AiM Infotech

BMW Z4 (E85)
2003-2008

Release 1.01

ECU

This tutorial explains how to connect BMW Z4 cars to AiM devices.

1 Car models and years

Supported car models and years are:

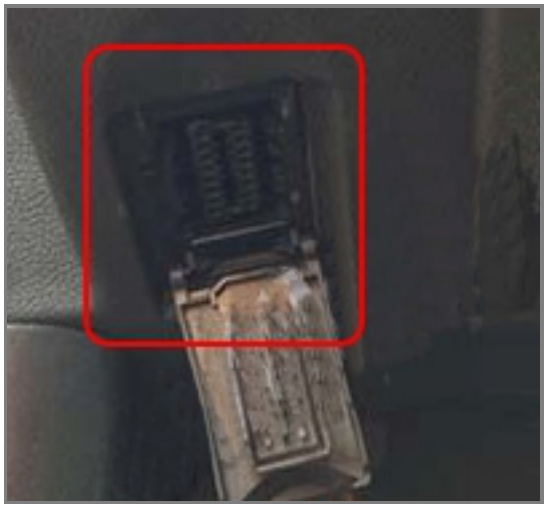
- BMW Z4 (E85) 2003-2008

2 Available connections

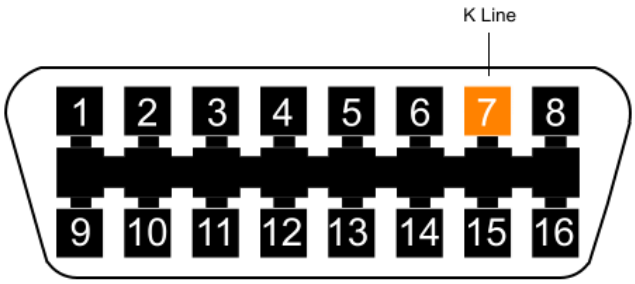
This car model can be connected to AiM devices through the OBDII plug using the K line protocol or going to the car ECU using the CAN protocol.

2.1 OBDII Connection

These BMW cars feature a bus communication protocol based on K line on the OBDII plug placed on the left of the car driver side as shown here below.



Connector pinout as well as connection table are shown here below



OBDII connector pin	Pin function	AiM cable
7	K Line	K line

Please note: if you choose this connection we recommend you to use AiM cables to connect AiM devices. Their part number are:

• ECU Bridge with OBDII plug	X90BGCK12MA
• EVO4 cable (to be plugged in EVO4 connector labelled RPM)	V02563050
• SoloDL cable with OBDII plug	V02569010 (2m length) or V02569090 (1,2m length)
• MXG	37 pins standard cable
• MXL2	37 pins standard cable

2.2 ECU connection

BMW Z4 is equipped with a CAN communication protocol on the vehicle ECU. Two alternative CAN connections are available on it. Here below they are explained.

Cable colour	Pin function	AiM cable
CAN Connection 1		
Yellow/red	CAN High	CAN+
Yellow/brown	CAN Low	CAN-

CAN Connection 2

Yellow/black	CAN High	CAN+
Yellow/brown	CAN Low	CAN-

3 AiM device configuration

Before connecting the ECU to AiM device set this up using AiM Race Studio software. The parameters to select in the device configuration are:

- ECU manufacturer "OBDII" and ECU Model "ISO9141_2" if you are using the OBDII plug and the K line protocol
- ECU manufacturer “BMW” and ECU Model “Z4M_COUPE_OEM_ECU” if you are using the car ECU and the CAN protocol

4 Available channels

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

4.1 "ISO9141_2" (K line) protocol

Channels received by AiM devices connected to "OBDII" "ISO9141_2" 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 "Z4M_COUPÉ_OEM_ECU" (CAN) protocol

Channels received by AiM devices connected to "BMW" "Z4M_COUPE_OEM_ECU" protocol are.

ID	CHANNEL NAME	FUNCTION
ECU_1	Z4M_RPM	RPM
ECU_2	Z4M_SPEED	Vehicle speed
ECU_3	Z4M_WH_FL	Front left wheel speed
ECU_4	Z4M_WH_FR	Front right wheel speed
ECU_5	Z4M_WH_RL	Rear left wheel speed
ECU_6	Z4M_WH_RR	Rear right wheel speed
ECU_7	Z4M_PPS	Pedal position
ECU_8	Z4M_STEER_ANG	Steering angle
ECU_9	Z4M_BRAKE_PR	Brake pressure
ECU_10	Z4M_ENG_MOM	Engine moment
ECU_11	Z4M_BRAKE_SW	Brake switch
ECU_12	Z4M_CLUTCH_SW	Clutch switch
ECU_13	Z4M_FUEL	Fuel consumption
ECU_14	Z4M_WATER_TEMP	Engine coolant temperature
ECU_15	Z4M_OIL_TEMP	Oil temperature
ECU_16	Z4M_AIR_TEMP	Intake air temperature

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.