# EFI Europe

# Euro 4 Auto V160 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.

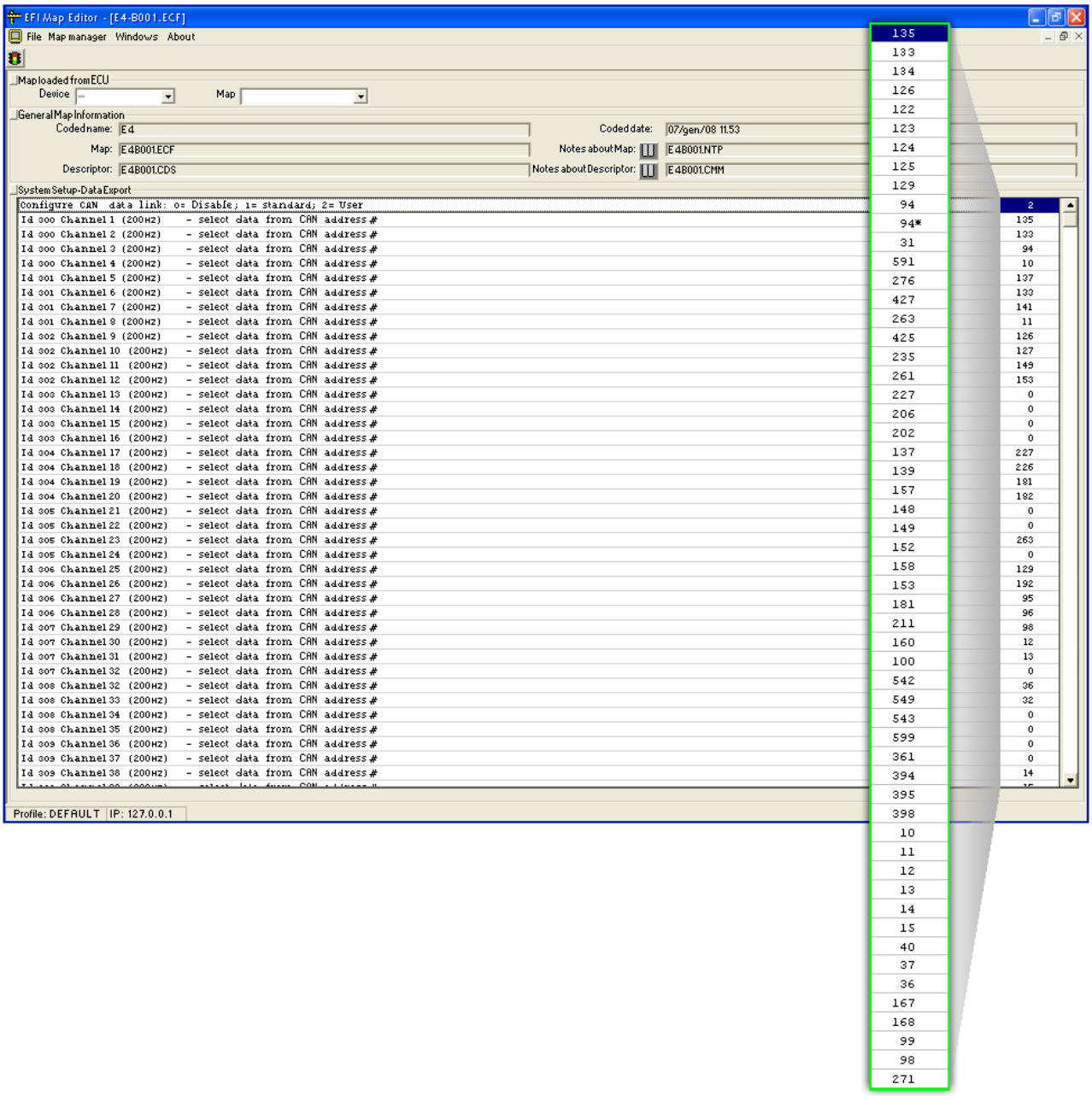
**Warning: once the ECU is connected to the logger, it is necessary to set it in the logger configuration in Race Studio 2 software.**
**Select Manufacturer "EFI_EUROPE" Model "Euro_4_AUTO_V160_ATL_TURBO".**
**Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.**

# 1 – Technical communication notes

EFI Euro 4 Auto V160 (firmware version 160) is an ECU developed for car applications equipped with Turbo engine. It can communicate with AIM loggers through the CAN bus.

## 1.1 – Software check

EFI ECU comes with a dedicated software whose data export table is to be set to allow the ECU communicating with AIM loggers. The image below shows the correct codes (in the green box) to be filled in.



# 2 – Connection to AIM loggers

EFI Euro 4 Auto V150 ECU is equipped with two male connectors. The CAN bus is on the left one (CNR). Connect:

- AIM cable labelled “CAN+” to pin F3 of the right connector;
- AIM cable labelled “CAN-” to pin E4 of the right connector.

# 3 – Communication protocol

Channels received by AIM loggers connected to EFI Euro 4 Auto V160 ECU are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | E4_RPM | RPM |
| ECU_2 | E4_TPS_1 | Throttle Position Sensor 1 |
| ECU_3 | E4_TPS_2 | Throttle Position Sensor 2 |
| ECU_4 | E4_CAR_SPEED | Vehicle speed |
| ECU_5 | E4_FR_SPEED | Front Right wheel speed |
| ECU_6 | E4_FL_SPEED | Front left wheel speed |
| ECU_7 | E4_RR_SPEED | Rear right wheel speed |
| ECU_8 | E4_RL_SPEED | Rear Left wheel speed |
| ECU_9 | E4_GEAR | Engaged gear |
| ECU_10 | E4_MAP | Manifold Air pressure |
| ECU_11 | E4_BOOST | Gauge boost managed by AIM logger |
| ECU_12 | E4_KNOCK | Knock counter |
| ECU_13 | E4_LAMBDA_TEMP | Lamnda sensor temperature |
| ECU_14 | E4_LAMBDA1 | Lambda sensor 1 |
| ECU_15 | E4_LAMBDA2 | Lambda sensor 2 |
| ECU_16 | E4_CLC_1 | Closed loop control 1 (injection) |
| ECU_17 | E4_CLC_2 | Closed loop control 2 (injection) |
| ECU_18 | E4_LEARN_1 | Fuel correction coefficient for auto mapping |
| ECU_19 | E4_FUEL_C_L | Fuel open/closed |
| ECU_20 | E4_T_INJ_BASE | TerogBase1 |
| ECU_21 | E4_T_INJ_U | Upper injectors injection time |
| ECU_22 | E4_T_INJ_L | Lower injectors injection time |
| ECU_23 | E4_D_TPS_1 | Throttle position sensor 1 derivative |
| ECU_24 | E4_D_MAP | Manuifold Air pressure derivative |
| ECU_25 | E4_TC_STATUS | Traction control status |
| ECU_26 | E4_TC_SLIP | Traction control slip |
| ECU_27 | E4_TC_SLIP_CALC | Slip calculation for traction control |
| ECU_28 | E4_TC_SLIP_TRIM | Slip multiplier for traction control |
| ECU_29 | E4_TC_CUT | Cut for traction control |
| ECU_30 | E4_TC_SA_OFFSET | Osa slip |
| ECU_31 | E4_SA_BASE | Spark advance base |

| | | |
|---|---|---|
| ECU_32 | E4_SA | Spark advance |
| ECU_33 | E4_SHIFT_CUT | Shift Cut |
| ECU_34 | E4_SYNC | Sync |
| ECU_35 | E4_ATL_ACTIVE | Anti turbo lag active |
| ECU_36 | E4_TURBO_SPEED | Turbo speed |
| ECU_37 | E4_EXHST_TEMP | Exhausted air temperature |
| ECU_38 | E4_LAMBDA_OXY | Lambda oxygen percentage |
| ECU_39 | E4_IDLE_DC | Idle DC OUT |
| ECU_40 | E4_BOOST_TARG | Target Map Boost |
| ECU_41 | E4_BOOST_ERROR | Pressure sensor |
| ECU_42 | E4_BOOST_WG_OUT | Boost out |
| ECU_43 | E4_ANALOG_1 | Analog channel 1 |
| ECU_44 | E4_ANALOG_2 | Analog channel 2 |
| ECU_45 | E4_ANALOG_3 | Analog channel 3 |
| ECU_46 | E4_ANALOG_4 | Analog channel 4 |
| ECU_47 | E4_ANALOG_5 | Analog channel 5 |
| ECU_48 | E4_ANALOG_6 | Analog channel 6 |
| ECU_49 | E4_ANALOG_7 | Analog channel 7 |
| ECU_50 | E4_ANALOG_8 | Analog channel 8 |
| ECU_51 | E4_VBATT | Battery supply |
| ECU_52 | E4_P_BRAKE_R | Rear brake pressure |
| ECU_53 | E4_P_BRAKE_F | Front brake pressure |
| ECU_54 | E4_P_CLUTCH | Clutch pressure |
| ECU_55 | E4_P_BARO | Barometric pressure |
| ECU_56 | E4_FUEL_USED_LTR | Used fuel |
| ECU_57 | E4_FUEL_REM_LTR | Remaining fuel |
| ECU_58 | E4_T_H2O | Water temperature |
| ECU_59 | E4_T_OIL | Oil temperature |
| ECU_60 | E4_T_AIR | Air temperature |
| ECU_61 | E4_T_SPARE | Spare Temperature |
| ECU_62 | E4_P_OIL | Oil temperature |
| ECU_63 | E4_P_FUEL | Fuel temperature |
| ECU_64 | E4_SEL_MAP | Selected map |