

Pico-SensoTrack

World's Smallest Tracking Device



Round Solutions Design Team

Product Description

Pico-SensoTrack is a wearable personal tracking device. It has a built-in battery and can be used in a variety of everyday applications for persons, animals or items to be located using GPS.

This small tracking device fits easily in your pocket, can be carried on a key ring or on a dog collar and has several alarm functions, depending on the programming:

- **“Geofencing”** to alert when leaving a defined geographical zone
- **“Wellness”**-Function that detects when the device has not moved for a certain period via accelerometer and sends an emergency alert

The Pico-SensoTrack uses a Telit SE868-AS and a 2G module from Telit. The device is battery-powered and under normal working conditions, the 380mAh battery lasts up to 4 working days. Furthermore, the device has an accelerometer to detect movements / idle states to enable/disable the modem and the GPS module to preserve the battery in sleep mode. The battery can be charged via USB port. The data are sent at preset intervals via HTTP. The Pico-SensoTrack can be fully configured and diagnosed via USB or SMS.

Additional Services

At the customer's request, RoundSolutions can expand the Pico-SensoTrack and adapt it to project-specific requirements. If you miss a technology or function in the basic version of the Pico-SensoTrack, please write us an inquiry. Round Solutions also offers software development kits for Pico-SensoTrack board with Python, enabling software developers to create custom firmware for the device quickly, resulting in the acceleration of the launch time. The collected data can be easily sent to an IoT Cloud, which allows rapid establishment of tracking platform. The GUI for the IoT cloud is available from any web browser or mobile via a smartphone or tablet. By using the IoT SIM cards, a stable data transfer between Pico-SensoTrack and cloud can be achieved and can work at any place in the world. Through global automatic roaming it is always active in the best network.

Designed and manufactured to perfection in Germany

Interfaces

- USB micro B
- SIM holder: Nano SIM
- Antenna Connector Cellular: U.FL

Data

- TCP over GPRS
- SMS

Environmental

- Dimensions:
 - PCB: 30 x 23 x 10mm
- Extended temperature range -40°C to +85°C
- Power Consumption
 - During transmission: up to 310mA
 - Active mode: ~90mA
 - Sleep mode: <1mA
- Power Management
- 3.7V – 380 mAh LI-Po battery (optional)

Battery Life	Positioning Interval
2,1 hours	Every 5 seconds
3,3 hours	Every 60 seconds
14 hours	Every 5 minutes
43 hours	Every 30 minutes
75 hours	Standby mode (GPS off)
3 Month	Motion mode

Available for

- EMEA
- Latin America*
- APAC*
- Korea

Complete, Ready to Use Access to the Internet of Things



Product and Hardware Features

- 2G Cellular Module
- GNSS Module integrated antenna: -165dBm sensitivity
- USB micro B Interface for configuration, debugging and charging battery
- Onboard Microcontroller: PIC18F46K22*
- Onboard Accelerometer for movement detection and power saving
- 3.7V – 380 mAh LI-Po battery (optional)
- Nano SIM Card Holder
- Data is relayed to server via HTTP Post
- Posted data includes Longitude, Latitude, speed, date, time, and battery voltage.
- Modem Emulation via USB

Approvals

- CE

*Source code available on request



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GPS

- GNSS Module: Telit SE868-AS
- GPS Accuracy: 2,5m
- GPS, Glonass & Galileo
- Active antenna on-board
- Fully integrating: Low profile antenna element, Dual-stage LNA, SAW filter, TCXO, RTC crystal, GPS SoC, PMU, RF shield
- GPS L1 1575.42 frequency, C/A code
- SBAS (WAAS, EGNOS, MSAS) and QZSS support
- 48 channels
- Ultra-high Sensitivity down to -165dBm enabling Indoor Tracking
- TTFF of <1s in 50% of trials under Hot Start conditions
- Active Jammer Detector and Remove
- Fast Time Synchronization for rapid single satellite time solution

CELLULAR

Pico-SensoTrack with 2G module GE866

- Available for EMEA; Latin America, APAC
- Quad-band GSM/GPRS 850/900/1800/1900 MHz
- Embedded TCP/IP stack, including TCP, IP, UDP, SMTP, ICMP and FTP protocol
- Mobile station class B
- Point-to-point mobile originated and mobile terminated SMS
- Real-time clock
- Jamming detection
- Remote AT commands
- Python version = 1.5.2
- Output power
 - Class 4 (2 W) @ 850/900 MHz
 - Class 1 (1 W) @ 1800/1900 MHz

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Acquisition Time

OPERATION	VALUE	UNIT
Hot Start	< 1	s
Signal Reacquisition	< 1	s
Aided Start	< 10	s
Warm Start	< 32	s
Cold Start	< 35	s

Sensitivity

OPERATION	VALUE	UNIT
Tracking	-163	dBm
Reacquisition	-162	dBm
Navigation	-161	dBm
Hot Start	-160	dBm
Aided Start	-156	dBm
Cold Start	-148	dBm

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