

AiM Infotech

Marelli MF4 Customer Protocol

Release 1.03









1 Introduction

This tutorial explains how to connect Marelli MF4 ECU to AiM devices using a Customer Protocol. For a proper communication between AiM device and Marelli ECU a software setting is needed.

2 Software setting

To properly set Marelli MF4 ECU run Marelli "Vision" software and follow carefully these instructions.

• Click: "Map -> Map files (.PTA)





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Dir

Write

Read

"ReadWrite Map (PTA) File" window appears:

Click: "Edit"

"PTA table" window appears:

scroll it and double click on "CAN LINK"

MAPPA MOTORE MAPPA MOTORE MAPPA MOTORE MAPPA MOTORE MAPPA MOTORE MAPPA MOTORE

 SRA-E
 ProTeam_Static_Correction_Pat1_1_II
 B

 SRA-E
 ProTeam_Static_Correction_Pat1_m0I
 B

 SRA-E
 ProTeam_Static_Correction_Pat1_m0I
 B

 SRA-E
 ProTeam_Static_Correction_Pat1_m12I
 B

 SRA-E
 ProTeam_Static_Correction_Pat1_m2I
 B

 SRA-E
 ProTeam_Static_Correction_Pat1_mauro
 B

 SRA-E
 ProTeam_Static_Correction_Pat1_mauro
 I

 SRA-E
 ProTeam_Static_Correction_Pat1_mauro
 2

 SRA-E
 ProTeam_Static_Correction_Pat1_mauro
 3

 SRA-E
 ProTeam_Static_Correction_Pat1_mauro
 3

 SRA-E
 ProTeam_Static_Correction_Pat1_mauro
 4

 SRA-E
 ProTeam_Static_Correction_Pat1_mauro
 6

 SRAE
 ProTeam_Static_Correction_Pat1_mauro
 6

 SRAE
 ProTeam_Static_Correction_Pat1_mauro E dit... Bin Bin MAPPA MOTORE Bin MAPPA Bin Compare.. MAPPA MAPPA MAPPA Bin Bin Bin Print 5 Bin MAPPA 6 Bin MAPPA MAPPA MOTORE PROTEA Content.. SRAE 304 CUSTOMER ITALIE SOFT V TEC304 CUSTOM Bin Append Msg: << Details Ext. Tools Exit Verify Off 🖁 PTA table: C:\Programmi\vision\SRA-E ProTeam_Static_Correction_Pat1_mauro_2.PTA 👘 🔲 🔲 🔀 Table Header er Comr Reference Enab Sz Title => TEMPERATURE: FUEL GROUP GROUP GROUP GROUP => TEMPERATURE: OIL => TEMPERATURE: WATER => THERMOCOUPLES => ROTARY SWITCHES GROUF ----> BATTERY VOLTAGE GROUP =000000

. GROUE

GROUF

GROUF

GROUF

EE.Lim.kill

UNIT Offset Addr.

=000000 =000000 =000000

F<u>i</u>nd

MAPPA MOTORE PROTEAM MAPPA MOTORE PROTEAM

Bin

MAPPA MOTORE PROTEA MAPPA MOTORE PROTEA MAPPA MOTORE PROTEA

Bin Bin

Read_02_06_07_modd_3_st_1 Bin MAPPA MOTORE PROTEA Read_02_06_07_modd_3_st_1 Bin MAPPA MOTORE PROTEA SRA-E ProTeam Bin MAPPA MOTORE PROTEAM SRA-E ProTeam_Static_Correction_Pat1_1 Bin MAPPA MOTORE SRA-E ProTeam_Static_Correction_Pat1_1_II Bin MAPPA MOTORE

ReadWrite Map (PTA) File

Read_02_06_07_mod_last Bin Read_02_06_07_modd_2 Bin Read_02_06_07_modd_2_st_1 Read_02_06_07_modd_2_st_1 Read_02_06_07_modd_3_st_0

List

17 - COMMUNICATIONS

==> CAN LINK

LABELS

=> DASHBOARD => VISION

Kill Switch for the Dyno

E2 Start Addr.(*.TAB) 400000

Directory *.PTA: C:\Programmi\vision

"PTA table" sub-window appears:

double click "CAN IDs" •

PTA table: C:\Programmi\	vision\SRA-E ProTe	am_Static_Corr	ection_Pat1_mauro_2.PTA	
Header Comment		C Heade <u>r</u>	Table	
3 possible CAN IDs. CAUTION : HEXADECIMAL format. Note: selection of the CAN line with '	"Data acquisition CAN lir	ne''		
Title	Reference	Enab.	Sz	
==> CAN LINK				
DATA ACQUISITION		?	=00	
Data acquisition CAN line	EE.CanU.Acquisi	×	=00	
Frequencies Repartition Table	EE.SizeFreqTele	×	1x8x1	
Data Elements Table	EE.TelemTable	X	4x32x1	
		?	=00	
EXPANSION MODULES		?	=00	
Selection module present on CAN	EE.CanExpMod.	×	1x15x1	
Expansion modules CAN line	EE.CanU.Expans	×	=00	
· ·		?	=00	
PROG. CAN PACKETS		?	=00	
CAN IDs	EE.CanU.IdUser	×	3x1x1	
CAN packets definition	EE.CanU.tbl_US	×	4x3x1	
E2 Shark Adda (K TAB) (400000				



"Edit table" sub-window appears:

- fill in the following values:
 - o column (1): 280
 - o column (2): 284
 - o column (3): 288
- close the window

The system comes back to "PTA table" window:

• scroll it and double click on "CAN LINK"

"PTA table" sub-window appears:

• double click on "CAN packets definition"

 Edit Table C:\Programmi\vision\SRA-E ProTeam_Static_Correction_Pat1_

 Comment
 3 possible CAN IDs. CAUTION : HEXADECIMAL format. Note: selection of the CAN line with "Data acquisition CAN line"

 1,1,1
 (1)
 (2)
 (3)

 (1)
 0280
 0284
 0288

📲 PTA table: C:\Programmi	vision\SRA-E Pr	oTeam_Static_Corre	ction_Pat1_mauro_2.PTA	
Header Comment		C Header	Table	
Title	Reference	Enab.	Sz	
==> TEMPERATURE: FUEL		GROUP		~
==> TEMPERATURE: OIL		GROUP		
==> TEMPERATURE: WATER		GROUP		
==> THERMOCOUPLES		GROUP		
==> ROTARY SWITCHES		GROUP		
==> BATTERY VOLTAGE		GROUP		
		?	=000000	
17 - COMMUNICATIONS		GROUP		
==> CAN LINK		GROUP		
==> DASHBOARD		GROUP		
==> VISION		GROUP		
		?	=000000	
Kill Switch for the Dyno	EE.Lim.kill	×	=00	
		?	=000000	
LABELS		GROUP		~
E2 Start Addr.(*.TAB) 400000	<u>U</u> NIT Offset	Addr. 0	FIND	

PTA table: C:\Drogrammi\v	rision\SPA_F DroTo	am Static Corr	ection Dat1 mauro 2 DTA	
Header Comment		C Header	• Table	
Definition of the CAN packet for each	n ID (freg = 50Hz)	< ricodoj	- Table	
CAUTION : HEXADECIMAL format.				
Title	Reference	Enab.	Sz	
==> CAN LINK				
DATA ACQUISITION		?	=00	
Data acquisition CAN line	EE.CanU.Acquisi	X	=00	
Frequencies Repartition Table	EE.SizeFreqTele	×	1x8x1	
Data Elements Table	EE.TelemTable	×	4x32x1	
		?	=00	
EXPANSION MODULES		?	=00	
Selection module present on CAN	EE.CanExpMod.	×	1×15×1	
Expansion modules CAN line	EE.CanU.Expans	X	=00	
		?	=00	
PROG. CAN PACKETS		?	=00	
CAN IDs	EE.CanU.IdUser	X	3x1x1	
CAN packets definition	EE.CanU.tbl_US	×	4x3x1	
×				
E2 Start Addr.(*.TAB) 400000	UNIT Offset Addr	0	FIND	

Edit Table C:\Programmi\vision\SRA-E ProTeam_Static_Correction_Pat1_ma					
Comment Definition of the CAN packet for each ID (freq = 50Hz) CAUTION : HEXADECIMAL format. Unit:					
4,3,1	(1)	(2)	(3)	(4)	
0280	00000000	00000001	00000002	00000007	1
0284	00000006	00000005	00000059	00000011	
0288	00000009	00000012	00000049	00000010	

"Edit table" window appears again:

- fill in the following values:
 - o row 0280: 0,1,2,7
 - o row 0284: 6, 5,59 11
 - o row 0288: 9, 12, 49, 10
- close the window

 \mathbf{X}

>

Save Cancel

ro_2.PTA

-



"PTA table" window appears:

• close it using the top right cross

roTeam_Static_Correction_Pat1_mauro_2.PTA	
O Header 💿 Table	

Vision Windows Application

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File name:

"Vision Windows Application" window appears asking to save changes:

• click "Yes"

"Save as" window appears:

- select destination folder;
- fill in file name
- press "Save"

"ReadWrite Map (PTA) File" window appears:

• click "Exit"

Si	No Annulla
Save As	
Save in: 🗀 vision	
Can1Tx_SU20_090212.pta Can1Tx_SU20_090212.pTA Config francese bin.PTA Config francese bin_1.PTA Config francese bin_1.PTA dd.pta	⊠ OUH,pta ⊠ Mappa_Base_SRA- ⊠ Mappa_Base_SRA- ⊠ Mappa_Base_SRA- ⊠ Mappa_Base_SRA- ⊠ Mappa_Base_SRA-

SRA-E ProTeam_Static_

Save as type: Binary table files(*.pta)

Save changes to C:\Programmi\vision\SRA-E ProTeam_Static_Correction_Pat1_mauro_2.PTA

ReadWrite Map (PTA) File	×
List: Directory *.PTA: C:\Programmi\vision	Dir
Read_02_06_07_modd_2_st_1 Bin MAPPA MOTORE PROTEA Read_02_06_07_modd_3_st_0 Bin MAPPA MOTORE PROTEA Read_02_06_07_modd_3_st_1 Bin MAPPA MOTORE PROTEA SPATE_07_modd_3_st_1 Bin MAPPA MOTORE PROTEA	Write
SRA-E ProTeam Bin MAPPA MOTORE PHOTEAM SRA-E ProTeam Static_Correction_Pat1 Bin MAPPA MOTORE SRA-E ProTeam Static Correction Pat1 1 Bin MAPPA MOTORE	Read
SRA-E ProTeam_Static_Correction_Pat1_1_II Bin MAPPA MOTORE SRA-E ProTeam_Static_Correction_Pat1_m Bin MAPPA MOTORE SRA-E ProTeam_Static_Correction_Pat1_m-01 Bin MAPPA MOTORE	New
SRA-L ProTeam_Static_Correction_Pat1_m_21_Bin MAPPA MUTURE SRA-E ProTeam_Static_Correction_Pat1_mauro_Bin MAPPA MUTURE SPA E ProTeam_Static_Correction_Pat1_mauro_BinMAPPA	E dit
SRA-E ProTeam_Static_Correction_Pat1_mauro_2 Bin MAPPA SRA-E ProTeam_Static_Correction_Pat1_mauro_2 Bin MAPPA SRA-E ProTeam_Static_Correction_Pat1_mauro_3 Bin MAPPA SRA-E ProTeam_Static_Correction_Pat1_mauro_4 Bin MAPPA	Compare
SRA-E ProTeam_Static_Correction_Pat1_mauro_5 Bin MAPPA SRA-E ProTeam_Static_Correction_Pat1_mauro_6 Bin MAPPA SRA-E ProTeam_Static_Corrections_BinMAPPA_MOTORE PBOTE4	Print
SRAE_304_CUSTOMER_ITALIE Bin SOFT V_TEC304 CUSTOM SRAE_T59 Bin SRAE_59 · Base SRAE Calibration · RPM/TPS mapping	Content
Msg:	Append
	<< Details
	Ext. Tools
Venity Off	Exit





The software comes back the main page:

• click "Tx" icon on the top toolbar and transmit the configuration to the ECU

ile View Edit Link Map Tools Inf	o Pages Window	
	- <u>Bi ! A!</u>	
		4

3 Connection to AiM devices

Marelli MF4 ECU features a bus communication protocol based on CAN on the 55 pins front male connector. Here below you see connector pinout on top and connection table on bottom.



55 pins Deutsch connector pin	Pin function	AiM cable
q	CAN High	CAN+
r	CAN Low	CAN-
K, L, e, f	GND	GND
U, n	V Battery	9-15 VDC



4 AiM device configuration

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

- ECU manufacturer "MARELLI"
- ECU Model "CustomerProtocol"

5 Available channels

Channels received by AiM devices connected to "MARELLI" "CustomerProtocol" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	MAR_RPM	RPM
ECU_2	MAR_THROTTLE	Throttle position sensor
ECU_3	MAR_MANIFOLD_PRESSURE	Manifold air pressure
ECU_4	MAR_AIR_T	Intake air temperature
ECU_5	MAR_WATER_T	Engine coolant temperature
ECU_6	MAR_OIL_P	Oil pressure
ECU_7	MAR_GEAR	Engaged gear
ECU_8	MAR_BATTERY	Battery supply
ECU_9	MAR_CONSUMPTION	Fuel consumption
ECU_10	MAR_KLAMBDA	Lambda value
ECU_11	MAR_DIAG	Diagnostic
ECU_12	MAR_GEAR_POS	Gear position