

AiM Infotech

MoTec
CAN Custom Data Set1

Release 1.01



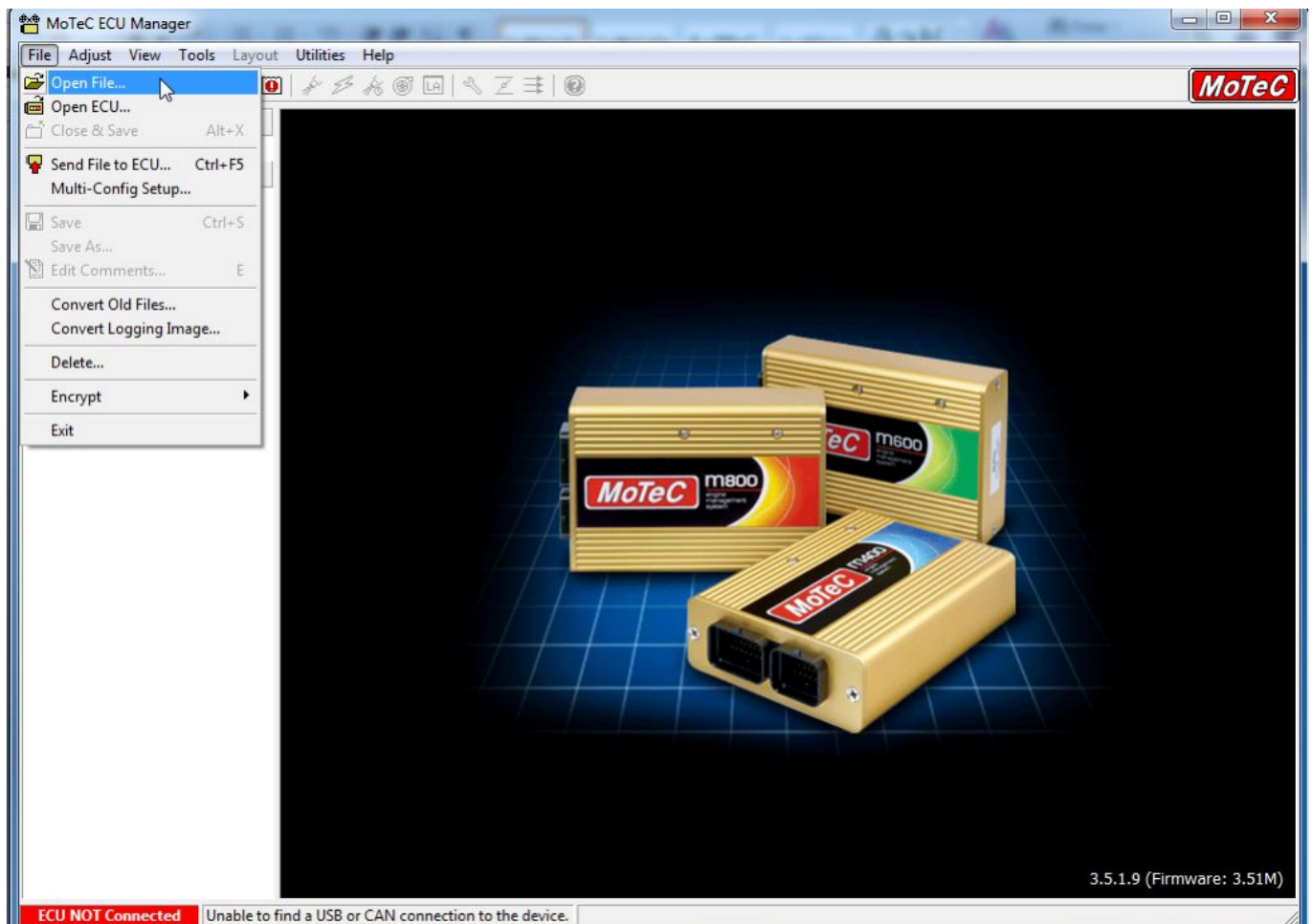
This tutorial explains how to connect MoTec and AiM devices.

1

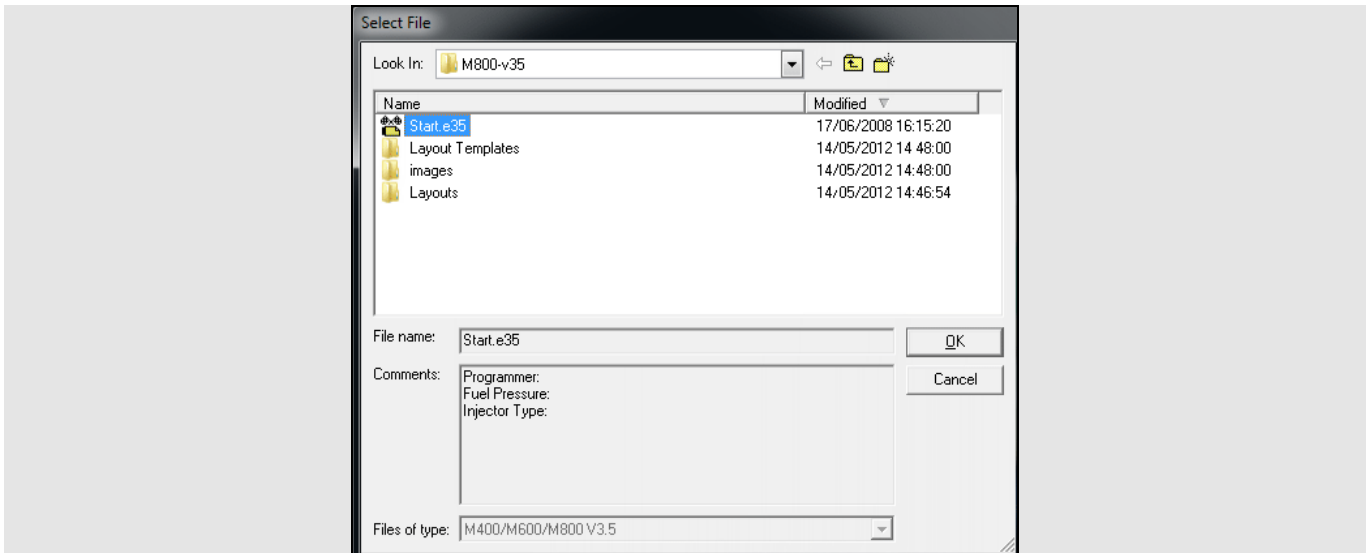
Software Setup

MoTec devices need to be set up via MoTec ECU Manager software. Run it and follow this path:

- File -> Open file

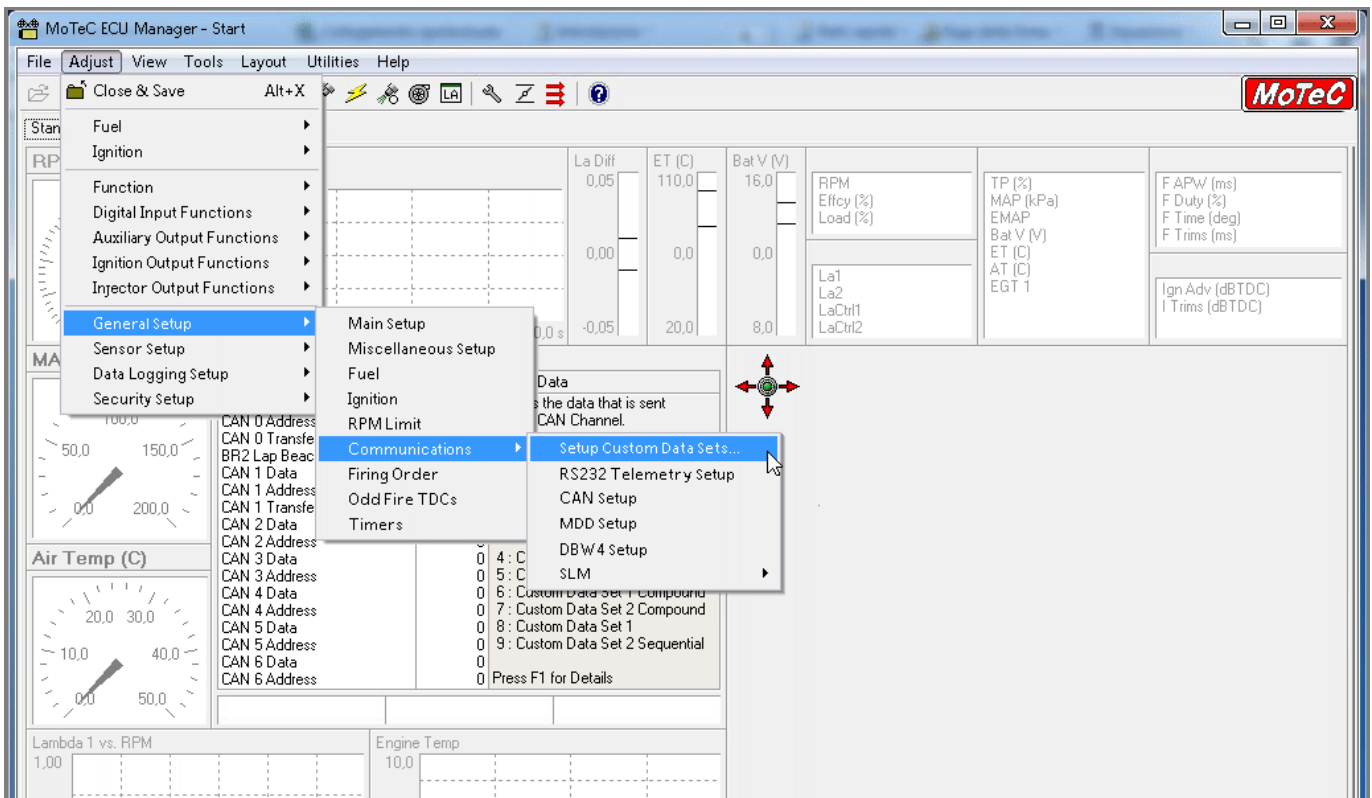


Upload the project file you already have – this file has ".e35" extension – and press "OK"

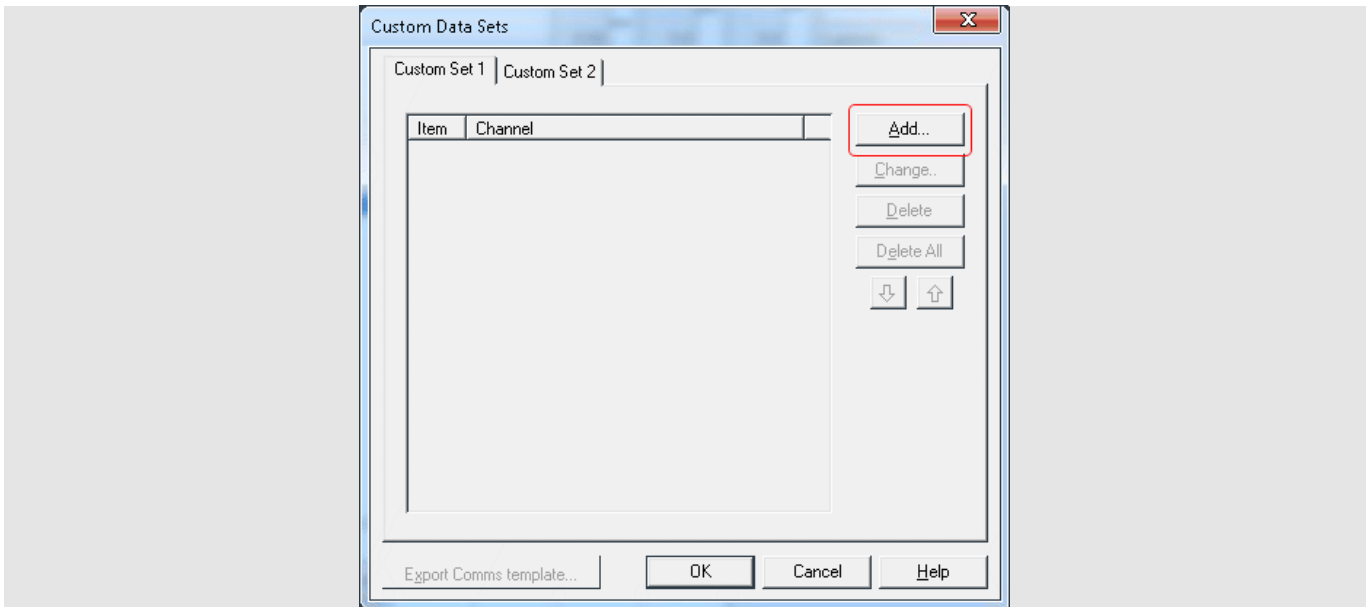


The panel below appears; follow this path:

- Adjust → General Setup → Communications → Setup Custom Data Sets...

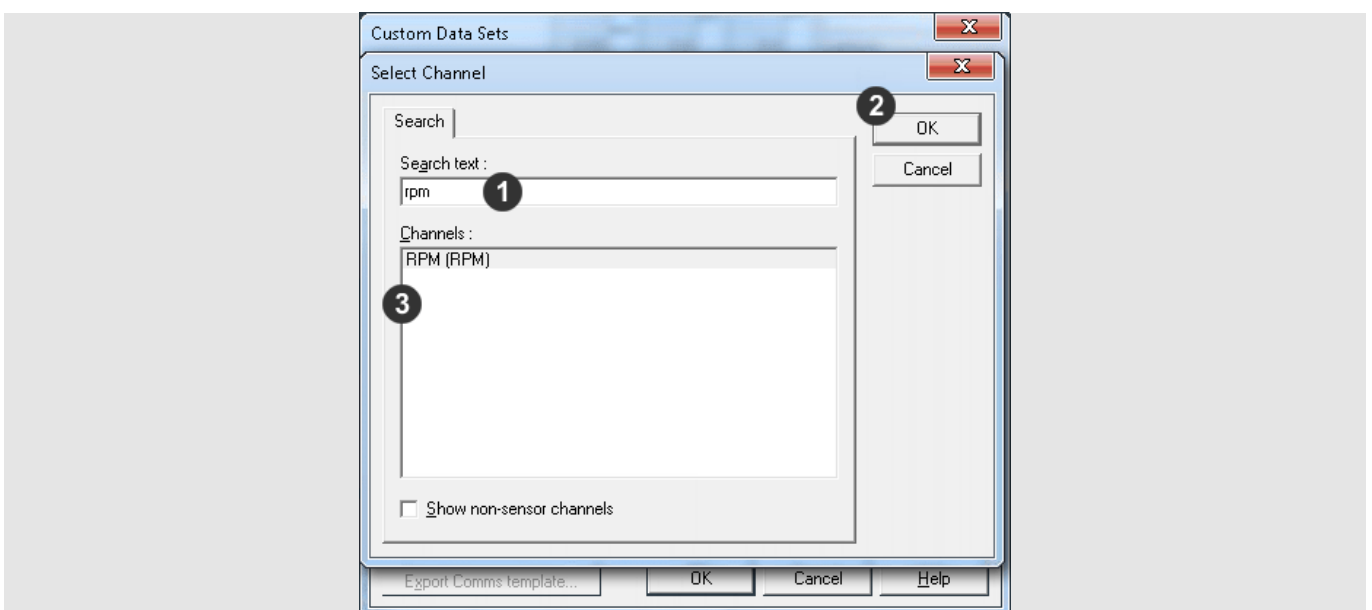


"Custom Data Sets" panel appears. It is now necessary to add all channels needed by the configuration.

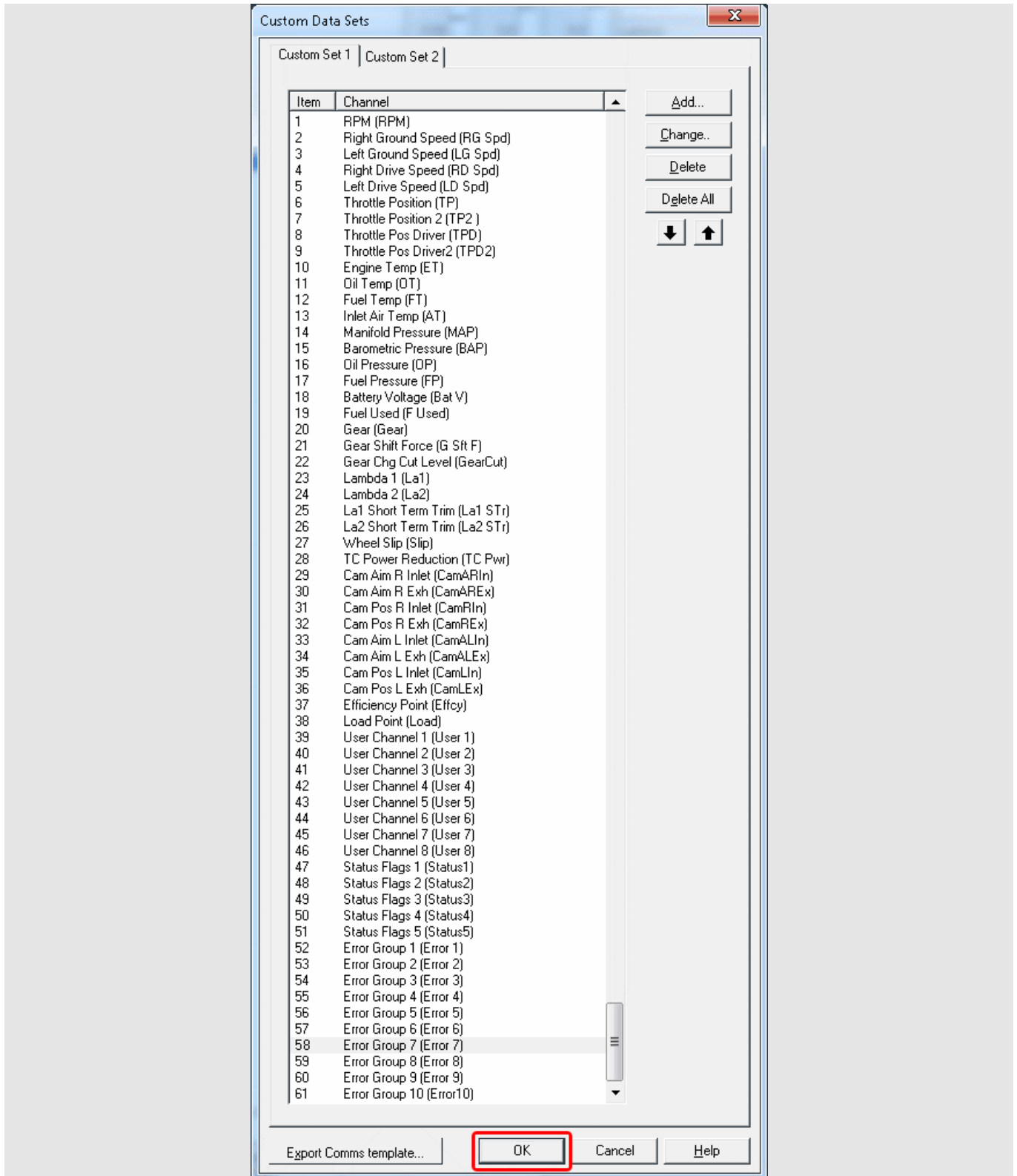


To add a channel

- press "Add" in the panel here above
- the panel below appears
- insert the channel you wish in "Search text" box (1) and press "OK" (2)
- the requested channel appears in the list (3)

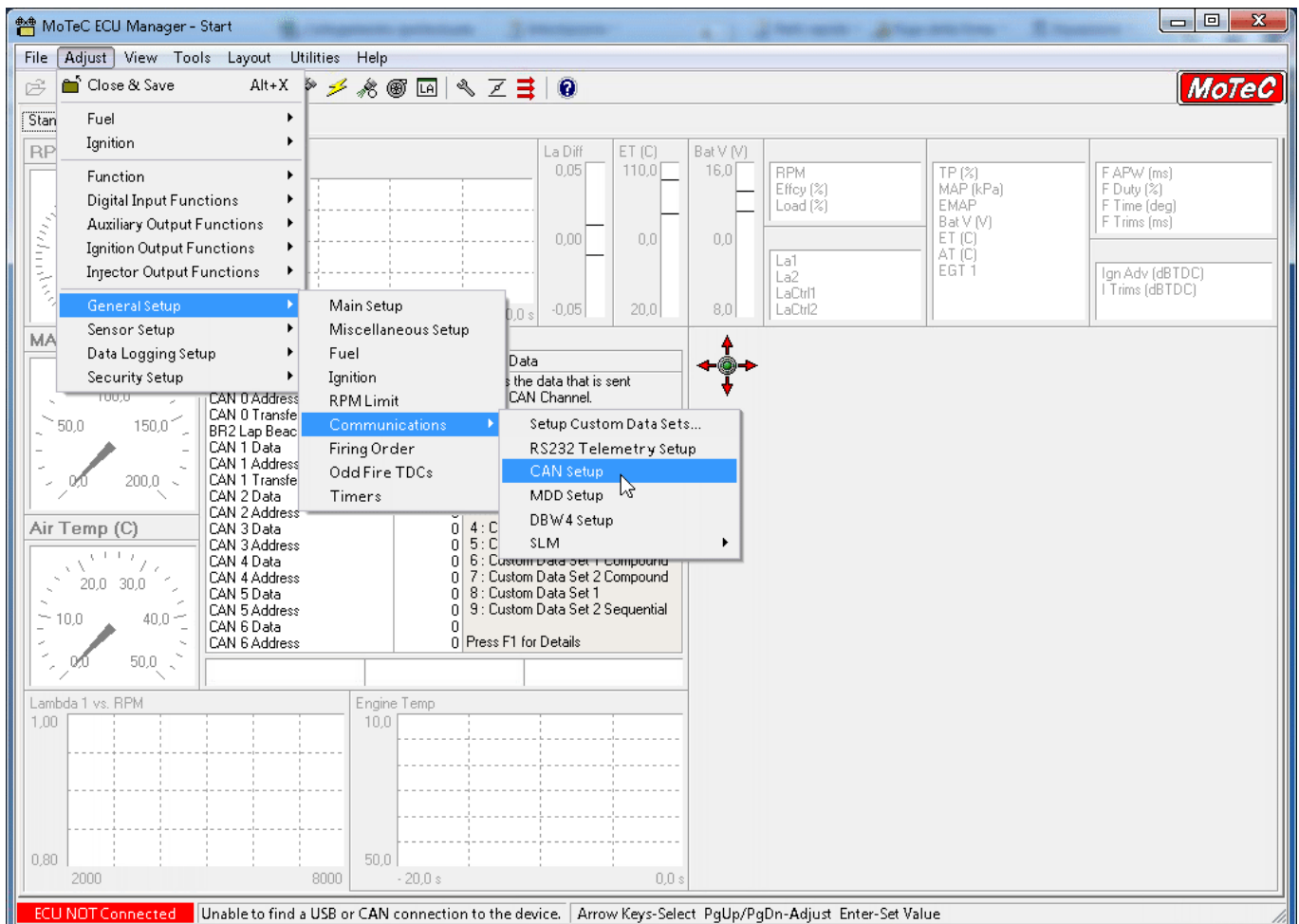


The image below shows all the channels to be added. At the end press "OK" to save and exit.



The software comes back to the main page. Follow this path:

- Adjust → General Setup → Communications → CAN Setup



The window here below appears. Three parameters are to be set:

- CAN Data
- CAN Address
- CAN Transfer Rate

You can choose CAN 0 or CAN1 line and the other two parameters are subsequent.

In the example below CAN 0 was chosen.

Start selecting the CAN line you want to use and right click on it selecting "Properties..." as shown below.

The screenshot shows the MoTeC ECU Manager software interface. The main window is titled "MoTeC ECU Manager - Start" and has a menu bar with "File", "Adjust", "View", "Tools", "Layout", "Utilities", and "Help". The interface is divided into several sections:

- Top Panel:** Contains various gauges and data fields. On the left, there is an RPM gauge (0-10 x1000) and a Lambda 1 gauge (0.70-1.10). In the center, there are fields for La Diff (0.05), ET (C) (110.0), and Bat V (V) (16.0). On the right, there are fields for RPM Effic (%), Load (%), TP (%), MAP (kPa), EMAP, Bat V (V), ET (C), AT (C), EGT 1, F APW (ms), F Duty (%), F Time (deg), and F Trims (ms).
- Middle Panel:** Contains a MAP (kPa) gauge (0.0-200.0) and an Air Temp (C) gauge (0.0-50.0). Below these is the "CAN Setup" table.
- Bottom Panel:** Contains two graphs: "Lambda 1 vs. RPM" and "Engine Temp".

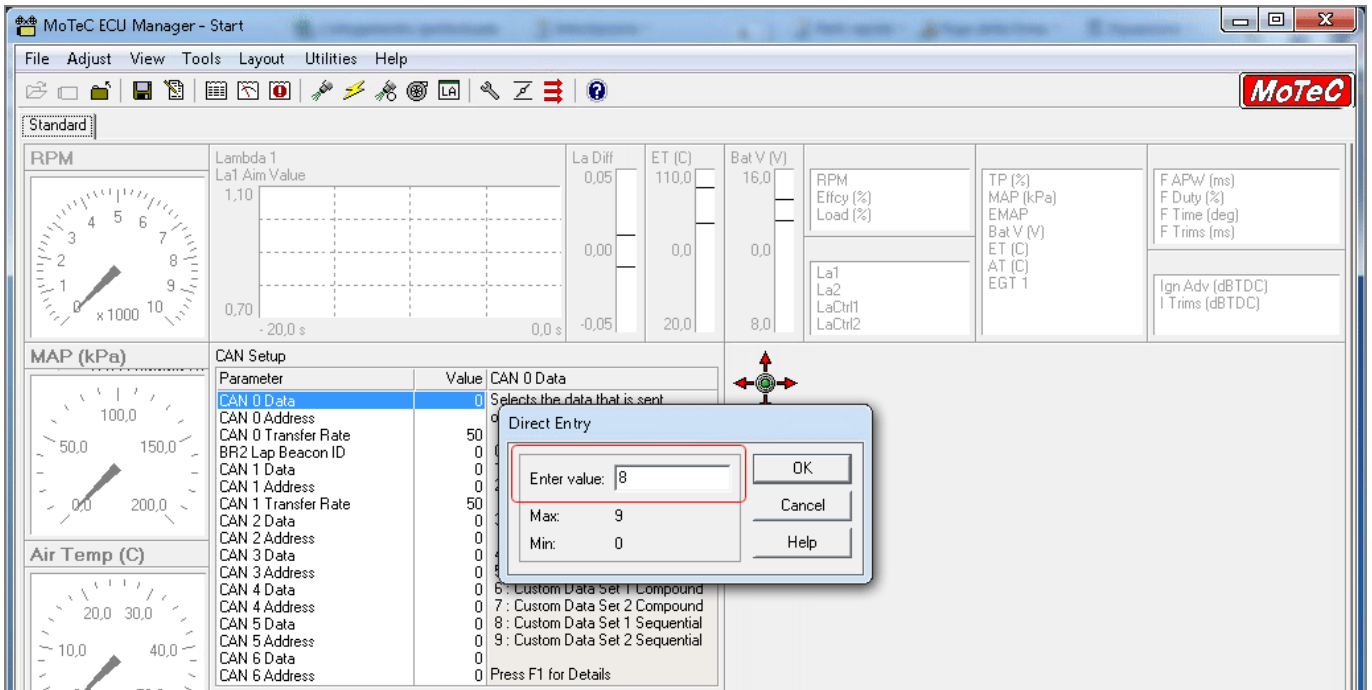
The "CAN Setup" table is the central focus, with a context menu open over the "CAN 0 Data" row. The table has two columns: "Parameter" and "Value".

Parameter	Value
CAN 0 Data	CAN 0 Data
CAN 0 Address	
CAN 0 Transfer Rate	5
BR2 Lap Beacon ID	
CAN 1 Data	
CAN 1 Address	
CAN 1 Transfer Rate	5
CAN 2 Data	
CAN 2 Address	
CAN 3 Data	
CAN 3 Address	
CAN 4 Data	
CAN 4 Address	
CAN 5 Data	0 7 : Custom Data Set 2 Compound
CAN 5 Address	0 8 : Custom Data Set 1
CAN 6 Data	0 9 : Custom Data Set 2 Sequential
CAN 6 Address	0
	0 Press F1 for Details

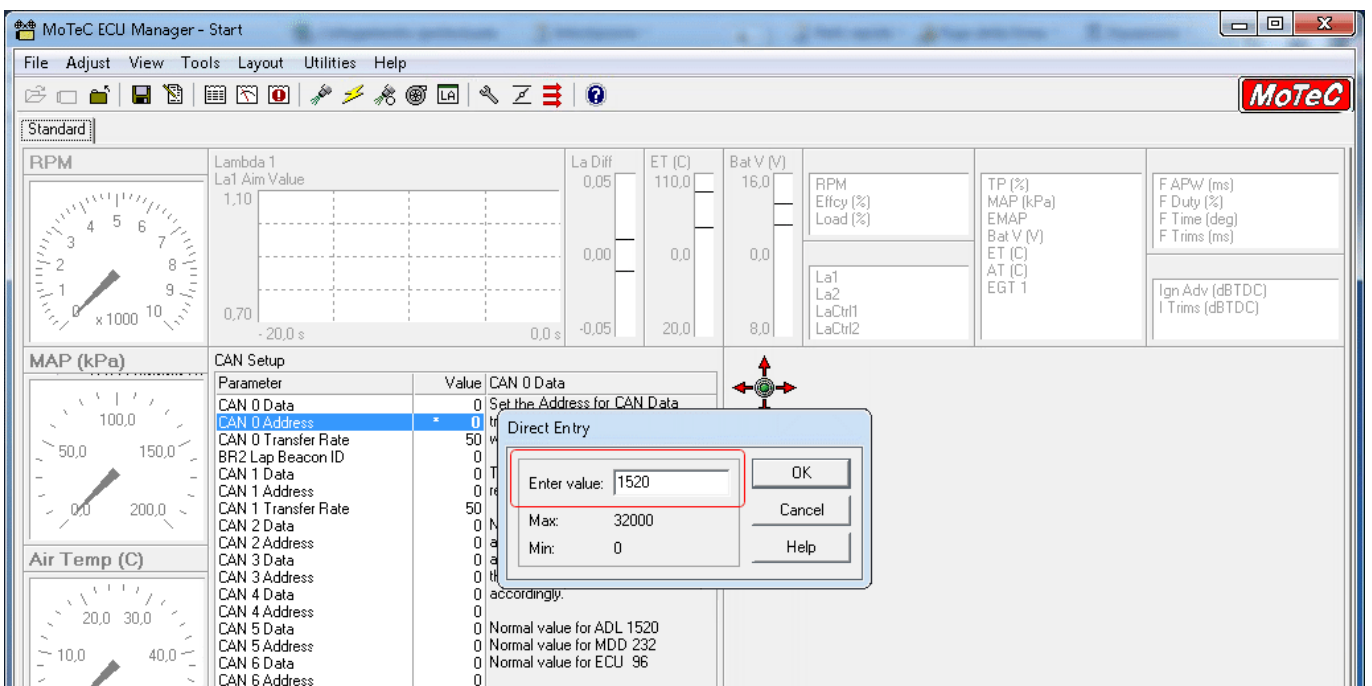
The context menu is open over the "CAN 0 Data" row, showing options: "Properties...", "Paste", "Delete", "Add...", "Bring To Front", and "Send To Back".

At the bottom of the window, a status bar displays: "ECU NOT Connected Unable to find a USB or CAN connection to the device. Arrow Keys-Select PgUp/PgDn-Adjust Enter-Set Value".

Direct Entry panel appears: fill in "8" and press "OK"



Then do the same with "CAN 0 Address": fill "Direct Entry" panel with 1520 and press "OK"



As far as "CAN 0 Transfer rate" is concerned: leave it set on 50 Hz as below.

The screenshot shows the MoTeC ECU Manager software interface. The 'CAN Setup' table is highlighted, showing the 'CAN 0 Transfer Rate' set to 50 Hz. A red box highlights the 'CAN 0 Transfer Rate' parameter, and a red arrow points to its value. A note states: 'Note: CAN transfers cannot exceed 3 combined total of 10000 channels per second. The Transfer rate specified here will be reduced if necessary to comply with this restriction. Units : Hz'.

Parameter	Value
CAN 0 Data	0
CAN 0 Address	1520
CAN 0 Transfer Rate	50
BR2 Lap Beacon ID	0
CAN 1 Data	0
CAN 1 Address	0
CAN 1 Transfer Rate	50
CAN 2 Data	0
CAN 2 Address	0
CAN 3 Data	0
CAN 3 Address	0
CAN 4 Data	0
CAN 4 Address	0
CAN 5 Data	0
CAN 5 Address	0
CAN 6 Data	0
CAN 6 Address	0

Once all parameters set transmit the configuration to your device.

2

AiM device configuration

Before connecting MoTec device 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 "CAN_CUSTOM_DATA_SET1"

3

Available channels

Channels received by AiM devices connected to "MoTec" "CAN_CUSTOM_DATA_SET1" protocol are.

ID	CHANNEL NAME	FUNCTION
ECU_1	MO_RPM	RPM
ECU_2	MO_GRD_SPEED_R	Right ground speed
ECU_3	MO_GRD_SPEED_L	Left ground speed
ECU_4	MO_DRV_SPEED_R	Right drive speed
ECU_5	MO_DRV_SPEED_L	Left drive speed
ECU_6	MO_THROT_POS	Throttle position
ECU_7	MO_THROT_POS2	Throttle position 2
ECU_8	MO_TH_POS_DRV	Throttle position driver
ECU_9	MO_TH_POS_DRV2	Throttle pos driver 2
ECU_10	MO_ENGINE_TEMP	Engine temperature
ECU_11	MO_OIL_TEMP	Oil temperature
ECU_12	MO_FUEL_TEMP	Fuel temperature
ECU_13	MO_AIR_TEMP_IN	Inlet air temperature
ECU_14	MO_MANIFOLD_PR	Manifold air pressure (MAP)
ECU_15	MO_BARO_PR	Barometric air pressure (BAP)
ECU_16	MO_OIL_PR	Oil pressure



ECU_17	MO_FUEL_PR	Fuel pressure (FP)
ECU_18	MO_BATT_ECU	Battery voltage (V Bat)
ECU_19	MO_FUEL_USED	Fuel used
ECU_20	MO_GEAR	Gear
ECU_21	MO_GEAR_SH_FOR	Gear shift force
ECU_22	MO_GEAR_CUT_LV	Gear change cut level
ECU_23	MO_LAMBDA_1	Lambda 1
ECU_24	MO_LAMBDA_2	Lambda 2
ECU_25	MO_LA_1_SH_TRM	La 1 short term trim
ECU_26	MO_LA_2_SH_TRM	La 2 short term trim
ECU_27	MO_WHEEL_SLEEP	Wheel sleep
ECU_28	MO_TC_POW_RED	Traction control power reduction
ECU_29	MO_CAMAIM_R_IN	Cam aim right inlet
ECU_30	MO_CAMAIM_R_EX	Cam aim right exhausted
ECU_31	MO_CAMPOS_R_IN	Cam position right inlet
ECU_32	MO_CAMPOS_R_EX	Cam position right exhausted
ECU_33	MO_CAMPOS_L_IN	Cam position left inlet
ECU_34	MO_CAMPOS_L_EX	Cam position left exhausted
ECU_35	MO_CAMAIM_IN	Cam aim inlet
ECU_36	MO_CAMAIM_EX	Cam aim exhausted
ECU_37	MO_CAMPOS_IN	Cam position inlet
ECU_38	MO_CAMPOS_EX	Cam position exhausted
ECU_39	MO_EFFCY_POINT	Efficiency point
ECU_40	MO_LOAD_POINT	Load point
ECU_41	MO_USER1	User channel 1
ECU_42	MO_USER2	User channel 2
ECU_43	MO_USER3	User channel 3
ECU_44	MO_USER4	User channel 4
ECU_45	MO_USER5	User channel 5
ECU_46	MO_USER6	User channel 6
ECU_47	MO_USER7	User channel 7
ECU_48	MO_USER8	User channel 8



ECU_49	MO_USER9	Status group 1
ECU_50	MO_USER10	Status group 2
ECU_51	MO_USER11	Status group 3
ECU_52	MO_USER12	Status group 4
ECU_53	MO_USER13	Status group 5
ECU_54	MO_USER14	Error group 1
ECU_55	MO_USER15	Error group 2
ECU_56	MO_USER16	Error group 3
ECU_57	MO_USER17	Error group 4
ECU_58	MO_USER18	Error group 5
ECU_59	MO_USER19	Error group 6
ECU_60	MO_USER20	Error group 7
ECU_61	MO_USER21	Error group 8
ECU_62	MO_USER22	Error group 9
ECU_63	MO_USER23	Error group 10