BMW MINI ECUS

Racing Data Power

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 the ECU to our hi-tech data loggers: users need only to install harness between the **logger** and the ECU unit.

Once connected, the **logger** displays (and 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" "BMW" and Model "BMW_MINI".
Refer to Race Studio Configuration user manual for further information concerning the logger configuration.

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Chapter 1 – Car Models

BMW MINI protocol is the stock one for the following car models:

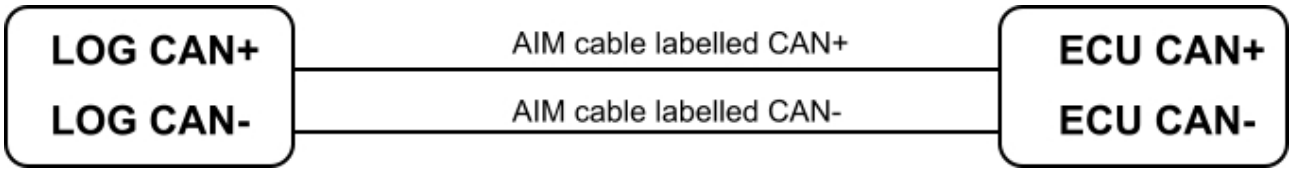
Z4

E46 (3 series)

- M3 3.2

Chapter 2 – CAN communication setup

These cars ECU are equipped with a CAN communication setup used to communicate with an external logger. The image here below shows the standard communication setup.



Chapter 3 – Connection with AIM loggers

ECUs of these BMW cars have twisted wires out coming.

To connect these cars to AIM loggers:

- connect AIM cable labelled CAN+ to yellow/red (CAN High) of BMW ECU wiring;
- connect AIM cable labelled CAN- to yellow/brown (CAN Low) cable of BMW ECU wiring.

or

- connect AIM cable labelled CAN+ to yellow/black (CAN High) of BMW ECU wiring;
- connect AIM cable labelled CAN- to yellow/brown (CAN Low) cable of BMW ECU wiring.

Chapter 3 – BMW MINI communication protocol

Channels received by AIM loggers connected to those cars ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	RPM	RPM
ECU_2	SPEED_BMW	Speed
ECU_3	PEDAL_POSITION	Throttle request
ECU_4	BRAKE_SWITCH	Brake switch
ECU_5	BRAKE_PRESSURE	Brake pressure sensor
ECU_6	CLUTCH_SWITCH	Clutch switch
ECU_7	STEER_ANGLE	Steering angle position
ECU_8	WATER_TEMP	Engine cooling temperature
ECU_9	ENGINE_OIL_TEMP	Engine oil temperature
ECU_10	GEAR_BOX_OIL_TEMP	Gearbox Oil temperature
ECU_11	TEMP_OUTSIDE	Intake air temperature
ECU_12	FUEL	Fuel level
ECU_13	RPM_TURBO	Turbo RPM
ECU_14	ENGINE_MOMENT	Engine moment
ECU_15	TORQUE	Torque value
ECU_16	ELECTROVALVE_STATE	Electro valve state
ECU_17	FULL_LOAD_ALTERNATOR	Full load alternator
ECU_18	WHEEL_SPEED_FRONT_LEFT	Front left wheel speed
ECU_19	WHEEL_SPEED_FRONT_RIGHT	Front right wheel speed
ECU_20	WHEEL_SPEED_REAR_LEFT	Rear left wheel speed
ECU_21	WHEEL_SPEED_REAR_RIGHT	Rear right wheel speed