



# Installation and Configuration Quick Guide

## GoRugged M1000 MP

Industrial Cellular Modem

1 RS-232/RS-485 + 1 USB Host

### Package Contents

Before installing your M1000 MP Modem, verify the kit contents as following.

- 1 x Robustel M1000 MP Industrial Cellular Modem (single/dual-antenna optional)
- 1 x 2-pin 3.5 mm male terminal block for power supply
- 1 x *Quick Start Guide* with download link of other documents or tools

**Note:** If any of the above items is missing or damaged, please contact your Robustel sales representative.

### Optional Accessories (sold separately)

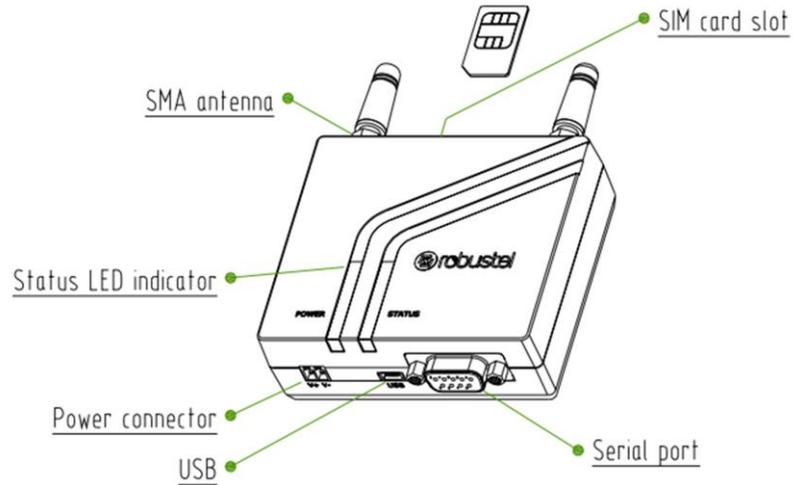
- 2G/3G SMA cellular antenna (stubby/magnet optional)
- Wall mounting kit
- 35 mm DIN rail mounting kit
- RS-232 serial cable (DB9 male to DB9 female)
- Mini USB cable
- DB9 male terminal block for RS-485 serial connection
- AC/DC power adapter (12V DC, 1.0 A; EU/US/UK/AU plug optional)

### Environmental Requirements

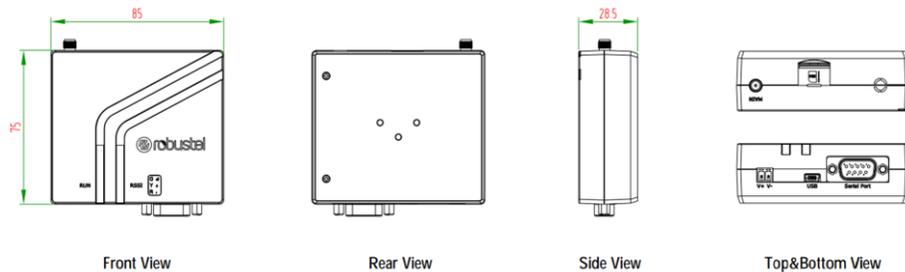
- Input voltage: 6 to 18V DC (for 2G model) and 6 to 26V DC (for 3G model)
- Power consumption: 50 to 60 mA@12 V in idle state, 100 to 200 mA (peak) @12 V in communication state
- Operating temperature: -40 to +85 °C
- Relative humidity: 5 to 95% RH

# Hardware Introduction

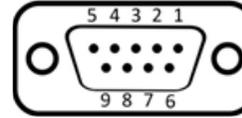
## 1. Overview



## 2. Dimensions



## 3. PIN Assignment



PIN Assignment for 2G Model					
PIN	RS-232	RS-485 (2-wire)	Function	Terminal block	Direction
1	--	Data+ (A)	--	485+	M1000 MP ↔ Device
2	RXD	--	--	RXD	M1000 MP → Device
3	TXD	--	--	TXD	M1000 MP ← Device
4	--	--	DI	DT	M1000 MP ← Device
5	GND	--	--	GND x 2	--
6	--	Data- (B)	--	485-	M1000 MP ↔ Device
7	RTS	--	--	RTS	M1000 MP ← Device
8	CTS	--	--	CTS	M1000 MP → Device
9	+5V Output	--	--	DR	--

PIN Assignment for 3G Model			
PIN	RS-232	Terminal block	Direction
1	DCD	485+	M1000 MP → Device
2	RXD	RXD	M1000 MP → Device
3	TXD	TXD	M1000 MP ← Device
4	DTR	DT	M1000 MP ← Device
5	GND	GND x 2	--
6	DSR	485-	M1000 MP → Device
7	RTS	RTS	M1000 MP ← Device
8	CTS	CTS	M1000 MP → Device
9	RI	DR	M1000 MP → Device

#### 4. LED Indicators

Name	Color	Status	Description
POWER	Green	On, solid	Modem is powered on.
		Off	Modem is powered off.
STATUS	Green	On, solid (for dual-antenna) On, 0.5 sec blink (for single-antenna)	The current network is connected. <b>Note:</b> Only available for the 3G module, and the indicator will never be lit if the current 3G module does not support it.
		On, 3 sec blink	The current network is disconnected. <b>Note:</b> Only available for the 3G module, and the indicator will never be lit if the current 3G module does not support it.
		Off	The indicator is not lit if the 2G module is used.

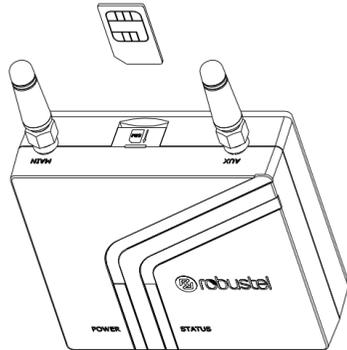
#### 5. USB Interface

Function	Operation
Data transmission	Connect an USB cable to the mini USB connector at the bottom of the M1000 MP Modem, and connect the other end of the cable to external communication equipment. <b>Note:</b> Only 3G model is supported.
Power supply	Connect an USB cable to the mini USB connector at the bottom of the M1000 MP Modem, and connect the other end of the cable to external power supply equipment. <b>Note:</b> Both 2G and 3G models are supported.

**Note:** Normally, the output current and voltage from the PC's USB interface are 0.5 A and 5 V. When you use the USB interface to send and receive data, you should use the power interface of the device to supply power. When you use the USB interface for data transmission and power supply simultaneously, please make sure that the output current and voltage from the USB interface are at least 1 A and 5 V.

# Hardware Installation

## 1. Insert or Remove SIM Card



Please ensure to insert the SIM card before starting. If the PIN of the SIM card is unlocked, and if the corresponding PIN code is incorrect at the time of device configuration, the SIM card is unavailable.

Insert or remove the SIM card as shown in the following steps.

- **Insert SIM card**

1. Make sure the modem is powered off.
2. To insert SIM card, press the card with finger until you hear a click.

- **Remove SIM card**

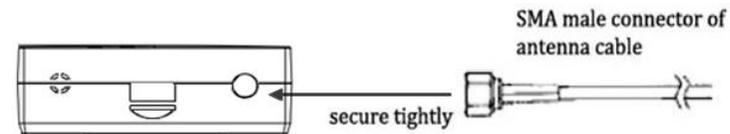
1. Make sure the modem is powered off.
2. To remove SIM card, press the card with finger until it pops out, and then take out the card.

**Note:**

1. Recommended torque for inserting is 0.5 N.m, and the maximum allowed is 0.7 N.m.
2. Use the specific card when the device is working in extreme temperature (temperature exceeding 40 °C), because the regular card for long-time working in harsh environment will be disconnected frequently.

3. Do not touch the metal of the card surface in case information in the card will lose or be destroyed.
4. Do not bend or scratch the card.
5. Keep the card away from electricity and magnetism.
6. Make sure the modem is powered off before inserting or removing the card.

## 2. Attach External Antenna (SMA Type)

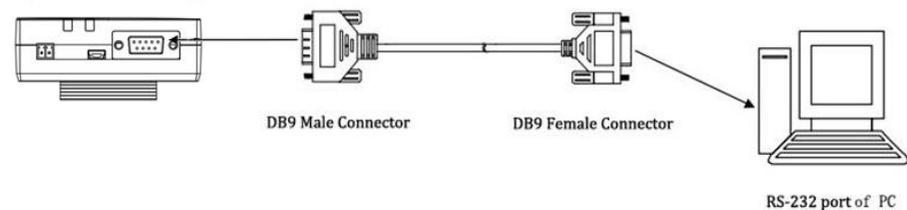


Attach an external SMA antenna to the modem's antenna connector and twist tightly. Make sure the antenna is within the correct frequency range provided by the ISP and with 50 Ohm impedance.

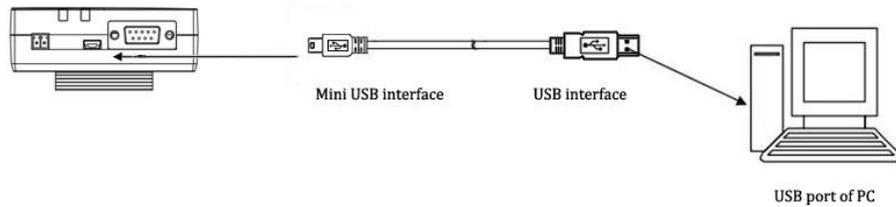
**Note:** Recommended torque for tightening is 0.35 N.m.

## 3. Connect the Modem to External Device

Connect a serial cable to the DB9 female connector at the bottom of the M1000 MP Modem, and connect the other end of the cable to an external controller or computer. Here takes RS-232 port as an example.



Connect an USB cable to the mini USB connector at the bottom of the M1000 MP Modem, and connect the other end of the cable to an external controller or computer.

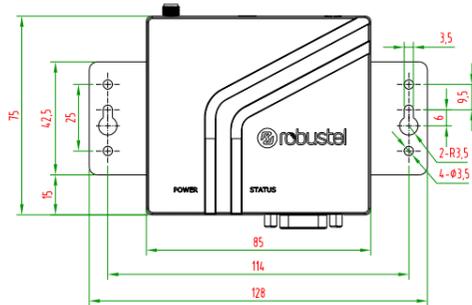


#### 4. Mount the Modem

The modem can be placed on a desktop or mounted to a wall or a 35 mm DIN rail.

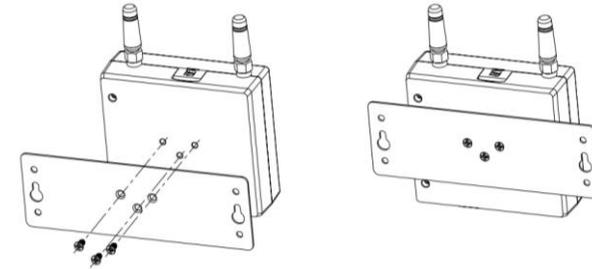
**Two methods for mounting the modem**

- **Wall mounting** (measured in mm)

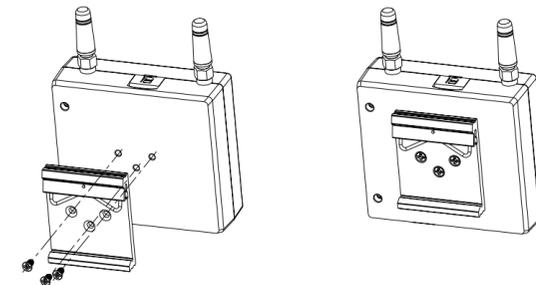
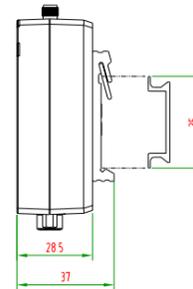


Use 3 pcs of ST2.9\*6 pan head self-tapping Phillips screws to fix the wall mounting kit to the modem, and then use 2 pcs of M3 drywall screws to mount the modem associated with the wall mounting kit on the wall.

**Note:** Recommended torque for mounting is 1.0 N.m, and the maximum allowed is 1.2 N.m.



- **DIN rail mounting** (measured in mm)



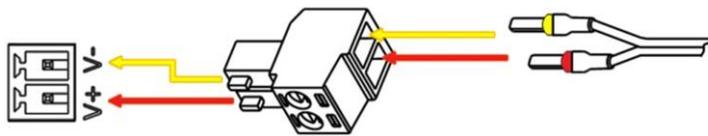
Use 3 pcs of ST2.9\*8 pan head self-tapping Phillips screws to fix the DIN rail to the modem, and then hang the DIN rail on the mounting bracket. It is necessary to choose a standard bracket.

**Note:** Recommended torque for mounting is 1.0 N.m, and the maximum allowed is 1.2 N.m.

## 5. Power Supply

### CONNECTING THE POWER CABLE

COLOR	POLARITY
RED	+
YELLOW	-



M1000 MP supports reverse polarity protection, but always refers to the figure above to connect the power adapter correctly. There are two cables associated with the power adapter. Following to the color of the head, connect the cable marked red to the positive pole through a terminal block, and connect the yellow one to the negative in the same way. The last step is to plug the power adapter into your socket.

**Note:** The range of power voltage is 6 to 18V DC (for 2G model) or 6 to 26V DC (for 3G model).

# Modem Operation

You can use AT commands to operate and configure the M1000 MP Modem through the mini USB port or serial port. This chapter will mainly introduce AT commands examples about how to configure the M1000 MP Modem.

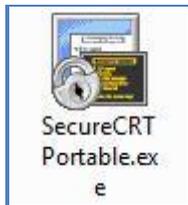
## 1. AT Command Set

M1000 MP supports the guidelines known as “AT Command Set”. AT Command Set is an industry standard line-oriented command language used to communicate with the modem. You can enter AT commands to configure the M1000 MP Modem by serial software, such as SecureCRT.

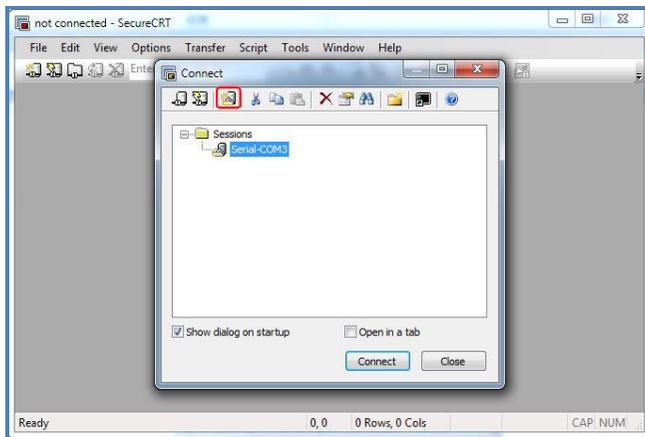
Download link: <https://app.box.com/s/arkn6xk1asgs1myvuue>

- **Start SecureCRT**

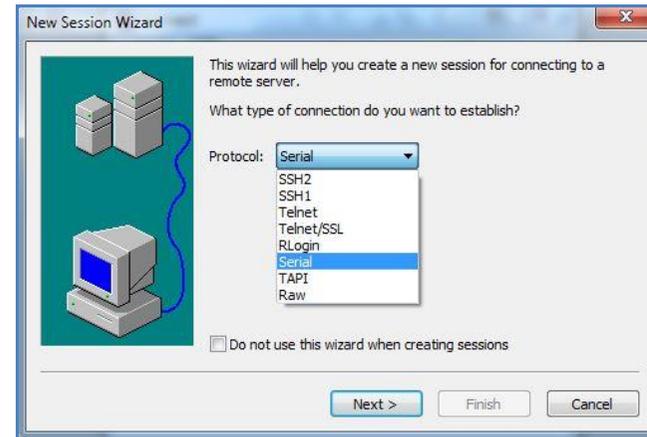
1. Double-click “SecureCRT Potable.exe” to open the software.



2. Click **File > Connect**, and create a new session.

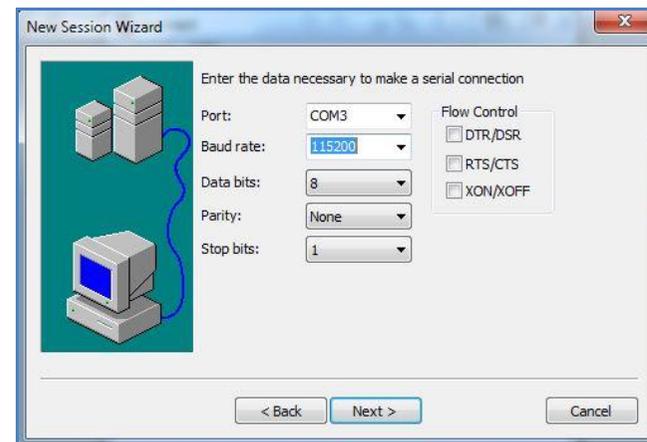


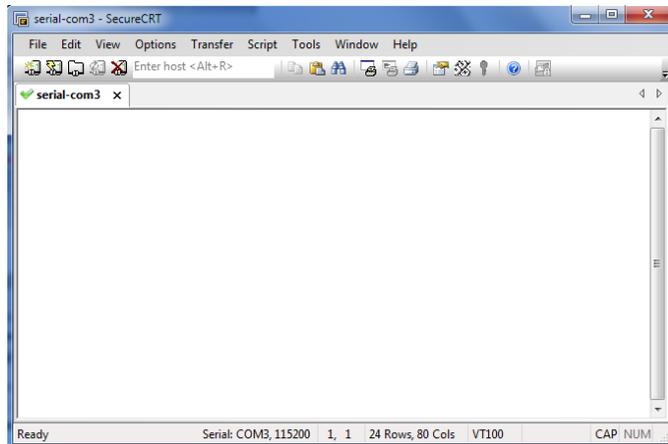
3. Choose “Serial” as the protocol.



4. Choose the relevant COM port and match the parameters as below, then click “Next”.

**Note:** Please be sure to configure the parameters as following: 115200, 8, n, 1, and disable “RTS/CTS”.





- **AT Command Examples**

Following are some examples of the AT commands. For more detailed description, please refer to the AT command guide for the module.

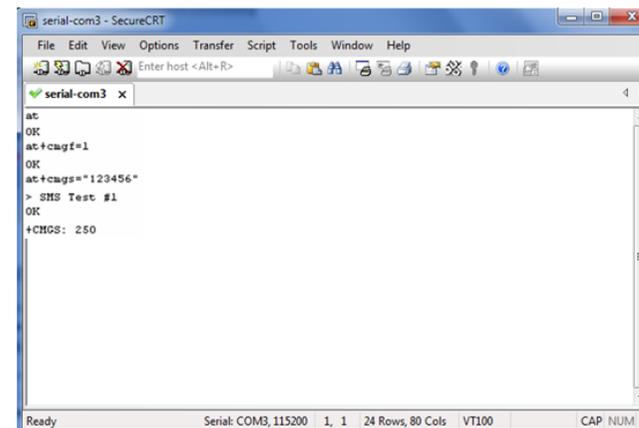
Description	AT Commands	Modem Response	Comments
Modem confirm	AT	OK	Responding OK indicates that the modem is ready.
Receiving signal strength	AT+CSQ	+CSQ: 19,99	The first parameter is at least greater than or equal to 15 to ensure normal communication.
Query current PIN status	AT+CPIN?	+CPIN: READY	The SIM card is correctly inserted and the modem needs no password.
		+CPIN: SIM PIN	PIN is required.
		+CPIN: SIM PUK	PUK is required.
Save parameters to non-volatile memory	AT&W	OK	The configuring and modifying are saved.

## 2. Using Short Message Service

Cellular technology offers the benefit of using SMS (short message service) as an easy way to communicate over the mobile network. The following topics are covered in this chapter:

- **Sending a Short Message**

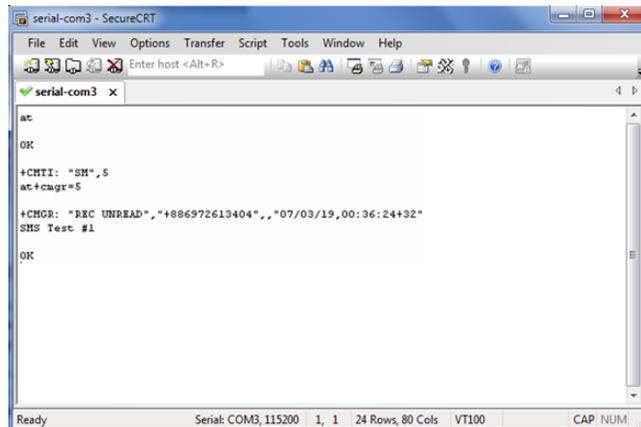
1. Type **AT+CMGF=1** and press **Enter**.
2. Type **AT+CMGS="<phone number>"** and press **Enter**. The terminal will automatically move to the next line, which starts with a ">". Type your message on the right of the ">".
3. Enter **Ctrl + Z** to deliver the message.



**Note:** **AT+CMGF=1** is used to set the SMS as Text mode.

- **Reading a Short Message**

1. Type **AT+CMGF=1** and press **Enter**.
2. Type **AT+CNMI=2,1** and press **Enter**.
3. When a short message is received, the window will show **+CMIT:**  
**"SM", x**, in which the **x** is the index number for SMS save position.
4. Type **AT+CMGR=x** to read the message, in which the **x** is the index number for SMS save position.
5. The **x=5** means that the message is stored in the 5th storage location, as shown below.



- **Deleting a Short Message**

Type **AT+CMGD=x,n** and press **Enter**.

Here the **x** represents one of the following options:

**"REC UNREAD"** showing the unread messages

**"REC READ"** showing the read messages

**"STO UNSENT"** showing the unsent and saved messages

**"STO SENT"** showing the sent messages

**"ALL"** showing all the messages

Here the **n** represents one of the following options:

**0** Delete the message in the save position, including the index number

**1** Delete all read messages

**2** Delete all read and sent messages

**3** Delete all read, send, and unsent messages

**4** Delete all messages

**Note:** The SMS sending command may a little different vary from module to module. For the specific command of different module, the corresponding AT document shall prevail, or contact our Technical Support.



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