

AEM ECU

Firmware version V 1.19+



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 “AEM” Model “AEM – EMS v1.19+”.

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

Warning: it is always suggested to verify if the ECU needs any software/firmware setting or upgrade to export data to an external logger.

1 – Serial communication setup

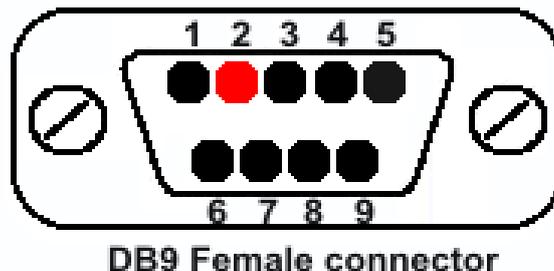
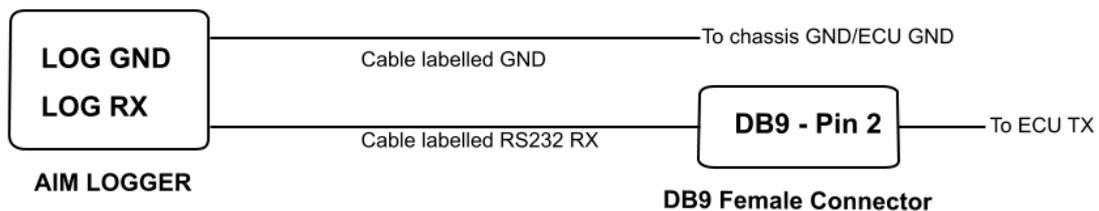
AEM V 1.19+ ECU has a serial communication protocol (RS232) and is equipped with a female DB9 connector used to communicate parameters to an external logger or to configure the ECU itself.

Here below the DB9 female connector is shown.



2 – Connection to AIM data logger

To connect AIM loggers to the ECU please connect **AIM cable labelled “RS232RX”** to **pin 2** of the **DB9 Female connector** and **AIM cable labelled “GND”** to **chassis GND** or to **ECU GND** as shown here below.



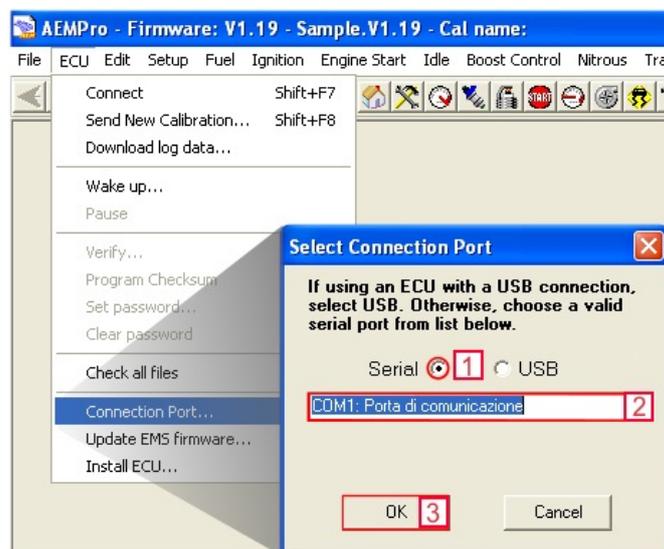
3 – AEM ECU and the PC

In order to be sure that AEM V1.19+ ECU correctly communicates with the PC it is necessary to install AEM Pro software and set the correct communication port on the PC.

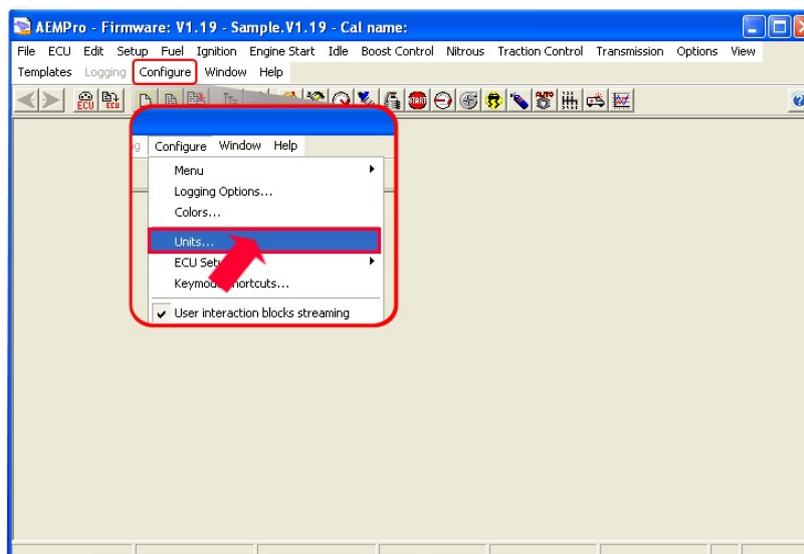
As far as AEM Pro software is concerned refer to www.aempower.com website for further information.

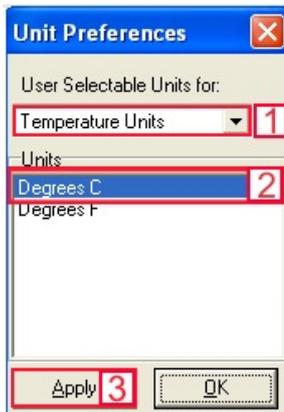
To be sure that the correct communication port is set on the PC, check through AEM Pro software following this path:

- ECU/ Connection Port
- Check “serial option”
- Select “Com 1: communication port” from drop down menu (see below)



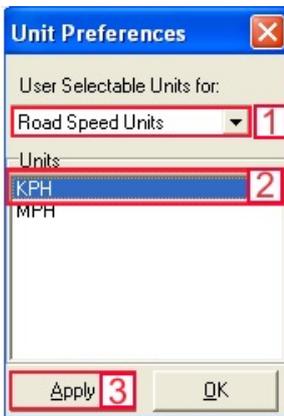
Moreover, to ensure the communication to AIM Systems, it is also necessary to set measure units of the following sensors: **TEMP, SPEED, ENGINE LOAD, AFR,**.. From “Configure” menu select “Units” option.





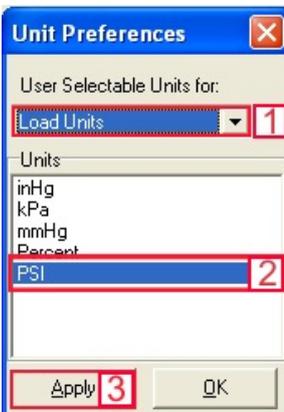
To set Temperature Unit

- Select from drop down menu “Temperature units”
- Select “Degrees C” option
- Click “Apply” to confirm selection



To set Road Speed Unit

- Select from drop down menu “Road Speed Units”
- Select “KPH” option
- Click “Apply” to confirm selection



To set Load Unit

- Select from drop down menu “Load Units”
- Select “PSI” option
- Click “Apply” to confirm selection



To set AFR Unit

- Select from drop down menu “AFR Units”
- Select Lambda option
- Click “Apply” to confirm selection

4 – AEM V1.19+ Communication protocol

AEM ECU with firmware version 1.19+ communication protocol is the following:

ID	Channel Name	Function
ECU_1	AEM_RPM	RPM
ECU_2	AEM_LOAD	Engine load
ECU_3	AEM_TPS	Throttle position sensor
ECU_4	AEM_AIR_TEMP	Intake air Temperature
ECU_5	AEM_WATER_TEMP	Water temperature
ECU_6	AEM_ADCR11	Pressure voltage
ECU_7	AEM_ADCR13	Gear voltage
ECU_8	AEM_ADCR14	Spare Temperature voltage
ECU_9	AEM_ADCR17	EGT#1 Voltage
ECU_10	AEM_ADCR18	EGT#2 Voltage
ECU_11	AEM_ADCR15	EGT#3 Voltage
ECU_12	AEM_ADCR16	EGT#4 Voltage
ECU_13	AEM_BATTERY	Battery Voltage
ECU_14	AEM_LAMBDA_#1	Lambda Value 1
ECU_15	AEM_LAMBDA_#2	Lambda Value 2
ECU_16	AEM_SPEED	Vehicle speed
ECU_17	AEM_GEAR	Engaged gear
ECU_18	AEM_ERROR1	Error signal
ECU_19	AEM_ERROR2	Error signal