Gems ECU for

Lancer EVO9

Racing Data Power

INDEX

INTRODUCTION

AIM has developed special applications for many of the most common ECUs: by special applications we mean user-friendly systems which allow to easily connect your ECU to our hi-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) 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.

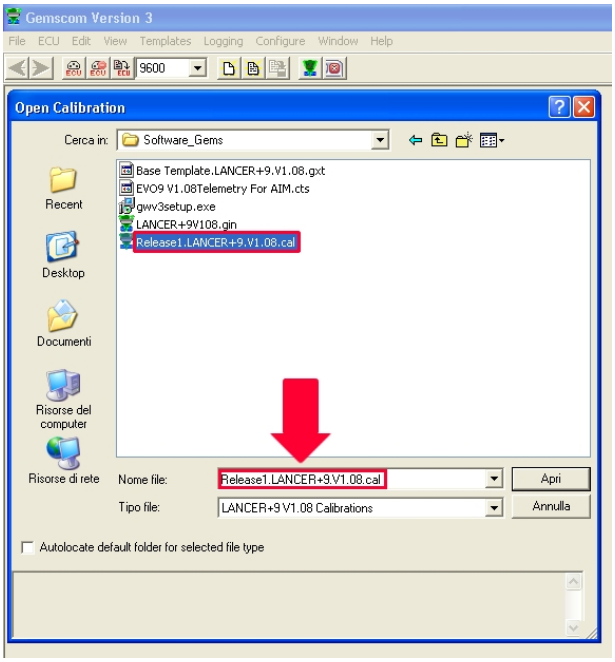
Warning: once the ECU is connected to the logger it is necessary to set it in the logger configuration in Race Studio 2 software.
Select Manufacturer "GEMS" and Model "Lancer +9 (CAN 1Mbit)".
Refer to Race Studio configuration user manual for further information concerning the loggers configuration.

Warning: for any further information concerning ECU firmware/software settings and/or upgrading it is always recommended to address to the ECU dealer.

Chapter 1 – ECU Software configuration

In order to correctly communicate with AIM loggers it is necessary to properly set some ECU parameters via software using “Gemscom” software.
Follow these instructions:

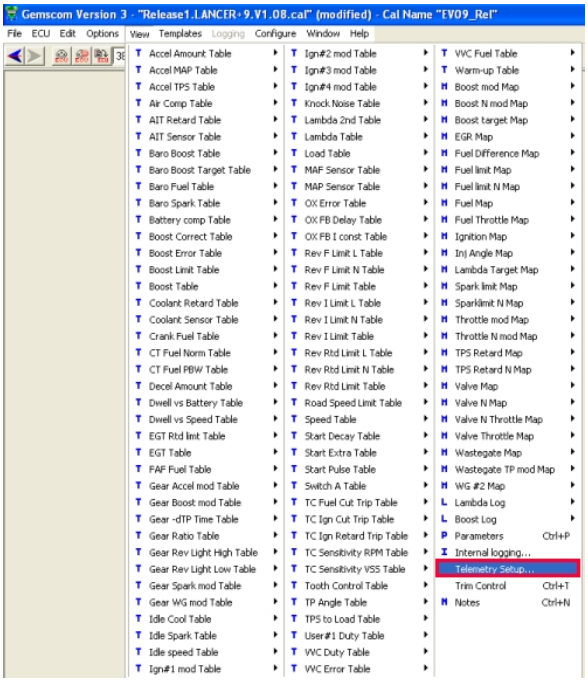
Step 1: Import calibration file

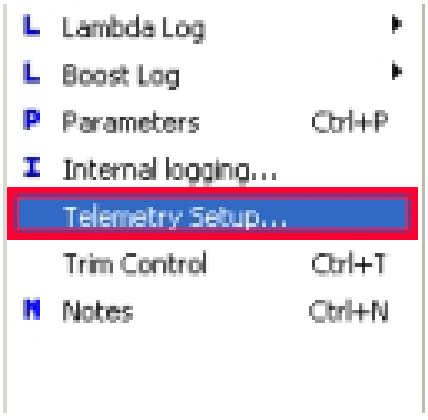


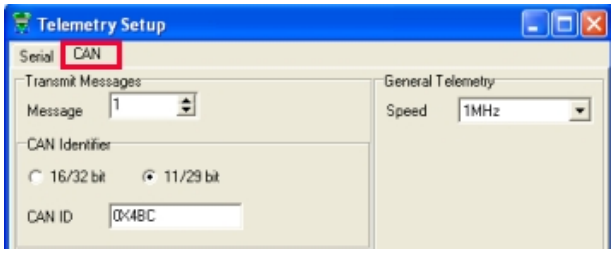
- Open “Gemscom” software;
- select “File” from menu;
- load the calibration file (i.e. in the image here on the left the version is V1.08.cal).

Step 2 : Load AIM configuration – CAN TELEMETRY SETUP

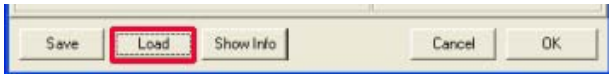
- Select “ View” from menu;
- select “Telemetry Setup”



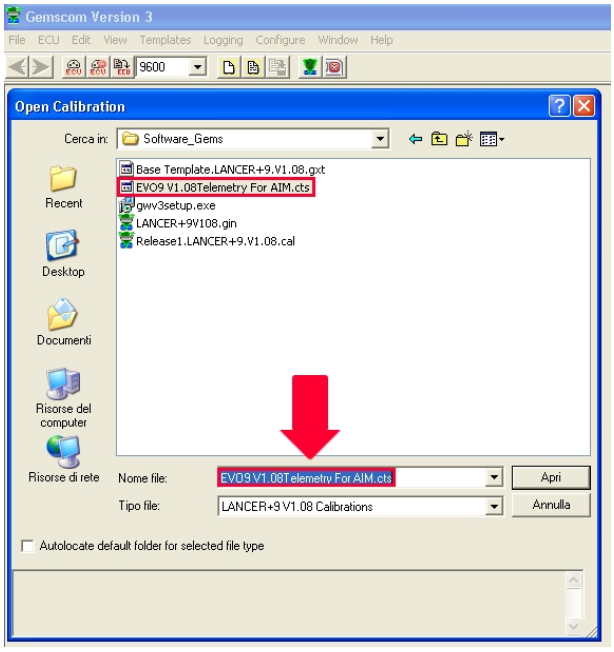




- Select “CAN “layer.



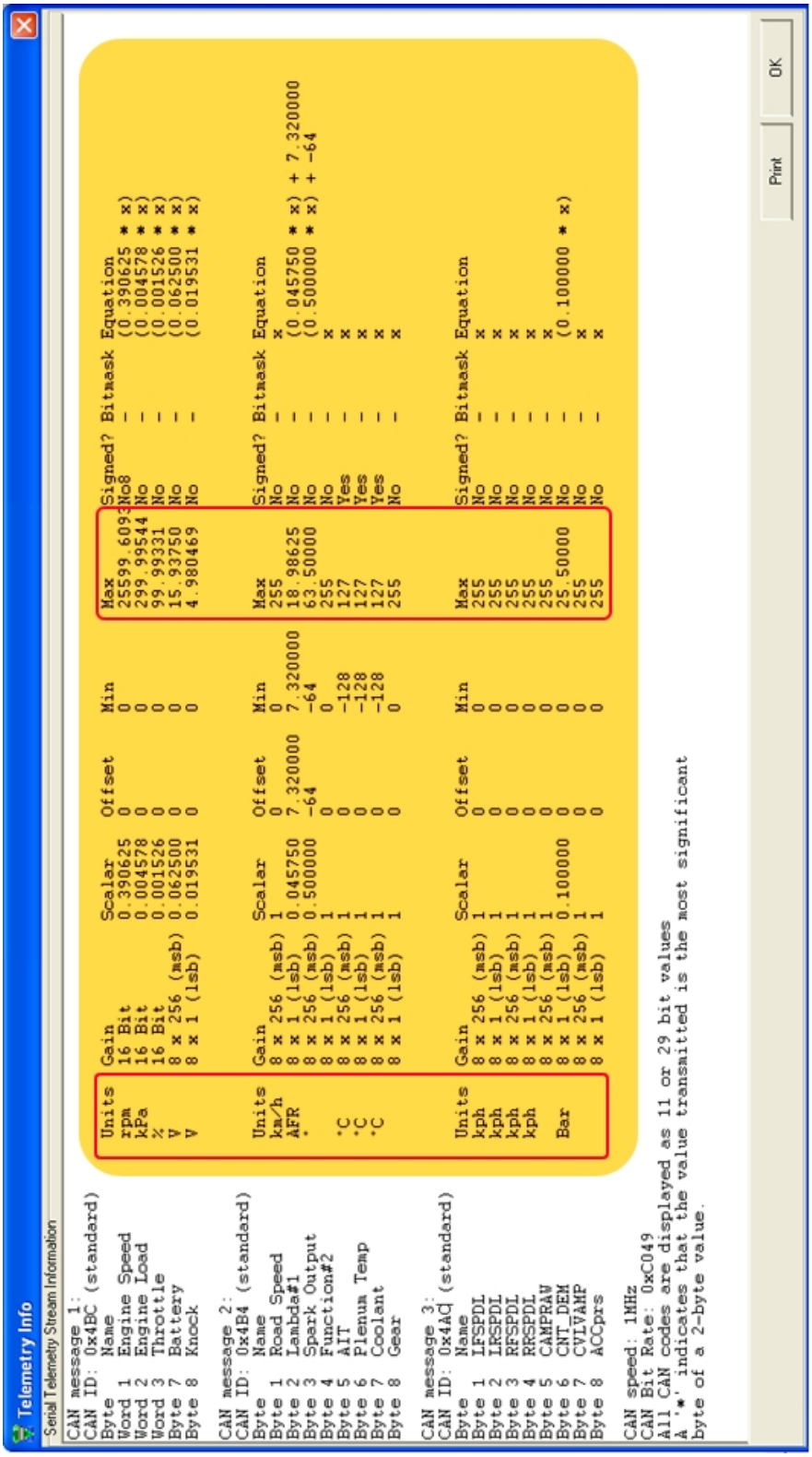
- Click “Load”.



- Download the file named “EVO9 V1.08 Telemetry For AIM.cts” from AIM website/ ECU racing section.
- click “OK”;
- click “Save” from File menu.

- Return to “Telemetry setup”, then click “Show info”.

- Clicking “Show info” the following window appears:

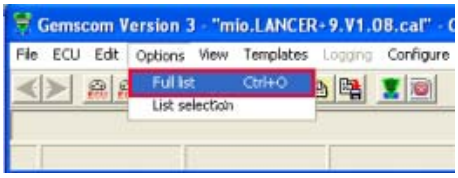


Check all the values shown in the image above; the data and measure units must be exactly the same.
If values are different it is necessary to manually reset the wrong parameters (see Step 3, otherwise switch to step 4).

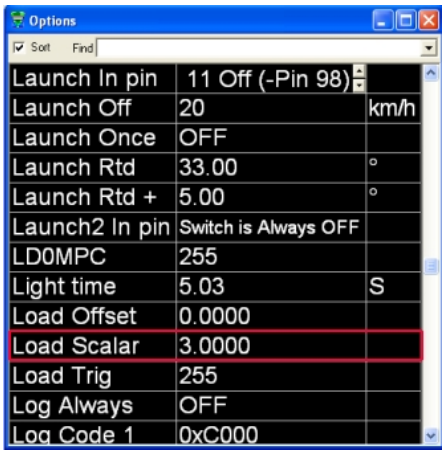
Step 3:

Set the correct Scalar values:

If the wrong value is Scalar, please follow this path:

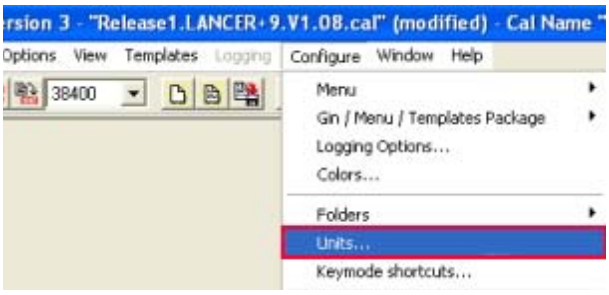


- Select “Option” from menu;
- select “Full list” option.

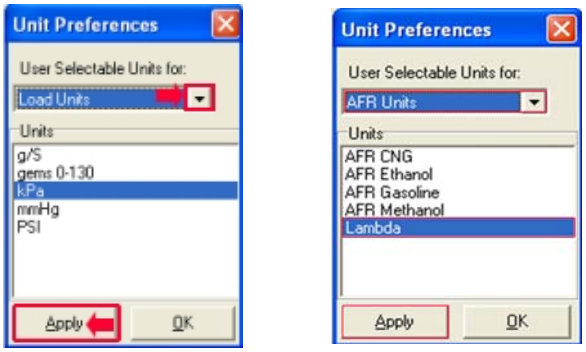


- Set manually the correct Scalar value; i.e. LOAD SCALAR = 3.0000.

Set the correct measure units:



- Select “Configure” from menu;
- select “Units” option.



- Choose the “measure” from the drop down menu;
- Choose the “unit” from the drop down menu;
- Click “Apply”.

Step 4: Save the configuration:

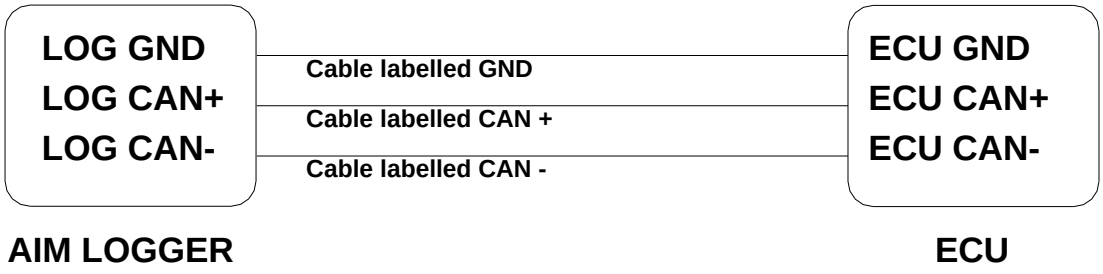
- Select "File” from menu;
- select “Save” or “Save as”

The ECU settings are completed.

Chapter 2 – ECU communication setup and connections

The ECU has a CAN communication protocol used to communicate parameters to a data logger and is equipped with 3 connectors (named A-B-C) used to communicate parameters to an external data logger, or to configure the ECU itself.

The images here below show the standard CAN communication set up. The pins used to communicate to AIM loggers are situated in C connector and are highlighted in the scheme below.



To connect AIM logger to Mitsubishi Lancer EVO9 ECU please connect:

- AIM cable labelled CAN + with **pin 73 (or C3)** of the C connector
- AIM cable labelled CAN – with **pin 74 (or C4)** of the C connector

The image here below show the pins position.

Chapter 3 – Communication protocol

Channels received by AIM loggers connected to Lancer EVO9 ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	E9_ENGINE_SPEED	RPM
ECU_2	E9_ROAD_SPEED	Vehicle speed
ECU_3	E9_THROTTLE	Throttle position sensor
ECU_4	E9_ENGINE_LOAD	Engine load
ECU_5	E9_AIT	Intake air temperature
ECU_6	E9_COOLANT	Engine coolant temperature
ECU_7	E9_BATTERY	Battery voltage
ECU_8	E9_KNOCK	Knock sensor
ECU_9	E9_LAMBDA1	Lambda value 1
ECU_10	E9_SPARK_OUT	Spark output
ECU_11	E9_FUNCTION2	Function #2
ECU_12	E9_PLENUM_TEMP	Intake air temperature
ECU_13	E9_CAMPRAW	
ECU_14	E9_CVLVAMP	
ECU_15	E9_GEAR	Gear number
ECU_16	E9_LFSPDL	Wheel speed front left
ECU_17	E9_LRSPLD	Wheel speed rear left
ECU_18	E9_RFSPDL	Wheel speed front right
ECU_19	E9_RRSPDL	Wheel speed rear right
ECU_20	E9_CNT_DEM	CONTROL DEMAND
ECU_21	E9_ACCPrs	
ECU_22	E9_LAUNCH	Launch ON / OFF
ECU_23	E9_IC_SPRAY	Intercooler spraying ON / OFF
ECU_24	E9_SPRAY_AUTO	Spray Auto ON / OFF
ECU_25	E9_FANS_INHIB	FANS Inhibited ON / OFF
ECU_26	E9_IC_SPRAYING	Intercooler spraying ON / OFF
ECU_27	E9_ALS_ACT	ALS Active ON / OFF
ECU_28	E9_ALT_MODE	ALT Mode ON / OFF