MARELLI MF4

MMTC2000 ECU

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 "Marelli" Model "MMTC2000".
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.

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Chapter 1 – Technical communication notes

Marelli MMTC2000 ECU can communicate with AIM loggers through the CAN bus. This communication can be wrong due to different reasons related also to ECU hardware.

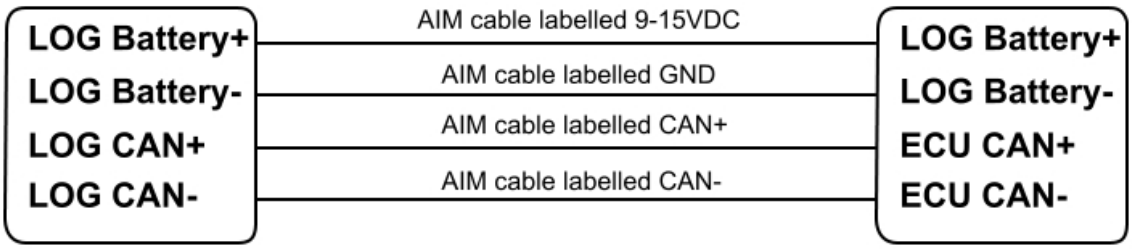
1.1 – Hardware check

Marelli CAN line works normally with four wires: CAN High (corresponding to AIM CAN +), CAN low (corresponding to AIM CAN-), Battery+ (corresponding to AIM 9-15VDC) and Battery- (corresponding to AIM GND). To check if hardware is ok:

- ensure that a 120 Ohm “line-end resistor” is installed between CAN+ and CAN -; use a multimeter; disconnect AIM logger from the ECU and make this check on both sides (ECU and logger);
- check if the amplitude of each bit is 2V (or at least 1.8V); using a scope ground the probe on CAN- while measuring CAN+. Please ensure that no filtering feature is enabled on the scope: this because of high baud rate of this line.

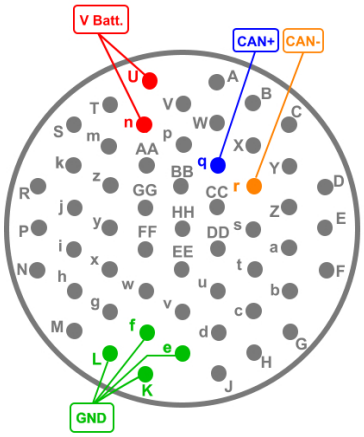
Chapter 2 – CAN Communication setup

Magneti Marelli MF4 MMTC2000 ECU is equipped with a CAN communication setup used to communicate parameters to an external logger and shown here below.



Chapter 3 – Connection with AIM loggers

Magneti Marelli MF4 ECU is equipped with a 55 pins connector shown here below.



To connect AIM logger to the ECU:

- connect AIM cable labelled CAN+ with pin "**q**" of 55 pins connector;
- connect AIM cable labelled CAN- with pin "**r**" of 55 pins connector
- connect AIM cable labelled GND with pin "**K**", "**L**", "**e**" or "**f**" of 55 pins connector;
- connect AIM cable labelled "VBatt" with pin "**n**" or "**U**" of 55 pins connector.

Chapter 4 – MF4 MMTC2000 communication protocol

Channels received by AIM loggers connected to Magneti Marelli MF4 MMTC2000 are:

ID	CHANNEL NAME	FUNCTION
ECU_1	MAR_RPM	RPM
ECU_2	MAR_THROTTLE	Throttle position sensor
ECU_3	MAR_SPEED	Speed
ECU_4	MAR_OIL_PRESS	Oil pressure
ECU_5	MAR_BATT_VOLT	Battery supply
ECU_6	MAR_WATER_TEMP	Engine cooling temperature
ECU_7	MAR_AIR_TEMP	Intake air temperature
ECU_8	MAR_FUEL_PRESS	Fuel pressure
ECU_9	MAR_INTAKE_AIR_PRESS	Intake air pressure
ECU_10	MAR_LAMBDA_CORR	Lambda correction value
ECU_12	MAR_OIL_TEMP	Oil temperature