EFI Europe

Euro 4 Bike B009 – B0012 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_Bike_B009_B012".
Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.

1 – Technical communication notes

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

1.1 – Hardware check

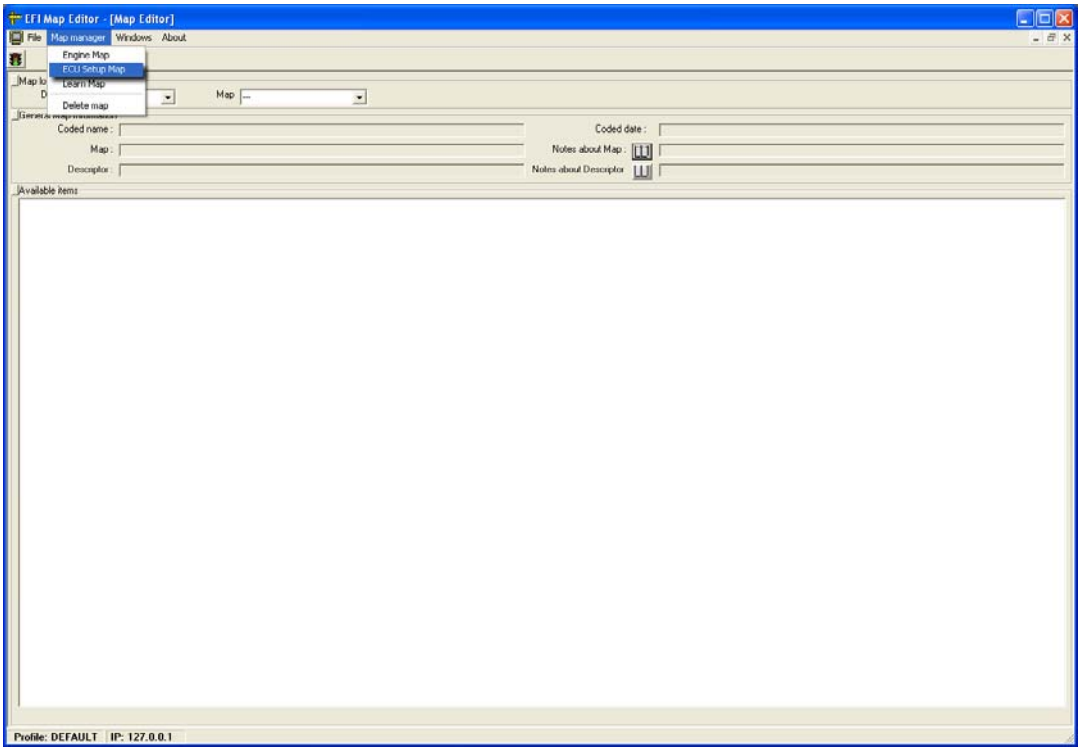
EFI CAN line works normally with two wires only: CAN high (corresponding to AIM CAN+) and CAN low (corresponding to AIM CAN-). Generally AIM loggers do not need to ground CAN line. To check if hardware is ok:

- using a multimeter, ensure that a 120 Ohm “end line resistor” is installed between CAN+ and CAN-: 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 1.8V); using a scope, ground the 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.

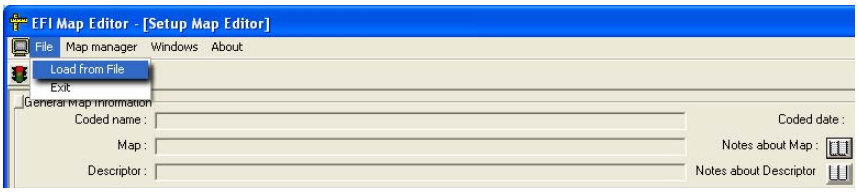
1.2 – Software setup and firmware check

EFI Euro4 “B” versions ECU have a firmware properly developed for bike applications. For them to communicate with AIM loggers it is necessary to set ECU map through “ECT Mod”, the EFI software so that their CAN bus is managed as AIM loggers manage it.
To configure EURO 4 “B” versions:

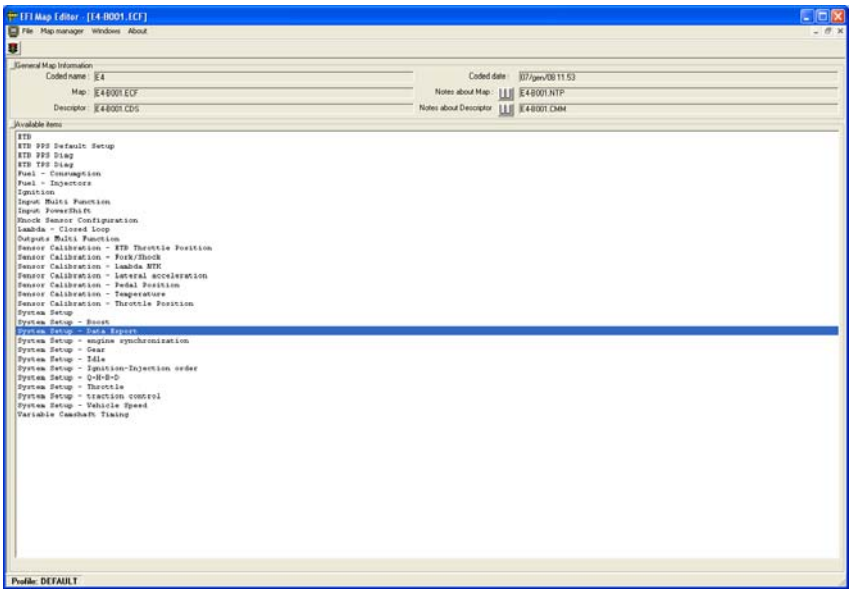
- run “ECT Mod” software;
- load a “B009” or higher device;
- click “Map Editor” and the related page appears;
- click Map Manager and select “ECU setup MAP”



- click “file” and select “Load from file” option.

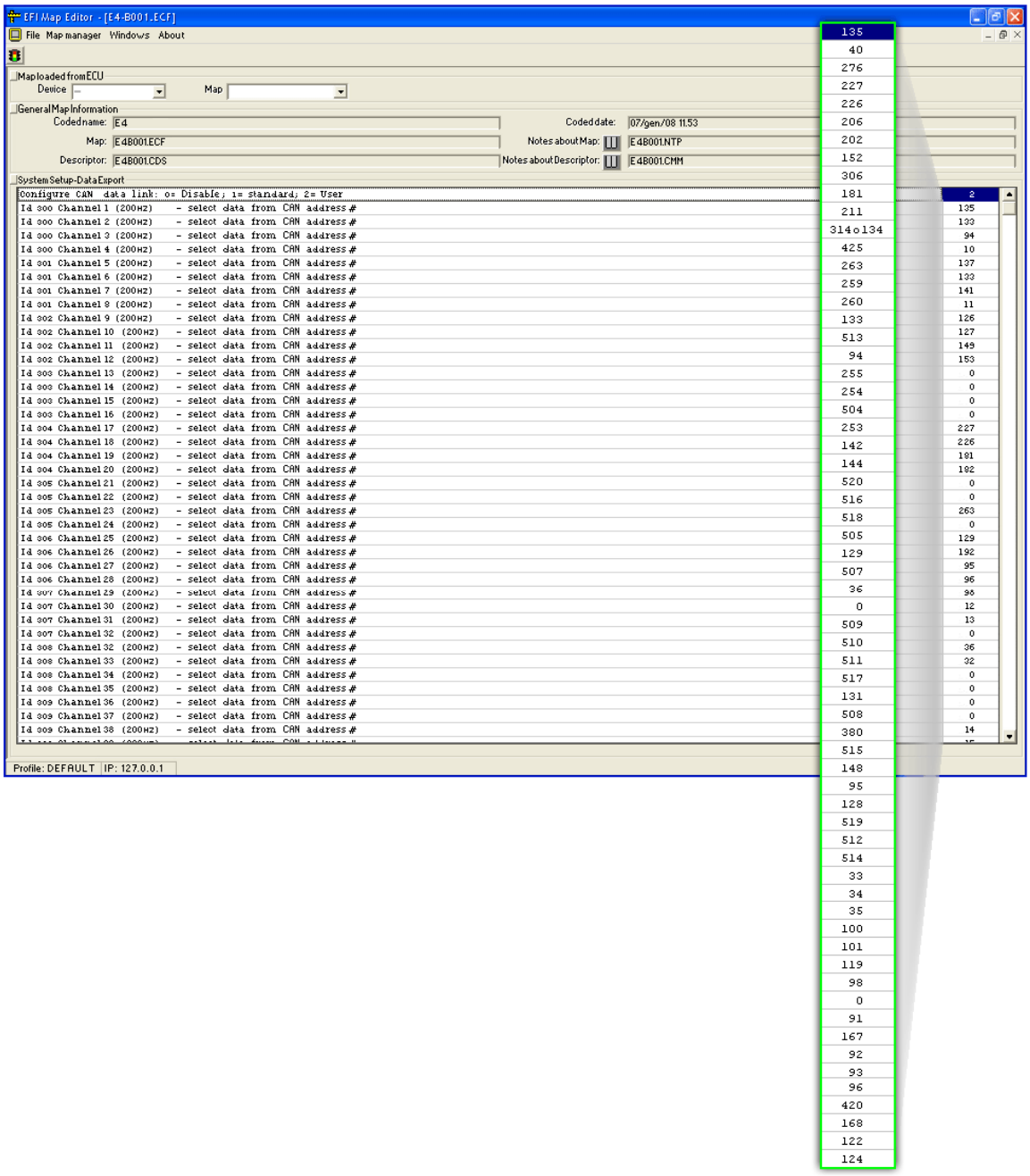


- Select the “.ECF” file.
- Select the “.CDS” file.
- the map is loaded
- select “system setup data export” option



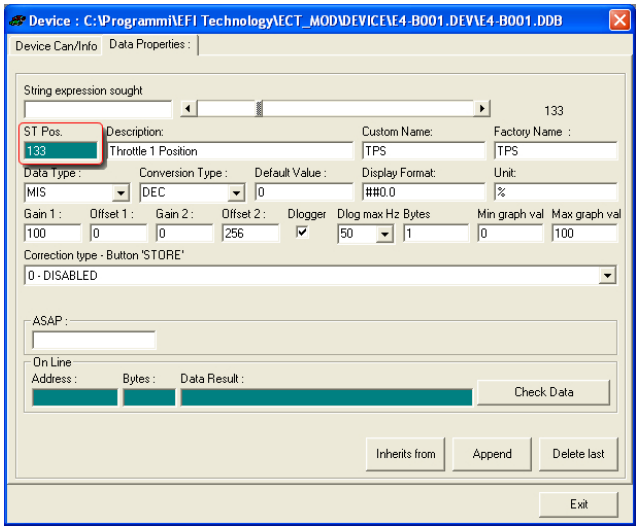
Data export table is loaded.

The right column of this table needs to be modified as shown here below.



Warning: values shown in the green box highlighted here below are referred to EFI EURO4 “B009-B012” device. Newer devices can have different values to be set on the same channels. It is strongly recommended to check “Data properties” layer in “Device Manager” page of “ECT MOD” software.

In the image below TPS Static position digit is 133. For newer version check the value.



The channels to be checked are listed in the table here below: TPS channel is blue.

AIM Channel name	ID ST Tab	EFI channel name
RPM	135	RPMD
NTK_2	40	Lnr71
NTK_1	276	AFRNGK1
T_INJ_BASE	227	terog-base1
T_INJ	226	Terog-injectors erogation time(before cyl trim)
T_INJ_U	206	tinj-5
T_INJ_L	202	tinj-1
TC_TRIM	152	tc trim
LAPTIME	306	AdvLapTimer
SA_BASE	181	SABase1
SA	211	teta1
PPS	314 o 134	PPS O TPS2
CLC_2	425	CLC2
CLC_1	263	CLC1
LASER_F	259	Fork_mm
LASER_R	260	Shock_mm
TPS_1	**133**	**TPS**
TC_P_CUT_CORR	513	Proportional Cut Slip Correction
MAP	94	MAP
PHASE_UP	255	FaseU
PHASE_LOW	254	Fase L
TC_TARGET_SLIP	504	Target Slip
RATIO_INJ_U/L	253	klnjHighPerc
ENRICHMENT	142	AEDfarfl
D_TPS_1	144	DFarfCalc

TC_FINAL_SA	520	Final Slip Spark Retard
TC_P_SA	516	Proportional Spark Slip
TC_I_SA	518	Integral Spark Slip
TC_TARGETSLIP_CALC	505	Target Slip Calc
GEAR	129	Gear
TC_P_CUT	507	Proportional Cut Slip
VBATT	36	Vbat_Inl
	0	
TC_I_CUT	509	Integral Cut Slip
TC_D_CUT	510	Derivative Cut Slip
TC_FINAL_CUT	511	Final Slip Cup Level
TC_TRIM_SA	517	Proportional Trim Spark Slip
GEAR__SHIFT_TIME	131	GearShiftTimer
TC_TRIM_CUT	508	Proportional Trim Cut Slip
SLIP_NEG	380	SlipNegCalc
TC_P_SA_CORR	515	Proportional Spark Slip Correction
TC_SLIP	148	Slip
P_OIL	95	Oil Press
GEAR RATIO	128	GearRatio
TC_D_SA	519	Derivative Spark Slip
TC_ERROR	512	Slip Error
TC_ANALOG_TARGET	514	AnalogTarget Input
FB_VREF_TPS	33	Fb_Vref_Tpsl
FB_VREF_1	34	Fb_Vref__1l
FB_VREF_2	35	Fb_Vref__2l
SYNC	100	SMOTV24_f_Running
CAM_COUNTER	101	CamCounter
CRANK_COUNTER	119	CntCrk
P_BARO	98	Baro
	0	
T_OIL	91	TOil
P_BRAKE_R	167	BrakeR
T_H2O	92	TH2o
T_AIR	93	TAir
P_FUEL	96	fuel press
SEL_MAP	420	sel_eeprom_table
P_BRAKE_F	168	BrakeF
SPEED_F	122	speedFR
SPEED_R	124	speedRR

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.

2 – Connection to AIM loggers

EFI Euro 4 Bike “B009 – B0012” version ECU is equipped with two male connectors. The CAN bus is on the right 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 “Bike B009-B0012” version ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	RPM	RPM
ECU_2	SPEED_F	Front wheel speed sensor
ECU_3	SPEED_R	Rear wheel speed sensor
ECU_4	T_INJ_BASE	Injection Table injection time
ECU_5	T_INJ	Injection time
ECU_6	T_INJ_U	Upper Injectors phase
ECU_7	T_INJ_L	Lower Injectors phase
ECU_8	TC_TRIM	Traction control TRIM
ECU_10	SA_BASE	Spark Advance Base
ECU_11	SA	Spark Advance
ECU_12	PPS	Pedal position sensor
ECU_13	CLC2	Closed loop control 2 (injection)
ECU_14	CLC1	Closed loop control 1 (injection)
ECU_15	LASER_F_mm	Front fork position in mm
ECU_16	LASER_R_mm	Rear fork position in mm
ECU_17	TPS1	Throttle position sensor 1
ECU_18	TC_P_CUT_CORR	Proportional Traction Control Cut
ECU_19	MAP	Manifold air pressure
ECU_20	PHASE_UP	Phase up
ECU_21	PHASE_LOW	Phase Low
ECU_22	TC_TARGET_SLIP	Slip multiplier (for traction control)
ECU_23	RATIO_INJ_U_L	Upper/Lower Injection ratio
ECU_24	ENRICHMENT	Fuel enrichment multiplier on throttle positive transients
ECU_25	D_TPS_1	Throttle position sensor 1 derivative
ECU_26	TC_FINAL_SA	Traction control final Spark advance
ECU_27	TC_P_SA	Proportional Traction Control Spark Advance
ECU_28	TC_I_SA	Traction Control Spark Advance Integral
ECU_29	TC_TAR_SLIP_CALC	Target cut due to slip calc
ECU_30	GEAR	Engaged Gear
ECU_31	TC_P_CUT	Traction Control Proportional Cut

ECU_32	VBATT	Battery supply
ECU_34	TC_I_CUT	Cut for traction control integral
ECU_35	TC_D_CUT	Cut for traction control derivative
ECU_36	TC_FINAL_CUT	Traction control Final Cut
ECU_37	TC_TRIM_SA	Traction Control Trim Spark Advance
ECU_38	GEAR_SHIFT_TIME	Gear Shift Time
ECU_39	TC_TRIM_CUT	TC Trim Cut
ECU_40	SLIP_NEG	Negative slip
ECU_41	TC_P_SA_CORR	Traction control PSA correction
ECU_42	TC_SLIP	Traction control slip
ECU_43	P_OIL	Oil Pressure
ECU_44	GEAR_RATIO	Gear Ratio
ECU_45	TC_D_SA	Traction Control Derivative Spark Advance
ECU_46	TC_ERROR	Traction control Error
ECU_47	TC_ANALOG_TARGET	Traction control Analog Target
ECU_48	FB_VREF_TPS	FB V Reference Throttle position sensor
ECU_49	FB_VREF_1	Vref 1
ECU_50	FB_VREF_2	Vref 2
ECU_51	SYNC	Sync
ECU_52	CAM_COUNTER	Cam Counter
ECU_53	CRANK_COUNTER	Crank counter
ECU_54	P_BARO	Barometric pressure
ECU_56	T_OIL	Oil temperature
ECU_57	P_BRAKE_R	Brake pressure
ECU_58	T_H2O	Water temperature
ECU_59	T_AIR	Air Temperature
ECU_60	P_FUEL	Fuel pressure
ECU_61	SEL_MAP	Selected Map
ECU_62	P_BRAKE_F	Brake pressure F
ECU_63	NTK_2	Lambda 1
ECU_64	NTK_1	Lambda 2