

E903 Asset tracker with temperature and humidity sensor



Temperature detection range: -20 ~ 65 °C

Humidity detection range: 0 ~ 99,99% RH

Storage temperature: -30°C ~ 80°C

Supports positioning, manipulation and path alarm

Waterproof design for harsh environments

Built-in large battery, long standby time and optional battery

Parameter

Functional

Main functionality

Temperature + Humidity + Anti-dismantling alarm + GPS base station positioning + Electronic fence

Sensing error

Temperature sensor $\pm 0.5^{\circ}\text{C}$; humidity $\pm 3\% \text{RH}$; Hall within 3cm
GPS positioning accuracy <10 meters (this data is for reference, the positioning accuracy is related to the terrain and weather of the area where it is located)

Base station positioning error is related to base station density

Mechanical

Size

90 mm x 50,5 mm x 30 mm

Static or moving

Both

Body color

White, Grey

Protocol

Transport Protocol

UDP / IP

IP-based communication

IPv4

Messaging/Management Protocol

Custom Protocol

System maintenance and upgrade

Remote FOTA

Communication

Transmission technology

NB IoT (optional: 4G)

Transmission band

Band 3/8/20

Battery

Model	INR18650-2500mAh
Kind of battery	Rechargeable normal temperature and low temperature lithium battery
Min. Capacity	2450mAh Charge: 0.5C, 4.20V,CCCV 50mA cut-off, Discharge: 0.2C, 2.75V discharge cut-off
Max. Capacity	5000mAh
Working Voltage	3.7V
Working current	110mA
Standby current	30uA
Max. Continuous Discharge Current	20 A
Max. Diameter	≤18.45mm
Max. Height	≤65.50mm
Impedance	≤ 18 m Ω
Battery life (1 message a day)	NB-IoT: 2years (optional: 4G: 20 days)
Standby time	Depends on collection and reporting frequency

More Information

Information regarding mechanical robustness, water resistance etc .:

- Note on waterproof: Protection class IP 65 refers to indoor or outdoor use to prevent damage from splash water and rain, splashes, hoses that lead to water, and external icing. Do not put the product directly in water. No more information.
- Drop test: It was carried out within the company and the drop height was 1 meter. (Internal test report attached)

Possible events that lead to the sending of a message:

- Event> outside the specified area, too low or too high temp. or humidity, motion, incidence of light
- Data is stored internally when the signal is lost and uploaded back to the cloud when the signal is received

Details on the process of recognizing the device positioning

- The device has a built-in GPS chip and uses the device's temperature and humidity data to collect and report location information according to a set cycle

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Configuration options:

- Setting the acquisition / reporting period, start / stop of the tamper protection function, alarm setting for temperature / humidity in the upper / lower limit range, etc.

All data is sent to the cloud and is displayed to the customer.

Product description

E903 is an intelligent NB-IoT/4G sensor terminal that was specially developed for cold chain storage / cold chain logistics / drug transportation / blood sample transportation / cold chain distribution at home / fresh storage / greenhouse cultivation. Integrated, highly sensitive temperature and humidity sensor chip, Hall sensor chip, GPS / BeiDou / LBS positioning chip, light sensor element and high-precision motion sensor, real-time monitoring in all aspects, temperature and humidity exceed the set threshold value, immediate alarm. Small, easy installation and design with low power consumption can effectively solve the problem of difficult monitoring of cold chain logistics transportation.

Product features

- Support for the NB-IoT network, Deutsche Telekom
- Installation construction: Hook, Glue, Screw, Rivet
- IP65 waterproof design
- High-precision sensor from Swiss Sensirion
- Real time monitoring
(GPS accuracy)
 1. GPS positioning error <10m, this data is for reference, accurate positioning error is related to the terrain and weather of the area;
 2. Base station positioning error is related to the density of base stations in the area;
- Tamper alarm
- Tilt alarm
- Abnormal temperature alarm
- Offline storage
- Very low power consumption, low battery alarm
- 5000mAh low temperature lithium battery

- APP sets the upper and lower limits and the frequency of reports independently of each other
- APP Visual Chart Management
- SAAS platform for visual background monitoring

Use Cases

Cold chain logistics / storage, transportation of fresh food, delivery of medication, blood sampling, greenhouse cultivation, etc.



Use case supplement

1 : Project location – Weifang, Shandong

Greenhouse degree monitoring system: Collect the air temperature and humidity in the greenhouse and display it to users in the form of intuitive numbers, charts and curves, and provide alarms according to the needs of planting crops. When environmental parameters such as temperature and humidity exceed or fall below the set value, the designated equipment is automatically turned on or off to control the environmental parameters until they reach normal.

2 : Project location – Shanghai, Hangzhou, Huzhou

The storage of fruits, vegetables, flowers, etc. has very strict requirements on temperature and humidity. The humidity of fresh vegetables, fruits and flowers is controlled between (85-95)%RH. When the humidity in the warehouse is insufficient, the moisture in the fruits and vegetables will be absorbed by the relatively dry air, which will cause the fruits and vegetables and flowers to lose water and become dry. The warehouse temperature and humidity monitoring system mainly provides strict monitoring and management of the temperature and humidity of environmental spaces such as cold storage rooms and cold storage. The system can monitor and record the temperature and humidity of multiple points in a large area, and

transmit the data to a PC for data storage and analysis, and output a print curve. In the case of equipment abnormalities, it will also notify the corresponding personnel in various forms of alarms. At the same time, when environmental parameters such as temperature and humidity exceed or fall below the set value, the designated equipment can be automatically turned on or off to control the environmental parameters until they reach normal.

3 : Project location – Sanmenxia, Henan (Used for vaccine temperature and humidity monitoring)

The medical industry has more and more stringent requirements for temperature and humidity monitoring, which means that the country has stricter requirements on all aspects of drug storage and transportation. It is the responsibility of every pharmaceutical company to ensure the safety of medicines and ensure that the people take medicines with ease. The network temperature and humidity monitoring platform functions: B/S architecture, web page monitoring, external network access, real-time numerical display, real-time curve display, historical record query, alarm query, sound card alarm, SMS alarm).



Project 1



Project 2



Project 3

Problem

- Merchandise and goods are lost or stolen, and no one notices
- Delayed deliveries, since goods could not be found
- Tedious online inventory control if goods aren't where they should be



Solution

- Very precise localization, quality assurance for transportation and storage
- Know the location, temperature, humidity, and inclination of the product
- Indication when goods leave a specified area



Problem

- Tracking is too expensive for one-time shipments
- Equipment and goods can be lost or stolen without anyone noticing
- Projects are delayed since equipment cannot be located



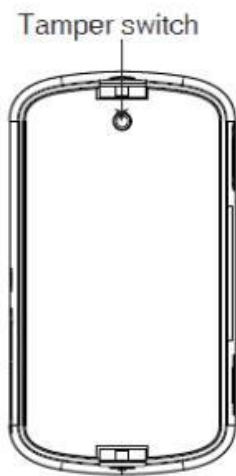
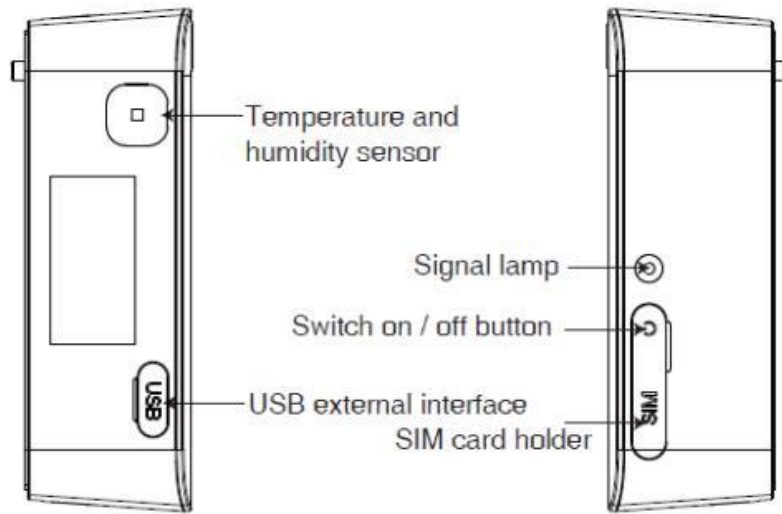
Solution

- Alerts for unauthorized movements
- Indication when equipment leaves a specified area
- Affordable tracking even for one-time shipments



SIZE:90*50.5*30(mm)





Expandable functions

1. Door sensor : It can be connected to the door magnetic device, and the monitored door or window can be opened to trigger the alarm through the switch (closed)



2. Photosensitive sensor : The photosensitive alarm is triggered by the illumination of light, which is suitable for monitoring requirements of whether a closed non-illuminated space is opened



3. Vibration alarm & tilt alarm : Built-in high precision GSENSOR in the device

* For specific function additions, please check the detailed functional requirements or application scenarios when ordering.