MARELLI MF4 Customer protocol ECU

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.
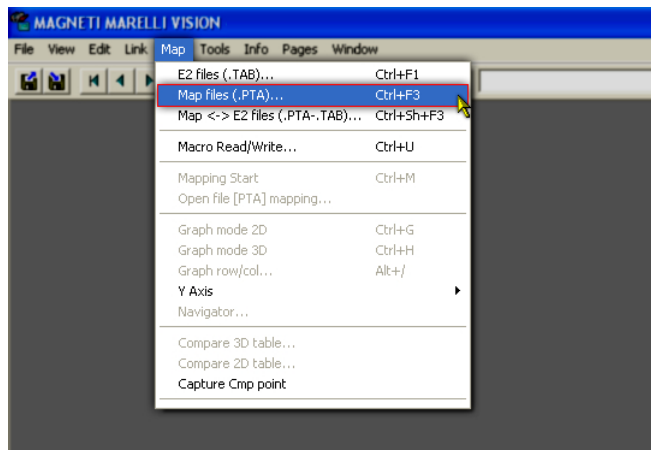
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Chapter 1 – Software settings

For Marelli MF4 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.
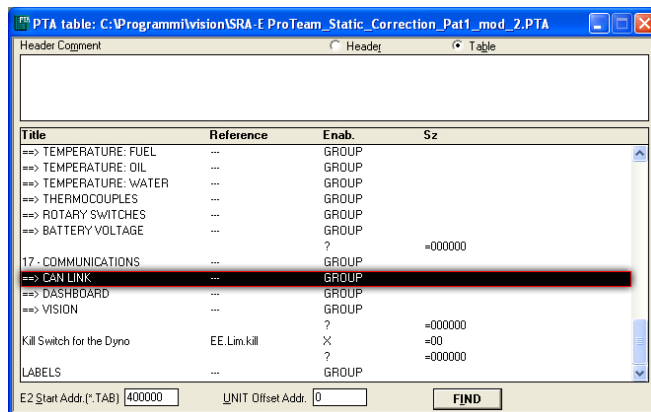
First of all run Marelli Vision software.

Click "Map" on the menu bar and select "Map files (PTA)…"
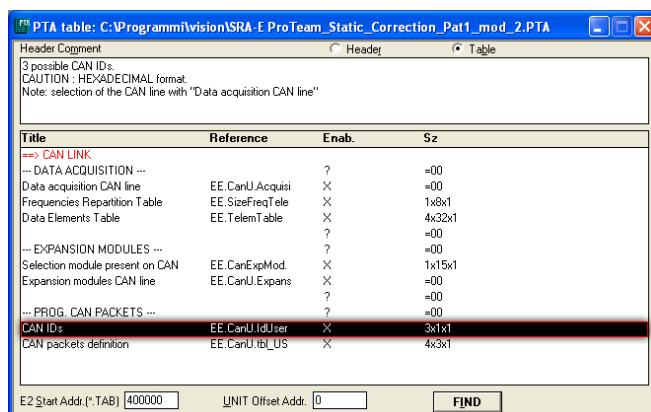
"ReadWrite Map (PTA) File" window appears. Click "Edit".
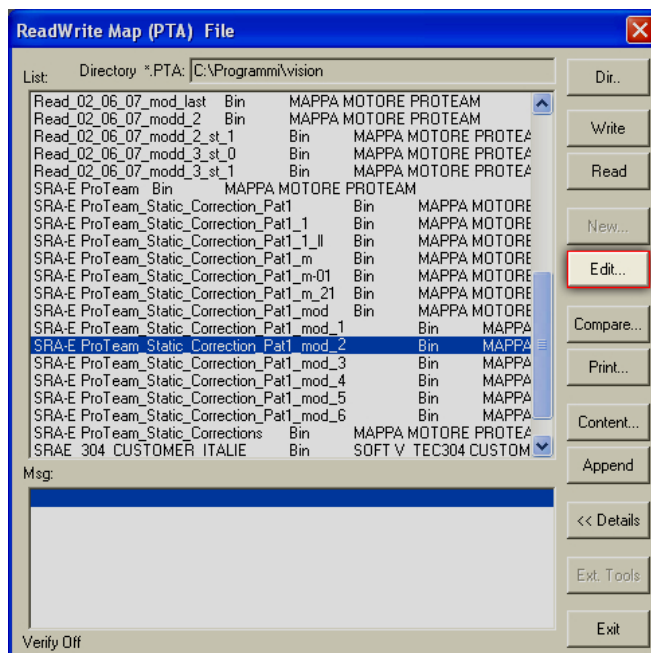
"PTA table" window appears; scroll it and double click on "CAN LINK" option.

"PTA table" sub window, shown here on the right, appears.

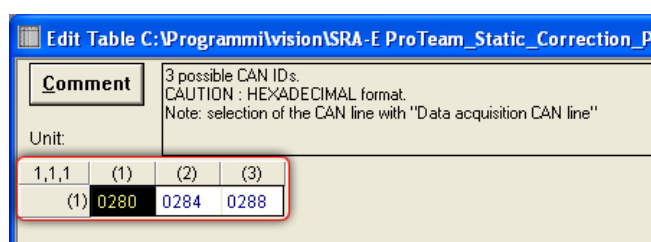Double click on "CAN IDs" option

"Edit Table" window appears. Fill in the following values:

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

and close the window

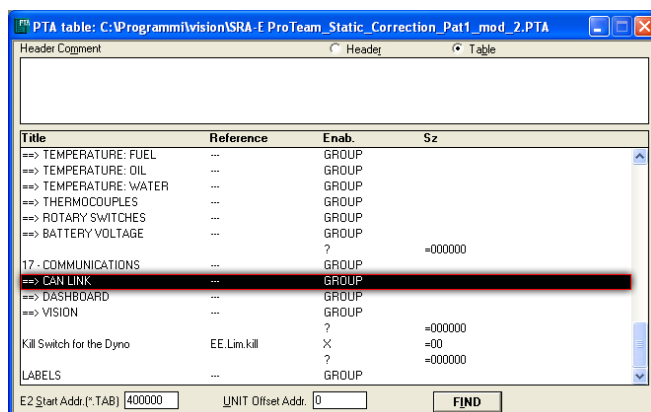The system comes back to "PTA table" window.
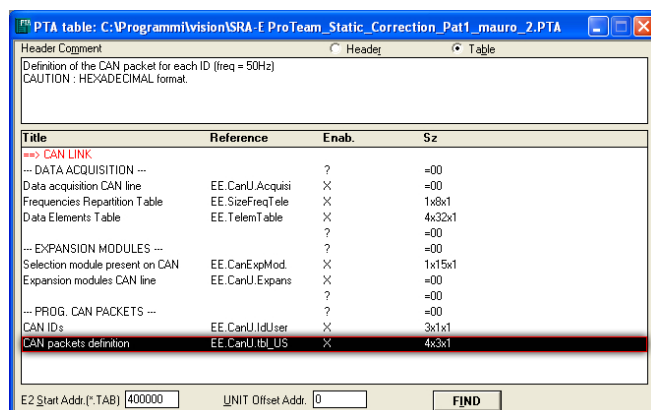
Scroll it and double click on "CAN LINK".

"PTA table" sub window appears again.

Double click on "CAN packets definition" option.

"Edit table" window appears again.
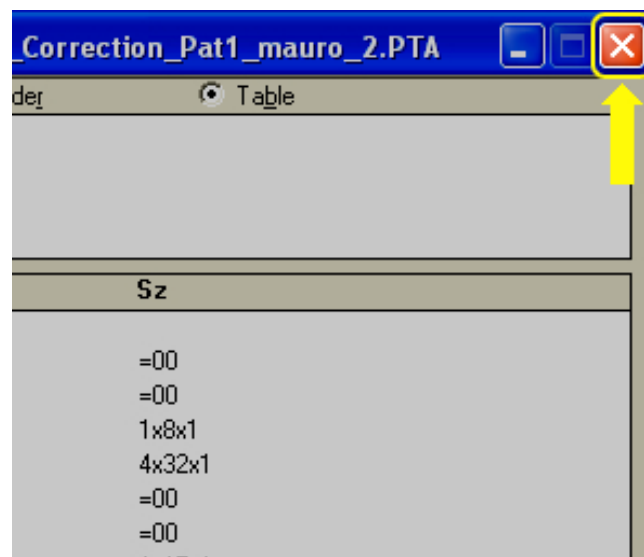
Fill in the following values:
- row 0280: 0, 1, 2, 7
- row 0284: 6, 5, 59, 11
- row 0288: 9, 12, 49, 10

and close the window.

"PTA table" window appears, close it clicking on the top red cross.

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

Press "Yes".
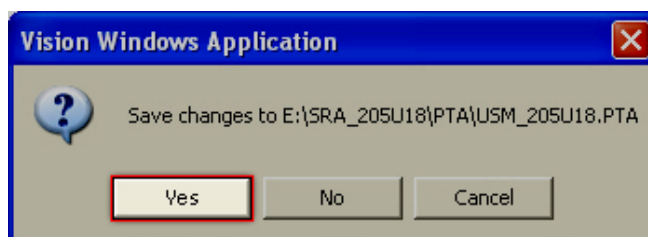
"Save as" window appears.

Insert file name, select file destination folder and press "Save".

"ReadWrite Map (PTA)" file window appears.

Click "Exit".

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

Chapter 2 – Marelli CAN Communication setup
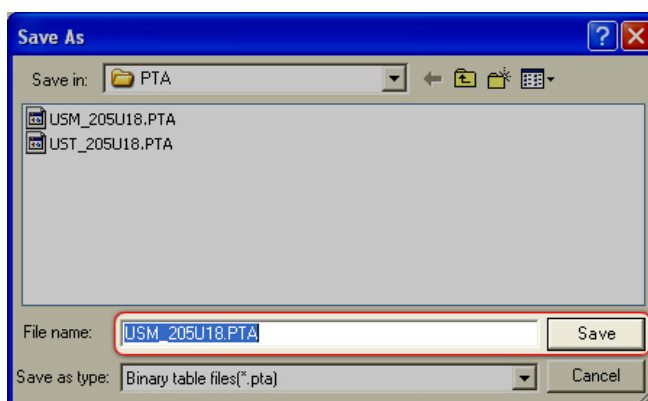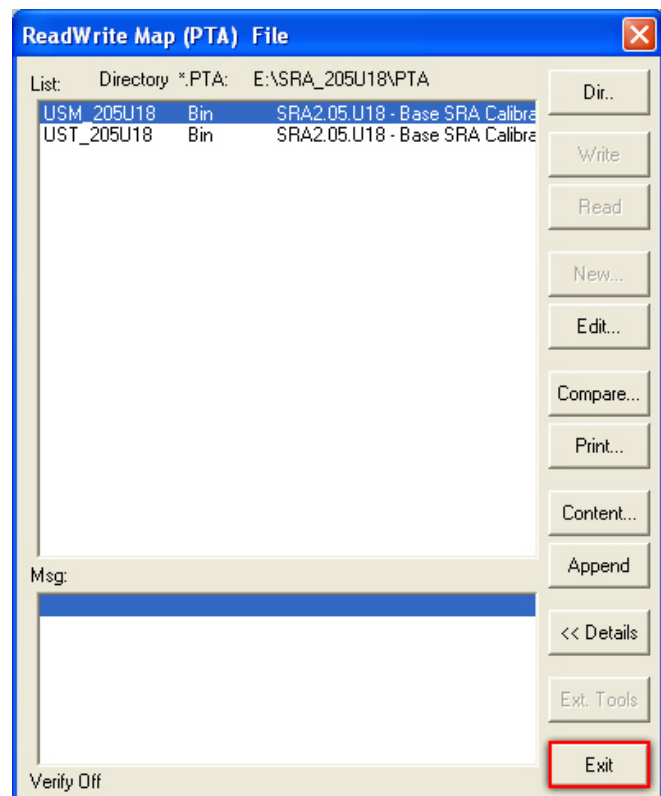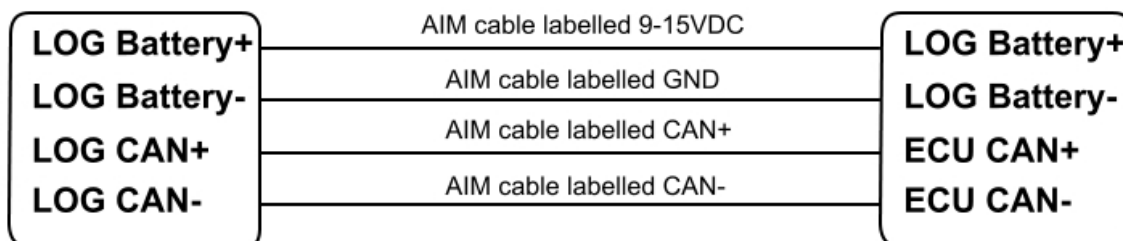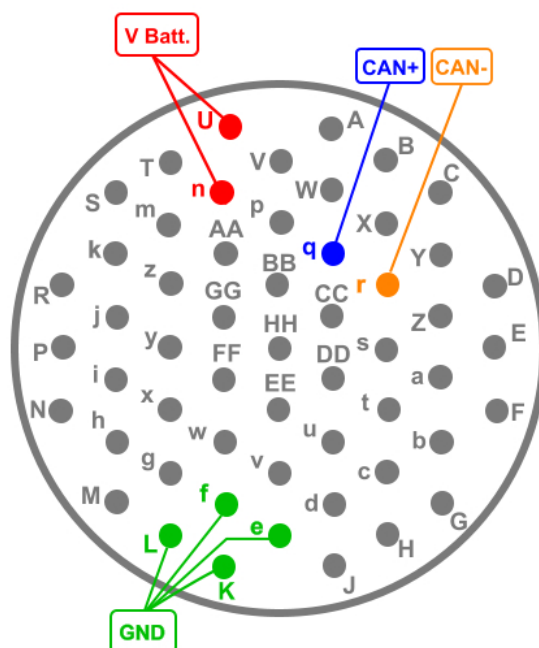
Magneti Marelli MF4 ECU is equipped with a CAN communication setup used to communicate parameters to an external logger and shown here below.

Chapter 3 – Connection to AIM loggers

Magneti Marelli MF4 ECU is equipped with A 55 pins front Deutsch connector shown here below.

With reference to the image here above, to connect Marelli ECU to an AIM logger:
- connect AIM cable labelled CAN+ to pin **q** (CAN+) of the 55 pins connector;
- connect AIM cable labelled CAN- to pin **r** (CAN-) of the 55 pins connector;
- connect AIM cable labelled GND to pin **K**, **L**, **e** or **f** (GND) of the 55 pins connector;
- connect AIM cable labelled 9-15 VDC to pin **n** or **u** (VBatt) of the 55 pins connector.

Chapter 4 – Communication protocol

Channels received by AIM loggers connected to Magneti Marelli MF4 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