AUTRONIC SM4

Racing Data Power

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 "Autronic" Model "SM4".
Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.

Warning: for any further information concerning ECU firmware/software settings and/or upgrading it is always recommended to address to the ECU dealer.

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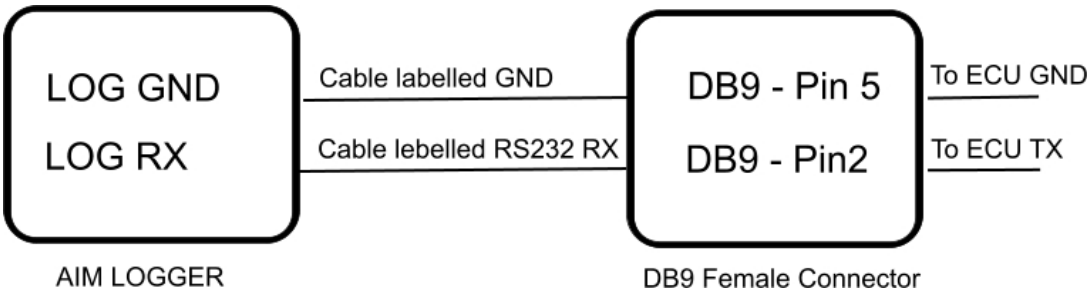
Chapter 2 – Serial communication Setup

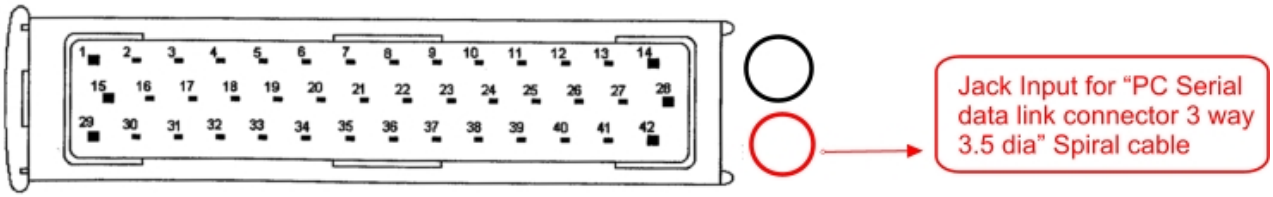
Autronic SM4 has a serial communication protocol (RS 232) and is equipped with a 42 pins connector and two jack inputs on its right, as shown below.

J4 is the serial I/O interface adaptor: used to communicate parameters to a data logger, or to configure the ECU itself

The image here below shows the standard serial communication setup.



The following image shows Autronic SM4 ECU pinout:



Chapter 3 – Connection with AIM loggers

To connect AIM logger to the ECU, please connect AIM cable labelled as "**RS232RX**" with **pin 2** of the **DB9 female** connector (**that goes to ECU TX**) and AIM cable labelled "**GND**" with **pin 5** of the **DB9 female** connector (**that goes to ECU GND**) as reported below.

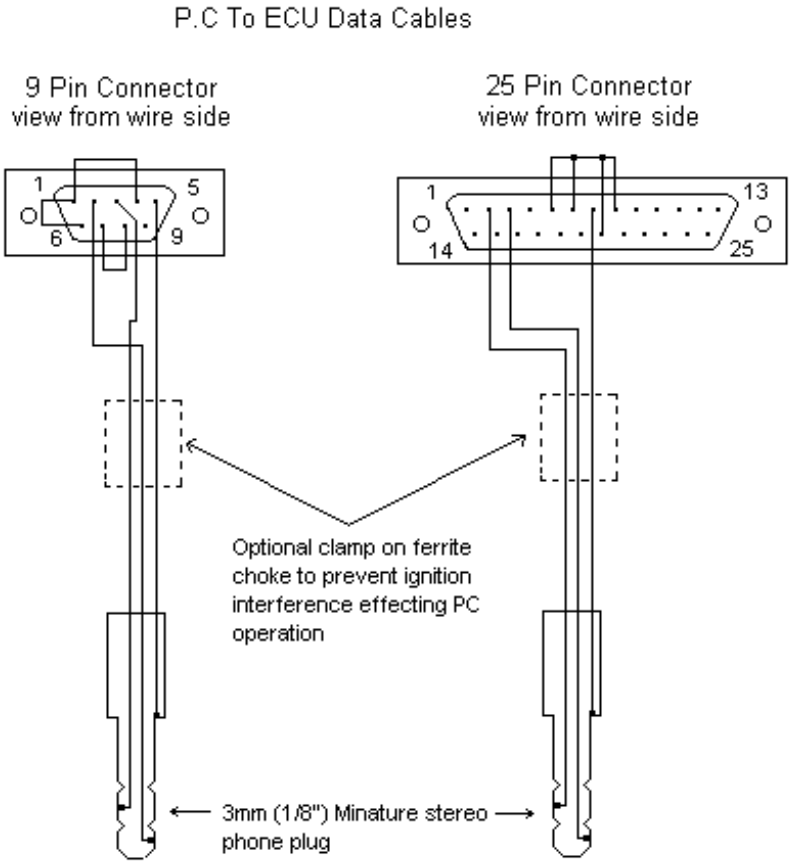
Connection between DB9 Autronic cable and AIM loggers is provided by the following pins:

Pin	Function	Comments
5	GND	
2	RS232TX	

In case of 25 pin connector, connection will be:

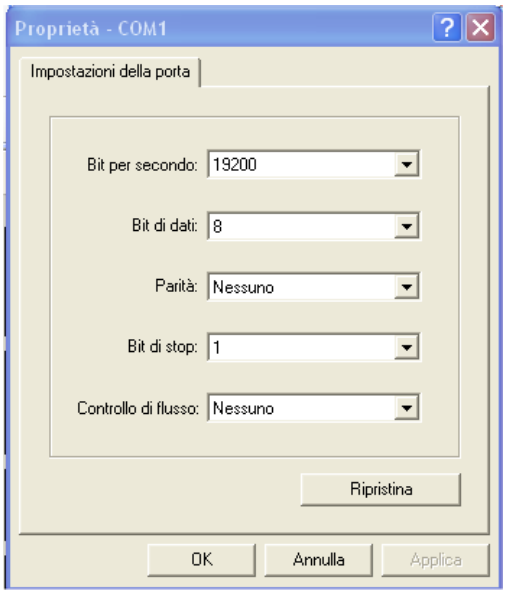
Pin	Function	Comments
7	GND	
3	RS232TX	

Here below you see the Autronic PC Serial data link spiral cable – to connect DB9 male connector to the Serial I/O and related pinout.



In order to ensure communication between your PC and ECU you need to download and install SM4 software - file SM4V026M.EXE (or more recent one).

Default values for serial communication between Autronic SM4 and your PC are:



Chapter 4 – Autronic SM4 ECU communication protocol

Channels shown on AIM data loggers via serial protocol with Autronic SM4 are:

ID	CHANNEL NAME	FUNCTION
ECU_1	SM4_RPM	Autronic RPM
ECU_2	SM4_SPEED	Autronic Speed
ECU_3	SM4_DRVWHEEL_SPD	Autronic wheel speed
ECU_4	SM4_WATER_TEMP	Autronic water temperature
ECU_5	SM4_CHARGE_TEMP	Autronic Air/Fuel mix temperature
ECU_6	SM4_INTAKEAIR_TEMP	Autronic intake air temperature
ECU_7	SM4_EXHAUST_PRESS	Autronic exhaust pressure
ECU_8	SM4_MANIF_PRESS	Autronic manifold pressure
ECU_9	SM4_THROTPOS	Autronic throttle position
ECU_10	SM4_CAM_1	Autronic CAM Advance angle
ECU_11	SM4_CAM_2	Autronic CAM Advance angle
ECU_12	SM4_AF_RATIO	Autronic air fuel ratio
ECU_13	SM4_BATT_VOLT	Autronic battery voltage
ECU_14	SM4_ERR_C1	Error Signal# 1
ECU_15	SM4_ERR_C2	Error Signal# 2
ECU_16	SM4_ERR_C3	Error Signal# 3
ECU_17	SM4_ERR_C4	Error Signal# 4
ECU_18	SM4_ERR_C5	Error Signal# 5
ECU_19	SM4_ERR_C6	Error Signal# 6
ECU_20	SM4_ERR_C7	Error Signal# 7
ECU_21	SM4_ERR_C8	Error Signal# 8
ECU_22	SM4_INJECT_TIME	Injection time
ECU_23	SM4_IGNI_ANG	Ignition advance angle
ECU_24	SM4_KNOC_RET	Knock delay angle