无线通讯卡使用说明书

Wireless Communication Card Operation Manual

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1 产品概述

蓝牙系列通讯卡和 WiFi 系列通讯卡专为客户具有无线监控需求而设计，采用蓝牙通讯卡可满足本地的无线监控，采用 WiFi 无线通讯卡既可实现本地无线监控，又可利用公用运营商网络实现远程无线监控。

2 技术参数

表 1 无线通讯卡技术参数

分类	规格名称	详细说明
无线参数	无线模块	工业级无线模块
	WiFi 标准	2.4GHz、IEEE802.11b/g/n
	WiFi 数据传输速率	最大可达 150Mbps
	蓝牙标准	BLUETOOTH 4.0、2.4GHz、IEEE802.15
	蓝牙数据传输速率	最大可达 24Mbps
	传输距离	外置天线无障碍条件下正常通信距离不低于 30m，内置天线无障碍条件下正常通信距离不低于 20m。

表 2 WiFi 卡支持连接模式

序号	功能	描述
1	AP Server 模式	WiFi 卡作为热点模式工作，手机，平板电脑和笔记本电脑直接连接此热点。
2	STAServer 模式	WiFi 卡连接至路由器仍工作在 Server 模块，可以设置成固定地址也可以由路由器分配地址。手机、平板电脑和笔记本电脑通过路由器连接模块。

序号	功能	描述
3	STA Client 模式	WiFi 卡通过路由器连接远程服务器，传输给服务器的数据按照协议要求进行打包，其它方向的数据则仍然保持透明传输。

3 手机监控操作指导

1） 将扩展卡按变频器说明书介绍插入卡槽并固定，安装好天线（分板载和吸盘式天线两种，吸盘式天线要增加同轴线，详见发货 BOM）。

2） 扫描变频器铭牌上的二维码，下载并安装手机 APP-INVT Workshop。

3） 本地监控模式。

A. 打开 INVT Workshop App，界面如图 1 所示。

图 1

B. 选择并点击本地监控按钮，即可进入本地监控设备详情页，如图 2 所示。

图 2

C. 点击图 2 中的图标，进入设备列表页；在设备列表页中点击 BLE 或 WIFI 标签，可以切换蓝牙设备或 WiFi 设备列表，如图 3 所示。

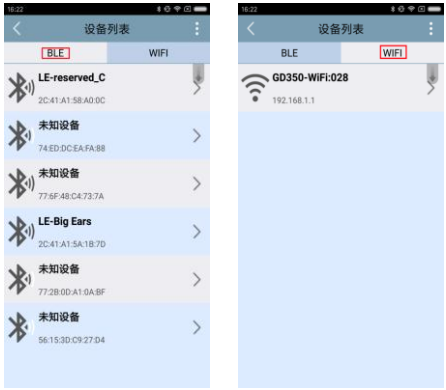

图 3

注意：可以通过下拉手势刷新列表；搜索 WIFI 模块的时候，一定要确保手机连上 WIFI 模块对应的 WIFI 热点，该热点名称为条形码上的序列号，具体连接过程可在手机设置功能里边实现，模块的 WIFI 热点密码为“00+条形码上的秘钥”。

D. 连接成功后，将返回本地监控设备详情页，开始监控，如图 4 所示。

图 4

使用说明：连接成功之后变换为，点击图标可以断开设备连接；通过点击“状态”、“参数”、“故障”、“控制”标签，可以切换不同的页面进行实时监控；蓝牙设备连接成功之后右上角没有图标，因为只有在 WIFI 连接下的本地监控才具有示波功能；蓝牙或 WiFi 设备名称显示的序号即为变频器通讯地址号，可通过 P14.00 功能码设置。

E. 通过点击右上角的图标，可以跳转到示波功能页面，如图 5 所示。

图 5

注意：控制按钮从左到右依次为“返回”、“开始”、“停止”、“左移”、“右移”、“添加通道”、“设置上下限”、“打开波形”、“保存波形”；操作过程：“添加通道”->“设置上下限”->“开始示波”->“停止示波”->“左移/右移”->“保存波形”->“打开波形”，示波通道最多为 2 个。

4） 远程监控模式。

A. 远程监控仅支持 WiFi 通讯方式，首先在 App 首页选择“WiFi 设置”，进入 WiFi 列表页，如图 6 所示。

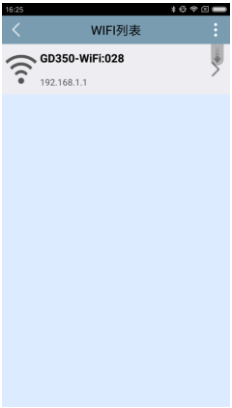

图 6

图 6

B. 确保手机通过前面介绍的本地模式连上 WIFI 模块，拉刷新列表，选择对应的 WiFi 模块，点击进入进行配置，如图 7 所示。

图 7

注意：

（1） 配置远程监控时，网络协议模式一定要选择“远程监控”，然后输入正确的可用的 WIFI 名称和密码，点击一键配置即可。

（2） 在 WiFi 设置界面，如果错误选择无线网络名称或误输入相应的密码，并点击了“一键配置 WiFi”选项，进行下列操作可恢复默认：按扩展卡恢复出厂设置按钮 SW1，此时 WiFi 工作模式会复位到本地监控模式，该模式下点击 APP 进入 WiFi 设置界面，重新选择正确的无线网络名称并输入正确的密码，操作完成后在确保所连的无线网可接入情况下，点击 APP 进入远程监控模式。

特别提醒：本地监控有两种方式：一种是 WIFI 模块与手机直接通讯；一种是 WIFI 模块通过路由器与手机构建局域网，在局域网内进行通讯。本地监控配置网络协议模

式为本地模式属于局域网内通讯。此处的“恢复出厂设置”功能是使模块局域网通讯恢复成与手机直接通讯，相当于两种本地监控模式之间切换。

C. 返回首页，选择“远程监控”，输入账号和密码，如图 8 所示，即可登录到个人账号，对该账户下的所有设备进行实时监控。

图 8

特别提醒：登录账号和密码可向厂家申请，申请账户和密码时，请提供 WiFi 卡条码的的序列号和秘钥。

D. 点击登录按钮，登录成功之后，进入设备列表页，如图 9 所示。通过搜索，输入模块名称，可以快速检索到需要监控的模块。

图 9

注意：“--”表示模块处在离线状态，“在线”表示模块处在在线状态；只有在模块在线的情况下，才能完成对模块的远程监控；“--”离线模式下，模块是没有数据的。

E. 点击对应的模块，即可跳转到“设备详情页”，进行监控如图 10 所示。

图 10

注意：远程监控模式下，若要恢复到本地监控，需要通过“设备详情页”的“控制”标签下的“返回本地监控模式”按钮来实现，如图 11 所示。

图 11

1 Product overview

The Bluetooth and WiFi series communication cards are designed to meet customers' wireless monitoring requirements. With the Bluetooth communication card, you can implement local wireless monitoring; and with the WiFi communication card, you can implement local wireless monitoring, and can also implement remote wireless monitoring based on public operator networks.

2 Technical specifications

Table 1 Wireless communication card technical parameters

Category	Name	Detailed description
Wireless parameters	Wireless module	Industry-level wireless module
	WiFi standard	2.4 GHz, IEEE802.11b/g/n
	WiFi data transmission rate	Max. rate: 150 Mbps
	Bluetooth standard	BLUETOOTH 4.0, 2.4 GHz, IEEE802.15
	Bluetooth data transmission rate	Max. rate: 24 Mbps
	Transmission distance	When an external antenna is used and there is no obstacle, the transmission distance is no shorter than 30 m; and when a built-in antenna is used and there is no obstacle, the transmission distance is no shorter than 20 m.

Table 2 Connection modes of the WiFi card

SN	Mode	Description
1	AP Server mode	In this mode, the WiFi card works as a hotspot, and mobile phones, tablets, and laptops can connect to the hotspot directly.
2	STAServer mode	In this mode, the WiFi card is connected to a router but still works as a Server module. The address can be set to a fixed one or be allocated by the router. Mobile phones, tablets, and laptops can be connected to the module through a router.
3	STA Client mode	In this mode, the WiFi card is connected to a remote server through a router. The data transmitted to the server is packed according to the requirements of the communication protocol, and other data is still transmitted in the pass-through mode.

3 Operation guide for mobile phone-based monitoring

(1) Follow the operation guide of the inverter to insert the extension card into the slot and fix it, and then install the antenna (The antenna can be either a trace antenna or sucker antenna. For sucker antennas, you need to add a coaxial cable. See the delivery BOM for details.)

(2) Scan the QR code on the nameplate of the inverter to down the INVT Workshop

application and install it on your mobile phone.

(3) Use the application in the local monitoring mode.

A. Open the INVT Workshop application.

The homepage is displayed, as shown in Figure 1.

Figure 1

B. Click **Local monitoring**.

The detailed information page of the local monitored devices is displayed, as shown in Figure 2.

Figure 2

C. Click the icon to display the device list.

You can click the **BLE** or **WIFI** tab to display the Bluetooth device list or the WiFi device list, as shown in Figure 3.

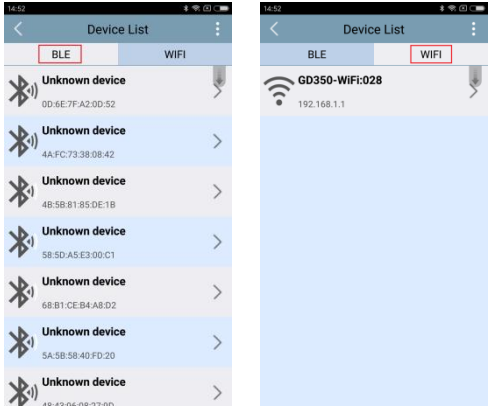

Figure 3

Note: You can refresh the list by using a drop-down gesture. Before searching for the WiFi module, ensure that your mobile phone has been connected to the corresponding WiFi hotspot of the WiFi module. The name of the hotspot is the serial number on the bar code. The connection can be completed through the setting function of the mobile phone. The password of the hotspot is "*00 + the key on the bar code*".

D. After the connection is completed, return to the detailed information page of the local monitored device to start the monitoring, as shown in Figure 4.

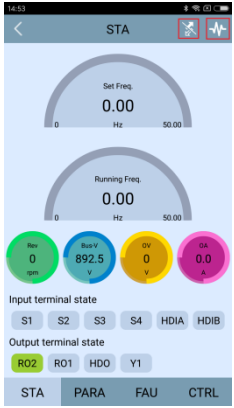

Figure 4

Instruction: After the connection is completed, the icon turns into , and you can click to disconnect the device. You can click **STA**, **PARA**, **FAU**, or **CTRL** to monitor the corresponding operation information of the device. If a Bluetooth device is connected, the icon is not displayed on the upper right. The oscilloscope function is provided only for local monitoring with WiFi connection. The serial number displayed on the name of the Bluetooth or WiFi device is the communication address of the inverter, which can be set through P14.00.

E. You can click the icon on the upper right to display the oscilloscope page, as shown in Figure 5.

Figure 5

Note: The control buttons, from left to right, on the bottom of the page indicate the "Return", "Start", "Stop", "Shift left", "Shift right", "Create channel", "Set upper/lower limit", "Open waveform" and "Save waveform" functions, and the operation process is as follows: "Create channel"->"Set upper/lower limit"->"Start"->"Stop"->"Shift left/Shift right"->"Save waveform"->"Open waveform". A maximum of 2 oscillographic channels can be created.

(4) Use the application in the remote monitoring mode.

A. Remote monitoring can be implemented only in the WiFi communication mode. Click **WiFi setup** on the homepage of the application to enter the **WiFi list** page, as shown in Figure 6.

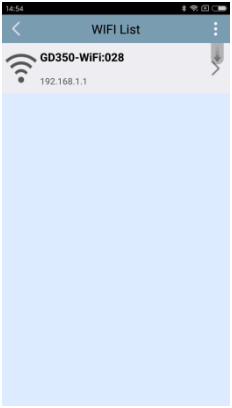

Figure 6

B. Ensure that the mobile phone has been connected to the WiFi module. For details about the connection, see the operation described in the local monitoring mode. Refresh the WiFi list and select the corresponding WiFi module.

The **WiFi setup** page is displayed, as shown in Figure 7.

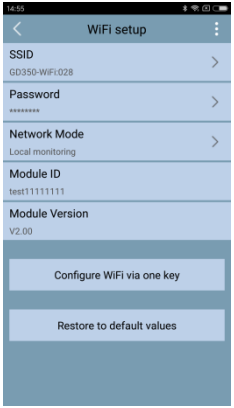

Figure 7

Note：

(1) When configuring remote monitoring, you must set the **Network Mode** to **Remote monitoring**. Then, you need only to enter the correct WiFi name and password and click **Configure WiFi via one key**.

(2) If you enter an incorrect wireless network name or password on the **WiFi setup** page and click **Configure WiFi via one key**, you can click **Restore to default values**. In this case, the WiFi working mode is reset to the local monitoring mode. Click **WiFi setup** on the homepage of the APP to enter the **WiFi setup** page, and select the correct wireless network and enter the correct password. Ensure that the connected wireless network is accessible, and then you can click **Remote monitoring** to enter the remote monitoring mode.

Special reminder:

Local monitoring can be implemented in two ways: (a) The WiFi module directly communicates with the mobile phone; and (b) The WiFi module establishes a local area network (LAN) with a mobile phone through a router and communicates with the mobile phone on the LAN. For local monitoring, set **Network Mode** to **Local monitoring**, which is a kind of LAN communication. In the local monitoring mode, the function of restoring to the default values is to reset the LAN communication way to the direct communication way, which is equivalent to the switching of the two ways of the local monitoring.

C. Return to the homepage, click **Remote monitoring**, and enter your account and password, as shown in Figure 8.

After logging in, you can monitor all the monitored devices of your account in real time.

Figure 8

Special reminder:

You can apply to the manufacturer for an account and password, and you need to provide the serial number and key on the bar code of the WiFi card when making the application.

D. Click **Login**.

After you log in, the device list page is displayed, as shown in Figure 9. You can enter a module name to quickly find the module that needs to be monitored.

Figure 9

Note: "--" indicates that the module is in the offline state. A module can be monitored remotely only when it is online. No data about a module is displayed when it is offline.

E. Click a module. The corresponding detailed information page is displayed, as shown in Figure 10.

Figure 10

Note: If you need to switch to the local monitoring mode from the remote monitoring mode, you can click **CTRL** on the detailed information page to display the **CTRL** page, and then click **Return to local monitoring mode**, as shown in Figure 11.

Figure 11

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