

User manual
For the
Traxit 3 2G GPS Tracker
Model Name:TXL1G2-3

By

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Revision History

Revision	Date	Description
X1.00	11/28/12	Initial Release

Scope

This document is a user manual for the TXL1G2-3 tracking device.

Description

The TXL1G2-3 Tracker is a self contained, expandable, integrated commercial grade vehicle tracking device that uses GPS satellite location in combination with a quad band (Optional:850MHz & 1900MHz or 900MHz & 1800MHz) GSM/GPRS cellular radio connection to report that location. TXL1G2-3 is optimized for reliability, cost and size. However, it remains highly flexible and capable of addressing diverse and specialized requirements through a novel expansion arrangement.

All antennas including the GPS patch and GSM antenna are internal to the device. Data reporting can be initiated by a command center or by the tracker itself via GSM/GPRS, SMS or UDP pathways.

The TXL1G2-3 is unique in that it is intrinsically expandable. A screw fastened expansion door secures SIM card access.

The TXL1G2-3 has a embedded lithium battery, the battery has 60mAh capacity .

The TXL1G2-3 is based on chip level design. The application software executes on the base level Central Processing Unit (CPU) under direct Operating System (OS) control. This approach provides a much more reliable, lower power and faster response than module/processor architectures. Unlike in common module/processor based designs; the ION2.2 design allows direct operating system access by the application, thus mitigating the need for a redundant external processor.

For added redundancy against system lockup, a physically separate, dedicated watchdog chip oversees the TXL1G2-3 system operation. If the system does not maintain the watchdog chip through programmed reporting, the system power is cycled and a new satellite and cellular connection is established.

The ION2.2 Tracker can be provisioned for UDP and SMS data services for both application command and data transactions within the 850 & 1900 or 900 & 1800 MHz GSM bands. Network provisioning is done with standard SIM cards. For added safeguard against network connection loss, a hardware ION2.2 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 two wire UART port is provided for general use as well as development and programming support. A high current relay drive is provided for starter motor relay control or general purpose drive (current sink only).

The power input, ground and GPIO signals that are present on the main 7 pin external vehicle connector are also available on the 7 pin internal expansion connector. On the internal connector, there is also a unique battery supply pin that supports connection of a rechargeable battery.

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

All inputs are electrically hardened against overvoltage and over current conditions present in automotive environments. This includes transient electrical noise and Electro Static Discharge (ESD). The power input is further protected against over current with an internal, self resetting fuse.

The TXL1G2-3 enclosure and its features are secured using M2 sized metal fasteners for rugged mechanical performance. .

The TXL1G2-3 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 ION2.2 Tracker from untrained parties wishing to defeat its operation.

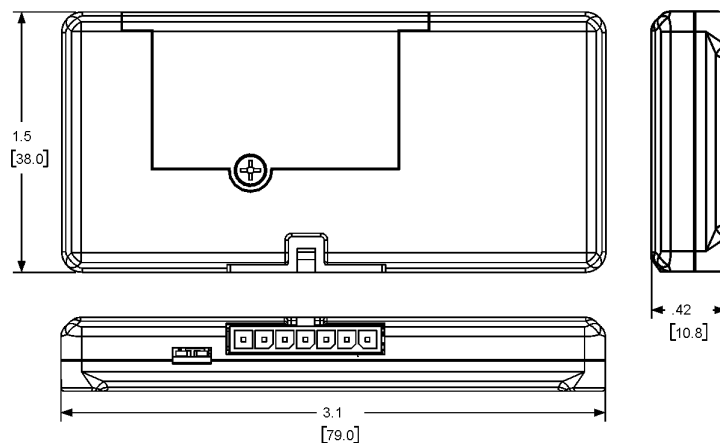
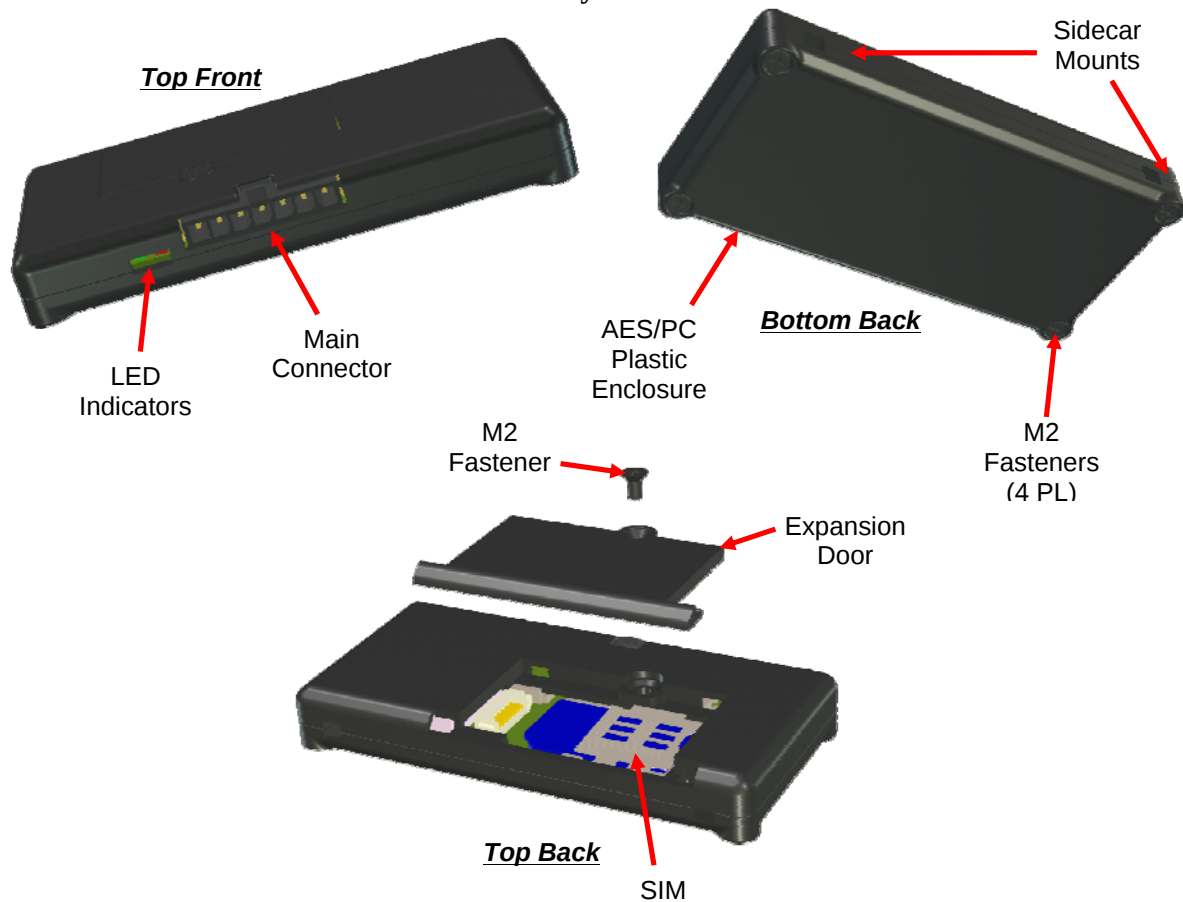
The TXL1G2-3 Tracker uses a simple cabling arrangement and supports splicing into an OBDII extension for power. Connection to the vehicle is made through a 3mm pitch rectangular header connection common to the automotive market.

As with all GPS location devices, the ION 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.

Physical Attributes

Figure 3 shows various views of the ION2.2 Tracker and its critical physical features. For absolute locations of these features, the 3D CAD models should be referenced.

Figure 3
TXL1G2-3 Physical Attributes



Units:
Inches
[mm]

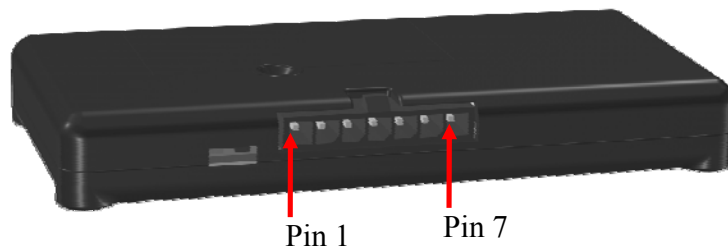
Interfaces

There are one connectors on the TXL1G2-3. The connector provides electrically hardened signals interfaces for I/O and power. It is intended that this connector attach or be spliced into the cable harness of a vehicle.

Signals

Interconnects are oriented as shown in Figure 4 looking into the front of the port. Electrical properties are in the subsequent table. The connector is keyed and latched.

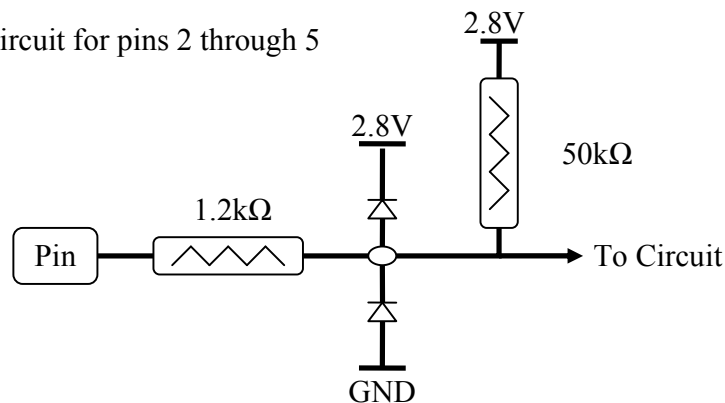
Figure 4
Main Connector



Main Signals			
Pin Number	Name	Description	Properties
1	RLY	Relay drive, connect relay coil between pin 6 and this pin	500mA, 16V tolerance open drain MOSFEET, TVS overvoltage protected
2	GP1	Configurable as general input or output	2.8V logic level, 16V tolerance, equivalent circuit in NOTE
3	GP2	Configurable as general input or output	2.8V logic level, 16V tolerance, equivalent circuit in NOTE
4	TX1	General UART TX output, also serves as debug serial out	2.8V logic level, 16V tolerance, equivalent circuit in NOTE
5	RX1	General UART RX input, also serves as debug serial in	2.8V logic level, 16V tolerance, equivalent circuit in NOTE
6	VIN	Power input, connect to positive side of battery power	500mA PTC inline self resetting fuse, also clamped to GND through 16V hold TVS diode
7	GND	System ground, connect to negative of battery power	Power and signal ground point

NOTE

Equivalent Circuit for pins 2 through 5



CE Regulations:**Caution**

Risk of explosion if battery replaced by an incorrect type.

Dispose of used batteries according to the instructions.

Please make sure the temperature for device will not be higher than 55°C

The device is tested for typical body worn operation. The minimum distance between the user and/or any bystander and the radiating structure of the transmitter is 20cm.

Complies with the essential requirements of Article 3 of the R&TTE 1999/5/EC Directive, if used for its intended use and that the following standards have been applied:

1. Health (Article 3.1(a) of the R&TTE Directive)

- EN 62311: 2008

2. Safety (Article 3.1(a) of the R&TTE Directive)

Applied Standard(s):

- EN 60950-1:2006+A11:2009+A1:2010+A12:2011

3. Electromagnetic compatibility (Article 3.1 (b) of the R&TTE Directive)

Applied Standard(s):

- EN 301 489-1 V1.9.2/-3 V1.4.1/-7 V1.3.1

4. Radio frequency spectrum usage (Article 3.2 of the R&TTE Directive)

Applied Standard(s):

- EN 301 511 V9.0.2
- EN 300 440-1 V1.6.1/ -2 V1.4.1

All the reports of the applied standards have the Positive Opinion of Notified Body:

PHONEIX TESTLAB, Königswinkel 10 D-32825 Blomberg, Germany

Identification mark: **0700** (Notified Body) **CE** **CE 0700**

The technical documentation relevant to the above equipment will be held at:

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FCC Regulations:

● This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

● This device 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 radiated 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.

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

Cet appareil est conforme aux dispositions de la partie 15 des règles de la FCC et des normes CNR d'Industrie Canada sur les appareils radio exempts de licence. Son utilisation est assujettie aux deux conditions suivantes : (1) Cet appareil ne doit pas causer d'interférence nuisible; et (2) cet appareil doit accepter toute interférence reçue, y compris l'interférence qui pourrait causer un fonctionnement non désiré. Cet équipement a été testé et jugé conforme aux limites d'un appareil numérique de la Classe B, en vertu de la partie 15 des règles de la FCC et de la NMB-003 canadienne. Ces limites sont conçues pour fournir une protection raisonnable contre l'interférence nuisible dans une installation résidentielle. Cet équipement génère, utilise et peut émettre de l'énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions, peut causer une interférence nuisible aux communications radio. Toutefois, il n'est pas garanti que l'interférence ne se produira pas dans une installation particulière. Si cet équipement cause une interférence nuisible à la réception radio ou de programmes de télévision, laquelle peut être déterminée en éteignant et en allumant l'équipement, l'utilisateur est encouragé à essayer de corriger l'interférence par l'une ou plusieurs des mesures suivantes :

- Réorientez ou relocalisez l'antenne de réception.
- Augmentez la séparation entre l'équipement et le receveur.
- Connectez l'équipement à une prise sur un circuit différent de celui auquel de le receveur est connecté.
- Consultez le vendeur ou un technicien radio/de télévision pour obtenir de l'aide.

La FCC ou Industrie Canada peut vous obliger à arrêter d'utiliser votre appareil si une telle interférence ne peut pas être éliminée.

TXL1G2-3 n'a pas approuvé les changements ou modifications apportés à cet appareil par l'utilisateur. Tous les changements ou modifications apportés peuvent entraîner la révocation de l'autorisation d'utilisation de l'appareil.

► **RF Exposure Information**

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

IC Notice

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

► **IC Exposure Information**

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.