EFI Europe

Euro 4_127 ECU

Racing Data Power

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.
Select Manufacturer "Efi" Model "Euro_4_127".
Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.

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Chapter 1 – Technical communication notes

EFI “Euro 4_127” can communicate with AIM loggers through the CAN bus. This communication can be wrong due to different reasons related hardware, firmware or software.

1.1 – Hardware check

EFI CAN line works normally with two only wires: CAN high (corresponding to AIM CAN+) and CAN low (corresponding to AIM CAN-). Generally AIM loggers do not need to ground CAN line. To check if hardware is ok:

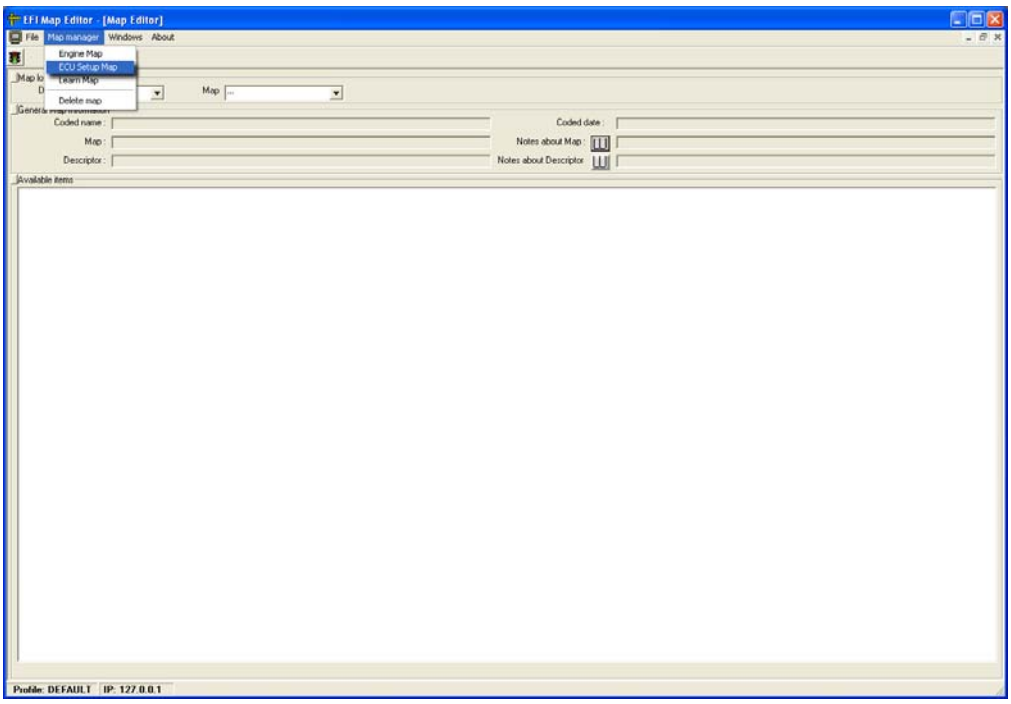
- ensure that a 120 Ohm “line end resistor” is installed between CAN+ and CAN-; use a multimeter; disconnect AIM logger from the ECU and make this check on both sides (ECU and logger);
- check if the amplitude of each bit is 2V (or at least 1.8); using a scope ground probe on CAN- while measuring CAN+. Please ensure that no filtering feature is enabled on the scope: this because of high baud rate of this line.

1.2 – Software setup and Firmware check

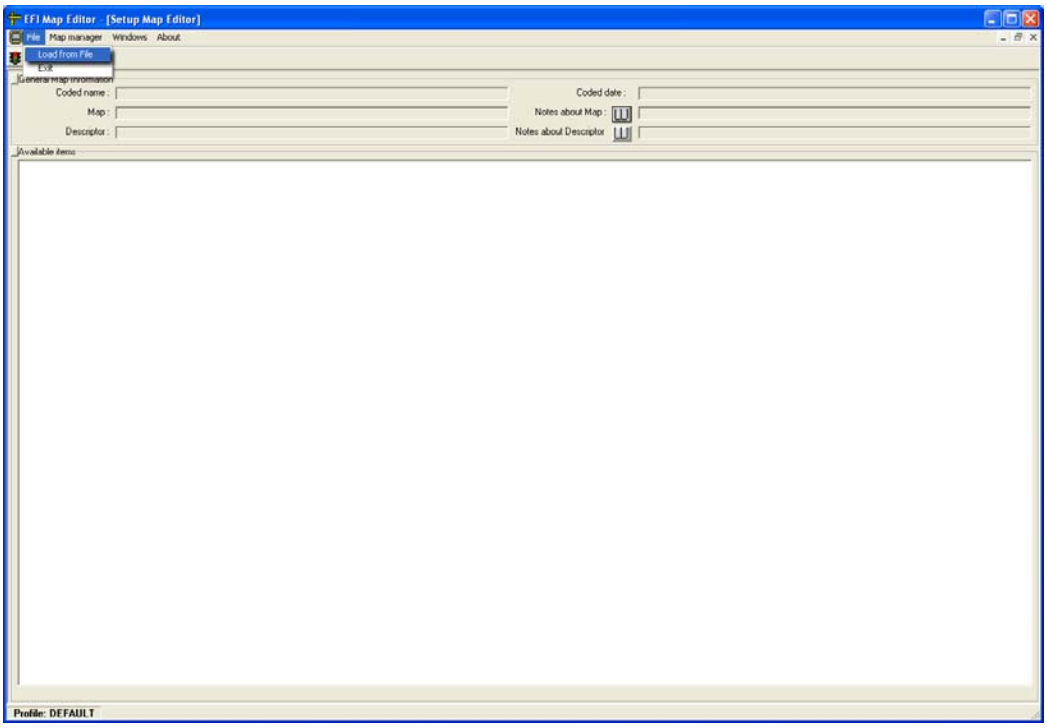
EFI “Euro 4_127” ECU has a CAN line to export data to a data logger.

To configure EFI “Euro 4_127” ECU:

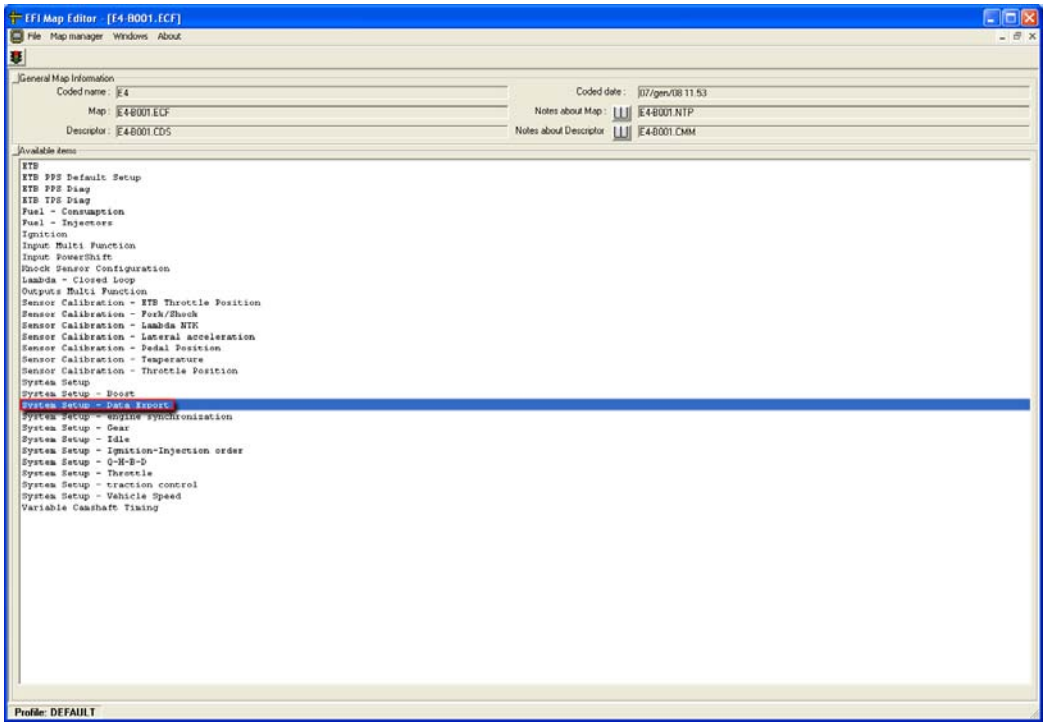
- run “ECT Mod” software
- load an “Euro 4_127” ECU
- click “Map Editor”
- click Map Manager and select “ECU Setup Map”



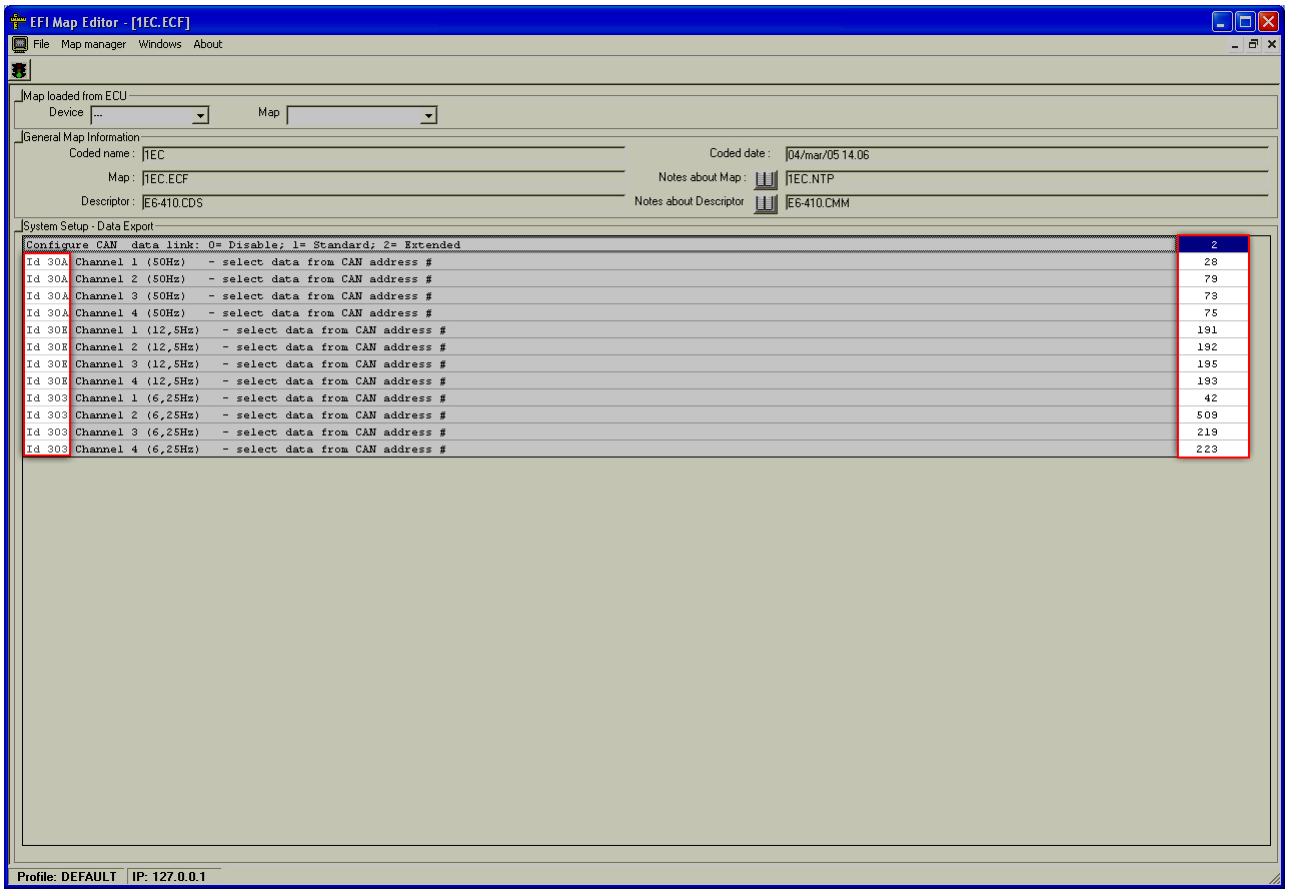
- Click File and select “Load from file” option.



- Select the “.ECF” file;
- select the “.CDS” file.
- the map is loaded
- select “System setup – data export” option



- Data export table is loaded.



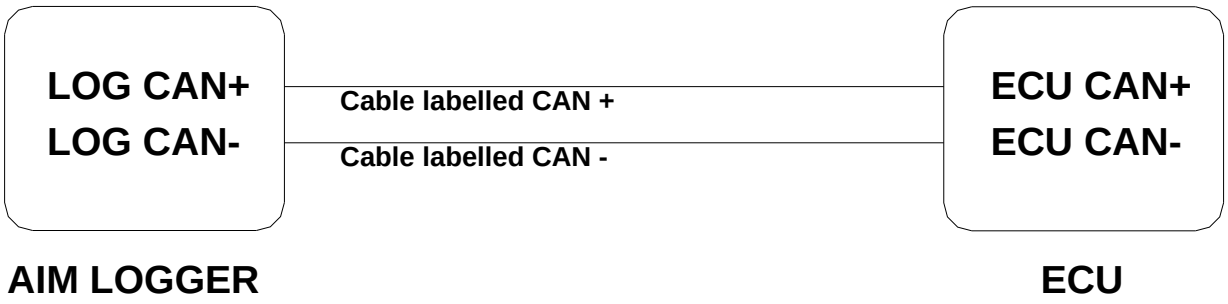
With reference to the image here above: the **first row** ha to be set to **"2 =Extended."**
All other values have to be set as follows:

ID	Value
30A	28
30A	79
30A	73
30A	75
30E	191
30E	192
30E	195
30E	193
303	42
303	509
303	219
303	223

Please ensure that the logger connected to the ECU is upgraded at the latest firmware version and has been configured with the latest Race Studio 2 version.

Chapter 2 – CAN communication Setup

EFI Euro 4_127 ECU is equipped with a CAN communication setup used to communicate parameters to an external logger.
The image here below shows the standard CAN communication setup.



Chapter 3 – Connection with AIM loggers

EFI “Euro 4_127” ECU is equipped with two male connectors. The CAN bus is on the right one (CNR). To connect AIM logger to the ECU:

- connect AIM cable labelled “CAN+” to pin F3 of the right connector;

connect AIM cable labelled “CAN-” to pin E4 of the right connector.

Chapter 4 – EFI communication protocol

Channels received by AIM loggers connected to EFI “Euro 4” ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	EFI_RPM	RPM
ECU_2	EFI_TPS	Throttle position sensor
ECU_3	EFI_MAP	Manifold pressure
ECU_4	EFI_DFARF	Throttle derivative
ECU_5	EFI_DMAP	Manifold air pressure derivative
ECU_6	EFI_AE	Fuel enrichment for positive TPS transient
ECU_7	EFI_DE	Fuel enrichment for negative TPS transient
ECU_8	EFI_WHEELSPD	Driven wheel speed
ECU_9	EFI_DRAXSSPD	Driving wheel speed
ECU_10	EFI_SLIP	Slip factor
ECU_11	EFI_OSASLIP	Ignition cut vs slip factor
ECU_12	EFI_BRAKE_P_R	Rear brake pressure
ECU_13	EFI_BRAKE_P_F	Front brake pressure
ECU_14	EFI_TC_ACTIVE	Active traction control
ECU_15	EFI_TC_CUT_LEV	Advance cut (for traction control)
ECU_16	EFI_TEROGBASE	Injection table – injection time
ECU_17	EFI_TEROG	Real injection time
ECU_18	EFI_SABASE	Spark advance on ignition table
ECU_19	EFI_SA	Real spark advance
ECU_20	EFI_NTK1	Lambda value 1
ECU_21	EFI_KFUELLEARN	Fuel correction coefficient for auto mapping
ECU_22	EFI_GEAR	Engaged gear
ECU_23	EFI_GEARSHIFTTIME	Gear shift time
ECU_24	EFI_OILPRESS	Oil pressure
ECU_25	EFI_FUELPRESS	Fuel pressure
ECU_26	EFI_BARO_PRESS	Barometer pressure
ECU_27	EFI_LNR3L	Analogic linear input 3
ECU_28	EFI_LNR4L	Analogic linear input 4
ECU_29	EFI_BATTVOLTDIR	Direct battery supply
ECU_30	EFI_BATTVOLTKEY	ECU voltage supply

ECU_31	EFI_LNR1L	Analogic linear input 1
ECU_32	EFI_LNR2L	Analogic linear input 2
ECU_33	EFI_LNR5L	Analogic linear input 5
ECU_34	EFI_LNR6L	Analogic linear input 6
ECU_35	EFI_TC_TRIM	Slip multiplier (for traction control)
ECU_36	EFI_TEROG_LOG	Logged injection time
ECU_37	EFI_ECT	Engine cooling temperature
ECU_38	EFI_OILTEMP	Oil temperature
ECU_39	EFI_FUELTEMP	Fuel temperature
ECU_40	EFI_AIRTEMP	Air temperature
ECU_41	EFI_SELEPROMTAB	Selected Engine Map
ECU_42	EFI_KFUELCAL	Calibration fuel multiplier