AiM Infotech

MoTec CAN Custom Data Set1

Release 1.00



Devices





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





Select File			
Look In:)) M800-v35	- 🔁 🖻	
Name Start Layo	<mark>e35</mark> ut Templates es uts	Modified ▼ 17/06/2008 16 14/05/2012 14 14/05/2012 14 14/05/2012 14	\$15:20 4 48:00 8:48:00 9:46:54
File name: Comments:	Start.e35 Programmer: Fuel Pressure: Injector Type:		<u>0</u> K Cancel
Files of type	, M400/M600/M800 V3.5	_	1.

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...

쒐 MoTeC ECU Manager - Start		one gamestaate	3 montesan			j Andrewson -	Suger Street Street - 1	
File Adjust View Tools La	ayout Utilities H	elp						
🖻 🖆 Close & Save	Alt+X 🏷 📂 🍂	8 🞯 🗔 🔍 1	z 😫 🛛 🕜 👘					MoTeC
Stan Fuel Ignition	+ +		La Diff	ET (C)	Bat V (V)			
Function Digital Input Functions	s •		0,05	110,0	16,0	RPM Effcy (%) Load (%)	TP (%) MAP (kPa) EMAP	F APW (ms) F Duty (%) F Time (deg)
Ignition Output Function	ons		0,00	0,0	0,0	La1 La2	ET (C) AT (C) EGT 1	Ign Adv (dBTDC)
General Setup	Main S	Setup	0.05	20,0	8,0	LaUtri1 LaCtri2		
MA Sensor Setup	 Misce 	llaneous Setup	0,0 0				!	
Data Logging Setup	 Fuel 		Data		- -			
Security Setup	 Ignitio 	n	s the data that is :	ent	, [™] .			
CAN	UAddress RPML 0 Transfe	.imit	LAN Lhannel.					
~ ^{50,0} 150,0 - BR2	Lap Beac Comr	nunications	Setup Custo	m Data Sets				
CAN	1 Address Orland	Urder	RS232 Tele	metry Setu	p ro			
200,0 CAN	1 Transfe Udd F	ire i DCs	MDD Setup					
CAN	2 Address		DBW4 Setur					
Air Temp (C) CAN	3 Data 3 Address	0 4:0	C SLM		- -			
CAN CAN CAN CAN CAN CAN CAN CAN CAN CAN	4 Data 4 Address 5 Data 5 Address 6 Data 6 Address	0 6:(0 7:(0 8:(0 9:(0 0 Pres	Custom Data Set 1 t Custom Data Set 2 (Custom Data Set 1 Custom Data Set 2 (Is F1 for Details	compound Compound Sequential				
Lambda 1 vs. RPM	Er	ngine Temp						
1,00	1	0,0						



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

Custom Data Sets
Custom Set 1 Custom Set 2
Item Channel
Change.
Delete
D <u>e</u> lete All
Export Comms template OK Cancel Help

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)

Custom Data Sets	x
Search 2 Search text : rpm 1 Channels : RPM (RPM) 3	
Show non-sensor channels	
Export Comms template OK Cancel Help	<u> </u>



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

Custom D	ata Sets		
Custom	Set 1 Custom Set 2		
	, ,		
Item	Channel		<u>A</u> dd
1	RPM (RPM)		
2	Right Ground Speed (RG Spd)		<u>C</u> hange
3	Left Ground Speed (LG Spd) Bight Drive Speed (BD Spd)		Delete
5	Left Drive Speed (LD Spd)		
6	Throttle Position (TP)		D <u>e</u> lete All
7	Throttle Position 2 (TP2) Throttle Pos Driver (TPD)		J
9	Throttle Pos Driver2 (TPD)		
10	Engine Temp (ET)		
11	Oil Temp (OT)		
12	Fuel Lemp (FL) Inlet Air Temp (AT)		
14	Manifold Pressure (MAP)		
15	Barometric Pressure (BAP)		
16	Oil Pressure (OP)		
18	Rattery Voltage (Rat V)		
19	Fuel Used (F Used)		
20	Gear (Gear)		
21	Gear Shift Force (Gi Sift F) Gear Cha Cut Level (GearCut)		
23	Lambda 1 (La1)		
24	Lambda 2 (La2)		
25	La1 Short Term Trim (La1 STr)		
26	Laz Short Term Trim (Laz STrj W/heel Slin (Slin)		
28	TC Power Reduction (TC Pwr)		
29	Cam Aim R Inlet (CamARIn)		
30	Cam Aim H Exh (CamAHEx) Cam Pos B Iplet (CamBIp)		
32	Cam Pos R Exh (CamREx)		
33	Cam Aim L Inlet (CamALIn)		
34	Cam Aim L Exh (CamALEx) Cam Bea L Islat (CamALex)		
36	Cam Pos L Exh (CamLin) Cam Pos L Exh (CamLEx)		
37	Efficiency Point (Effcy)		
38	Load Point (Load)		
39	User Channel 1 (User 1) User Channel 2 (User 2)		
40	User Channel 3 (User 3)		
42	User Channel 4 (User 4)		
43	User Channel 5 (User 5) User Channel 6 (User 5)		
45	User Channel 7 (User 7)		
46	User Channel 8 (User 8)		
47	Status Flags 1 (Status1)		
48	Status Flags 2 (Status2) Status Flags 3 (Status3)		
50	Status Flags 4 (Status4)		
51	Status Flags 5 (Status5)		
52	Error Group 1 (Error 1) Error Group 2 (Error 2)		
54	Error Group 3 (Error 3)		
55	Error Group 4 (Error 4)	_	
56	Error Group 5 (Error 5)		
5/	Error Group 6 (Error 6) Error Group 7 (Error 7)	=	
59	Error Group 8 (Error 8)		
60	Error Group 9 (Error 9)		
61	Error Group 10 (Error10)	•	
Export	Comms template OK	Cancel	<u>H</u> elp



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.







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"

File Adjust View Tools Layout Utilities Help Image: Standard Image: Standard <thimage: standard<="" th=""> Image: Standard Ima</thimage:>	📸 MoTeC ECU Manager -	Start	generate Jamena		a) 2 feet server	Anna and the State		
Standard Image: Standard in the intervalue Image: Standard intervalue Image: Sta	File Adjust View Tools Layout Utilities Help							
Standard Lambda 1 Landdard La Diff ET (C) Bat V (V) TP (2) F APW (ms) F APW (ms) 4 5 7 1.10 0.05 0.00 0.00 0.00 0.00 0.00 0.00 EMAP Bat V (V) EMAP Bat V (V) F Duty (2) F Duty (2) F Time (deg) F T	12 🗂 🖆 🖺	🎟 🕾 🔟 🎤 🥕 🦧 (🗑 🗔 🔍 Z 茸 🛛 🔞)			MoTeC	
RPM Lambda 1 La Diff ET (C) Bat V (M) FAPW (m) 1 A Aim Value 1.10 0.05 110.0 16.0 16.0 RFM 2 8 7 10.0 0.05 0.00 0.00 0.00 0.00 10.0 RFM Ref (kPa) Ref (kPa) 2 8 7 100 0.00 0.00 0.00 0.00 0.00 0.00 Ref (kPa) <	Standard							
MAP (kPa) CAN Setup Parameter Value CAN 0 Data 0 CAN 0 Data 0 CAN 0 Data 0 CAN 0 Transfer Rate 50 BR2 Lap Beacon ID 0 CAN 1 Address 0 CAN 1 Address 0 CAN 2 Address 0 CAN 1 Address 0 CAN 2 Address 0 CAN 3 Data 0 <t< th=""><th>RPM</th><th>Lambda 1 La1 Aim Value 1,10 0,70</th><th></th><th>iff ET (C) 110,0 10 0,0 1520,0</th><th>Bat V (V) 16.0 0,0 0,0 1.a1 La2 La2 LaCtrl1 La2trl2</th><th>TP (%) MAP (kPa) EMAP Bat V (V) ET (C) AT (C) EGT 1</th><th>F APW (ms) F Duty (%) F Time (deg) F Time (deg) F Tims (ms)</th></t<>	RPM	Lambda 1 La1 Aim Value 1,10 0,70		iff ET (C) 110,0 10 0,0 1520,0	Bat V (V) 16.0 0,0 0,0 1.a1 La2 La2 LaCtrl1 La2trl2	TP (%) MAP (kPa) EMAP Bat V (V) ET (C) AT (C) EGT 1	F APW (ms) F Duty (%) F Time (deg) F Time (deg) F Tims (ms)	
LAN T Data 0 r CAN 1 Address 0 r CAN 1 Transfer Rate 50 CAN 2 Data 0 n Air Temp (C) CAN 3 Address CAN 3 Address 0 a	MAP (kPa)	CAN Setup Parameter CAN 0 Data CAN 0 Address CAN 0 Transfer Rate BR2 Lap Beacon ID	Value CAN 0 Data 0 Set the Address fo 0 tr 50 tr 0 T	or CAN Data	▲			
CAN 4 Data 0 accordingly. 20,0 30,0 CAN 4 Address CAN 5 Data 0 Normal value for ADL 1520 CAN 5 Data 0 Normal value for ADL 1520	Air Temp (C)	CAN 1 Address CAN 1 Address CAN 2 Data CAN 2 Data CAN 3 Address CAN 3 Address CAN 3 Address CAN 4 Data CAN 4 Data CAN 4 Data CAN 4 Ddress CAN 5 Data CAN 5 Data	0 re Enter value: 50 Max: 0 a Min: 0 a coordingly. 0 Normal value for A 0 Normal value for A	2000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cancel Help			





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



Once all parameters set transmit the configuration to your device.



2 AiM device configuration

Before connecting AiM device to MoTec device, set it up as follows:

Run Race Studio 2 software and select:

- Device Configuration -> Select the device you are using;
- select the configuration or press "New" to create a new one;
- select ECU manufacturer "MoTec" and ECU Model "CAN_CUSTOM_DATA_SET1"
- transmit the configuration to the device pressing "Transmit".



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