



## AiM Infotech

### EMS Stinger ECUs

Release 1.01

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ECU



# 1

## Supported models

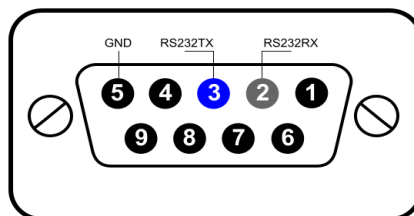
This document explains how to connect AiM devices to the Engine Control Unit (ECU) datastream. Supported ECU models are:

- V1 / V2 / V3
- V4
- V8860 baud rate 9600
- V8860 baud rate 19200

# 2

## Wiring connection

EMS Stinger ECUs feature a serial communication protocol on a DB9 female connector placed front right on the ECU. Here below is DB9 connector pinout as well as connection table.



DB9 connector pin	Pin function	AiM cable label
3	RS232TX	RS232RX/ECU RS232TX
2	RS232RX	RS232TX/ECU RS232RX
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)

## 3

# Race Studio configuration

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

- ECU manufacturer: **EMS**
- ECU Model: **Stingerv123** for EMS Stinger V1, V2 and V3 ECU (Only RS2)  
**Stingerv4** for EMS StingerV4 ECU  
**Stingerv8860\_9600baud** for EMS Stinger 8860 with baud rate 9600 (Only RS2)  
**Stingerv8860\_19200baud** for EMS Stinger 8860 with baud rate 19200 (Only RS2)

## 4

# Protocols

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Channels received by AiM devices change according to the selected protocol.

## 4.1

# "EMS - Stingerv123" protocol

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Channels received by AiM devices configured with "EMS - Stingerv123" protocol are:

<b>CHANNEL NAME</b>	<b>FUNCTION</b>
EMS_ENGINESPD	Engine RPM
EMS_MAINPRESS	Manifold air pressure
EMS_AFR	Air/Fuel ratio
EMS_IGN_TIMING	Ignition timing
EMS_THROTTLE	Throttle position sensor
EMS_INJ_MS	Injection time MS



EMS_BATTVOLT	Battery supply
EMS_ENGTEMP	Engine temperature
EMS_AIRTEMP	Intake air temperature

## 4.2 “EMS - Stingerv4” protocol

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Channels received by AIM devices configured with "EMS - Stingerv4" protocol are

<b>CHANNEL NAME</b>	<b>FUNCTION</b>
EMS_ENGINESPD	Engine RPM
EMS_MAINPRESS	Manifold air pressure
EMS_THROTTLE	Throttle position sensor
EMS_AFR1	Air/Fuel ratio 1
EMS_AFR2	Air/Fuel ratio 2
EMS_AIRTEMP	Intake air temperature
EMS_ENGTEMP	Engine temperature
EMS_IGN_TIMING	Ignition timing
EMS_INJ_US	Injection time
EMS_STAGEDINJ	Staged injection
EMS_BATTERY	Battery supply



## 4.3

### “EMS - Stingerv8860\_9600baud” protocol

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Channels received by AIM devices configured with "EMS - Stingerv8860\_9600baud" protocol are:

<b>CHANNEL NAME</b>	<b>FUNCTION</b>
EMS_ENGINESPD	Engine RPM
EMS_MAINPRESS	Manifold air pressure
EMS_THROTTLE	Throttle position sensor
EMS_AFR1	Air/Fuel ratio 1
EMS_AFR2	Air/Fuel ratio 2
EMS_AIRTEMP	Intake air temperature
EMS_ENGTEMP	Engine temperature
EMS_IGN_TIMING	Ignition timing
EMS_INJ_US	Injection time
EMS_STAGEDINJ	Staged injection
EMS_BATTERY	Battery voltage

## 4.4

### “EMS - Stingerv8860\_19200baud” protocol

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Channels received by AIM devices configured with "EMS - Stinger\_19200baud" protocol are:

<b>CHANNEL NAME</b>	<b>FUNCTION</b>
EMS_ENGINESPD	Engine RPM
EMS_MAINPRESS	Manifold air pressure
EMS_THROTTLE	Throttle position sensor
EMS_AFR1	Air/Fuel Ratio 1\
EMS_AFR2	Air/Fuel Ratio 2
EMS_AIRTEMP	Intake air temperature



EMS_ENGTEMP	Engine temperature
EMS_IGN_TIMING	Ignition timing
EMS_INJ_US	Injection time
EMS_STAGEDINJ	Staged injection
EMS_BATTERY	Battery supply
EMS_ANALOG_IN1	Analog input 1
EMS_ANALOG_IN2	Analog input 2
EMS_ANALOG_IN3	Analog input 3
EMS_ANALOG_IN4	Analog input 4
EMS_ANALOG_IN5	Analog input 5
EMS_ANALOG_IN6	Analog input 6
EMS_ANALOG_IN7	Analog input 7
EMS_ANALOG_IN8	Analog input 8
EMS_ANALOG_IN9	Analog input 9