AiM User Guide

Adaptronic e420d, 440, Plug-in (all) and e1280s ECUs

Release 1.02

ECU

1
Models

This document explains how to connect AiM devices to the vehicle Engine Control Unit (ECU) data stream.
Supported models are:

- e420d   fw. 10.064 or later
- 440   fw. 10.064 or later
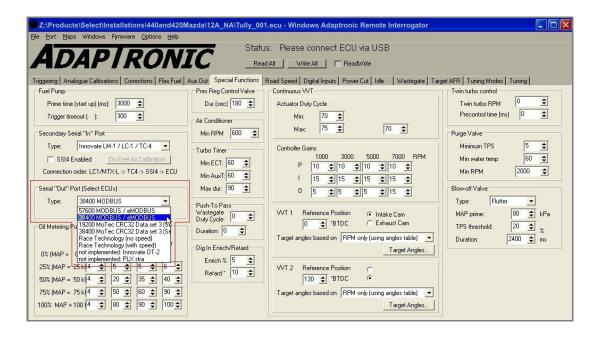- Plug-in (all models)   fw. 10.064 or later
- e1280s   specific fw is required

2
Software configuration

For Adaptronic e420d, 440 and Plug-in (all models) ECUs to correctly communicate with AiM device it is necessary to set them up using the dedicated Adaptronic software: enter "Special functions layer" and go to Serial "Out" port (Select ECUs) box and select "38400 MODBUS/EMODBUS" option as shown here below.

AiM devices communicate with Adaptronic ECUs only if these requisites are satisfied:

- e420d   Adaptronic firmware vers. 10.064 or later installed and software setup

- 440   Adaptronic firmware vers. 10.064 or later installed and software setup

- Plug-in (all models)   Adaptronic firmware vers. 10.064 or later installed and software setup

- e1280s   Specific firmware version with preset 38400 baud rate installed. This firmware can only be provided by Adaptronic: **no software setting is available**.
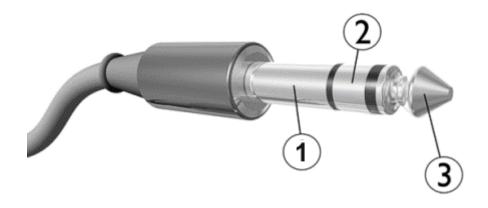
3
Connection

These models feature a bus communication protocol based on RS232, accessible through the "Serial out" 2,5mm socket, to whom a jack connector must be plugged.
Here below you see 2,5mm jack connector detail and connection table.

Socket connection	function	AiM cable
1 – Sleeve	ECU GND	GND
2 – Ring	ECU TX (data out)	RS232RX/ECU RS232TX
3 - Tip	ECU RX (ECU poll)	RS232TX/ECU RS232RX

Please note: ECU Serial output and ECU USB cannot be used at the same time. If both are connected, USB takes priority; GND wire must be connected, in order to make RS232 communication work.

4
AiM device configuration

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

- ECU manufacturer: "Adaptronic"
- ECU Model: "E420C_E1280S"

5
"Adaptronic – E420C_E1280S" protocol

Channels received by AiM devices configured with "Adaptronic – E420C_E1280S" protocol are:

CHANNEL NAME	FUNCTION
RPM	RPM
MAP	Manifold air pressure
MAT	Manifold air temperature
WaterTemp	Water temperature
AuxT	Auxiliary temperature
AFR	Air/fuel ratio
KnockValue	Knock sensor
TPS	Throttle position sensor
IdleValue	Idle switch
BatteryVolt	Battery voltage
MasterVSS	Master speed
SlaveVSS	Slave speed
Inj1	Fuel injection pulse 1
Inj2	Fuel injection pulse 2
Inj3	Fuel injection pulse 3

Inj4	Fuel injection pulse 4
Ign1	Ignition advance 1
Ign2	Ignition advance 2
Ign3	Ignition advance 3
Ign4	Ignition advance 4
Trim	Fuel trim
VVT2	Variable valve timing 2
VVT1	Variable valve timing 1
ExtIn	External Input
EGT1	Exhaust gas temperature cylinder 1
EGT2	Exhaust gas temperature cylinder 2
EGT3	Exhaust gas temperature cylinder 3
EGT4	Exhaust gas temperature cylinder 4