



## Piccolo TMX+ Portable Temperature Monitoring GPS unit

The industry's most advanced & versatile  
Standalone GPS unit for portable temperature monitoring



## Up to 5,000 GPS & Temperature readings on a single charge

Packaged in an IP67 waterproof enclosure with integrated GPS and cellular antennas, equipped with an 7800 mAh rechargeable lithium back up battery and an external digital temperature sensor with  $\pm 0.5^{\circ}\text{C}$ ,  $\pm 0.9^{\circ}\text{F}$  accuracy the unit monitors the temperature in a closed area such as a refrigerated truck and will transmit it periodically to the server.



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# Piccolo TMX+ product specifications

## Main Features

- Easy to configure several reporting intervals based on customer specific operational requirements.
- Once placed in the refrigerated area the Piccolo TMX is normally in deep sleep mode configured to wake up once every XX minutes, read the temperature with the current GPS position and send it with a time stamp to the server. Or in order to preserve battery life wake up every XX minutes (for example every 5 minutes) read the temperature with the battery life and time stamp store it in the Piccolo TMX memory and send all accumulated reading with their respective time stamps to the server every YY minutes (for example every 60 minutes).
- The unit can change mode of operation, the frequency of transmitting GPS and temperature when entering a pre-configured geo-fence and/or when vibration or movement is detected.
- Assuming temperature reading every 5 minutes but send the accumulated 12 readings once an hour to the host the 7800 mAh battery life will be around 5000 temperature readings.
- With every transmission the Piccolo TMX will send the current battery level to the server.
- Fast charge from an external standard 12VDC wall charger via a waterproof connector
- The Piccolo TMX+ is not just a hardware product, it's a complete mobile solution packaged with: UDP or TCP/IP communication, flexible and comprehensive local and OTA user configuration tools, OTA diagnostics and API's with various sample codes for simple Plug & Play integration into any 3rd party server.

## Technical Specifications

- Network availability – 2 GSM / GPRS or Edge, 3G HSPA
- Frequency Bands - Quad-Band ( European 900/1800/2100,American 850/1900/2100
- Enclosure ABSPC water proof IP67 enclosure, rated UL94V-0
- GPS – MTK 66 Channels
- Dimensions: 4.9" x 3.3" x 1.6" (125mm x 87mm x 41mm)
- Weight: 3.7oz (105g) without the batteries

## Environmental Specifications

- Operating Temperature: -22° to 176° F (-30° to 80° C)
- Storage Temperature: -40° to 221° F (-40° to 105° C)
- Humidity: 0 to 99% 110F (40C), non-condensing
- Shock/Vibration/Mechanical: meets or exceeds EIA standard RS-316B 3G (operating), 20G (non \operating) XYZ 3 directions. Meets SAE J1455

## Power source options

- Operated by Rechargeable battery - one 4.2 VDC Lithium rechargeable battery pack with a capacity of 7800mA. When fully charged has the capacity of transmitting up to 5000 GPS position. The unit has an internal fast charger. The batteries are charged via an external of the shelf standard 6-24VDC regulated power supply wall powered (110-220 AC) that plugs into the unit via a waterproof connector. Charge time is around 4-5 hours.
- Externally powered- the TMX+ will run in continuous mode acting as a realtime tracker for as long as external power is available. The internal battery will recharge for as long as external power is available.

## Electrical Specifications

Current consumption from battery:

- standby mode: 40ma at 3V
- sleep mode: 45uA at 3V
- transmit mode: 1.8A pulse at 3V

## Options

Up to 6 external digital temperature sensors may be connected to monitor 6 different zones .The external temperature sensor might be attached to the Piccolo TMX+ in 2 different ways based on specific customer requirements:

- Via direct wire by default 30 cm ( 1 feet) up to 10 meters ( 33 feet )
- Via plug and play connector for quick and easy sensor replacement

## LED Indicators

- GPS: Off when service is disabled, solid green when operating normally, solid orange when GPS current reading is invalid, and solid red on GPS error.
- Modem: Solid green when modem is registered, off when no signal is present or unit is off
- Data: Solid red when data is waiting to be transmitted, off when no data is in the buffer
- Power: Solid green when operating normally, off when unit is off
- Charger – Orange when charging

## Functional Specifications (partial)

- Digital inputs - optional up to two dry contact IO one input can make event on open loop detection that wakes up the unit and sends an alarm
- Up to 6 external digital temperature sensors (optional)
- Vibration sensor – for automatic security theft alarm and motion detection
- Over the Air (OTA) configuration via SMS
- Highly compressed OTA, UDP communication packaged with MidLink Middleware and "Plug & Play " API or DLL for quick integration into any third party software, recommended for dot.NET platforms.
- Or direct TCP/IP communication OTA,(no Middleware) packaged with "Plug & Play" API or DLL for quick integration into any third party software, recommended for Unix and/or Linux platforms
- OTA Diagnostic – via Wireless Links proprietary application and communication software.
- USB port for firmware download and configuration
- Analog Input -Optional 0-5V analog input ,sensor powered by an external power source controlled by the Piccolo ATX2S.
- USB port powers the unit during configuration and testing Firmware download and configuration via USB.
- Integrated internal analog temperature sensor sends unit temperature with every GPS data transmission.
- High location accuracy achieved with integrated 66 channel MTK GPS technology
- Optional external GPS and /or cellular antenna.
- Sends battery level with every GPS data.
- Store and forward- the unit can store up to 10,000 events when out of cellular coverage and then send them automatically when back in cellular coverage.

## Easy Installation

- Magnets - For easy installation on metal surfaces
- Two sided 3M Industrial tape- for a strong, permanent attachment



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