

Application Note: CANBus Compatibility

Scope

AT220B, AT240, AT110

Abbreviations

CAN	Controller Area Network
FMS	Fleet Management System
SAE	Society of Automotive Engineers
OBD	On-board diagnostics

Overview

The Society of Automotive Engineers (SAE) have developed a set of specifications known as the J1939 standards for communication between electronic control units in commercial vehicles. The J1939 standards define how information is transferred on the vehicle CAN (Controller Area Network) also known as CANBus. In addition, the major European truck manufacturers have defined a Fleet Management System (FMS) which is a subset of the J1939 standards specifically for fleet surveillance. The J1979 Standard defines OBD parameter IDs that are used to request data from a vehicle .

Compatible Astra Telematics devices (see scope) can be connected to the CANBus network in a vehicle to obtain information from the electronic control units that communicate using that network. This application note describes the compatibility between our devices and the vehicle CANBus network.

Related Documents

The following documents are recommended reading to accompany this document:

- App Note – CANBus commissioning
- AT220B Protocol L – CANBus
- Astra Protocol V – CAN and OBD

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

Standards

J1939

The J1939 specification is described by a number of SAE documents known as the SAE J1939 Standards Collection and can be purchased from the SAE (see the following <http://www.sae.org/standardsdev/groundvehicle/j1939.htm>).

FMS Standard

You can download the FMS Standard from the FMS-Standard website after registering here http://www.fms-standard.com/download/download_access.htm.

J1979

The J1979 standard is described by a number of SAE documents and can be purchased from the SAE (see <http://www.sae.org> for details).

Compatibility

FMS

Our devices support the J1939 Fleet Management System (FMS) Standard. An FMS connection is provided by an FMS interface which provides a safe and standardised data connection to the vehicle CANBus. The FMS interface isolates the actual vehicle CANBus from the device to prevent any possible interference with vehicle data.

The options for providing the FMS interface are:

- Manufacturer installed - FMS interface ordered with the truck
- Dealer retrofit – FMS interface will be fitted at a dealer
- Third party – a number of third party FMS interfaces can be fitted by an installer

Note: To use FMS the device should be connected to an FMS interface and not directly to the vehicle CANBus

Connectors

You should contact your dealer to find out if a vehicle has an activated FMS interface and where the connector is located.

A CANGOclick cable can be connected to our device to receive FMS data from the CANBus without directly connecting to the CANBus provided that the required data is being requested by a suitable FMS interface. We are able to supply CANGOclick cables.

OBD

Our devices support OBDII by connecting to the vehicle CANBus. The vehicle CANBus connections may be available at the OBDII connector and we supply a suitable connecting cable.

Technical Data

J1939/FMS

CANBus bit rate: 250 kbit/s.

CAN identifiers: extended 29 bit

For full protocol L and V support the following identifiers must be provided by the FMS interface

Parameter Group Number	Description
65265	Cruise Control/Vehicle Speed
61443	Electronic Engine Controller #2
65257	Fuel Consumption
65276	Dash Display
61444	Electronic Engine Controller #1
65258	Vehicle Weight

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Parameter Group Number	Description
65253	Engine Hours
65260	Vehicle Identification
65217	High Resolution Vehicle Distance
65216	Service Information
65132	Tachograph
65262	Engine Temperature 1
60671	Broadcast Announce Message
60415	Transport Protocol – Data Transfer

OBD

CANBus bit rate: 250 or 500 kbit/s.

CAN identifiers: standard 11 bit or extended 29 bit

To make full use of protocol V the following parameter IDs must be provided by the vehicle OBD interface

Parameter ID	Description
0x01	Malfunction indicator lamp status and number of diagnostic trouble codes to display
0x04	Engine load
0x05	Engine coolant temperature
0x0C	Engine RPM
0x0D	Vehicle speed
0x11	Throttle position
0x1F	Run time since engine start
0x21	Distance travelled with malfunction indicator lamp on
0x2F	Fuel level input