

COX 2MSM

GTG21

**LoRa Tracker with GPS Gen 2.1
User's Manual**

Federal Communication Commission Statement (FCC, U.S.)

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 an 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 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.

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.

Radiation Exposure Statement

This device complies with RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This device must operate with a minimum distance of 20 cm between the radiator and user body.

FCC Caution:

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

IC WARNING

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

3. L'appareil ne doit pas produire de brouillage;
4. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radiation Exposure Statement:

This equipment complies with Canada 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.

Déclaration d'exposition aux radiations:

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.

Revision History

[illegible]

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Chapter 1 – Introduction

Purpose

The multi-purpose Industrial Tracker GTG21 is designed for outdoor asset tracking and industrial purposes. Batteries are replaceable and the device is designed to operate from many years. The sensor includes a three-axis accelerometer which is used to optimize different asset tracking applications for response time and battery lifetime. The sensor also includes many unique GPS acquisition and geo-fencing features for optimal battery lifetime and response time. A new Bluetooth feature is added to aid GPS acquisition and a buzzer to alert users.

Reference

Document	Author
LoRaWAN Regional Parameters	LoRa Alliance
LoRaWAN Specification	LoRa Alliance

Chapter 2 – Hardware Specification



General Specification

LoRa radio	Frequency 902 MHz - 928 MHz LoRaWAN 1.0.3.0
GPS radio	GPS and GLONASS
Bluetooth radio	Bluetooth 5
LED	Single Green indicator
Temperature range	-20 to 70 C
Environmental rating	IP67
Dimensions	100.5mm x 56mm x 31.5mm
Sensor	Accelerometer Magnetic Sensing
Rugged Design	-20 to 70 C Physically and thermally durable plastic outer shell
Physical Security	Mounting tabs to support multiple installation techniques
Battery type	2 * Lithium Rechargeable
Certification	FCC ID: 2AV5ZGTG21 IC ID: 26096-GTG21
Additional Features	Buzzer
Note	

Chapter 3 – Operation

Flight Mode

When industrial trackers leave the factory, they are put into flight mode, where the sensor is hibernating without functionality to prevent radio activity and minimize battery usage. Devices are delivered in this mode. G-sensor will not be ready to receive commands though it has not been disabled.

When the device is commanded by a network, the device shall exit shipping mode and enter default mode. If the device fails to join the network after trying for 32 times, the device will revert to flight mode. Another way to enter flight mode from normal mode is when the device has not receive ADR ACK for at least 56 hours.

Normal Mode

This mode is active when the device is in normal operating mode. When the device detects a magnetic tap, the green LED shall flash according to remaining battery voltage. For example, 4 times within 800ms for full battery, or once if a low battery condition is detected. After motion, the device will turn on GPS acquisition once it remains at rest for 45 seconds. 3 Position updates then will be sent to the network.

Chapter 4 – Installation

Usage

Sturdy design to endure the weather with an enclosure of IP67 rating and plastic withstanding temperatures ranging from -20°C ~ +70°C ambient.

Two tabs on the side for numerous ways to secure, such as tying to the rear mirror and the steering wheel.

Battery Replacement

Remove the bottom cover of the tracker.

Replace both batteries and use only ER14505

Do not mix used and fresh batteries.

