

Application Note: Driver ID using iButtons

Scope

AT200, AT240, AT210, AT110

Overview

Our GPS/GPRS vehicle tracking devices can be used with Maxim-Dallas iButtons (also known as 'Dallas Keys') to provide information about the driver of a given vehicle for specific journeys.

Related Documents

The following documents are recommended reading to accompany this document:

- AT200, AT240, AT210 & AT110 User Guides
- AT200, AT240, AT210 & AT110 Installation Guides
- Astra Communications Protocol K
- Astra Communications Protocol M

The first two documents can be obtained from:

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

The Protocol Description documents are available on request by emailing support@gps-telematics.co.uk

Requirements

- iButton Probe
- iButton (keyfob mounted)

Part Number

Astra IB001
Astra IB002

Hardware Requirements

The IB001 iButton probe is connected to the device using the appropriate plug-and-play cable.



Device Configuration

Command to configure driver ID source, authorisation, reporting and timeouts.

```
$DRIC,<driver_id_source>,<reminder>,<confirm>,<report_all>,<immobilise>,<validity_timeout_secs>,<auth_timeout_secs>,<imob_output_state>,<server_authorisation>,<allow_manual_imob_override>,<reminder_timeout_sec>
```

<driver_id_source>

Our devices support various modes of driver ID. To use iButton mode, set the device driver ID source to 1. Default device configuration is driver ID disabled.

<reminder>

This option can be used to enable an audible or visible reminder, to help ensure that the driver does not forget to present the iButton for each journey. If the reminder option is enabled, the output assigned to reminder is switched ON whenever the vehicle ignition is turned on, until an iButton is presented. This can be used with our BZ001 external buzzer option. Default device configuration is *reminder* disabled.

<confirm>

This device output can be used to indicate to the driver when an iButton has been read successfully. The output assigned to *confirm* is turned on momentarily. By default, the confirm output is used to drive the LED indicator built into the IB001 iButton Probe. Default device configuration is *confirm* disabled.

<report_all>

Enable this option if you wish the device to create an event / report in response to each and every iButton read by the device. Default device configuration is *report_all* disabled

<immobilise>

Enable this option if you wish the driver ID to be linked to the device immobiliser output and controller automatically based on driver ID. Default device configuration is *immobilise* disabled

<validity_timeout_secs>

Driver ID data will be attached to all journey START and STOP reports until validity expires. If set to zero, the iButton data will become invalid at the next STOP report. Default device configuration is 7200 seconds.

<auth_timeout_secs>

For use when *immobilise* option is enabled. After presenting the iButton, the driver has *auth_timeout_secs* to start the vehicle. The default device configuration is 30 seconds.

<imob_output_state>

The state of the digital output when immobilisation is active.
0 = output OFF for immobilisation. 1 = output ON for immobilisation. Default is 0.

<server_authorisation>

This option allows the acceptance of each driver ID to be controlled from the client server for vehicle immobilisation purposes. The commands required for this feature are described in the Authorised Driver Implementation section below.

<manual_imob_override>

Allows manual over-ride of the device immobilizer output using \$IMOB or \$\$SDIG commands. Default is 0 (not allowed).

<reminder_timeout_sec>

timeout on reminder buzzer in seconds. Default is zero, for an indefinite timeout.

Assignment of Device Digital Outputs

Use the CDOP command to assign specific digital outputs of the device to a given application.

\$CDOP,<output-number>,<application>

<Application>	Description
0	Not assigned
1	Immobiliser
2	Reminder (driver ID)
3	Confirm (driver ID)
4	Driver Behaviour - yellow
5	Driver Behaviour - orange
6	Driver Behaviour - red

Examples:

```
$CDOP,3,1 use digital output 3 for immobilisation.  
$CDOP,2,3 use digital output 2 for confirm.  
$CDOP,1 Will display the application assigned to digital output 1  
$CDOP Will display the available options for all applications
```

Note: applications can be assigned to only one digital output. If an application has been assigned to a digital output and then later assigned to a different one, the previous assignment will be set to zero (not assigned).

Authorised Driver Implementation

The device will store a list of up to 50 approved iButtons and up to 50 declined iButtons.

Each time a 'new' iButton is read (i.e. not currently in the approved list), the device will query the host server for approval to accept the new iButton. This process should take no more than 10 seconds. iButtons approved by the host will be added to the approved list and when presented again in the future they will be immediately authorised by the device.

iButtons that are declined will not be added to the approved list and will not allow the vehicle to be started. These are stored in a declined list. Declined iButtons send a query to the host so that if they are changed to approved in future they will be added to the approved list. iButtons previously approved can be removed from the approved list by the host.

If there are no communications with the host server, approved iButtons will allow the vehicle to be started and declined iButtons will not allow the vehicle to be started. Unknown iButtons will be temporarily allowed to start the vehicle and approval will be requested as soon as communications resume. If declined at that point, the vehicle will be immobilised.

If the approved list becomes full and a new iButton is presented and authorised, the oldest iButton will be removed from the list to make room for the new one. The oldest iButton is based on the last time that the iButtons were presented, so regularly used iButtons should never be removed from the approved list.

The device can re-request authorisation from the server of all iButtons in the approved list periodically.

Command Descriptions

In the command descriptions the <family-code> and <serial-number> are formatted as follows:

Argument	Format
<family-code>	iButton family code, fixed length, 2 hexadecimal digits (leading zeros), e.g. 01
<serial-number>	iButton serial number, fixed length, 12 hexadecimal digits (leading zeros), e.g. 0000125408C9

The following table describes the commands. The first command is from device to host whilst the rest are from host to device.

Command	Description
\$DRID,<model>,CHECK,<imei>,<family-code>,<serial-number>	Device requests iButton authorisation from host
\$DRID,APPROVE,<family-code>,<serial-number>	Host approval of iButton
\$DRID,DECLINE,<family-code>,<serial-number>	Host declines iButton (unknown)
\$DRID,ADD,<family-code>,<serial-number>	Host request to add iButton to approved list
\$DRID,REMOVE,<family-code>,<serial-number>	Host request to remove iButton from approved list
\$DRID,CLEAR	Host request to delete approved and declined list
\$DRID,CLEAR,WHITE	Host request to delete approved list
\$DRID,CLEAR,BLACK	Host request to delete declined list
\$DRID,BLOCK,<family-code>,<serial-number>	Host request to add iButton to declined list
\$DRID,VERIFY,<hours>	Host request to set the device whitelist verification period (0-65535). 0 disables the request

For example:

\$DRID,AT110,CHECK,351777042187300,01,0000125408C9