AiM User Guide

MecTronic MKE1

Release 1.00

ECU

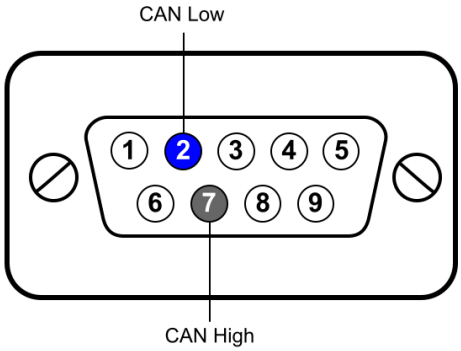
1 Supported models

This user guide explains how to connect MekTronik ECU to AiM devices. Supported model is:

- MekTronik MKE1

2 Wiring connection

MecTronik MKE1 ECU features a bus communication protocol based on CAN on the external DB9 male connector you find on the ECU harness. Here below is connector pinout front view and bottom of it is connection table.



Pin	Function	AiM cable
7	CAN High	CAN+
2	CAN Low	CAN-

Please note: ECU harness is ended with a 120 ohm resistor. Moreover being the CAN line baud rate 1Mbit it would be appropriate that the line is correctly ended but also shielded and twisted.

3 AiM device configuration

Before connecting the ECU to AiM device set it up using AiM Race Studio software. The parameters to select in the device configuration changes according to the ECU firmware version:

- ECU manufacturer "MecTronik"
- ECU Model
    - "MK_E4" for ECU with firmware version 3.x.x and previous
    - "MK_E1" for ECU with firmware version from 4.x.x onward

4 Available channels

Channels received by AiM devices connected to "MecTronic" "MKE1" ECU changes according to the selected protocol.

4.1 "MecTronik" "MK_E4" protocol

Channels received by AiM devices connected to "MecTronic" "MK_E4" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	MKE4_RPM	RPM
ECU_2	MKE4_TORQUE	Torque value
ECU_3	MKE4_LAMBDA	Lambda value
ECU_4	MKE4_KNOCK	Detonation counter
ECU_5	MKE4_THROTPOS	Throttle position sensor
ECU_6	MKE4_ACCPOS	Accelerator
ECU_7	MKE4_CAMAPOS	Cam shaft "A" position 1
ECU_8	MKE4_CAMBPOS	Cam shaft "B" position 1

ECU_9	MKE4_TURBOPRESS	Boost pressure
ECU_10	MKE4_COLLPRESS	Manifold pressure
ECU_11	MKE4_BAROPRESS	Barometric pressure
ECU_12	MKE4_OILPRESS	Oil pressure
ECU_13	MKE4_ENGTEMP	Engine temperature
ECU_14	MKE4_AIRTEMP	Intake air temperature
ECU_15	MKE4_OILTEMP	Oil temperature
ECU_16	MKE4_AUXTEMP	Auxiliary temperature
ECU_17	MKE4_BATTVOLT	Battery supply
ECU_18	MKE4_SENSVOLT	Sensor voltage
ECU_19	MKE4_AUXAVOLT	Auxiliary voltage 1
ECU_20	MKE4_AUXBVOLT	Auxiliary voltage 2
ECU_21	MKE4_GEAR	Engaged gear
ECU_22	MKE4_SPEED	Vehicle speed
ECU_23	MKE4_ENG_CYC	Engine cycles
ECU_24	MKE4_POWERCUT	Power cut
ECU_25	MKE4_RPM2	RPM 2
ECU_26	MKE4_TORQUE2	Torque value 2
ECU_27	MKE4_LAMBDA2	Lambda value 2
ECU_28	MKE4_KNOCK2	Detonation counter 2
ECU_29	MKE4_THROTPOS2	Throttle position sensor 2
ECU_30	MKE4_ACCPOS2	Accelerator 2
ECU_31	MKE4_CAMAPOS2	Cam shaft "A" position 2
ECU_32	MKE4_CAMBPOS2	Cam shaft "B" position 2
ECU_33	MKE4_LSUAFR	Air/Fuel ratio
ECU_34	MKE4_SNDTEMP	Lambda probe temperature
ECU_35	MKE4_LSUAUXAVOLT	Lambda auxiliary "A" voltage
ECU_36	MKE4_LSUAUXBVOLT	Lambda auxiliary "B" voltage
ECU_37	MKE4_SPEED_FSX	Front left wheel speed
ECU_38	MKE4_SPEED_FDX	Front right wheel speed
ECU_39	MKE4_SPEED_RSX	Rear left wheel speed
ECU_40	MKE4_SPEED_RDX	Rear right wheel speed

ECU_41	MKE4_ACC_LONG	Longitudinal acceleration
ECU_42	MKE4_ACC_LAT	Lateral acceleration
ECU_43	MKE4_ROT_XY	XY Rotation
ECU_44	MKE4_STEER	Steering angle speed
ECU_45	MKE4_SLIP_FR	Front right slip
ECU_46	MKE4_SLIP_LR	Left rear slip
ECU_47	MKE4_SLIP_WHEEL	Wheel slip
ECU_48	MKE4_DIFF_ACC	Differential accelerometer
ECU_49	MKE4_REG	Regulation (MAN - ECU traction DCCD)
ECU_50	MKE4_IN_STATE	Input State
ECU_51	MKE4_OUT_CURR	Output current
ECU_52	MKE4_PWM	Pulse width modulation
ECU_53	MKE4_ERR_SEN	Error sensor (ECU master engine)
ECU_54	MKE4_ERR_ACT	Error actuator (ECU master engine)
ECU_55	MKE4_ERR_TRG	Error trigger (ECU master engine)
ECU_56	MKE4_ERR_SENL1	Sensors error - L1 (ECU expander 1)
ECU_57	MKE4_ERR_ACTL1	Actuator error - L1 (ECU expander 1)
ECU_58	MKE4_ERR_SENDC	Sensors error - DCCD (ECU Traction)
ECU_59	MKE4_ERR_ACTDC	Actuator error - DCCD (ECU traction)

4.2
"MecTronik" "MK_E1" protocol

Channels received by AiM devices connected to "MecTronic" "MK_E1" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	MKE1_RPM	RPM
ECU_2	MKE1_TPS	Throttle position sensor
ECU_3	MKE1_MAP	Manifold air pressure
ECU_4	MKE1_ENG_LOAD	Engine load
ECU_5	MKE1_LAMBDA	Lambda value
ECU_6	MKE1_SPEED	Vehicle speed
ECU_7	MKE1_SLIP	Slip
ECU_8	MKE1_CAMPOS1	Cam shaft position 1
ECU_9	MKE1_INJ_MAIN	Main injection time
ECU_10	MKE1_INJ_PULSE	Injection pulse
ECU_11	MKE1_IGN_MAIN	Main ignition
ECU_12	MKE1_IGN_APP	Spark Advance applied
ECU_13	MKE1_INJ_UP	Cutter strategy pattern
ECU_14	MKE1_SPARE1	Spare_1
ECU_15	MKE1_SPARE2	Spare_2
ECU_16	MKE1_SPARE3	Spare_3
ECU_17	MKE1_ECT	Engine coolant temperature
ECU_18	MKE1_IAT	Intake air temperature
ECU_19	MKE1_BATTV	Battery supply
ECU_20	MKE1_REFV	V reference
ECU_21	MKE1_AN1	ADC1
ECU_22	MKE1_AN2	ADC2
ECU_23	MKE1_AN3	ADC3
ECU_24	MKE1_AN4	ADC4
ECU_25	MKE1_GEAR	Engaged gear

ECU_26	MKE1_GEAR_LC	Gear load cell
ECU_27	MKE1_GEAR_STR	Gear shift time remained
ECU_28	MKE1_SPARE4	Spare_4
ECU_29	MKE1_DRV_SEL	Driver select
ECU_30	MKE1_DRV_MAP	Active map
ECU_31	MKE1_DRV_STR	Active strategies
ECU_32	MKE1_SPARE5	Spare_5
ECU_33	MKE1_REVS	Engine revolutions
ECU_34	MKE1_SMOT_C	Smot counter
ECU_35	MKE1_SCAM_C	Scam counter
ECU_36	MKE1_SPARE6	Spare_7
ECU_37	MKE1_ECU_TIME	ECU Time counter
ECU_38	MKE1_ECU_TEMP	ECU Temperature
ECU_39	MKE1_ECU_TAB_ID	ECU Table ID
ECU_40	MKE1_ECU_STATE	ECU state
ECU_41	MKE1_INJ_DIA	Injector driving diag
ECU_42	MKE1_ANG1_DIA	Analog group 1 diag
ECU_43	MKE1_TRIG_DIA	Engine trigger sensors diag
ECU_44	MKE1_SPARE6	Spare_6
ECU_45	MKE1_L2_DIA1	Lambda 1 diag
ECU_46	MKE1_L2_LAM1	Lambda value 1
ECU_47	MKE1_L2_TEMP1	Temperature 1
ECU_48	MKE1_L2_DIA2	Lambda 2 diag
ECU_49	MKE1_L2_LAM2	Lambda value 2
ECU_50	MKE1_L2_TEMP2	Lambda 2 temperature