MS4 ECU







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INTRODUCTION

AIM has developed special applications for many of the most common ECUs: by special applications we mean user-friendly systems which allow to easily connect your ECU to our hi-tech data loggers: user need 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) 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 "BOSCH" and Model "MS4". Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.

Warning: it is strongly recommended to always verify whether the ECU needs specific software settings to export data.



Chapter 1 – Can communication setup

The ECU has a CAN communication protocol used to communicate parameters to a datalogger or to configure the ECU itself.

The image here below shows the standard CAN communication to connect the ECU to AIM loggers:



Chapter 2 – Connection with AIM loggers

Due to the fact that ECU model has two different CAN outputs, it is necessary to test the two connections to find out the one that is enabled to work properly with AIM logger. The table here below shows two couples of pins: 60 (CAN+) / 58 (CAN-) and 79 (CAN+) / 77 (CAN-).

PIN	FUNCTION	COMMENTS	
60/58	CAN+/CAN-	CAN1	
79/77	CAN+/CAN-	CAN2	
	WARNING: never connect nine belonging to	different equales	

WARNING: never connect pins belonging to different couples like pin 60 with pin 77 for example.



Chapter 3 – Bosch MS4 ECU Communication protocol

Channels received by AIM loggers connected to Bosch MS4 ECU are:

ID CHANNEL NAME

FUNCTION

BOSCH_RPM
BOSCH_VEHICLE_SPEED
BOSCH_TPS
BOSCH_IGNIT_ANG
BOSCH_ENGINE_TEMP
BOSCH_OIL_TEMP
BOSCH_FUEL_TEMP
BOSCH_AIR_TEMP
BOSCH_GEAR
BOSCH_GEAR_OIL_P
BOSCH_FUEL_PRESS
BOSCH_WATER_PRESS
BOSCH_ATM_PRESS
BOSCH_OIL_PRESS
BOSCH_LAMBDA1
BOSCH_LAMBDA2
BOSCH_AFR1
BOSCH_AFR2
BOSCH_INJEC_TIME1
BOSCH_INJEC_TIME2
BOSCH_FUEL_USED
BOSCH_ACC_X
BOSCH_ACC_Y
BOSCH_ACC_Z
BOSCH_BRAKE_P_R
BOSCH_BRAKE_P_F
BOSCH_EXAUST_GAS
BOSCH_SPEED_F_L
BOSCH_SPEED_F_R
BOSCH_SPEED_R_L
BOSCH_SPEED_R_R

RPM Vehicle speed Throttle position sensor Ignition angle Engine temperature Oil temperature Fuel temperature Air temperature Engaged gear Gearbox oil pressure Fuel pressure Water pressure Atmospheric pressure Oil pressure Lambda value 1 Lambda value 2 Air/Fuel ratio 1 Air/Fuel ratio 2 Injection time 1 Injection time 2 Injected fuel Horizontal acceleration Vertical acceleration Lateral acceleration Rear brake pressure Front brake pressure Exhaust gas temperature Front Left wheel speed Front right wheel speed Rear left wheel speed Rear right wheel speed