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INTRODUCTION

AIM has developed special applications for many of the most popular ECUs: by special applications we mean user-friendly systems which allow to easily connect your ECU to our high tech data loggers: user needs only to install harness between the **logger** and the ECU.

Once connected, the logger displays (and/or records, depending on the logger and on the ECU data stream and configuration) values like RPM, engine load, throttle position (TPS), air and water temperatures, battery voltage, speed, gear, lambda value (air/fuel ratio) analog channels...

All AIM loggers include – free of charge – **Race Studio 2** software, a powerful tool to configure the system and analyze recorded data on your PC.

Warning: once the ECU is connected to the logger, it is necessary to set it in the logger configuration in Race Studio 2 software.

**The configuration to be set changes according to the communication protocol.
Select Manufacturer “DTA” Model “S_Series PRO (CAN)” if using the CAN bus
Select Manufacturer “DTA” Model “S60” if using a serial protocol.**

Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.

Warning: for any further information concerning ECU firmware/software settings and/or upgrading it is always recommended to address to the ECU dealer.

Chapter 1 – Technical notes

Older firmware versions on DTA S series ECUs have a serial communication protocol.

1.1 – Firmware check

Following DTA suggestions each S-Pro series ECU needs to have a specific minimal firmware version, to say:

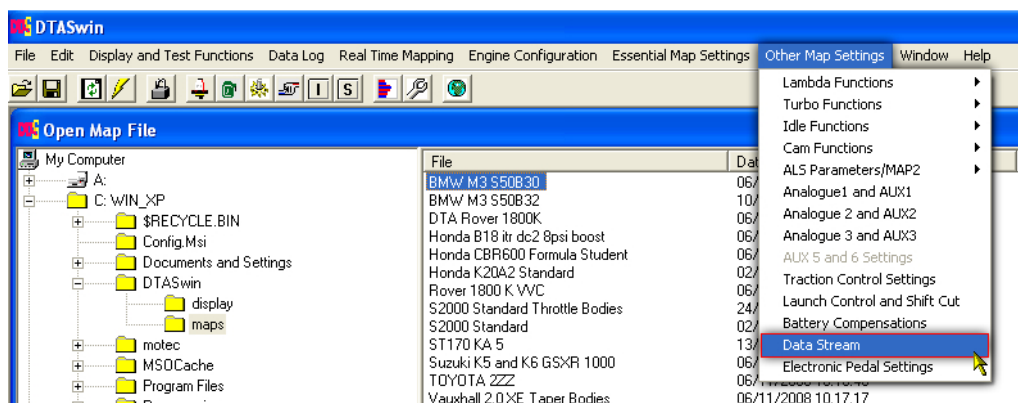
- S40 Pro: needs firmware version V37.00 or higher
- S60 Pro: needs firmware version V36.00 or higher
- S80 Pro: needs firmware version V40.00 or higher
- S100 Pro: needs firmware version V43.00 or higher.

Warning: though previous DTA S series communication protocol is by default serial it is possible to make them communicate through the CAN bus upgrading the firmware. Address to the DTA dealer for further information concerning this procedure.

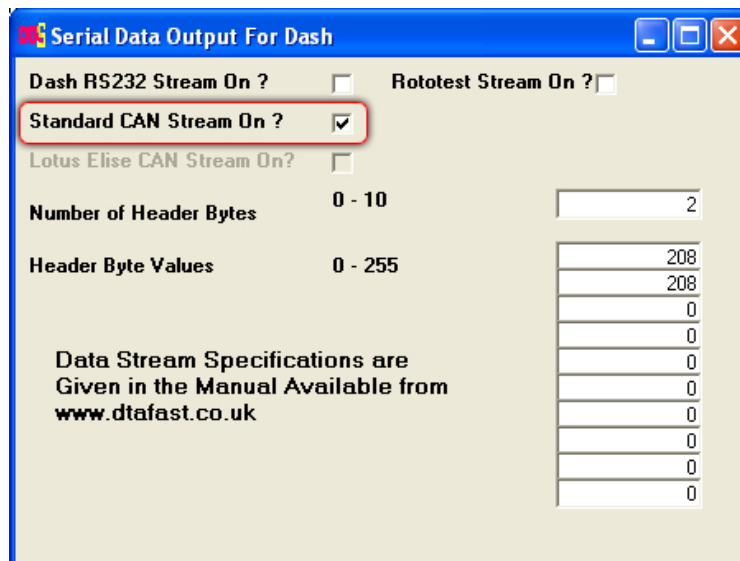
1.2 – Software setup for CAN Protocol

To enable the CAN bus output use DTASwin Software, that can be downloaded from www.dtafast.co.uk website.

Run the software and select “Other Map Settings/Data Stream” as shown here below.



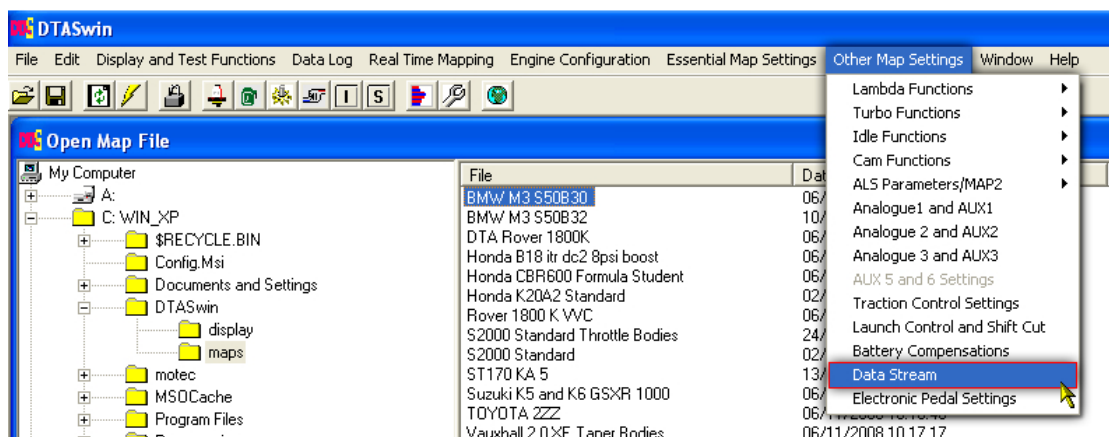
“Serial Data output for Dash” window appears. Enable “Standard CAN Stream On?” option as shown here below.



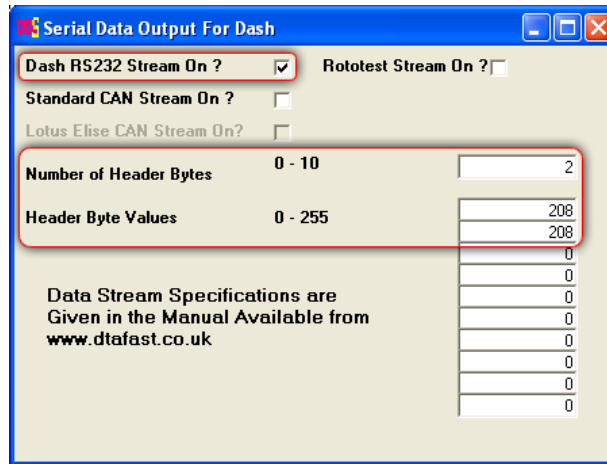
Save the configuration and close the software.

1.3 – Software setup for Serial protocol

For DTA S series ECU to communicate with AIM loggers through RS232 stream it is necessary to configure the ECU using DTASwin software, downloadable from DTA website at www.dtafast.co.uk. Run the software and select “Other Map Settings/Data Stream” from the menu bar as shown here below.



“Serial Data Output” for Dash window appears:



With reference to the image here above

- enable “Dash RS232 Stream On?” checkbox;
- fill “Number of Header Bytes”: 2
- Insert value “208” in the first two top lines of Header Byte Values table.

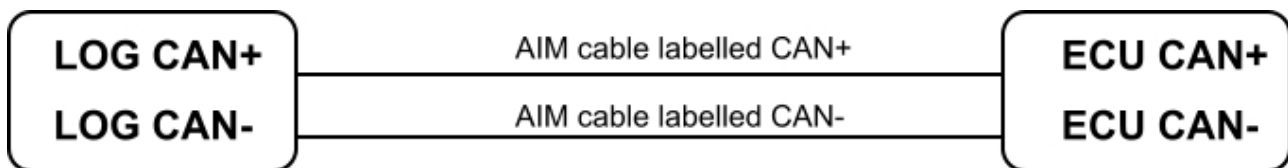
Save the configuration and close the software.

Chapter 2 – DTA Communication setup

The standard communication setup depends on the communication protocol.

2.1 – CAN communication setup

DTA S series ECUs with updated firmware are equipped with a CAN communication protocol used to communicate with an external logger. The image here below shows the standard CAN communication setup.



2.2 – Serial communication setup

DTA S series ECU with previous firmware versions is equipped by default with a serial communication protocol used to communicate with an external an logger. Using an interface board (part number **X15ASE010**) the serial protocol is switched to AIM CAN bus.

Chapter 3 – Connection with AIM loggers

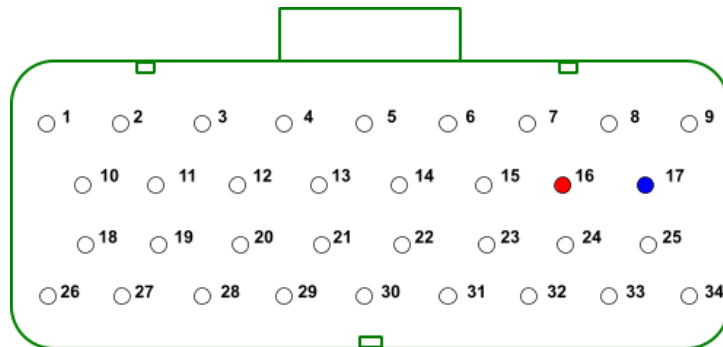
DTA S series ECU can be connected with AIM loggers in different ways according to the communication protocol.

3.1 – Connection with AIM loggers using the CAN bus

Here follow instructions to connect DTA S Series ECUs to AIM loggers using the CAN bus.

3.1.1 – Connection of S40/S40 Pro ECU

DTA S40 ECUs are equipped with a 34 pins male connector shown here below.

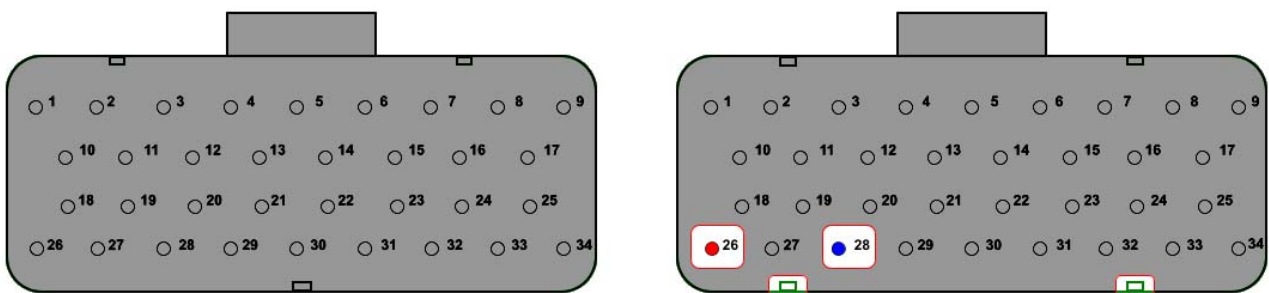


To connect DTA S40 ECU to AIM loggers:

- connect AIM cable labelled CAN+ to pin 16 of 34 pins male connector
- connect AIM cable labelled CAN- to pin 17 of 34 pins male connector

3.1.1 – Connection of S60/S60 Pro, S80/S80 Pro, S100/S100 Pro ECU

DTA S60, S80, S100 ECUs are equipped with two 34 pins male connectors shown here below.



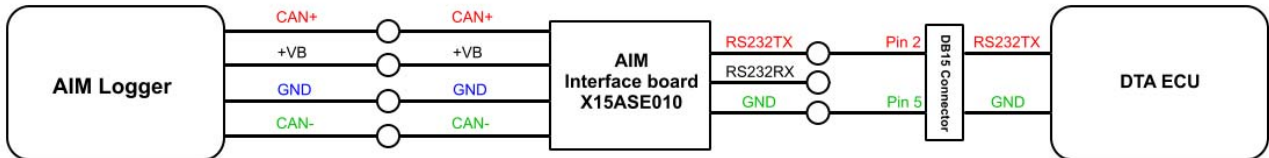
The connectors can be distinguished by the number of bottom keys: power connections one has a central bottom key (image here above on the left) while the sensors connection one has two bottom keys (highlighted in the image here above on the left).

To connect DTA S60, S80 and S100 ECUs to AIM loggers:

- connect AIM cable labelled CAN+ to pin 26 of 34 pins male sensors connector
- connect AIM cable labelled CAN- to pin 28 of 34 pins male sensors connector

3.2 – Connection with AIM loggers using the Serial protocol

To connect DTA S40, S60, S80, S100 ECU to AIM loggers using the serial communication protocol it is necessary to buy an interface board properly designed by AIM for this ECU whose part number is **X15ASE010**. This board converts RS232 signal in a CAN signal. Here below is shown the wiring diagram of the connection between DTA S series ECU and AIM loggers using the interface board and the DB15 connector.



To connect AIM logger to DTA ECU:

- connect AIM cable labelled CAN+ to interface board cable labelled CAN+;
- connect AIM cable labelled CAN- to interface board cable labelled CAN-;
- connect AIM cable labelled +VB to interface board cable labelled +VB;
- connect AIM cable labelled GND to interface board cable labelled GND;
- connect interface board cable labelled RS232TX to pin 2 of DB15 connector;
- connect interface board cable labelled GND to pin 5 of DB15 connector.

Chapter 4 – DTA S series communication protocol

Channels received by DTA S series ECU connected to AIM loggers depend on the communication protocol.

4.1 – DTA CAN communication protocol

Channels receiver by AIM loggers connected to DTA ECU using the CAN bus are:

| ID | CHANNEL NAME | FUNCTION |
|--------|------------------|-----------------------------|
| ECU_1 | DTA_RPM | RPM |
| ECU_2 | DTA_SPEED | Speed |
| ECU_3 | DTA_TPS | Throttle position sensor |
| ECU_4 | DTA_ECT | Engine cooling temperature |
| ECU_5 | DTA_AIR_TEMP | Intake air temperature |
| ECU_6 | DTA_OIL_TEMP | Oil temperature |
| ECU_7 | DTA_OIL_PRESS | Oil pressure |
| ECU_8 | DTA_MAP | Manifold pressure |
| ECU_9 | DTA_FUEL_PRESS | Fuel pressure |
| ECU_10 | DTA_FUEL_L_h | Fuel consumption per hour |
| ECU_11 | DTA_FUEL_L_100km | Fuel consumption per 100 km |
| ECU_12 | DTA_LAMBDA | Lambda value |
| ECU_13 | DTA_ADVANCE | Spark advance |
| ECU_14 | DTA_INJECTIME | Injection time |
| ECU_15 | DTA_GEAR | Engaged gear |
| ECU_16 | DTA_BATT | Battery voltage |

4.1 – DTA Serial communication protocol

Channels received by AIM loggers connected to DTA ECU using a serial protocol are:

| ID | CHANNEL NAME | FUNCTION |
|--------|----------------|----------------------------|
| ECU_1 | DTA_RPM | RPM |
| ECU_2 | DTA_THROTANG | Throttle position sensor |
| ECU_3 | DTA_WATERTEMP | Engine cooling temperature |
| ECU_4 | DTA_AIRTEMP | Intake air temperature |
| ECU_5 | DTA_MANIFPRESS | Manifold pressure |
| ECU_6 | DTA_LAMBDA | Lambda value |
| ECU_7 | DTA_BATTV | Battery voltage |
| ECU_8 | DTA_WHEELSPD | Wheel speed |
| ECU_9 | DTA_OIL_PRESS | Oil pressure |
| ECU_10 | DTA_FUEL_PRESS | Fuel pressure |
| ECU_11 | DTA_OIL_TEMP | Oil temperature |