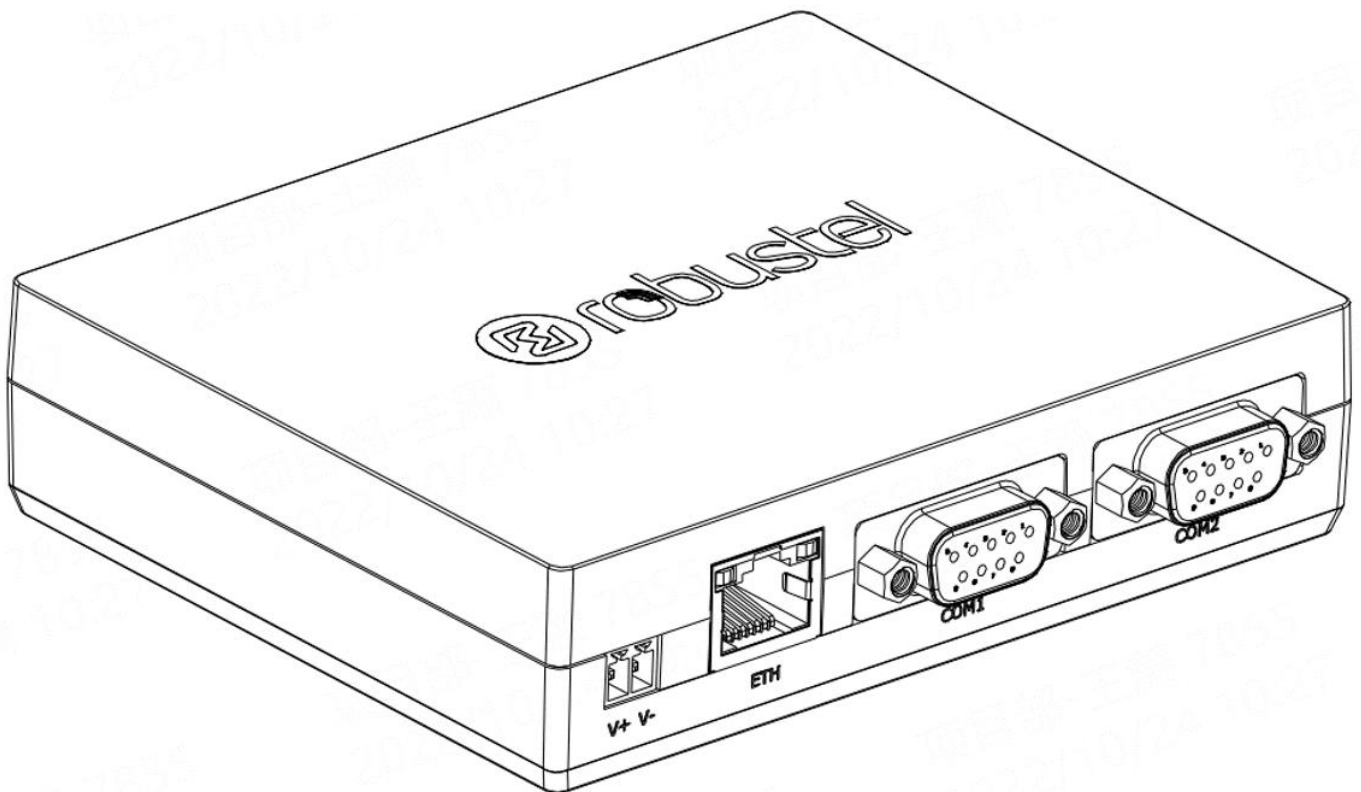robustel

R1500

Hardware Manual

Version: 1.0.0

Date: July 6, 2022

Regulatory and Type Approval Information

Table 1: Toxic or Hazardous Substances or Elements with Defined Concentration Limits

Name of the Part	Hazardous Substances									
	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)	(DEHP)	(BBP)	(DBP)	(DIBP)
Metal parts	o	o	o	o	-	-	-	-	-	-
Circuit modules	o	o	o	o	o	o	o	o	o	o
Cables and cable assemblies	o	o	o	o	o	o	o	o	o	o
Plastic and polymeric parts	o	o	o	o	o	o	o	o	o	o
o: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in RoHS2.0. X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials for this part *might exceed* the limit requirement in RoHS2.0. -: Indicates that it does not contain the toxic or hazardous substance.										

Radio Specifications

RF technologies	2G, 3G, 4G, Wi-Fi
Cellular Frequency*	2G: GSM:900/1800
	3G: WCDMA: B1/B8
	4G: LTE FDD: B1/B3/B7/B8/B20/B28A LTE-TDD: B38/B40/B41
Max RF power	33 dBm±2dB@2G, 24 dBm+1/-3dB@WCDMA, 23 dBm±2 dBm@LTE,

*   *May vary on difference models.*

Simplified EU Declaration of Conformity

We, Guangzhou Robustel Co., Ltd. are located at 501, Building #2, 63 Yongan Road, Huangpu District, Guangzhou, China, declare that this radio equipment complies with all applicable EU directives. The full text of the EU DoC is available at the following internet address:

www.robustel.com/certifications/

FCC Declaration of Conformity

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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

IC Declaration of Conformity

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1)This device may not cause interference.

(2)This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) L' appareil ne doit pas produire de brouillage;

(2) L' appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d' en compromettre le fonctionnement.

Radio Frequency Exposure Statement for IC

This device complies with IC exposure limits set forth for an uncontrolled environment. This device shall be installed and operated with minimum distance 20cm between the radiator & body.

Cet équipement est conforme aux limites d'exposition IC définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et la carrosserie.

Related download link

Find more product documents or tools at:

www.robustel.com/en/documentations/

Technical Support

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Email: support@robustel.com

Web: www.robustel.com

Document History

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.
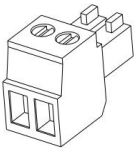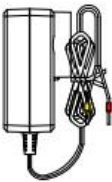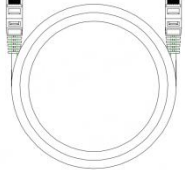
Date	Firmware Version	Document Version	Change Description
July 6, 2022	5.0.0	1.0.0	Initial release.

Overview

Robustel R1500 supports GSM/GPRS/EDGE 2G networks, 3G networks such as WCDMA, HSPA+ 3.5G and LTE 4G networks, providing high-speed wireless network bandwidth for devices over wireless connections, and it has dual SIM backups to ensure a stable connection to the wireless network.
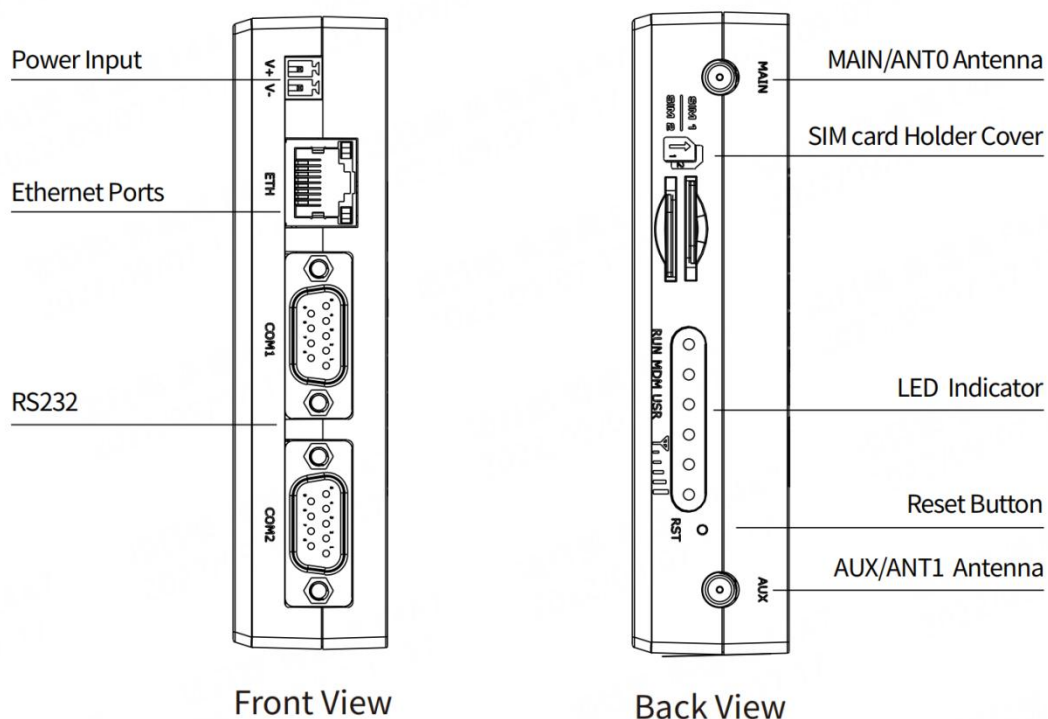
Package Checklist

Before commencing installation ensure your package has the following components:

Device	2PIN Terminal Block	Power Supply	Mounting Kit	QSG Card

RCMS Card	Ethernet Cable (Optional)	Cellular Antenna (Optional)		

Note: The accessories could be different on specific order.

Panel Layout(May vary on difference models)

Power Input — V+ V-
Ethernet Ports — ETH
RS232 — COM1
COM2

Front View

MAIN/ANT0 Antenna — MAIN
SIM card Holder Cover — SIM2 SIM1
LED Indicator — RUN MDM USR
Reset Button — RST
AUX/ANT1 Antenna — AUX

Back View

Interface Descriptions

1. PIN Description
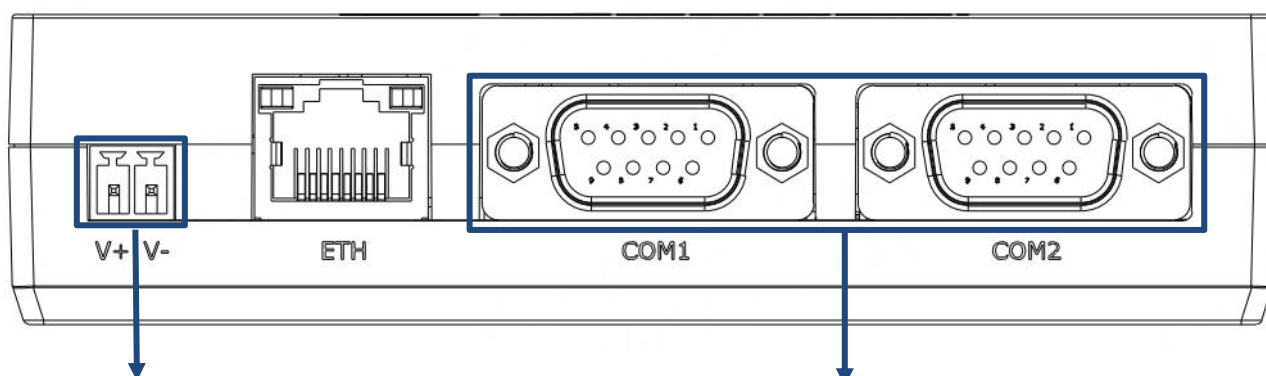
Name	Mark	Function
1	V+	Power input positive, 9-36VDC (red line)
2	V-	Power input negative (yellow line)

Label	Name	Function	Direction
1	-	-	-
2	TXD	Transmit Data, Signal output	R1500 →Device
3	RXD	Receive Data, Signal input	R1500 ←Device
4	DTR	Data Terminal Ready, Signal input	R1500 ←Device
5	GND	System Ground	--
6	DSR	Data Set Ready, Signal output	R1500 →Device
7	RTS	Request to Send, Signal input	R1500 ←Device
8	CTS	Clear to Send, Signal output	R1500 →Device
9	-	-	-

Note: Pin definitions for COM1 and COM2 are the same.

2. LED Indicator.

Name	Color	Status	Description
RUN	Green	On, solid	Power on
	Green	Fast blinking (2Hz)	System initializing
	Green	On, blinking (1Hz)	Initialization completed, device operating normally
MDM	Green	On, solid	Link connection is working
	Green	On, blinking	Link connection is communicating
	Green	Off	Link connection is not working
USR	Green	On, blinking	Backup card is being used
	Green	On, solid	Main card is being used

	None	All off (three lights)	No signal
	Green	On, solid(three light)	Signal Level: Best Signal Level Wireless module: 21-31dB (signal strength)
	Green	On, solid(two light)	Signal Level: Average Signal Level Wireless module: 11-20dB (signal moderate)
	Green	On, solid(one light)	Signal Level: Abnormal Signal Level Wireless module: 21-31dB (signal weak)

Note: You can choose the display type of USR LED. For more details, please refer to *RT123_SM_RobustOS Software Manual,* Services > Advanced > System >System Settings > User LED Type.

3. Reset Button.

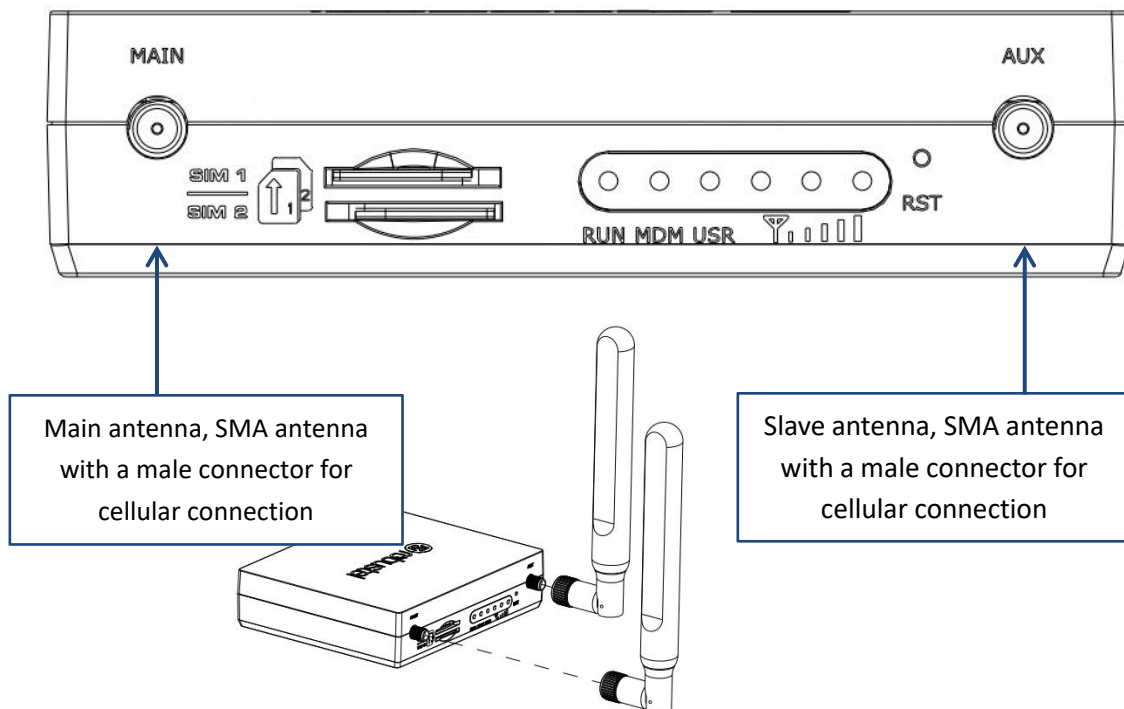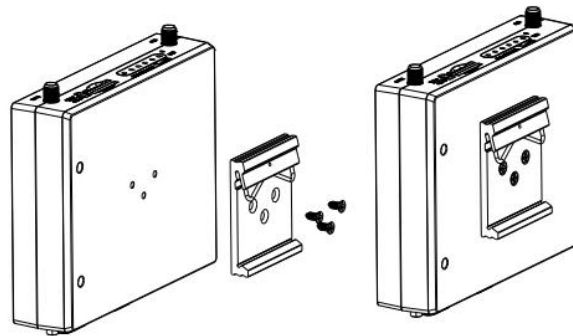| Function	Operation
Reboot	Press and hold the RST button for 2~ 5 seconds under the operating status.
Restore to default configuration	Press and hold the RST button for 5~10 seconds, the RUN LED starts blinking quickly, the router will restore to default configuration.
Restore to factory default settings	Once the operation of restoring default configuration is performed twice within one minute, the router will restore to factory default settings.
Note: The more details please refer to *RT123_SM_RobustOS Software Manual, 2.3 Factory Reset.*	

Hardware Installation

1. **SIM Card Installation**. Insert the SIM cards into the device.
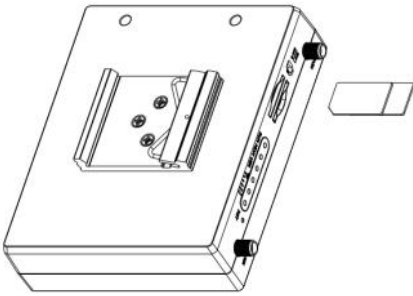
2. **Antenna Installation.** Rotate the antenna into the antenna connector accordingly. Here take the cellular antenna as example.
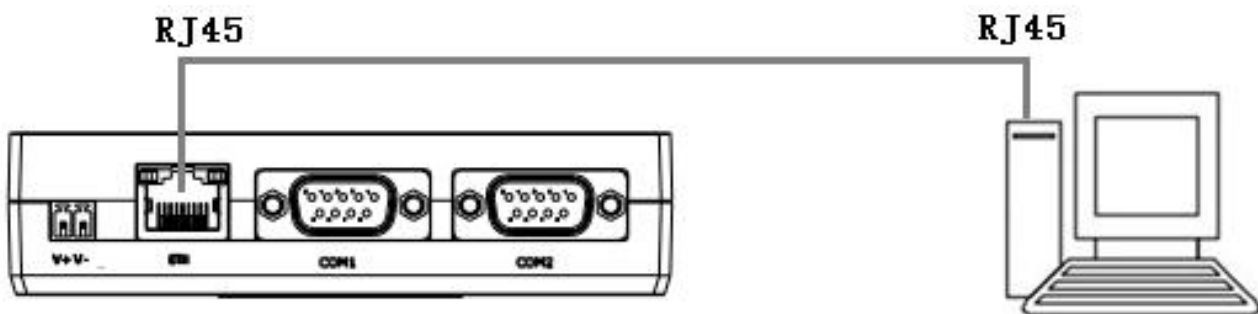

Main antenna, SMA antenna with a male connector for cellular connection

Slave antenna, SMA antenna with a male connector for cellular connection

3. **Mounting Kit installation.**

DIN rail mounting

4. **Connect the Gateway to a Computer**. Connect a Category 5 cable to the gateway Network port (ETH) to an external controller or computer's network port.

5. **Power Supply installation.** Insert the power supply cord into the corresponding terminal block if needed, then insert the terminal block into the power connector.
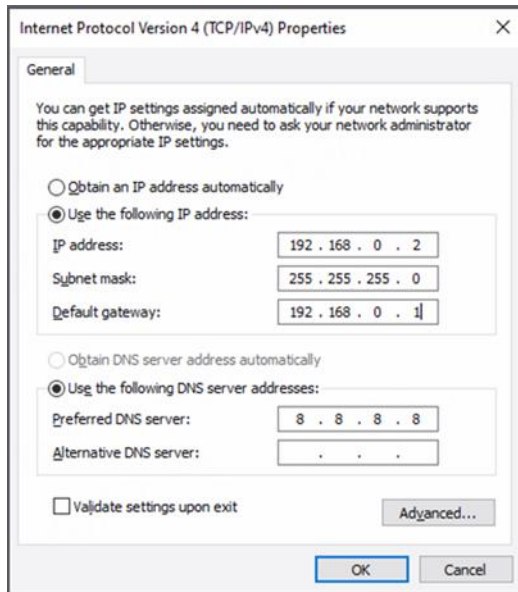
Power connection diagram

| COLOR	POLARITY
RED	+
YELLOW	–
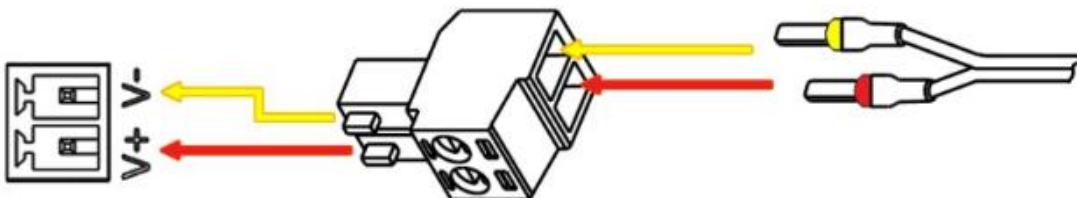
Login to the Device

1. Connect the router's Ethernet port to a PC with a standard Ethernet cable.

2. Before logging in, manually configure the PC with a static IP address on the same subnet as the gateway address, click and configure "Use the following IP address".


3. To enter the gateway's web interface, type http://192.168.0.1 into the URL field of your Internet browser.

4. Use login information shown in the product label when prompted for authentication.

5. After logging in, the home page of the web interface is displayed, then you can view system information and perform configuration on the device.
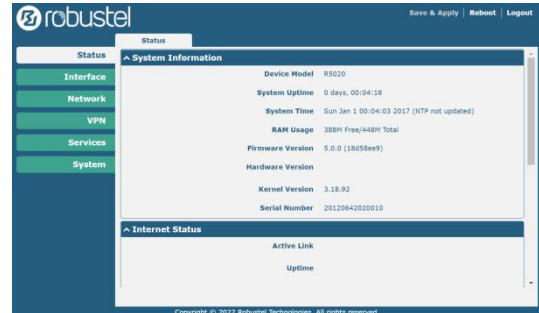
6. The automatic APN selection is ON by default, if need to specify your own APN, please go to the menu **Interface->Link Manager->Link Setting->WWAN Settings** to finish the specific setting.
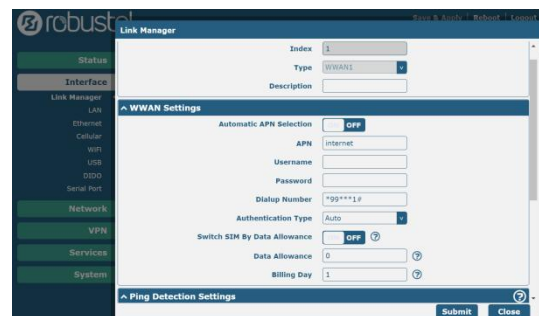
7. The more configuration details please refer to *RT123_SM_RobustOS Software Manual*.
(END)