

95Power Information Technology Co., Ltd

# VDB1609SK规格书 /Datasheet 蓝牙工卡/Bluetooth card

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#### 设备清单/Product List

名称/Item	型号/Model Number	数量/Number	备注/Remark
蓝牙工卡/Bluetooth card	VDB1609SK	1pcs	
吸合式充电线/	USB 接口输入/USB port	1000	
Suction charging cable	input	ipes	

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# 1. 产品介绍/Product introduction

VDB1609SK 是一款 BLE(蓝牙低能耗)4.2 卡。它可以广播其所有者的个人身份信息,如姓名和 UUID。 可作为室内定位卡使用,可通过 BLE 网关或其他 BLE 定位基站进行定位。

VDB1609SK is a BLE(Bluetooth Low Energy) 4.2 card. It can broadcast its owner's personal identification information like name and UUID. And it can be used as indoor positioning card, which can be located by BLE gateway or other BLE locating base-station.

VDB1609SK 有一个可充电的 500mAh 锂电池。 它可以通过一个磁性 USB 连接器线充电。 请按照 磁吸方向,使卡与连接器紧密结合。 不要让电池耗尽太长时间,这可能会损坏电池,并使其难以充电。

VDB1609SK has a rechargeable 500mAh Li-Battery. It can be charged by a magnetic USB connector line. Please follow the magnetic draw direction which will combine the card and connector tightly. Do not let the battery run out for too long, which may damage the battery, and make it difficult to recharge.

VDB1609SK 有一个电源键,也可以作为 SOS 键使用。 开机模式下长按可激活 SOS 信号。关机模 式下长按开机,开机模式下快速短按 3 次,再长按 3s,即可关机。

The VDB1609SK has a power button that can also be used as an SOS button. Hold down in boot mode to activate the SOS signal. In shutdown mode, long press to power on. In startup mode, short press three times quickly and long press for 3s to power off.

VDB1609SK 有两个 LED。 当电池充电时,红灯亮。 按下按钮,蓝灯亮。 VDB1609SK has two LED. The red one will be on when the battery is charging. The blue one will be on when pressing the button.



图 1 VDB1609SK 产品图/Product picture

## 1.1 特性/Features

- ◆ 低功耗/Low power consumption
- ◆ IP66 级防尘防水/ IP grade: IP66 (water resistance)
- ◆ 最大广播距离可达 70m/ Maximum broadcast distance up to 70m
- ◆ 支持二维码, NFC 定制内容/Support TWO-DIMENSIONAL code, NFC customized content
- ◆ 应用灵活/Application of flexible
- ◆ 携带便捷/Convenient to carry
- ◆ 符合 RoHS, FCC, CE 标准

#### 1.2 应用/Application

- ◆ 室内定位/Indoor positioning
- ◆ 信息推送/Information push
- ◆ 身份识别/Identification

# 2. 硬件参数/Hardware parameters

基本工作参数/Basic parameter	
默认刷新频率 Refreshing frequency by default	2Hz
数据速率/Data rate	1Mbps(Bluetooth ® 4.2)
传输功率/Transmission power	-20~+4dBm(2dB 递增/Increasing)
灵敏度/Sensitivity	-94dBm at 1Mbps BLE
一次充电使用时间 General using time when fully charged	2 month@1Hz(@0dBm 2Hz)
广播距离/Broadcasting distance	70m(Max TX power)
电池容量/Battery capacity	500mAh
温度/ Temperature	Operational: -20℃~70℃ Charging: 0~45℃ Storage: -20~40℃(<3month)
产品尺寸/Dimension	85mm*54mm*7.5mm(±1mm)
调制技术/Modulation technique	GFSK
工作模式/Work mode	iBeacon



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蓝牙参数/Bluetooth parameters			
频率范围/Frequency	2400MHz2483.5MHz		
协议标准/Protocol	Bluetooth ®4.2		
吸合式充电线/Suction charging cable			
输出/Output	DC 5V /1A		

# 3. 软件使用说明/Software Application Guide

#### 3.1 下载 APP/ Download APP

Skylab\_xbeacon 还没有投入市场。 最新的 APP 请联系我们的销售。

Skylab\_xbeacon hasn't been put into the market yet. Please contact our sales for the latest APP.

#### 3.2 扫描蓝牙信标/Scan Bluetooth Beacon

打开 APP,如果手机提示打开蓝牙,请允许,手机自动开始扫描周围的蓝牙信标。

Open the APP, if cell phone ask for permission to open bluetooth, please select yes. Then it will begin to scan the surrounding Bluetooth Beacons.



## 3.3 连接蓝牙信标/Connect Bluetooth Beacon

点击要连接的蓝牙信标, 30 秒内输入密码,即可获得操作权限。(出厂密码:1234)

Click the Bluetooth Beacon to be connected, enter the password within 30 seconds, in order to obtain operating privileges .(Factory Password:1234)





## 3.4 配置介绍/Configuration Introduction



介绍/Introductions:

MAC: MAC 地址/MAC address

Name: 所选蓝牙信标的名称。/The name of the Bluetooth Beacon which is selected.

UUID: 按照 ISO/IEC11578:1996 标准的 128 位标识符(16 字节)/128-bit identifier according to

ISO/IEC11578:1996 standard (32 hexadecimal digits)

User service data:用户数据, 24 个 16 进制数字/User data, 24 hexadecimal numbers

Major: 16 位标识符(0-65535)/Set 16-bit identifier (0-65535)

Minor: 16 位标识符(0-65535)/Set 16-bit identifier (0-65535)

Measured Power: 距离 1 米时的参考信号强度/Signal strength at 1 meter

Transmit Power: 发射功率/Transmit power

Advertise Interval: 广播间隔/ advertise interval

Battery Level: 电池电量/ Battery Capacity



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Password: 密码(默认 1234) /Connection password

配置好信息后,蓝牙连接断开,配置将生效。

After the information is configured ,the configuration will take effect after the bluetooth connection is disconnected.

#### 3.5 修改蓝牙信标名称/Modify Bluetooth Beacon Name

点击"Device Name",出现以下 UI,然后在"输入一个名称"框中输入长度小于 12 位的英文字符名称, 也可以在"或者选一个"里选一个名称。然后点击"确认修改"。

Click the "Device Name", the following UI will be opened. Then enter a length of less than 12-bit English characters as VDB1609 device name in the following "Enter a Name" box. Then click "confirm to modify".



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## 3.6 修改 UUID/Modify UUID

点击"UUID",出现以下 UI,然后在"输入一个 UUID 值"框中输满 16 个字节(32 个十六进制字符) 作为 Beacon 的 UUID。然后点击"确认修改"。

Click the "UUID", the following UI will be opened. Then and then enter a 32-byte string of sixteen as the UUID of VDB1609 in the following "Enter an UUID" box. Then click "confirm to modify".





#### 3.7 修改 User service data/Modify User service data

点击"User service data",出现如下界面,在"输入用户数据"中输入 24 个 16 进制字符。然后点击"确 认修改"。

Click the "User service data ", the following interface will be opened. Then enter a Hexadecimal string of 24 word . Then click "confirm to modify".





# 3.8 修改 Major、Minor/Modify Major/Minor

点击"Major",出现如下界面,设置 0~65535 为设备的 Major 值。然后点击"确认修改"。

Click the "Major"/"Minor" ,the following UI will be opened. Then set a value between 0~65535 as the

Major/Minor value of the device. Then click "confirm to modify".

< back	K back
Major 13330	Minor 30806
Enter Major	enter Minor
or choose one	or choose one
12345	12345
22222	22222
56666	56666
confirm to modify	confirm to modify
From 1 to 65535choose a value to match Major	From 1 to 65535choose a value to match Major

#### 3.9 修改 Measured Power/ Modify Measured Power

点击"Measured Power",出现如下 UI,在距离 Beacon 1 米远处,设置测量功率,可调范围

-100dBm~-30dBm,默认为-61dBm。然后点击"确认修改"。

Click the "Measured Power", the following UI will be opened. Then select a measured power range from -100dBm to -30dBm. The default is -61dBm. Then click "confirm to modify".

Measured Power 含义为,当接收设备接收到的信号强度为-61dBm 时,可认为该设备距离 Beacon 约为1米。

Measured Power means, when a phone's RSSI is -61dBm, it is about 1 meter from VDB1609SK.





#### 3.10 修改发射功率/Modify Transmitting Power

发射功率的修改需要用到另一个 APP——nRF Connect。

Another APP, nRF Connect, is used to modify the transmitting power.

- 1、打开 nRF Connect, 下拉界面刷新后就开始扫描周围的蓝牙信标;
- 1. Open nRF Connect and scan bluetooth beacons around after the drop-down screen is refreshed.





- 2、为了方便寻找到目标信标,可以点击"No filter"后,在第一栏中输入 VDB03;
- 2. To find the target beacon conveniently, click "No Filter" and enter VDB03 in the first column.





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3、点击右边的"CONNECT"后进入如下左图界面,然后点击最下面一栏的"Nordic UART Service";

3、Click "CONNECT" on the right to enter the interface in the left picture below, and then click "Nordic

UART Service" in the bottom column;

下午5:27		\$ 301 301 🕱 O	72)
$\equiv$ Devices	C	DISCONNECT	:
BONDED ADVE		DB03 6:69:70:9F:E4:DC	×
CONNECTED NOT BONDED	CLIENT	SERVER	:
Generic Access UUID: 0x1800 PRIMARY SERVICE			
Generic Attribute UUID: 0x1801 PRIMARY SERVICE			
Device Information UUID: 0x180A PRIMARY SERVICE			
Unknown Service UUID: 0000ff00-0000- PRIMARY SERVICE	1000-8000-0	)0805f9b34fb	
Nordic UART Service UUID: 6e400001-b5a3- PRIMARY SERVICE	393-e0a9-e5	0e24dcca9e	
Wirele	ess by Nordic		



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- 4、点击"TX Characteristic"右边的三个指向下方的箭头符号进行连接;
- 4. Click the three arrow symbols pointing down to the right of "TX Characteristic" to connect;

下午5:28 烃 🗇		\$ "ad "ad 🕱 0	72)
≡ Devic	es	DISCONNECT	:
BONDED	ADVERTISER	VDB03 E6:69:70:9F:E4:D0	×
CONNECTED NOT BONDED OUID: 0X1800 PRIMARY SERVI	CLIE	NT SERVER	:
Generic Attrib UUID: 0x1801 PRIMARY SERVI	<b>ute</b> CE		
Device Informa UUID: 0x180A PRIMARY SERVI	<b>ation</b> CE		
Unknown Serv UUID: 0000ff00 PRIMARY SERVI	<b>ice</b> -0000-1000-800 CE	00-00805f9b34fb	
Nordic UART S UUID: 6e40000 PRIMARY SERVI	e <b>rvice</b> 1-b5a3-f393-e0a CE	9-e50e24dcca9e	
<b>RX Characte</b> UUID: 6e400002-b5 Properties: W	<b>ristic</b> a3-f393-e0a9-e5 RITE, WRITE NO	50e24dcca9e RESPONSE	<u>+</u>
TX Characte UUID: 6e400003-b5 Properties: NO	<b>ristic</b> a3-f393-e0a9-e8 DTIFY	50e24dcca9e	<u>***</u>
Uescriptors: Client Charac UUID: 0x2902 Value: (0x) 00	teristic Configura 	ation 📕	<u>+</u>
	Wireless by No	rdic	



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- 5、点击"RX Characteristic" 右边的一个指向上方的箭头符号,在弹出的界面中进行设置;
- 5. Click the arrow symbol pointing upwards on the right of "RX Characteristic" and set it in the popup

#### interface;

下午5:43 ⑫ ③	\$ "al "al \$ @	下午5:29 煌 🗇	\$ 101 101 \$
■ Devices		≡ Devices	DISCONNEC
BONDED ADVERTISER	<b>VDB03</b> E6:69:70:9F:E4:DC ×	BONDED ADVE	RTISER VDB03 E6:69:70:9F:E4:
CONNECTED CLIE NOT BONDED CLIE	NT SERVER		CLIENT SERVER
Generic Attribute JUID: 0x1801 PRIMARY SERVICE		Generic Attribute	
Device Information JUID: 0x180A PRIMARY SERVICE		P Write value ↓ A Parsing known o	NEW LOAD
Unknown Service JUID: 0000ff00-0000-1000-800 PRIMARY SERVICE	00-00805f9b34fb	0x New value	UINT 8
Nordic UART Service JUID: 6e400001-b5a3-f393-e0a PRIMARY SERVICE	9-e50e24dcca9e	Save as	UINT 16 — UINT 32
<b>RX Characteristic</b> UUID: 6e400002-b5a3-f393-e0a9-e!	50e24dcca9e	Advanced	SINT 8
Properties: WRITE, WRITE NO	RESPONSE	SAVE	SINT 16
UUID: 6e400003-b5a3-f393-e0a9-el Properties: NOTIFY	₩ 50e24dcca9e	TX Characteristic UUID: 6e400003-b5a3-f393	SINT 32
Descriptors: Client Characteristic Configur	ration 上 🚹	Properties: NOTIFY Descriptors:	FLOAT 16
Value: (0x) 01-00		UUID: 0x2902 Value: (0x) 01-00	FLOAT 32



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6、输入如下图的指令后,点击"SEND",然后可以将界面拉到右边,可以看到"Log in Succ"received;

6. After entering the following command, click "SEND" and then pull the interface to the right, you can

#### see "Log in Succ "received;

下午5:32 烃 🗇 🖻	\$ 300 Sul \$ 💷
	DISCONNECT
	RTISER VDB03 E6.69:70:9F:E4-DC ×
CONNECTED NOT BONDED	CLIENT SERVER :
PRIMARY SERVICE	
Generic Attribute	
Write value	NEW LOAD
D A Parsing known ch	naracteristic <del>s</del> is disabled.
AT+AUTH=1234	TEXT
U 0x ODOA	вүт — — — — — — — — — — — — — — — — — —
ADD VALUE	
Save as	
Advanced	~ E
SAVE	CANCEL SEND
UUID: 6e400003-b5a3-f393- Properties: NOTIFY Descriptors: Client Characteristic C UUID: 0x2902 Value: (0x) 01-00	e0a9-e50e24dcca9e
Wireles	ss by Nardic

下午5:32 %	0	\$ 301 301 📚 🗉	D
≡ De	vices	DISCONNECT	
BONDE	D ADVERTISER	VDB03 E6:69:70:9F:E4:DC	×
CONNECTE NOT BOND	ED CLIER	NT SERVER	÷
17:32:32.996	Connected to E6:69:	70:9F:E4:DC	
17:32:33.417	Connection paramete (interval: 7.5ms, later 5000ms)	ers updated ncy: 0, timeout:	G
17:32:33.721	Services discovered		UL
17:32:33.819	Connection parameter	ers updated	PF
	(interval: 45.0ms, lat 5000ms)	ency: 0, timeout:	De
17:32:37.016	Data written to desc	r. 00002902-00	UL
	00-1000-8000-0080 (0x) 01-00	)5f9b34fb, value:	PR
17:32:37.016	"Notifications enable	d" sent	U
17:32:39.311	Connection parameter (interval: 97.5ms, later 6000ms)	ers updated ency: 10, timeout:	UL
17:32:52.669	Data written to 6e40 3-e0a9-e50e24dcca9 41-54-2B-41-55-54-4 4-0D-0A	00002-b5a3-f39 9e, value: (0x) 88-3D-31-32-33-3	No UL PF
17:32:52.669	"AT+AUTH=1234 " sent		
17:32:52.767	Notification received 03-b5a3-f393-e0a9- value: (0x) 4C-6F-67- 75-63-63-0D-0A	from 6e4000 e50e24dcca9e, -20-69-6E-20-53-	- -
17:32:52.76	"Log in Succ " received		
INFO	• h B		



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7、返回原来的界面,点击"RX Characteristic" 右边的箭头符号,输入如下图的指令后,点击"SEND", 然后可以将界面拉到右边,可以看到"[AT]Set OK" received,表示发射功率修改成功;

7、Return to the original interface, click the arrow symbol on the right of "RX Characteristic", input the following instructions, click "SEND", and then pull the interface to the right, you can see "[AT]Set OK" received, indicating that the transmitting power is modified successfully;

下午5:33 🖉 🎯 S	\$ ##### \$ @	71)
E Devices	DISCONNECT	
	ISER <b>VDB03</b> E6/69/70/9F/E4/DC	×
CONNECTED NOT BONDED UCID: 0X1600	CLIENT SERVER	:
PRIMARY SERVICE		
Generic Attribute		
u Write value	NEW LOAD	
Vince value		
A Parsing known char	acteristics is disabled.	
AT+TXPWR=2	TEXT 👻	
0× 0D0A	BYT 🔸 🗡	<
ADD VALUE		
Save as		
Advanced	~	P
SAVE	CANCEL SEND	)
41-54-2B-41-55-54-48-5	D-51-52-55-54-0D-0A	
TX Characteristic		*
6e400003-b5a3-f393-e0	)a9-e50e24dcca9e	
Properties: NOTIFY Value: (0x)		
4C-6F-67-20-69-6E-20-5 Descriptors:	5-75-65-65-0D-0A	
Client Characteristic Cor	nfiguration	
UUID: 0x2902		
Value: (0x) 01-00		

功率可设置为: -19dBm, -13dBm, -8dBm, -3dBm, 0dBm, 2dBm。默认是 0dBm。 The power can be set to: -19dbm, -13dbm, -8dbm, -3dbm, 0dBm, 2dBm. The default is 0dBm.



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#### 3.11 修改广播间隔/Modify Advertise Interval

点击"广播间隔"出现如下 UI,设置广播间隔,广播间隔可以设置为 100ms、200ms、300ms、400ms、500ms、600ms、700ms、800ms、900ms 和 1000ms。默认为 500ms。然后点击"确认修改"。

Click the "Advertise Interval", the following UI will be opened. Then set a advertise interval. Broadcasting interval can be set to 100ms, 200ms, 300ms, 400ms, 500ms, 600ms, 700ms, 800ms, 900ms and 1000ms. The default is 500ms. Then click "confirm to modify".

晚上7:	30 0.0K/s ≹ ☉ "åll 奈 700
く返	
	<b>於</b> 下播间隔 500 ms
选择	圣一个值
	100 ms
	100 ms
	200 ms
广播	300 ms
	400 ms
	500 ms
	600 ms
	700 ms
	800 ms
	= 0 (



#### 3.12 修改密码/Modify Password

点击"Password",出现如下 UI,然后在"Password"框中输入 4 个字符作为连接密码,默认为 1234。 然后点击"确认修改"。

Click the "Password", ,the following UI will be opened. Then and then enter the 4 characters as a

connection password in the "Password" box, the default is 1234. Then click "confirm to modify".



注意:请提前保存好您的密码,一旦修改新密码,原密码将失效,必须用新密码才能登陆。

Note: Please save your password in advance, once you change the new password, the old password will be invalid, you must use the new password to log in.

# 4. 联系方式/Contact information

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