AiM Infotech

Subaru Impreza 1999-2011 ECU

Release 1.05

1
Supported models and years

This tutorial explains how to connect AiM devices to Subaru cars. Supported models are:

•	Subaru	Impreza	1999-2011
•	Subaru	Impreza Gr. N	from 2008.

Please note: for **MXL** loggers you need to buy the proper Plug&Play kit you find on AiM website at www.aim-sportline.com download area, stock ECU section.

2
Wiring connection

Subaru Impreza features a bus communication protocol based on K Line on the OBDII plug placed on the car driver side under the steering column as shown here below.
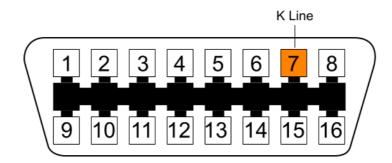
The ECU communicates using the K line on the OBDII connector. Connector pinout as well as connection table are shown here below.

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

Please note: 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	V02573010
• MXS	37 pins standard cable	V02573010
• MXL2	37 pins standard cable	V02573010

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 "Subaru" and
- ECU Model:
  - "SSM 1999/2007" for cars produced between 1999 and 2007
  - "SSM 2008/2011" for cars produced between 2008 and 2011
  - "SSM_FIA_Group_N" for Subaru Impreza Group N

4
Available channels

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

4.1
"Subaru" "SSM 1999/2007" protocol

Channels received by AiM loggers connected to "Subaru" "SSM 1999/2007"protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	RPM	RPM
ECU_2	SPEED	Vehicle Speed
ECU_3	TPS	Throttle Position Sensor
ECU_4	ECT	Engine coolant temperature
ECU_5	TURBO_PRESS	Turbo pressure
ECU_6	IN_VVT_R	Right bank inlet timing
ECU_7	IN_VVT_L	Left bank inlet timing
ECU_8	IGN_ADV	Ignition advance
ECU_9	KNOCK_CORR	Advances correction depending on detonation sensor
ECU_10	FUEL_LEV	Fuel level
ECU_11	NEUTRAL	Neutral sensor
ECU_12	CLUTCH	Clutch disengaged signal
ECU_13	BRAKE	Brake switch
ECU_14	ENG_LOAD	Instant engine load
ECU_15	AIR_FLOW	Air flow in the air pipes

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.

4.2
"Subaru" "SSM 2008/2011" protocol

Channels received by AiM loggers connected to "Subaru" "SSM 2008/2011" are:

ID	CHANNEL NAME	FUNCTION
ECU_1	SSM_RPM	RPM
ECU_2	SSM_SPEED	Vehicle Speed
ECU_3	SSM_TPS	Throttle Position Sensor
ECU_4	SSM_ECT	Engine coolant temperature
ECU_5	SSM_TURBO_PRES	Turbo pressure
ECU_6	SSM_IN_VVT_R	Right bank inlet timing
ECU_7	SSM_IN_VVT_L	Left bank inlet timing
ECU_8	SSM_IGN_ADV	Ignition advance
ECU_9	SSM_KNOCK_CORR	Advances correction depending on detonation sensor
ECU_10	SSM_FUEL_LEV	Fuel level
ECU_11	SSM_NEUTRAL	Neutral sensor
ECU_12	SSM_CLUTCH	Clutch disengaged signal
ECU_13	SSM_BRAKE	Brake switch
ECU_14	SSM_ENG_LOAD	Instant engine load
ECU_15	SSM_AIR_FLOW	Air flow in the air pipes
ECU_16	SSM_EX_VVT_R	Right bank exhaust timing
ECU_17	SSM_EX_VVT_L	Left bank exhaust timing
ECU_18	SSM_SEL_MAP	Selected Map
ECU_19	SSM_GEAR	Engaged gear

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.

4.3
"Subaru" "SSM_FIA_GROUP_N" protocol

Channels received by AiM loggers connected to "Subaru" "SSM_FIA_GROUP_N" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	SSM_RPM	RPM
ECU_2	SSM_SPEED	Vehicle speed
ECU_3	SSM_TPS	Throttle position sensor
ECU_4	SSM_ECT	Engine coolant temperature
ECU_5	SSM_TURBO_PRES	Turbo pressure
ECU_6	SSM_IN_VVT_R	Right bank inlet timing
ECU_7	SSM_IN_VVT_L	Left bank inlet timing
ECU_8	SSM_IGN_ADV	Ignition advance
ECU_9	SSM_KNOCK_CORR	Advances correction depending on detonation sensor
ECU_10	SSM_FUEL_LEV	Fuel level
ECU_11	SSM_NEUTRAL	Neutral sensor
ECU_12	SSM_AIR_FLOW	Air flow in the air pipes
ECU_13	SSM_EX_VVT_R	Right bank exhaust timing
ECU_14	SSM_EX_VVT_L	Left bank exhaust timing
ECU_15	SSM_GEAR	Engaged gear
ECU_16	SSM_LAMBDA	Lambda value
ECU_17	SSM_T_FUEL	Fuel temperature
ECU_18	SSM_INTK_T_AIR	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.