

AiM User Guide

MoTec M1

Release 1.01



1 Supported models

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

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

2 Software setup

For MoTec M1 series ECU to correctly communicate with AiM device it is necessary to set the ECU up using the dedicate MoTec software. Parameters to set are:

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

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Wiring connection

MoTec M1 series ECU feature a bus communication protocol on the front connectors. Here below you 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 it up using AiM Race Studio 3 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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Available channels

Channels received by AiM devices connected to "MoTec" "M1" and "M1_500k" protocol are the same:

ID	CHANNEL NAME	FUNCTION
ECU_1	ECU_RPM	RPM
ECU_2	ECU_MAP	Manifold Air Pressure
ECU_3	ECU_IAT	Intake air temperature
ECU_4	ECU_THROTTLE	Throttle position sensor
ECU_5	ECU_PEDAL_POS	Pedal position sensor
ECU_6	ECU_IGN_TIME	Ignition time
ECU_7	ECU_FUEL_TIME	Fuel time
ECU_8	ECU_CY1_KNK	Engine cycle1 Knock level A
ECU_9	ECU_CY2_KNK	Engine cycle2 Knock level A
ECU_10	ECU_CY3_KNK	Engine cycle3 Knock level A
ECU_11	ECU_CY4_KNK	Engine cycle4 Knock level A
ECU_12	ECU_CY5_KNK	Engine cycle5 Knock level A
ECU_13	ECU_CY6_KNK	Engine cycle6 Knock level A
ECU_14	ECU_CY7_KNK	Engine cycle7 Knock level A



ECU_15	ECU_CY8_KNK	Engine cycle8 Knock level A
ECU_16	ECU_IGN_O_CN	Ignition Output cut count
ECU_17	ECU_FUE_O_CN	Fuel Output cut count
ECU_18	ECU_IGN_O_LV	Ignition Output cut level
ECU_19	ECU_FUE_O_LV	Fuel Output cut level
ECU_20	ECU_IGN_TIM	Ignition time
ECU_21	ECU_IGN_TIM_RQ	Ignition time request
ECU_22	ECU_OIL_P	Oil pressure
ECU_23	ECU_BOOST_P	Boost pressure
ECU_24	ECU_BOOST_AIM	Boost target
ECU_25	ECU_BOOST_DTY	Boost duty cycle
ECU_26	ECU_GEAR_LV	Driver gear lever
ECU_27	ECU_IN_CM_AIM	Inlet camshaft AiM
ECU_28	ECU_IN_CM_P1	Inlet camshaft Bank 1 position
ECU_29	ECU_IN_CM_P2	Inlet camshaft Bank 2 position
ECU_30	ECU_IN_CM_D1	Inlet camshaft Bank 1 duty cycle
ECU_31	ECU_IN_CM_D2	Inlet camshaft Bank 2 duty cycle
ECU_32	ECU_EX_CM_AIM	Exhaust camshaft AiM
ECU_33	ECU_EX_CM_P1	Exhaust camshaft bank 1 position
ECU_34	ECU_EX_CM_P2	Exhaust camshaft bank 2 position
ECU_35	ECU_EX_CM_D1	Exhaust camshaft bank 1 duty cycle
ECU_36	ECU_EX_CM_D2	Exhaust camshaft bank 2 duty cycle
ECU_37	ECU_WH_SP_FL	Front left wheel speed
ECU_38	ECU_WH_SP_FR	Front right wheel speed
ECU_39	ECU_WH_SP_RL	Rear left wheel speed
ECU_40	ECU_WH_SP_RR	Rear right wheel speed
ECU_41	ECU_ECT	Engine coolant temperature
ECU_42	ECU_OIL_T	Oil temperature
ECU_43	ECU_FUEL_T	Fuel temperature
ECU_44	ECU_AMB_T	Ambient temperature
ECU_45	ECU_AIR_T	Intake air temperature
ECU_46	ECU_V_BATT	Battery supply



ECU_47	ECU_EXH_T	Exhaust gas temperature
ECU_48	ECU_AMB_P	Ambient pressure
ECU_49	ECU_ENG_RUN	Engine run time
ECU_50	ECU_ECT_ALM	Engine coolant temperature alarm
ECU_51	ECU_ECP_ALM	Engine coolant pressure alarm
ECU_52	ECU_RPM_ALM	RPM alarm
ECU_53	ECU_OILP_ALM	Oil pressure alarm
ECU_54	ECU_FUEP_ALM	Fuel pressure alarm
ECU_55	ECU_KNK_ALM	Knock alarm
ECU_56	ECU_ENG_STAT	Engine status
ECU_57	ECU_GBOX_T	Gearbox temperature
ECU_58	ECU_FUEL_LEV	Fuel level
ECU_59	ECU_ENG_EFICY	Engine efficiency
ECU_60	ECU_FUE_IJ_DY	Fuel injector duty cycle
ECU_61	ECU_FUEL_P	Fuel pressure
ECU_62	ECU_FUEL_MIX	Fuel mix
ECU_63	ECU_FUEL_ml	Fuel pressure in millivolts
ECU_64	ECU_GEAR	Engaged gear