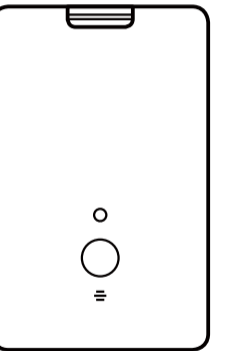


# USER MANUAL

## UWB TAG

### VT1001



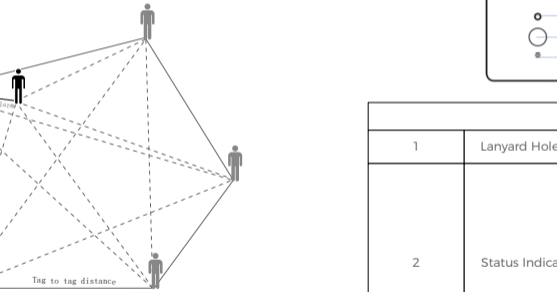
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#### Product Introduction

##### 【General】

VT1001 UWB Tag has the function of detecting the distance between each other. When it detects that the distance between itself and any other UWB Tag is less than the preset distance, it will record this event and alarm. Typical application scenario is shown in the figure below.



In addition, with the help of UWB Gateway, UWB Tag can upload its alarm record.

##### 【Panels】

The front panel of the UWB Tag is shown in the following figure with descriptions in the table.



Description		
1	Lanyard Hole	Used to tie lanyard.
2	Status Indicator	Charging status: --Blue and green flashing: Charging; --Green always on: Battery charged full. Working status: -- Green flashing: full battery; -- Red flashing: low battery. Alarm status: --Red light flashing: Alarm.

3	Button	Used to temporarily mute the alert function.
4	Beep Hole	Beeping when in alarm status.

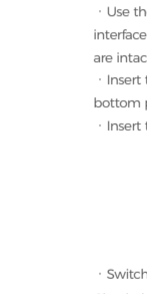
The bottom panel of the UWB Tag contains the charging port, as shown in the following figure.

Description		
1	Charging Port	For 5V1A microUSB charging.

#### Get Started

##### 【 Turn On UWB Tag 】

To use UWB Tag for the first time, press the front button for more than 3 seconds to turn it on. The Tag will vibrate and beep if successfully turned on.

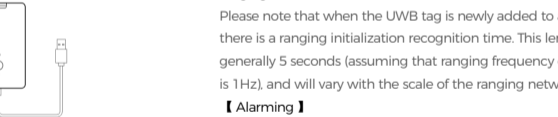


After turning on, UWB Tag will remain in a working status, and the user cannot turn it off autonomously. If you need to turn off UWB Tag, please contact the system administrator to achieve it with the help of UWB Gateway and related software.

##### 【Charging】

UWB Tag needs to be charged in time to keep normal working status. You can check the battery level of UWB Tag through the status indicator. If the battery is low, please charge it before use. Avoid leaving the battery of the device uncharged for a long time. Follow the steps below to charge:

- Use the original charger, or use a third-party charger with USB output interface and an output specification of 5VDC/1A. Check whether they are intact, clean and dry:
- Insert the Micro USB port of the charging cable to the charging port on bottom panel of the UWB Tag;
- Insert the USB port of the charging cable into the power adapter;



- Switch on the power supply.
- Check the status indicator. If the status indicator flicks alternately in blue and green, then charging is normal. If the status indicator turns and remains in green, then the battery is charged full. (If the battery is completely empty before charging, then it will take some time to get enough power to let the indicator work.)

#### Basics

UWB TAG has four basic functions: ranging, alarming, recording and uploading.

##### 【 Ranging 】

When turned on, the ranging function will start to run. UWB Tag will periodically try to measure the distance between itself and other UWB TAGs within a certain range. The general ranging period is once per second.

In LOS environment, the effective ranging range of UWB Tag is about 5m. In the NLOS environment, due to the influence of occlusion, UWB tags may not be able to complete the ranging process, and the ranging error will increase.

Please note that when the UWB tag is newly added to a ranging network, there is a ranging initialization recognition time. This length of time is generally 5 seconds (assuming that ranging frequency of the UWB TAG is 1Hz), and will vary with the scale of the ranging network.

##### 【 Alarming 】

The default alarm distance of UWB Tag is 2m. Once UWB Tag detects that the distance between itself and any other UWB Tag is less than the preset alarm distance, it will warn the wearer by vibrating, buzzing and LED flashing.

Temporary mute function can be achieved by pressing the button on the UWB Tag. After a short press of the button, UWB Tag will pause vibration,

beep and LED flashing for 10 seconds. But only the alarm is mute, the ranging, recording and uploading will not be affected by this button.

##### 【 Recording 】

Alarm information will be recorded by UWB Tag, which includes Tag ID, duration, time stamps and contact distance etc. Only alarm information will be recorded. If a UWB Tag has not had an alarm, there will be no record.

Data information will be recorded in the UWB Tag, and the oldest records will be removed once the maximum recording capacity is reached so that the new information can be recorded.

##### 【 Uploading 】

In the presence of UWB Gateway, UWB Tag uploads its alarm records. The effective data collection zone is a circle with a radius of 3m and centered on the UWB Gateway. If the UWB Tag is far from the data collection zone, it may not be able to upload its alarm records. During uploading, the alarm function of UWB Tags may be interfered. It will return to normal when leaving the data collection zone.

##### 【Data Privacy Consideration】

- The UWB Tag is based on ranging technology, it doesn't do the positioning of the wearers, but rather calculating the distance among each other.
- Please take into consideration local regulations related to data privacy while using the UWB Tag.
- Attention: data collection or upload is only possible when corresponding

gateway is used and it is uploaded to the user's own designated server. For details, please refer to user manual of the gateway (if also purchased).

**Use buttons** Do not press the button on the UWB Tag hard or crack it violently.

**Charging cable** If the cable is bent repeatedly in the same area, it could become hard and brittle. Please roll up the electric wire into downy curve. Please check the cables and connectors regularly to prevent them from knotting, breaking, bending or other damages. If any damage is found, do not continue to use the cable.

**Exposure to liquid** VT1001 UWB Tag is not water resistant. Always avoid exposing VT1001 to liquids and moisture.

**Cleaning and care** Keep UWB Tag clean and dry, but avoid damaging UWB Tag. Observe the following:

- Don't clean UWB Tag while it's charging.
- Don't dry UWB Tag using any external heat source (for example, a hair dryer).
- Don't use cleaning products, ultrasonic cleaners, or compressed air when cleaning your UWB Tag.

**Disinfection** The following situations should be strictly avoided when disinfecting parts such as areas around the button and charging interfaces:

- Spray or wipe the UWB Tag directly with disinfectant liquid (such as diethyl ether, alcohol, chlorine-containing disinfectant, peracetic acid etc.).
- Carry out fire, boiling, flowing steam, high heat steam, dry heat sterilization etc. on UWB Tags and accessories.
- Place the UWB Tag under ultraviolet light.
- Any other disinfection practices that may cause damage or safety issues.

UWB wireless may penetrate some objects to establish connection, such as wooden box, shelf, hollow wall, etc. However, it may cause an increase in ranging error.

There might be cases that the alarm of the tag is triggered e.g. when you and the other wearer are within the pre-set alarm distance while there is a separator (wooden box, shelf, hollow wall) between you.

There might be cases that the alarm of the tag is not triggered e.g. when you and the other wearer are within the pre-set alarm distance but UWB Tags are separated by wearer's body. It's NLOS condition and in reality, this situation should be considered safe.

The vibration alarm of UWB Tag is only triggered within pre-set alarm distance. If you are far away from any other UWB Tag but the vibration alarm does not stop, it may be because the UWB Tag you are wearing is squeezed hard or entered with liquid, resulting in the short circuit of the vibration motor. Please contact the manager in time in this case.

#### Trouble Shooting

The UWB Tag will flash the status light once every 3 seconds. If the status light does not flash for a long time, please press the button and hold it for 10 seconds. If the status light of UWB tag is still off, the battery power of your UWB Tag has been used up, or the UWB Tag is out of order. Please contact your system administrator in time.

The UWB Tag uses UWB wireless communication, and should be used only in LOS condition. The UWB Tag will generate buzz, light and vibration alarms within the pre-set alarm distance. If you are within the pre-set alarm distance and there is no alarm, please contact your system administrator in time.

## Product Parameters

Frequency Range	6.1GHz ~ 6.9GHz
Transmit Power Density	< -41.3dBm/Mhz
Communication Range	> 5m (LOS)
Ranging Precision	Average LOS precision up to 10cm
Refresh Rate	1Hz by default
Status Indication	LED / vibration / buzzer
Size	85mmx54mmx6mm
Weight	30g excluding accessories
Power Endurance	12 Hours on average (@1Hz)
Battery Capacity	480mAh/Rechargeable lithium battery
Charging Interface	Micro USB
Charging Voltage	5±0.1V, 1000mA
Charging Time	4 ~ 6 Hours
Operating Temperature	-10 ~ 60°C

Storage Temperature	-20 ~ 70°C
Operating Humidity	10% ~ 90% Non-condensing
Storage Humidity	5% ~ 95% Non-condensing

## Safety Instructions

Failure to follow these safety instructions could result in electric shock, fire, injury, or damage to UWB Tag or other properties. Read carefully all the information about safety below before using the UWB Tag. The seller shall not be liable for any damages caused by misuse or violation against the instructions contained herein.

### 【Safety】

- Do not use UWB Tags when you are close to gasoline or liquid. Strictly follow all the indicated instructions and tips when you are in the petrol station.
- The UWB Tag is an integrated equipment. Neither the battery nor the back cover can be removed. Removing the back cover of the UWB Tag may damage the battery and lead to material leakage that may cause allergic reactions.
- This equipment and its accessories may contain some small parts. Please keep the equipment and its accessories including the small parts out of reach of children. Children may inadvertently damage the

- equipment and its accessories, or swallow small parts that cause suffocation or other dangers.
- Do not store or transport equipment and its accessories in the same box with flammable gases, liquids or explosives.
  - When disinfecting the equipment, do not spray or wipe it directly with flammable liquid to avoid fire.
  - Never disinfect the equipment during the charging process to avoid equipment damage or casualties.
  - Keep the UWB Tag in a dust-free place when not using it, and do not leave it in an abandoned status. Please pay attention to the weather and environmental conditions (nature, dust, rain seeping, wet, rain, sea water etc.). The recommended operating temperature range is -10°C (14°F) to + 60°C (140°F) and the storage humidity range is 5%-95%. Damage might be caused when it is used in an environment exceeding + 60°C (140°F).
  - The UWB Tag and the accessories comply with applicable surface temperature standards and limits. However, even within these limits, sustained contact with warm surfaces for long periods of time may cause discomfort or injury. Continuous alert of the UWB Tag may make the equipment feel warm. Remove the UWB Tag if it becomes uncomfortably warm.
  - Use the original charger, or use a third-party charger with USB output interface and an output specification of 5VDC/1A, and the charger should meet local safety regulation requirements. Usage of non-conforming third-party chargers may cause personal safety damage and/or battery damage.

### 【Battery】

- Never discard, replace or open the battery at will, nor try to penetrate the equipment with sharp tools, as the electrolyte inside the battery in the equipment may damage skin and clothes.
- The equipment should be stopped from using if it is noticed to be hot, smelly, discolored, deformed or in any other abnormal status.
- If the battery leaks, do not expose the leaked liquid to your skin or eyes. If exposed to skin or eyes, rinse immediately with clear water and take medical treatment at the hospital.

- Do not expose the batteries to high temperature or place it close to any heating equipment, such as sunshine, heater, microwave oven, oven and water heater etc. Overheating batteries may cause explosion.
- Do not drill or incinerate the equipment or battery. Please consult the local waste treatment department in accordance with the applicable local regulations including laws and policies when disposing your equipment/battery. Batteries must be recycled or disposed of separately from household waste.

### 【Charging】

- Please charge the battery in accordance with the requirements of the instructions. Use the original charger, or use a third-party charger with USB output interface and an output specification of 5VDC/1A, and the charger should meet local safety regulation requirements. When charging, remember to place the UWB Tag, UWB Tag charging cable and power adapter in a well-ventilated environment. Using a damaged UWB Tag charging cable

- or charging when humidity is high may cause fire, electric shock, injury or damage to the UWB Tag and other properties.
- Always keep the ports of UWB Tag and power adapter clean.
  - Without adult's monitoring, do not let children charge the UWB Tag.
  - As long as the applicable surface temperature standards and limits are met, UWB Tags, UWB Tag charging cables, and power adapters will function normally. However, please still try to avoid continuous contact with hot surfaces even within the indicated limits as this may lead to discomfort or injury. After the power supply is plugged in, the UWB Tag, the UWB Tag charging cable and the power adapter will gradually heat up, but will not break the indicated limits.
  - Avoid wearing a UWB Tag when charging, or allowing your skin to contact the UWB Tag, UWB Tag charging cable or power adapter during long time while charging. For example, when the UWB Tag is charging, or when the UWB Tag charging cable, or the power adapter is powered on, do not lie on it or place it under a blanket or pillow etc. Please be especially careful if your body has conditions that affect your ability to sense heat. If the temperature of the UWB Tag makes you uncomfortable, please remove it.

### 【Maintenance】

- Do not open the UWB Tag and try to repair it yourself. Disassembling the UWB Tag may cause damage injury. If the UWB Tag is damaged or out of normal status, please contact your seller in time.

### 【Warning】

- **Radio frequency interference** Observe signs and notices that prohibit or restrict the use of electronic equipment. Although UWB Tag is designed, tested, and manufactured to comply with regulations governing radio frequency emissions. Emissions from UWB Tag could potentially negatively affect the operation of other electronic equipment within certain distance.
- **Medical equipment interference** UWB Tag contains components and radios that emit electromagnetic fields. UWB Tag has certain coverage of radio frequency bands. These electromagnetic fields may interfere with medical equipments, such as pacemakers and defibrillators etc. Consult your physician and medical equipment distributor for specific information related to your medical equipment and confirm whether you need to maintain a safe distance between the medical equipment and the UWB Tag and the UWB Tag charging cable. Should you have any suspects or doubts, you are recommended not to use this product (including all parts and all accessories).
- **Explosive and other atmospheric conditions** Charging or using UWB Tag in any environment with explosive risk is strictly prohibited. UWB Tag functionalities might be damaged or impaired when exposed to environment with high concentrations of industrial chemicals. Obey all relevant signs, instructions and restrictions.
- **Choking hazard** Some UWB Tag accessories may present a choking hazard to babies or children. Keep them out of reach of babies and

### 【Warning】

- **Skin sensitivities** Some people may experience allergies or reactions when their skin is touched by certain materials used in jewelry, watches or any other wearable items. This can be caused from allergies, environmental factors, extended exposure to irritants or other causes. If you have past experiences from skin sensitivities, please take special care when wearing UWB Tag. You might be more likely to experience irritations. Keeping UWB Tag clean and dry could reduce the possibility of skin irritations.
- **Equipment safety** The UWB Tag contains high-sensitivity electronic components. Falling, burning, puncturing or rolling could cause equipment damage.
- **Ultra-wideband (UWB) equipment** The use of ultra-wideband (UWB) equipment in aircraft is prohibited. Ultra-wideband (UWB) can be turned off through the corresponding software. The use of UWB has to be compliant with the relevant regulations from the national radio management authorities. If the national spectrum plan changes, the UWB function of the equipment may not continue to function.
- **Auxiliary ranging** This equipment is only used to assist social distancing. There could be some systematic errors in the actual use. Any output from usage of this equipment cannot be used as solid rationale for any medical assessment / evaluation or any other confirmation.
- **Not a medical equipment** The UWB Tag is NOT designed as a medical equipment and should not be used as a replacement for professional

### 【Warning】

- **Medical assessment or judgement.** It is not intended for use in the diagnosis of disease or other medical conditions, or in the cure, mitigation, treatment, or prevention of any medical / health conditions or disease. Please consult your healthcare provider all questions related to your health before considering use the UWB Tag.
- **Avoid radio frequency conflicts** WiFi 6E uses the 5925MHz-7125MHz frequency band, which covers the frequency band for this equipment. Using together with WiFi 6E equipments may interfere with this equipment and may not work properly.

## Disposal and Recycling Information

### UWB Tag disposal and recycling.

Your UWB Tag should not be disposed of with household waste. Dispose of your UWB Tag in accordance with local environmental laws and guidelines.



### European Union—Disposal Information

The symbol above means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. The separate collection

- and recycling of your product and/or its battery at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.
- BRASIL – INFORMAÇÕES SOBRE DESCARTE E RECICLAGEM**  
O símbolo acima indica que este produto e/ou sua bateria não devem ser descartados no lixo doméstico. Quando decidir descartar este produto e/ou sua bateria, faça-o de acordo com as leis e diretrizes ambientais locais.
- INFORMACIÓN SOBRE ELIMINACIÓN DE RESIDUOS Y RECICLAJE**  
El símbolo de arriba indica que este producto y/o su batería no debe desecharse con los residuos domésticos. Cuando decidas desechar este producto y/o su batería, hazlo de conformidad con las leyes y directrices ambientales locales.

## Statement of Conformity

### FCC compliance statement

**Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:  
(1) This equipment may not cause harmful interference, and (2) This equipment must accept any interference received, including interference that may cause undesired operation.  
Changes or modifications to this product not authorized by Seller could void the wireless compliance and negate your authority to operate the product.

This equipment is approved under Part 15.519 for handheld use. The use of antennas mounted on outdoor structures, e.g., antennas mounted on the outside of a building or on a telephone pole, or any fixed outdoors infrastructure is prohibited. Antennas may be mounted only on the hand held UWB equipment. UWB equipments may not be employed for the operation of toys. Operation onboard an aircraft, a ship or a satellite is prohibited.

**Note:** If your equipment is purchased through a local seller, please contact the local seller for the warranty service acquisition method. If your equipment was purchased directly by the manufacturer, please get in touch via support@pipernet.com.

Disclaimer: The UWB Tag is not intended to be used as a treatment for COVID-19 and also not as a protective equipment against contracting

COVID-19. The UWB Tag is a social distancing equipment, can only be used in the context of social distancing and contact tracing between persons, any usage not related to social distancing are strictly prohibited. Depending on the design of usage location / environment and the way how it is used, there could be false positives due to tissue, walls, structures or other factors and false negatives due to bodily interference, electromagnetic interference, or other factors. We warranties that the UWB Tag performs to the requirements listed on the UWB Tag spec sheet. All sales are final.

## Responsibility Statement

- The product is an auxiliary tool, which cannot replace any safety management system, measure and rescue solution for hazardous operation or supervision system and measure for operation management. Please do not reduce safety awareness while using the product, and timely charge the product and check its operation state when the power is low.
- Measurement data and results of this product are for reference only, shall not be served as the basis for diagnosis and treatment. Products described in the Manual (including hardware and software) are all provided in the "current situation" within the maximum range allowed by laws, and there may exist defects, errors or faults. The Company does not provide express or implied guarantee in any form, or compensate for any special, incidental, accidental or indirect damages caused by using the Manual or products of the Company.
- The Company does not undertake any responsibility for any damage to personal or property interests of one's own or third party caused by failing to use the product according to the Manual and warning statement.
- The Company does not undertake any responsibility for any product operation abnormality, information disclosure or other problems caused by network attack, hacker virus infection or other unknown risks due to Internet access during product use.
- The product promoting pictures and advertisements are used only for instruction and promotion. Physical products prevail in all cases.