

VDB2609 规格书

4G户外型大功率蓝牙网关/ VDB2609 Datasheet

4G LTE Outdoor High Power BLE Gateway

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V1.05	更新“设置运作模式”描述/ Update the description of “Set up the operation mode”	Wendy	20221215

设备清单/Product List

名称/Item	型号/Model Number	数量/Number	备注/Remark
蓝牙网关/BLE Gateway	VDB2609	1 PCS	
5V 适配器/5V Power Adapter	BSF-008	1 PCS	
抱杆安装套装/Tighten-to-rod installation set	2*U 型螺杆, 2*L 型角铁 /2*U-bolt,2*L-shaped steel	2 PCS	

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1. 产品介绍/Product Induction

VDB2609 是一个支持 4G 的户外型大功率蓝牙网关。可用于远程控制蓝牙设备，或者接收蓝牙设备的信号并上传到后台服务器。其射频部分额外增加了 FEM (PA+LNA+Switch),提高了蓝牙部分的发射功率和接收灵敏度，与此同时，也采用外置高增益柱状天线，使蓝牙的覆盖半径可以超过 200m。

VDB2609 is a high power Bluetooth gateway with 4G Modem. It is designed for outdoor scenes. It can be used in various scenarios flexibly. For example, it can remote control BLE devices, and receives data sent by BLE devices then relay it to server. With high BLE transmit power and receive sensitivity enhanced by external RF PA and LNA, and a high gain cylindrical antenna, its BLE covering distance can reach more than 200 meters radius.



Figure1:VDB2609

1.1 应用框图/Application Diagram

VDB2609 内置 4G、WiFi、网口和蓝牙多种通信方式。WiFi 与蓝牙之间通过串口通信，4G 与 WiFi 之间通过 USB 通信。VDB2609 支持 POE 供电和 5V 电源供电两种供电方式。

VDB2609 contains 4G LTE, WiFi, Ethernet, BLE multiple communicating system. BLE is connected to WiFi by UART, and 4G modem is connected to WiFi by USB. VDB2609 support both POE and 5V power adapter 2 ways of power supply.

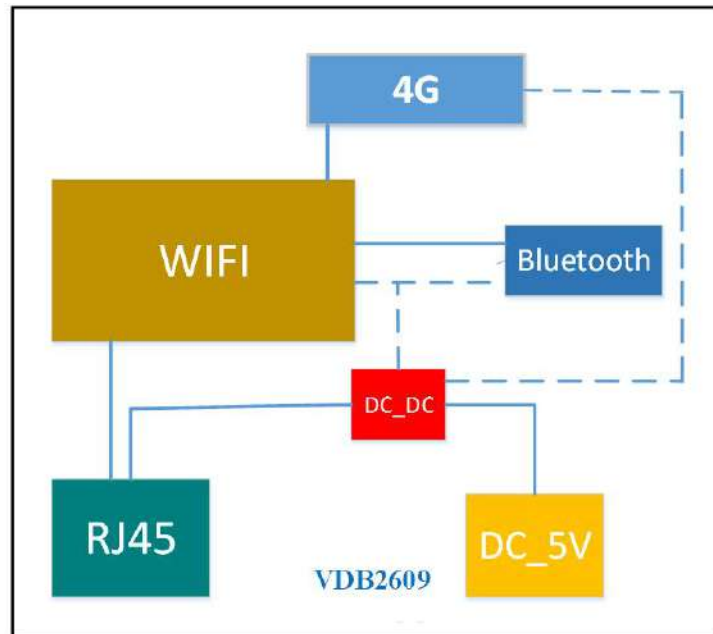


Figure 1.1 系统框架图/Application Diagram

1.2 特性/Features

- ◆ 支持 POE 供电和 DC 5V 供电 / Supports POE power supply and 5V DC power supply
- ◆ 4G 全网通 / 4G modem support All Netcom
- ◆ WiFi 协议 / protocol: IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
- ◆ Bluetooth ® 4.2/5.0(不支持 long-range / Long-range not included)/
- ◆ 蓝牙发射功率最大可达+21dBm / BLE Max Transmission Power is +21dBm
- ◆ 体积小，易安装 / Small and easy to apply
- ◆ WAN/LAN 自适应网口 / Self-adjust WAN/LAN port
- ◆ 符合 RoHS, FCC, CE 标准 / Fit RoHS, FCC, CE standard

1.3 接口/interface

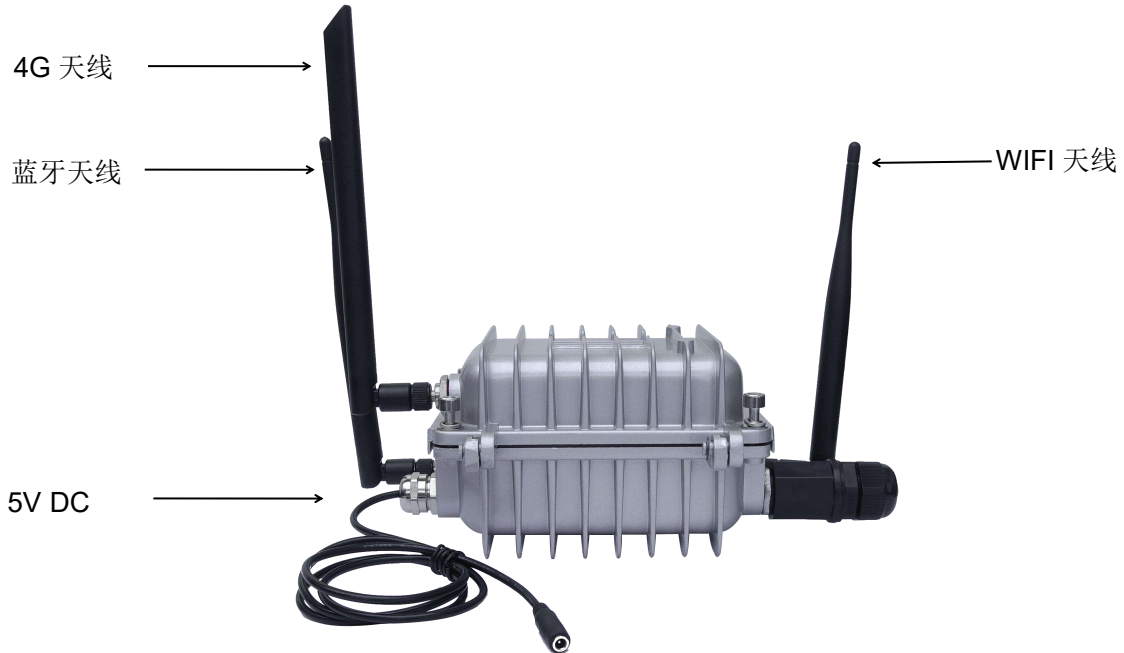


Figure 1.3 VDB2609 interface

1.3.1 网口/WAN/LAN Port

VDB2609 网口支持五类线和超五类线，可传输数据同时也能支持 POE 供电（由 POE 交换机供电称为 POE 供电，电压范围 44~57V，默认支持网线线序 1,2,3,6 如下图）。网口为 WAN/LAN 可变网口。

The VDB2609's RJ45 port supports type V of lines and super type V of net-cable, which can transmit data and also support POE power supply (The voltage range is 44~57V. The net-cable use 1,2,3,6 as power line, as the figure below). The RJ45 port is a WAN/LAN variable.

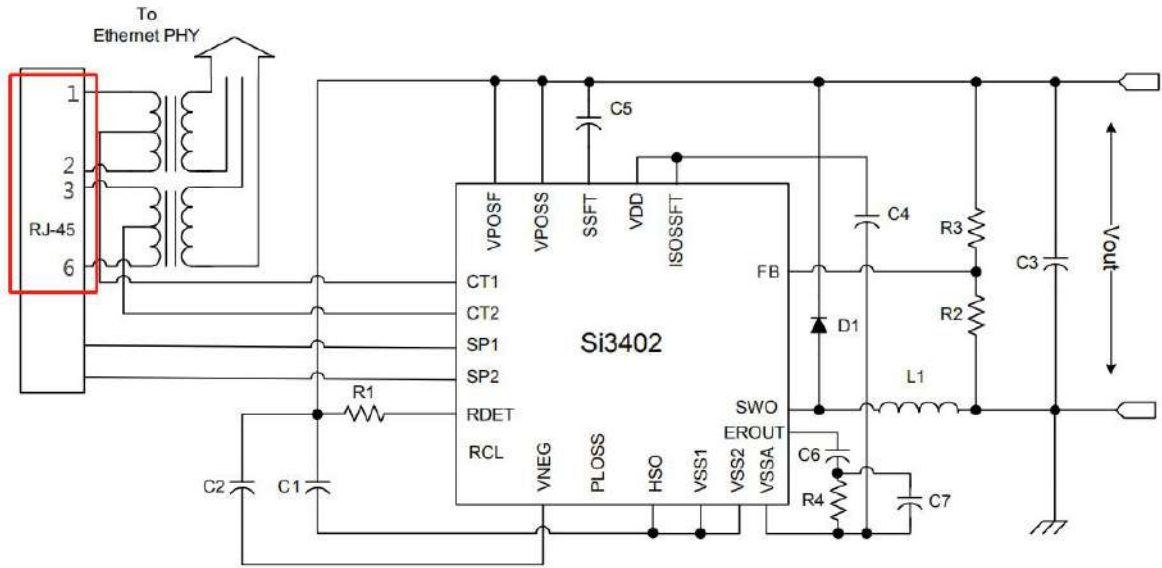


图 1.3.1/ Figure 1.3.1: VDB2609 POE 网口接线图

工作模式/Working mode	网口/net gape
AP Client	LAN
Getway	WAN

表 1.3.1 以太网端口工作模式/ Table 1.3.1 Ethernet port working mode

1.3.2 DC 电源接口/DC plug in

VDB2609 的电源接口支持 DC 输入，输入电压范围 4.5v~5.5v，电流大于 1000mA，接口采用 DC 电源插座，电源座孔径 3.5mm,针径为 1.35mm，针头为正极。

VDB2609 support DC power input, and the voltage range is 4.5v~5.5v. The interface is a 3.5mm female DC-plug-in.

说明：出厂配备的 5V 电源适配器输入电压为 AC 100-240V,50/60Hz 输出电压为 5V 2A。电源接头为外负内正。

Attention: The attached 5V power adapter's output voltage and current is 5V/2A, and AC input is 100~240V, 100mA.

1.3.3 复位按键(默认内置，如需外置需要定制)/Reset key(Default internal placed, outside placed needs customization)

短按复位，长按 VDB2609 的复位按钮 5 秒钟以上，VDB2609 内部的 WiFi 会恢复出厂设置。

Short press for reset. Long press Reset key for 5 more seconds, then VDB26009 will recover to factory mode.

1.3.4 电源指示灯（按键内置灯圈）/Power LED（LED ring inside key）

上电 LED 灯常亮

LED ring will be always on when DC power or POE power is applied

1.3.5 BLE 、WIFI 和 4G 天线/BLE、WIFI 4G Antenna

蓝牙、WiFi 及 4G 柱状全向高增益天线，必须安装才可以收发无线信号。

BLE, WiFi and 4G antenna must be applied in order to send or receive wireless signals.

1.4 应用/Application

应用场景：室内定位

Scene: Indoor positioning

室内定位网关/Indoor location gateway:

1) VDB2609 里蓝牙模块收集附近 Beacon 的信息，包括 RSSI，MAC 等，一秒一次。

VDB2609 Bluetooth module collects information about Beacon nearby, including RSSI, MAC, etc., once per second.

2) 蓝牙模块将收到 Beacon 信息，通过 UART 串口发给 TD05A 里面的 WIFI 模块，一秒一次。

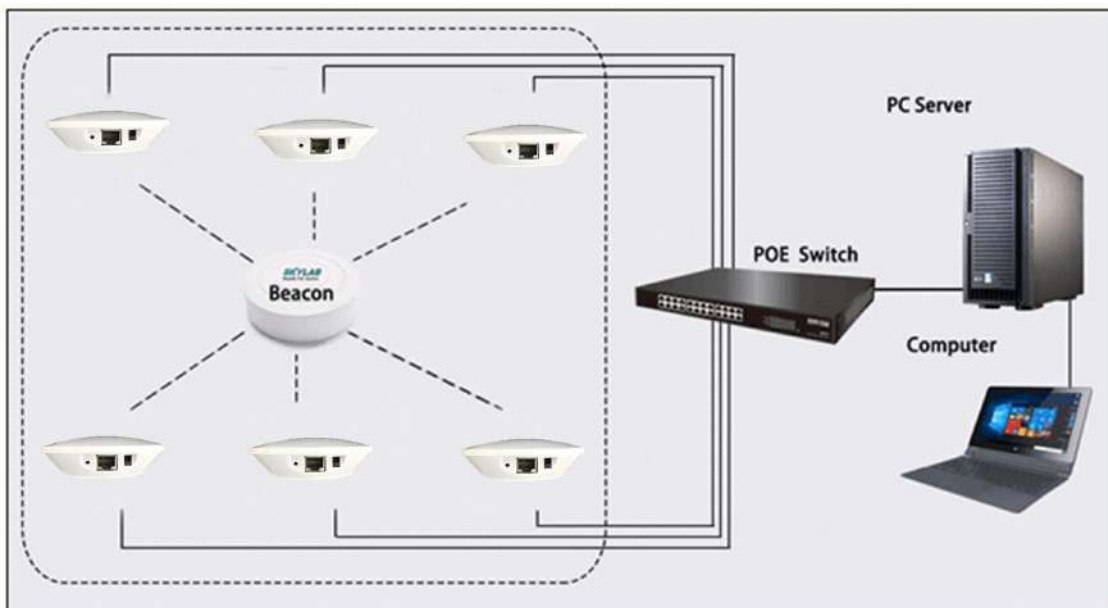
Bluetooth module send the Beacon information to WiFi module through UART serial port, once per second.

3) WIFI 模块通过串口接收到蓝牙模块传过来的信息，并通过 WiFi、网线或者 4G 模块联网，传输到指定的 UDP 服务器，并能接受服务器返回的信息。

WiFi module transfers the Beacon information (received from BLE module by UART) to the specified UDP server through WiFi, Ethernet or 4G module, and accepts the information returned by the server.

4) UDP 服务器收到来自某个 IP 的探针数据后，通过解析数据和计算，得到 Beacon 的位置信息，可以显示在前端页面，并能下发命令到 WIFI 模块，WIFI 模块透传到蓝牙模块，定制性的工能开发（比如：结合灯具使灯亮起来、触发门铃等）。

Beacon locations can be displayed on the front page after the UDP server after analyzing and calculating the beacon information. UDP server can also delivered orders to the WiFi module, then sent it to the bluetooth module to develop different functions (such as lighting lamps, ringing door bell etc.).



说明：VDB2609 可通过网线实现以太网联网，也可以使通过 WiFi 连接无线路由实现联网。

Remark: TD05A can be connected to the Internet via the POE switch or the wireless router.

2. 硬件参数/Hardware Specification

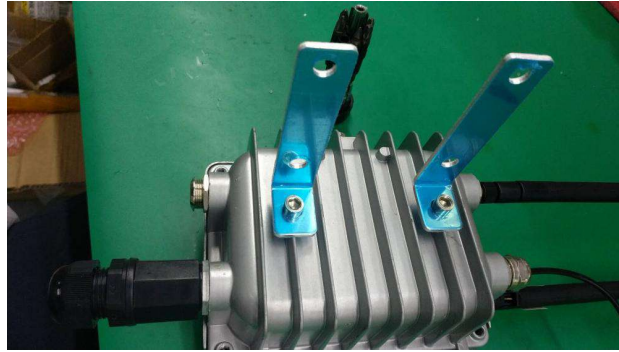
General parameter	
尺寸/ Dimension	L153mm*W137mm*H97mm
供电方式/ Power supply	DC 5V or POE
平均电流/ Average current (no 4G)	200mA@5V
工作温度/ OP. Temp	-20°C~70°C
物理接口/ Physical	Ethernet port *1、DC port *1
WiFi	
WiFi 协议/ Protocol	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
传输速率/ Data rate	IEEE 802.11 b Standard Mode: 1,2,5.5,11Mbps
	IEEE 802.11g Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11n: 72Mbps @ HT20 150Mbps @ HT40
接收灵敏度/ Rx Sensitivity	HT40 MCS7: -70dBm@10% PER(MCS7)
	HT20 MCS7: -73dBm@10% PER(MCS7)

	54M: -77dBm@10% PER
	11M: -89dBm@ 8% PER
发射功率/ Tx Power	IEEE 802.11n: 14dBm @HT40 MCS7 15dBm@HT20 MCS7
	IEEE 802.11g: 15dBm
	IEEE 802.11b: 18dBm
无线安全/ Wireless security	WPA/WPA2, WEP, TKIP, and AES
工作模式/ Working mode	Bridge、Gateway、AP Client
BLE	
蓝牙协议/ BLE Protocol	Bluetooth ®4.2/5.0(Not support long range)
传输速率/ Data rate	Uncoded: 1Mbps/2Mbps,Coded:125kbps(S=8)/500kbps(S=2)
无线安全/ Wireless security	AES HW Encryption
发射功率/ Tx Power	默认/Default 20dBm ± 1.5dBm (Can be adjusted from 0 to 20dBm in 4dBm step)
接收灵敏度/ RX Sensitivity	<-94dBm
覆盖范围/ Coverage area	>200m
4G	
模块型号/ Module Number	VDB2609
频段配置/ Band support	<ul style="list-style-type: none"> • LTE-TDD Band 38/39/40/41 • LTE-FDD Band 1/3/5/8 • TD-SCDMA Band 34/39 • UMTS Band 1/8 • EVDO BC0 • CDMA1x BC0 • GSM Band 3/5/8

3. 安装方法/Installation method

(1) 使用内六角螺丝，把两个 L 型角铁按照下图方向固定在 VDB2609 外壳上。

Fix the 2 L-shape steel on VDB2609 using 2 hexagon screw, like below.



(2) 把 U 型螺丝及配套卡扣卡在安装杆上，上下各一个 U 型卡扣，然后把 L 型角铁长边插入 U 型螺丝，拧上螺丝固定，如下图。

Put the U-bolts and its matching zigzag-arc buckle on the rod , then put it into the hole of the long side of the L shaped steel and then tighten the nuts to fix it on the rod



4. 配置参数/Configuration

4.1 有线连接/Ethernet connection (AP client mode)

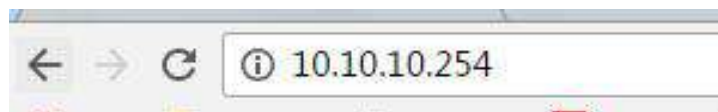
(1) 使用网线连接 PC 和 VDB2609，并设置本地连接为自动获取 IP 地址。

Use Ethernet cable to connect PC and VDB2609. Configure local connection to auto-acquire IP address.

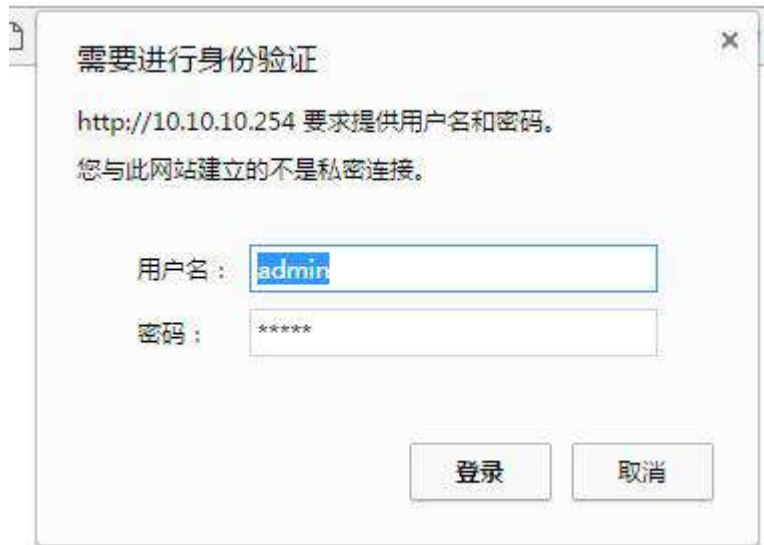


(2) 浏览器打开 10.10.10.254

Open your web browser and type 10.10.10.254



(3) .输入账号密码/Type user and password : admin/admin



(4) 选择语言/Select langue



(5) 设置运作模式，默认选择 Gateway。AP Client 模式网口做 LAN，可以连接到电脑；Gateway 模式网口做 WAN，需要连接到 PC 所连接的路由器的其他 LAN 口才能配置。

Set working mode, default Gateway. In AP Client mode the Ethernet port act as LAN, it can be connected to PC directly; In Gateway mode, the Ethernet port act as WAN, it can't be connected to PC and has to connect to another LAN of the same router that PC is connected.



(6) 设置 UDP 服务器地址，端口固定是：3333

Set UDP server address. Default port is 3333.



(7) 查看网络连接状态/Check network state.



Internet 配置	
运作模式	Gateway Mode
联机型态	DHCP
广域网络IP地址	192.168.1.124
子网络遮罩	255.255.255.0
默认网关	192.168.1.1
主要域名服务器	192.168.1.1
次要域名服务器	192.168.1.1
MAC 位址	28:A1:EB:FD:9A:B4
局域网	
本地IP地址	10.10.10.254
本地网络遮罩	255.255.255.0
MAC 位址	28:A1:EB:FD:9A:B2

4.2 无线连接/Wireless connection (AP mode)

(1) 打开 PC WiFi 开关，搜索网关标贴上的 SSID（默认 SSID 格式为 SKYLAB_12 位 16 进制的 MAC 地址，如 SKYLAB_30EB1F071C32）。默认无 WiFi 密码。登录账号密码 admin/admin。

Turn on the WiFi switch of PC, and search the SSID printed on the tag. Default SSID begins with "SKYLAB_" and follows 12 bit hexagon MAC address, e.g. SKYLAB_30EB1F071C32. Default no WiFi password.

And web login user and password is admin/admin.

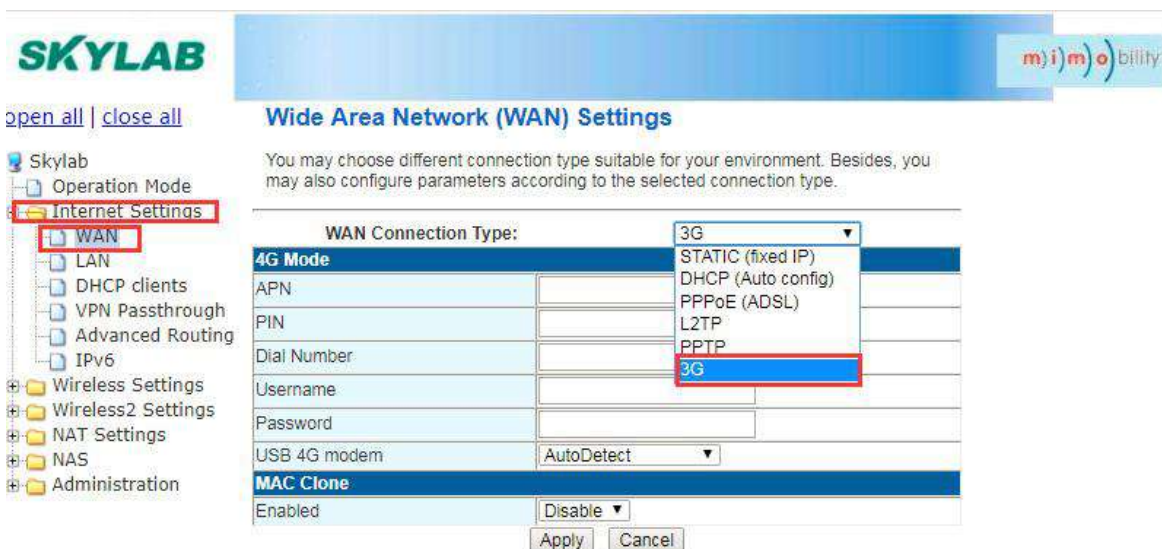


(2) 设置 WiFi SSID 及密码/Set WiFi SSID and password



4.3 4G LTE 连接/4G LTE connection

(1) 网络设置-广域网络设置中广域网络选择 3G/4G/U9300C, 即可使用 4G 上网(需要确认已插 SIM 卡)。
Internet Setting--WAN-WAN Connection Type: Select 3G/4G/U9300C, then you can use 4G to connect to internet(Make sure SIM card is inserted).



(2) 同 4.1 节第 (6) 步, 设置端口为 3333/ Set port 3333 at step (6) identical to section 4.1.

(3) 同 4.1 节第 (7) 步, 查看网络连接状态/ View the network connection status as in step (7) of Section 4.1.

4. 联系方式/Contact

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