AiM InfoTech

MoTec M1

Release 1.02

ECU

Supported models

This user guide explains how to connect MoTec M1 series ECUs to AiM devices. Supported models are:

- MoTec M130
- MoTec M142
- MoTec M150
- MoTec M170
- MoTec M181
- MoTec M182
- MoTec M190

2 Software configuration

For MoTec M1 Series ECUs to correctly communicate with AiM device, it is necessary to set them up using the dedicated MoTec software. Parameters to set are:

- Protocol: "M1 General"
- Base address: "ID0X640"

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Wiring connection

For MoTec M1 Series ECUs, it is possible to connect to AiM devices through the front connectors. Here below you can see M1 series ECUs connection table.

In case more than one CAN bus is available, AiM recommends to refer to MoTec support to know which one is to be used.

MoTec M130		
Pin	**Function**	**AiM cable**
B17	CAN1 High	CAN+
B18	CAN1 Low	CAN-
MoTec M142		
Pin	**Function**	**AiM cable**
D17	CAN1 High	CAN+
D18	CAN1 Low	CAN-
A30	CAN2 High	CAN+
A31	CAN2 Low	CAN-
A28	CAN3 High	CAN+
A29	CAN3 Low	CAN-
MoTec M150		
Pin	**Function**	**AiM cable**
D17	CAN1 High	CAN+
D18	CAN1 Low	CAN-
A30	CAN2 High	CAN+
A31	CAN2 Low	CAN-
A28	CAN3 High	CAN+
A29	CAN3 Low	CAN-

MoTec M170

Pin	Function	AiM cable
A40	CAN1 High	CAN+
A31	CAN1 Low	CAN-

MoTec M181

Pin	Function	AiM cable
C24	CAN1 High	CAN+
C31	CAN1 Low	CAN-
A24	CAN2 High	CAN+
A31	CAN2 Low	CAN-
A39	CAN3 High	CAN+
A46	CAN3 Low	CAN-

MoTec M182

Pin	Function	AiM cable
C24	CAN1 High	CAN+
C31	CAN1 Low	CAN-
A24	CAN2 High	CAN+
A31	CAN2 Low	CAN-
A39	CAN3 High	CAN+
A46	CAN3 Low	CAN-

MoTec M190

Pin	Function	AiM cable
C24	CAN1 High	CAN+
C31	CAN1 Low	CAN-
A24	CAN2 High	CAN+
A31	CAN2 Low	CAN-
A39	CAN3 High	CAN+
A46	CAN3 Low	CAN-

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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: **MoTec**
- ECU Model:
  - **M1** for baud rate 1 Mbit
  - **M1_500k** for baud rate 500k

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"MoTec – M1"/"MoTec – M1_500K" protocols

Channels received by AiM loggers connected to "MoTec – M1" and "MoTec – M1_500K" protocols are the same, listed below:

CHANNEL NAME	FUNCTION
ECU RPM	RPM
ECU GEAR	Active gear
ECU WH SP FL	Front left wheel speed
ECU WH SP RL	Rear left wheel speed
ECU WH SP RR	Rear right wheel speed
ECU WH SP FR	Front right wheel speed
ECU ECT	Engine coolant temperature
ECU EXH T	Exhaust gas temperature
ECU OIL T	Oil temperature
ECU GBOX T	Gearbox temperature
ECU IAT	Intake air temperature
ECU AIR T	Air temperature
ECU AMB T	Ambient air temperature
ECU FUEL T	Fuel temperature
ECU OIL P	Oil pressure
BRK PRESS F	Front brake pressure
BRK PRESS R	Rear brake pressure

ECU FUEL P	Fuel pressure
COOL PRESS	Engine coolant pressure
STEER PRESS	Steering wheel pressure
ECU MAP	Manifold air pressure
ECU BOOST AIM	Boost pressure target
ECU BOOST P	Boost pressure
ECU AMB P	Ambient air pressure
ECU IN CM P2	Inlet camshaft Bank 2 position
ECU EX CM P1	Exhaust camshaft bank 1 position
ECU IN CM AIM	Inlet camshaft AiM
ECU IN CM P1	Inlet camshaft Bank 1 position
ECU EX CM AIM	Exhaust camshaft AiM
ECU FUEL TIME	Fuel time
ING CY1 TRIM KNK	Ignition trim knock cylinder 1
ING CY2 TRIM KNK	Ignition trim knock cylinder 2
ING CY3 TRIM KNK	Ignition trim knock cylinder 3
ING CY4 TRIM KNK	Ignition trim knock cylinder 4
ING CY5 TRIM KNK	Ignition trim knock cylinder 5
ING CY6 TRIM KNK	Ignition trim knock cylinder 6
ING CY7 TRIM KNK	Ignition trim knock cylinder 7
ING CY8 TRIM KNK	Ignition trim knock cylinder 8
ECU IGN TIME	Ignition time
ECU EX CM P2	Exhaust camshaft bank 2 position
ECU TRHOTTLE	Throttle position sensor
ECU IN CM D2	Inlet camshaft bank 2 position duty cycle
ECU PEDAL POS	Pedal position sensor
ECU EX CM D1	Exhaust camshaft bank 1 position duty cycle
ECU EX CM D2	Exhaust camshaft bank 2 position duty cycle
ECU FUE IJ DY	Fuel injection ducy
ECU ENG EFICY	Engine efficiency
ECU ENG LOAD AVG	Engine load average
ECU CY1 KNK	Engine cycle1 Knock level A
ECU CY2 KNK	Engine cycle2 Knock level A
ECU CY3 KNK	Engine cycle3 Knock level A
ECU CY4 KNK	Engine cycle4 Knock level A
ECU CY5 KNK	Engine cycle5 Knock level A
ECU CY6 KNK	Engine cycle6 Knock level A
ECU CY8 KNK	Engine cycle8 Knock level A

ECU IGN O LV	Ignition output level
ECU FUE O LV	Fuel output level
FUEL COMPOSITION	Fuel composition
ECU BOOST DTY	Boost duty
ECU CLOSE LOOP1	Closed loop 1
ECU CLOSE LOOP2	Closed loop 2
ECU IN CM D1	Inlet camshaft bank 1 position duty cycle
ECU ENG RUN	Engine running
ENG RUN TIME TOT	Total engine running time
ECU V BATT	Battery voltage
ECU FUEL	Fuel
ECU FUEL USED	Fuel used
ECU FUEL LEV	Fuel level
ECU ENGINE LOAD	Engine load
ECU GEAR LV	Gear level
ECU IGN CUT REQ	Ignition cut request
ECU IGN TIME ST	Ignition time stage
LAUNCH STATE	Launch control state
ANTI LAG STATE	Anti-lag state
ECU FUE O CN	Fuel output level
ECU IGN O CN	Ignition output level
ECU CY7 KNK	Engine cycle7 Knock level A
WARNING FLAG 1	Contains the following error messages:
= 1	ECT error
= 2	ECP error
= 3	RPM error
= 4	OILT error
= 5	OILP error
= 7	CRANK error
= 8	FUEP error
WARNING FLAG 2	Contains the following error message:
= 8	KNOCK error