

## Application Note: CANBus FAQs

### Scope

AT220B, AT240, AT110

**Q** What is CANBus ?

**A** CANBus is the name given to the communication network in a vehicle that is used for transferring information between the various electronic control units.

**Q** What Astra Telematics products support CANBus ?

**A** The Astra Telematics AT220B, AT240, AT110 vehicle tracking devices have the option to connect to CANBus.

**Q** What CANBus protocols are supported by Astra Telematics products ?

**A** The J1939 / FMS standard and the J1979 / OBD standard

**Q** What is J1939 ?

**A** J1939 is a communication standard defining the format and method in which data is transferred on the CANBus in trucks and buses.

**Q** What is FMS ?

**A** FMS (Fleet Management System) is a standard that defines a subset of J1939 data that is relevant to fleet monitoring. It is supported by the following manufacturers Scania, Volvo, MAN, Mercedes Benz, DAF, Iveco and Renault. The standard defines the following information that **may be** provided:

- Brake Switch state
- Wheel based vehicle speed
- Cruise Control on/off status
- Clutch switch state
- PTO on/off/disabled
- Accelerator pedal position
- Engine load at current speed
- Total truck life fuel consumption
- Current fuel level
- Engine speed (RPM)
- Axle weight and location
- Total engine running hours
- Vehicle identification number (VIN)
- Total truck life vehicle distance
- Distance to next service
- Tachograph overspeed indicator
- Tachograph warnings of exceeding drive time regulations
- Tachograph direction
- Tachograph vehicle speed
- Engine coolant temperature
- Ambient air temperature
- Fuel economy

The actual data that will be available will vary between manufacturer, model, configuration and year of manufacture.

**Q** What is J1979 ?

**A** J1979 is a communication standard defining the format and method in which data is transferred on the CANBus in cars and light commercial vehicles.

**Q** What is OBD ?

**A** OBD is the on-board diagnostics system in a vehicle and it allows information about the vehicle to be requested using the OBD port in the vehicle. The following is some of the information that **may be** provided:

- Malfunction indicator lamp status and no. of diagnostic trouble codes to display
- Engine load
- Engine coolant temperature
- Engine RPM
- Vehicle speed
- Throttle position
- Run time since engine start
- Distance travelled with malfunction indicator lamp on
- Fuel level input

**Q** What are the benefits of using FMS or OBD ?

**A** Using FMS or OBD can help you to:

- Monitor fuel usage and fuel economy
- Analyse driver performance
- Highlight inefficient driving habits to promote improved driver performance thereby
  - Saving fuel
  - Reducing vehicle maintenance

**Q** What vehicles are supported by FMS ?

**A** The FMS standard has been defined with heavy commercial vehicles in mind and all modern trucks use CANBus. FMS may also be used on buses. You should contact the manufacturer/dealer to find out if CANBus is supported and an FMS interface is available.

**Q** What vehicles are supported by OBD ?

**A** OBD is used in cars and light commercial vehicles.

**Q** Can the devices be directly connected to the vehicle CANBus ?

**A** For FMS we do not recommend or support connecting our devices directly to the vehicle CANBus.

**Q** Why use an FMS interface ?

**A** An FMS interface provides a safe and standardised data connection to the vehicle CANBus. It isolates the actual vehicle CANBus from the device, preventing any possible interference with vehicle data.

**Q** How do I know if an FMS interface is fitted ?

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

**Q** Can an FMS interface be retro fitted ?

**A** You should contact your dealer if you wish to have an FMS interface installed. Alternatively, a number of third party FMS interfaces are available.

**Q** What FMS connector is required ?

**A** The FMS interface connector will be dependent upon the supplier of the FMS interface. The device CAN connections should be wired in to the recommend connector.

**Q** What OBD connector is required ?

**A** The vehicle will have a standard OBD connector for which we supply a suitable cable.

**Q** What extra data bandwidth is needed to report CANBus information ?

**A** In addition to the basic telematics information the Astra Telematics protocol L have the following CANBus extra data requirements:

- Timed journey/event/CANBus triggered report: additional 11 bytes
- Journey start (ignition on): 21 bytes
- Journey stop (ignition off): 33 bytes

Protocol V has the following CANBus extra data requirements:

- Timed journey/event/CANBus triggered report: additional 26 bytes
- Journey start (ignition on): 40 bytes
- Journey stop (ignition off): 52 bytes

**Q** What CANBus events can trigger a report ?

**A** For FMS the following CANBus events can be optionally configured to trigger a report:

- Brake switch – pedal released
- Brake switch – pedal depressed
- Cruise control – switched on
- Cruise control – switched off
- PTO – Off / Disabled
- PTO – Set
- PTO – Not Available
- Vehicle Direction – Forward
- Vehicle Direction – Reverse
- Vehicle Speed – Overspeed
- Vehicle Speed – No Overspeed

For FMS and OBD events can optionally be triggered for the following measurements when a configurable threshold has been exceeded

- Engine speed (RPM)
- Accelerator pedal position
- Engine load at current speed

**Q** Will the device CANBus work in the USA ?

**A** The device will work in the US provided that a vehicle has an FMS interface or an OBDII connector with the CANBus connections on it.