Hardware Installation Quick Guide

R2000 Dual

Industrial Dual Module Cellular VPN Router with

Power over Ethernet

Package Contents

Before installing the R2000 Dual Router, verify the kit contents as following:

- 1 x Robustel R2000 Dual Industrial Dual Module Cellular VPN Router with Power over Ethernet
- 1 x Terminal block for power
- 1 x *Quick Start Guide* with download link of other documents or tools

Optional Accessories (sold separately)

- AC/DC power adapter
- POE power adapter
- SMA cellular antenna for 3G/4G LTE
- Stubby/magnet RP-SMA Wi-Fi antenna
- Wall mounting kit
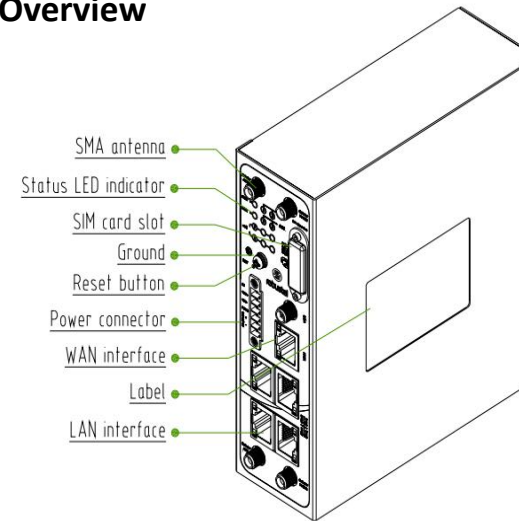- 35 mm DIN rail mounting kit

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

Environmental Requirements

- Power input: 9 to 48V DC
- Power consumption: 100 mA@12 V in idle state; 800 mA (peak)@12 V in communication state
- Operating temperature: -40 to 70°C
- Relative humidity: 5 to 95% RH

Hardware Introduction

Overview

Reset Button

Reboot: Press and hold the Reset button for at least 2~7 seconds under the operating status.

Restore to factory default settings: Wait for 5 seconds after powering up the router, press and hold the Reset button by a small non-conductive stick with a blunt end until all twelve LEDs blinking one by one, and release the button within 5 second to return the router to factory defaults.

Ethernet Ports

R2000 Dual Router has five Ethernet ports. Eth0 is a WAN port and Eth1~Eth4 are LAN ports supporting POE feature.

Every Ethernet port has two LED indicators, while each indicator has three states. The yellow one is **Link Indicator** and the green one doesn't mean anything. For details see the table below:

Indicator	State	Description
Link Indicator	On	Connection is working
	On, blinking	Data is being transmitted
	Off	Connection is not working

CAUTION!

- Device should be in accordance with the reliable grounding to avoid lighting strike.
- Use the rated power adapter for the device, and note the power polarity when wiring.
- Pay attention to waterproof in storage, transporting and operating environment.
- Place the device on the horizontal surface.
- Damaging the product's warranty labeling cannot enjoy the free maintenance in warranty period.

LEDs

Name	Color	State	Description
RUN	Green	On, 1/2 sec blink	Router is ready
		On, 1 sec blink	Router is booting
		Off	Router is powered off
PPP	Green	LED 1 is on	SIM1 PPP connection is working
		LED 2 is on	SIM2 PPP connection is working
USR	Green	On	OpenVPN: OpenVPN is connected
			IPsec: IPsec is connected
			Wi-Fi: Wi-Fi is connected
		Off	OpenVPN: OpenVPN is disconnected
			IPsec: IPsec is disconnected
			Wi-Fi: Wi-Fi is disconnected
NET (LED 1 stands for SIM 1, LED 2 stands for SIM 2)	Green	On, blinking green	Unable to connect to the best network. E.g. When R2000 Dual uses the 4G SIM card but cannot connect to the 4G network, the NET LED will always blink. The condition of 3G and 2G network will, too.
		On, solid green	Connect to the best network. E.g. When R2000 Dual uses the 4G SIM card and connects to the 4G network, the NET LED will turn to solid green. The condition of 3G and 2G network will, too.
		Off	Unable to access any network.
Signal Strength (Light 1 stands for SIM 1, light 2 stands for SIM 2)	Green	All LEDs are on	Signal level: 21-31 (Optimum signal level)
	Green	Two LEDs are on	Signal level: 11-20 (Average signal level)
	Green	Only one LED is on	Signal level: 1-10 (Abnormal signal level)

When the network disconnected, those three signal LEDs are designed as a binary combination code to indicate a series of error report
On: 1   Off: 0
001   AT command failed
010   no SIM card detected
011   it need to enter the PIN code
100   it need to enter the PUK code
101   registration failed

Hardware Installation

Step 1: After opening the package, refer to the following figure to insert the SIM into the router.
Note: Recommended torque for inserting is 0.5 N.m, and the maximum allowed is 0.7N.m.

Step 2: Attach the SMA external antenna to the router's antenna interface and twist tightly.
Make sure the antenna is within the correct frequency range
Note: Recommended torque for mounting is 0.35 N.m.

Step 3: Connect the router to the site ground wire by the ground screw before powering on (Optional) .

Step 4: Connect the router's Ethernet port (Eth0/Eth1/Eth2/Eth3) to a PC via a standard cross-over cable.

Step 5: The router supports flat surface placement, wall mounting and DIN rail mounting.

Wall mounting:
Use 4 pcs of M2.5*4 flat head Phillips screws to fix the wall mounting kits to the router, and then use 2 pcs of M3 drywall screws to mount the router associated with the wall mounting kit on the wall.
Note: Recommended torque for mounting is 0.5 N.m and the maximum allowed is 0.7 N.m.

Din rail mounting:
Use 3 pcs of M3*6 flat head Phillips screws to fix the DIN rail to the router, and then hang the DIN rail on the bracket. It is necessary to choose the standard bracket.
Note: Recommended torque for mounting is 1.0 N.m, and the maximum allowed is 1.2 N.m.

Insert SIM card   **Wall mounting**   **DIN rail mounting**

Wall Mount   Din Rail
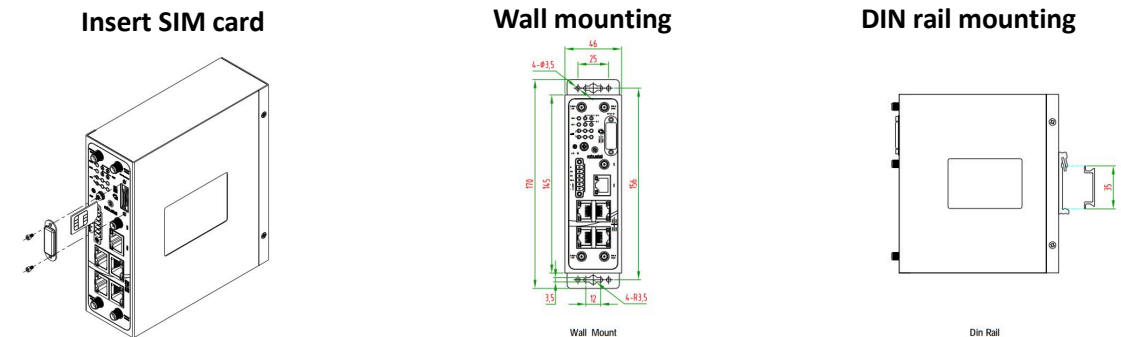
Step 6: R2000 Dual Router supports reverse polarity protection, but always refers to the figure below to connect the power adapter correctly. There are two cables associated with the power adapter. Following to the color of the head, connect the cable marked red to the positive pole through a terminal block, and connect the yellow one to the negative in the same way.

Note: The range of power voltage is 9 to 48V DC.

CONNECTING THE REGULAR POWER SUPPLY

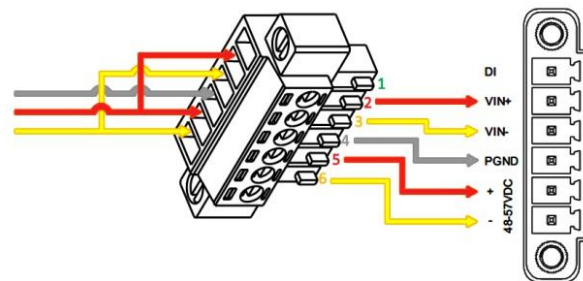| COLOR	POLARITY
RED	+
YELLOW	-
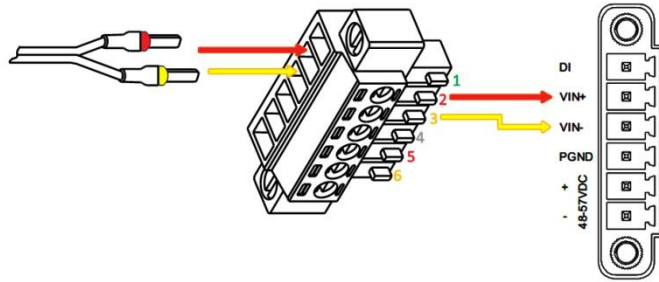
Step 7: R2000 Dual Router also supports POE feature. Please refer to the figure below to connect the power adapter correctly.

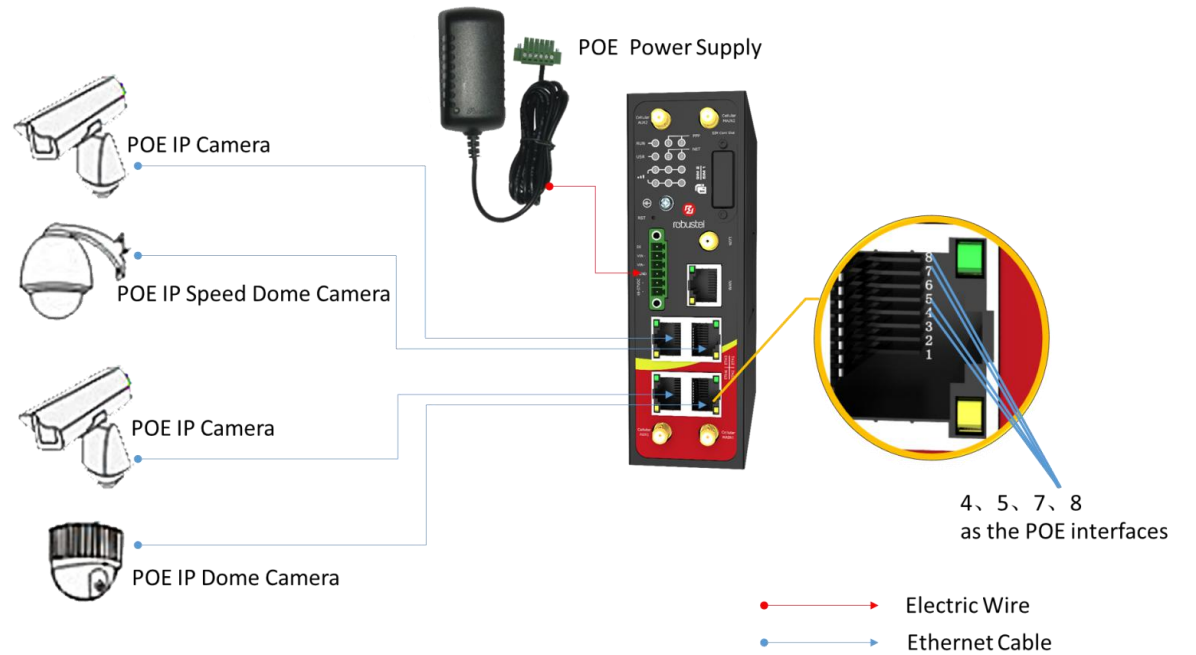**Note:** The range of power voltage is 48 to 57V DC.

POE CONNECTION

PIN	NAME
1	DI
2	VIN+
3	VIN-
4	PGND
5	POE+
6	POE-

POE Connection (OPTIONAL)

R2000 Dual's four fast Ethernet LAN ports support POE feature (Voltage range: 48 to 57V DC), which can electrify the network terminal devices such as IP camera and other WLAN AP etc. See figure below for more details.

POE Power Supply

POE IP Camera

POE IP Speed Dome Camera

POE IP Camera

POE IP Dome Camera

4、5、7、8
as the POE interfaces

→ Electric Wire

→ Ethernet Cable

Web Configuration

Quick Guide

Connect the Router to the PC

After installing the R2000 Dual Router, power it on connect it's Ethernet port (eth1/eth2/eth3/eth4) to a PC via a standard cross-over cable.

Configure the PC

There are two methods to obtain IP address for the PC, one is to obtain an IP address automatically from Local Area Connection, and another is to configure a static IP address manually within the same subnet of the router. Please refer to the steps below. Here take **Windows 7** as example, and the configuration for windows system is similar.

1. Go to **Start > Control Panel**, double-click **Network and Sharing Center**, and then double-click **Local Area Connection**.
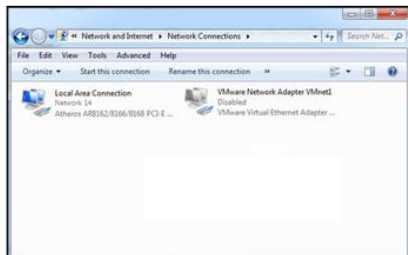
2. Click **Properties** in the window of **Local Area Connection Status**.

3. Choose **Internet Protocol Version (TCP/IPv4)** and click **Properties**.

4. Two ways for configuring the IP address of PC:

Obtain an IP address automatically:
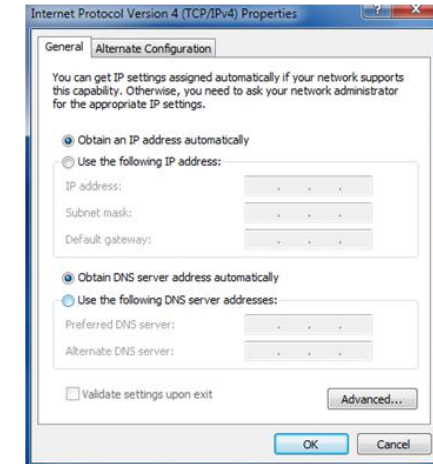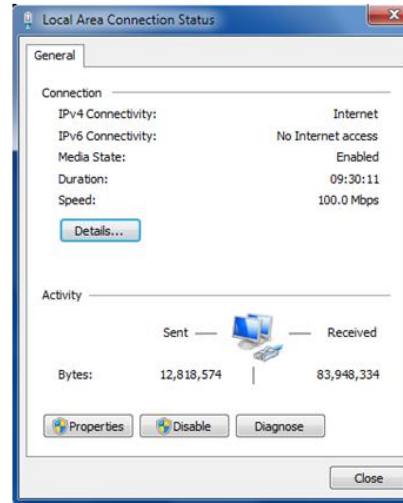
Use the following IP address (configured a static IP address manually within the same subnet of R2000 Dual Router):
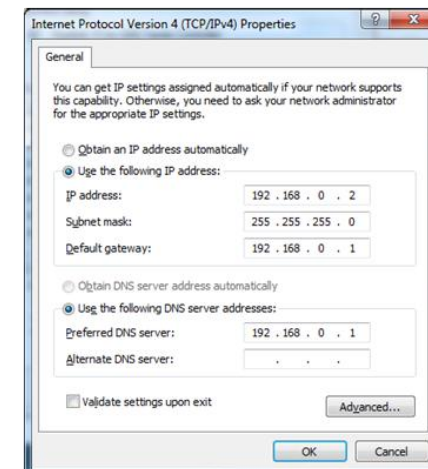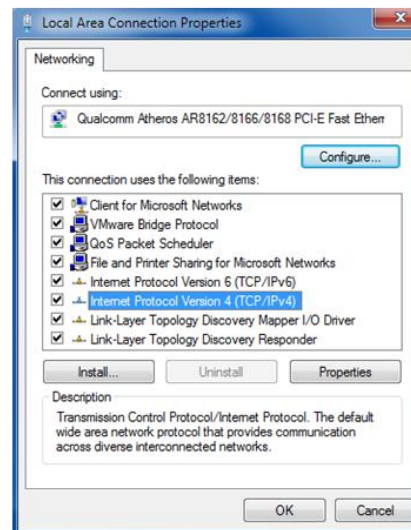

5. Click **OK** to finish the configuration.

Login the Router

1. On your PC, open a web browser such as Internet Explorer, Google and Firefox etc.

2. From your web browser, enter the IP address of the router. The default IP address of R2000 Dual Router is 192.168.0.1, though the actual address may vary.
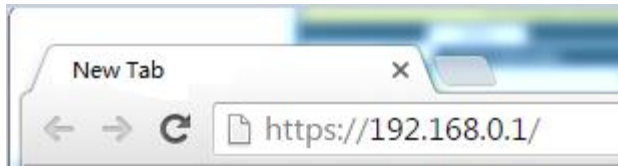
3. In the login page, enter the username and password, choose language and then click **LOGIN**.
   Note: If enter the wrong username or password over six times, the login web will be locked for 5 minutes.
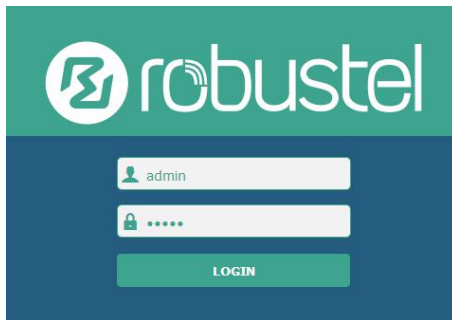
4. The home page of the R2000 Lite router's web interface is displayed, for example.
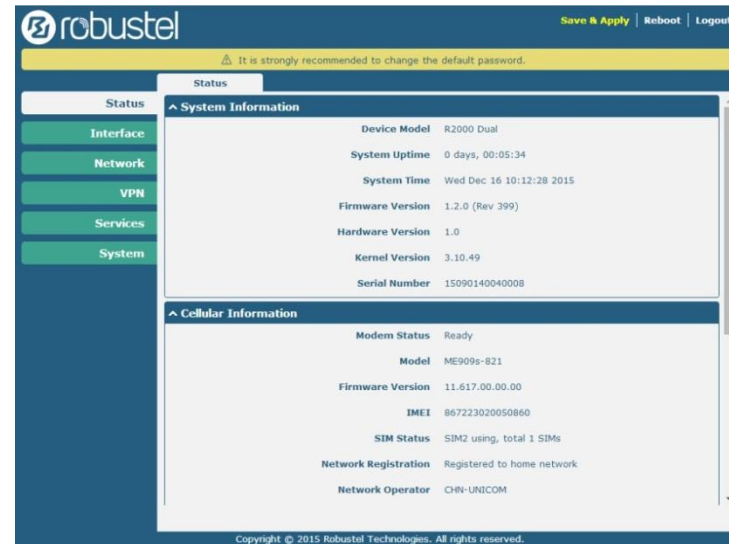
Configure the Cellular

- **Configure the Cellular**
  Click **Interface > Link Manager > Link Manager > General Settings**, choose "WWAN1" as the primary link and "WAN" as the backup link and "Cold Backup" as the backup mode, then click **Submit > Save & Apply** to make the configuration take effect.

Link Settings section allows user to configure the parameter of link connection, include the WWAN1/WWAN2, WAN and WLAN. It is recommended to enable Ping detection to keep router always online. The Ping detection increases the

reliability and also cost data traffic.

Click the edit button of WWAN1, refer to the figure below to set it parameters according to the current ISP, and then click Submit > Save & Apple to make it take effect.

Enable **Automatic APN Selection**, the window is displayed as below:

Enable **Ping**, the window is displayed as below:

The modifications will take effect after clicking **Submit** and **Save & Apply** button.

- **Check the Cellular Connection Status**
  Click **Interface > Cellular > Status**, and click the row of status, then the details status information will be displayed under the row.

Configure the IP Address

- **Configure Lan0**
  For R2000 Dual, the maximum number of LAN port is four which include lan0, lan1, lan2 and lan3.
  Lan0~lan3 is available when they were selected randomly by eth1~eth4.
  All of eth1~eth4 were default to lan0, and the default IP is 192.168.0.1/255.255.255.0.
  Go to **Interface > LAN > LAN > Network Settings**, for example:

Click the edit button of the current LAN port, modify the **IP Address** and **Netmask** of lan0. And then click **Submit > Save & Apply** to make the modification take effect.

- **Configure Lan1**
  Go to the **Interface > Ethernet**, click the edit button of eth1, and choose lan1 as the **Port Assignment**.

Click **Submit > Save & Apply** to make the modification take effect.

Go to **Interface > LAN**, and click the add button:

Select the interface as lan1, and configure the **IP Address** and **Netmask** of lan1.

Click **Submit > Save & Apply** to make the modification take effect.

- **Configure Multiple IP**

  Go to **Interface > LAN > LAN > Multiply IP**, for example:

  Click ✎ to edit the multiple IP of the LAN interface. Click ✖ to delete the multiple IP of the LAN interface.

  Click ➕ to add a multiple IP to the LAN interface.

- **Configure WAN**

  Go to **Interface > Link Manager > General Settings**, and click the edit button of WAN to enter the link configuration window.

Configure the WAN interface parameters such as the **Connection Type** as below:

Enable **Ping**, the window is displayed as below:

FAQ

Connected to the router successfully and obtained the IP address automatically, but failed to login the webpage.

1. Check the cable connection.
2. Check whether the green LED of the current connected port is solid or blinking.
3. Check whether another DHCP server or host occupies the IP address within the same LAN and causes IP conflict. If yes, connect the router to the PC directly to modify the IP address pool of DHCP.
4. Confirm whether the DHCP function has been closed factitiously if this is not the first use of this router. If yes, configure the IP address of the PC's LAN interface manually to make the router and the PC can access each other in the same LAN; or restore to the factory default settings of the router via the Reset button.
5. Check the firewall of the router to confirm whether the access is restricted or the HTTP protocol is closed. Please restart the firewall.

What to do if I forgot the IP address of the router?

Press and hold the Rest button to return the router to factory defaults, and then enter "192.168.0.1" in your browser to log in the router again. See Chapter 1.4 for more details about Reset button.

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