AiM Infotech

AEM EMS firmware version 1.19+ ECU

Release 1.09

ECU

1 Supported models

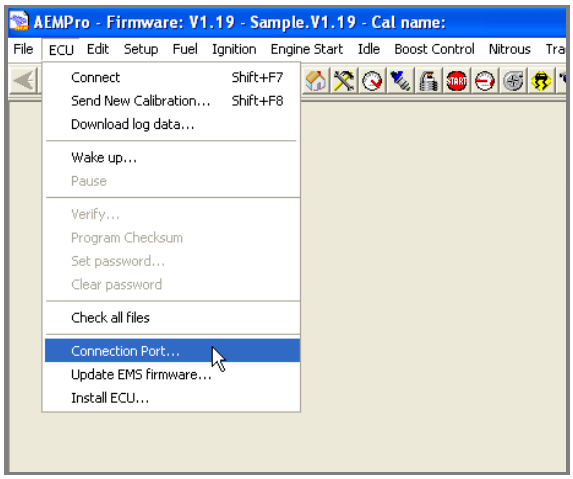
This document explains how to connect AiM devices to the Engine Control Unit (ECU) datastream. Supported models are:

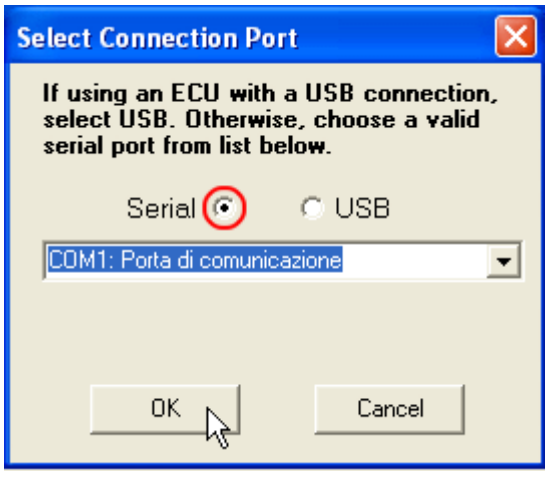
- from firmware version 1.19 onward

2 Software configuration

AEM EMS v1.19+ ECU needs a software setting to assure correct communication with AiM devices. "AEMPro" software can be downloaded from AEM website. Run it and follow these instructions.

- Follow this path: "ECU –> Connection port"
- Enable "Serial" option
- Select "COM1" communication port and press "OK"

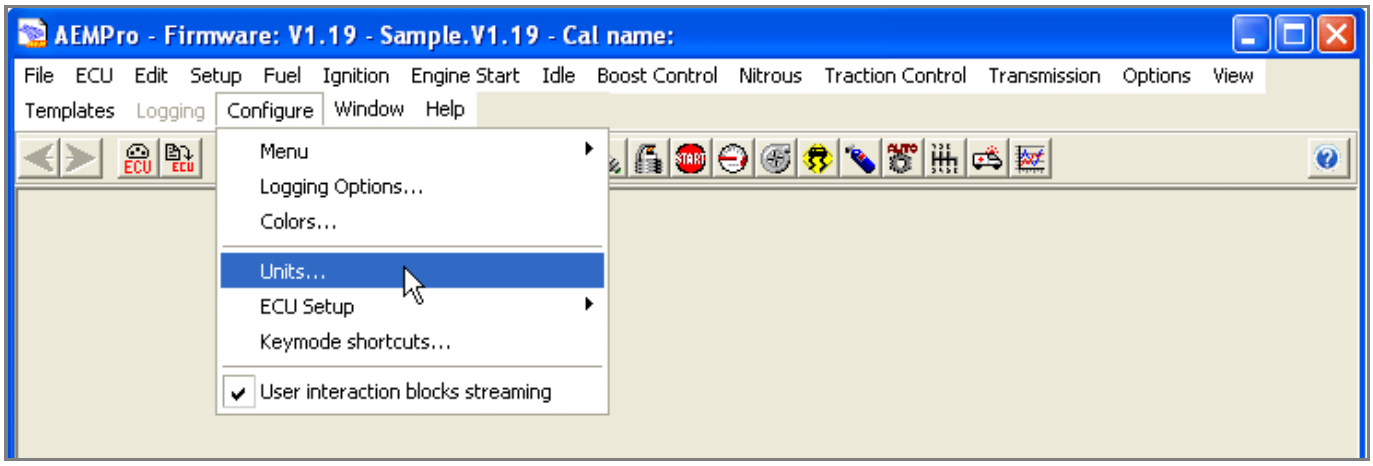




It is now necessary to set measure units of the following sensors:

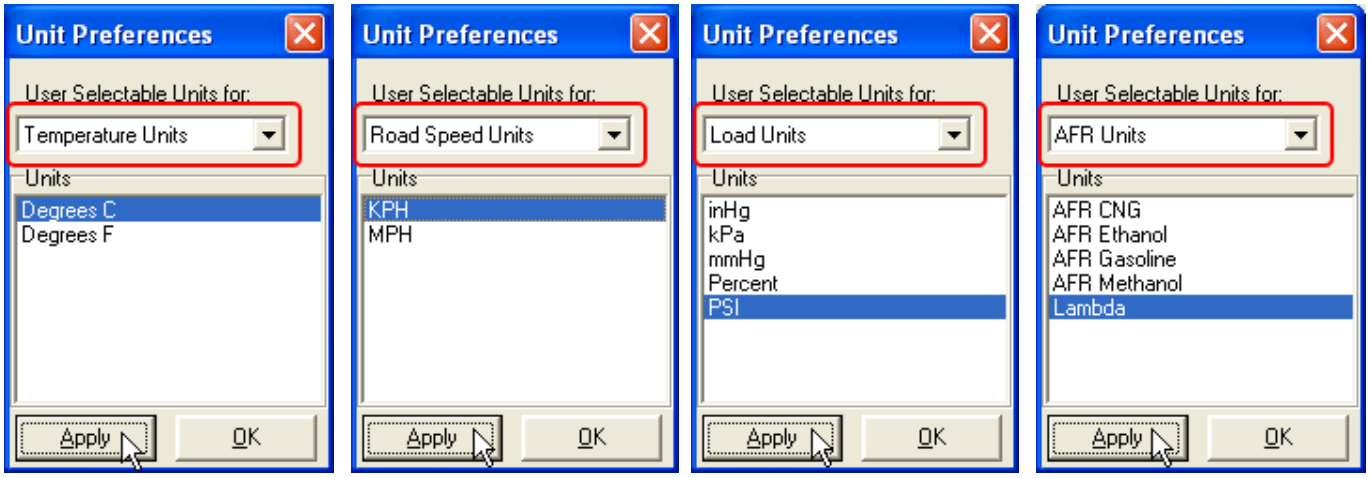
- Temperature sensors
- Speed sensors
- Engine load sensors
- Air fuel ratio sensors (lambda)

- follow this path: "Configure –> Units"



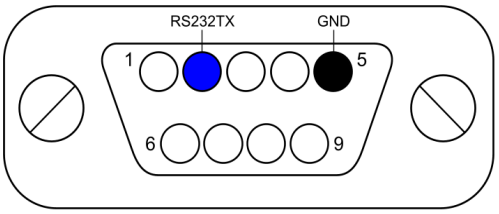
"Unit preferences" panel shows a drop down menu on top window. Here below you see the different available options:

- select the measure unit you prefer
- click "Apply"



3
Wiring connection

AEM EMS 1.19+ ECU features a serial communication protocol on the rear DB9 female connector. Here below on the left it is shown. On the right the connector pinout and below connection table.



DB9 connector pin	Pin function	AiM cable
2	RS232TX	RS232RX/ECU RS232 TX
5	GND	GND

Please note:
AiM wiring harnesses supplied after September 2018 have the following labels:
ECU RS232TX (white) to be connected to **ECU TX** pin
ECU RS232RX (blue) to be connected to **ECU RX** pin (if indicated in the connection table above)

AiM wiring harnesses supplied before September 2018 have the following labels:
RS232RX (white) to be connected to **ECU TX** pin
RS232TX (blue) to be connected to **ECU RX** pin (if indicated in the connection table above)

4
Race Studio configuration

Before connecting AiM devices to the ECU, set all functions using AiM software Race Studio. The parameters to select in the device configuration are:

- ECU manufacturer: **AEM**
- ECU Model: **EMS v1.19+**

5
"AEM-EMS v1.19+" Protocol

Channels received by AiM devices configured with "AEM-EMS v1.19+" protocol are:

CHANNEL NAME	FUNCTION
AEM_RPM	RPM
AEM_LOAD	Engine load
AEM_TPS	Throttle position sensor
AEM_AIR_TEMP	Intake air Temperature
AEM_WATER_TEMP	Water temperature
AEM_ADCR11	Pressure voltage
AEM_ADCR13	Gear voltage
AEM_ADCR14	Spare Temperature voltage
AEM_ADCR17	EGT#1 Voltage
AEM_ADCR18	EGT#2 Voltage
AEM_ADCR15	EGT#3 Voltage
AEM_ADCR16	EGT#4 Voltage
AEM_BATTERY	Battery Voltage
AEM_LAMBDA_#1	Lambda Value 1

AEM_LAMBDA_#2	Lambda Value 2
AEM_SPEED	Vehicle speed
AEM_GEAR	Engaged gear
AEM_ERROR1	Error signal
AEM_ERROR2	Error signal