MARELLI SRA Customer protocol ECU

Racing Data Power

INTRODUCTION

AIM has developed special applications for many of the most popular ECUs; by special applications we mean user-friendly systems which allow to easily connect your ECU to our high tech data loggers: user needs only to install harness between the **logger** and the ECU.

Once connected, the logger displays (and/or records, depending on the logger and on the ECU data stream and configuration) values like RPM, engine load, throttle position (TPS), air and water temperatures, battery voltage, speed, gear, lambda value (air/fuel ratio) analog channels…

All AIM loggers include – free of charge – **Race Studio 2** software, a powerful tool to configure the system and analyze recorded data on your PC.

Warning: once the ECU is connected to the logger, it is necessary to set it in the logger configuration in Race Studio 2 software.
Select Manufacturer "Marelli" Model "Customer protocol".
Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.

Warning: it is always suggested to verify if the ECU needs any software/firmware setting or upgrade to export data to an external logger.

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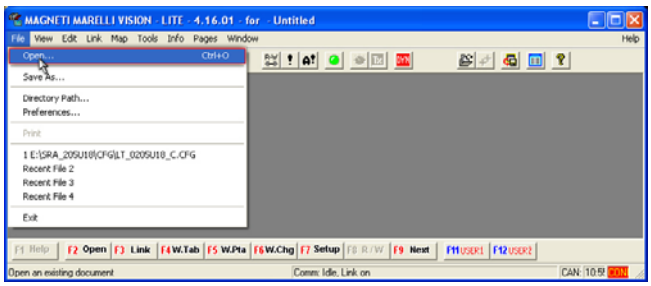
Chapter 1 – Software settings

For Marelli SRA to correctly communicate with AIM loggers it is necessary to set the ECU via software using Marelli "Vision" software. This way the ECU will communicate using a protocol called customer because it fits more ECU.

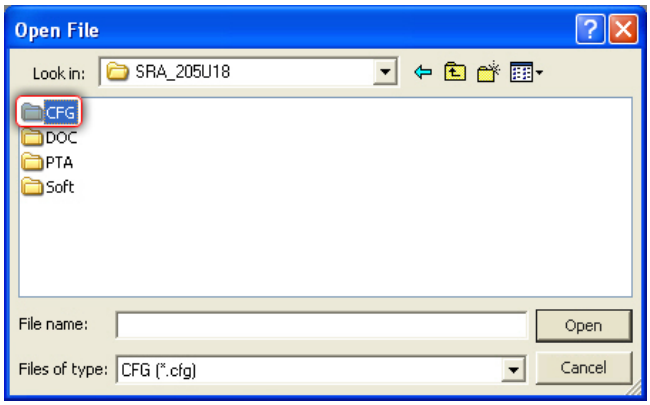
First of all run Marelli "Vision" software.

Press "File" on the menu bar and select "Open" option as shown here on the right.

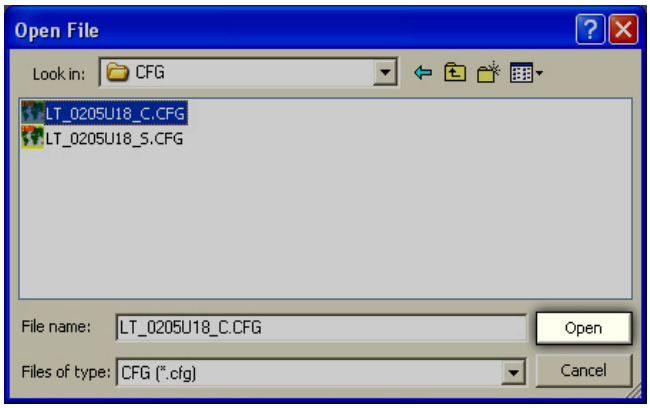


"Open file" window appears.

Browse the CD and select "SRA_xxxxxx" folder and then "CFG" folder.

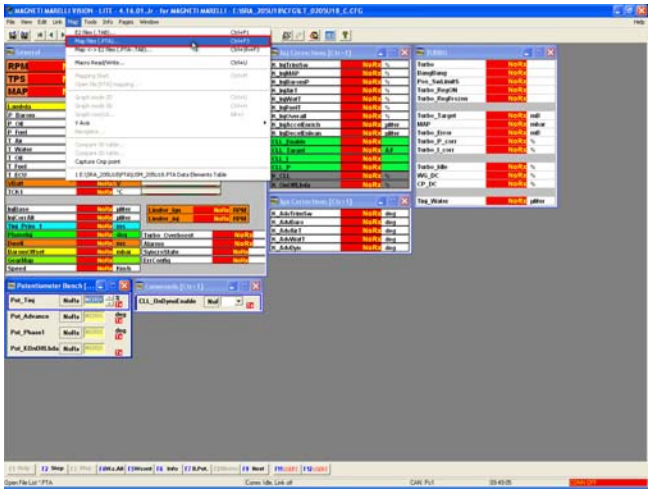


Select the configuration to open and click "Open"



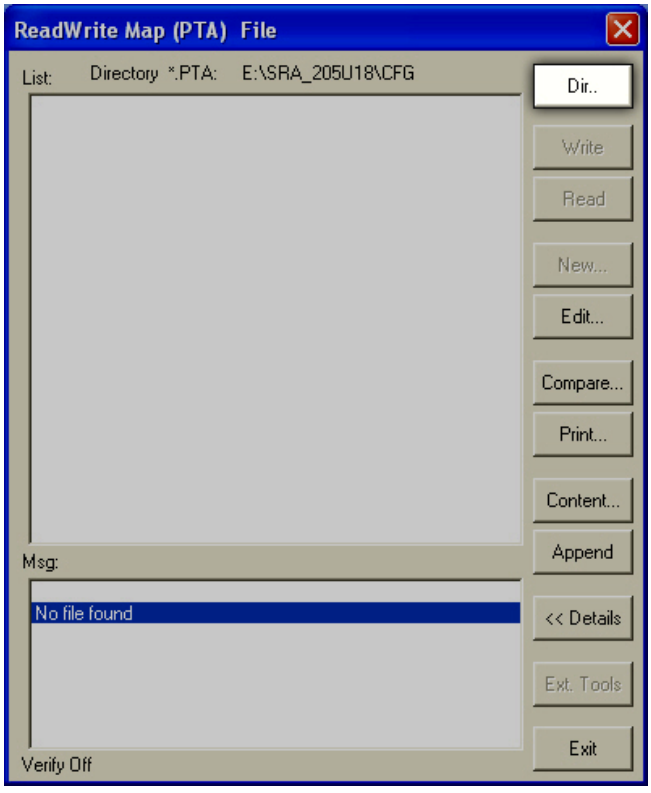
Vision software main window appears.

Click “Map” on the menu bar and select “Map files (PTA)..” option as shown here on the right.



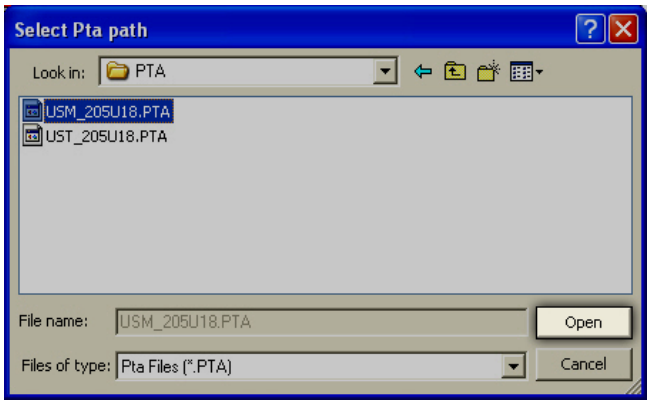
“ReadWrite Map (DTA) File” window appears.

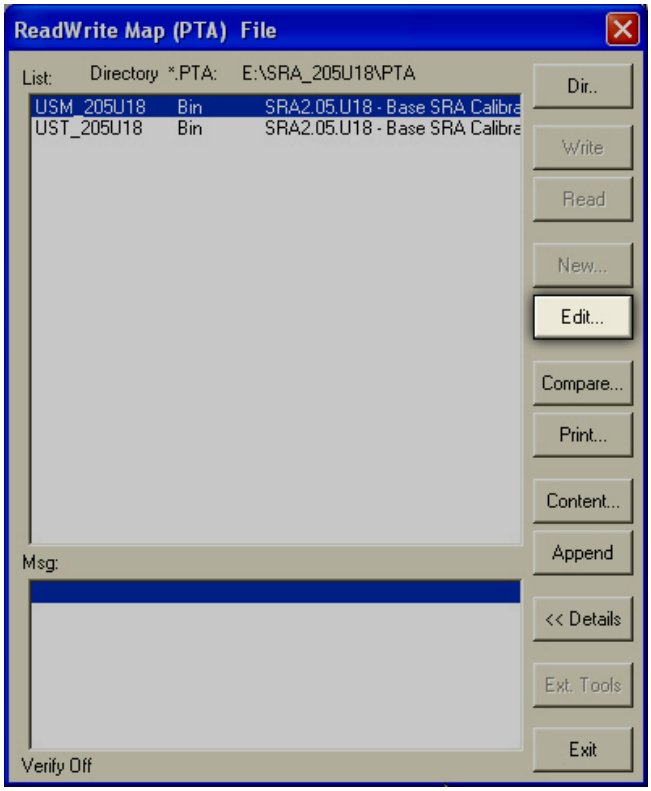
Click “Dir…”.



“Select PTS path” window appears.

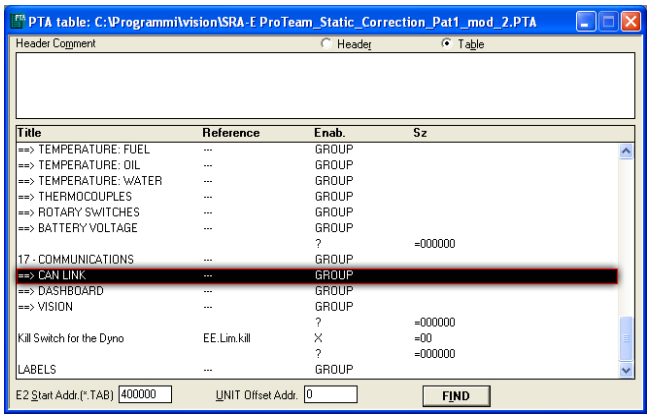
Select the file to open and click “Open”.





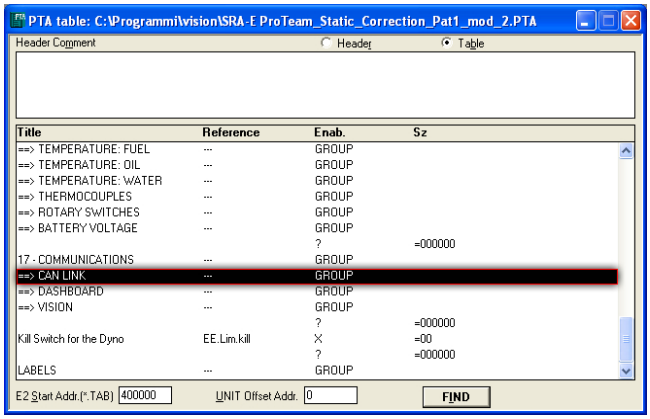
"ReadWrite Map (DTA) File" window appears.

Click "Edit…".



"PTA Table" window appears.

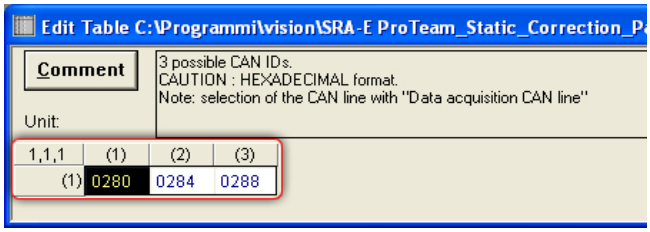
Scroll it and select "CAN LINK" option.



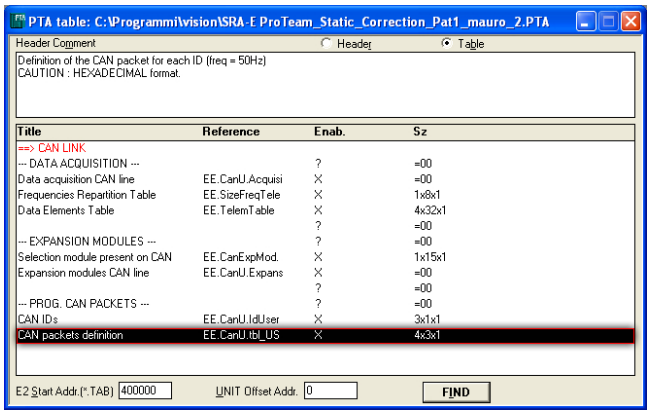
Double click on "CAN IDs" option.

"Edit Table" window appears. Insert the following values:

- column (1): 280;
- column (2): 284;
- column (3): 288.



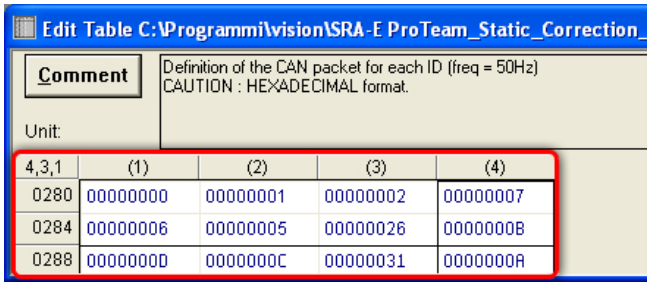
Double click on "CAN packets definition" voice.



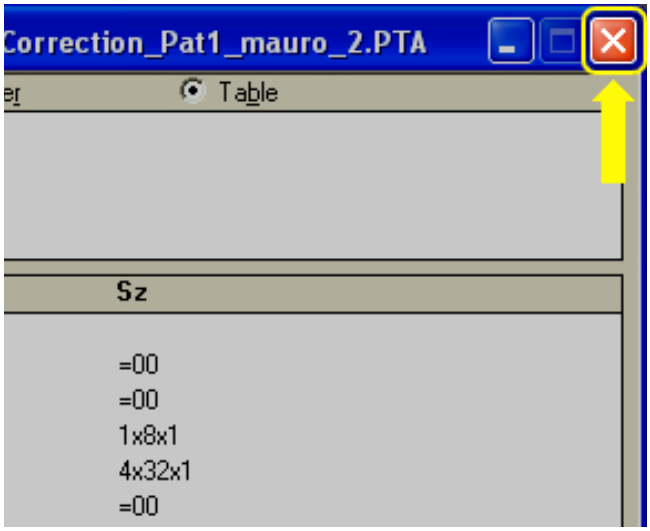
"Edit Table" window appears again. Fill in these values:

- row 0280: 0, 1, 2, 7;
- row 0284: 6,5,26,B;
- row 0288: D, C, 31, A.

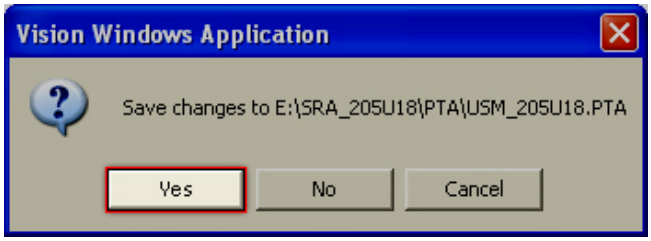
Close the window.



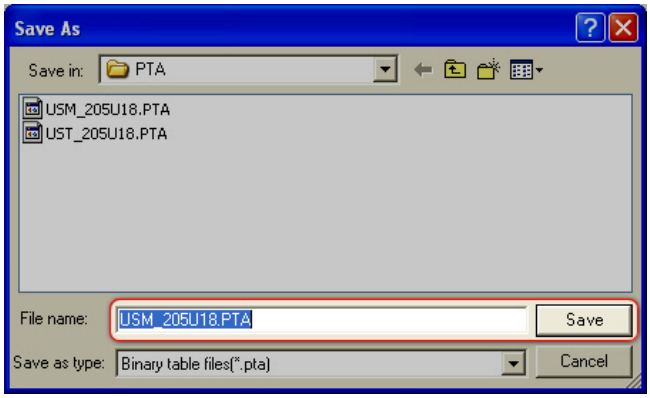
The system comes back to the previous window. Close it clicking on the top right red cross.



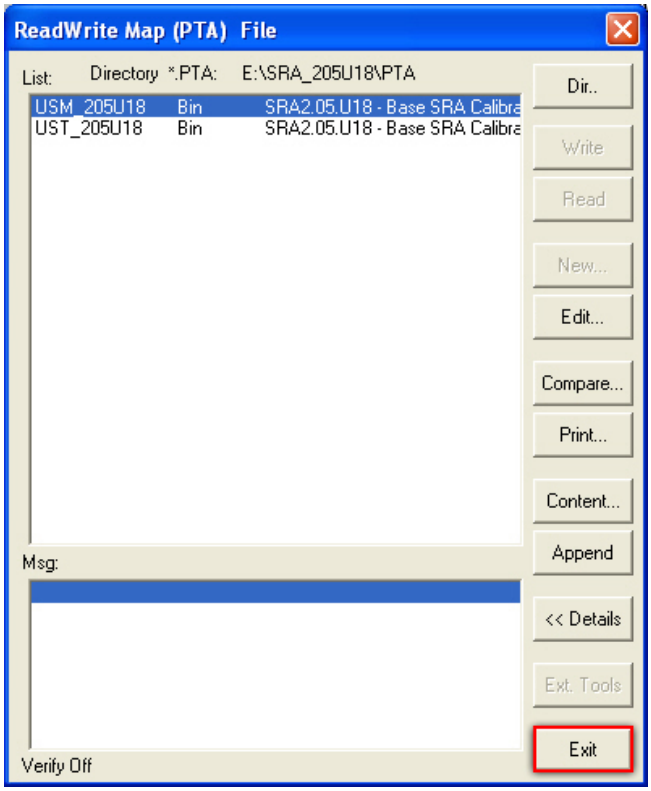
"Vision Application window" appears, asking to save changes. Click "Yes".



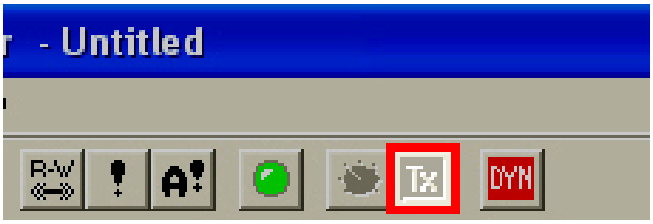
"Save as" window appears. Fill in file name, select file destination folder and click "Save".



"Read Write Map (PTA) file" window appears again. Click "Exit".



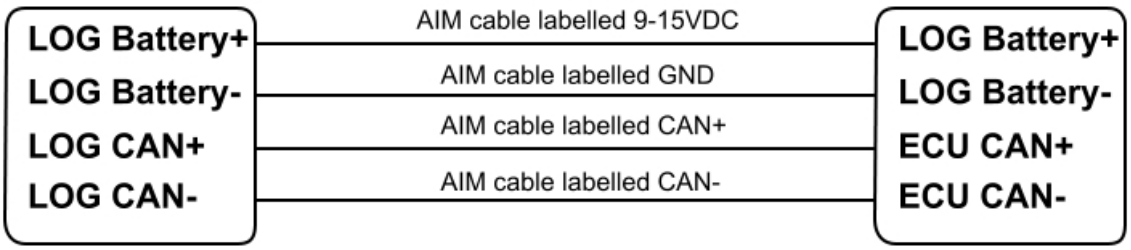
Click "Tx" button on the toolbar to transmit the configuration to the ECU.



Warning: when transmission is over it is possible to connect Marelli SRA ECU to AIM logger using the preferred CAN channels. AIM suggests to use CAN1.

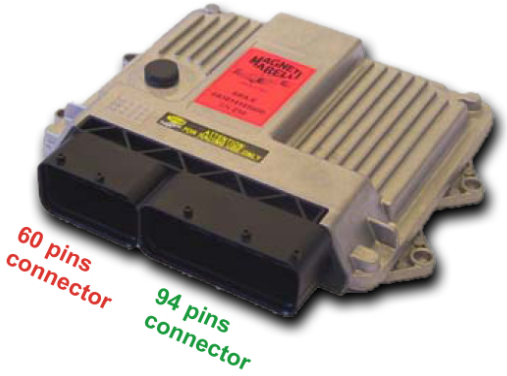
Chapter 2 – Marelli CAN Communication setup

Magneti Marelli SRA ECU is equipped with a CAN communication setup used to communicate parameters to an external logger and shown here below.



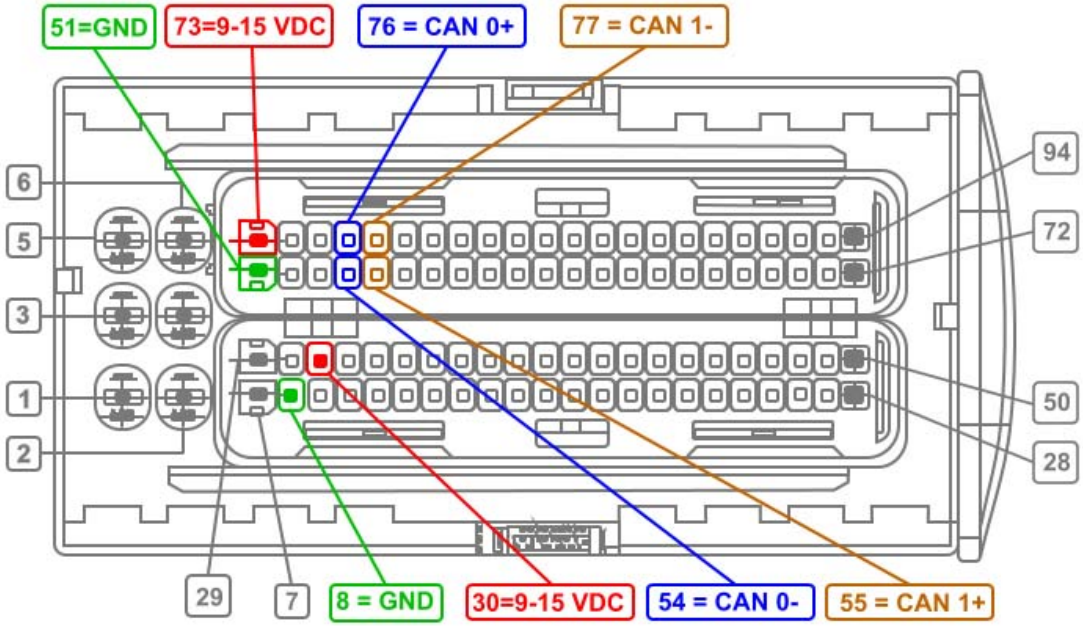
Chapter 3 – Connection with AIM loggers

Magneti Marelli SRA ECU is equipped with two front connectors a 60 pins connector and a 94 pins one shown here below.



The connector used to connect Magneti Marelli SRA ECU to AIM logger is the 94 pins one.

With reference to the image here below, to connect Marelli ECU to an AIM logger it is possible to use both CAN0 and CAN1, though AIM suggests to use CAN1.



To connect Magneti Marelli SRA ECU to AIM loggers using CAN1:

- connect AIM cable labelled CAN+ to pin 55 (CAN1+) of the 94 pins connector;
- connect AIM cable labelled CAN- to pin 77 (CAN1-) of the 94 pins connector;
- connect AIM cable labelled GND to pin 8 or 51 (Battery negative pole) of the 94 pins connector;
- connect AIM cable labelled 9-15 VDC to pin 30 or 73 (Battery positive pole) of the 94 pins connector

To connect Magneti Marelli SRA ECU to AIM loggers using CAN0:

- connect AIM cable labelled CAN+ to pin 76 (CAN0+) of the 94 pins connector;
- connect AIM cable labelled CAN- to pin 54 (CAN0-) of the 94 pins connector;
- connect AIM cable labelled GND to pin 8 or 51 (Battery negative pole) of the 94 pins connector;
- connect AIM cable labelled 9-15 VDC to pin 30 or 73 (Battery positive pole) of the 94 pins connector

Chapter 4 – SRA Customer Protocol communication protocol

Channels received by AIM loggers connected to Magneti Marelli SRA Customer Protocol ECU 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	Water 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