

AiM Infotech

AEM EMS firmware version
1.19+ ECU

Release 1.09



ECU



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Supported models

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

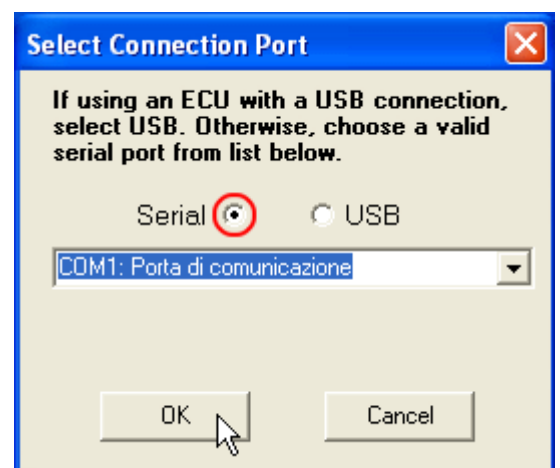
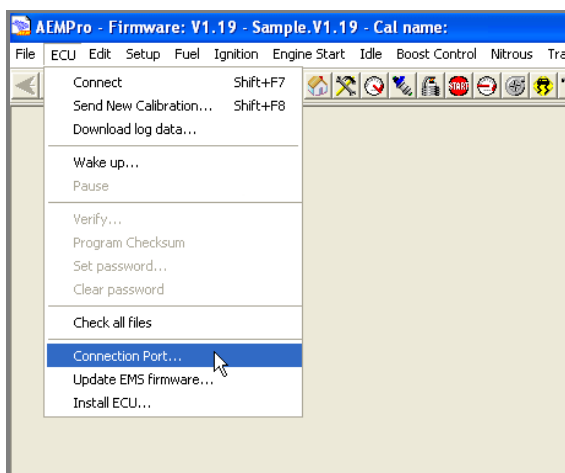
- from firmware version 1.19 onward

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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.

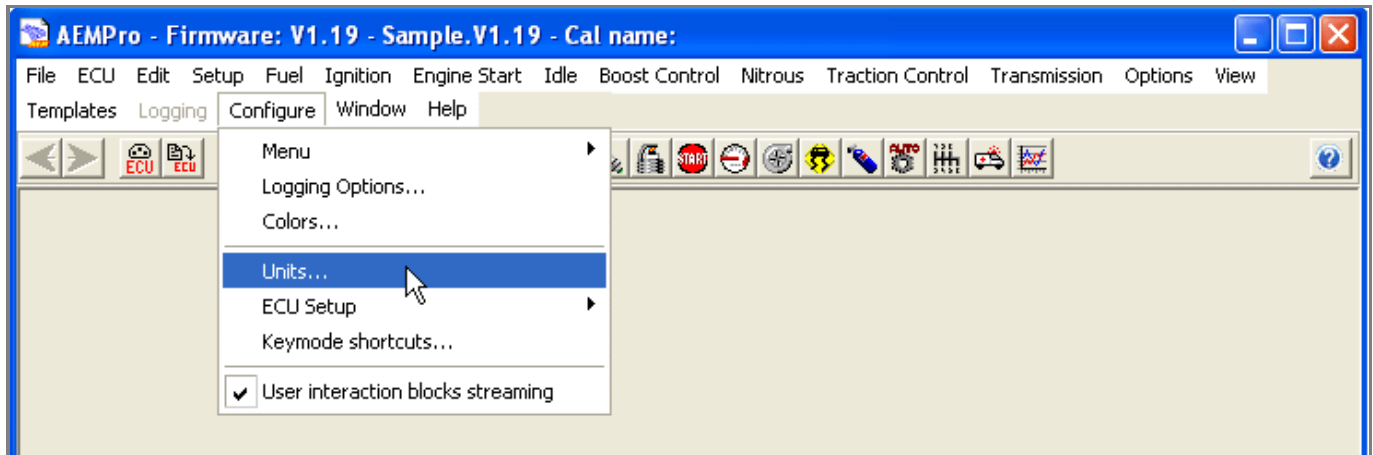
- Follow this path: "ECU -> Connection port"
- Enable "Serial" option
- Select "COM1" communication port and press "OK"



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

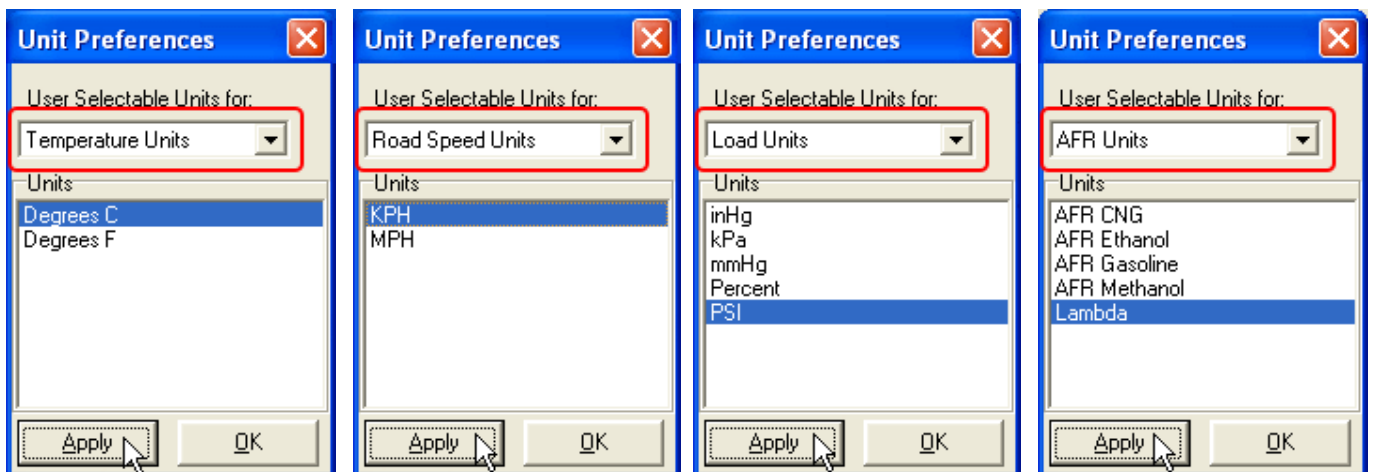
- Temperature sensors
- Speed sensors
- Engine load sensors
- Air fuel ratio sensors (lambda)

- follow this path: "Configure -> Units"



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

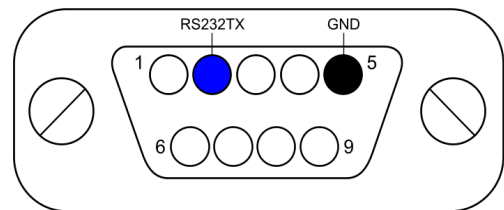
- select the measure unit you prefer
- click "Apply"



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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

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Pin function

RS232TX
GND

AiM cable

RS232RX/ECU RS232 TX
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)

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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+**

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"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