

Application Note: AT100 Towing Alert

Overview

The AT100 reports tow alerts to highlight when a vehicle is moving with the ignition off. This application note describes this feature in detail, including how to configure the various trigger thresholds that are used by the AT100 to determine when a vehicle is being towed.

Related Documents

The following documents are recommended reading to accompany this document:

- AT100 System Integration Guide
- AT100 Protocol "C" Description

The first document can be obtained from:

<http://www.gps-telematics.co.uk/downloads.htm>

The AT100 Protocol Description documents are available on request by emailing Astra Telematics (please see the contact page of our website).

Compatibility

Configurable tow alerts are supported from firmware version 5.06. An ignition sense wire (white wire of CB001 cable) must be connected appropriately and $IGNM > 0$ to enable towing to be detected.

Operation of Towing Alert

A tow alert is reported as part of the protocol "C" reason bytes when the AT100 determines that the vehicle is moving with the ignition off. There are several criteria used to determine this state, as described below:

1. Motion Sensor
The internal motion sensor detects movement over a given (fixed) threshold based on a 2 axis accelerometer. A given number of 'hits' above threshold can trigger a tow alert.

2. GPS Speed

If the speed measured by GPS exceeds a certain threshold (kmh) for a certain time (seconds) a tow alert can be triggered. The speed threshold and time should be chosen carefully to avoid false alarms, as GPS speed is often unreliable in poor signal conditions, hence a suitably high speed and number of samples should be used to reduce the probability of rogue tow alerts.

3. Distance Moved (from ignition off location)

Movement of a given distance from the last stop location can also trigger a tow alert. Again, care should be taken to choose the trigger distance because GPS location can wander from the true position in poor signal conditions. This mode requires a valid GPS at the journey stop location and hence it is not used in scenarios such as underground car parks etc.

Once a tow alert has been triggered, the AT100 continues to report towing alert mode until the next ignition event (journey start).

Configuration of Tow Alert Thresholds

The tow alert thresholds can be configured using the TOWP over-the-air command, as follows:

```
*TOWP=<distance_metres>,<speed_kmh>,<speed_seconds>,<motion_sensor_hits>#
```

where:

distance_metres	distance moved from last stop to trigger tow alert
speed_kmh	speed threshold to trigger a tow alert
speed_seconds	time required above speed threshold to trigger tow alert
motion_sensor_hits	number of motion sensor hits (events) to trigger tow alert

parameter	minimum	default value	maximum
distance_metres	100	500	65535
speed_kmh	20	50	65535
speed_seconds	1	10	65535
motion_sensor_hits	1	1	65535