

VDU1502A规格书

VDU1502A datasheet

文档信息/Document Information

标题/Title	VDU1502A 规格书/ VDU1502A datasheet	
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文档类型/Document Type	规格书/datasheet	
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文档编号/Document No.	WN-21080057	
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版本日期/Version & Date	V1.01	29-July-2021
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秘密等级/Classification	公开/Open	
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历史版本/Reversion History

版本号/Version	更新内容/Remark	制作人/Maker	日期/date
V1.01	初始版本/The initial version	Sherman	20210729

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1. 产品介绍/Product Induction

VDU1502A UWB 防自解定位手表，主控芯片采用 NRF52832 实现低功耗的待机。定位方案采用 DW1000 实现基于 UWB 的 TDOA 室内高精度算法，可在平台上实现佩戴人员的高精度室内定位。

VDU1502A is a UWB anti-self-resolving positioning watch, of which the main control chip uses NRF52832 to achieve low power consumption standby. DW1000 is used to achieve the high precision indoor position algorithm based on UWB TDOA, which indicate the high-precision indoor positioning of wearers on the platform.

手表内置加速度传感器，智能切换人员运动和静止时的定位频率，实现最低功耗的待机。另外，表内配置心率传感器，周期性回传被监护人员的心率数据，同时手表带有 SOS 求救功能，可以实现敬老院、工地、工厂、矿道、医院、监狱等安全监护场合的人员定位。

The watch has a built-in accelerometer, which can switch the positioning frequency intelligently between moving and stationary, so as to achieve a lower power consumption. In addition, the watch is equipped with a heart rate sensor to periodically return the heart rate data of the monitored personnel. At the same time, the watch has an SOS function, making it ideal for the personnel positioning in elderly home, construction site, factories, mines, hospitals, prisons and other security monitoring occasions.

表带自带防自解检测，表带被剪断或者拆卸将发送信息到后台。带屏手表内置一块“0.96”显示屏，显示手表不同功能的工作状态。

The watchband comes with anti-self-disassembly detection, enable to send a message to the background when it is cut or disassembled. The watch with screen has a built-in "0.96" display screen, which shows the working status of different functions of the watch.



图 1-1 VDU1502A 产品图片/ VDU1502A product picture

2. 产品型号说明/Product Model Description

表 2-1 后缀字母意义说明/Meaning of suffix letters

型号 /model	采用 TDOA 定位技术/ The TDOA positioning technology	带 UWB PA/ With UWB PA	带蓝/ With blue-tooth	防拆/ non-detachable	带显示屏 /With the display
VDU1502	A	P	B	R	D

表 2-2 型号列表/Item list

型号/model	说明/description
VDU1502A-PB	带 UWB PA, 带蓝牙广播/ With UWB PA, with Bluetooth broadcast
VDU1502A-PBD	带 UWB PA, 带蓝牙广播, 带显示屏/ With UWB PA, with Bluetooth radio, with display
VDU1502A-PBR	带 UWB PA, 带蓝牙广播, 防拆/ With UWB PA, with Bluetooth radio, non-detachable
VDU1502A-PBDR	带 UWB PA, 带蓝牙广播, 带显示屏, 防拆/ With UWB PA, with Bluetooth radio, with display screen, non-detachable

3. 工作参数/Working Parameter

表 3-1 产品参数/ Product Parameter

工作参数 /Working Parameter	描述/description
运动刷新频率/ Motion refresh frequency	10Hz
静止刷新频率/ Static refresh frequency	1Hz
功耗/ Power consumption	Idle mode 50uA Broadcasting mode 150mA
定位精度/ positioning accuracy	10cm (CEP 90)
一次充电使用时间 Normal working time after fully charged	3~4 个月 (静止定位) 3~4 months (Static position)
定位距离/ Positioning distance	25~50m
电池容量/Battery capacity	750mAh
温度/ Operational temperature	-20~60℃

UWB 参数/UWB parameters	
频率范围/Frequency range	默认: 6.240~6.739MHz (ch5)
支持信道/Supported Channels	ch2,5
协议标准/Protocol Standards	IEEE 802.15.4-2011 UW
存储/RAM and ROM	512kB flash/64kB RAM 256kB flash/32kB RAM
充电适配器参数/ Power adapter parameter	
输出/Output	DC5V /2A

4. 产品使用/User Manual



图 4-1 VDU1502A 正面/ VDU1502A front view

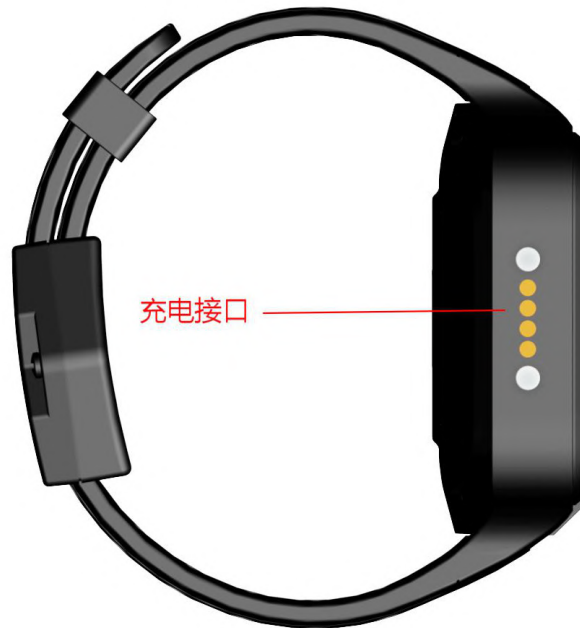


图 4-2 VDU1502A 侧面/ VDU1502A lateral view

4.1 开机/ Power On

长按按键直到屏幕点亮，屏幕显示电量格数、心率和计步信息，表示开机成功。刚开机会广播 30s 蓝牙 MAC 地址和 UWB ID。开机后 10s 左右息屏，短按一次按键点亮屏幕。充电时手表处于开机状态。

Long press the button until the screen lights up, and the screen displays the battery count, heart rate and step counting information, indicating that the startup is successful. When started, the watch will broadcast the Bluetooth MAC address and UWB ID for 30 seconds. It will turn screen down about 10s after the watch is turned on. Press the button once can light up the screen. The watch is on when it is charged.

4.2 求救/ SOS

手表开机成功后，长按 3s 按键就会触发一次紧急呼救，手表将 SOS 呼救信息发送到后台。

After the watch is turned on successfully, long press the button for 3s will trigger an emergency call, and the watch will send the SOS call information to the background.

4.3 关机/ Power Off

开机后，连续按 4 次按键，每次间隔在 1s 内，最后一下长按直到屏幕灭掉，表示关机成功。

After powering on, press the button for 4 times, each interval is within 1s, and hold down the button at the last time until the screen is off, which means the shutdown action is successful.

4.4 充电/ Charging

将充电线接入 5V 直流充电适配器，另外一端对准磁力充电接口。充电时电池电量动态显示，当充满时电池电量静态显示。

One head of the charging line is plugged into a 5V DC charging adapter, the other head aligned with the charging interface seat through magnetic force. It dynamic display of battery power when charging, static display of battery power when fully charged.

4.5 心率检测/ Heart rate detection

开机后，每 8min 会做一次心率检测，每次 20s 左右，并将测试数据传送到后台。

After startup, heart rate will be detected every 8 minutes, about 20 seconds each time, and the test data will be transmitted to the background.

4.6 防拆功能/ tamper device

当表带被拆卸或者剪断时，手表会将拆卸信息发送到后台，提醒监查人员。

When the watchband is disassembled or cut off, the watch will remind the inspectors by sending information to the background server.

4.7 屏显示功能/Screen display function

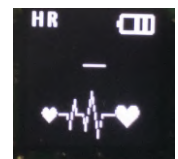
开机后，屏幕左上角显示“HR”，“H”表示心率功能，“R”表示计步功能，屏右上角显示电量格数。第一界面中间显示测试的心率值。


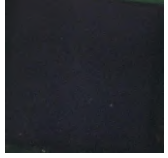


After power on, “HR” is displayed in the upper left corner of the screen. “H” represents the heart rate function and “R” represents the step counting function. The upper right corner of the screen shows the battery volume, and the middle of the screen is the tested heart rate.


4.8 按键功能简表/Key function brief table

表 4-1 按键功能简表/Key function brief table

基本功能/ Basic function	按键操作/ keys operation	(不带屏/On screen) LED 灯状态/State of the LED	带屏状态/State of the display
开机/ Power On	长按 3s 按键至屏幕亮 起/Hold down the button for 3s until the screen lights up	绿灯常亮 5 秒/ Green LED on for 5 seconds	屏幕点亮/The screen is bright



关机/ Power Off	三短按一长按按键 /Three short press and one long press the button	无此功能/ Without this feature	屏显关闭/Screen is shut down	
息屏/Screen break	无操作 10s 息屏/No operation 10s screen break	每间隔八秒闪烁一次/Blink every eight seconds	息屏/Screen is shutdown	
唤醒屏幕/Wake up the screen	开机状态短按一次按键 /Press the button briefly when it is on	无此功能/Without this feature	亮屏/ Screen is on	
SOS	开机状态长按 3s 按键 /Hold down the button for 3s during startup	闪烁五次, 间隔 1 秒 /Blink five times with 1 second interval	无/No action	
默认打开心率检测/Heart rate detection is enabled by default	无/Without	无状态/Stateless	屏左上角有“H”字符 /There's an “H” in the top left corner of the screen	
关闭心率检测/ Turn off the heart rate detection	短按三次按键/Press the button three times	无状态/Stateless	3s 后屏左上角“H”字符消失/The “H” disappears in screen after 3s	
打开心率检测 /Turn on heart rate detection	心率关闭状态下短按三次按键/Press the button three times with heart rate off	无状态/Stateless	3s 后屏左上角出现“H”字符/An “H” appears in the upper left corner of the 3s rear screen	
充电/Charging	/	绿灯一秒一次 /Green light blink once per second	屏右上角电池电量动态显示/Dynamic display of battery power in upper right corner of screen	 --- 

<p>充满电/ Full of electricity</p>	<p>/</p>	<p>绿灯常亮/Green light normally on</p>	<p>屏右上角电池电量静态显示/Static display of battery power in upper right corner of screen</p>	
<p>默认打开计步功能/The step counting function is enabled by default</p>	<p>开机界面短按一次 /Press once on the startup screen</p>	<p>无此功能/ Without this feature</p>	<p>进入计步功能界面且屏左上角有“R”字符/ Enter the step counting function interface with "R" in the upper left corner of the screen.</p>	
<p>关闭计步功能 /Disable the step counting function</p>	<p>短按三次按键/Press the key three times</p>	<p>无此功能/ Without this feature</p>	<p>3s 后屏左上角“R”字符消失/The "R" in upper left of the screen disappears on 3s</p>	
<p>打开计步功能 /Turn on the step counting function</p>	<p>计步关闭状态下短按三次按键/Short press the button three times when the step counting is off</p>	<p>无此功能/ Without this feature</p>	<p>3s 后屏左上角出现“R”字符/The "R" appears in the upper left corner of the rear screen on 3S</p>	

5. 尺寸参数/Size parameters

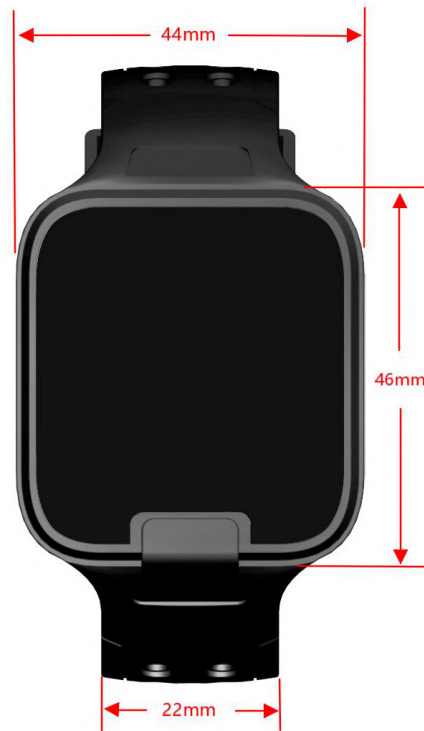


图 5-1 VDU1502A 表体尺寸 (±1mm) /VDU1502A watch body size (±1mm)

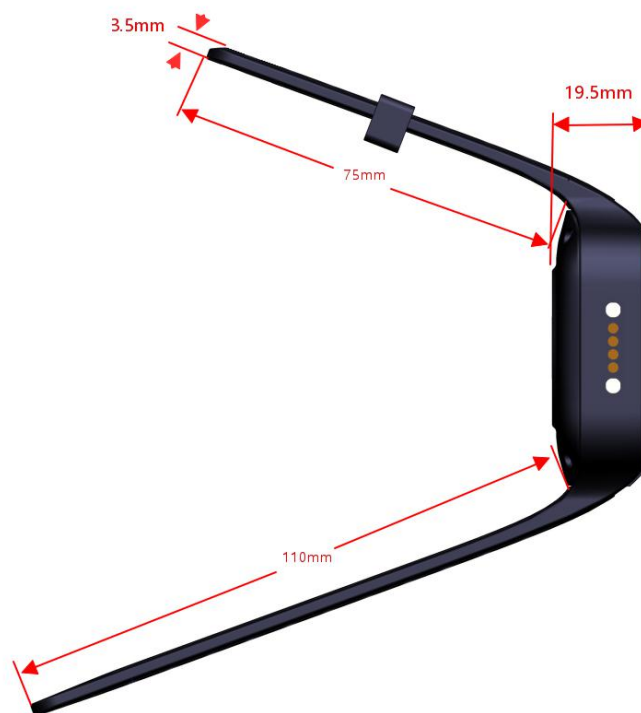


图 5-2 VDU1502A 表带尺寸 (±1mm) /VDU1502A band size (±1mm)

6. 联系方式/Contact

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