EcoCAL Manual

V2.3



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ECOTRON

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Introduction

EcoCAL is the calibration software of EV/Hybrid system from Ecotrons, which can be used to connect and control the battery/motor states, modify the maps of the driver torque, verify the threshold of the acceleration/brake pedals, control the auxiliaries etc.

Ecotrons HCU/VCU is fully programmable, so if you want to change the setting of VCU/HCU, you need to connect HCU/VCU to laptop via EcoCAL.

Chapter 1 Basic Operation of EcoCAL

1.1 Installation of EcoCAL

1.1.1 Download EcoCAL Software

Download EcoCAL calibration software from Ecotrons website:

http://www.ecotrons.com/support/

Latest Software – Free Download 🔨

 $\underline{\Lambda}$ If unreadable code appears when you download, please try Right-click \rightarrow Save As

Ecotrons DroidCAL Phone App - v1.5

- SimMotor GUI software v1.4 🕮
- EcoFlash Software v1.1.1.8
- EcotronsCAN Driver

Click the 'EcoCAL for EV', and then download the software 'EcoCAL-Setup.exe'

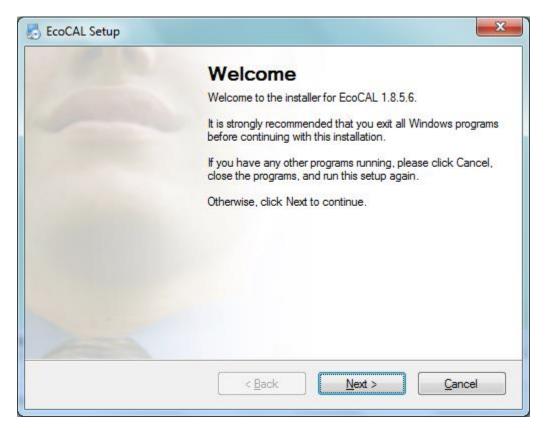


1.1.2 Install EcoCAL

1) Double-click the icon 'EcoCAL setup' to install EcoCAL



2) Click 'Next'

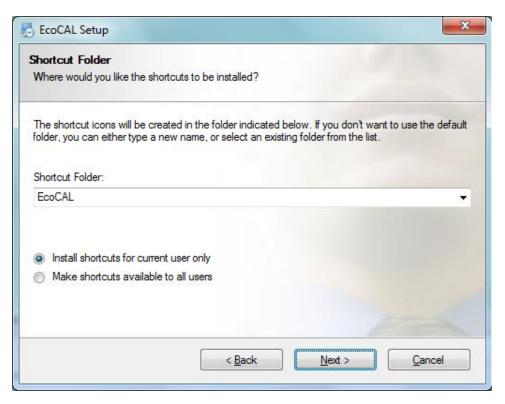




2) Click 'Next' and choose the path to install EcoCAL

nstallation Folder		
Where would you like EcoCAL	to be installed?	
The software will be installed ir new path, or click Change to b		ct a different location, either type in a
Install EcoCAL to:		
C:\EcoCAL		Change
Space required: 120.1 MB Space available on selected d	lrive: 6.77 GB	

3) Click 'Next'

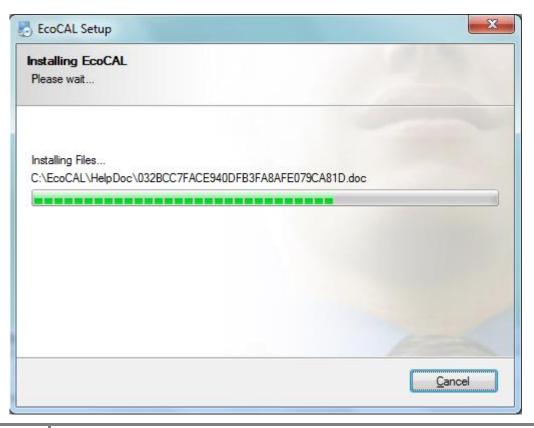




4) Click 'Next'

leady to Insta		AL 1050			
rou are now rea	dy to install EcoC	AL 1.8.5.6			
The in <mark>s</mark> taller now	has enough info	rmation to install B	coCAL on your c	computer.	
The following set	ttings will be used	to:			
nstall folder:	C:\EcoCAL				
Shortcut folder:	EcoCAL				
Please click Nex	t to proceed with	the installation.			
				1000	

5) Click 'Next' and wait





6) Click 'Finish'

Installation Conservated				
Installation Successful The EcoCAL 1.8.5.6 installation is complete.				
Thank you for choosing EcoCAL!				
Please click Finish to exit this installer.				
< Back Einish Cancel				

The installation of EcoCAL is complete.

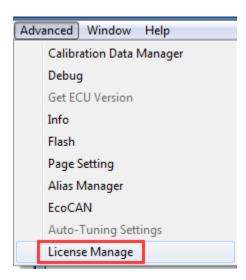


1.2 Activate EcoCAL

1.2.1 Activate EcoCAL by Online License

1.2.1.1 Get the Key File

In EcoCAL: Go to menu-> Advanced-> License Manage-> Create Key File



Please send the key file to ECOTRONS at 'ev-support@ecotrons.com'. (EV customers only, EcoCAL for EFI/UAV is fully free)

1.2.1.2 Activate EcoCAL

In EcoCAL: Go to menu-> Advanced-> License Manage-> Register License

😈 License Manage	X
	Create Key File
	Register License



Select lic file received from Ecotrons.

Comp	puter	Local Disk (D:) ► EcoCAL ► lic	ense			✓ ✓ _↑ Search license	_	
rganize 🔻 🛛 New f	older							(
Favorites	Â.	Name	Date modified	Туре	Size			
🧮 Desktop		License EcoCAL.lic	2018/3/9 9:26	License	1 KB			
鷆 Downloads	= L							
📃 Recent Places								
libraries								
Documents								
Documents Music								
 Documents Music Pictures 								
Documents Music Pictures Subversion								
 Documents Music Pictures 	Ŧ							
 Documents Music Pictures Subversion Videos 		e: License EcoCAL.lic				▼ Lic(*Lic)		

The activation is successful if 'Message' window is displayed as following picture.

Message	×
Activatio	n successful.
	ОК

1.2.2 Activate EcoCAL by Dongle

Plug the dongle into your pc, the software will be activated automatically.

Note: Virtual machine is not supported, please make sure the USB port works properly first.



1.3 Start EcoCAL

1.3.1 Start EcoCAL Software

1) Double-click the icon '**EcoCAL'** on the desktop to start the EcoCAL software.



2) When EcoCAL is open for the first time after installation, it will load the Demo files automatically with the default page setting.

C EcoCAL V1.8.6.2		_ 0 <u>_</u> x
File Edit Settings Run Variables Diagnostics	Advanced Window Help	
	service made rep	
← Project	Ö Calibration	
Demo.a21	+ 0.001 - • 1 / Selected = 1 5 2	
Demo.cal		
Calibration	Alias Name Value Unit	
	😡 diagEssCAN_flgMaskRdy_va_diagEssCAN_flgMaskRdy_va_0 -	
	😧 diagEssLv_flgMaskRdy_val diagEssLv_flgMaskRdy_val 1 -	
	diagTmCAN_figMaskRdy_val diagTmCAN_figMaskRdy_val 0 -	
	diagTmlv_flgMaskRdy_val diagTmlv_flgMaskRdy_val 1	
2017/5/25 18-32:45:www.ecotrons.com		
2017/5/25 18:32:45:Converting the file		
2017/5/25 18:32:48:Parsing the file 2017/5/25 18:32:49:Linking the file	Ö Calibration	
2017/5/25 18:32:49:Embing the file 2017/5/25 18:32:49:File loaded successfully!	+ 0.001 . + 1 / Selected = 1 + 0	
2017/5/25 18:32:51:Load configuration		
successfully! File path: C:\EcoCAL \current_config.ml	Alias Name Value Unit	
2017/5/25 18:32:51:License file is not exist.	R diagDmoc_tCntRevRdyDbnc_val diagDmoc_tCntRevRdyDbnc_val 0.000 -	1
	😥 sensDry_pctDiffPedbrk_val sensDry_pctDiffPedbrk_val 0.500 -	
	😧 sensDrv_pctPedbrk_val sensDrv_pctPedbrk_val 0.000 -	
	😧 sensDrvPedacc_pctPotRatchDeadBand_v sensDrvPedacc_pctPotRatchDeadBand_v 0.000 -	
	ensDrvPedace_pctPotRatchFastBand_vr_sensDrvPedace_pctPotRatchFastBand_vr_0.100 -	
	ensDrvPedace_petPotRatchMadnit_yal_sensDrvPedace_petPotRatchMadnit_yal_0600 sensDrvPedace_petPotRatchMinlinit_yal_sensDrvPedace_petPotRatchMinlinit_yal_0300 sensDrvPedace_petPotRatchMinlinit_yal_sensDrvPedace_petPotRatchMinlinit_yal_0300	
	C sensDrvPedacc_pctPotKatchManint_val sensDrvPedacc_pctPotKatchManint_val 0.300 -	
	Ö Calibration	
	+ 0.001 - • 1 / Selected = 1 • · · ·	
	[Input: sensLinkPas_voltPressVac, [-], "Conversion from normalized ref voltage to pressure"	
	😧 Output: sensPasVacPmry_pressPnom_cut, [-], "Conversion from normalized ref voltage to pressure"	
	senslinkPas voltPressVac 0.200 2.687 4.600	
	sensimerary/ourresvar 0.000 2.08/ 4.000 sensity.vocPmv processPnom cur 115:00 -5:000 0.000	
	sensi as act may preseriorm car 410.000 0000	
		_
	sensPasVacPrmry pressPnorm cur	
	wana sekarang presa nong ya	
Driver Sensors Vehicle Control Motor Limited		
Driver Sensors Vehicle Control Motor Limited	ted Ess Limited Driver Torque Charger Control Vehicle Setting Auxiliaries Control Cruise Control Battery Charge	
Disconnected License file is not exist.	Working Page: C:EcoCAL/Demo.cal	

Note: If EcoCAL does not automatically load the default configuration, likely you do not have the necessary A2L file and CAL file in the installation folder of 'C:\EcoCAL'.

1.3.2 Load the Calibration Files

1) File types and definitions

MOT/HEX file: Executable file for VCU.

A2L file: this is a VCU/HCU description file that contains variant VCU/HCU info for EcoCAL to know where to get what, etc.

CAL file: this is a calibration data file that contains parameters users can tune.



Note: Ecotrons A2L file follows the ASAP2 standards (defined by the automotive standard association ASAM).

In EcoCoder 'Fixed CCP Slave Definition block', there are 2 options for CCP type, if users chose 'Configurable', then EcoCoder will only export MOT/HEX file and A2L file for EcoCAL (highly recommended)

For some hardware which does not support this feature or users specially want to export CAL file, please chose 'Simple', then EcoCoder will export MOT file, A2L file and CAL file for EcoCAL.

Note: MOT/HEX file could be provided by code generation of Simulink or by Ecotrons. The former one is common application software developed by customer, while the latter one is firmware update file provided by Ecotrons at some cost per request of customized function or feature from customer.

It is enough to have A2Lfile and MOT/HEX/CAL file to run EcoCAL and do the calibration work.

2) Load the correct A2I and MOT/HEX/CAL files

In EcoCAL, go to menu->File->Open, then choose the correct A2L and CAL file.

😈 Open				×
← → × ↑ 🔒 « TEST > prjna	me > Target_out	νÖ	Search Target_out	م
Organize 🔻 New folder				- 🔳 🕐
★ Quick access OneDrive	Name	^		modified 1 019 10:29 AM
📃 This PC 🧊 3D Objects				
Desktop				
Downloads Music				
Pictures				
🙀 Videos 🏪 Local Disk (C:)				
💣 Network	<			>
File name:		~	ASAM-2MC(*.a2l) Open ▼	Cancel .:



😈 Open					×
← → × ↑ 📙 « TEST → prjr	name > Target_out	∽ ©	Search Target_ou	ıt	Q
Organize 🔻 New folder			•	= •	?
📌 Quick access	Name	^		ate modified	1
OneDrive		No items ma	tch your search.		
This PC					
🧊 3D Objects					
📃 Desktop					
Documents					
👆 Downloads					
h Music					
Pictures					
🔫 Videos					
Local Disk (C:)					
🧼 Network	<				>
File name:		~	cal(*.cal)		\sim
			cal(*.cal)		
			mot(*.mot)		
			sre(".sre) s19(*.s19)		
			Hex(*.Hex)		
			srec(*.srec)		
😈 Open					×
🗧 🔶 🚽 🛧 📥 « TEST » prj	name > Target_out	√ Ō	Search Target_ou	ıt	P

Upen Upen						^
\leftarrow \rightarrow \checkmark \uparrow \bullet \checkmark \bullet Test \rightarrow	prjname > Target_out	~ Ō	Search Target	_out		P
Organize 🔻 New folder						?
 ✓ Quick access OneDrive This PC 3D Objects Desktop Documents ✓ Downloads Music Pictures Videos Local Disk (C:) 	Name			Date mo		۲ ۱۹ IV
💣 Network	<					>
File name:		~	mot(*.mot) Open	▼	Cancel	× :

Note: You can also click file icon at quick command bar.





Chapter 2 Connect EcoCAL to VCU/HCU and Quick Measurement Trial

In this chapter, basic setup of both hardware and software is disclosed. Please follow tutorial of this chapter step by step by avoiding possible trap and get faster in debugging when get into trouble with EcoCAL.

2.1 Connect VCU/HCU to Laptop

Note: Please make sure that VCU/HCU is powered on, which indicates vehicle is powered on. In addition, please connect USB CAN device to PC and make sure it is powered on correctly. Common device would have a power indicator lighting continuously.

2.1.1 Communication Setup

Please select the communication mode first

1) Go to menu->Settings->Communication Settings:

🆏 Communication Settings	×
Select the communication mode.	CAN Settings Device Type EcotronsCAN • Device Index 0 • Channel 1 • Baud Rate 500kbs •
	Open Device
	Close Device Cancel



2) CAN communication mode

Ecotrons VCU/HCU supports the calibration/measurement through CCP.

🖏 Communication Settings	×
Select the communication mode.	CAN Settings Device Type EcotronsCAN Device Index EcotronsCAN Kvaser ECO-USBCAN PCAN Baud Rate 500kbs Close Device Close Device

Please select the USB CAN device you use. Kvaser, PeakCAN, EcotronsCAN, ECO-USB CAN are supported by EcoCAL. If you get the CAN device from Ecotrons, please choose the 'EcotronsCAN'.

Please choose the CAN device Type and Baud Rate after finish setting. Then click '**Open Device**' to open the CAN device.

If you don't want to use the CAN device, please click '**Close Device**' to close the CAN device. Then the USB port connected to adaptor would be released from communication with EcoCAL.



🆏 Communication Settings	×
Select the communication mode.	CAN Settings Device Type EcotronsCAN • Device Index Kvaser ECO-USBCAN PCAN Baud Rate 500kbs •

3) 'Open device successfully' Message

If message 'Open device successfully!' pops up after clicking 'Open Device', you are good to proceed to next step. If it fails, please check whether USB CAN device is powered on correctly.

	7/18/2019 8:59:31 PM:www.ecotrons.com
	7/18/2019 8:59:31 PM:Converting the file
	7/18/2019 8:59:32 PM:Parsing the file
	7/18/2019 8:59:32 PM:Linking the file
	7/18/2019 8:59:32 PM:File loaded successfully!
	7/18/2019 8:59:32 PM:Load configuration
	successfully! File path: C:\EcoCAL
	\current_config.xml
١	7/24/2019 3:21:15 PM:Open device
l	successfully!



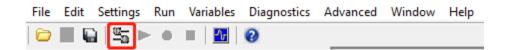
2.1.2 Connect USB CAN Device to VCU

1) Connect USB CAN device to VCU/HCU firstly.

2) Go to menu->Run->Connect

🐻 EcoCAL V2.1.6.7						
File Edit Setting	ls Run	Variables	Diagnostics	Advanced	Window	Help
🗁 🔳 🖬 🖺		Connect		F5		
	rt	Disconnect		Ctrl+R		
	D	Data Manag	gement			
		Start Measu	iring	F8		
	Ci	Start Record	ding	F9		
		Stop Measu	iring	F11		
		Play Back				
	_					

Note: You can also use the shortcut button (¹⁵) by clicking the 'Connect' button under run menu to build up communication between PC and VCU/HCU.



3) 'Connect successfully' Message

When communication between PC and VCU/HCU is built successfully, the left lower corner of window will show 'Connected' in green.

Driver Sensors	Vehicle	e Control	Motor Liz
Connecte	d	Start mea	suring!



2.1.3 Disconnect EcoCAL from VCU/HCU

1) Go to menu->Run->Disconnect

😇 E	coCAL	V2.1.6.7						
File	Edit	Settings	Run	Variables	Diagnostics	Advanced	Window	Help
) 🔄 🕨		Connect		F5		
•		Project		Disconnect		Ctrl+R		
		m		Data Manag	gement			
		m		Start Measu	iring	F8		
		Ci		Start Record	ding	F9		
				Stop Measu	iring	F11		
				Play Back				
			_					

Note: You can also click the shortcut button (
) to disconnect your PC from VCU/HCU.

2) Go to menu->Settings->Communication Settings:

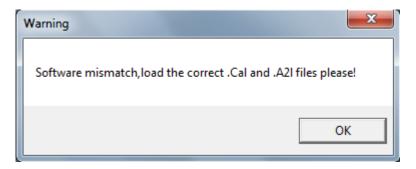
🆏 Communication Settings	×
Select the communication mode.	CAN Settings Device Type EcotronsCAN • Device Index 0 • Channel 1 • Baud Rate 500kbs •
	Open Device
	Close Device Cancel



Click 'Close Device' to stop communication and set free the USB port for other use. **Now, you are free of any hardware concern!** Please redo steps of 2.1.1 and 2.1.2 for data recording preparation.

2.1.4 Common Error Message Diagnose

In this section, a basic error message is analyzed for diagnose. These messages are likely to pop up right after connection is built.



Please load the correct mot/cal files from the 'Target_out' folder (which will pop up

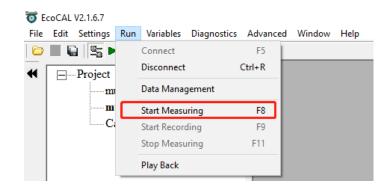
automatically after successful compilation) under your project path.

2.1.5 Start Measuring

If previous sections of this chapter are well followed, EcoCAL will be friendly with you in the process of calibration/measurement.

Before doing first measurement with EcoCAL, please refer to section 3.2 and section 5.3.5 to add at least one measurement window or one oscilloscope window as shown in lower second picture.

1) Go to menu->Run->Start Measuring





Then you can see the values of measured variables.

Scope									
							у		Name
								v	CANA_nTxTimes = 0[]
								2 V	and a state
								V	=0[]
50 -									
	2.0 3.0 4	.0 5.0		7.0 8.0	9.0				
	2.0 3.0 4	, , , .0 5.0	• • • • 6.0	7.0 8.0	9.0	10.0			
	2.0 3.0 4	.0 5.0	 6.0	7.0 8.0	9.0	10.0			
0 0.0 1.0 Measurements	2.0 3.0 4 Name	0 5.0	6.0	7.0 8.0	9.0	10.0			
0.0 1.0 Measurements Alias Task_tCMxL50ms					9.0	10.0			
0.0 1.0 Measurements	Name	Value	Unit	Rate	9.0				

Note: You can also use the shortcut button () by clicking the 'Start Measuring' button to measure the value of measured variables.



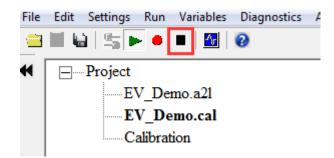
2.1.6 Stop Measuring

When you finish the test and want to do some other operation, like reading **the DTC**, **adding measurement variable or burn to /fetch from ECU**, you need to stop measuring first.

Go to menu->Run->Stop Measuring

🐻 Е	coCAL	V2.1.6.7						
File	Edit	Settings	Run	Variables	Diagnostics	Advanced	Window	Help
		15		Connect		F5		
•		Project		Disconnect	(Ctrl+R		
		m		Data Manag	jement			
		m		Start Measu	ring	F8		
		C		Start Record	ling	F9		
			C	Stop Measu	ring	F11		
				Play Back				
			C	Start Record Stop Measu	ling	F9		

Note: You can also use the shortcut button (**I**) by clicking the 'Stop Measuring' button to stop measure the value of measured variables.



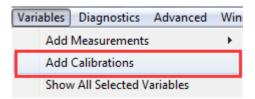


Chapter 3 Operation for Calibration/Measurement

3.1 Add and Delete Calibration Variables

3.1.1 Add Calibration Variables

1) Go to menu->Variables->Add Calibrations



2) Right click on the blank area of the window, click 'Add Calibrations'

Add Measurements	•
Add Calibrations	
Show All Selected Variables	

Then 'Add Advanced Calibrations' window will pop up.

o Add Advanced Calibrations	×
TC 12, 12	
All calibration datas	Selected calibration datas
Name CAN_flgTest_val CANA_flgStart_val CANA_nTxOnce_val CANA_nTxTimes_val CANB_flgStart_val CANB_flgStart_val CANB_nTxTimes_val CANB_nTxTimes_val keyCycle_flgResetSWEn_val keyCycle_tDbncKeyOffFall_val	Add>>>
Descriptions :	
	OK



Select variables to be calibrated to right box.

o Add Advanced Calibrations	×
°C ™ 127	
All calibration datas	Selected calibration datas Next
Name actrAdas_flgtrqMnSorce_val actrAuxDcdc_flgDis_val actrAuxDcdc_flgMskSt_val	actrAuxDcdcDisDo_flgDiagMdDflt_val actrAuxVlatch1_tHvilDly_val actrClim_period_val actrDfbk_capLow_val
actrAuxDcdcDisDo_flgDiagMdDflt_val actrAuxVlatch1_tHvilDly_val actrClim_period_val actrDfbk_capLow_val	
actrDfbk_flgImpenal_val actrDfbk_sohLow_val actrDfbl/India_patDistEmptyPurtmOff_val	
Descriptions :""	
	OK

of Calibration			
+ 0.001 _ * 1 / 9	ielected = 1		
	XT.	** *	TT ->
Alias	Name	Value	Unit
	actrAuxDcdcDisDo_flgDiagMdDflt_va		-
actrAuxVlatch1_tHvilDly_val	actrAuxVlatch1_tHvilDly_val	2.400	-
@ actrClim_period_val	actrClim_period_val	200.000	-
@ actrDfbk_capLow_val	actrDfbk_capLow_val	0.000	-
1			

Note: Above method is to add new calibration window. If you want to add a calibration variable at an existed calibration window, please use following method:



1) Right click on the calibration window, then click 'Add Calibrations'

	Selected = 1 🦘 🖈			
ata: actrAuxDcdcDisDo_flgDiagMdD	flt_val,[-],""			
Alias	Name	Value	τ	Unit
<pre> actrAuxDcdcDisDo_flgDiagMdDfl actrAuxVlatch1 tHvilDly val </pre>	t_va actrAuxDcdcDisDo_flgDiagMdD actrAuxVlatch1 tHvilDly val		librations	
actrClim_period_val	actrClim_period_val	Delete		
🕖 actrDfbk_capLow_val	actrDfbk_capLow_val		e Alias Ils Display ilas Column	
			e Properties v Properties	

2) Use the same method to add the calibration variables.

o Add Advanced Calibrations	×
°C ™ ∰	
All calibration datas	Selected calibration datas Next
Name actrAdas_flgtrqMnSorce_val actrAuxDcdc_flgDis_val actrAuxDcdc_flgMskSt_val actrAuxDcdcDisDo_flgDiagMdDflt_val actrAuxVlatch1_tHvilDly_val actrClim_period_val	actrAuxDedeDisDo_flgDiagMdDflt_val actrAuxVlateh1_tHvilDly_val actrClim_period_val actrDfbk_capLow_val
actrDfbk_capLow_val actrDfbk_flgImpenal_val actrDfbk_sohLow_val cotrDfbk_lodic_patDictEmptryDustmOff_val Descriptions :""	
	OK Cancel

If you want to add the **'MAP'** and **'CUR'** variables, please right click on blank window to add the calibration variable. Please refer to section 3.3 for detail of MAP and CUR variables.



3.1.2 Delete Calibration Variables

1) Choose the calibration variable that you want to delete, right click, and then click 'Delete' to delete the calibration variables.

😽 Calibration				
+ 0.001 _ * 1 / 5	elected = 1	I		
Data: actrDfbk_flgImperial_val,[-],""				
Alias	Name		Value	Unit
actrAuxDcdcDisDo_flgDiagMdDflt_va	actrAuxDcdcDisDo_flgDia	agMdDflt_va	1	-
actrAuxVlatch1_tHvilDly_val	actrAuxVlatch1_tHvilDly_	val	2.400	-
@ actrClim_period_val	actrClim_period_val		200.000	-
@ actrDfbk_capLow_val	actrDfbk_capLow_val		0.000	-
@ actrDfbk_flgImperial_val	actrDfbk_flgImperial_vat	Add Call	o brations	-
			brations	
		Delete		
		Change	Alias	
		-	s Display	
		Hide All	as Column	
		Variable	Properties	
		Window	Properties	
			riopenies	

Or click 'Add', you can select all the calibration variables you want to delete on the right side. Click 'Delete' button, then click 'OK'. All the calibration variables you select will be deleted.

😺 Calibration				- • •
+ 0.001 _ * 1 /	Selected = 1 🔥 🥐			
Data: actrAuxDcdcDisDo_flgDiagMdDflt	_va1,[-],""			
Alias	Name	Value	Unit	
😢 actrAuxDcdcDisDo_flgDiagMdDflt_v	actrAuxDcdcDisDo_flgDiagMdD	a 1	_	
😢 actrAuxVlatch1_tHvilDly_val	actrAuxVlatch1_tHvilDly_val	Add Calibrations		
😧 actrClim_period_val	actrClim_period_val	Delete		
😧 actrDfbk_capLow_val	actrDfbk_capLow_val	Change Alias		
		2		
		Decimals Display		
		Hide Alias Colum	in 📗	
		Variable Propertie	ac.	
		Window Properti	es	



o Add Advanced Calibrations		×
°C 🗽 🛱		
All calibration datas	Selected calibration datas	lext
Name actrAdas_flgtrqMnSorce_val actrAuxDcdc_flgDis_val actrAuxDcdc_flgMskSt_val actrAuxDcdcDisDo_flgDiagMdDflt_val actrAuxVlatch1_tHvilDly_val actrClim_period_val actrDfbk_capLow_val actrDfbk_sohLow_val actrDfbk_sohLow_val actrDfbk_sohLow_val actrDfbk_sohLow_val	Add >> actrAuxDedeDisDo_flgDiagMdDflt_val actrAuxVlatchl_tHvilDly_val actrClim_period_val actrDfbk_capLow_val actrDfbk_flgImperial_val	
	OK	ancel

3.2 Add and Delete Measured Variables

3.2.1 Add Measured Variables

1) Go to menu->Variables->Add Measurements



2) Right click on the blank area of window, click 'Add Measurements'

Add Measurements	•	New List Window
Add Calibrations		New Oscilloscope Window
Show All Selected Variables		New Gauge Window

Then the 'Add Measurements' window will pop up



o Add Measurements						— ×
	Search					Search
CANA flgStart CANA_nTxOnce CANA_nTxTimes		Add To Syn>>	Name		Rate	
CANB_flgStart CANB_nTxOnce CANB_nTxTimes		Add To 20ms >>				
esmcDcdc_flgEn keyCycle_flgKeyOff keyCycle_flgKeyOn		Add To 100ms >>				
keyCycle_flgPwrDelay keyCycle_uKeyOn NVMDataCtrl_flgRam2Rom						
NVMDataCtrl_flgRom2Ram NVMDataCtrl_flgUpdate NVMTest_bool		<< Delete				
A11 :239		Syn :0	20ms :0	100ms :0	ОК	Cancel

Select the measured variables you will need, then click 'Add to 100ms' button. And then click 'OK', the measured window will show up.

Note: Variables can also be added to be 'Syn','20ms', which is the display frequency.

Here, we also add some other variables as example.

	Search				Search
drv_linspdLimActv1	*	Add To Syn>>	Name	Rate	
drv_linspdLimActv2 drv_linspdLimDes1			drv linspdLimDes2	100ms	
drv linspdLimDes2			drv linspdLimEv1	100ms	
drv linspdLimEv1		Add To 20ms >>	drv linspdLimEv2	100ms	
drv_linspdLimEv2					
div_timspdLimFwdHight		(A 44 To 100mo >>)			
drv_linspdLimFwdHigh2		Add To 100ms >>			
drv_linspdLimpSt1 drv_linspdLimpSt1Raw					
drv linspdLimpSt2					
drv linspdLimpSt2Raw					
drv linspdLimRev1					
drv_linspdLimRev2		<< Delete			
drv_pctAccArb	-				

Note: Above method is a way to add new measured variables window. If you want to add the measured variables at existed window, please use the following method:

1) Right click on the Selected Variables window, and then click 'Add Measurements'.



Alias	Name	Value	Unit	Rate	
drv_linspdLimDes2	drv_linspdLimDes2			100ms	
drv_linspdLimEv1	drv_linspdLimEv1			100ms	
drv_linspdLimEv2	drv_linspdLimEv2			100ms	
				as Column properties	
			Change Hide Ali	Alias as Column	
				Properties	

	Search				Search
actrAux_flgDcdcEn	*	Add To Syn >>	Name	Rate	
actrAux stChgrRlv			actrAux stHandBrk	100ms	
actrAux_stHandBrk actrAuxDcdc_flgDis			rv linspdLimDes2	100ms	
actrAuxVlatch1 flgEn		Add To 20ms >>	drv linspdLimEv1	100ms	
actrClimAcComprs flgEn			drv_linspdLimEv2	100ms	
actrClimAcComprs_rotspdTrg actrClimAirconCan_flgTxEn actrClimPtc_flgEn actrClimPtc_flgPwm actrDfbk_flgChgPlease actrDfbk_flgMaintainBat actrDfbk_flgStopAndDown actrDfbk_flgStopAndDown actrDfbk_flgVehReady actrDfbkGauge1_pct	t [Add To 100ms >>		/	



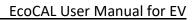
3.2.2 Delete Measured Variables

Method 1:

Right click on the Selected Variables, choose 'Add Measurements', and then select the measured variables you want to delete.

ত ।	Measurements					
	Alias	Name	Value	Unit	Rate	
0	drv_linspdLimDes2	drv_linspdLimDes2			100ms	
0	drv_linspdLimEv1	drv_linspdLimEv1			100ms	
0	drv_linspdLimEv2	drv_linspdLimEv2			100ms	
				Add Measu Change Ali Hide Alias Variable pro Window Pr	as Column operties	

Add Measurements	earch	_			Search
actrAux_flgDcdcEn actrAux_stChgrRly	^ Add T	To Syn >>	Name	Rate	
actrAux_stHandBrk actrAuxDcdc_flgDis actrAuxVlatch1_flgEn	Add T	o 20ms >>	drv_linspdLimDes2 drv_linspdLimEv1 drv_linspdLimEv2	100ms 100ms 100ms	
actrClimAcComprs_flgEn actrClimAcComprs_rotspdTrgt actrClimAirconCan_flgTxEn actrClimPtc_flgEn actrClimPtc_flgPwm actrDfbk_flgChgPlease	Add To	o 100ms >>			
actrDfbk_flgMaintainBat actrDfbk_flgStopAndDown actrDfbk_flgVehReady actrDfbkGauge1_pct	• <	Delete			
A11 :999		Syn :0	20ms :0 100ms ::	3 OK	Cancel



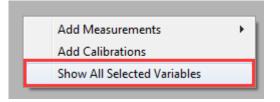


Method 2:

Go to menu->Variables-> Show All Selected Variables

Variables Diagnos	stics Advanced Win
Add Measurer	ments •
Add Calibratio	ons
Show All Selec	cted Variables

Or right click on the blank of window, and then choose 'Show All Selected Variables'



A window will pop-up, all the selected measured variables will be shown here.

		Searc	ch	
Name	Rate		*	Syn :0
CANB_flgStart	20ms			-)
CANB_nTxOnce	20ms			
CANB_nTxTimes	20ms			20ms :12
esmcDcdc_flgEn	20ms		=	
keyCycle_flgKeyOff	20ms			100ms :5
keyCycle_flgKeyOn	20ms			100ms :5
keyCycle_flgPwrDelay	20ms			
keyCycle_uKeyOn	20ms			
NVMDataCtrl_flgRam2Ron	20ms			Delete >>
NVMDataCtrl_flgRom2Ran	20ms			
NVMDataCtrl_flgUpdate	20ms		÷	



3.3 Calibration

There are three types of calibration variables: values, curves and maps.

Value:

	,		
Alias	Name	Value	Unit
sigInDrvPedacc_dRawSigFa	c_v: sigInDrvPedacc_dRawSigFac_val	0.000	-

Curve:

🤯 Calibration										
+ 0.001 - * 1	/ Selected	= 1	♠ 👌							
Input: EngLimGen_trqLast, [],""										
Output: EngLim_trqPtCrnkLimP	os_cur, [],""									
EngLimGen_trqLast/[]	0.000000	15.000000	20.000000	30.000000	40.000000	50.000000	70.000000	90.000000	120.000000	150.000000
EngLim_trqPtCrnkLimPos_cur/[]	100.000000	100.000000	90.000000	80.000000	70.000000	60.000000	40.000000	20.000000	10.000000	0.000000
EngLim_trqPtCrnkLimPos_cur										

Maps:

nnut-X: Sigle	CANEng rot	spd [] ""Input-	Y: SigInCANEn		<u>*</u>		
		VsTempVsSpd		gount_temp, [],			
ojoutput.	igran_udenik	vsrempvsspd	<u></u>			1	
X/Y	0.000000	50.000000	100.000000	150.000000	200.000000	300.000000	400.000000
-50.000000	50.000000	50.000000	40.000000	30.000000	25.000000	20.000000	0.000000
-30.000000	50.000000	50.000000	40.000000	30.000000	25.000000	20.000000	0.000000
-10.000000	50.000000	50.000000	40.000000	30.000000	25.000000	20.000000	0.000000
10.000000	45.000000	45.000000	35.000000	30.000000	20.000000	15.000000	0.000000
30.000000	43.000000	43.000000	35.000000	25.000000	20.000000	15.000000	0.000000
50.000000	40.000000	40.000000	35.000000	25.000000	20.000000	15.000000	0.000000
70.000000	38.000000	38.000000	35.000000	25.000000	20.000000	10.000000	0.000000
90.000000	35.000000	35.000000	35.000000	25.000000	20.000000	10.000000	0.000000
110.000000	32.000000	32.000000	32.000000	25.000000	15.000000	10.000000	0.000000



3.3.1 Change the Value with Direct Input

1) Double click the value cell that you want to modify

o Calibration			- • ×
+ 0.001 _ * 1 /	Selected = 1 🦘 🥐		
Data: CAN_flgTest_val,[NM],"Torqu	ie"		
Alias	Name	Value	Unit
CAN_flgTest_val	CAN_flgTest_val	0.000	NM
😢 keyCycle_tKeyOffDelay_val	keyCycle_tKeyOffDelay_val	5.000	S
🕡 sigInDrvPedacc_dRawSigFac_va	sigInDrvPedacc_dRawSigFac_va	2.000	-
Part Test_flgDOS01_val_L95	Test_flgDOS01_val_L95	0	NM
Past_flgDOS05_H108	Test_flgDOS05_H108	0	NM
PastOPWM_dutyHbridge1_val	TestOPWM_dutyHbridge1_val	50	NM
PastOPWM_dutyHbridge2_val	TestOPWM_dutyHbridge2_val	50	NM
PastOPWM_dutyHSO12_val	TestOPWM_dutyHSO12_val	0	NM
PastOPWM_dutyLSO16_val	TestOPWM_dutyLSO16_val	0	NM
PastOPWM_frqHbridge1_val	TestOPWM_frqHbridge1_val	20	NM

2) Input the desired value

+ 0.001 _ * 1 /	Selected = 1 🧄 🥐	,	
ata: CAN_flgTest_val,[NM],"Torqu	e"		
Alias	Name	Value	Unit
OAN_flgTest_val	CAN_flgTest_val	1	NM
keyCycle_tKeyOffDelay_val	keyCycle_tKeyOffDelay_val	5.000	s
∂ sigInDrvPedacc_dRawSigFac_va	sigInDrvPedacc_dRawSigFac_va	2.000	-
Past_flgDOS01_val_L95	Test_flgDOS01_val_L95	0	NM
Past_flgDOS05_H108	Test_flgDOS05_H108	0	NM
Participation Provided a construction of the second sec	TestOPWM_dutyHbridge1_val	50	NM
Participation Provided Contract Provided Prov	TestOPWM_dutyHbridge2_val	50	NM
PastOPWM_dutyHSO12_val	TestOPWM_dutyHSO12_val	0	NM
PastOPWM_dutyLSO16_val	TestOPWM_dutyLSO16_val	0	NM
PastOPWM frqHbridge1 val	TestOPWM frqHbridge1 val	20	NM

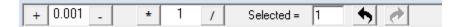
Press click Enter to finish it. The modified data will be shown in red.

+ 0.001 _ * 1	/ Selected = 1	1	
ata: CAN_flgTest_val,[NM],"	Torque"		
Alias	Name	Value	Unit
? CAN_flgTest_val	CAN_flgTest_val	1.000	NM
🕜 keyCycle_tKeyOffDelay_v	al keyCycle_tKeyOffDelay_va	1 5.000	S
🝘 sigInDrvPedacc_dRawSigF	ac_va_sigInDrvPedacc_dRawSigFa	ic_va 2.000	-
? Test_flgDOS01_val_L95	Test_flgDOS01_val_L95	0	NM
Part Test_flgDOS05_H108	Test_flgDOS05_H108	0	NM
? TestOPWM_dutyHbridge1	_val TestOPWM_dutyHbridge1_	val 50	NM
TestOPWM_dutyHbridge2	_val TestOPWM_dutyHbridge2_	val 50	NM
TestOPWM_dutyHSO12_v	al TestOPWM_dutyHSO12_va	al 0	NM
? TestOPWM_dutyLSO16_v	al TestOPWM_dutyLSO16_va	1 0	NM
? TestOPWM_frqHbridge1_	val TestOPWM_frqHbridge1_v	al 20	NM



3.3.2 Change the Value with Formula

EcoCAL supports formula driven calibration.



1) Plus and Minus

- a) Select the cell with the value you want to change
- b) Input delta (difference) in the box after the Plus button
- c) Click the Plus button + or Minus button.

For example:

Input 0.1 in the box

Ż	😽 Calibration								
	+ 0.1	-	- * 1 / Selected = 1						
Ŀ	Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [-],""								
	Output: vehDrv_trqEcoTracMax_map, [-],""								
	X/Y	-20.000	-5.000	0.000	10.000	20.000			
	0.000	0.000	0.000	0.000	0.000	0.000			
	0.100	-445.000	-443.000	441.000	439.000	437.000			
0.200		-465.000	-463.000	461.000	459.000	457.000			

Click on the cell with the value you want to change

😽 Calibration								
+ 0.1 _ * 1 / Selected = 1								
Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [-]								
Output: vehDrv_trqEcoTracMax_map, [-],""								
X/Y	-20.000	-5.000	0.000	10.000				
0.000	0.000	0.000	0.000	0.000				
0.100	-445.000	-443.000	441.000	439.000				
0.200	-465.000	-463.000	461.000	459.000				
0.300	-575.000	-570.000	565.000	560.000				
0.400	-620.000	-617.000	614.000	611.000				



If you want to increase the stock value by 0.1 step, please click the Plus button +.

1	or Calibration								
	+ 0.1	-	* 1	/ Sel					
	Input-X: vehDrv_linspd, [-],"" Input-Y: veh								
(Output: vehDrv_trqEcoTracMax_map, [-],								
l	X/Y	-20.000	-5.000	0.000					
	0.000	0.100	0.000	0.000					
	0.100	0.100 -445.000		441.000					
	0.200	-465.000	-463.000	461.000					

If you want to decrease the stock value by 0.1 step, please click Minus button -.

of Calibration									
+ 0.1		* 1	/ Se						
Input-X: v	Input-X: vehDrv_linspd, [-],"" Input-Y: veł								
Output	Output: vehDrv_trqEcoTracMax_map, [-]								
X/Y	-20.000	-5.000	0.000						
0.000	0.000	0.000	0.000						
0.100	-445.000	-443.000	441.000						
0.200	-465.000	-463.000	461.000						

Note: You can also change the value of multiple cells together by selecting them all.

😽 Calibration				😽 Calibration					
+ 0.1	-	* 1	1 .	Selected =	+ 0.1	-	* 1	/ Se	elected = 1
Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [-				
Output: vehDrv_trqEcoTracMax_map, [-],""			Output	Output: vehDrv_trqEcoTracMax_map, [-],""					
X/Y	-20.000	-5.000	0.000	10.000	X/Y	-20.000	-5.000	0.000	10.000
0.000	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	-444.900	-442.900	441.000	439.000	0.100	-445.000	-443.000	441.000	439.000
0.200	-464.900	-462.900	461.000	459.000	0.200	-465.000	-463.000	461.000	459.000
0.300	-574.900	-569.900	565.000	560.000	0.300	-575.000	-570.000	565.000	560.000
0.400	-619.900	-616.900	614.000	611.000	0.400	-620.000	-617.000	614.000	611.000
0.500	-679.900	-678.900	678.000	677.000	0.500	-680.000	-679.000	678.000	677.000
0.600	-789.900	-786.900	784.000	781.000	0.600	-790.000	-787.000	784.000	781.000
0.700	-959.900	-957.900	956.000	954.000	0.700	-960.000	-958.000	956.000	954.000
0.800	-1079.900	-1078.900	1078.000	1077.000	0.800	-1080.000	-1079.000	1078.000	1077.000
0.900	-1379.900	-1377.900	1376.000	1374.000	0.900	-1380.000	-1378.000	1376.000	1374.000
0.950	-1579.900	-1577.900	1576.000	1574.000	0.950	-1580.000	-1578.000	1576.000	1574.000
1.000	-1899.900	-1899.900	1900.000	1900.000	1.000	-1900.000	-1900.000	1900.000	1900.000
							_	-	
vehDrv tr	vehDrv trgEcoTracMax map				vehDrv_trqEcoTracMax_map				



2) Multiply and divided by

👸 Calibration				
+ 0.1 _	* 2	1	Selected = 1	- + 2
Input-X: vehDrv_lin	spd, [-],""	Input-Y	vehDrv_pct, [-],""	
Output: vehDrv_	trqEcoTrac	:Max_ma	p, [-],""	

Same as Plus or Minus function, gain could be applied to cell to be changed.

3) Equal to

This function is used to change the value of a cell to a specified value.

Choose the cell or area of cells you want to change, and then input the value which you want in the box. Press the Enter button on keyboard to input it.

+ 0.1	-	* 2	/	Selected =	100	b	
iput-X: v	/ehDrv_lins	pd, [-],""	Input-Y: ve	ehDrv_pct,	[-],""		
Outpu	t: vehDrv_t	rqEcoTracl	Max_map, [-],""			
X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.00
0.000	0.100	0.100	0.000	100.000	100.000	0.000	0.000
0.100	-444.900	-442.900	441.000	100.000	100.000	435.000	433.00
0.200	-464.900	-462.900	461.000	100.000	100.000	455.000	453.00
0.300	-574.900	-569.900	565.000	100.000	100.000	550.000	545.00
0.400	-619.900	-616.900	614.000	100.000	100.000	605.000	602.00
0.500	-679.900	-678.900	678.000	100.000	100.000	675.000	674.00
0.600	-789.900	-786.900	784.000	100.000	100.000	775.000	772.00
0.700	-959.900	-957.900	956.000	100.000	100.000	950.000	948.00
0.800	-1079.900	-1078.900	1078.000	100.000	100.000	1075.000	1074.0
0.900	-1379.900	-1377.900	1376.000	100.000	100.000	1370.000	1368.0
0.950	-1579.900	-1577.900	1576.000	100.000	100.000	1570.000	1568.0
1.000	-1899.900	-1899.900	1900.000	100.000	100.000	1900.000	1900.0

4) Undo / Redo

The user can click the button (f, f') / f' to undo or redo the calibration as below.

👸 Calibration	n			
+ 0.1	- *	2 /	Selected = 100	◆ 🛃
Input-X: vehI	Drv_linspd, [-],"" Input-	Y: vehDrv_pct, [-],""	
Output: ve	ehDrv_trqEco	TracMax_m	ap, [-],""	

3.3.3 Export/Import Calibration Data for Tuning

You can also export data export to Excel sheet from EcoCAL and do the further data modification in Excel. After finishing the modification, you can import data back to EcoCAL. This is very useful for Curve and Map tables.

🅉 Calibra	ation													
+ 0.1	-	* 2	/ 8	ielected =	100	> 🛃								
iput-X: v	ehDrv_lins	pd, [-],""	Input-Y: ve	hDrv_pct,	[-],""									
Output	t: vehDrv_t	rqEcoTracl	Max_map, [-],""										
X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.000	50.0	Add Calibrations	90.000	95.000	100.000	115.000	120.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	Delete	0.000	0.000	0.000	0.000	0.000
0.100	-445.000	-443.000	441.000	439.000	437.000	435.000	433.000	431.0	Delete	423.000	421.000	419.000	417.000	415.000
0.200	-465.000	-463.000	461.000	459.000	457.000	455.000	453.000	451.0	Import	443.000	441.000	439.000	437.000	435.000
0.300	-575.000	-570.000	565.000	560.000	555.000	550.000	545.000	540.0	Export	520.000	515.000	510.000	505.000	500.000
0.400	-620.000	-617.000	614.000	611.000	608.000	605.000	602.000	599.0		587.000	584.000	581.000	578.000	575.000
0.500	-680.000	-679.000	678.000	677.000	676.000	675.000	674.000	673.0	Сору	669.000	668.000	667.000	666.000	665.000
0.600	-790.000	-787.000	784.000	781.000	778.000	775.000	772.000	769.0	Paste	757.000	754.000	751.000	748.000	745.000
0.700	-960.000	-958.000	956.000	954.000	952.000	950.000	948.000	946.0	Smooth Cells	938.000	936.000	934.000	932.000	930.000
0.800	-1080.000	-1079.000	1078.000	1077.000	1076.000	1075.000	1074.000	1073.		1069.000	1068.000	1067.000	1066.000	1065.000
0.900	-1380.000	-1378.000	1376.000	1374.000	1372.000	1370.000	1368.000	1366.	Change Alias	1358.000	1356.000	1354.000	1352.000	1350.000
0.950	-1580.000	-1578.000	1576.000	1574.000	1572.000	1570.000	1568.000	1566.	Decimals Display	1558.000	1556.000	1554.000	1552.000	1550,000
1.000	-1900.000	-1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.	2D View	1900.000	1900.000	1900.000	1900.000	1900.000
									3D View	<u> </u>				
ehDrv_t	rqEcoTracM	lax_map							Fit Window					
									Fit Grid					
									Variable Properties					
									Window Properties					

Right-Click the parameter window, select the **Export** option.

The program will pop-up a 'save as' dialog window.

If you click **save**, the program will save **CSV** file and open it. The default name of the **CSV** file is the calibration label name.

The **CSV** file will be opened automatically. You can choose to open the file by a selected application from your laptop. The picture below shows that the CSV file is opened as .**xls** file by Excel.

vehDrv_trq [[-]															
Input-X: ve [[-]	Input-Y:	[-]													
X/Y	-20	-5	0	10	20	30	40	50	60	70	80	90	95	100	115	120
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.1	-445	-443	441	439	437	435	433	431	429	427	425	423	421	419	417	415
0.2	-465	-463	461	459	457	455	453	451	449	447	445	443	441	439	437	435
0.3	-575	-570	565	560	555	550	545	540	535	530	525	520	515	510	505	500
0.4	-620	-617	614	611	608	605	602	599	596	593	590	587	584	581	578	575
0.5	-680	-679	678	677	676	675	674	673	672	671	670	669	668	667	666	665
0.6	-790	-787	784	781	778	775	772	769	766	763	760	757	754	751	748	745
0.7	-960	-958	956	954	952	950	948	946	944	942	940	938	936	934	932	930
0.8	-1080	-1079	1078	1077	1076	1075	1074	1073	1072	1071	1070	1069	1068	1067	1066	1065
0.9	-1380	-1378	1376	1374	1372	1370	1368	1366	1364	1362	1360	1358	1356	1354	1352	1350
0.95	-1580	-1578	1576	1574	1572	1570	1568	1566	1564	1562	1560	1558	1556	1554	1552	1550
1	-1900	-1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900

It is highly recommended to modify your curve and map tables, revise the data in Excel and then import them back to EcoCAL. Please do not forget to save the tables after finish tuning.



vehDrv_trq	[-]															
Input-X: ve	[-]	Input-Y:	[-]													
х/ү	-20	-5	0	10	20	30	40	50	60	70	80	90	95	100	115	120
0	0	0		0	0	0	0	0							0	0
0.1	- 500	-500	- 500	-500	- 500	-500	- 500	-500	- 500	- 500	- 500	- 500	-500	- 500	-500	- 500
0.2	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600
0.3	-700	-700	-700	-700	-700	-700	-700	-700	-700	-700	-700	-700	-700	-700	-700	-700
0.4	-800	-800	-800	-800	-800	-800	-800	-800	-800	-800	-800	-800	-800	-800	-800	-800
0.5	-900	-900	-900	-900	-900	-900	-900	-900	-900	-900	-900	-900	-900	-900	-900	-900
0.6	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000	-1000
0.7	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100	-1100
0.8	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200	-1200
0.9	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300	-1300
0.95	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400	-1400
1	-1500	-1500	-1500	-1500	-1500	-1500	-1500	- 1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500

If you want to import a saved calibration tables, right-Click the parameter window, select the **Import** option.

🕉 Calibra	ation															
+ 0.1	-	* 2	/ 5	Selected =	100	5 0										
nput-X: v	ehDrv_lins	pd, [-],""	Input-Y: ve	hDrv_pct,	[-],""											
Output	t: vehDrv_t	rqEcoTracM	Max_map, [-],""												
								50.000		70.000						
X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.00	Add Cal		70.000	80.000	90.000	95.000	100.000	115.000	120.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00		ibrations		0.000	0.000	0.000	0.000	0.000	0.000
0.100	-445.000	-443.000	441.000	439.000	437.000	435.000	433.0	Delete			425.000	423.000	421.000	419.000	417.000	415.000
0.200	-465.000	-463.000	461.000	459.000	457.000	455.000	453.0	Import			445.000	443.000	441.000	439.000	437.000	435.000
0.300	-575.000	-570.000	565.000	560.000	555.000	550.000	545.0				525.000	520.000	515.000	510.000	505.000	500.000
0.400	-620.000	-617.000	614.000	611.000	608.000	605.000	602.0	Export			590.000	587.000	584.000	581.000	578.000	575.000
0.500	-680.000	-679.000	678.000	677.000	676.000	675.000	674.0	Сору			670.000	669.000	668.000	667.000	666.000	665.000
0.600	-790.000	-787.000	784.000	781.000	778.000	775.000	772.0	Paste			760.000	757.000	754.000	751.000	748.000	745.000
0.700	-960.000	-958.000	956.000	954.000	952.000	950.000	948.0	Smooth	Cells		940.000	938.000	936.000	934.000	932.000	930.000
0.800	-1080.000	-1079.000	1078.000	1077.000	1076.000	1075.000	1074.0				1070.000	1069.000	1068.000	1067.000	1066.000	1065.000
0.900	-1380.000	-1378.000	1376.000	1374.000	1372.000	1370.000	1368.0	Change	Alias		1360.000	1358.000	1356.000	1354.000	1352.000	1350.000
0.950	-1580.000	-1578.000	1576.000	1574.000	1572.000	1570.000	1568.0	Decimal	s Display		1560.000	1558.000	1556.000	1554.000	1552.000	1550.000
1.000	-1900.000	-1900.000	1900.000	1900.000	1900.000	1900.000	1900.0	2D View			1900.000	1900.000	1900.000	1900.000	1900.000	1900.000
								3D View								
ehDrv_ti	rqEcoTracM	ax_map						Fit Wind	0.00							
									000							
								Fit Grid								
								Variable	Properties							
								Window	Properties							

Import the **CSV** file you need. The modified cells will be shown in red.

+ 0.1	-	* 2	/ 5	Selected =	100	5 🛃										
nput-X: ve	ehDrv_lins	pđ, [-],""	Input-Y: ve	hDrv_pct,	[-],""											
Output:	vehDrv_tr	qEcoTracM	/lax_map, [-],""												
X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	95.000	100.000	115.000	120.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000	-500.000
0.200	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000	-600.000
0.300	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000	-700.000
0.400	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000	-800.000
0.500	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000
0.600	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000
0.700	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000
0.800	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000
0.900	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000
0.950	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000
1.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000

Note: after you change the data, please save the calibration as a new CAL file.

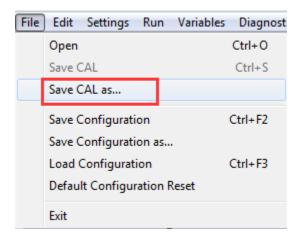
Please refer the following section on how to save the new CAL files.



3.4 Save as Calibration Data File

After you finish the tuning work for VCU/HCU, please save the tuning data before you exit the EcoCAL. EcoCAL could not save the tuning work automatically.

1) Go to menu->File->Save CAL as



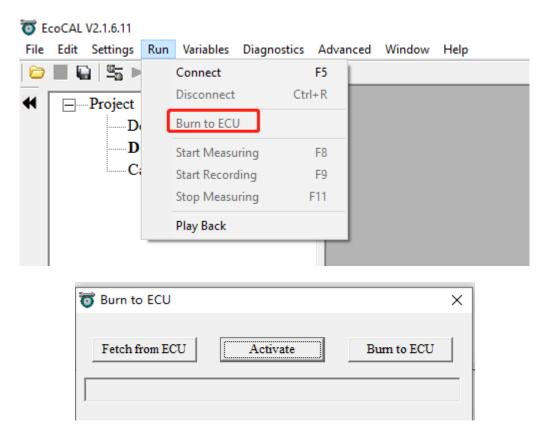
	uter ► Local Disk (C:) ► EcoCAL ►			▼ 4 9 S	2	
Organize 🔻 New fo						(2
🚺 Downloads 🧳	Name	Date modified	Туре	Size		
📃 Recent Places	HelpDoc	2017/5/25 17:53	File folder			
-	kerneldlis	2017/5/25 17:53	File folder			
🗟 Libraries	Picture	2017/5/25 17:53	File folder			
Documents	🔋 📔 record	2017/5/26 10:00	File folder			
Music Pictures	🔋 🐌 Uninstall	2017/5/25 17:53	File folder			
Subversion	Demo.cal	2017/2/23 20:30	CAL File	18 KB		
Videos	EV_Demo.cal	2017/4/26 11:50	CAL File	4 KB		
🖳 Computer						
🏭 Local Disk (C:)						
👝 Local Disk (D:)						
👝 Local Disk (E:)	-					
File name: EV_	Demo1.cal					
Save as type: cal(*.cal)					

You can save it as a new calibration CAL file.



3.5 Burn to VCU and Fetch from VCU

In some cases, it is useful to be able to transfer calibration data between the PC and the control unit, such as downloading the data from PC to the unit or uploading the data from the unit to PC. The 'Burn to ECU' function enables user to do so.



Fetch from ECU: Export the calibration file from the control unit to the PC

Activate: Flash the calibration data to the control unit (RAM area)

Burn to ECU: Flash the calibration data to the control unit (ROM area)



3.5.1 Burn the CAL File to ECU (VCU)

After you finish the data tuning, you may be eager to see the performance of VCU/HCU. Please burn the data to VCU/HCU.

Connect to ECU first, and then click the 'burn to ECU 'button to burn the CAL file or data changed to ECU.

Warning: make sure the 12V battery has enough energy before you do any 'burn to ECU' or 'fetch from ECU'!

During the process of uploading or downloading, users are not allowed to interrupt the system.

Do not turn off the ECU power or disconnect the serial cable before finishing upload/download.

3.5.2 Fetch the CAL File from VCU

You can fetch the calibration data from the VCU/HCU if you need to study it or save for later use.

1) Go to menu->Run->Burn to ECU->Fetch from ECU

🐻 Burn to ECU		×
Fetch from EC	J Activate	Burn to ECU

Save it as CAL file.

Chapter 4 Tuning Help and Support

4.1 Find the Help and Support Window

In EcoCAL, there are many questions like buttons 😰 in the window, you can click on it to get the details about calibration variables and measure variables. Besides, you can also get tips of tuning through it.

- Project	T Calibration								😽 Measureme	nts						- 8
EV_Demo.a2l	+ 0.001 .	* 1	/ Sel	scted = 1	50				Alias		Name	Value	Unit	Rate		
EV_Demo.cal									CANB nl		CANB nTxOnce		Cint	20ms	_	
- Calibration	Alias		Name		Value		Unit		CANB nl		CANB_nTxTime			20ms	-	
EV Demo vl.cal	CAN figTe			lgTest val	1.000		NM								_	
Ev_Demo_vi.ca											esmcDcdc_flgEr			20ms	_	
		KeyOffDelay_va		le_tKeyOffDelay			s				keyCycle_flgKey			20ms	_	
				rvPedacc_dRawSi		0	-			flgKeyOn	keyCycle_flgKey	/On		20ms	_	
	Test_flgDC	OS01_val_L95	Test_fl	gDOS01_val_L95			NM		ReyCycle_	flgPwrDelay	keyCycle_flgPwr	Delay		20ms		
	Test_flgDC	S05_H108	Test_fl	gDOS05_H108	0		NM		@ ceyCycle	uKeyOn	keyCycle uKeyt	Dn		20ms		
	R TestOPWN	1 dutyHbridge1	val TestOF	WM dutyHbridg	gel val 50		NM		O NVMData	Ctrl flgRam	NVMDataCtrl fl	gRam:		20ms		
	2 TestOPWA	f dutvHbridge2	val TestOF	WM dutvHbridg	re2 val 50		NM				NVMDataCtrl fl			20ms		
13/2017 9:24:16 AM:Recording Started A		f dutyHSO12 v		WM dutyHSO12			NM				NVMDataCtrl fl			20ms	-	
3/2017 9:24:16 AM:Recorded file save path		dutyLSO16 v		WM_dutyLSO16			NM					gopa	NM	20ms	-	
EcoCAL1.8.5.9 record 2017-4-13-9-24-16-		f fraHbridge1 v		WM fraHbridge			NM		NVMTest	0001	NVMTest_bool		NM	20ms		
2\AllData-2017-4-13-9-24-16-491.csv 13/2017 9:25:35 AM:Stop measuring	C lestoPwi	1_frqHbridge1_v	al lestor	WM_frqHbridge	I_vai 20		NM		_							_
3/2017 9:22:33 AM:Stop measuring 3/2017 9:27:54 AM:Start measuring!																
13/2017 9:27:54 AM:Recording Started	Calibration															-
					4 []]											
13/2017 9:27:54 AM:Recorded file save path :EcoCAL1.8.5.9/record/2017-4-13-9-27-54-	+ 0.1 .	* 2		lected = 100	50											
13/2017 9:27:54 AM:Recorded file save path EcoCAL1.8.5.9/record/2017-4-13-9-27-54- 8/AllData-2017-4-13-9-27-54-919.csv	+ 0.1 .	* 2 rv_linspd, [-],""			50											
13/2017 9:27:54 AM:Recorded file save path EcoCAL1.8.5.9 record:2017-4-13-9:27:54- 8/AllData-2017-4-13-9:27:54-919.csv 13/2017 9:29:12 AM:Stop measuring	+ 0.1 . Input-X: vehD		Input-Y: vel	Drv_pct, [-],""	50											
3/2017 9:27:54 AM:Recorded file save path EcoCAL1.8.5.9/record.2017.4-13.9.27-54- 8/AIIData-2017.4-13.9-27-54-919.csv 3/2017 9:29:12 AM:Stop measuring 3/2017 9:29:12 AM:Stat measuring!	+ 0.1 . Input-X: vehD	rv_linspd, [-],"" hDrv_trqEcoTrac	Input-Y: vel	Drv_pct, [-],""	52]]		
13/2017 9:27:54 AM:Recorded file save path 'EcoCAL1.8.5.9:record:2017.4-13.9-27:54- 8:AIIData-2017.4-13.9-27:54-919.csv 13/2017 9:29:12 AM:Stop measuring 13/2017 9:29:12 AM:Start measuring! 13/2017 9:29:13 AM:Recording Started	+ 0.1 . Input-X: vehD	rv_linspd, [-],""	Input-Y: vel	Drv_pct, [-],""	20.000	30.000	40.000	50.000	60.000	70.000	\$0.000	90.000	95.000	100.000	115.000	
13/2017 9:27:54 AM:Recorded file save path EcoCAL1.85 9:record/2017-4-13-9:27:54- 8; AIIData-2017-4-13-9:27:54-919.csv 13/2017 9:29:12 AM:Statu measuring 13/2017 9:29:13 AM:Statu measuring 13/2017 9:29:13 AM:Recorded file save path	+ 0.1 . Input-X: vehDr	rv_linspd, [-],"" hDrv_trqEcoTrac	Input-Y: vel Max_map, [-]	Drv_pct, [-],""		30.000	40.000	50.000	60.000	70.000	80.000 0.000	90.000	95.000	100.000		120.
3/2017 921:54 AM:Recorded file save path EcoCAL1.8.5.9 record/2017.4-13.9-27.54 SAIData-2017.4-13.9-27.54 919.esv 3/2017 929:12 AM:Stort measuring 3/2017 929:12 AM:Start measuring 3/2017 929:13 AM:Recording Started 3/2017 929:13 AM:Recorded file save path EcoCAL1.8.57 91:ecord/2017-41:32-29.13-	+ 0.1 . Input-X: vehD Output: veh -20.000	rv_linspd, [-],"" hDrv_trqEcoTrac -5.000	Input-Y: vel Max_map, [-] 0.000	Drv_pct, [-],"" "" 10.000 0.000	20.000				0.000						115.000	120.
3/2017;927:54;AX/Records/file save path Ecco/L11.53;97:eccn/2017;41:30-27:54 SAUData.2017;4:13-27:54;919;cev 3/2017;92:12;AX/Stop measuring 13/2017;92:12;AX/Stop measuring 13/2017;92:13;AX/Records/file save path Ecco/L11.53;97:eccn/2017;41:30-29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:13 A/MData.2017;4:13-29:14)/20:29:15 A/MData.2017;4:13-29:14)/20:29:15 A/MData.2017;4:13-29:14)/20:29:15 A/MData.2017;4:13-29:14)/20:29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-29:15 A/MData.2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13-2017;4:13	+ 0.1 Input-X: vehD Dutput: veh -20.000 0.000 -500.000	rv_linspd, [-],"" hDrv_trqEcoTrac -5.000 0.000 -500.000	Input-Y: vel Max_map, [+] 0.000 0.000 -500.000	Drv_pct, [-],"" 10.000 0.000 -500.000	20.000 0.000 -500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	115.000 0.000 -500.000	120. 0.0 -500.
2021 9:27:54 AM/Recorded/file save path ESCALL 8:35 percent/2017-41:36-27:54 SAUData-2017-41:36-27:54-919 cav 31:2017-93:21 AM/Stop measuring 31:2017-93:21 AM/Stop measuring 31:2017-93:21 AM/Stop measuring 31:2017-93:21 AM/Stop measuring 31:2017-93:21 AM/Stop measuring 31:2017-93:21 AM/Stop measuring 31:2017-93:21 6AM/Stop measuring	+ 0.1 _ Input-X: vehD 20.000 -20.000 -500.000 -600.000	rv_linspd, [-],"" nDrv_trqEcoTrac -5.000 0.000 -500.000 -600.000	Input-Y: vel Max_map, [-] 0.000 0.000 -500.000 -600.000	Drv_pct, [-],"" "" 10.000 0.000 -500.000 -600.000	20.000 0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	0.000 -500.000 -600.000	115.000 0.000 -500.000 -600.000	120. 0.0 -500. -600.
32017 92754 AM/Recorded/file save path ECCALLS 5.97 exerved 3017-41.39-27-54. AMIData 2017-415-94-27-54.919 cev 32017 92911 AM/Stop measuring 32017 92913 AM/Recording Started 32017 92916 AM/Stop measuring 32017 92917 AM/Stop measu	+ 0.1 - Input-X: vehD 20.000 -500.000 -500.000 -700.000	-5.000 -5.000 -500.000 -500.000 -600.000 -700.000	Input-Y: vel Max_map, [+] 0.000 -500.000 -500.000 -700.000	Drv_pct, [-],"" 10.000 -500.000 -600.000 -700.000	20.000 0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	0.000 -500.000 -600.000 -700.000	115.000 0.000 -500.000 -600.000 -700.000	120.1 0.00 -500. -600. -700.
32017-22734 AXERcordef file save path ECAL15.5 Spread 2017-413-92734 AUDato 2017-413-92734-99 csv 32017-2921 AXEspt ensaming 13017-2921 AXEspt ensaming 13017-2921 AXEscording file save path 2017-2921 AXEscording file save path 2017-2921 AXEscording file save path 2017-2921 AXEspt ensaming 13017-2921 AXEspt ensaming 13017-2921 AXEspt ensaming 13017-2923 AXEscording file save path 13017-2923 AXEscording file save path	+ 0.1 - Input-X: vehD 20.000 -500.000 -500.000 -500.000 -500.000 -500.000	rv_linspd, [-],"" aDrv_trqEcoTrac -5.000 0.000 -500.000 -600.000 -700.000 -800.000	Input-Y: vel Max_map, [-] 0.000 0.000 -500.000 -600.000 -700.000 -800.000	Drv_pct, [-],"" 10.000 -500.000 -500.000 -600.000 -700.000 -800.000	20.000 0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	115.000 0.000 -500.000 -600.000 -700.000 -800.000	120. 0.0 -500. -600. -700. -800.
32017-227.54 AXRecorded file save path ECAL18.55 Precorded file save path SAUDRAD 174-115-275.4919 cor 32017-221 21 AXRecording Saured 32017-2231 AXRecording Saured 32017-2233 AXRecording Saured 32017-223 AXR	+ 0.1 - Input-X: vehD 20.000 -20.000 -500.000 -500.000 -500.000 -500.000 -500.000	rv_linspd, [-],"" Drv_trqEcoTrac -5.000 0.000 -500.000 -500.000 -600.000 -700.000 -800.000 -900.000	Input-Y: vel Max_map, [-] 0.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000	Drv_pct, [-],"" "" 10.000 -500.000 -500.000 -700.000 -800.000 -900.000	20.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	115.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000	120.1 0.0 -500. -600. -700. -800. -900.
32017-22734 AXRecorded: file save path ExcAll.1.5.5 recorded 7017-413-927-44 AMDrab.2017-413-927-4490 serv 32017-2921 AXRecording Started 32017-2921 AXReco	+ 0.1 - Input-X: vehD 20.000 -500.000 -500.000 -500.000 -500.000 -500.000	rv_inspd, [-],"" Drv_trqEcoTrac -5.000 -50000 -500.000 -600.000 -700.000 -800.000 -900.000 -1000.000	Input-Y: vel Max_map, [-] 0.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000 -1000.000	Drv_pet, [-],"" "" 10.000 .500.000 .500.000 .600.000 .700.000 .800.000 .900.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000 .1000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000 .1000.000 .1000.000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .10000 .1000 .1000 .1000 .1000 .1000 .1000 .10	20.000 0.000 -500.000 -600.000 -600.000 -800.000 -900.000 -1000.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000 -1000.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000 -1000.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000 -1000.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000 -1000.000	0.000 -500.000 -600.000 -700.000 -800.000	115.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000 -1000.000	120. 0.0 -500. -600. -700. -800.
3/017-20154 AXERcordef file save path Scot11.5.3 Spread 0171-413-927-34- AUData 0171-413-927-34-99 csv 3/0172-921 AXES hard measuing 3/0172-921 AXES hard measuing 3/0172-921 AXES hard measuing med 3/0172-921 AXES hard measuring med 3/0172-921 AXES hard measuring 1/0172-921 AXES hard measuring 1/0172-921 AXES hard measuring 3/0172-921 AXES hard measuring 3/0173-921 AXES hard measuring 3/0173-921 AXES hard measuring	+ 0.1 - Input-X: vehD 20.000 -20.000 -500.000 -500.000 -500.000 -500.000 -500.000	rv_linspd, [-],"" Drv_trqEcoTrac -5.000 0.000 -500.000 -500.000 -600.000 -700.000 -800.000 -900.000	Input-Y: vel Max_map, [-] 0.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000	Drv_pet, [-],"" "" 10.000 .500.000 .500.000 .600.000 .700.000 .800.000 .900.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000 .1000 .1000.000 .1000.000 .1000.000 .1000.000 .1000.000 .1000 .1000.000 .1000.000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .1000 .10000 .1000 .1000 .1000 .1000 .1000 .1000 .10	20.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	0.000 -500.000 -600.000 -700.000 -800.000 -900.000	115.000 0.000 -500.000 -600.000 -700.000 -800.000 -900.000	120. 0.0 -500. -600. -700. -800. -900. -1000
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There is also a help function for each page. Like the picture shown below, you can click the question mark button in EcoCAL to get the page help.

			Diagnostics	Adv
) 🔄 🕨	•	0	

In different page, the help document is different.



4.2 Edit the Help and support Window

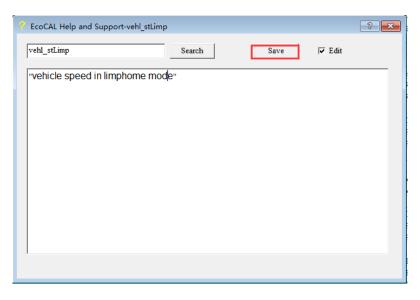
You can edit the blank box for logging.

First, click the question mark button 🔞 to open the help and support window.

vehl_stLimp	Search	Save	🕅 Edit	

Then check edit box reading the pour will be able to edit the content by yourself.

For example, add the 'vehicle speed in limp home mode' content.



Please click 'Save' to save the change. EcoCAL could not save the customized help and support log automatically.

Chapter 5 Advanced Operation of EcoCAL

5.1 High Flexible and Customizable Setting for Operation

5.1.1 Page Setting

Multiple pages could be created to help organize all calibration/measurement by category. The name of page is placed on bottom of window shown in red box in picture below.

- Project	🔂 Calibrati															
EV_Demo.a21																
EV Demo.cal	+ 1000															
			oTracMax ma		P36											
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2017 9:24:16 AM:Recording Started	0.500	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000	-900.000
2017 9:24:16 AM:Recorded file save path oCAL1.8.5.9/record/2017-4-13-9-24-16-	0.600	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000	-1000.000
0CAL1.8.5.9 record 2017-4-13-9-24-16- dfData-2017-4-13-9-24-16-491.csv	0.700	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000	-1100.000
2017 9:25:35 AM:Stop measuring	0.800	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000	-1200.000
2017 9:27:54 AM:Start measuring!	0.900	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000	-1300.000
2017 9:27:54 AM:Recording Started	0.950	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000	-1400.000
2017 9:27:54 AM:Recorded file save path coCAL1 8 5 9/record/2017-4-13-9-27-54-	1.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000	-1500.000
/2017 9:29:13 AM:Recorded file save path	KED VEHICIV_I	trqEcoTracMa:	Cureb						😺 Measureme	nts						
CoCAL1.8.5.9/record/2017-4-13-9-29-13- AllData-2017-4-13-9-29-13-407.csv									Alias		Name				late	-
2017 9:29:16 AM:Stop measuring						1				MSBMS_SOC		ABMSBMS_S(0ms	
/2017 9:29:16 AM:Start measuring!	200					1010	1			MSBMS_SysF					0ms	
/2017 9:29:55 AM:Recording Started	-20		ITTI		111 11-	1-11-1	117-		🔞 nCANAE	MSBMS_VCU	_Hea rxCAN	ABMSBMS_V		NM 2	0ms	
2017 9:29:55 AM:Recorded file save path coCAL1.8.5.9/record/2017-4-13-9-29-55-	-40				200	11-17-	111		CANAE nCANAE	MSDC_CC	rxCAN.	ABMSDC_CC		NM 2	0ms	
.coCAL1.8.5.9/record 201/-4-13-9-29-55- AllData-2017-4-13-9-29-55-158.csv		W trateo	400	444	TH4	N1+1	1111		RCANA!	ACU ActiveDis	charg rxCAN	AMCU Active		NM 2	0ms	
2017 9:30:17 AM:Stop measuring	-18		att.	44	4-97		1414		RCANAN	ACU IGBTEnab	le Fe rxCAN	AMCU IGBTE		NM 2	Oms	
2017 9:51:30 AM:Write successfully!	-12	00	14	444	444	12-14	47424		CANAN REAL	ACU LiveCoun	ter0 rxCAN	AMCU LiveCo		NM 2	0ms	
2017 10:15:53 AM:Write successfully!	-14	80		4472	444	747-1			CANAN DCANAN	ACU MoterAO	Currer rxCAN	AMCU Moter.		NM 2	Oms	
2017 10:16:22 AM:Write successfully! 2017 10:20:45 AM:Write successfully!	- 069	0.42		44	44	4774				ACU MoterSpe		AMCU Moter		NM 2	Oms	
2017 10:20:45 AM: write successfully! 2017 10:20:50 AM: Write successfully!		Jah	av nit	the	HH	0.0	100 120	140	igInDrvl			vPedacc pct		1	00ms	
/2017 10:20:52 AM:Write successfully!			5.6.00 5.8.9		0 20	HO VEHDIV	linspd		P Test flgE			DOS02			Oms	
			r.k	1-40-20	-0				P Test figh			DOS03			Oms	
									Peor rest light	0305	Test II	200303		14	ours 1	
3/2017 10:44:27 AM:www.ecotrons.com																
3/2017 10:20:52 AM:Write successfully! 3/2017 10:44:27 AM:www.ecotrons.com 3/2017 10:44:28 AM:Converting the file 3/2017 10:44:28 AM:Parsing the file																

1) Go to menu->Advanced->Page setting, the page setting window will pop-up.

Adv	anced Window Help
	Calibration Data Manager
	Debug
	Get ECU Version
	Info
	Page Setting
	Page Setting Alias Manager
	<u> </u>
	Alias Manager



Note: you also can right click on page label, and then click the 'Page setting'.

dle controls	Global fue	Page Setting	A	fter-start Warm-up Fu
Discor	mect success	ully-!		

Page setting window:

Ø	Pa	ge Setting
	Jo	Layer Name
	1	Driver Sensors
	2	Vehicle Control
	23	
	-	Motor Limited
	_	Ess Limited
	5	Driver Torque
		Charger Control
	7	Vehicle Setting
	8	Auxiliaries Control
	9	Cruise Control
	10	Battery Charge
	t F	III
	N	Iew Delete Up Down OK Cancel



2) 'Up' and 'Down' can be used to change the display order of layers.

t	🅉 Pa	ge Setting
F		
	No.	Layer Name
	1	Driver Sensors
	2	Vehicle Control
	3	Motor Limited
	4	Ess Limited
	5	Driver Torque
	6	Charger Control
	7	Vehicle Setting
	8	Auxiliaries Control
	9	Cruise Control
	10	Test Layer
	4	
	1.6	
	1	New Delete Up Down OK Cancel

O P	age Setting
No	. Layer Name
1	Driver Sensors
2	Vehicle Control
3	Motor Limited
4	Ess Limited
5	Driver Torque
6	Charger Control
7	Vehicle Setting
8	Auxiliaries Control
9	Test Layer
10	Cruise Control
•	New Delete Up Down OK Cancel



5.1.2 Alias Setting

Signal name might not be able to show meaning of calibration variables and measurement variables sometime. By default, alias name is the same as the variable name.

	Alias	Name	Value	Unit	Rate	
8	drv_linspdLimEv1	drv_linspdLimEv1			100ms	
2	drv_linspdLimEv2	drv_linspdLimEv2			100ms	

How to edit alias

1) Right click variable name.

1	leasurements					- • •
	Alias	Name	Value	Unit	Rate	
0	drv_linspdLimEv1	drv_linspdLimEv1			100ms	
0	drv_linspdLimEv2	dev linendLim	Add Measure	ments	0ms	
			Change Alias			
			Hide Alias Co	lumn		
			Variable prop	erties		
			Window Prop	erties		

Window of 'AliasManage' will pop-up.

2) Input name of ideal alias to tab shown in red box below. Then, click 'OK'



liasMan	nage	
No.	Variable	Alias
1	drv_linspdLimEv2	drv_LinspdLinEv
2	drv_linspdLimEv2_val	
Searc	ch: drv_linspdLimEv2	Search By Variable
	,	OK Cancel

3) Alias of 'drv_linspdLimEv2' is replace by 'drv_linspdLimEv'.

<u>ଅ</u> ।	Measurements					
	Alias	Name	Value	Unit	Rate	
0	drv linspdLimEv1	drv_linspdLimEv1			100ms	
•	drv_LinspdLinEv	drv_linspdLimEv2			100ms	
11		•				

Note: If you want to change the Alias of MAP and CUR variables, you need right click on the table, then choose 'Change Alias'.



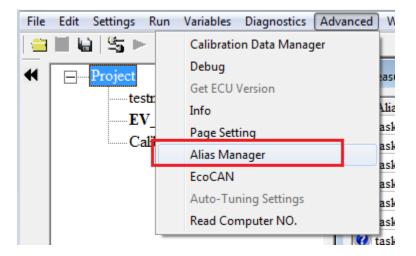
觉 Calibra												C	
+ 0.001		1 /	Selected =		e								
	igInVeh_linspo		Y: vehDrv_pct	AccArb, [-],""									
Output	: vehDrv_trqSi	nowTracMax_m	nap, [-],""								1		
X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	95.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	-445.000	-443.000	441.000	439.000	437.000	435.000	433.000	431.000	479,000	427.000	425.000	423.000	421.000
0.200	-465.000	-463.000	461.000	459.000	457.000	455.000	Add Ca	alibrations	000	447.000	445.000	443.000	441.000
0.300	-575.000	-570.000	565.000	560.000	555.000	550.000	Delete		000	530.000	525.000	520.000	515.000
0.400	-620.000	-617.000	614.000	611.000	608.000	605.000			000	593.000	590.000	587.000	584.000
0.500	-680.000	-679.000	678.000	677.000	676.000	675.000	Import		000	671.000	670.000	669.000	668.000
0.600	-790.000	-787.000	784.000	781.000	778.000	775.000	Export		000	763.000	760.000	757.000	754.000
0.700	-960.000	-958.000	956.000	954.000	952.000	950.000	Сору		000	942.000	940.000	938.000	936.000
0.800	-1080.000	-1079.000	1078.000	1077.000	1076.000	1075.000	Paste		.000	1071.000	1070.000	1069.000	1068.000
0.900	-1380.000	-1378.000	1376.000	1374.000	1372.000	1370.000	Smoot	h Cells	.000	1362.000	1360.000	1358.000	1356.000
0.950	-1580.000	-1578.000	1576.000	1574.000	1572.000	1570.000			.000	1562.000	1560.000	1558.000	1556.000
1.000	-1900.000	-1900.000	1900.000	1900.000	1900.000	1900.000	Chang	e Alias	.000	1900.000	1900.000	1900.000	1900.000
•							Decim	als Display					
vehDrv tr	qSnowTracMa	x map					2D View	w					
_	1	<u> </u>					3D Vie	w.					
							Fit Win						
							Fit Grid	1					
							Variab	le Properties					
								w Properties					

To Calibration													
+ 0.001 _ * 1 / Selected = 1	50												
Input: sigInDrvPedacc_voltMin12half, [-],""													
Output: sigInDrvPedacc_voltSync_cur, [-],""	Output: sigInDrvPedacc_voltSync_cur, [-],""												
sigInDrvPedacc_voltMin12half 0.500 2.000 sigInDrvPedacc_voltSync_cur 0.200 0.500	Add Calibrations Delete Import Export												
	Copy Paste Smooth Cells												
sigInDrvPedacc_voltSync_cur	Change Alias Decimals Display 2D View 3D View Fit Window												
	Fit Grid Variable Properties Window Properties												

Note: It is supported to manage the alias of all variables at the same window.



1) Go to menu->Advanced->Alias Mange, when it finishes, please click 'OK'.



No.	Variable	Alias	
1	taskL50ms_time		
2	taskL50ms_pct		
3	taskL20ms_time		
4	taskL20ms_pct		
5	taskL10ms_time		
5	taskL10ms_pct		
1	taskL5ms_time		
3	taskL5ms_pct		
)	taskH100ms_pct		
10	taskH100ms_time		
1	taskL200ms_pct		
2	taskL200ms_time		
13	taskH10ms_time		
4	taskH10ms_pct		
15	taskH5ms_time		
16	taskH5ms_pct		
7	taskH1ms_time		
8	taskH1ms_pct		
19	taskL1000ms_time		
20	taskL1000ms_pct		
21	taskH20ms_pct		
22	taskH20ms_time		
23	taskL500ms_time		
24	taskL500ms_pct		•
Searc	zh:		Search By: Variable



5.1.3 Window Name Configuration

Alias	Name	Value	Unit	Rate		
drv_linspdLimEv1	drv_linspdLimEv1			100ms		
🗿 drv_LinspdLinEv	drv_linspdLimEv2			100ms		
				Add Measurem Change Alias Hide Alias Colu Variable proper	ımn	

Right click on the window, and choose 'Window Properties'

'Window Properties' pops up, change the default 'Measurement' to 'Test', and then click 'OK'.

Window Property		
Window Name:	Test	
ОК	Cancel	

Then, the name of window is changed as shown in picture below.

	Alias	Name	Value	Unit	Rate	
8	drv_linspdLimEv1	drv_linspdLimEv1			100ms	
8	drv_LinspdLinEv	drv_linspdLimEv2			100ms	



5.1.4 Fit Window/Grid

Fit Cell of table to Window or by Word Length

😺 Calibration												
+ 0.001 _ * 1 / Selected = 1 🔦												
Input: sensAuxBatt_volt, [-],""												
Output: auxcCitch_dcBoost_cur, [-],""												
sensAuxBatt volt	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000				
auxcCltch_dcBoost_cur	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000				
auxcCltch_dcBoost_cur												

Right click on the cur/map calibration window, click 'Fit Window',

Add Calibrations
Delete
Import
Export
Сору
Paste
Smooth Cells
Change Alias
Decimals Display
2D View
3D View
Fit Window
Fit Grid
Variable Properties
Window Properties

Then the width of cell would be adjusted according to width of window.

Calibration + 0.001	1 /	Selected =	1	<u></u>					o x				
Input: sensAuxBatt_volt, [-],"" Output: auxcCltch_dcBoost_cur, [-],""													
Output: auxection_deb	oost_cut, [-],				1		1						
sensAuxBatt_volt	sensAuxBatt_volt 9.000 10.000 11.000 12.000 13.000 14.000 15.000 16.000												
auxcCltch_dcBoost_cur	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000					



Right click on the cur/map calibration window, click 'Fit Grid', the width of cells will be adjusted according to the word length.

😽 Calibration											
+ 0.001 - * 1 / Selected = 1 *											
Input: sensAuxBatt_volt,	Input: sensAuxBatt_volt, [-],""										
Output: auxcCltch_dcB	loost_cur, [-]	,""									
sensAuxBatt_volt	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000			
auxcCltch_dcBoost_cur	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000			

5.1.5 Smooth Cells

1-D linear interpolation could be implemented to quickly calibrate curve.

This function is open to curve type variable, it will cover map type in the future.

Steps are presented below.

Set ideal calibration value at maximum and minimum index,

of Calibration	j Calibration											
+ 0.001 _ * 1 / Selected = 1 •												
Input: sensAuxBatt_volt, [-],""												
Output: auxcCltch_dcB	Output: auxcCltch_dcBoost_cur, [-],""											
sensAuxBatt_volt	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000				
auxcCltch_dcBoost_cur	0.000	100.000	100.000	100.000	100.000	100.000	100.000	150.000				
auxcCltch_dcBoost_cur												

Then right click curve window, select 'Smooth Cells',

Add
Delete
Import
Export
Сору
Paste
Smooth Cells
Change Alias
Decimals Display
2D View
3D View
Fit Window
Fit Grid
Variable Properties
Window Properties



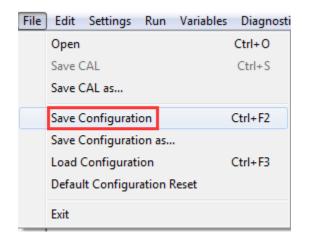
You can see the interpolated data as below.

Ö Calibration + 0.001 _ *	1 /	Selected =	1	▶ ∂						
input: sensAuxBatt_volt, [-],""										
Output: auxcCitch_dcBoost_cur, [-],""										
	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000		
auxcCltch_dcBoost_cur	0.000	21.429	42.857	64.286	85.714	107.143	128.571	150.000		
auxcCltch_dcBoost_cur										

5.1.6 Save Configuration

When windows are configured by aforementioned methods, it could be saved as a configuration to be used next time.

Go to menu->File->Save Configuration



You can also save the setting to a new configuration file.

Go to menu->File->Save Configuration as

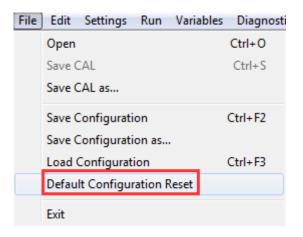
File	Edit	Settings	Run	Varia	bles	Diagnosti
	Open					Ctrl+O
	Save O	CAL				Ctrl+S
	Save O	CAL as				
	Save O	Configurati	on			Ctrl+F2
	Save O	Configurati	on as			
	Load (Configurat	ion		(Ctrl+F3
	Defau	lt Configur	ration R	leset		
	Exit					



5.1.7 Reset to Default Configuration

This function can always take you back you to initial clean setting when you go too far.

Go to menu->File->Default configuration Reset



Then, click 'Yes'.

EcoCAL	X
Do you want to reset default co	nfiguration?
Yes	No

The current setting is the default configuration setting.



5.1.8 Load Configuration

Go to menu->File->Load configuration

File] Edit Settings Run	n Variables Diagnost
	Open	Ctrl+O
	Save CAL	Ctrl+S
	Save CAL as	
	Save Configuration	Ctrl+F2
	Save Configuration as	i
	Load Configuration	Ctrl+F3
	Default Configuration	Reset
	Exit	

Choose the configuration file then click 'Open'.

o Load Configuration	+ 1 / Manual - F	지원					x
Compute	r ► Local Disk (C:) ► EcoCAL ►			▼ 47	Search EcoCAL		م
Organize 🔻 New folde	er				-		•
☆ Favorites	Name	Date modified	Туре	Size			
🧮 Desktop	퉬 HelpDoc	2017/5/25 17:53	File folder				
🐌 Downloads	퉬 kerneldlis	2017/5/25 17:53	File folder				
🖳 Recent Places	퉬 Picture	2017/5/25 17:53	File folder				
=	퉬 record	2017/5/26 10:00	File folder				
🥃 Libraries 🦷	퉬 Uninstall	2017/5/25 17:53	File folder				
Documents	current_config.xml	2017/5/26 9:43	XML Document	2 KB			
🎝 Music	Current_VariblesAlias.xml	2017/5/26 9:43	XML Document	130 KB			
Pictures	exzp.xml	2016/10/13 19:41	XML Document	17 KB			
📄 Subversion 📃	🔮 gui.xml	2016/12/2 10:08	XML Document	29 KB			
Videos	VariblesAlias.xml	2015/11/30 16:08	XML Document	130 KB			
P Computer							
🏭 Local Disk (C:)							
👝 Local Disk (D:) 👻							
File n	ame: exzp.xml			•	xml(*.xml)		-
Then	exp.xm						
					Open 😽	Cancel	



5.2 Advanced Function of EcoCAL

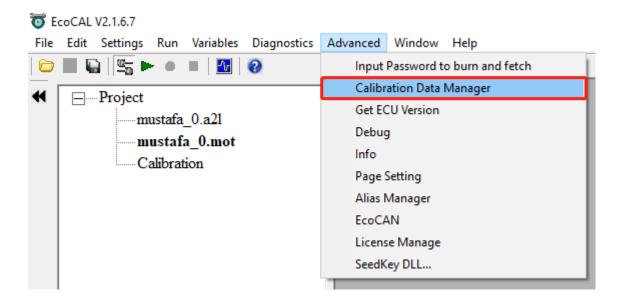
5.2.1 Calibrations Data Management

There are serval conditions that the user might want to use the Calibrations data management function:

- a. The customer might need to update their calibration file to a new version in order to fit it in the new version of software.
- b. Users want to compare two calibration files

In order to do so, please follow the steps below to compare and copy files,

1) Go to menu-> Advanced-> Calibration Data Manger



2) Click 'Browse' to open the. CAL/. HEX/.MOT and .A2L files

Source file is the new calibration file. Target file is the old file.

Select Files	
Source Files:	Browse
Target Files:	Browse



3) Click 'Compare' button

All the different variables between the source file and the target file will be shown in the left part.

C Compare			- 🗆 ×
Select Files		Source File	
Source File: SRC_HR_RCU_V2_13_1_0.a21\SRC_	HR_RCU_V2_13_1_0_V1.cal Browse	Name	I
Target File: SRC_HR_RCU_V2_13_1_0.a21\SRC	HR_RCU_V2_13_1_0_V2.cal Browse		
Compare			
EGMGen_facPwrCtrlD_cur EGMGen_facPwrCtrlI_cur	🔽 0 Missing Variables		
EGMGen_facPwrCtrlP_cur EGMGen_trqDMn_cur	🔽 0 New Variables		
EGMGen_trqDMx_cur EngLim_mdWarmupReq_map	✓ 42 Different Variables		
EngLim_trqCmkDechkVsTempVsSpd_map EngLim_trqCmkVsTempVsSpd_map	🔽 0 Unable to Compare Variables	1	
SigOutCANGen_rotspdCmd_cal SigOutCANGen_stRotDir_ovr	🔽 Map	Target File Name	I
SigOutCANGen_trqCmd_cal SigOutCANGen_trqMax_cal	✓ Curve		
SigOutCANGen_trqMax_ovr SigOutCANHCU_cnt1_ovr SigOutCANHCU_cnt3_cal	✓ Value		
SigOutCANHCU_currDc_cal SigOutCANHCU_currDc_cal SigOutCANHCU_dirGenTrq_cal	Val_Bik		
SigOutCANHCU_dirGenTrq_ovr SigOutCANHCU_infoFlt_cal	🔽 ASCII		
SigOutCANHCU_pwrElec_ovr SigOutCANHCU_stCWT_cal	Copy		
SigOutCANHCU_stFB_ovr ~	Compare Copy All HighLight		
		1	

Click on the variables you want to know about the details, which will be shown in left with the different values in red.

Select Files		Source File					
Source File: SRC_HR_RCU_V2_13_1_0.a2l\SRC_	HR_RCU_V2_13_1_0_V1.cal Browse	Name:EngLim_tr	qCmkDechkVsTe	mpVsSpd_map '	Type:MAP		_
Target File: SRC_HR_RCU_V2_13_1_0.a2I\SRC_	HR_RCU_V2_13_1_0_V2.cal Browse	X/Y	0.000000	5.235988	10.471980	20.943950	
,		-50.000000	270.000000	270.000000	270.000000	270.000000	
Compare		-30.000000	270.000000	270.000000	270.000000	270.000000	
-	-	-10.000000	270.000000	270.000000	270.000000	270.000000	
EGMGen_facPwrCtrlD_cur ^ EGMGen_facPwrCtrlI_cur	O Missing Variables	10.000000	270.000000	270.000000	270.000000	270.000000	
GMGen facPwrCtrlP cur	_	30.000000	270.000000	270.000000	270.000000	270.000000	
GMGen trqDMn cur	✓ 0 New Variables	50 000000	270.000000	270.000000	270.000000	270.000000	
GMGen_trqDMx_cur	42 Different Variables	70.000000	270.000000	270.000000	270.000000	270.000000	
agLim_mdWarmupReq_map	I 42 Different variables	<		-			>
ngLim_trqCmkDechkVsTempVsSpd_map	✓ 0 Unable to Compare Variables	×					ŕ
igOutCANGen rotspdCmd cal	• • • • • • • • • • • • • • • • • • •	Target File					
igouionivoen totspuolitu cai							
	Map		aCmkDechkVsTe	mpVsSpd map '	Type:MAP		
igOutCANGen_stRotDir_ovr	🔽 Map	Name:EngLim_tr	qCmkDechkVsTe	mpVsSpd_map	Type:MAP		
igOutCANGen_stRotDir_ovr igOutCANGen_trqCmd_cal igOutCANGen_trqMax_cal	✓ Map✓ Curve	Name:EngLim_tr	-				
gOutCANGen_stRotDir_ovr gOutCANGen_trqCmd_cal gOutCANGen_trqMax_cal gOutCANGen_trqMax_ovr	✓ Curve	Name:EngLim_tra	0.000000	5.235988	10.471980	20.943950	
gOutCANGen_stRotDir_ovr gOutCANGen_trqCmd_cal gOutCANGen_trqMax_cal gOutCANGen_trqMax_ovr gOutCANGen_trqMax_ovr gOutCANHCU_cnt1_ovr		Name:EngLim_tr	-			20.943950 270.000000	
gOutCANGen_stRoUbir_ovr gOutCANGen_trqCmd_cal gOutCANGen_trqMax_cal gOutCANGen_trqMax_ovr gOutCANHCU_ent1_ovr gOutCANHCU_ent1_oral gOutCANHCU_ent3_cal	I⊄ Curve I⊄ Value	Name:EngLim_tra	0.000000	5.235988	10.471980		
gOutCANGen_stRotDir_ovr gOutCANGen_trqCmd_cal gOutCANGen_trqMax_cal gOutCANGen_trqMax_ovr gOutCANHCU_ent1_ovr gOutCANHCU_ent3_cal gOutCANHCU_ent3_cal gOutCANHCU_curnDc_cal	✓ Curve	Name:EngLim_tr	0.000000 270.000000	5.235988 270.000000	10.471980 270.000000	270.000000	
gOutCANGen_stRoibir_ovr gOutCANGen_trqCmd_cal gOutCANGen_trqMax_cal gOutCANGen_trqMax_ovr gOutCANHCU_ent1_ovr gOutCANHCU_ent3_cal gOutCANHCU_ent3_cal gOutCANHCU_dirGenTrq_cal	 ✓ Curve ✓ Value ✓ Val_Blk 	Name:EngLim_tr	0.000000 270.000000 270.000000	5.235988 270.000000 270.000000	10.471980 270.000000 270.000000	270.000000 270.000000	
igOutCANGen_stRODir_ovr igOutCANGen_trqCMa_cal igOutCANGen_trqMax_cal igOutCANGen_trqMax_ovr igOutCANHCU_ent1_ovr igOutCANHCU_ent3_cal igOutCANHCU_entBc_cal igOutCANHCU_dirGenTrq_cal igOutCANHCU_dirGenTrq_ovr	I⊄ Curve I⊄ Value	NameEngLim_tr	0.000000 270.000000 270.000000 270.000000	5.235988 270.000000 270.000000 324.000000	10.471980 270.000000 270.000000 324.000000	270.000000 270.000000 324.000000	
igOutCANGen_stRoibir_ovr igOutCANGen_trqCmd_cal igOutCANGen_trqMax_cal igOutCANGen_trqMax_ovr igOutCANHCU_ent1_ovr igOutCANHCU_ent3_cal igOutCANHCU_dirGenTrq_cal igOutCANHCU_dirGenTrq_ovr igOutCANHCU_dirGenTrq_ovr igOutCANHCU_dirGenTrq_ovr igOutCANHCU_pwrElec_ovr	 ✓ Curve ✓ Value ✓ Val_Blk 	Name:EngLim_tr X/Y -50.000000 -30.000000 -10.000000 10.000000	0.000000 270.000000 270.000000 270.000000 270.000000	5.235988 270.000000 270.000000 324.000000 324.000000	10.471980 270.000000 270.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000	
igOutCANGen_stRobin_ovr igOutCANGen_trqOmd_cal igOutCANGen_trqMax_cal igOutCANGen_trqMax_cal igOutCANGU_entl_ovr igOutCANHCU_entl_ovr igOutCANHCU_entl_ovr igOutCANHCU_ditGenTrq_cal igOutCANHCU_ditGenTrq_ovr igOutCANHCU_infoFlt_cal igOutCANHCU_infoFlt_cal igOutCANHCU_stFB ovr	 ✓ Curve ✓ Value ✓ Val_Blk 	Name:EngLim_tr X/Y -50.000000 -30.000000 -10.000000 10.000000 30.000000	0.000000 270.000000 270.000000 270.000000 270.000000 270.000000	5.235988 270.000000 270.000000 324.000000 324.000000 324.000000	10.471980 270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	

4) The left part will only show the name of the relevant variables you check in the middle. Please note, all the variables are checked by default.



urce File: SRC_HR_RCU_V2_13_1_0.a21\SRC	HR_RCU_V2_13_1_0_V1.cal Browse	Source File Name:EngLim_tr	qCmkDechkVsTe	empVsSpd_map	Type:MAP		
rget File: SRC HR RCU V2 13 1 0 a21/SRC	HR RCU V2 13 1 0 V2 cal Browse	1					
rget File: SRC_HR_RCU_V2_13_1_0.a21\SRC_	HR_RCU_V2_13_1_0_V2.cal Browse		0.000000	5.235988	10.471980	20.943950	
		-50.000000	270.000000	270.000000	270.00000	270.000000	
mpare		-30.000000	270.000000	270.000000	270.00000	270.000000	
ngLim_mdWarmupReq_map	0 Missing Variables	-10.000000	270.000000	270.000000	270.000000	270.000000	
gLim_trqCmkDechkVsTempVsSpd_map	j o iviissiig vanables	10.000000	270.000000	270.000000	270.000000	270.000000	
gLim_trqCmkVsTempVsSpd_map	0 New Variables	30.00000	270.000000	270.000000	270.000000	270.000000	
		50.000000	270.000000	270.000000	270.00000	270.000000	
	✓ 42 Different Variables	70.000000	270.000000	270.000000	270.000000	270.000000	
	☐ 0 Unable to Compare Variables ☑ Map	Target File Name:EngLim tr	a Cash Daabh Va Ta	meVeSed men '	True MAR		>
)♥ Iviap	Ivanie.EngLuii_u	qCHIRDechk v S I e	mpvsopu_map	1 ype.ivi/ir		
							_
	Curve						
		X/Y	0.000000	5.235988	10.471980	20.943950	_
	□ Curve □ Value	-50.000000	270.000000	270.000000	270.000000	270.000000	_
	□ Value	-50.000000	270.000000 270.000000	270.000000 270.000000	270.000000 270.000000	270.000000 270.000000	_
		-50.000000 -30.000000 -10.000000	270.000000 270.000000 270.000000	270.000000 270.000000 324.000000	270.000000 270.000000 324.000000	270.000000 270.000000 324.000000	
	□ Value □ Val_Bik	-50.000000 -30.000000 -10.000000 10.000000	270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000	
	□ Value	-50.000000 -30.000000 -10.000000 10.000000 30.000000	270.000000 270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	_
	□ Value □ Val_Blk □ ASCII	-50.00000 -30.00000 -10.00000 10.00000 30.00000 50.00000	270.000000 270.000000 270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000 324.000000	
	□ Value □ Val_Bik	-50.000000 -30.000000 -10.000000 10.000000 30.000000	270.000000 270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	

5) After the comparison, the user could use "Copy All" to get a new file with the new value form the source file for all the different variables and keep the other values same as the target value.

elect Files		Source File					
ource File: SRC_HR_RCU_V2_13_1_0.a2l\SR	C_HR_RCU_V2_13_1_0_V1.cal Browse	Name:EngLim_tro	qCmkDechkVsTe	empVsSpd_map	Type:MAP		
arget File: SRC_HR_RCU_V2_13_1_0.a21\SR	C_HR_RCU_V2_13_1_0_V2.cal Browse	X/Y	0.000000	5.235988	10.471980	20.943950	
		-50.000000	270.000000	270.000000	270.000000	270.000000	
ompare		-30.000000	270.000000	270.000000	270.000000	270.000000	
EngLim mdWarmupReq map	_	-10.000000	270.000000	270.000000	270.000000	270.000000	
EngLim_ind Waindpreed_inap	0 Missing Variables	10.000000	270.000000	270.000000	270.000000	270.000000	
ingLim_trqCmkVsTempVsSpd_map	✓ 0 New Variables	30.000000	270.000000	270.000000	270.000000	270.000000	
	• Olivew variables	50.000000	270.000000	270.000000	270.000000	270.000000	
	✓ 42 Different Variables	70.000000	270.000000	270.000000	270.000000	270.000000	
	I▼ Map	Target File Name:EngLim_tro	qCmkDechkVsTe	empVsSpd_map	Type:MAP		
	Curve						
		X/Y	0.000000	5.235988	10.471980	20.943950	
	□ Value	X/Y -50.000000	0.000000 270.000000	5.235988 270.000000	10.471980 270.000000	20.943950 270.000000	
	□ Value						
		-50.000000	270.000000	270.000000	270.000000	270.000000	
	□ Value □ Val_Bik	-50.000000 -30.000000 -10.000000 10.000000	270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000	
	□ Value	-50.000000 -30.000000 -10.000000 10.000000 30.000000	270.000000 270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	
	☐ Value ☐ Val_Bik ☐ ASCII	-50.000000 -30.000000 -10.000000 10.000000 30.000000 50.000000	270.000000 270.000000 270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000 324.000000	
	□ Value □ Val_Bik	-50.000000 -30.000000 -10.000000 10.000000 30.000000	270.000000 270.000000 270.000000 270.000000 270.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	270.000000 270.000000 324.000000 324.000000 324.000000	

Or the user can click on the variables that he/she want to change in the right to highlight them and click the Copy Highlight to get a new file with all the highlighted variables same as the source file and keep the other values same as the target value.



lect Files		1	Source File Name:EngLim me	WamunRea m	an Twne:MAP			I
nurce File: SRC_HR_RCU_V2_13_1_0.a2l\SRC	C_HR_RCU_V2_13_1_0_V1.cal B1	rowse			-p - , p			_
urget File: SRC_HR_RCU_V2_13_1_0.a21\SRC	C_HR_RCU_V2_13_1_0_V2.cal Br	rowse	X/Y	-50.000000	-30.000000	-10.000000	0.000000	
			-40.000000	2	2	2	2	
ompare			-25.000000	2	2	2	2	
GMGen facPwrCtrlD cur			-15.000000	2	2	2	2	
MGen facPwrCtrll cur	0 Missing Variables		-5.000000	1	1	1	1	
MGen facPwrCtrlP cur			5.000000	0	0	0	0	_
MGen_trqDMn_cur	✓ 0 New Variables		20.000000	0	0	0	0	
MGen_traDMy_our	✓ 42 Different Variables		40.000000	0	0	0	0	
gLim_mdWarmupReq_map gLim_trqCmkDechkVsTempVsSpd_map			<					>
ngLim trqCrnkVsTempVsSpd map	✓ 0 Unable to Compare Variables							_
			Target File					-
	🔽 Map		Name:EngLim_m	IWarmupReq_m	ap Type:MAP			
	Curve							
			X/Y	-50.000000	-30.000000	-10.000000	0.000000	
	Value		-40.000000	2	2	2	2	
	_		-25.000000	2	2	2	2	
	□ Va1_B1k		-15.000000	2	2	2	2	
	ASCII		-5.000000	1	1	1	1	
	ASCII		5.000000	0	0	0	0	
			20.000000	0	0	0	0	
		opy	40.000000	0	0	0	0	
	High	hLight	<					>

5.2.2 Debug

The Debug window reads the communication between VCU/HCU and EcoCAL.

Go to menu->Advanced->Debug

Ad	vanced Window Help
	Calibration Data Manager
	Debug
	Get ECU Version
	Info
	Page Setting
	Alias Manager
	EcoCAN
	Auto-Tuning Settings
	Read Computer NO.



Time	Direction	ID	Message	
2018/4/28 14:45:05:474	Recv	0x101	4C 40 A2 D0 E5 00 00 00	^
2018/4/28 14:45:05:483	Recv	0x101	1E 3C 82 86 9F 00 00 00	
2018/4/28 14:45:05:504	Recv	0x101	1F 3C AF 17 21 00 00 00	
2018/4/28 14:45:05:516	Recv	0x101	20 3A DD 13 24 00 00 00	
2018/4/28 14:45:05:532	Recv	0x101	21 3C DE B6 92 00 00 00	
2018/4/28 14:45:05:553	Recv	0x101	22 3A F5 8A A3 00 00 00	
2018/4/28 14:45:05:560	Recv	0x101	54 42 4E E8 61 00 00 00	
2018/4/28 14:45:05:577	Recv	0x101	55 40 D3 1F 36 00 00 00	
2018/4/28 14:45:05:596	Recv	0x101	1E 3C 82 86 9F 00 00 00	
2018/4/28 14:45:05:609	Recv	0x101	1F 3C 5D 2F 1B 00 00 00	
2018/4/28 14:45:05:626	Recv	0x101	20 3A DD 13 24 00 00 00	
2018/4/28 14:45:05:646	Recv	0x101	37 3A F5 8A A3 00 00 00	
2018/4/28 14:45:05:654	Recv	0x101	3C 41 21 2C 05 00 00 00	
2018/4/28 14:45:05:673	Recv	0x101	3D 3F 80 ED 75 00 00 00	
2018/4/28 14:45:05:692	Recv	0x101	3E 41 A1 2C 6A 00 00 00	
2018/4/28 14:45:05:702	Recv	0x101	3F 40 A1 2D 85 00 00 00	
2018/4/28 14:45:05:716	Recv	0x101	40 44 7B B2 0C 00 00 00	
2018/4/28 14:45:05:732	Recv	0x101	37 3A F5 8A A3 00 00 00	
2018/4/28 14:45:05:752	Recv	0x101	1E 3C 66 5B EA 00 00 00	
2018/4/28 14:45:05:765	Recv	0x101	1F 3C 5D 2F 1B 00 00 00	
2018/4/28 14:45:05:787	Recv	0x101	20 3A F5 8A A3 00 00 00	
2018/4/28 14:45:05:795	Recv	0x101	21 3C E0 3E 0A 00 00 00	
2018/4/28 14:45:05:812	Recv	0x101	37 3A F5 8A A3 00 00 00	
2018/4/28 14:45:05:830	Recv	0x101	1E 3C 82 86 9F 00 00 00	
2018/4/28 14:45:05:850	Recv	0x101	1F 3C 5D 2F 1B 00 00 00	
2018/4/28 14:45:05:860	Recv	0x101	20 3A DD 13 24 00 00 00	
2018/4/28 14:45:05:880	Recv	0x101	35 3B DD 13 24 00 00 00	
2018/4/28 14:45:05:890	Recv	0x101	36 3E DD A9 70 00 00 00	
2018/4/28 14:45:05:907	Recv	0x101	37 3A F5 8A A3 00 00 00	
2018/4/28 14:45:05:928	Recv	0x101	1E 3C 84 0E 17 00 00 00	
2018/4/28 14:45:05:941	Recv	0x101	1F 3C AF 17 21 00 00 00	
2018/4/28 14:45:05:952	Recv	0x101	20 3A DD 13 24 00 00 00	
2018/4/28 14:45:05:966	Recv	0x101	30 3F 19 80 B2 00 00 00	
2018/4/28 14:45:05:984	Recv	0x101	1E 3C 82 86 9F 00 00 00	
2018/4/28 14:45:06:0	Recv	0x101	1F 3C B0 9E 99 00 00 00	
2018/4/28 14:45:06:20	Recv	0x101	20 3A F5 8A A3 00 00 00	
2018/4/28 14:45:06:30	Recv	0x101	21 3C E0 3E 0A 00 00 00	
2018/4/28 14:45:06:46	Recv	0x101	22 3A F5 8A A3 00 00 00	
2018/4/28 14:45:06:66	Recv	0x101	37 3A F5 8A A3 00 00 00	
2018/4/28 14:45:06:77	Recv	0x101	1E 3C 82 86 9F 00 00 00	
2018/4/28 14:45:06:94	Recv	0x101	1F 3C AF 17 21 00 00 00	
2018/4/28 14:45:06:114	Recv	0x101	20 3A F5 8A A3 00 00 00	
2018/4/28 14:45:06:124	Recv	0x101	21 3C E0 3E 0A 00 00 00	
2018/4/28 14:45:06:142	Recv	0x101	22 3A DD 13 24 00 00 00	
2018/4/28 14:45:06:154	Recv	0x101	23 3F 03 78 AB 00 00 00	



5.2.3 Decimals Display

You can change the number of decimal places of the values that are displayed in the variable window and calibration window.

Right click on the window of calibration variables.

_		_		ected = 1		<u></u>											_
·	ehDrv_linsp	1.0.0	nput-Y: veh		,												
JOutpu	t: vehDrv_tr	qEC01racM	ax_map, [-],														_
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0.100	-445.000	-443.000	441.000	439.000	437.000	435.000	433.000	431.000	429.000	427.000	425.000	423.000	421.000	419.000	417.000	415.000	
0.200	-465.000	-463.000	461.000	459.000	457.000	455.000	453.000	451.0	Add Calib	rations	0	443.000	441.000	439.000	437.000	435.000	
0.300	-575.000	-570.000	565.000	560.000	555.000	550.000	545.000	540.0	Delete		0	520.000	515.000	510.000	505.000	500.000	Ĺ
0.400	-620.000	-617.000	614.000	611.000	608.000	605.000	602.000	599.0			0	587.000	584.000	581.000	578.000	575.000	
0.500	-680.000	-679.000	678.000	677.000	676.000	675.000	674.000	673.0	Import		0	669.000	668.000	667.000	666.000	665.000	
0.600	-790.000	-787.000	784.000	781.000	778.000	775.000	772.000	769.0	Export		0	757.000	754.000	751.000	748.000	745.000	
0.700	-960.000	-958.000	956.000	954.000	952.000	950.000	948.000	946.0	Сору		0	938.000	936.000	934.000	932.000	930.000	
0.800	-1080.000	-1079.000	1078.000	1077.000	1076.000	1075.000	1074.000	1073.	Paste		00	1069.000	1068.000	1067.000	1066.000	1065.000	
0.900	-1380.000	-1378.000	1376.000	1374.000	1372.000	1370.000	1368.000	1366.	Smooth C	elle	00	1358.000	1356.000	1354.000	1352.000	1350.000	Ĺ
0.950	-1580.000	-1578.000	1576.000	1574.000	1572.000	1570.000	1568.000	1566.	Sincourie		00	1558.000	1556.000	1554.000	1552.000	1550.000	
1.000	-1900.000	-1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.	Change A	lias	00	1900.000	1900.000	1900.000	1900.000	1900.000	
									Decimals	Display							-
hDrv_t	rqEcoTracM	ax_map							2D View		_						
									3D View		- H						-
									Fit Windo		- 8						
										**	- 1						
									Fit Grid								
									Variable P	roperties	- 1						
									Window F								

The 'Display setup' window pops up

😈 Display setup
Value decimals
3
X-Axis decimals
3
Y-Axis decimals
3
,
OK Cancel



5.2.4 Variable Properties

The detailed properties of the variables can be viewed in the variable property window.

Right click on the variable, choose 'Variable Properties', the properties window will pop up.

Measurement variable properties:

Choose the variable that you want to see, then right click, and choose 'Variable Properties'

@ keyCycle_flgKeyOn keyCycle_flgKeyOn Hide Alias Column 20ms @ keyCycle_flgPwrDelay keyCycle_flgPwrDe Variable properties 20ms
esmcDcdc_flgEn esmcDcdc_flgEn Add Measurements 20ms keyCycle_flgKeyOff keyCycle_flgKeyOf Change Alias 20ms keyCycle_flgKeyOn keyCycle_flgKeyOf Hide Alias Column 20ms keyCycle_flgPwrDelay keyCycle_flgPwrDe Variable properties 20ms
esmcDcdc_figEn esmcDcdc_figEn 20ms keyCycle_figKeyOff keyCycle_figKeyOf Change Alias 20ms keyCycle_figKeyOn keyCycle_figKeyOf Hide Alias Column 20ms keyCycle_figPwrDelay keyCycle_figPwrDe Variable properties 20ms
0 keyCycle_flgKeyOn keyCycle_flgKeyOn Hide Alias Column 20ms 0 keyCycle_flgPwrDelay keyCycle_flgPwrDe Variable properties 20ms
Rest Rest Rest Rest Rest Rest Rest Rest
Willdow Flobelles
WVMDataCtrl_flgRam2Rom NVMDataCtrl_flgRam2rom 20ms



Property	Value
Name	CANB nTxTimes
Alias	CANB_nTxTimes
Long Identifier	
Туре	UWORD
Unit	
Record Type	
Lower Limit	0
Upper Limit	65535
Memory Address	0x400182AE
Conversion Method	BSW_Test_V1_3_PWM_2010a_CM_
Conversion Formula	"Q = V"

5.2.5 Virtual Oscilloscope

1) Right click on the blank area of window, click 'Add Measurements->New Oscilloscope Window'

Add Measurements	New List Window
Add Calibrations	New Oscilloscope Window
Show All Selected Variables	New Gauge Window

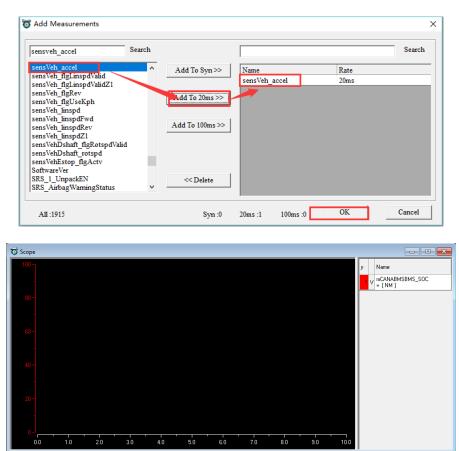
You can also 'go to menu->Variables->Add Measurements->New Oscilloscope Window', to add the oscilloscope window.

Variables Diagnostics Advanced	Wir	ndow Help
Add Measurements	•	New List Window
Add Calibrations		New Oscilloscope Window
Show All Selected Variables		New Gauge Window

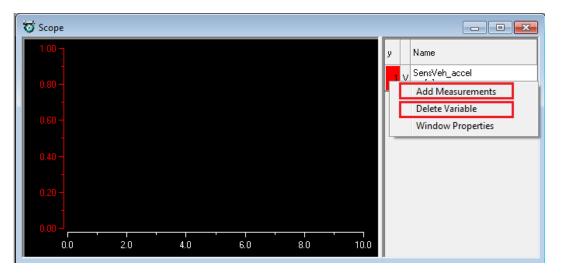
Note: You can only add one Oscilloscope in each page.



2) Add the measured variables that you want to show in the Oscilloscope window



- 3) Connect to ECU, then start measuring.
- 4) Right click on the scope window and then add or delete the variables that you want.



Note: when you add the variable, you should stop measuring first.



5) Change the properties of scope window.

Right click on the scope window, then click 'Window Properties'. You can change the Max/ Min value of variable, the lines color etc. Click 'OK' when finished.

o Properties					
🛃 General	ShowName	ShowType	YAxis Range	Line color	Visible
📥 Varibles	SensVeh_accel	Alias	0~1		Yes
				ОК	Cancel

5.2.6 Gauge Monitoring

Select 'Variables->Add Measurements->New Gauge Window' or right click on the table, then choose 'New Gauge Window'.

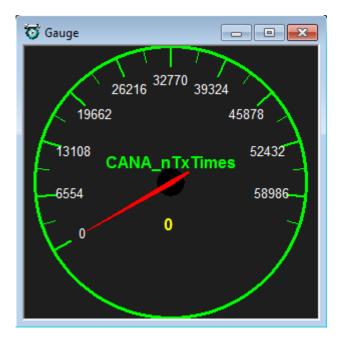
Variables Diagnostics Advanced	Window	Help
Add Measurements	•	New List Window
Add Calibrations		New Oscilloscope Window
Show All Selected Variables		New Gauge Window

Add Measurements	×	New List Window
Add Calibrations		New Oscilloscope Window
Show All Selected Variables		New Gauge Window

Add the measured variables that you want to show in the Gauge window, here, 'CANA_nTxTimes' is selected.

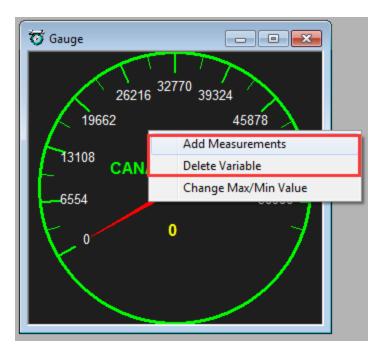


X o Add Measurements Search Search CANA_flgStart . Rate Add To Syn >> Name CANA nTxOnce CANA_nTxTimes 20ms CANB_flgStart Add To 20ms >> CANB_nTxOnce CANB_nTxTimes esmcDcdc_flgEn Add To 100ms >> keyCycle_flgKeyOff keyCycle_flgKeyOn keyCycle_flgPwrDelay keyCycle_uKeyOn NVMDataCtrl_flgRam2Rom NVMDataCtrl flgRom2Ram NVMDataCtrl_flgUpdate << Delete NVMTest_bool OK Cancel A11:239 Syn :0 20ms :1 100ms :0



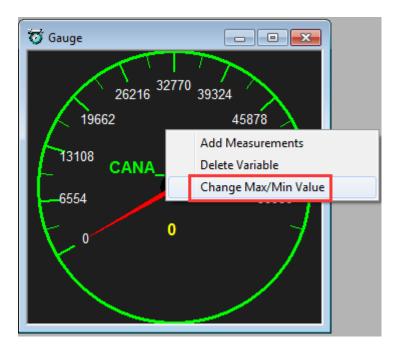
Right click on the Gauge window, and then add or delete the variables that you want.





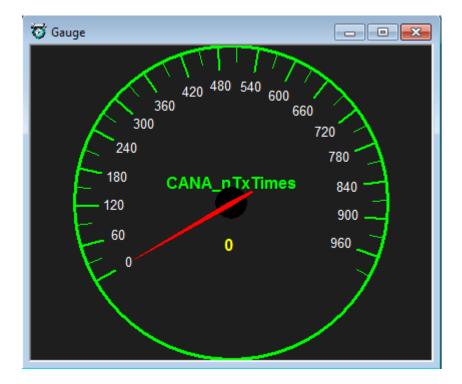
It is possible to change measuring range.

Right click on the Gauge window, and then click 'Change Max/Min Value'. You can change the Max/ Min value of variable, the Scale Numb, etc.





Name:	CANA_nTxTimes
Units:	
Max Value:	1000.00
Min Value:	0.00
Scale Num:	30.00

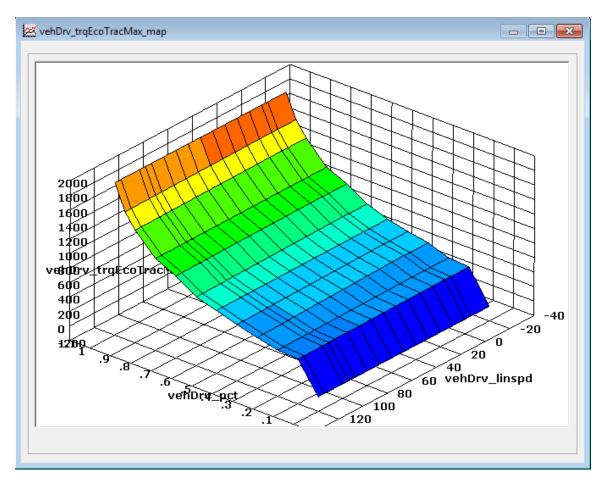




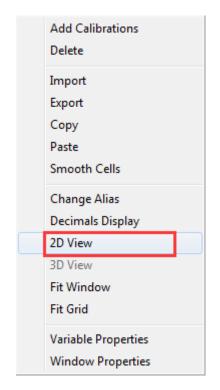
5.2.7 3D/2D View of Maps

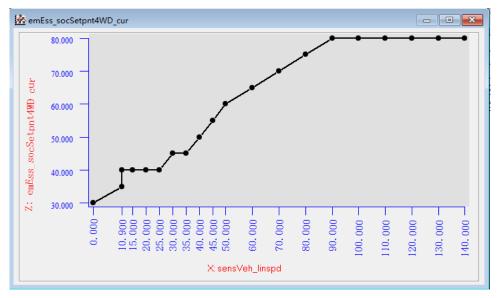
This function could help visualize calibration tables.

Right click on the table, then choose '3D View' or '2D View', then you can see the graph.



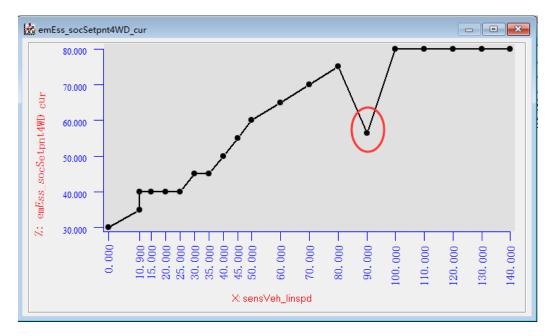






'2D View' window also support **graphical based calibration**. You can use mouse to drag one of the points to revise calibration value.





5.2.8 Copy / Paste in Table

Copy and Paste function are supported in CUR and MAP tables, the function is similar to that to Excel.

Example

Choose the area of cell you want to copy, then right click, and click 'Copy'.

+ 0.001		· _/	Selected =		<u>er</u>								
	hDrv_linspd, [': vehDrv_pct, [-],""									
Output:	vehDrv_trqEc	oTracMax_ma	ıp, [-],""										
X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	95.00
0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
0.100	-445.000	Add Calibra	ations	439.000	437.000	435.000	433.000	431.000	429.000	427.000	425.000	423.000	421.00
0.200	-465.000	Delete		459.000	457.000	455.000	453.000	451.000	449.000	447.000	445.000	443.000	441.00
0.300	-575.000	Import		560.000	555.000	550.000	545.000	540.000	535.000	530.000	525.000	520.000	515.00
0.400	-620.000	Export		611.000	608.000	605.000	602.000	599.000	596.000	593.000	590.000	587.000	584.00
0.500	-680.000	_		677.000	676.000	675.000	674.000	673.000	672.000	671.000	670.000	669.000	668.00
0.600	-790.000	Сору		781.000	778.000	775.000	772.000	769.000	766.000	763.000	760.000	757.000	754.00
0.700	-960.000	Paste		954.000	952.000	950.000	948.000	946.000	944.000	942.000	940.000	938.000	936.00
0.800	-1080.000	Smooth Ce	lls	1077.000	1076.000	1075.000	1074.000	1073.000	1072.000	1071.000	1070.000	1069.000	1068.0
0.900	-1380.000	Change Ali		1374.000	1372.000	1370.000	1368.000	1366.000	1364.000	1362.000	1360.000	1358.000	1356.0
0.950	-1580.00(-		1574.000	1572.000	1570.000	1568.000	1566.000	1564.000	1562.000	1560.000	1558.000	1556.0
1.000	-1900.00(Decimals D	isplay	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.0
		2D View											
		3D View											
		Fit Window											
		Fit Grid											
		Variable Pro	operties										



Click the first cell of area you want to paste, then right click and click 'Paste'

+ 0.001	- *	1 /	Selected =	•	1								
Input-X: v	ehDrv_linspd,	[-],"" Input-Y	vehDrv_pct,	-],""									
Output	: vehDrv_trqEc	coTracMax_ma	p, [-],""										
X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	95.000
0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	-445.000	-443.000	441.000	439.000	Add Calib	rations	433.000	431.000	429.000	427.000	425.000	423.000	421.000
0.200	-465.000	-463.000	461.000	459.000	Delete		453.000	451.000	449.000	447.000	445.000	443.000	441.000
0.300	-575.000	-570.000	565.000	560.000	Import		545.000	540.000	535.000	530.000	525.000	520.000	515.000
0.400	-620.000	-617.000	614.000	611.000			602.000	599.000	596.000	593.000	590.000	587.000	584.000
0.500	-680.000	-679.000	678.000	677.000		Export		673.000	672.000	671.000	670.000	669.000	668.000
0.600	-790.000	-787.000	784.000	781.000	Сору		772.000	769.000	766.000	763.000	760.000	757.000	754.000
0.700	-960.000	-958.000	956.000	954.000	Paste		948.000	946.000	944.000	942.000	940.000	938.000	936.000
0.800	-1080.000	-1079.000	1078.000	1077.000	Smooth C	ells	1074.000	1073.000	1072.000	1071.000	1070.000	1069.000	1068.00
0.900	-1380.000	-1378.000	1376.000	1374.000			1368.000	1366.000	1364.000	1362.000	1360.000	1358.000	1356.00
0.950	-1580.000	-1578.000	1576.000	1574.000	Change Al		1568.000	1566.000	1564.000	1562.000	1560.000	1558.000	1556.00
1.000	-1900.000	-1900.000	1900.000	1900.000	Decimals I	Display	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.00
					2D View								
					3D View								
					Fit Window	N							
					Fit Grid								
•					Variable P	roperties							•
vehDry tr	oEcoTracMax	man			Window P	roperties							

X/Y	-20.000	-5.000	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	95.000
0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	-445.000	-443.000	441.000	-445.000	437,000	435.000	433.000	431.000	429.000	427.000	425.000	423.000	421.00
0.200	-465.000	-463.000	461.000	-465.000	457.000	455.000	453.000	451.000	449.000	447.000	445.000	443.000	441.00
0.300	-575.000	-570.000	565.000	-575.000	555.000	550.000	545.000	540.000	535.000	530.000	525.000	520.000	515.00
0.400	-620.000	-617.000	614.000	-620.000	608.000	605.000	602.000	599.000	596.000	593.000	590.000	587.000	584.00
0.500	-680.000	-679.000	678,000	-680,000	676,000	675.000	674.000	673.000	672.000	671.000	670,000	669.000	668.00
0.600	-790.000	-787.000	784.000	-790.000	778.000	775.000	772.000	769.000	766.000	763.000	760.000	757.000	754.00
0.700	-960.000	-958.000	956.000	-960.000	952.000	950.000	948.000	946.000	944.000	942.000	940.000	938.000	936.00
0.800	-1080.000	-1079.000	1078.000	-1080.000	1076.000	1075.000	1074.000	1073.000	1072.000	1071.000	1070.000	1069.000	1068.00
0.900	-1380.000	-1378.000	1376.000	-1380.000	1372.000	1370.000	1368.000	1366.000	1364.000	1362.000	1360.000	1358.000	1356.00
0.950	-1580.000	-1578.000	1576.000	-1580.000	1572.000	1570.000	1568.000	1566.000	1564.000	1562.000	1560.000	1558.000	1556.00
1.000	-1900.000	-1900.000	1900.000	-1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.000	1900.00



5.2.9 Highlight of Table Cells

When calibrating curve or map, it is good to know the 1-D / 2-D calibration data identified with respect to the real time hardware operation point. EcoCAL supports this function by highlighting the cell of data identified. The measurement variable of curve/map shall be added to measurement window to enable this function.

Calibration							ø	Measurements						×
+ 0.001 _ *	1 /	Selected =	1	5 🛃			Г	Alias	Name	Value	,	Unit	Rate	
Input: vehl_stLimp, [-],""							6	vehl stLimp	vehl stLimp	0			20ms	
Output: drv_linspdLim	pSt1_cur, [-]	,""					ľ	X						-
						1 🗆	4							
vehl_stLimp	-1.000	0.000	1.000	2.000	3.000									
drv_linspdLimpSt1_cur	110.000	110.000	90.000	50.000	30.000									
drv_accelReg_cur_drv_li	nspdLimpStl	_cur drv_lii	nspdLimpSt2	_cur drv_tro	AntiRoll ┥ 🕨	Ī								

5.2.10 EcoCAN

EcoCAN is used for CAN bus monitoring, CAN messages recording and M file generation (M file is used for EcoCoder CAN blocks definition).

5.2.10.1 Configuration

1) Open EcoCAN:

Go to menu->Advanced->EcoCAN

File	Edit Settings R	In Variables Diagnostics Advanced	Window	Help
	🗏 🕒 😫 🕨	Calibration Data Manager	1	
•	⊡Project EV_ EV_ Cali	Debug Get ECU Version Info Page Setting Alias Manager		
		EcoCAN Auto-Tuning Settings Read Computer NO.		



ſ	EcoCAN v1.8		••	-	-	C. a	-	-	_	×
	**									
									_	
		_								1.

2) Open .dbc file:

Click the icon	to open a .dbc file.
	to open a .ubc me.



Open DBC File	-		-				X
Com	pute	r ► Local Disk (C:) ► EcoCAL ►		Search Ed	:oCAL		Q
Organize 🔻 New f	folde	r					?
	*	Name	Date modified	Туре	Size		
📄 Libraries		퉬 HelpDoc	2017/8/22 11:38	File folder			
Documents		le kerneldlis	2017/8/22 11:38	File folder			
J Music		퉬 Picture	2017/8/22 11:38	File folder			
Pictures		퉬 record	2017/8/22 11:40	File folder			
Videos	Ξ	📔 Uninstall	2017/8/22 11:38	File folder			_
Videos		🔁 EV-Demo.dbc	2016/7/29 10:08	Microsoft Visua	al F	34 KB]
🔞 Homegroup							
🖳 Computer							
🏭 Local Disk (C:)	Ŧ						
Fi	le na	me: EV-Demo.dbc		▼ DBC(*.dbc	:)		•
				Open		Cancel	



When the dbc file is loaded

EcoCAN v1.8													
ڬ 🎘 🖆 🔳													
i≡ ListView													
Network Nodes	Name	Phy Value	Hex Value	Start Bit	Length	Byte Order	Value Type	Factor	Offset	M	ax Value	Min Value	Unit
Vector_XXX	Test_U8	•		40		8 Intel	Unsigned		.5	-10	-10		
HCU	Test_S16			48		16 Intel	Signed		.5	0	0		
Test_S_2			•	16		24 Intel	Signed		2	1	0		
HCU_COMM	Test_S12	•	·	()	12 Intel	Signed		.5	1	0	0	
HCU_BMS_0													
<u>∔</u> MCU													
•													
	015	CALLEY D											
	L:\Eco	CAL\EV_Der	no.ddc										1

Set up communication

1) Click the icon 🎇 to open setting window.

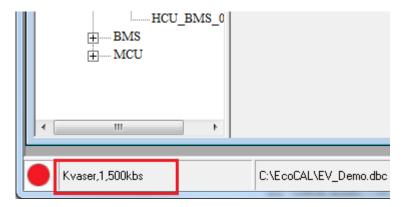


2) Select a CAN device and configure the correct parameters then click the button 'OK'. Shown as below:



Communication Settings	×
Select the communication mode.	CAN Settings Device Type Kvaser • Device Index 0 • Channel NO. 1 • Baud Rate 500kbs •

The EcoCAN window will show the device which you chose.





5.2.10.2 CAN Bus Monitoring

Click the icon $\stackrel{\textcircled{\bullet}}{\twoheadrightarrow}$ to open device.



If succeed, the status bar will show green light.

	4
Kvaser,1,500kbs	C:\EcoCAL\EV_Demo.dbc

If CAN device receives data, the software interface will show the values of the variables.

EcoCAN v1.8					-	1	_	_	-			
• 🎘 🖆 🗕												
≡ ListView												• ×
Network Nodes	Name	Phy Value	Hex Value	tart Bit	Length	Byte Order	Value Type	Factor	Offset	Max Value	Min Value	Unit
Vector_XXX	Demand_Sp		0	56		16 Motorola	Unsigned		1 -15000) () 0	
HCU	Demand_Tc	-5000	0	40		14 Motorola	Unsigned		1 -5000) () 0	
Test_S_2	FaultReset	0		39		1 Motorola	Unsigned		1 0			
HCU_COMN	Demand_Lir			38		1 Motorola	Unsigned				-	
HCU_BMS_0	Demand_Lir			24		12 Motorola	Unsigned		4 C			
	Demand_Lir			20		12 Motorola	Unsigned		4 C		-	
MCU	Live_Counte			4		4 Motorola	Unsigned		1 0			
	Control_Moc		0	1		3 Motorola	Unsigned		1 0		-	
	MCU_Enabl	1	1	0		1 Motorola	Unsigned		1 0) () 0	
4 III >												
Kvaser,1,500kbs	C:\Ecol	CAL\EV_Dem	io.dbc									
	L'AECO	LALNEV_Dem	10. dDC		_	_						



5.2.10.3 CAN Message Recording

1) Click the icon 📍 to start record



ListView													_	
Network Nodes		Phy Value	Hex Value	Start Bit	Length		Byte Order	Value Type	Factor		Diffset	Max Value	Min Value	Unit
+ Vector_XXX	Demand_Sp	-15000	0				Motorola	Unsigned		1	-15000			0
HCU	Demand_Tc	-5000					Motorola	Unsigned		1	-5000		-	0
Test_S_2	FaultReset	0	-				Motorola	Unsigned		1	0			0
HCU_COMM	Demand_Lir	0	-				Motorola	Unsigned		1	0			0
HCU_BMS_(5128					Motorola	Unsigned		4	0			0
+ BMS	Demand_Lir	76					Motorola	Unsigned		4	0			0
MCU	Live_Counte	0					Motorola	Unsigned		1	0			0
11 1100	Control_Moc	0				3	Motorola	Unsigned		1	0			0
	MCU_Enabl	1	1	0		1	Motorola	Unsigned		1	0		0	0
4 III														

2) Click the icon 📕 to stop record

🚞 🎘 📄	6		

ListView													
Network Nodes	Name	Phy Value	Hex Value	Start Bit	Length	Byte Order	Value Type	Factor	(Offset	Max Value	Min Value	Unit
Wector_XX	C Demand_Sp	-15000	0	56		16 Motorola	Unsigned		1	-15000	()	0
HCU	Demand_Tc	-5000	0	40		14 Motorola	Unsigned		1	-5000	() ()
Test_	S_2 FaultReset	0	0			1 Motorola	Unsigned		1	0	() ()
HCU	COMIN Demand_Lir	0	0	38		1 Motorola	Unsigned		1	0	()	0
HCU	BMS 0 Demand_Lir	5128	1282	24		12 Motorola	Unsigned		4	0	() ()
+ BMS	Demand_Lir	76	19	20		12 Motorola	Unsigned		4	0			0
H MCU	Live_Counte	0	0	4		4 Motorola	Unsigned		1	0	() (0
+ W100	Control_Moc	0	0	1		3 Motorola	Unsigned		1	0	() ()
	MCU_Enabl	1	1	0		1 Motorola	Unsigned		1	0	() (0

3) The record file is saved in the 'record' folder under EcoCAL installation folder



Co v 🖉 🖉 « Eco	oCAL ▶ record	▶ 2017-9-13-11-17-	6-141	- €2		017-9-13-:	x 1 , P
Organize 🔻 Incl	ude in library 🔻	Share with 🔻	Burn	New folder	:==		(?)
☆ Favorites	^ Name	*		Date modi	ified	Туре	
🧾 Desktop	≡ 🔊 🔊 AllDa	ta-2017-9-13-11-17	-6-187.csv	2017/9/13	11:17	Microso	oft Excel
🚺 Downloads 🗐 Recent Places							
门 Libraries							
Documents							
J Music	• •		III				Þ
1 ite	em						

5.2.10.4 M File Conversion

1) Click the icon 📕 to generate M file



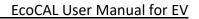
2) In the opened window, put name.

≡ Save		12501	Lei l		×
Com	puter 🕨 Local Disk (C:) 🕨 EcoCAL	•	▼ 4 Search	EcoCAL	٩
Organize 🔻 New f				!≡ ▼	0
☆ Favorites	Name	Date modified	Туре	Size	
🧮 Desktop	🌗 HelpDoc	2017/8/22 11:38	File folder		
🔋 🗎 🗎 Downloads	퉬 kerneldlis	2017/8/22 11:38	File folder		
📃 Recent Places	퉬 Picture	2017/8/22 11:38	File folder		
	퉬 record	2017/8/22 11:40	File folder		
📜 Libraries	퉬 Uninstall	2017/8/22 11:38	File folder		
Documents					
J Music					
Pictures					
Subversion 💌					
File name: 1					•
Save as type: m	(*.m)				•
Alide Folders			Sa	ve Can	cel



3) You can find the M file in the EcoCAL folder.

	r	_	104-			
🔾 🗢 📕 🕨 Con	nput	er 🕨	Local Disk (C:) → EcoCAL →		✓ Search EcoCA	L 🖇
Organize 👻 💟 🤇	Oper	ı	Burn New folder		:== ▼	. 0
🔆 Favorites	-	Na	me	Date modified	Туре	Size
🧮 Desktop			HelpDoc	2017/8/22 11:38	File folder	
鷆 Downloads			kerneldlls	2017/8/22 11:38	File folder	
📳 Recent Places			Picture	2017/8/22 11:38	File folder	
			record	2017/8/22 11:40	File folder	
门 Libraries	=		Uninstall	2017/8/22 11:38	File folder	l
Documents			1.m	2017/9/13 11:22	M File	23
🁌 Music		٩	BitOpt.dll	2010/3/15 11:08	Application extens	22
Pictures		٩	Comm.dll	2011/4/20 9:53	Application extens	26
🗐 Subversion		C	Compare.exe	2016/9/23 11:39	Application	78
😸 Videos		[me	Compare.txt	2017/8/22 14:43	Text Document	
		٩	ControlCAN.dll	2014/5/29 9:20	Application extens	5
🤣 Homegroup		Ø	current_config.xml	2017/8/23 11:38	BaiduBrowser HT	3
		ø	Current_VariblesAlias.xml	2017/8/23 11:38	BaiduBrowser HT	13
🖳 Computer		<u>n</u>	Demo.A2L	2015/6/17 16:10	A2L File	1,07
ڏ Local Disk (C:)	Ŧ	•		III		F.
1.m M File	e		dified: 2017/9/13 11:22 Size: 238 KB reated: 2017/9/13 11:22			



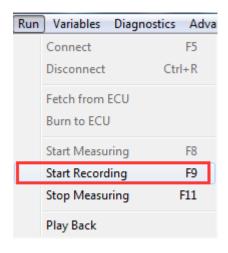


5.2.11 Record Data and Play-back

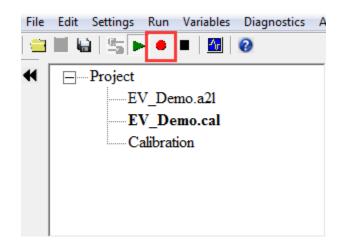
5.2.11.1 Record data

You might need to record the data to analyze.

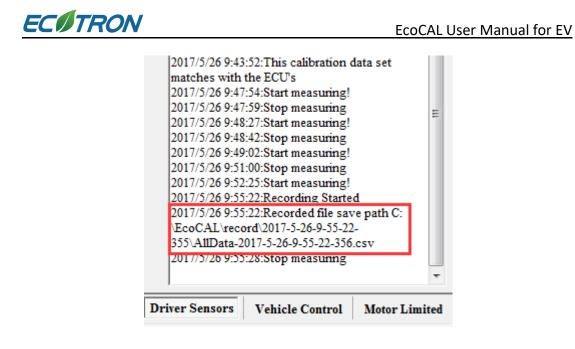
1) Go to menu->Run->Start Recording



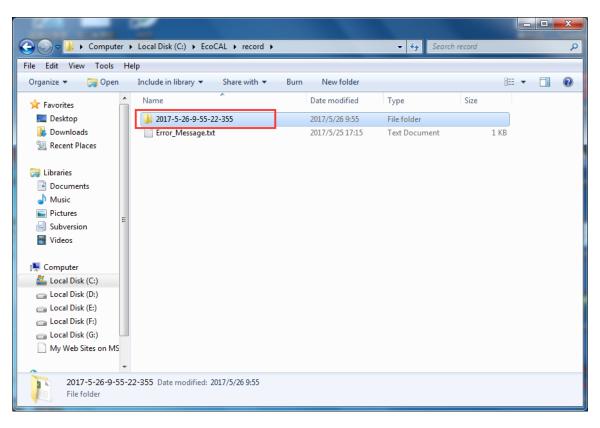
Note: You can also use the button () to record the data.



When you click the button, EcoCAL will record the data automatically. And save the recorded file at the installation path of EcoCAL, 'C:\EcoCAL\record'. The file would be named with the time of recording.

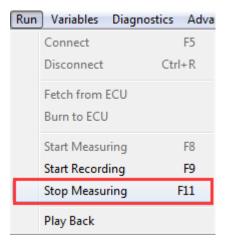


For example, the file named '2017-5-26-9-55-22-355' is the one recorded at 2017-5-26-9:55:22.

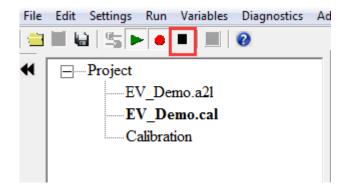




2) Go to menu->Run->Stop Measuring



Note: You can also use the button () to stop record the data.

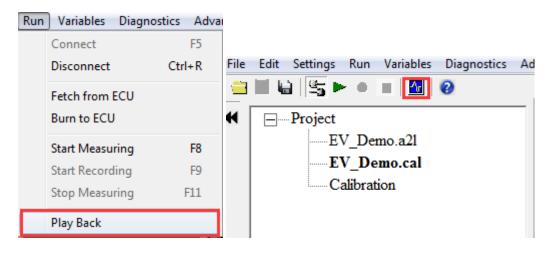




5.2.11.2 Play-back with Data Analyzer

After the data files are recorded, the user can study it in data analyzer.

1) Select '**Run ->Play Back**' or click the button **b** to play back the data.



The play-back software, 'Data Analyzer'.

	Data Analyze	er V4.1				Σ^{\perp}			\sim	2				- 0	×
File Edit H	lelp														
Open	Plot	Show	Cursor	Show All Sig	nal Show F	ull Range						Tim 0	to 0	0	0
												Variables			
	0.000 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0				
Active:	T1[s]:	T	[2[s]:	T2-T1[s]:	Work	ing page:									



2) Open Data Files

In **Data Analyzer**, go to '**File->open**', select the data file you want to analyze.

	File Edit Help			
	Open Plot	Show Cursor	92	
🚹 Open	TH 81 1918			
😋 🗢 🚽 « Local Disk (C:) 🕨	EcoCAL + record + 2017-5-26-9	-55-22-355 🗸	Search 2017-5-26-9-55-22-355	ρ
Organize 🔻 New folder			III 🔹 🗍 🔞	
🔶 Favorites	e	Date modified	Type Size	
	AllData-2017-5-26-9-55-22-356.csv	2017/5/26 9:55	Microsoft Excel 97 206 KB	
Downloads				
 Recent Places Libraries Documents Music Pictures Subversion Videos 				
Computer Local Disk (C:) Local Disk (D:)	llData-2017-5-26-9-55-22-356.csv		▼ csv(*.csv) ▼ Open ▼ Cancel	44
File Edit Help Open Plot Show Cursor Show All Signal Show Full I	tanga	Time 1 0 to	103.369 0 - 103.369 [s] ↔ ←	
1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 100 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1	Murran Malada Marada Marada Murran Marada	lywaran and a start an	ccDL_utDIBm 0 1 20m; ccDL_utDIB 128 122 20m; ** ccDL_utrop5RH 3.45 3.45 3.26 20m; ** ccDL_utrop5RH 3.45 3.45 3.26 20m; ** ccDL_utrop5RH 4.45 3.45 3.26 20m; ** ccDL_utrop5RH 4.0 1.2 20m; ** ccDL_utrop5RH 1.2 20m; ** ccDL_utrop5RH 1.2 20m; ** ccDL_utrop5RH 1.2 20m; ** ccDL_utrop5RH 1.2 20m; ** ccDL_utrop8RH 1.2 2.2 ** ** ccDL_utrop8RH 1.45 2.2 2.2 ** ccDL_u	
0 0.000 10.337 20.674 31.01	1 41.349 51.685 62.021	72.358 82.695 93.032	drv_Insip@tinn 3.4E + 38 2.0m ** drv_Insip@tinn 3.4E + 38 2.0m ** drv_Insip@tinn 3.4E + 38 3.4E + 38 2.0m drv_Insip@tinn 3.4E + 38 3.4E + 38 2.0m drv_Insip@tinn 3.4E + 38 3.4E + 38 2.0m	
	1 41.348 51.685 62.021 1[s]:9.49 Working page:	12.000 02.000 33.002	10	



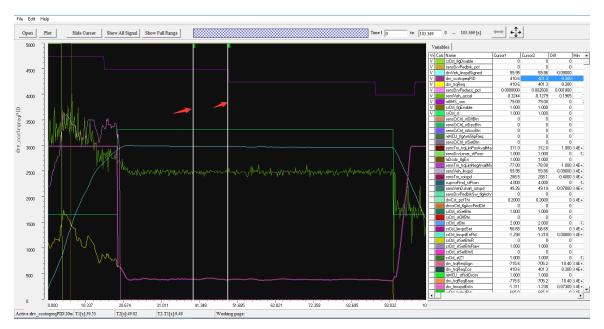
3) Show/Hide all signals

Click '**show all signals / hide all signals**' to switch between showing all signals and hiding all signals.

File Edit Help			
Open Plot	Show Cursor	Hide All Signal	Show Full Range

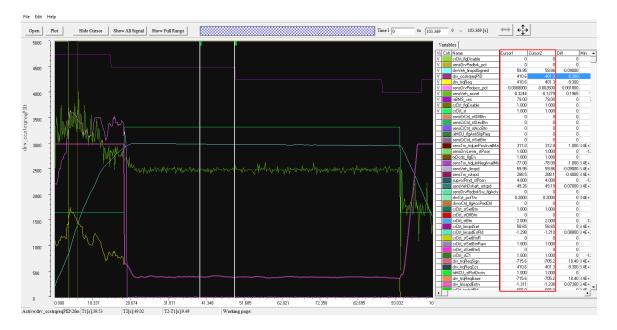
4) Show/Hide Cursors

Click 'show cursors / hide cursors' to switch between showing cursors and hiding cursors. There are 2 cursors in the scope window. The values of all signals at the 2 cursors will be displayed on the right. Moreover, there will be another variable at the third list to show the difference value between the two points on two cursors in real time.



The location of the cursor can be changed by dragging the cursor to the place you like.





5) Line/Step Curve Type

The curve will be shown in different way if the user chooses it differently.

'Line' means there will be a straight line between 2 sample points.

'Step' means there will be a nonlinear segment between 2 sample points.

Edit	Help		
	Plot	Ctrl+R	Hide All Signal
	Hide Signal List	Ctrl+H	Thuc The orginal
	Show Cursor	Ctrl+T	
	Display Mode	•	✓ Line
	Sort	•	Step
	Hide All Signal		
	Show Full Range	Ctrl+Z	
	ECU Version Adjust Resolution		



6) Zoom in/out X-axis

Users can zoom in/zoom out the X-axis by set the 'start time' value and 'end time' value.

The full time range of the data file can be shown by clicking 'Show Full Range'.

File Edit Help					
Open Plot	Show Cursor	Hide All Signal	Show Full Range	Time	0 to 16.828 0

7) Zoom in/out Y-axis

Double click the 'Max / Min' fields in the signal list, the range of the signals can be modified, which will automatically zoom in/zoom out the Y-axis for the signals.

Colc	Name	Min	Max	
	crCtrl_flgDisable	0		1
	sensDrvPedbrk_pct	0		1
	drvVeh_linspdSigned	0		100
	drv_ccstrgregPID	0		5000
	drv_trqReq	0		5000
	sensDrvPedacc_pct	0		1
	sensVeh_accel	-10		10
	rxBMS_soc	70		80
	crCtrl_flgEnable	0		1

8) Save the Data Analyzer Configuration

After you spend time to zoom in/out and/or select signals, maybe you want to save these configurations. Please right click and choose 'save configuration' and store it in a configuration file. Next time you run Data Analyzer, the software will open the configuration file and load all your settings automatically.

File) Edit Help	
	Open	Ctrl+O
	Load Configuration	Ctrl+L
	Save Configuration	Ctrl+S
	Exit	

You can click the 'Load Configuration' to load saved configuration.



Chapter 6 Exit or Uninstall EcoCAL

6.1 Exit EcoCAL

There are two ways to exit EcoCAL

1) Use the menu to exit the EcoCAL

Go to menu->File->Exit

File	Edit	Settings	Run	Variables	Diagnosti				
	Open				Ctrl+O				
	Save O	CAL			Ctrl+S				
	Save CAL as								
	Save (Configurati		Ctrl+F2					
	Save O	Configurati							
	Load Configuration				Ctrl+F3				
	Default Configuration Reset								
	Exit								

2) Close the EcoCAL directly on the upper right corner

EcoCAL V1.8.6.3 Beta1.0						and the second) () <mark>X</mark>	-
Edit Settings Run Variables Diagnostics	Advanced Window H	lelp												٨	
:■⊌≝►•= ■ 0														្រា	
Project	र्छ Scope				_			😽 Meas	surements					• *	
EV_Demo.a21 EV_Demo.cal Calibration	1.00 -				V = -[]	Bmsc_figReconnReq Bmsc_st	ic	e pwi	rtmBmsc_flgDisReq rtmBmsc_flgReconnReq rtmBmsc_st	pwrtmBmsc_	flgReconnReqc st	Value	Unit	Rate 20ms 20ms 20ms	
	0.60 -				3 ∨ pwetmi 4 ∨ pwetmi 4 ∨ pwetmi = - []	BmscPack_AgConnR BmscPack1_AgConn Bmsl_AgChgiDisReq		 pwi pwi pwi pwi pwi 	vtmBmscPack_flgConnR vtmBmscPack1_flgConn vtmBms1_flgChgrDisReq vtmBms1_flgDerLdDisRev vtmBms1_flgDerLdReq	pwrtmBmscP pwrtmBms1_f	ack1_flgConn 1gChgrDisReq 1gDerLdDisReq			20ms 20ms 20ms 20ms 20ms	
101178/22 145-756/smvm.esotoms.com 101178/22 145-756/smvmm.esotoms.com 10178/22 145-7571.kinning the file 10178/22 14571.kinning		20	4.0 6.0	8.0 1	• • []	8msl_figDerLdDisReq 8msl_figDerLdReq	1	•							
	Calibration + 0.001	• 1	/ Selected = 1	<u></u>											
	Alias exmcDcdc_ptu exmcDcdc_ptu exmcDcdc_ptu exmcDcdc_ytu exmcDcdc_vtu exmcDcdc_vtu exmcDcdc_vtu exmcDcdc_vtu exmcDcdc_vtu exmcDcdc_ytu	rOff_val rOn_val Start_val tBattLoThr_val	Nane esniDbdc_flgFrcEn_ esniDbdc_pwrOft_v esniDbdc_pwrOft_v esniDbdc_flgStart_ esniDbdc_volBattl esniDbdc_volBattl esniDbdc_volBattl	val () al () al () val () oThr_val 1	0000 0000 0000 1.500			Unit - - - -							
	*] * [m				_					Ļ
I basic setting Servo Motor Idle controls	Global fuel enrichment	Start fuel	After-start Warm-up Fuel	Steady-State	Acceleration	Deceleration P	erformanc	ce WOT	Altitude Calibration	Advanced Tur	ning for injection	Advanc	ed Tuning fo	r ignitic ┥ 🛛	•
Disconnected The license file is successf	fully resolved.		Working Page: C:1	EcoCAL/EV Demo.	cal								Activated		



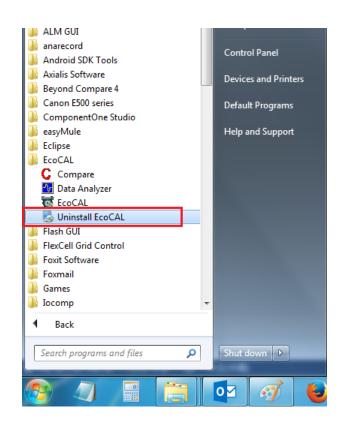
Note: Software would warn you when you try to exit with change on calibration unsaved.

Exit EcoCAL			22
Do you want to save t you click NO, exit Ecc		ta before exit Eco	CAL? Note: If
	Yes	No	Cancel

6.2 Uninstall the EcoCAL

If you want to uninstall the EcoCAL, please click:

Start->All Programs->EcoCAL->Uninstall EcoCAL.





Chapter 7 Diagnose on Failure Connection between ECU and EcoCAL

Common failure reason:

- 1) VCU/HCU power.
- 2) Check EcoCAL version on your hand with the one on website.
- 3) Are you connecting the computer to the VCU/HCU via CAN mode?