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AssetTrac

Owner's Manual & Reference Guide



GPRS Dual Band Asset Tracking Device (850/1900 MHz) Model: AT0303KE

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Important!

Before installing, turning on or operating the NovaTrack AssetTrac™, ensure compliance with all safety regulations.

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Overview

CNTG's **AssetTrac™** provides a very low cost but powerful solution for asset tracking and other GPS (Global Positioning System) tracking applications. It is a compact, completely self-contained end-user device, which can operate on four AA batteries. It is encased in a durable, light, waterproof case and weighs about 8 ounces (without batteries) and 11.5 ounces with batteries installed.

The **AssetTrac™** combines GPS technology with GSM (Global System for Mobile Communication) cell phone networks, and was designed for multiple applications such as vehicle tracking, security, monitoring, recovery, remote control, and GPS data logging. The **AssetTrac™** delivers a reliable, power-efficient, cost-effective solution for a wide range of situations where you need infrequent or occasional position updates. It is especially useful for tracking construction equipment, non-tethered trailers, etc. It works with any private or public IP network architecture.

The **AssetTrac™** locator periodically transmits position reports at a user-selectable interval while in motion, on demand, or at a regularly scheduled time. This makes the unit more efficient and reduces communications costs. Typically the **AssetTrac™** will function in many areas inside of a vehicle. The **AssetTrac™** may also be mounted with brackets inside or outside of the vehicle/asset or attached with a strong magnet.

The **AssetTrac™** requires no external antennas or connections. This flexibility reduces or eliminates the need for expensive installations.

The **AssetTrac™** is an event-driven system, i.e. messages are sent based on events, some of which can be pre-set based on certain parameters. Among these events are:

- Time-based events
 - Reporting on a scheduled basis, commonly 1/day, 4/day, 8/day.
- Motion-based events
 - The unit reports in when it sense motion, then will check for motion again after a set time.
- Polling events
 - Unit remains active and will wake and report when it receives a message or phone call.



- **Water-resistant**
- **Built in Motion Sensor** - saves battery life; only sends position reports when the vehicle/asset begins to move. This minimizes power consumption thereby reducing communication costs
- **Reporting Intervals** - can be set to report in various intervals
- **Internal Antennas** - no external wires; GSM and GPS Antennas are both internal.
- **Polling** – When set, the unit will report in if it receives a phone call or text message.
- **Remote Updates** - You can remotely change the reporting frequency from the internet, without having to remove the device from the car/asset.
- **Geo-fencing** - Users are alerted when these vehicles cross 'geofence' boundaries that have been assigned to monitor and report their locations.
- **Uses four AA standard Batteries** - cost effective - can last up to 9 months.
- **All-In-One Design** - GPS Receiver, Cell Modem, Motion Sensor, Batteries and SIM card are all in one unit.

Enhanced Features

Users can poll the unit in real time to request the current location of the **AssetTrac™** on-demand or receive a regularly scheduled report. For example, if you would like to keep costs down, the unit can be configured to periodically log, but not report, its current position. The user can also poll the device and it will compute a new position on-demand, or, if it has not moved since the last position was logged, it will immediately return its most recently logged position. Polling mode must be active to call the unit, while in polling mode the battery life will be shortened greatly. Alternately, it can be programmed to report on a regular daily or weekly schedule.

The **AssetTrac™** can operate for approximately one week on a set of four AA batteries during normal use with good GPS visibility. These easy-to-access batteries provide simple and low-cost maintenance and operation.

The **AssetTrac™** unit comes with the ability to gauge the battery level remaining in four AA batteries. This information is normally displayed as a percentage, 100% is full power and 0% for zero power.

Note: Battery life can be greatly affected by the surrounding temperatures. Battery life decreases as the surrounding temperature decreases.

Event Modes

- Time only Mode
- Motion only Mode
- Time and Motion Mode

Hardware & Software requirements (for GPRS 850/1900):

GSM/GPRS coverage for the USA, Canada, Mexico, and countries in Central and South America (except Brazil) is at 850/1900 MHz bands.

The AssetTrac™ is delivered without a SIM card. SIM cards must be purchased and registered with your local GPRS carrier. GPRS works through SMS (Short Message Service) which is also commonly known as Text Messaging Service. Once you have the SIM Card, place it into the SIM card holder of AssetTrac™.

Note: The AssetTrac™ can also be used to collect data without the SIM card. Up to 3500 points of data can be stored. To retrieve the data, power off the unit, install the SIM card, and then power it back on.

3. Hardware Installation

The AssetTrac™ can operate for approximately one week on a set of four AA batteries. This allows for simple and low-cost maintenance. Total installation time is often less than five minutes.

The AssetTrac™ contains the system's primary electronic components. Always mount the main module in the vehicle's interior compartments, in a covert and secure location, ensuring that moisture, vibration and temperature extremes are minimized. Acceptable locations include behind the dash, inside glove compartment, in the trunk, under the seat or behind other interior panels.

Note: Optimal conditions are stated as having a clear view of the sky. It has been tested to function in these areas of a car, but results may vary. The battery life will diminish when GPS cannot be attained easily.

Before installing the AssetTrac™ Unit:

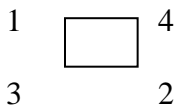
Please make sure that you have a SIM card that satisfies the following requirements:

- Caller ID from your GPRS service provider allowed.
- Short Message Service (SMS) has to be supported by your service provider and activated.
- Remove all PIN protection from your SIM card.

Weather Resistant Box:

To prevent the water from penetrating inside the enclosure, the following steps must be followed:

1. Put the top cover over the enclosure in the correct orientation.
2. While applying uniform pressure over the top cover, secure screws ONLY about $\frac{3}{4}$ ways in the order shown.



3. Now that the top cover is secured in a uniform fashion, finish securing top cover completely by tightening screws in the order shown.

4. Hardware Operation

Powering on AssetTrac™:

When powering on the unit for the first time, or just replacing the batteries, it is best to be outside or least where the unit can capture GPS. Place the four batteries in the correct orientation into the battery holder. Once the fourth battery is in place the unit will be powered on and begin to seek for a GPS location.

Note: The AssetTrac unit by default is set to report once every 15 minutes on a timed schedule. When first powering on allow time to acquire GPS and connect to the GSM network. This entire process can take up to 10 minutes. If either light does not turn green, power the unit on in a different location. The reason that GPS is required is to allow the unit to learn what time it should be set to.

Understanding the LEDs:

When the unit is first powered on you will see both LEDs blink then turn on and stay solid red. The unit will first try to acquire a GPS location then attempt to connect to the internet. If the unit can acquire a GPS location the light on top will turn green. Once it has a GPS location it will try to connect to the GSM network. Once the GSM network is reached the bottom light will turn green as well; it transmits the data location and both LEDs will turn off. Depending on the mode and interval you are using the unit will most often enter sleep mode and wait until triggered by an event.

Interference with Other Devices:

Much like a normal cell phone the AssetTrac™ unit is subject to interference. The unit can cause interference when near other electronic devices such as car stereos. It is recommended to keep an operating distance of 12 inches from these other electronic devices. Conversely other electronic devices and environments can cause interference. Areas that make cell phone reception difficult will have the same effect on the AssetTrac™ unit, such as subway terminals for example.



IMPORTANT: Please make sure system is powered off when inserting SIM card and connecting inputs and outputs. Also, if using a power module, make sure the case is connected to vehicle ground. Otherwise, an electrical short may occur and damage the unit.

5: Specifications

Technical Specifications

Following are the technical specifications for the AssetTrac Unit Vehicle Tracking device including:

- Power requirements
- GSM /GPRS Modem
- GPS satellite receiver
- RS-232 connection
- SIM card holder

System Power (Battery)	
Supply Voltage:	Four AA Batteries (not included)
Battery Life:	Up to 90 days (10 reports per day)

GSM /GPRS Modem	
Dual Band	850/ 1900 MHz
GPRS class	10
GPRS mobile station class	B
Compliant to GSM phase 2/2+	Class 4 (2 W @ 850 MHz)
	Class 1 (1 W @ 1900MHz)

GPS Satellite Receiver	
Frequency	L1 Frequency (1575.42 MHz)
C/A Code	1.023 MHz chipping rate
Channels	12
Accuracy	
Horizontal	< 6 meters
Altitude	< 11 meters
Velocity	.06 m/sec

RS-232 Connection	
Number of connections	2
Baud rate	2400 - 115200
Hardware / flow control	N/A
SIM Card holder	
GSM11.11	Compliant
ISO7816	Compliant

6. Accessories

Mounting Bracket:

Mounting Brackets provided to secure AssetTracTM onto asset item.

These devices are available from:

NovaTracker
11 Commerce Drive. Lobby Floor
Cranford, NJ 07016
Tel: (908) 272-0114
Fax: (908) 272-0124

* ISO (International Standards Organization), ANSI (American National Standards Institute), CDL (California Drivers License), and AAMVA (American Association of Motor Vehicle Administrators).

7. Regulation

Warning:

The AssetTrac unit must be installed and operated at a minimum distance of 20 cm between the AssetTrac unit and your body. This unit must not be co-located or operating in conjunction with any other antenna or transmitter.

Changes or modifications made to this unit not expressly approved by NovaTracker may void the FCC authorization to operate this equipment.

Compliance:

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

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:

1. Reorient or relocate the receiving antenna
2. Increase the separation between the equipment and the receiver
3. Consult the manufacturer or supplier for help

8. Trouble Shooting Guide

Problems that may occur when installing/using the AssetTrac™ unit

1: *Cannot connect to GSM network*

Solutions:

- Check SIM card; make sure it is installed correctly.
- Check with your SIM card provider.

2: *No GPS light (No GPS connection)*

Solutions:

- Move the vehicle. Something may be blocking satellite reception.
- Try a different location on/in the Asset

9. Frequently asked questions

Q: What is AssetTrac?

A: AssetTrac is a location device that uses **Global Positioning System (GPS)** to acquire location and **Global System for Mobile communication (GSM)** wireless to report to a remote server.

Q: Does the device only work with a clear view of the sky?

A: Not necessarily, AssetTrac is able to function inside most vehicles, whether that is in the glove box, passenger seat, under the seat, or in the trunk. Results can vary, and may not receive a GPS position if there's too much interference.

Q: Does the AssetTrac locator require installation?

A: Not normally the device consists of a self-contained package that includes all antennas.

Q: What wireless network standards does AssetTrac support?

A: AssetTrac uses the **GSM (Global System for Mobile Communications)** network. This is one of the most common cellular communication standards. GSM is not the only standard used in the United States but it is the most prevalent system used in densely populated areas.

Q: What areas will the AssetTrac be able to operate in?

A: AssetTrac will be able to transmit wherever there is an available GSM signal. If there is not an available cell phone signal it will log up to a 3500 locations and transmit all the logged data when a cellular signal becomes available.

Q. What geographic areas will my AssetTrac unit work?

A. Everywhere that you have a GSM cell phone network available. It will work best in densely populated areas and along major highways.

Q: How does my AssetTrac actually communicate with me?

A: AssetTrac uses the SMS messaging system commonly used for text messaging. AssetTrac will gather its location, time, and battery level then send out the data using the SMS message system to a server. The server will receive the data and process it into the nearest street address and post the information, most commonly on a web browser.

Q. My AssetTrac unit is showing me the correct town but not a street address or is missing the street number?

A. AssetTrac units report the latitude and longitude as a number. It is up to the database on the server side to provide the address and street numbers. Often missing streets are either new or have had their name changed since the database was last updated.

Q: How does the AssetTrac power itself?

A: The AssetTrac locator uses four common AA alkaline or rechargeable batteries.

Q: How long do the batteries last?

A: The AssetTrac's four AA batteries lifespan is approximately one week reporting four times per day (depending on weather conditions). The life span of the unit is also dictated by how it is being used. While the AssetTrac is set to scheduled reporting the battery draw is minimal. Polling mode is available as an option for the AssetTracs (the ability to "call" the unit, have it wake up from sleep mode and transmit). Polling mode will reduce battery life greatly.

Q: What are the AssetTrac locator's power requirements?

A: The AssetTrac will normally use the default of four common AA batteries. AssetTrac has the ability to monitor the battery level remaining to help the user to know when replacement will be needed.

Q: How durable is the AssetTrac locator?

A: The device consists of a sturdy, water-resistant molded plastic casing with all antennas inside the unit. It is designed to fully support the needs of consumer vehicle, machinery, or any other asset monitoring.

Q: How accurately is the device able to report location information?

A: The AssetTrac locator's position reports are typically accurate within 3-10 meters.

Q: How frequently can the device report position?

A: The default report frequency is once every 15 minutes and is in time only reporting mode. If the unit is in time only mode the lowest recommended time interval is 10 minutes. It can also be programmed to send reports based whether it is moved or is being polled. Typical scheduled settings would be 1/month, 1/week, 1/day, 2/day, or 4/day.

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