Product Specification

For the

Traxit X 2G GPS Tracke Vehicle Tracking Device

By

Montage Asia

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Revision History

Revision	Date	Description
X1.00-	12/08/11	First draft release
X1.00	03/01/12	First Prototype Release

Scope

This document sets forth the basic technical requirements and feature set for the TRAXIT X 2G GPS TRACKER tracking device.

Description

The TRAXIT X 2G GPS TRACKER Tracker is a self contained, integrated commercial grade vehicle tracking device that uses GPS satellite location in combination with a quad band GPRS cellular radio connection to report that location. The TRAXIT X 2G GPS TRACKER is optimized for reliability, cost and size. The TRAXIT X 2G GPS TRACKER is a cost optimized version of the standard IONL1G2 tracker that is targeted at expandable and fleet oriented applications. The TRAXIT X 2G GPS TRACKER is targeted more at the finance market.

All antennas including the GPS patch is internal to the device. Data reporting can be initiated by a server or by the tracker itself via GPRS SMS or UDP pathways or over a physical USB connection.

The TRAXIT X 2G GPS TRACKER is comprised of a simple two piece plastic enclosure that is sonically welded together for reliability, durability and low cost assembly. Interface signals and power are ported through a strain relief bundle at one end with up to a 7-lead pigtail.

For added redundancy against system lockup, a physically separate, dedicated watchdog circuit oversees the TRAXIT X 2G GPS TRACKER system operation. If the system does not maintain the watchdog circuit through programmed reporting, the system power is cycled and a new GPS satellite and cellular connection is established.

The TRAXIT X 2G GPS TRACKER can be provisioned for UDP and SMS data services for application command and/or data transactions within the 850, and 1900 MHz bands. Network provisioning is done using embedded SIM technology for reliability and cost savings. For added safeguard against network connection loss, a hardware TRAXIT X 2G GPS TRACKER endpoint reset and reboot can be initiated by simply calling the provisioned phone number and allowing it to ring three times.

Flexible I/O includes 2 bidirectional General Purpose Input Output (GPIO) ports. A separate dedicated USB port is provided for general use as well as development and programming support. A high current relay drive is provided for starter motor solenoid control or general purpose drive (current sink only).

Over The Air (OTA) application firmware updates are supported through at TFTP connection to a server. The entire application image can be updated using one specialized SMS or USB command.

All inputs are electrically hardened against overvoltage and over current conditions present in automotive environments. This includes transient electrical noise and

Electrostatic Discharge (ESD). The power input is further protected against over current with an internal self-resetting fuse.

The TRAXIT X 2G GPS TRACKER is physically disguised to appear to be a nondescript part of the cabling system. It is a small black box with unremarkable features. Two LED status indicators are provided to verify correct installation and initial operation. A unique power management feature allows these LEDs to be extinguished once installation is verified to be correct. This feature reduces power and further conceals the ION Tracker from untrained parties wishing to defeat its operation.

As with all GPS location devices, the TRAXIT X 2G GPS TRACKER should be installed in a vehicle such that it has an unobstructed view of the sky during normal operation. Double sided foam tape can be used to secure the surface not facing the sky if needed.

A factory populate option is provided to add a motion detector to the main board. Under software control, this motion detector can be used to wake the TRAXIT X 2G GPS TRACKER from a very low power state.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

The device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not case harmful interference.

The antennas used for this transmitter as shown in this filing must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Bullet Specifications

Cellular: 850/1900 MHz Quad band

GPRS Protocol CS-1, CS-2, CS-3 and CS-4

Output power:

Class 4 (2W) @ 850MHz

> 24dB @ 850MHz (OTA TRP)

Class 1 (1W) @ 1900MHz

> 26.5dB @ 1900MHz (OTA TRP)

Sensitivity:

< -107dBm @ 850MHz (Conducted)

< -101dBm @ 850MHz (OTA TIS)

< -106dBm @ 1900MHz (Conducted)

< -103.5dBm @ 1900MHz (OTA TIS)

Antenna:

Integrated onto PCB

Meets minimum AT&T TRP/TIS requirements

Services: GPRS Multi slot class 12

SMS (Text):

UDP data

DNS address resolution

GPS: L1-band (1.57542GHz)

Channels:

- 210 PRN
- 66 Search
- 22 Simultaneous tracking

Sensitivity (UHIS):

- Tracking: -165dBm
- Reacquisition: -158dBm
- Acquisition: -149dBm

Acquisition time:

- Hot: <1.5s
- Warm: <34s
- Cold: <90s
- Reacquisition: <1.0s

WAAS:

- Position: <3m
- Velocity: >0.1m/s
- Acceleration: >0.1m/s^2
- Altitude: 18,000m (max)
- Velocity: 515m/s (max)
- Acceleration: 4G (max)

32 Geo fences

25x25x4mm patch antenna

I/O: One main port and one internal expansion port

All pins are 16V tolerant and ESD protected

Pigtail:

2-Leads 2.8V GPIO

2-Leads USB2.0

Data+

Data-

1-Pin relay drive

-500mA drive

TVS overvoltage protection

1-Pin power input:

1.0A resetting fuse

TVS overvoltage protection

1-Pin ground

SIM: Internal embedded

LED:

Green GPS status

Battery voltage measurement

RF Supply Voltage

Nominal Voltage: **12V**

The normal input voltage: DC 12V
the input voltage range: DC 6V--15V

Full Shutdown: < 500μA
Standby: < 3.0mA
GPS acquisition: < 40.0mA
GPS tracking: < 36 mA
GPRS max power: < 90.0mA (GPS Off)
Peak instantaneous < 300mA

Software: Native ARM processor execution
Proprietary application
- Extended AT command interface
- Easily configured reports to minimize data transport costs
- Based on proven GPRS modem stack

Lockup protection:
- Independent watchdog with power cycle reset

Flash memory:
- 8MB for application and data storage
- Report buffer
- USB port update
- Over the air update

Development:
- Complete C language tool chain
- Meta Download Tool
- MTK Flashtool

Options: Motion sensor

Physical:		
	Design:	Nondescript design
	Color:	Black
	Texture:	Light
	Material:	UL Lanxess PA6 Durethan BKV15+
	Size:	85.1mm x 32.2mm x 9.6mm
	Fasteners:	Sonic welded
	Label:	LED ported, and laser printable
	SIM:	Keyed retainer socket

Environment: Temperature:
- -40 to 85° C Operation
- -50 to +100° C Storage

Humidity:
- 20% to 90% Operation
- 10% to 95% Storage

ESD: 15KV immune on all user accessible surfaces and ports

Altitude: -500 to +18,000m

