MAGNETI MARELLI MOTORSPORT

Getting Started with SYSMA

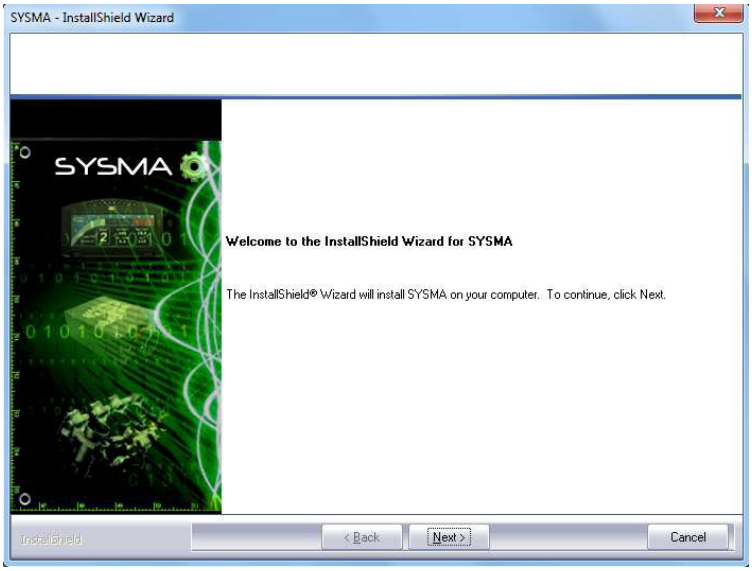
SUMMARY

1. Installation

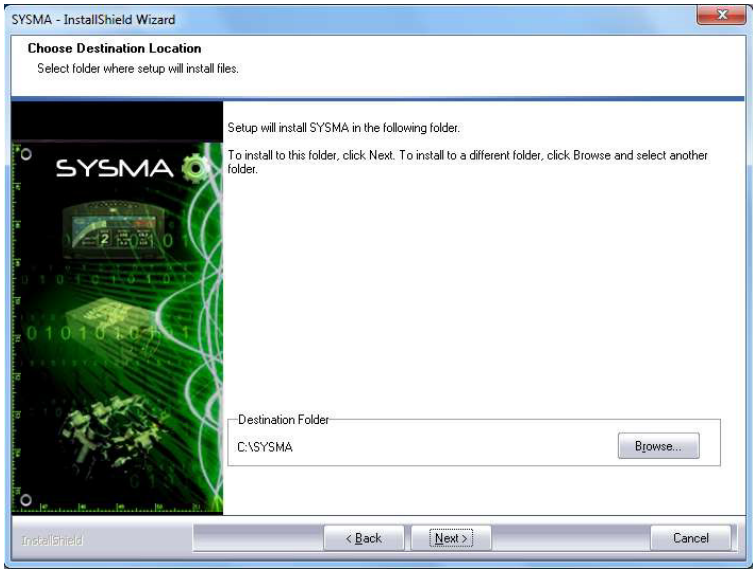
To install Sysma you must have administrator rights. Make sure you have the correct permissions to perform the installation. If you have any question about this, ask your system administrator.

1.1. First time installation

Run setup.exe from the installer package then click on Next to continue the installation.



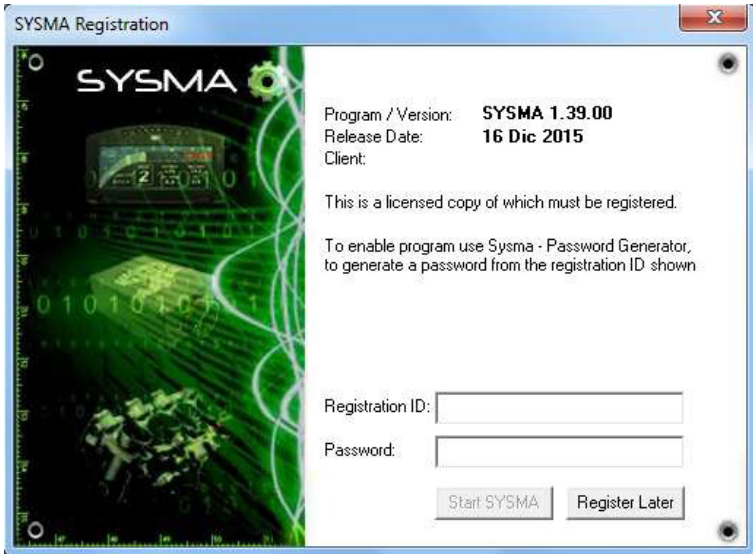
Choose the install path where you wish to install the software.
C:\SYSMA is the default path that will be proposed during installation; it's possible to change it clicking on the Browse button.
Click Next to continue installation.



Click on Install to complete the installation procedure and Finish to exit the wizard.
After the installation is completed, it's possible to run SYSMA.

REGISTRATION (only if your licenses require it)

Run SYSMA.
On the first run, a registration window will be presented requiring the user to insert a Registration ID and a password.

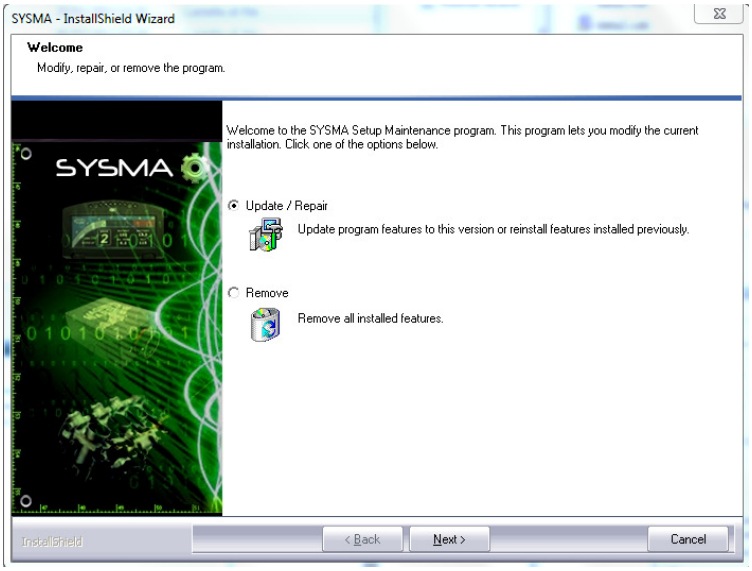


The password is generated by MM Motorsport upon specific request in a limited number, as agreed.

Once received, enter the generated password and press Start SYSMA.
After the first successful start, SYSMA will not ask again for a password to be entered.

1.2. Subsequent installation

Close SYSMA.
Run setup.exe from the installer package. The installer package allows users to Update/Repair the current installation or remove it. Select Update/Repair then continue.



If at the end of the installation a reboot of the PC is prompted, please carry it out, otherwise some components will not be installed correctly.

2. First Setting

2.1. Comunication Line

By default ECU project is setup to communicate with ETHERNET LINE.
Is it possible to change it by menu : FILE –> PROJECT SETUP.
On SRG the communication line with sysma is CAN3 (CAN CORTEX)

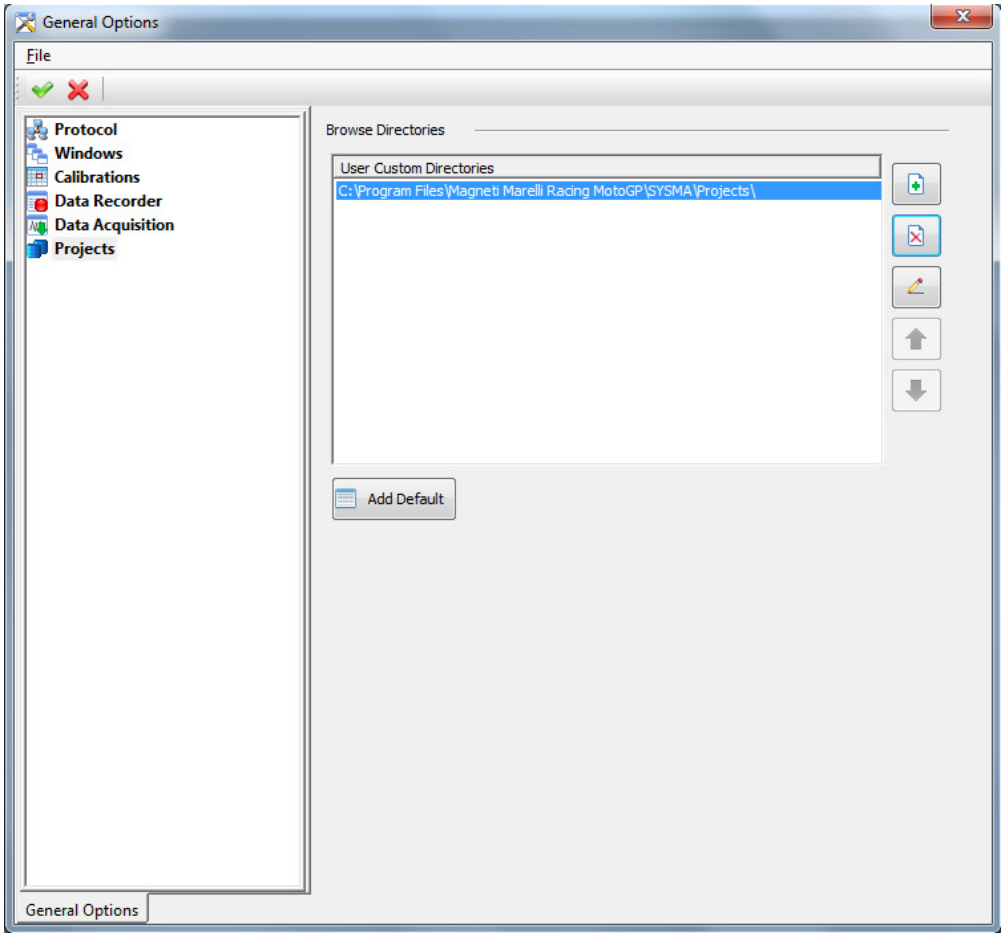
When pin ENCP (also called codeload) is closed to ground has a fixed IP (**192.168.1.254** with subnet mask **255.255.255.0**).
ON TCR application the default in CLX (and this should be changed by user) is 192.168.0.254 subnet mask **255.255.255.0**.

ECU doesn't have DHCP on it, user must force ethernet IP to fixed IP according with setting in CLX.

2.2. Project's folder path

Select *Tool / General Option* - Projects

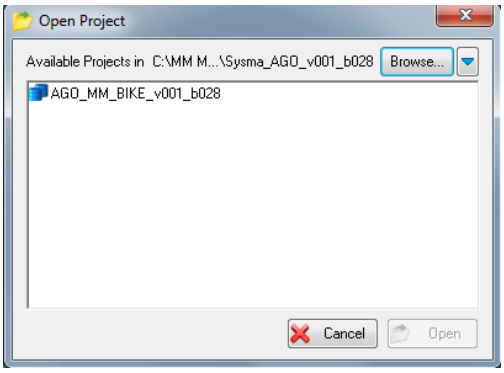
Choose the installation path where you have your Sysma Projects.



3. Projects

3.1. Open an existing project

For open an exiting project, Select *File / Open Project* from main menu or with the icon in the Projects Toolbar.
A window will open with a list of the projects that are in the folder you have previously selected (*Projects's Folder Path*).
Clicking on the browse button, you can search for another location or on the blue next arrows, choose from those previously opened.



4. Work on a Project

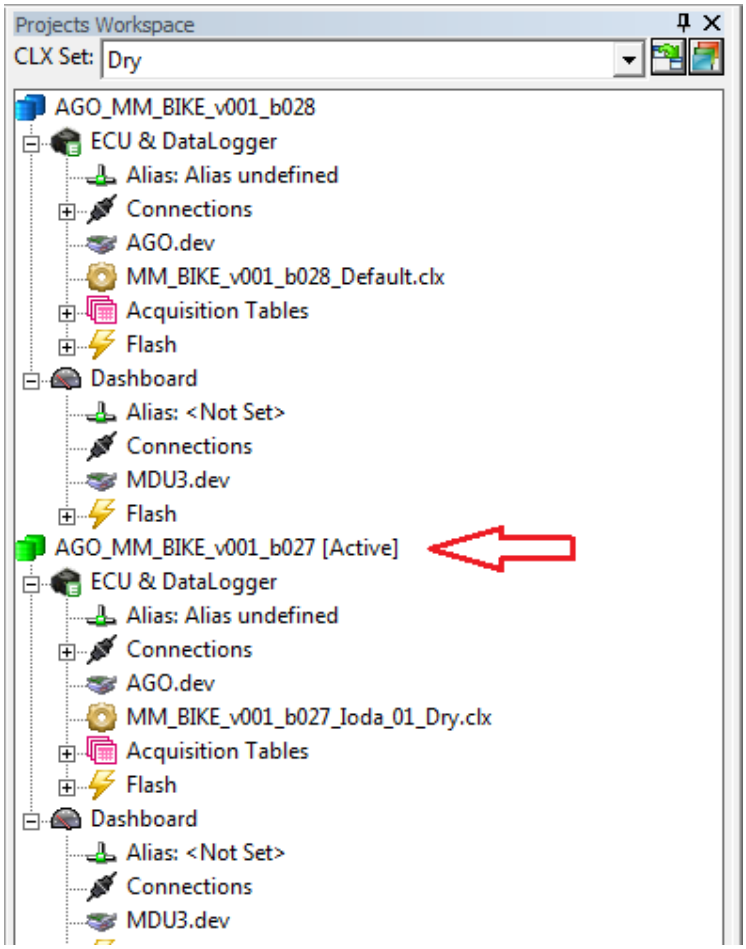
Sysma project is divided in 3 main parts:

- Project Workspace
- Channel Browser
- Layout

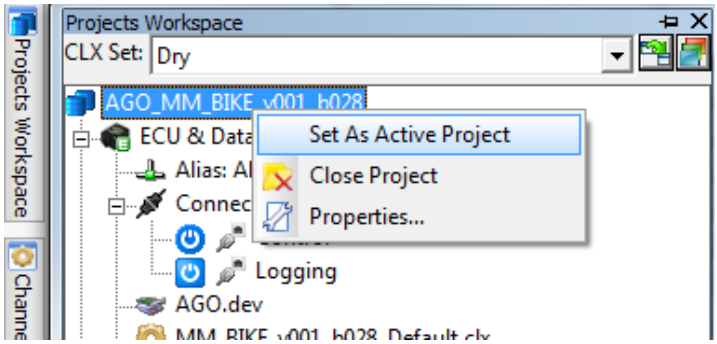
4.1. Work on a Project Workspace

The Project Workspace window contains all the information and structure of the project.

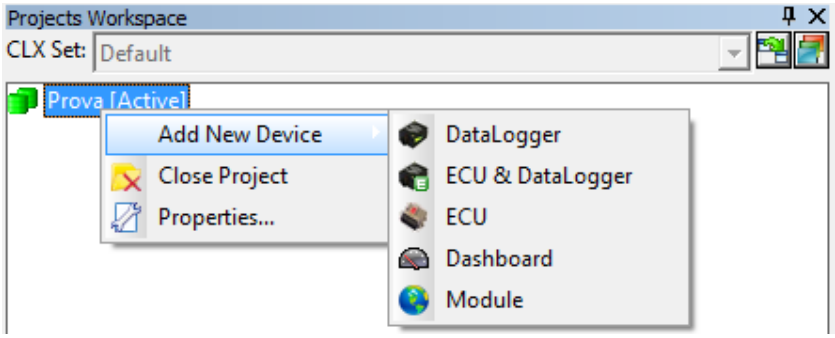
Project Workspace is an advanced toolbar window that can be displayed either docked (on left or right side of SYSMA mainframe) or floating mode. Use command *View / Project Workspace* or button icon on Project toolbar to show or hide the window.



The first level of the tree is the name of the project.
The window contains all information of the projects that we have already opened but it allows you to work and make changes only on the active one, which is highlighted by the green icon and the text [Active].
To activate another project you should select it by clicking with the right mouse button on the name and select the option *Set As Active Project*.



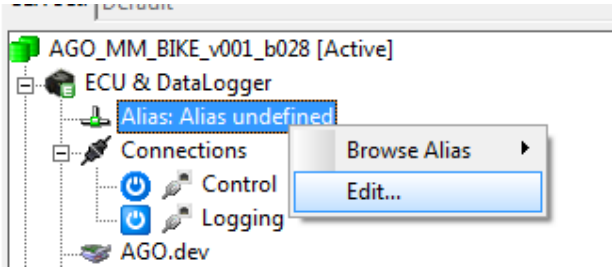
The second level corresponds to the hardware devices. For each project, up to 4 device types + a "special" one (“ECU & DataLogger”) can be configured:



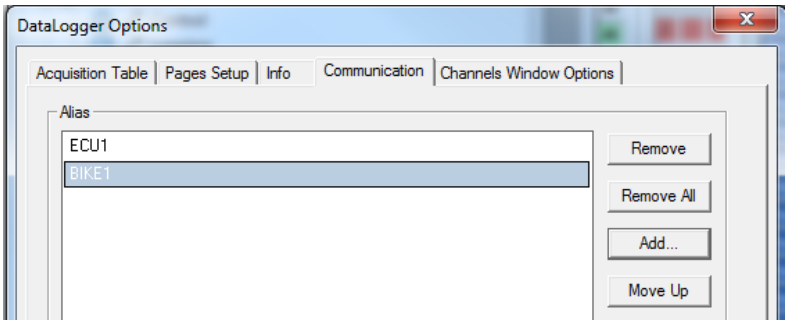
Only one device per type can be added to the project. The special device "ECU & DataLogger" can be added only if no devices of type "ECU" and "DataLogger" are present in the project.
To add a new device in a project use right mouse button click on the active one.

4.1.1. Alias

In ***Alias***, you can edit the name of the ECU/logger linked to the project.
Each time you connect to a device, the software checks the alias of the project with the device one and in case of mismatch, Sysma generates a message warning about the difference. If you still wish to proceed, the name of the unit you want to connect to must be selected through the Browse Alias.



This command will not assign an Alias to the device.
For Alias assignement you must create a list of possible Alias in advance, editin through the proper utility: go to Datalogger / Datalogger Options - Comunication.



The assignment can be done during transmission of a configurtion (acquisition table) to the logger device.

4.1.2. Connections

Connections contains all the types of connections that are available in the project.

Control →ECU
Logging →Datalogger

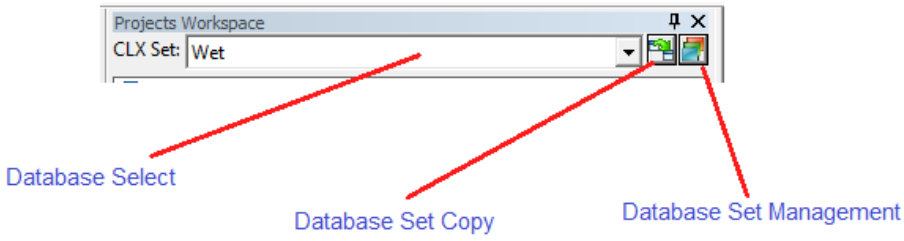
Communication and system information are contained in the ****. dev*** file, which is normally prepared by MMM and it is specific for the device in use.

Control :
Section used to communicate REAL TIME and write / read calibration maps.

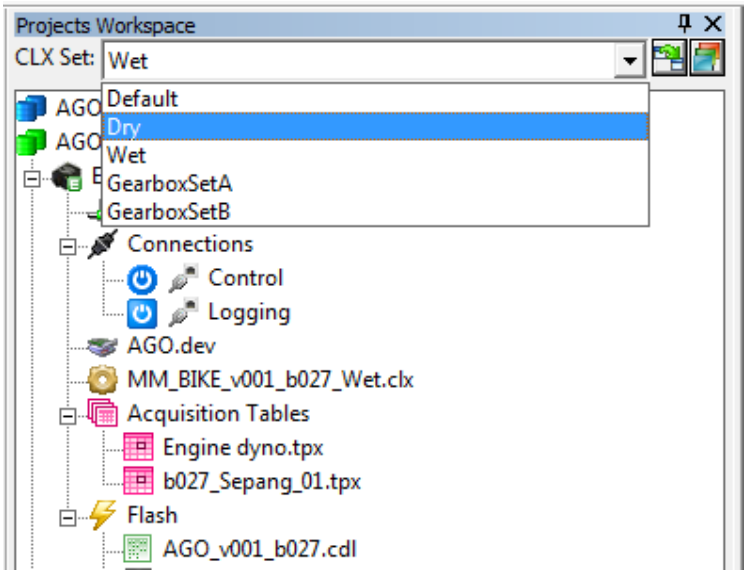
Logging:
Section used to send Acquisition Table (TPX)

The ****. clx*** file is the interface file between the device and the application and it contains all settings and calibrations.

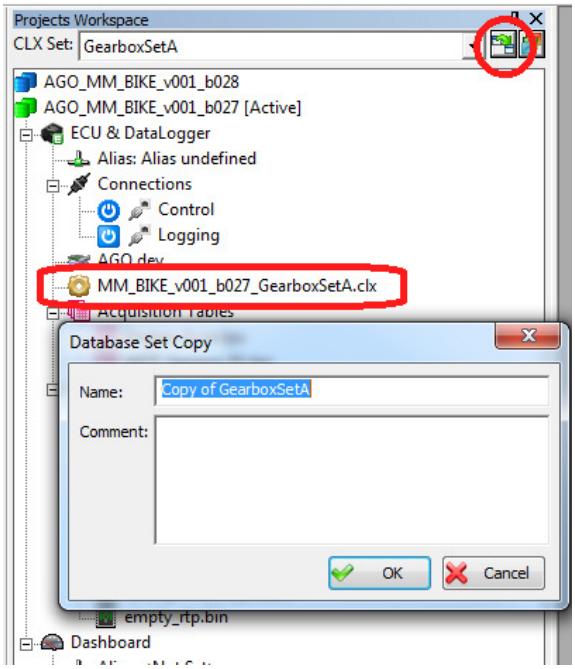
Example: for an ECU, there are the engine configuration, injector and igniton maps, sensor calibration, strategies, etc.



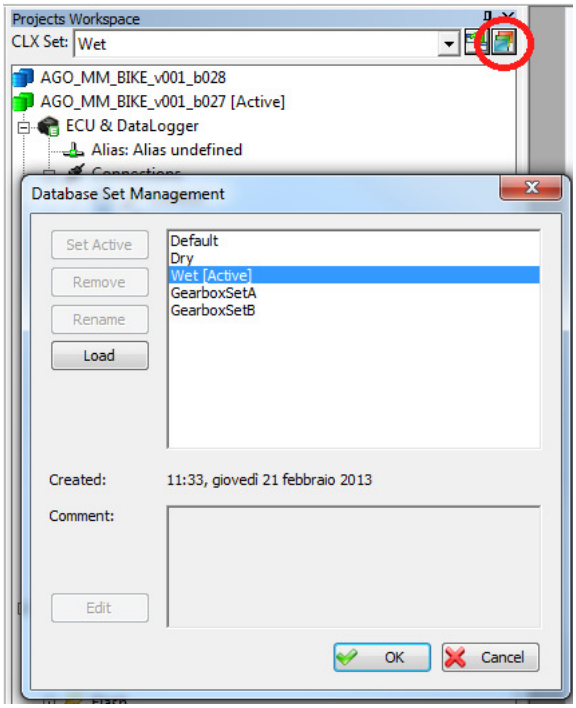
Control items in this area are relative to the current active project and reflect its configuration.
The CLX Set management allows preparing multiple sets of calibrations ready to be used. For example the CLX set function can be useful to prepare calibrations to be used in certain weather condition (Rain, Dry...). Another use could be to split the entire set of calibrations depending by their functions (Engine, brake, gear...). In practice when switching from a CLX set to another one, SYSMA substitutes the CLX connected to the devices with the CLX prepared in the new set.
In combo *CLX Set* the user can switch the database channel set to work with.



Button icons on the right allows to create a new copy of the current Database Set…

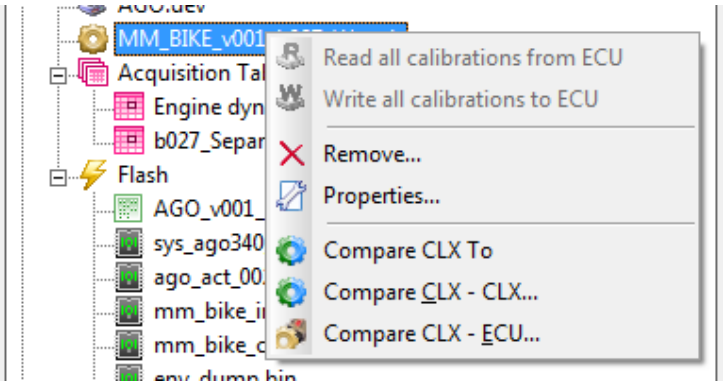


…and open the *Database Set Management* for managing projects Database sets.

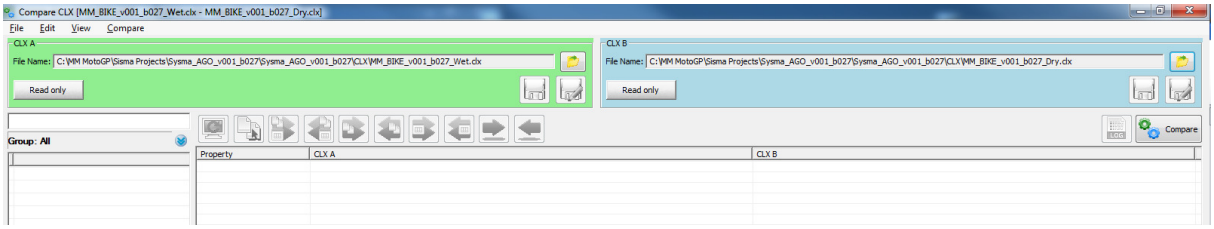


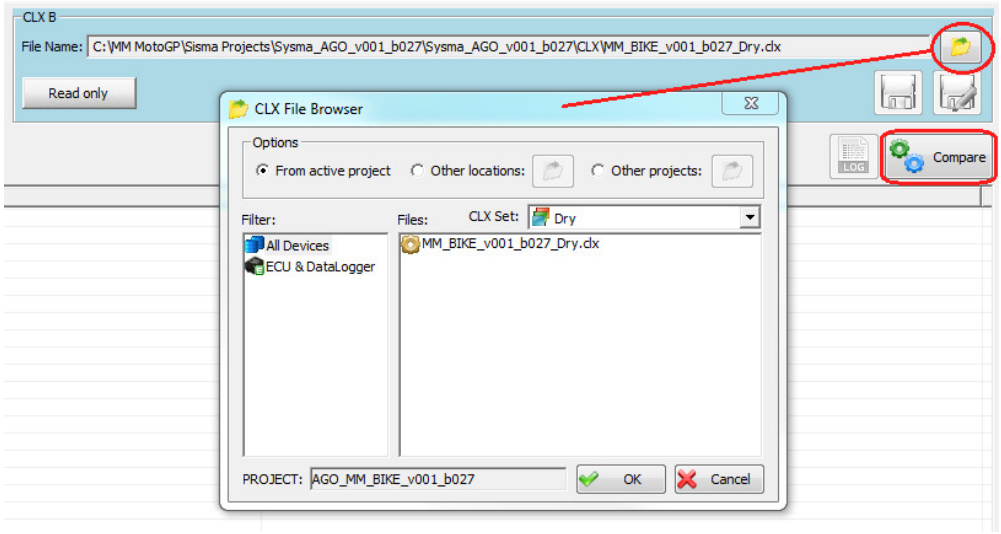
CLX file must be written to the device:select with right button of the mouse “Write Calibration to ECU” on the ***.clx*** (or pressing **F7**).
It is possible to Read the calibration inside the device with the command “Read all calibration from ECU” by the right button of the mouse on ***.clx*** (or pressing **F6**).

Following commands work only when the connection with ECU is active.



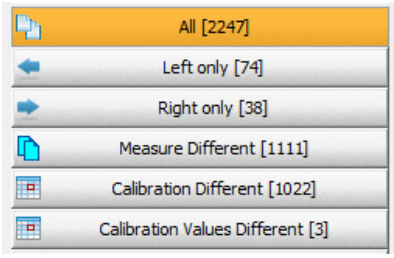
Compare: the utility allows checking the differences between two selectable *.clx files, or between the active *.clx file and the calibration inside the device.



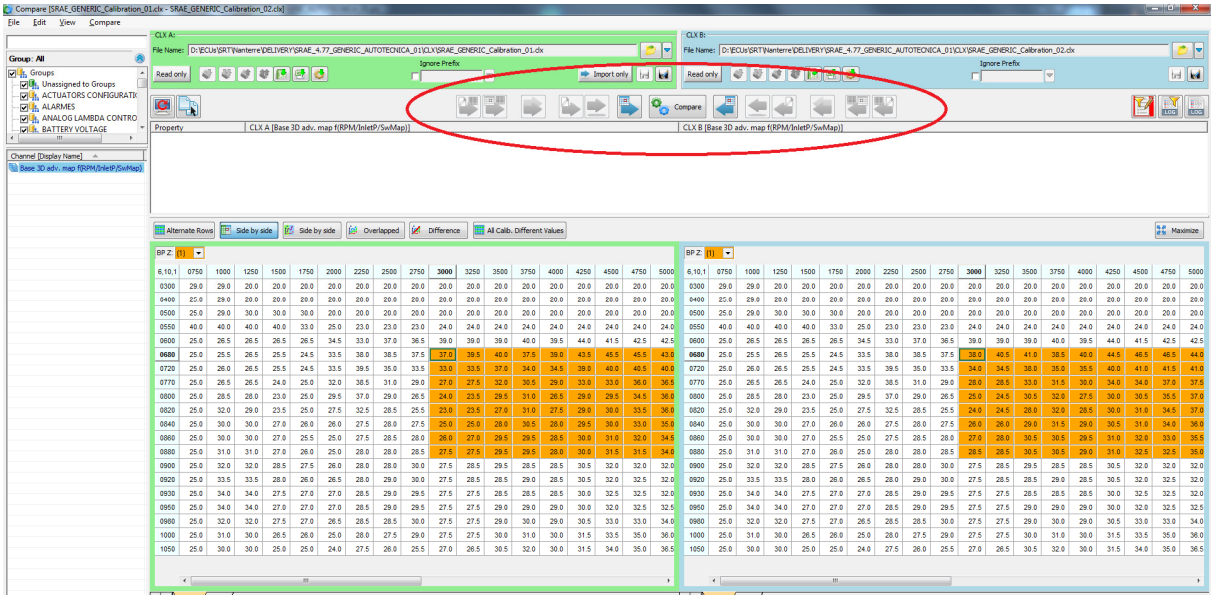


The ***.clx*** files are selectable from the active project (*From active project*), if there are more than one CLX, or from different location like different projects (*Other Projects*) or complete different folders (*Other location*).
Click *Compare* button for running.

In case of differences, these are listed on the left side of the screen and can be filtered.

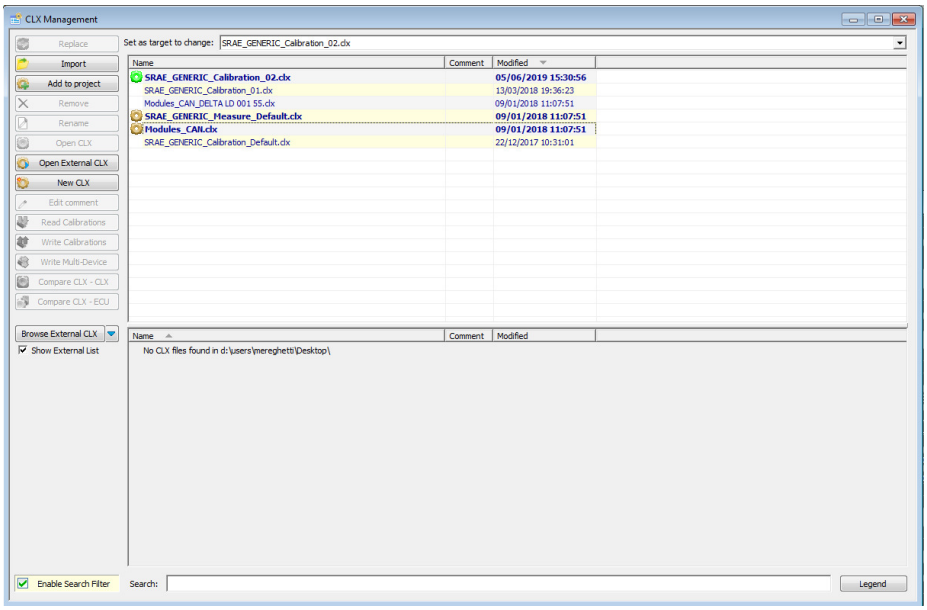


All:	list of all differences
Left only:	calibrations or channels present only in CLX A
Right only:	calibrations or channels present only in CLX B
Measure Different:	list of Measurements Channels type differences only
Calibration Different:	list of Calibration Channels type differences only
Calibration Value Different:	list of Calibration Channels Value differences. In this case the different values between two CLX are shown and it is possible to copy from A to B (or vice versa) by the toolbar commands.



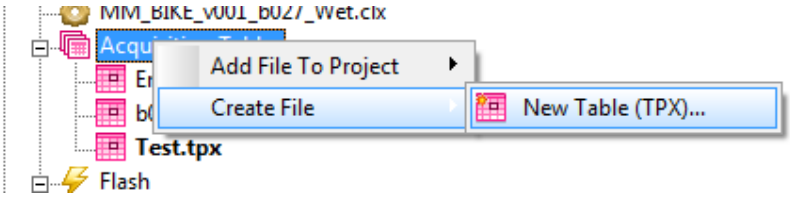
4.1.3. Open CLX Management

With Right click on clx file or with **SHIFT+F1**, this window permit to have access to all clx present on project and also to External CLX, here it's easy compare clx and replace active CLX using button on left.

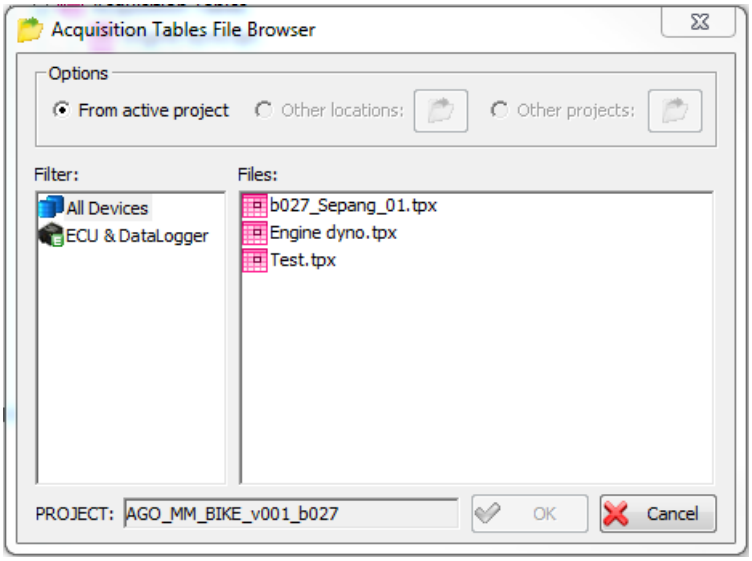


4.1.4. Acquisition Table

Acquisition Table is the configuration of the data logger and it contains all channels to be logged, it specifies their acquisition frequencies and other specific parameters.
To create a new table, select *Datalogger / New Table*, choose the datalogger device and write the file name or by selecting *New Table (TPX).* You can do by right-click on the item Acquisition Table in the Project Worspace.

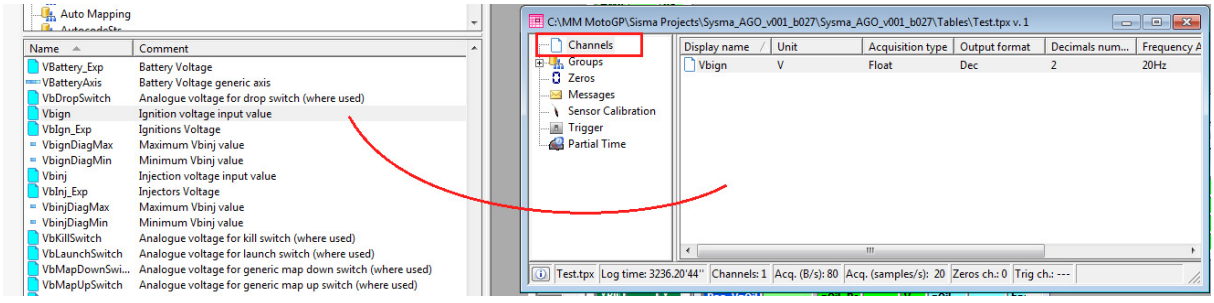


To import a table from another project or another path select Datalogger / Load Table.

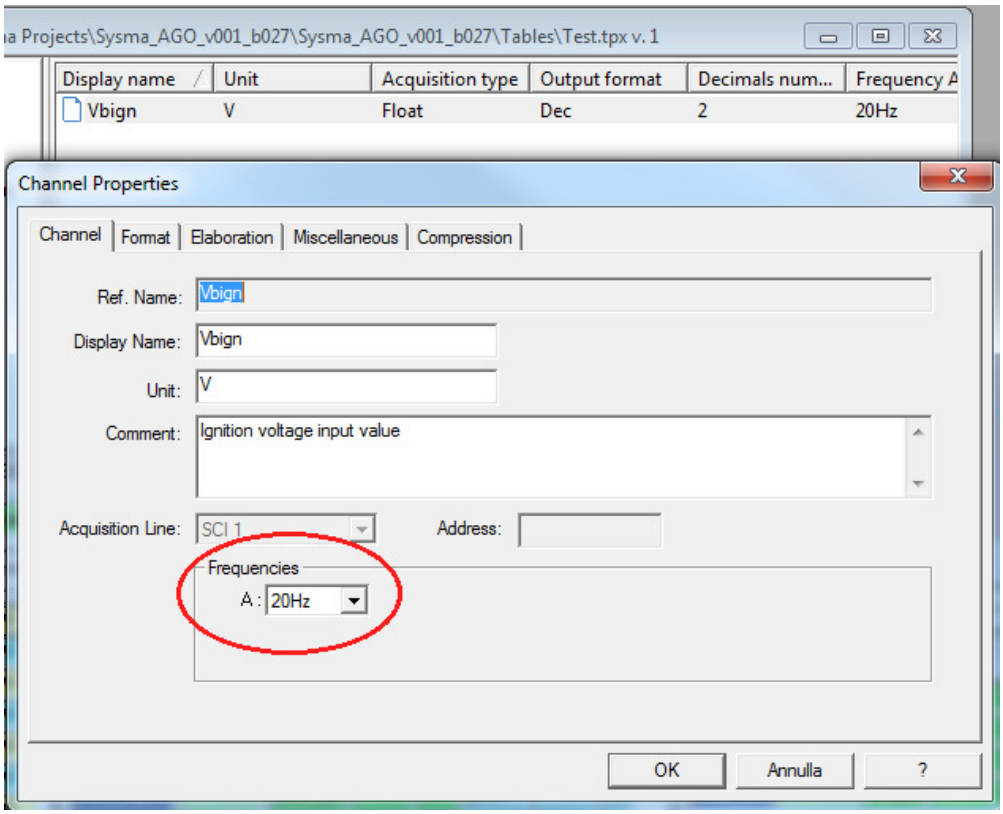


To edit a table already included in the project do a double-click on the name with the left mouse button.

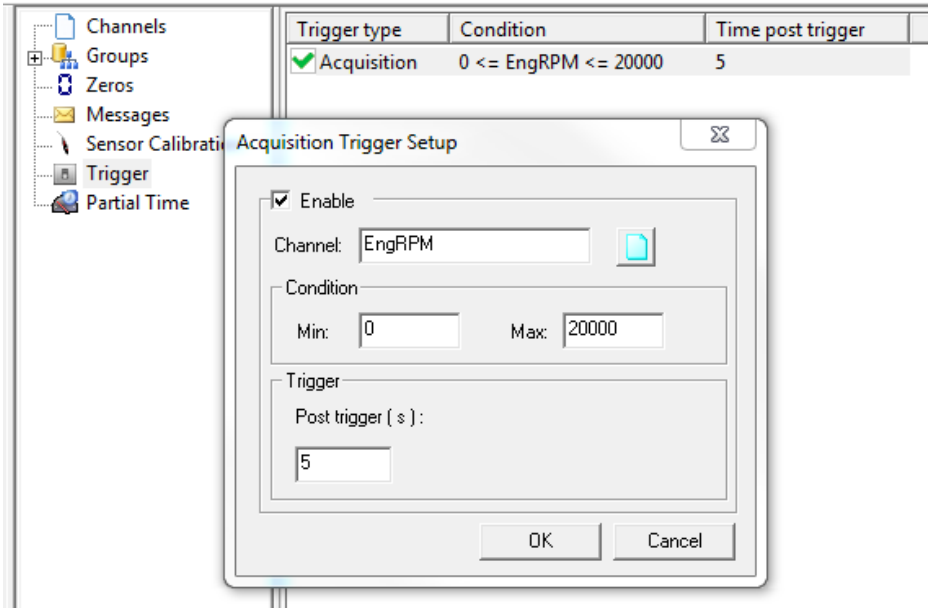
Once you open the table, it is not necessary to keep opened the Project Workspace Windows.
Put channels in the acquisition table from the Channel Browser Window by Drag and Drop: select the channel by clicking on it with the left mouse button and, holding it down, drag it to the Acquisitions Table.



Double click on the channel name inside the acquisition table for changing the frequency and other channel's parameters.

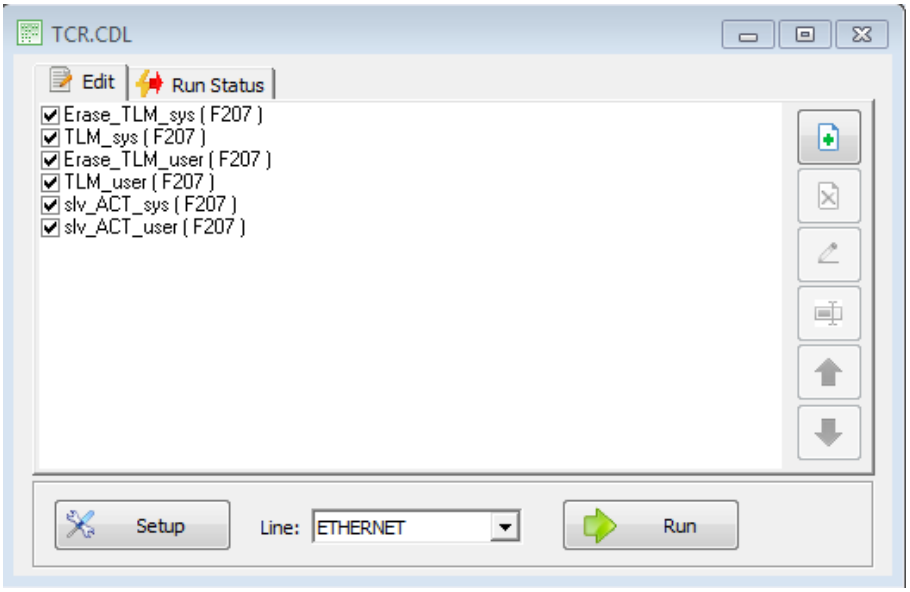


Set the acquisition trigger from the menu in the table…



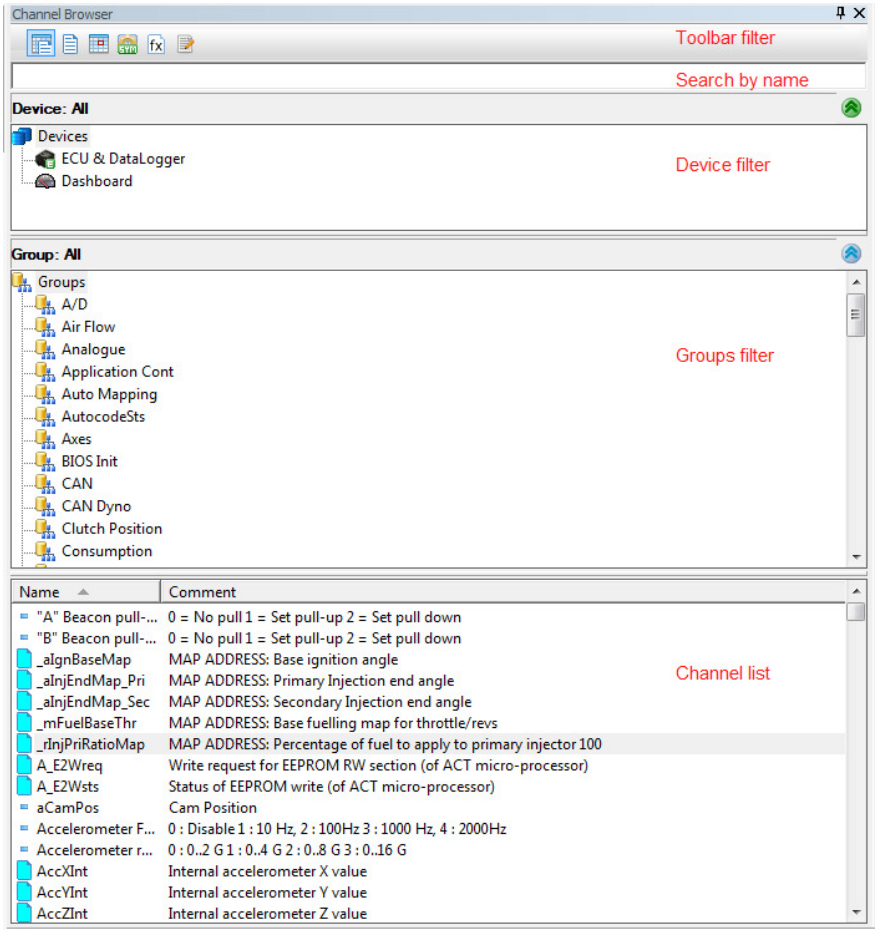
4.1.5. Flash

The last level, *Flash*, contains the file for loading the firmware on your device.



4.2. Work on a Channel Browser

The Channel Browser window displays the channels list (Name and Comment for each channel), loaded in current project, and allows searching and filtering operations by channel type, device type and groups.
Channel Browser is an advanced toolbar window that can be displayed either docked (on left or right side of SYSMA mainframe) or floating mode. Use command View / Channel Browser or button icon on Project toolbar to show or hide the window.
The window is made up by several areas: in header area there are an embedded toolbar for filtering channels type, an editor for searching names by string, a Device and Group filtering trees.
Below there is the channels list.



Toolbar in the top header zone of the window contains buttons for filtering channels list by channel type, identified with icons:

- All channel types (Measurements and Calibrations and others),
- Measurements
- Calibration Tables
- SYM Calibration Tables
- Virtual Channels
- Read Write Channels

Selecting with mouse a button icon in this toolbar will filter the channel list.

User can search channels by name, typing strings in the edit field below the toolbar filter. The channel list will be updated as the string filter changes.

In the Device filter area, devices configured for current project are displayed in a tree. Select a node in the tree to filter channel list by the correspondent device type.
The name of the selected device type is shown in the caption of this area.
Use the button on the right side to show or hide this area.

In the Groups filtering area, all Groups defined in all database files loaded in the current project are displayed in a tree. Select a node in the tree to filter channel list by the correspondent Group.
The name of the current selected Group is shown in the caption of this area.
Depending on selected channels type (Calibration channels), also commands for reading and writing channels values from and to ECU are available via popup menu that opens with right mouse button on items in this area.
Use the button on the right side to show or hide this area.

Channels list displays in columns Name and Comment all the available channels defined in all database files loaded in current project.
Columns Name or Comment can sort the list, by clicking with mouse on column header fields.
The list also reflect filter settings selected in Toolbar filter, Search by channel name edit, Device filter and Groups filter areas.
The Channel Browser window contains all the information and structure of our project and you can see it through the path *View / Project Workspace*, or in alternative clicking on the icon of the vertical menu on the left of the screen.

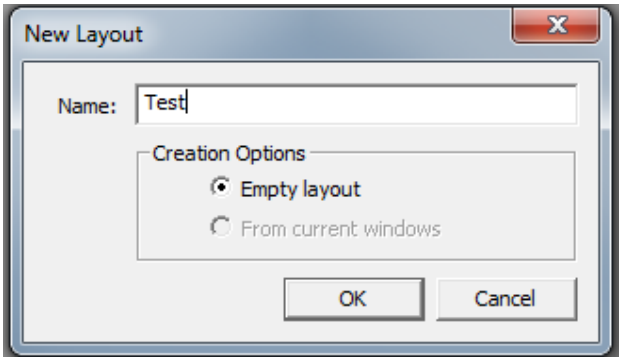
An icon on the left of each item shows channel type for the item, following the scheme below, the most two important group are:

Measurements: dynamically updated variables for logging and displaying

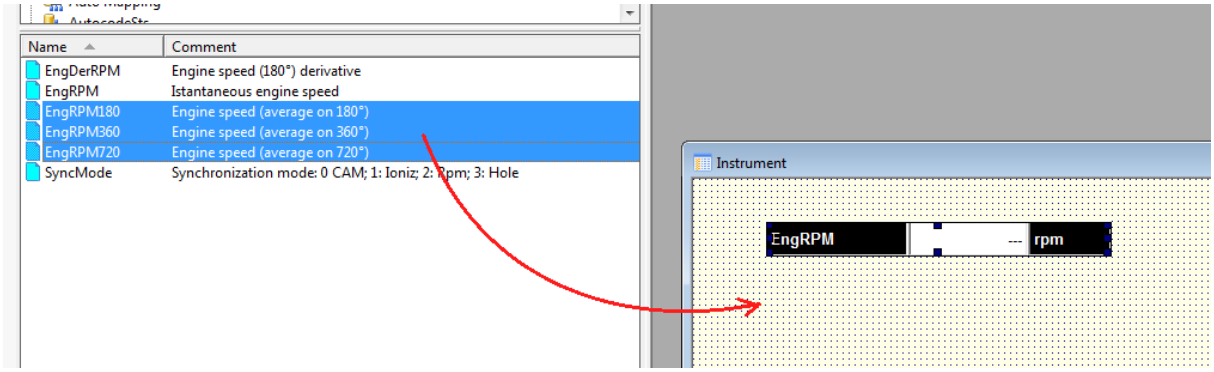
Calibration: ECU Table parameters and variables (scalars, vectors and tables)

4.3. Layout

Different kinds of analysis windows are available in SYSMA for monitoring the current operating of ECU devices.
In Sysma you can create any layout following your requests and what you want to display.
Create a new layout selecting File / Create New Layout and typing the name and open a new Instrument Window by View / Instrument Windows.



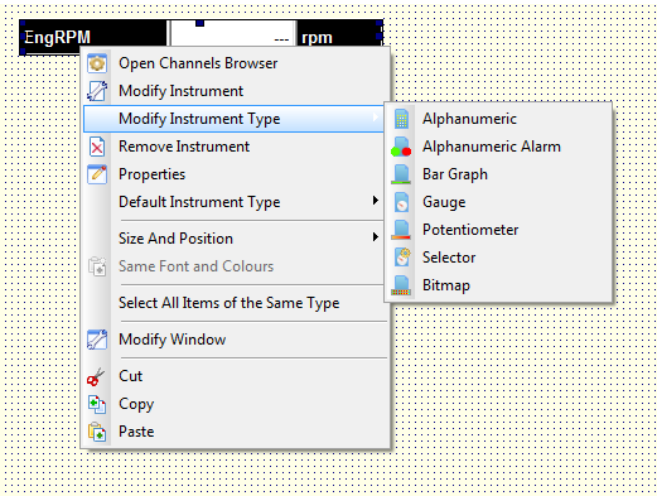
To insert a new item you can use the Drag & Drop method or double click on a measurement channel from Channel Browser window.



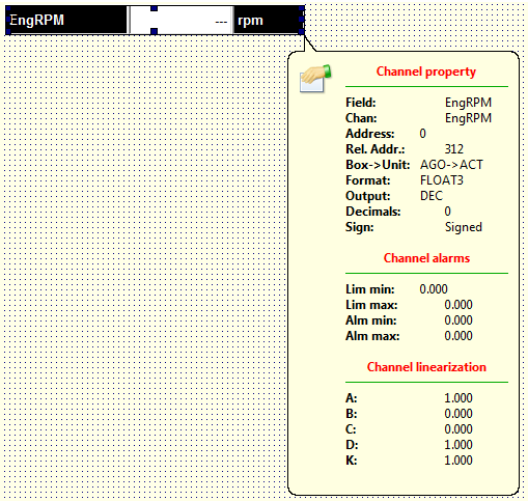
The channels will be added from the selected default type: Selector, Alphanumeric, Gaug, etc.

The default adding type can be selected by:
1. using the menu "Edit/Default Instrument Type"
2. with the specific toolbar "*Instruments Editor"*:

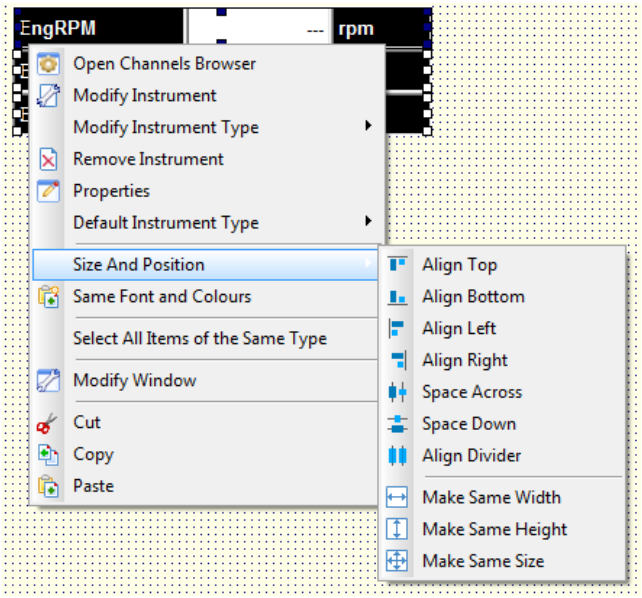
A SYSMA Instrument window will contain channels represented as display or potentiometer, according to the user preferences.
In addition to the text representation, the channel in SYSMA can be displayed in a graphical format: bar graphs, gauges, selectors, etc.
In order to customize an object you can double click on it or use the context menu (DX click) and select "Modify Instrument".



To display detailed information on the channel, right hand mouse button and select *Properties.*



4.3.1. Instruments Sizing and Alignment



The commands are referred to two or more instruments in the same window.
To select more than one channel keep pressed the Ctrl key. Commands refer to the dominant channel.
SYSMA allows the user to use these commands by:
1. Right click on selected items and select "*Size and Position*";
2. Select the command from the Size and Position toolbar;
3. From the menu "*Edit/Size and Position*".

ALIGN TOP	Align the top edges of the selected instrument with the domination instrument
ALIGN BOTTOM	Align the bottom edges of the selected instrument with the domination instrument
ALIGN LEFT	Align the left edges of the selected instrument with the domination instrument
ALIGN RIGHT	Align the right edges of the selected instrument with the domination instrument
SPACE ACROSS	Set to zero the horizontal spaces between the selected instruments
SPACE DOWN	Set to zero the vertical spaces between the selected instruments
ALIGN DIVIDER	Align the selected instrument dividers with the dominant instrument
MAKE SAME WIDTH	Resized the selected instrument to have the same width as the dominant instrument
MAKE SAME HEIGHT	Resized the selected instrument to have the same height as the dominant instrument
MAKE SAME SIZE	Resized the selected instrument to have the same size as the dominant instrument