

## Application Note: AT100 Journey Reporting Modes

### Overview

The AT100 reports journey information to allow the host application to display vehicle activity in detail. The most critical part of this information is the *start* and *stop* of individual journeys, as this allows the data to be broken down and displayed to the user with much more relevance and readability. There are two different ways to generate these *start* and *stop* reports. This application note is intended to outline the precise mechanisms behind each option to enable the most appropriate solution to be chosen for any given application.

### Full Journey Reporting

Full journey reporting is provided when the AT100 is configured for continuous operation mode. In this mode, the AT100 never powers down. Continuous mode is enabled when distance and/or heading based reports are enabled (i.e. DIST or HEAD are non-zero). When distance and heading reports are disabled, the AT100 goes into micropower mode and reports on a timed interval only (as defined by CONF), powering down in between reports.

### GPS Based Journey Reporting

In this mode, journey *starts* and *stops* are interpreted from the GPS data, namely speed and location (distanced moved). Whilst the vehicle is stationary (i.e. in *stopped* mode), a journey *start* will be triggered and reported under the following circumstances:

1. Speed increases to 20kmh (12.5mph)
2. Location changes by 1000m

In this mode, it is possible to get false journey *starts* due to poor GPS quality, as can occasionally be seen in urban locations and when GPS antenna location is not ideal (i.e. inside vehicle windscreen or beneath dashboard). The journey *start* thresholds are set reasonably high to avoid excessive numbers of 'rogue journeys' as a result of false *start* reports.

The end of a journey is signaled by a *stop* report, which is triggered under the following circumstances:

1. Vehicle speed is below 10kmh (6.25mph) for a defined period of time (STPD)
2. Loss of GPS during journey for a defined period of time (GPST)

The Stop Delay parameter (STPD) defines how long the vehicle must be stationary (speed < 10kmh) before a *stop* report is triggered. The recommended setting is 180 seconds, as this is a good compromise between false *stop* events (e.g. at traffic

lights) and delayed journey ends or merged journeys which could result from excessively high Stop Delay values.

The GPS Timeout parameter (GPST) defines how long the GPS location can be lost before triggering a GPS timeout report, which contains the last known good GPS location and corresponding time/date. If this occurs during a journey, as can often be the case (e.g. driving into a garage or tunnel), it is interpreted as the end of a journey and a *stop* event is signaled to the host application.

GPS based journey reporting is selected by setting the Ignition Mode parameter (IGNM) to zero. This mode is useful for trailers or other vehicles where an ignition signal is not available. We do not recommend this mode for other types of vehicle.

## **Ignition Based Journey Reporting**

This mode requires that the IGNITION input (the white wire on the power loom or pin 31 of the 36 way data connector) is connected to an ignition switched source. In this mode, journey *starts* and *stops* are interpreted from the ignition only. Journey *starts* occur when the ignition goes from low to high and *stops* occur on high to low transitions. This mode prevents the occurrence of rogue journeys (GPS errors), merged journeys (brief stops) and broken journeys (false stops). This mode also allows the AT100 to report vehicle *idle time*, which is defined as the time that a vehicle is stationary within any given journey (i.e. IGN ON and speed = zero).

Ignition based journey reporting is selected by setting the Ignition Mode parameter (IGNM) to one.

## **Journey Report Details**

The following information is reported during the course of the journey and with each journey *stop* report:

- Distance traveled
- Maximum speed
- Maximum acceleration
- Maximum deceleration
- Idle time (when IGNM > 0)