

Getting Started Sysma 2.3

MAGNETI MARELLI MOTORSPORT

Getting Started with SYSMA

Magneti Marelli Motorsport Confidential Proprietary

Page 1 of 26



SUMMARY

1. In	nstallation	3
1.1.	First time installation	3
1.2.	Subsequent installation	5
2. Fi	irst Setting	6
2.1.	Comunication Line	6
2.2.	Project's folder path	7
3. Pi	rojects	8
3.1.	Open an existing project	8
4. W	Vork on a Project	9
4.1.	Work on a Project Workspace	9
4.1.1.	Alias	.11
4.1.2.	Connections	.12
4.1.3.	Open CLX Management	.18
4.1.4.	Acquisition Table	.18
4.1.5.	Flash	.21
4.2.	Work on a Channel Browser	.22
4.3.	Layout	.24
4.3.1.	Instruments Sizing and Alignment	.26



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.



Choose Destination L Select folder where set	ocation up will install files.			
SYSM	Setup will ins To install to t folder.	tall SYSMA in the folic	wing folder. To install to a different folder	, click Browse and select another
1	Destination C:\SYSMA	n Folder		Browse
	19			

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.



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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.

Welcome Modify, repair, or remove the progra	n
° SYSMA C	Welcome to the SYSMA Setup Maintenance program. This program lets you modify the current installation. Click one of the options below. Update / Repair Update program features to this version or reinstall features installed previously. Remove Remove all installed features.
natellineld	<back next=""> Cancel</back>

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.

🔀 General Options		×
<u>F</u> ile		
✓ ×		
Protocol	Brauva Diractorian	
Windows		
Calibrations	User Custom Directories	
Data Recorder	C. Program Files pragned marelli Kading motoor (515mA (Frojects)	
Data Acquisition		$\mathbf{\overline{X}}$
		+
	Add Default	
General Options		



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.



DataLogger Options	×
Acquisition Table Pages Setup Info Communication Channels Window Optic	ons
Alias	
ECU1	Remove
BIKE1	
	Remove All
	Add
	Move Up

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.

 \bigcirc \checkmark Control \rightarrow ECU \bigcirc \checkmark Logging \rightarrow 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.





AG	0_MM_BIKE_v001_b028 0_MM_BIKE_v001_b027 [Active]
•	ECU & DataLogger
	🚣 Alias: Alias undefined
-	Connections
	Logging
-	Also dev
	WIVI_BIKE_VUUI_B027_GearboxSetA.cix
ſ	Database Set Copy
-	Name: Copy of GearboxSetA
I.	Comment:

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.

Projects Workspace		
CLX Set: Wet		
AGO_MM_BIKE_V	/001_b028	
AGO_MM_BIKE_\	/001_b027 [Active]	
🖻 🌒 ECU & DataL	ogger	
Alias: Alia	s undefined	
Database Set Mar	agement	×
Set Active	Default Dry	
Remove	Wet [Active] GearboxSetA	
Rename	GearboxSetB	
Load		
Created:	11:33, giovedì 21 febbraio 2013	
Comment:		
Eait		
	🛩 ОК	🔀 Cancel



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.



Sompare CLX [MM_BIKE_v001_b027_Wet.clx	- MM_BIKE_v001_b027_Dry.ckx]	- C - X-
<u>File Edit View Compare</u>		
-CLX A	axe	
File Name: C: \MM MotoGP\Sisma Projects\Sysma_	AGO_v001_b027(Sysma_AGO_v001_b027(CX/WM_BIXE_v001_b027_UX+dx C:WM_BIXE_v001_b027_CX/WM_BIXE_V001_b027_CX/WM_BIXE_v001_b027_CX/WM_BIXE_v	
Read only		
Group: All		Compare
	Property QX A CLX B	

File Browser 23	Compare
ns	Compare
Files: CLX Set: 🛃 Dry	
Devices J & DataLogger T: Inco. MM_BIKE_v001_b027_Dry.dx	
(CT: AGO_MM_BIKE_v001_b027

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.

P	All [2247]
+	Left only [74]
•	Right only [38]
	Measure Different [1111]
	Calibration Different [1022]
	Calibration Values Different [3]



All: Left only: Right only: Measure Different: Calibration Different:

list of all differences

calibrations or channels present only in CLX A calibrations or channels present only in CLX B list of Measurements Channels type differences only 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.

File Edit View Compare	dit View Compare																																					
														CXX8:																								
	File Nam	e: D:\EC	Us/SRTV	Nanterre)	DELIVER	YISRAE_4	.77_GEN	ERIC_AUT	OTECNE	CA_01\C	XISRAE_G	ENERIC	Calibrat	on_01.d:	<					File Nam	e: D:VE	CUs/SRTV	Vanterre)	DELIVERY	SRAE_4	77_GENE	RIC_AU	TOTEONIC	CA_01\O	X\SRAE_	GENERIC	_Calibrat	ion_02.dt	<		_	- 6	
Group: All							-			lgr	ore Prefix				_	_	_			-	-									Igr	ore Prefi	x						
Groups	Read o	nly 4	2 42	4	U 🔝		2				-	-	-				nport oni	v brd		Read o	nly 4	2 42	4			-	-						-				tra	
ACTUATORS CONFIGURATIC										1	1	3. 0000 I (- m				-		-		10.0		- 00											I DE T		
- PIL ALARMES	C									(1					e E			°00 °	ompare				14	. 3		2)							19	LCG	LOS
ANALOG LAMBDA CONTRO	Proper	N N		CLX	A (Base	3D adv. I	map f(R)	M/Inlet	/SwMai	01		•)(CLXBI	Base 3D a	idv. map	f(RPM/I	nletP/Swl	Map)]	-) <u>(</u>	·	1	/									_
											-	-	_	_												_	_											
Channel [Display Name]																																						
Base 3D adv. map f(RPM/InletP/SwMap)																																						
	Alte	mate Rov	vs 🖭	Side by s	ide 👔	Side b	/ side	🕍 Ove	rlapped	2	Difference		Al Calb.	Different	: Values																					F	Max	ómize
		_																	-		_														-	_		
-	BP Z:	1) 🔻																		BP Z:	1) -																	
	6,10,1	0750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	6,10,1	0750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000
	0300	29.0	29.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0300	29.0	29.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	0400	25.0	29.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0400	25.0	29.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	0500	25.0	29.0	30.0	30.0	30.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0500	25.0	29.0	30.0	30.0	30.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	0550	40.0	40.0	40.0	40.0	33.0	25.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	0550	40.0	40.0	40.0	40.0	33.0	25.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
	0600	25.0	26.5	26.5	26.5	26.5	34.5	33.0	37.0	38.5	39.0	39.0	39.0	40.0	39.5	44.0	41.5	42.5	42.5	0600	25.0	26.5	26.5	26.5	26.5	34.5	33.0	37.0	36.5	39.0	39.0	39.0	40.0	39.5	44.0	41.5	42.5	42.5
	0680	25.0	25.5	26.5	25.5	24.5	33.5	38.0	38.5	37.5	37.0	39.5	40.0	37.5	39.0	43.5	45.5	45.5	43.0	0680	25.0	25.5	26.5	25.5	24.5	33.5	38.0	38.5	37.5	38.0	40.5	41.0	38.5	40.0	44.5	46.5	46.5	44.0
	0720	25.0	26.0	26.5	25.5	24.5	33.5	39.5	35.0	33.5	33.0	33.5	37.0	34.0	34.5	39.0	40.0	40.5	40.0	0720	25.0	26.0	26.5	25.5	24.5	33.5	39.5	35.0	33.5	34.0	34.5	38.0	35.0	35.5	40.0	41.0	41.5	41.0
	0770	25.0	20.5	20.5	24.0	25.0	32.0	38.5	31.0	29.0	27.0	21.5	32.0	30.5	29.0	33.0	33.0	36.0	36.5	0770	25.0	20.5	26.5	24.0	25.0	32.0	38.5	31.0	29.0	28.0	28.5	33.0	31.5	30.0	34.0	34.0	37.0	37.5
	0000	25.0	20.5	20.0	23.0	25.0	29.5	37.0	29.0	20.5	24.0	23.5	28.5	31.0	20.5	29.0	28.5	34.5	36.0	0800	25.0	20.5	20.0	23.0	25.0	28.5	37.0	29.0	20.0	25.0	24.5	30.5	32.0	27.5	30.0	30.5	35.5	37.0
	0020	20.0	30.0	20.0	23.5	20.0	20.0	32.5	20.0	20.0	25.0	25.0	20.0	20.6	29.0	20.0	20.0	22.0	26.0	0020	20.0	30.0	20.0	23.0	20.0	27.0	32.5	20.0	20.0	24.0	29.0	20.0	31.5	20.0	20.6	21.0	24.0	20.0
	0880	25.0	30.0	30.0	27.0	25.5	25.0	27.5	28.5	28.0	28.0	27.0	29.5	29.5	28.5	30.0	31.0	32.0	34.5	0880	25.0	30.0	30.0	27.0	25.5	25.0	27.5	28.5	28.0	27.0	28.0	30.5	30.5	29.5	31.0	32.0	33.0	35.5
	0880	25.0	31.0	31.0	27.0	26.0	25.0	28.0	28.0	28.5	27.5	27.5	29.5	29.5	28.0	30.0	31.5	31.5	34.0	0880	25.0	31.0	31.0	27.0	28.0	25.0	28.0	28.0	28.5	28.5	28.5	30.5	30.5	29.0	31.0	32.5	32.5	35.0
-	0900	25.0	32.0	32.0	28.5	27.5	26.0	28.0	28.0	30.0	27.5	28.5	29.5	28.5	28.5	30.5	32.0	32.0	32.0	0900	25.0	32.0	32.0	28.5	27.5	26.0	28.0	28.0	30.0	27.5	28.5	29.5	28.5	28.5	30.5	32.0	32.0	32.0
	0920	25.0	33.5	33.5	28.0	26.0	26.5	28.0	29.0	30.0	27.5	28.5	28.5	29.0	28.5	30.5	32.0	32.5	32.0	0920	25.0	33.5	33.5	28.0	26.0	26.5	28.0	29.0	30.0	27.5	28.5	28.5	29.0	28.5	30.5	32.0	32.5	32.0
	0930	25.0	34.0	34.0	27.5	27.0	27.0	28.5	29.0	29.5	27.5	27.5	28.5	28.5	28.5	30.0	32.5	32.5	32.0	0930	25.0	34.0	34.0	27.5	27.0	27.0	28.5	29.0	29.5	27.5	27.5	28.5	28.5	28.5	30.0	32.5	32.5	32.0
	0950	25.0	34.0	34.0	27.0	27.0	27.0	28.5	29.0	29.5	27.5	27.5	29.0	29.0	29.0	30.0	32.0	32.5	32.5	0950	25.0	34.0	34.0	27.0	27.0	27.0	28.5	29.0	29.5	27.5	27.5	29.0	29.0	29.0	30.0	32.0	32.5	32.5
	0980	25.0	32.0	32.0	27.5	27.0	26.5	28.5	28.5	30.0	27.5	27.5	29.0	30.0	29.0	30.5	33.0	33.0	34.0	0980	25.0	32.0	32.0	27.5	27.0	26.5	28.5	28.5	30.0	27.5	27.5	29.0	30.0	29.0	30.5	33.0	33.0	34.0
	1000	25.0	31.0	30.0	28.5	26.0	25.0	28.0	27.5	29.0	27.5	27.5	30.0	31.0	30.0	31.5	33.5	35.0	36.0	1000	25.0	31.0	30.0	26.5	26.0	25.0	28.0	27.5	29.0	27.5	27.5	30.0	31.0	30.0	31.5	33.5	35.0	36.0
	1050	25.0	30.0	30.0	25.0	25.0	24.0	27.5	26.0	25.5	27.0	28.5	30.5	32.0	30.0	31.5	34.0	35.0	36.5	1050	25.0	30.0	30.0	25.0	25.0	24.0	27.5	26.0	25.5	27.0	28.5	30.5	32.0	30.0	31.5	34.0	35.0	36.5
		•				.87															•								_									
		-																	_																_			



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.

📑 CLX Management				
Replace	Set as target to change: SRAE_GENERIC_Calibration_02.dx			•
1 Import	Name	Comment	Modified 🔻	
Add to project	SRAE_GENERIC_Calibration_02.clx		05/06/2019 15:30:56	
Not to project	SRAE_GENERIC_Calibration_01.dx		13/03/2018 19:36:23	
× Remove	Modules_CAN_DELTA LD 001 55.dx		09/01/2018 11:07:51	
Rename	SRAE_GENERIC_Measure_Default.clx		09/01/2018 11:07:51	
	Modules_CAN.clx		09/01/2018 11:07:51	
Open CLX	SRAE_GENERIC_Calibration_Default.dx		22/12/2017 10:31:01	
Open External CLX				
New CLX				
C Edit comment				
Read Calibrations				
Write Calibrations				
Write Multi-Device				
Compare CLX - CLX				
Compare CLX - ECU				
Browse External CLX	Name A	Comment	Modified	
₩ Fixed Field	No Q.X. files found in ditusers/inereghetti(Desktop)			
Enable Search Filter	Search:			Legend

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.

Auto Mapping	•	C:	:\MM MotoGP\Sisma Pro	ojects\Sysma_AG0	0_v001_b027\Sysma	_AGO_v001_b027\Ta	oles\Test.tpx v. 1	-0-	
Name 🔺	Comment		Channels	Display name	/ Unit	Acquisition type	Output format	Decimals num	Frequency A
VBattery_Exp VBatteryAxis VbDropSwitch Vbign VbIgn_Exp VbignDiagMax	Battery Voltage Battery Voltage generic axis Analogue voltage for drop switch (where used) Ignition voltage input value Ignitions Voltage Maximum Volta yau		Groups Zeros Messages Sensor Calibration Trigger Partial Time	Vbign	V	Float	Dec	2	20Hz
 VbignDiagMin Vbinj VbinjExp VbinjDiagMax VbinjDiagMin VbKillSwitch VbLaunchSwitch VbMapDownSwi VbMapUpSwitch 	Minimum Vbinj value Injectori voltage input value Maximum Vbinj value Minimum Vbinj value Analogue voltage for illi switch (vhere used) Analogue voltage for janch switch (vhere used) Analogue voltage for generic map down switch (vhere used) Analogue voltage for generic map uswitch (vhere used)		Test.tpx Log time: 3236.	< Channels	1 Acq. (B/s): 80 /	III Acq. (samples/s): 20	Zeros ch.: 0 Trig a	h.:	• //.

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

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Projects\Sysma_AGO	D_v001_b027\Sysma	_AGO_v001_b027\Tab	oles\Test.tpx v. 1	_	
Display name	/ Unit	Acquisition type	Output format	Decimals num	Frequency A
Vbign	V	Float	Dec	2	20Hz
Channel Properties					×
Channel Format	Elaboration Miscella	neous Compression			
Ref. Name:	Vbign				
Display Name:	Vbign				
Unit:	V				
Comment:	Ignition voltage inpu	t value			*
					-
Acquisition Line:	SCI 1	Address:			
1	Frequencies				
(((((((((((((((((((A : 20Hz	- <u>)</u>			
	\sim				
			OK	(Annulla	?

Set the acquisition trigger from the menu in the table...

Channels	Trigger type Condition Time post trigger	Γ
Groups	Acquisition 0 <= EngRPM <= 20000 5	
Zeros		
Sensor Calibrati	Acquisition Trigger Setup	
	IV Enable	
	Channel: EngRPM	
	Condition	
	Min: 0 May: 20000	
	Trigger	
	Post trigger (s) :	
	5	
	OK Cancel	



4.1.5. Flash

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

TCR.CDL	
Setup Line: ETHERNET 💌 Run	



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.

Channel Browser			4 X
📑 🖹 🖪 🔝 fa	2	Toolbar filter	
		Search by name	
Device: All			8
🗊 Devices			
- CU & DataLog	<u>iger</u>	Device filter	
🖾 🍘 Dashboard			
Group: All			8
🕵 Groups			
			=
Air Flow			
📲 Analogue		Groups filter	
	nt	2 C	
- 🕌 Auto Mapping			
AutocodeSts			
Axes			
BIOS Init			
Chutch Desition			
Consumption			
Name 🔺	Comment		*
"A" Beacon pull	0 = No pull 1 = Set pull-up 2 = Set pull down		
"B" Beacon pull	0 = No pull 1 = Set pull-up 2 = Set pull down		
algnBaseMap	MAP ADDRESS: Base ignition angle	Channel list	
_alnjEndMap_Pri	MAP ADDRESS: Primary Injection and angle	onannornot	
	MAP ADDRESS: Secondary Injection end angle		
rIniPriRatioMan	MAP ADDRESS: Percentage of fuel to apply to primary injector 100		
A E2Wreg	Write request for EEPROM RW section (of ACT micro-processor)		
A_E2Wsts	Status of EEPROM write (of ACT micro-processor)		
aCamPos	Cam Position		
Accelerometer F	0 : Disable 1 : 10 Hz, 2 : 100Hz 3 : 1000 Hz, 4 : 2000Hz		
Accelerometer r	0:02 G1:04 G2:08 G3:016 G		
AccXInt	Internal accelerometer X value		
AccYInt	Internal accelerometer Y value		
AccZInt	Internal accelerometer Z value		-

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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.

New Layou	t
Name:	Test
	Creation Options © Empty layout © From current windows
	OK Cancel

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





Page 24 of 26



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*.



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Page 25 of 26





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
4	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	Resized the selected instrument to have the same width as the
	WIDTH	dominant instrument
1	MAKE SAME	Resized the selected instrument to have the same height as the
	HEIGHT	dominant instrument
\oplus	MAKE SAME SIZE	Resized the selected instrument to have the same size as the
		dominant instrument

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