

E-Race E46 and M48 ECUs



INTRODUCTION

AIM has developed special applications for many of the most common ECUs: by special applications we mean user-friendly systems which allow to easily connect your ECU to our hi-tech data loggers: user need 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) 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 “E-RACE” and Model “E-46_M 48”.

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

Warning: it is strongly recommended to always verify whether the ECU needs specific software settings to export data.

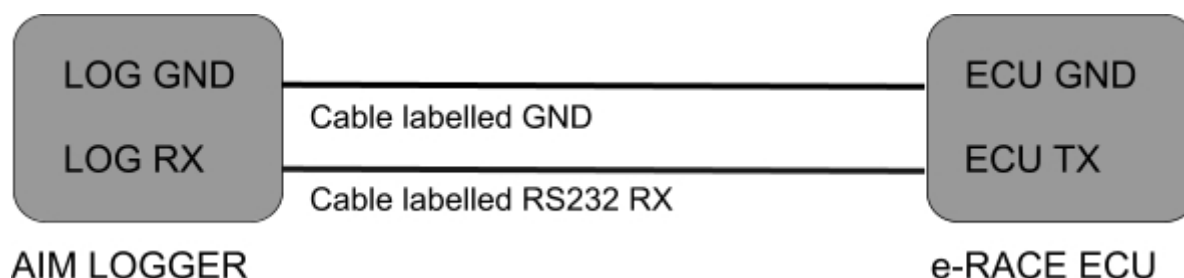
Index

Chapter 1 –Serial communication Setup	3
Chapter 2 – Connection with AIM loggers	3
Chapter 3 – ECU communication protocol	4

Chapter 1 –Serial communication Setup

e-RACE E-46 and M48 ECUs have a serial communication protocol and are equipped with a 16 pins male connector used to communicate with an external logger and to configure the ECU itself.

The image here below shows the standard serial communication setup used to connect the ECUs with AIM loggers.

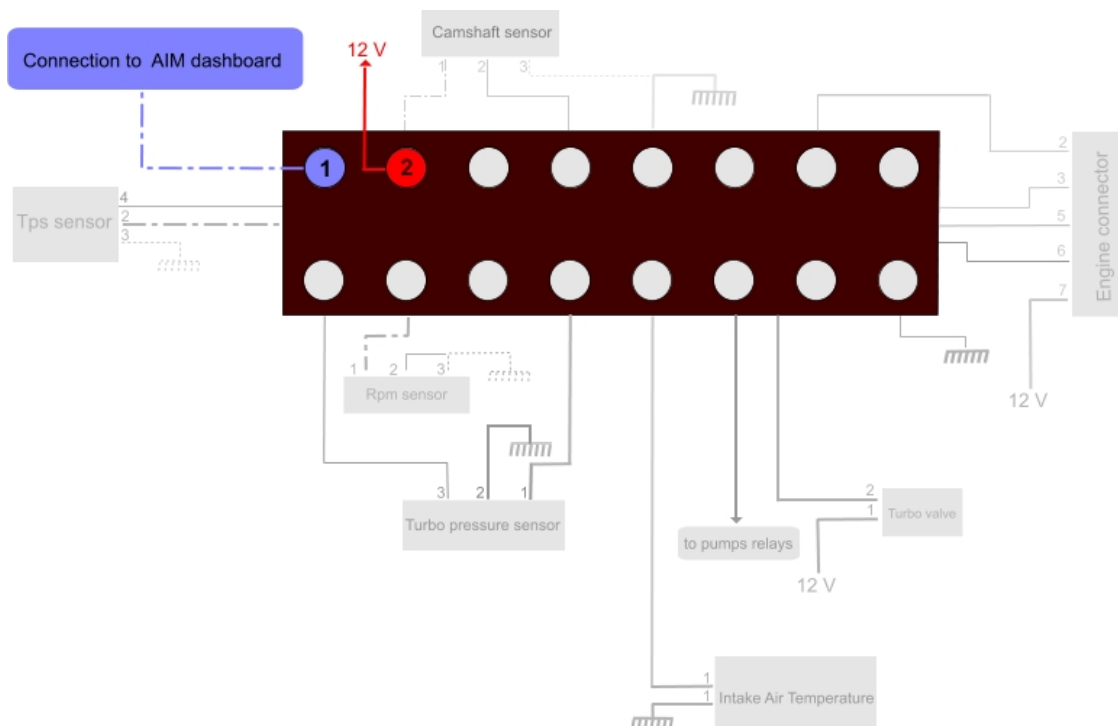


Chapter 2 – Connection with AIM loggers

To connect e-RACE E46 or M48 to AIM loggers:

- Connect cable labelled RS232RX of AIM logger with ECU TX (pin 1)
- Connect cable labelled GND with ECU power GND – 12 V image below – (pin 2)

Here below the connection scheme of the ECU is shown:



PIN	FUNCTION	COMMENTS
1	RS232TX	
2	GND	

Chapter 3 – ECU communication protocol

Channels received by AIM loggers connected to e-RACE E46 or M48 ECU are:

ID	FUNCTION	COMMENTS
ECU_1	E46_RPM	RPM
ECU_2	E46_THROTTLE	Throttle Position Sensor
ECU_3	E46_THRT_ADC	Throttle
ECU_4	E46_AIR_PR_SEN	Air pressure sensor
ECU_5	E46_AIR_TEMP	Air temperature
ECU_6	E46_ENG_TEMP	Engine temperature
ECU_7	E46_INPUT1	Input 1
ECU_8	E46_INPUT2	Input 2
ECU_9	E46_INPUT3	Input 3
ECU_10	E46_OUTPUT1	Output 1
ECU_11	E46_OUTPUT2	Output 2
ECU_12	E46_OUTPUT3	Output 3
ECU_13	E46_OUTPUT4	Output 4
ECU_14	E46_PWM_OUTPUT	Power W. Module Output
ECU_15	E46_PWM_OUT_ERR	Power W. Module Error
ECU_16	E46_BATT_VOLTAGE	Battery voltage
ECU_17	E46_INJ_TIME1	Injection Time1
ECU_18	E46_INJ_TIME2	Injection Time2
ECU_19	E46_IGN_POINT	Ignition point
ECU_20	E46_DWELL_TIME	Dwell time
ECU_21	E46_ECU_TYPE	ECU type
ECU_22	E46_ECU_SN	ECU serial number
ECU_23	E46_RPM_ERROR	Rpm error
ECU_24	E46_TPS_ERROR	Throttle position sensor error
ECU_25	E46_AIR_PR_ERR	Air pressure error
ECU_26	E46_ECT_ERROR	Engine cooling temperature error
ECU_27	E46_AIR_T_ERR	Air temperature error
ECU_28	E46_BATT_V_ERR	Battery voltage error
ECU_29	E46_OVR_BOOST_ERR	Over boost error