

Ferrari 458

ECU connection



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 vehicle ECU to our hi-tech data loggers: user needs only to install harness between the **logger** and the ECU.

Once connected, the logger displays (and/or records, according to the model and to 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 “Ferrari” and Model “458”.

Refer to Race Studio Configuration on user manual for further information concerning the loggers configuration.

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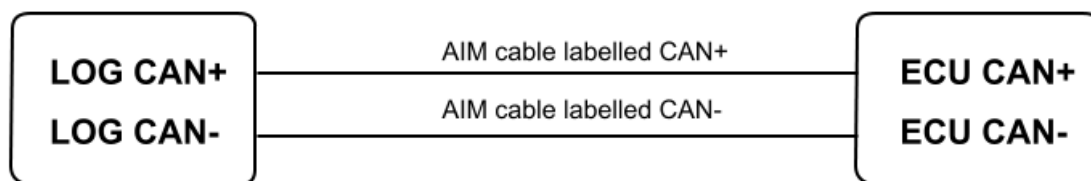
Chapter 1 – Car Models

Ferrari 458 protocol fits the following car models:

- Ferrari 458 Italia;
- Ferrari 458 challenge.

Chapter 2 – CAN communication setup

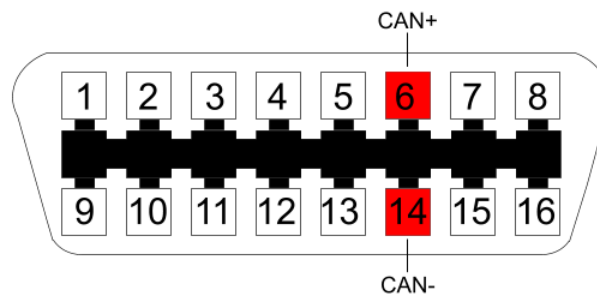
Ferrari 458 is equipped with a CAN communication protocol used to communicate parameter to a data logger. Its standard communication setup is shown here below.



Chapter 3 – Connection through the OBDII plug

The CAN bus is available on the OBDII diagnosis connector.

OBDII connector pinout is shown here below.



To connect AIM logger to the OBDII plug connect:

- AIM cable labelled CAN+ with pin 6 of OBDII connector;
- AIM cable labelled CAN- with pin 14 of OBDII connector.

3.1 – OBDII connector position

OBDII connector on Ferrari 458 Italia is placed under the steering wheel as shown in the images here below.



Chapter 4 – ECU communication protocol

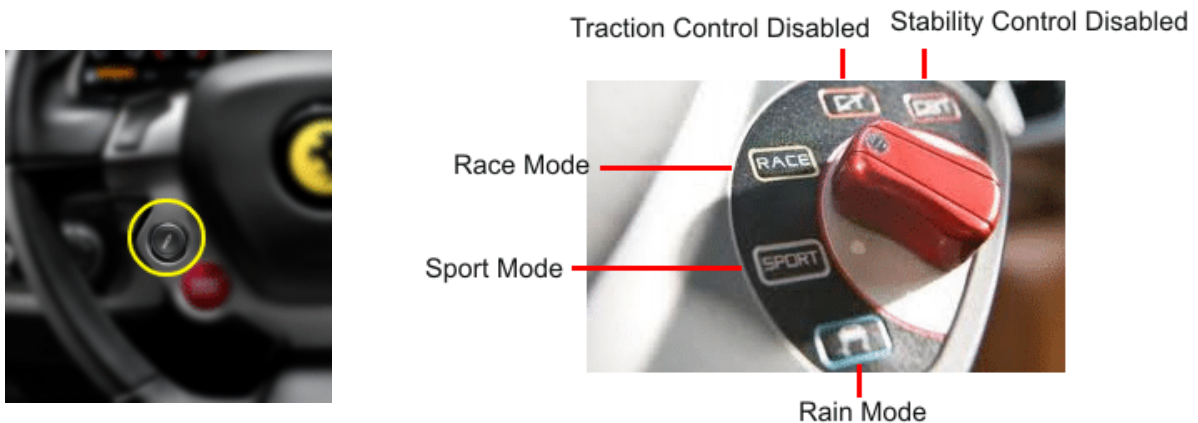
Channels received by AIM logger connected to Ferrari 458 ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	ECU_RPM	RPM
ECU_2	ECU_PPS	Pedal Position Sensor
ECU_3	ECU_TPS	Throttle Position Sensor
ECU_4	ECU_ECT	Water Temperature
ECU_5	ECU_OUT_AIR_T	Outside Air Temperature
ECU_6	ECU_BRAKE_SW	Brake switch pressed/not pressed
ECU_7	ECU_STEER_ANGLE	Steering Angle
ECU_8	ECU_BRAKE_PRESS	Brake Pressure sensor
ECU_9	ECU_GEAR	Engaged Gear
ECU_10	ECU_WH_SPD_RR	Rear Right Wheel Speed
ECU_11	ECU_WH_SPD_RL	Rear Left Wheel Speed
ECU_12	ECU_WH_SPD_FR	Front Right Wheel Speed
ECU_13	ECU_WH_SPD_FL	Front Left Wheel Speed
ECU_14	ECU_VEH_SPEED	Vehicle Speed
ECU_15	ECU_STEER_SPD	Steering speed angle
ECU_16	ECU_YAW_RATE	Yaw rate sensor
ECU_17	ECU_LONG_ACC	Longitudinal Accelerometer
ECU_18	ECU_LAT_ACC	Lateral Accelerometer
ECU_19	ECU_TC_INTERV	Traction Control (Intervention)
ECU_20	ECU_VDC_INTERV	Vehicle Dynamic Control (intervention)
ECU_21	ECU_CLUCTH_SW	Clutch switch (manual gear only)
ECU_26	ECU_GEAR_AUTO	Automatic Gear mode
ECU_27	ECU_TC_ASR_CTR	Traction and stability control disabled
ECU_29	ECU_ROLL_RATE	Steering wheel speed
ECU_30	ECU_LAUNCH	Performance Launch Control
ECU_31	ECU_SUSP_SET	Selected suspension setting – see paragraph 4.1.
ECU_32	ECU_MAIN_SET	ECU Mode selector – see paragraph 4.1.
ECU_33	ECU_CAT1_TEMP	Catalyst Temperature 1
ECU_34	ECU_CAT2_TEMP	Catalyst Temperature 2
ECU_35	ECU_FUEL_LEV	Fuel level

ECU_36	ECU_FUEL_CONS	Fuel Consumption L per hour
ECU_37	ECU_ENG_TORQ	Engine Torque
ECU_38	ECU_ENG_TQ_DRV	Engine Torque Drive
ECU_39	ECU_ENG_TQ_REQ	Requested Engine Torque
ECU_40	ECU_EDIFF_PR	Differential Pressure
ECU_41	ECU_EDIFF_TQ	Differential Torque
ECU_42	ECU_CALC_LOAD	Calculated Load Value
ECU_43	ECU_ABS_LOAD	Absolute Load Value
ECU_44	ECU_PITCH_RATE	Pitch Rate
ECU_45	ECU_ENG_OILT	Engine Oil temperature
ECU_46	ECU_ENG_OILP	Engine Oil Pressure

4.1 – Selected suspension setting and ECU mode selector channels

The images here below shows the suspension setting button on the left and the ECU mode selector one on the right.



ECU Mode selector (channel 32: ECU_MAIN_SET), to say:

- 1: rain mode;
- 2: sport mode;
- 3: race mode;
- 4: traction control disabled;
- 5: traction and stability control disabled.