

VDB02SS 蓝牙 Beacon

使用手册

VDB02SS Bluetooth Beacon User Manual

文档信息/document information

标题/Title VDB02SS 使用手册 蓝牙 Beacon

文档类型/ Document type 使用手册/User Manual

文档编号/ Document number WN-23030070

版本日期/ Revision and date V1.02 11-Apr-2025

秘密等级/ Disclosure restriction 外部公开/External public

历史版本/Revision History

版本/ Revision	描述/Description	修改人/Modifier	日期/Date
V1.01	初始版本/Initial release	Sherman	20230302
V1.02	更新参数/Update parameter	Eric	20250411

设备清单/Product List

设备名称/Device Name	型号/Device No.	数量/Number	备注/Remark
蓝牙 Beacon	VDB02S	1PCS	带防拆按键/With an anti-disassembly button
电池/Battery	SIZE AA(5 号)	2PCS	南孚 Excell 工业装, 2600mAh/ Nanfu Excell Industrial Outfit, 2,600 m A h

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1. 产品介绍/Product Introduction

VDB02S 是一款防拆型资产标签蓝牙信标。其广播协议符合蓝牙 BLE 广播协议，包括 iBeacon (Apple) 和 Eddystone (Google) 两种协议。它通常被安装在一个合适的位置，周期性地向它的周围环境进行广播，从而被其他蓝牙设备如蓝牙网关扫描到其广播内容，并计算出位置信息。通常它是不会被其他 BLE 的主机设备连接上的，但是可以通过手机 APP 进行连接，并修改其广播参数等内容。

VDB02S is a non-demolition asset label Bluetooth beacon. Its broadcast protocol is consistent with the Bluetooth BLE broadcast protocol, including both the iBeacon (Apple) protocol and the Eddystone (Google) protocol. It is usually installed in a suitable location and periodically broadcasts to its surroundings, thus being scanned into its broadcast content by other Bluetooth devices, such as a Bluetooth gateway, and calculating the location information. Usually it is not connected by other BLE host devices, but it can be connected through the mobile APP, and modify its broadcast parameters, etc.

Skylab_xBeacon 是一款 SKYLAB 研发团队研发用于配置 VDB02S 参数的手机 APP。用这款 APP 去连接 VDB02S，可以修改它的广播频率、功率，UUID, Major, Minor 和设备名称等等参数。当 VDB02S 处于广播状态时这些参数将被广播出来。

Skylab_xBeacon is a mobile APP developed by the SKYLAB development team to configure VDB02S parameters. With this APP to connect to the VDB02S, you can modify its broadcast frequency, power, UUID, Major, Minor, and device name and other parameters. These parameters will be broadcast out when the VDB02S is in the broadcast state.



图 1 VDB02S 产品图/Figure 1 VDB02S Product diagram

1.1 VDB02S 内部模块介绍/Internal Modules

VDB02S 内部支持防拆按键，可以在被拆下时上传报警信息（需要确保安装面平整，可以在正常安装时把防拆按键按下）。

The VDB02S supports an anti-disassembly button, which can upload an alarm message when the VDB02S is removed. (Ensure that the installation surface is flat and press the anti-disassembly button during normal installation.)

VDB02S 内部预留加速度和温湿度传感器，可以采集相应信息并广播出去（默认不贴）。

The VDB02S has a reserved internal acceleration and temperature and humidity sensors to collect the corresponding information and broadcast it out (not posted by default).

VDB02S 用两节 5 号电池（南孚 Excell 工业装）串联供电，方便更换电池。

VDB02S is connected in series with two 5 batteries (Nanfu Excell Industrial Assembly) for easy battery replacement.

1.2 VDB02S 特性/Features

- ◆ 低功耗/ Low Power Consumption
- ◆ IP67 级防尘防水/ The IP67 grade is dustproof and water-resistant
- ◆ 支持二维码，NFC 定制内容/ Support qr code, NFC customized content
- ◆ 应用灵活/ Flexible application
- ◆ 安装便捷/ Easy to deploy
- ◆ 广播距离可达 70 米/ Advertise Range up to 70 Meters
- ◆ 符合 RoHS, FCC, CE 标准/ RoHS, FCC,CE compliance

1.3 VDB02S 应用/Application

- ◆ 资产标签/ Asset Label
- ◆ 室内定位/ Indoor positioning
- ◆ 信息推送/ Information push
- ◆ 身份识别/ Identification
- ◆ 微信摇一摇/ Wechat shake

2. 硬件参数/Hardware Parameters

产品参数//Product Parameter	
尺寸/Dimension	72*45*26mm
电池型号/ Battery	Size AA（5 号电池）/ Size AA (Battery # 5)
工作温度/Operating Temperature	-40℃~85℃

传感器参数（预留，默认不贴）/Sensor parameters (reserved, not posted by default)	
加速度传感器/Acceleration transducer	3 轴， $\pm 2g/4g/8g/16g$ 四档可调/ 3 axis, $\pm 2g / 4g / 8g / 16g$ four gear adjustable
湿度传感器/Humidity sensor	0%RH~100%RH（ $\pm 2\%RH$ ）
温度传感器/ Temperature sensor	-20℃~70℃（ $\pm 0.2^\circ C$ ）

蓝牙参数/Bluetooth parameters	
无线标准/Wireless standards	蓝牙®5.2/ Bluetooth ® 5.2
频率范围/ Frequency range	2400MHz---2483.5MHz
数据速率/ Data rate	1M/2Mbps(Bluetooth ® 5.2)
调制技术/ Modulation technique	GFSK 调制/ GFSK modulate
无线安全/ Wireless security	AES HW Encryption
传输功率/ Transmitted power	-40~+6dBm（2 dB 递增/ 2 dB increments）
灵敏度/ Sensitivity	-98.9dBm at 1Mbps、-96.2dBm at 2Mbps BLE
工作模式/ Work pattern	iBeacon(默认/ Default) / Eddystone（可选/ Selectable）

电池使用寿命/Battery life			
广播功率/TX Power	覆盖范围/Adv. Distance	广播间隔/Adv. interval	电池使用时间（月） /Battery life(Month)
+6dBm	100m	100ms	22.3
		200ms	43.2
		500ms	101.1

		1000ms	185.1
+0dBm	60m	100ms	29.5
		200ms	56.3
		500ms	124.9
		1000ms	224.2

注：功耗数据仅供参考，未考虑电池自放电因素，当计算寿命大于电池寿命（5 年）时，以电池寿命为准；上述计算默认采用南孚 Excell 工业装，2600mAh 作为电量参考。

Note: The power consumption data is for reference only, and the battery self-discharge factor is not considered. When the calculated life is greater than the battery life (5 years), the battery life shall be the criterion. The above calculation uses 2600mAh as the power reference by default.

3. 电池安装指导/Install Battery

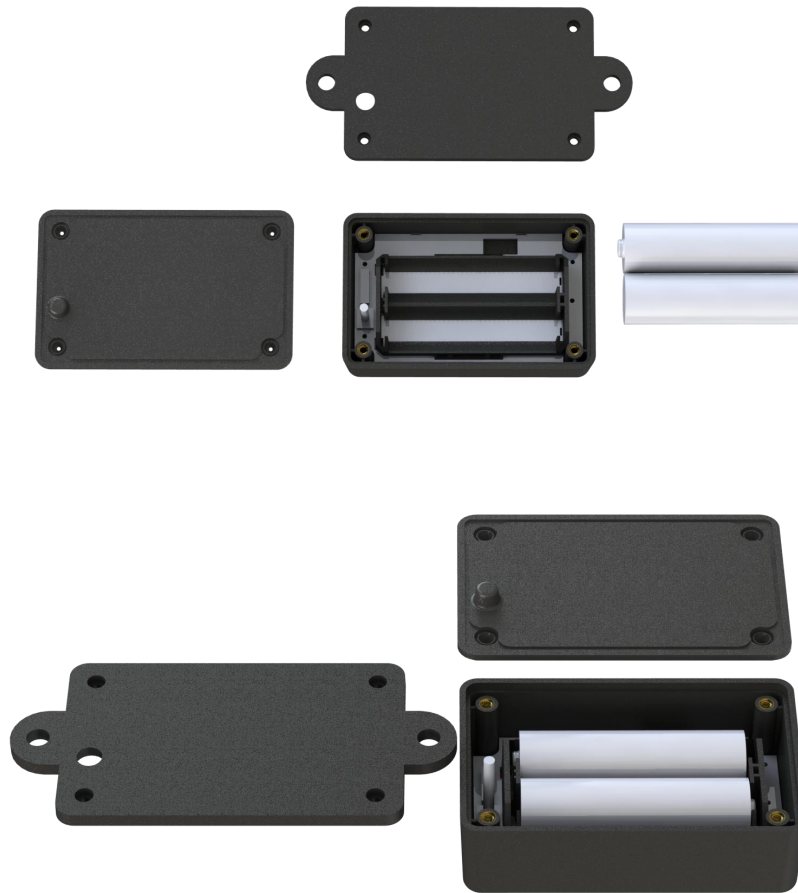
VDB02S 在默认情况下，出厂时已安装 2 节 5 号干电池。如果您需要更换电池，请遵循以下说明。

By default, the VDB02S comes with Two number 5 dry batteries. If you need to replace the battery, follow these instructions.

- （1）用十字螺丝刀拆卸 4 颗螺丝； /Remove the 4 screws with a cross screwdriver;



- （2）打开 VDB02S 的底部外壳和橡胶垫，对准电池的正负极，安装 2 节电池； /Open the bottom shell and rubber pad of VDB02S, align it with the positive and negative electrodes of the battery, and install two batteries;



4. 软件使用说明/Software Instructions

4.1 VDB02S 开机/Starting up

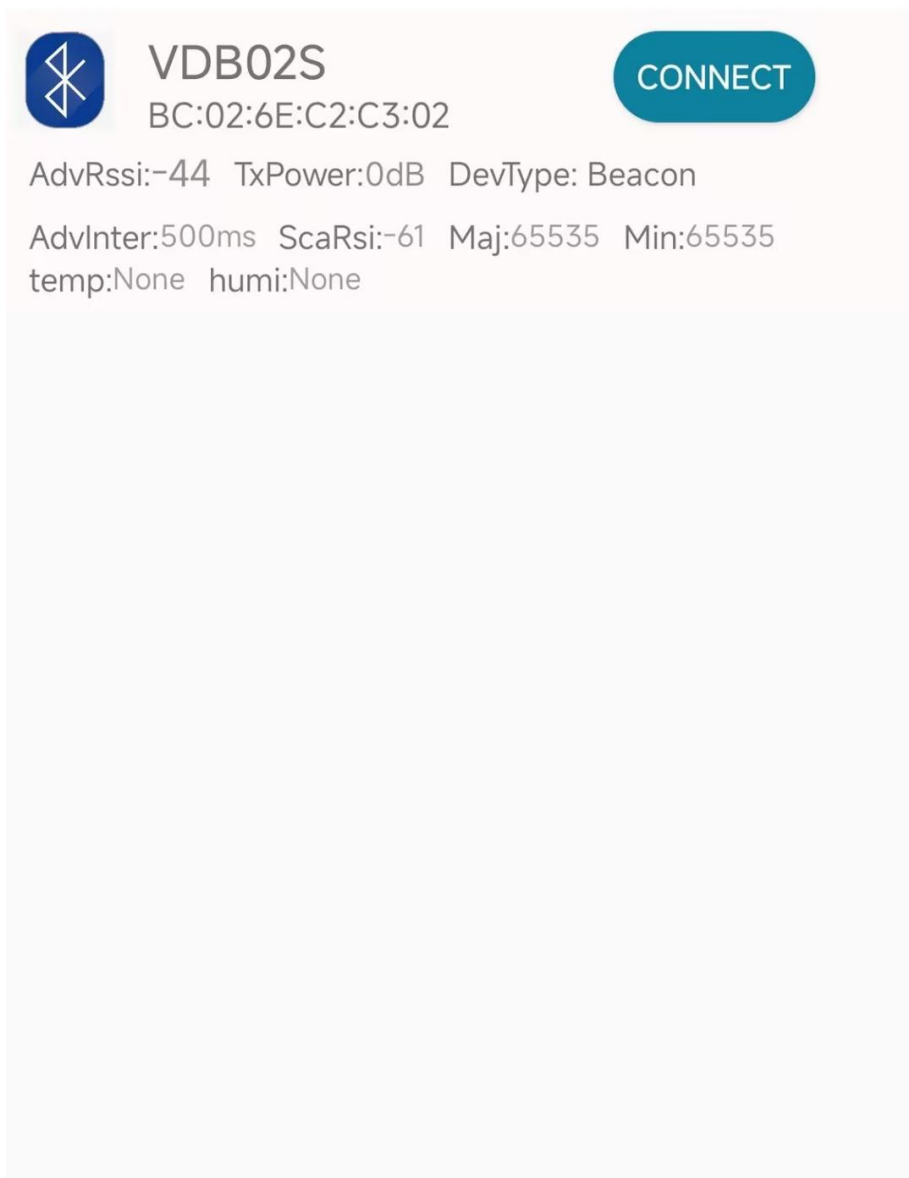
打开 VDB02S 的底壳，安装两个 Size AA 电池，再将开关拨到“ON”。此时，VDB02S 开始广播，再安装 VDB02S 的底壳。如未特殊要求，默认出货样机已提前拨到“ON”上，并装好电池打好螺丝。

Open the bottom case of the VDB02S, install two Size AA batteries, and then dial the switch to the "ON". At this point, the VDB02S starts broadcasting and alls the shell of the VDB02S. If there is no special requirements, the default shipment prototype has been dialed to the "ON" in advance, and the battery is screwed.

4.2 扫描蓝牙信标/Scan Bluetooth beacons

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。

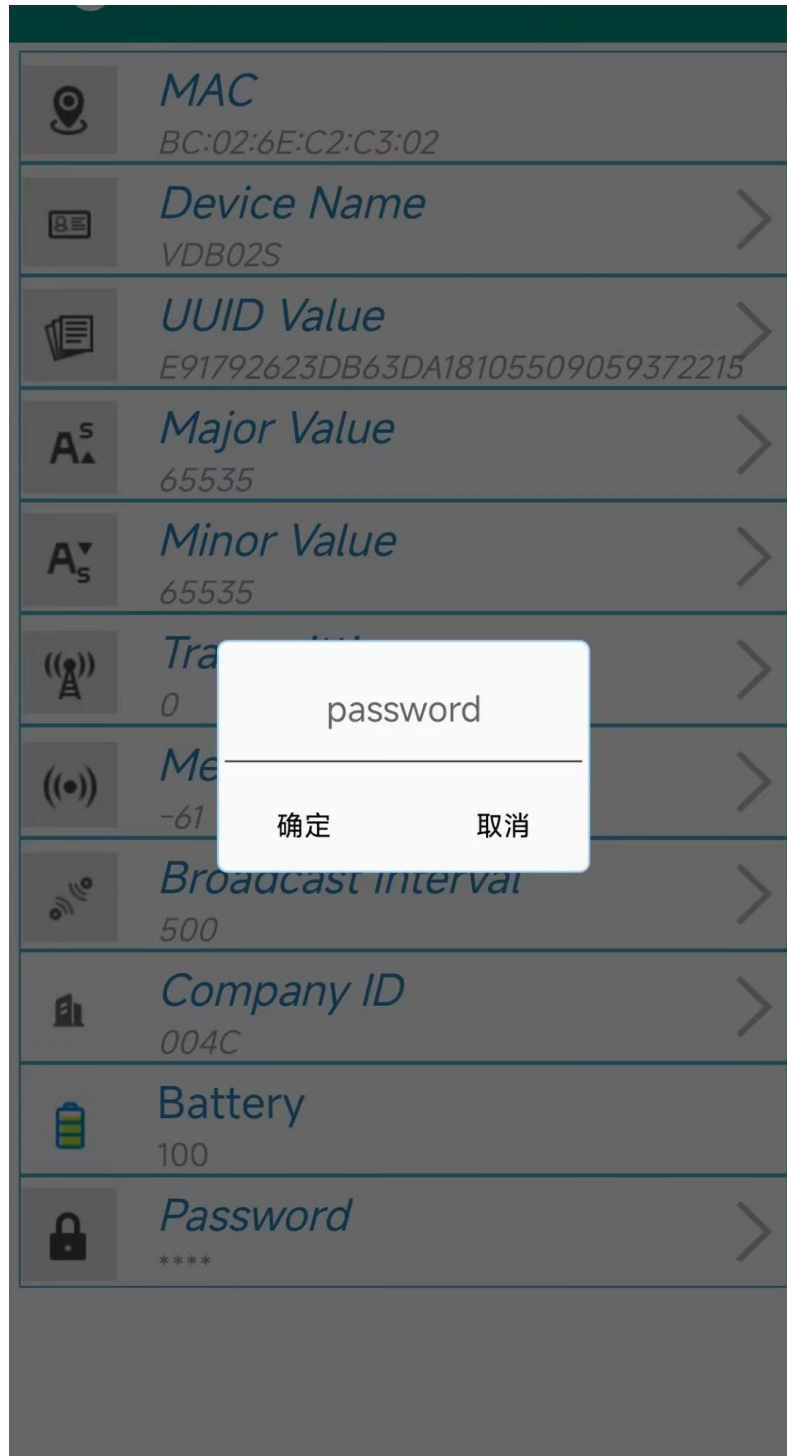
Open the APP, if the phone prompts to open Bluetooth, please allow the phone to automatically start scanning the surrounding Bluetooth beacon.



4.3 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 Beacon you want to connect, and enter the password within 30 seconds, in order to obtain operating privileges .(Factory Password:1234).



4.4 配置介绍/Configuration introduction

	MAC BC:02:6E:C2:C3:02	
	Device Name VDB02S	>
	UUID Value E91792623DB63DA18105509059372215	>
	Major Value 65535	>
	Minor Value 65535	>
	Transmitting power 0	>
	Measured Power -61	>
	Broadcast interval 500	>
	Company ID 004C	>
	Battery 100	
	Password ****	>

介绍 Introductions:

MAC: MAC 地址（不可修改）/ Chip MAC address(non-modifiable)

Device Name: 所选蓝牙信标的名称/ The name of the Bluetooth 5.2 Beacon which is selected.

UUID Value: 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)

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

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

Transmitting Power: 发射功率/ Transmit power

Measured Power: 距离 1 米时的参考信号强度/Signal strength at 1 meter（Beacon transmission power is 0dBm）

Broadcast interval: Beacon 广播间隔/Beacon advertise interval

Company id: 作为区分的 id 号/The id number is used as a distinction

Battery: Beacon 电池电量（无法修改）/ Beacon battery Capacity(non-modifiable)

Password: Beacon 密码（默认 1234）/Beacon connection password（Default 1234）

配置好信息后，蓝牙连接断开，配置将生效。

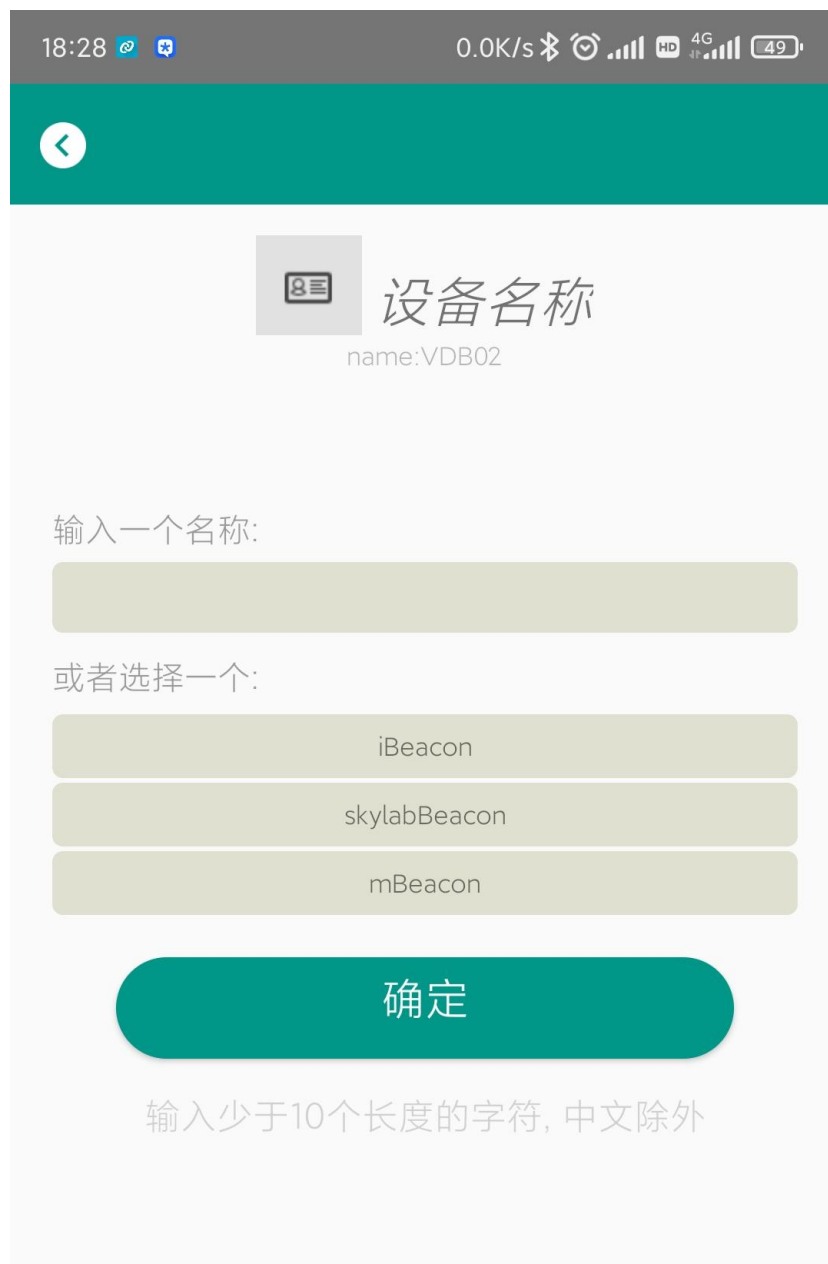
After the information is configured ,the configuration will take effect after the bluetooth connection is disconnected.

4.5 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 Beacon device name in the following “Enter a Name” box. Then click “confirm to modify”.

After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.



4.6 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 enter a 32-byte string of sixteen as the UUID of Beacon in the following “Enter an value” box. Then click “confirm to modify”. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.



18:28 0.0K/s 4G

< UUID值

uuid:FDA50693A4E24FB1AFCFC6EB07647825

请输入一个值:

或者选择一个:

FDA50693A4E24FB1AFCFC6EB07647825

00112233445566778899AABBCCDDEEFF

12345678123456781234567812345678

确定

UUID是由32个16进制数组成

4.7 修改 Major、Minor/ Modify Major、Minor

点击“Major”，出现如下界面，然后在“请输入一个值”框中设置 0~65535 为设备的 Major 值。然后点击“确认”，修改成功后会在界面下方显示“修改成功”。

Click the "Major", the following UI will be opened. Then set a value between 0~65535 as the Major value of the device in the following "Enter an value" box. Then click "confirm to modify". Minor is similar, click Minor to enter modify. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

The screenshot shows a mobile application interface for modifying the Major value. At the top, there's a status bar with the time 18:29, signal strength, and battery level. Below that is a teal header bar with a back arrow. The main content area has a light gray background. It features a logo with 'A^S' and the word 'Major' in a stylized font, with 'major:65535' underneath. Below this, there's a prompt '请输入一个值:' followed by a large, empty, light green rectangular input field. Underneath the input field is another prompt '或者选择一个:' followed by three stacked, light green rectangular buttons containing the values '1000', '12345', and '65535'. At the bottom of the form is a large, rounded teal button with the text '确定'. Below the button, there's a small gray text note: '从0到65535中选取一个值作为Major'.

修改 Minor/Modify Minor

同上面 Major 类似，点击 Minor 进入修改即可。

Just like you did above to modify Major, click Minor to enter the change.

4.8 修改发射功率/Modify Transmitting Power

点击“发射功率”出现以下界面，点击设置框，选择需要的发射功率，点击确认。

Click "发射功率" to appear in the following interface, click the Settings box, select the required transmit power, and click confirm.



4.9 修改参考信号强度/Modify the reference signal strength

点击“Measured Power”，出现如下界面，在距离 Beacon 1 米远处，然后在“请输入一个值”框中设置测量功率，可调范围-100dBm~-30dBm，默认为-61dBm。然后点击“确认”，修改成功后会在界面下方显示“修改成功”。

Click "Measured Power", the following interface will appear, 1 meter away from the Beacon, and then set the Measured Power in the box of "Please input a value", adjustable range of -100dbm ~ -30dbm, default is -61dbm. Click OK. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

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 the signal intensity received by the receiving equipment is -61dbm, it can be considered that the distance between the equipment and the Beacon is about 1m.



4.10 修改广播间隔/ Modify the broadcast 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 "Broadcast interval" to appear in the following UI, and set the broadcast interval, which can be set to 100ms, 200ms, 300ms, 400ms, 500ms, 600ms, 700ms, 800ms, 900ms, and 1000ms. The default is 500ms. Then click "Confirm Modification."



4.11 修改 Company id//Modify Company id

点击“Company id”出现如下界面,在“请输入一个值”框中填写一个 4 位的 16 进制数作为 Company id。

然后点击“确认”,修改成功后会在界面下方显示“修改成功”。

Click "Company ID" and the following interface appears. Fill in a 4-digit hexadecimal number in the

"Please enter a value" box as the Company ID. Click OK. After the modification is successful,

"Modification succeeded" will be displayed at the bottom of the interface.



4.12 修改密码/ Modify Password

点击“Password”，出现如下界面，然后在“输入一个密码”框中输入4个字符作为连接密码，默认为1234。然后点击“确认”，修改成功后会在界面下方显示“修改成功”。

Click "Password", the following interface appears, and then enter 4 characters in the "Enter a Password" box as the connection Password, the default is 1234. Click OK. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.



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 original password will be invalid, you must use the new password to log in.

4.13 APP 下载/ AAP download

目前最新 APP 尚未上架，请联系销售人员提供，APP 名称 Skylab_xbeacon。

The latest APP is not yet on the shelves, please contact the salesperson to provide the APP name Skylab_xbeacon.

5. 联系方式/ Contact information

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