

AiM Infotech

BMW 1 Series Coupé/Cabrio  
(E81/E82/E87/E88), 3 Series  
(E90/E92/E93), Z4 (E89)  
OBDII + ECU Connection

Release 1.00

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ECU



This tutorial explains how to connect BMW cars to AiM devices.

# 1

## Car models and years

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Supported car models and years are:

- |   |           |
|---|-----------|
| • BMW 1 Series (E87)                      | 2007-2011 |
| • BMW 1 Series Coupé/Cabrio (E81/E82/E88) | 2007-2013 |
| • BMW 3 Series (E90/E92/E93)              | 2005-2012 |
| • BMW Z4 (E89)                            | from 2009 |

# 2

## Available connections

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These car models can be connected to AiM devices through the OBDII plug or going to the car ECU.

## 2.1

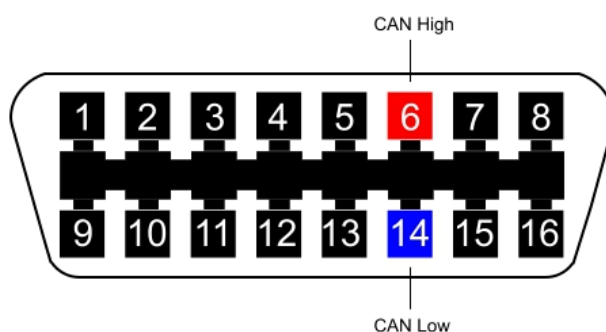
### OBDII Connection

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These BMW cars feature a bus communication protocol based on CAN on the OBDII plug placed on the car driver side, left of him.



Connector pinout as well as connection table are shown here below



OBDII connector pin	Pin function	AiM cable
6	CAN High	CAN+
14	CAN Low	CAN-

## 2.2 ECU Connection

These BMW cars feature a bus communication protocol based on CAN on the car ECU. Regardless of the stock ECU installed on your car, colours of the cables are always the same, they are twisted and here below they are indicated.

Pin function	BMW ECU cable colour	AiM cable label
CAN High	Blue/Red	CAN+
CAN Low	Red	CAN-

In alternative they can be as below.

Pin function	BMW ECU cable colour	AiM cable label
CAN High	Black	CAN+
CAN Low	Yellow	CAN-

### 3

## AiM Logger configuration

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Before connecting the device to the ECU set it up as follows:

- Run Race Studio 2 software and follow this path:
- Device Configuration –> Select the device you are using;
- select the configuration or press “New” to create a new one;
- select
  - ECU manufacturer “OBDII” and ECU Model “CAN” if you are using the OBDII plug
  - ECU manufacturer “BMW” and ECU Model “BMW\_PT6” if you are using the car ECU
- transmit the configuration to the device pressing “Transmit”.

## 4

# Available channels

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Channels received by AiM devices changes according to the selected protocol.

## 4.1

# Channels available with "CAN" protocol

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Channels received by AiM devices connected to "OBDII" "CAN" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	OBDII_RPM	RPM
ECU_2	OBDII_SPEED	Speed
ECU_3	OBDII_ECT	Engine coolant temperature
ECU_4	OBDII_TPS	Throttle position sensor
ECU_5	OBDII_IAT	Intake air temperature
ECU_6	OBDII_MAP	Manifold air pressure
ECU_7	OBDII_MAF	Manifold air flow
ECU_8	OBDII_FUEL_LEV	Fuel level
ECU_9	OBDII_PPS	Pedal position sensor

**Please note:** channels listed above are those polled by AiM devices. They may or may not come across in the data stream depending on models. RPM, TPS, ECT and speed are generally available.

## 4.2

### Channels available with "BMW\_PT6" protocol

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Channels received by AiM devices connected to "BMW" "BMW\_PT6" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	RPM	RPM
ECU_2	PEDAL_POSITION	Throttle request
ECU_3	SPEED_BMW	Speed
ECU_4	SPEED2_BMW	Speed 2
ECU_5	WHEEL_SPD_FR_LF	Front left wheel speed
ECU_6	WHEEL_SPD_FR_RH	Front right wheel speed
ECU_7	WHEEL_SPD_RR_LF	Rear left wheel speed
ECU_8	WHEEL_SPD_RR_RH	Rear right wheel speed
ECU_9	STEER_ANGLE	Steering angle position
ECU_10	CLUTCH_SWITCH	Clutch switch
ECU_11	BRAKE_SWITCH	Brake switch
ECU_12	BRAKE_PRESS	Brake pressure sensor
ECU_13	BRAKE_PR_FR_LF	Front left wheel brake pressure sensor
ECU_14	BRAKE_PR_FR_RH	Front right wheel brake pressure sensor
ECU_15	BRAKE_PR_RR_LF	Rear left wheel brake pressure sensor
ECU_16	BRAKE_PR_RR_RH	Rear right wheel brake pressure sensor
ECU_17	WATER_TEMP	Engine coolant temperature
ECU_18	OIL_TEMP	Oil temperature
ECU_19	TEMP_OUTSIDE	Intake air temperature
ECU_20	MAP	Manifold pressure
ECU_21	GEAR	Engaged gear
ECU_22	ACC_LONG	Longitudinal acceleration
ECU_23	ACC_LAT	Lateral acceleration
ECU_24	GYRO	Gyroscope
ECU_25	DISTANCE_KM	Distance



ECU_26	FUEL	Fuel level
ECU_27	BATTERY	Battery level
ECU_28	FUEL INJ	Fuel injection

**Technical note:** not all data channels outlined in the ECU template are validated for each manufacturer model or variant; some of the outlined channels are model and year specific, and therefore may not be applicable.