

# EcoCAL

## User Manual for EV

## V1.7

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## Introduction

EcoCAL is the calibration software of EV/Hybrid system from Ecotrons, you can use the EcoCAL 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. Our HCU/VCU is 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 the EcoCAL Software

1) Download the EcoCAL calibration software from the website:

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

```
Latest Software - Free Download V
```

EcoCAL for EV - v1.8.6.2
 EcoCAL for EFI - v1.8.6.2
 Wideband ALM GUI software - v2.9.13
 Ecotrons DroidCAL Phone App - v1.5
 SimMotor GUI software - v1.4
 Flash GUI Software - v2.8.3.8
 EcotronsCAN Driver

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

**2)** Maybe, you get the software through the E-mail. So you need to rename the installation file name that is attached in the Email:

#### "EcoCAL-setup.exe.remove".



Please modify the attached file name extension, and remove the ".remove", then run the file: "EcoCAL-setup.exe" to install the tool software.

#### 1.1.2 Install EcoCAL

1) Double-click the ICON "EcoCAL setup" to install the EcoCAL;



2) Click "Next";



2) Click "Next" and choose the path to install EcoCAL;

| EcoCAL Setup   | ×                                      |
|--|--|
| nstallation Folder   |  |
| Where would you like EcoCAL to be installed?   |  |
| The software will be installed in the folder listed below. To select a new path, or click Change to browse for an existing folder. | a different location, either type in a |
| Install EcoCAL to:   |  |
| C:\EcoCAL  | Change                                 |
| Space required: 120.1 MB   |  |
| Space available on selected drive: 6.77 GB   |  |
|  |  |
|  | French                                 |
| < <u>B</u> ack   | Next > Cancel                          |
|  |  |

#### 3) Click "Next";

| Where would you like the shortcuts  | to be installed?   |
|---|--|
| The shortcut icons will be created ir<br>folder, you can either type a new na                   | n the folder indicated below. If you don't want to use the default<br>ame, or select an existing folder from the list. |
| EcoCAL  |  |
| <ul> <li>Install shortcuts for current user</li> <li>Make shortcuts available to all</li> </ul> | r only<br>users  |
|   |  |



4) Click "Next";

| You are now ready                               | to install EcoCA  | 1856                 |                   |      |  |
|---|-------------------|----------------------|-------------------|------|--|
|   |                   |                      |                   |      |  |
| The in <mark>s</mark> taller now <mark>h</mark> | nas enough inform | ation to install Eco | CAL on your compu | ter. |  |
| The following settir                            | ngs will be used: |                      |                   |      |  |
| Install folder: C                               | C:\EcoCAL         |                      |                   |      |  |
| Short <mark>cut</mark> folder: E                | EcoCAL            |                      |                   |      |  |
| Please <mark>click Next</mark> t                | o proceed with th | e installation.      |                   |      |  |
|   |                   |                      |                   |      |  |
|   |                   |                      |                   |      |  |
|   |                   |                      |                   |      |  |
|   |                   |                      |                   |      |  |

5) Click "Next" and wait for installing;





6) Click "Finish";



The installation of "EcoCAL" is successful.

#### 1.2 Start EcoCAL

#### 1.2.1 Start EcoCAL software

(1) Double-click the icon "EcoCAL" on the desktop to start the EcoCAL software:



(2) When you start the EcoCAL at the first time after you finish installation, the EcoCAL will load the Demo files automatically with the default page setting.

| C EcoCAL V1.8.6.2  |  | 0 X |
|--|--|-----|
| File Edit Settings Run Variables Diagnostics   | Advanced Window Help   |     |
| ≝∎⊌≲⊳∘∎⊠⊘  |  |     |
|  | ් ත් Calibration   |     |
| Demo.a21   | + 0.001 . + 1 / Selected = 1 5 2   |     |
| Demo.cal   |  |     |
| Calibration  | Añas Name Value Unit   |     |
|  | diagEssCAN flgMaskRdy va diagEssCAN flgMaskRdy va 0 -  |     |
|  | diagEssLv_figMaskRdy_val diagEssLv_figMaskRdy_val 1  |     |
|  | 😧 diagTmCAN_flgMaskRdy_val diagTmCAN_flgMaskRdy_val 0 -  |     |
|  | 😧 diagTmLv_flgMaskRdy_val diagTmLv_flgMaskRdy_val 1 -  |     |
|  |  |     |
|  |  |     |
| 2017/5/25 18:22:45   |  |     |
| 2017/5/25 18:32:45:Converting the file   |  |     |
| 2017/5/25 18:32:48:Parsing the file  | 🖸 Calibration  |     |
| 2017/5/25 18:32:49:Einleing the file<br>2017/5/25 18:32:49:Eile loaded successfully/ | + 0.001 - • 1 / Selected = 1 • • ?   |     |
| 2017/5/25 18:32:51:Load configuration  |  |     |
| successfully! File path: C:\EcoCAL   | Alias Name Value Unit  |     |
| 2017/5/25 18:32:51:License file is not exist   | 😥 diagDmoc_tCntRevRdyDbnc_val diagDmoc_tCntRevRdyDbnc_val 0.000 -  |     |
|  | 😧 sensDrv_pctDiffPedbrk_val sensDrv_pctDiffPedbrk_val 0.500 -  |     |
|  | 😧 sensDrv_pctPedbrk_val sensDrv_pctPedbrk_val 0.000 -  |     |
|  | 😧 sensDrvPedacc_pctPotRatchDeadBand_v sensDrvPedacc_pctPotRatchDeadBand_v 0.000 -  |     |
|  | V sensDvPedacc_pctPotRatchFastBand_vi sensDvPedacc_pctPotRatchFastBand_vi 0.100 -  |     |
|  | W sensDvyPedacc_pctPotRatchMaximit_val_sensDvyPedacc_pctPotRatchMaximit_val_0.600  |     |
|  | sensurvredacc_pctrotkatchximint_val sensurvredacc_pctrotkatchximint_val 0.300  |     |
|  |  |     |
|  | Calibration  |     |
|  | + 0.001 - 1 / Selected = 1 5   |     |
|  | Input: sensLinkPas_voltPressVac, [-],"Conversion from normalized ref voltage to pressure"  |     |
|  | Coutput: sensPasVacPmuy_pressPnom_cur, [-],"Conversion from normalized ref voltage to pressure"  |     |
|  | ranel interaction 0.200 2.687 4.600  |     |
|  | sensibility of the sensibility o |     |
|  |  |     |
|  |  |     |
|  |  |     |
|  | sensPasVacPrmry pressPnorm cur   |     |
|  |  | F.  |
| Driver Sensors Vehicle Control Motor Limite  | ed Ess Limited Driver Torone Charger Control Vehicle Setting Auviliaries Control Cruice Control Battery Charge   |     |
|  | en l'estimate l'estat solar l'estat source l'estat source l'estat source l'estat source l'estat source l'estat   |     |
| Disconnected License file is not exist.  | Working Pare: 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". Usually, the Demo files are not correct for user, you can find the correct A2L, CAL files in CD. You should copy and paste the necessary A2L file and CAL file into that folder, if the folder contains no such files, then Open the correct A2L file and CAL file in EcoCAL.

#### 1.2.2 Load the Calibration files

#### 1) File types and definitions

mot file: this is a Motorola format microprocessor executable file;

**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).

Note: most users don't need the mot file; unless your VCU/HCU firmware update is necessary; it is enough to have the A2L file and CAL file to run EcoCAL and do the calibration work.

#### 2) Load the correct A2I and CAL files

Note: If you have not got correct A2L file and CAL file in your CD or in the software package, please email us: <u>info@ecotrons.com</u> or

#### support@ecotrons.com.

Often the user will need to load different A2L file and CAL file than the default ones coming with the EcoCAL.

For example, a VCU/HCU software update will give you a new A2L file and a new CAL file. Or new calibration release will give you just a new CAL file (A2L file stays same).

#### In EcoCAL, go to menu->File->Open

Find out the place that you put the A2L and CAL files, and then choose the correct files

**Note**: EcoCAL always need to open 2 files, open A2L first, and then open CAL file next.

| o Open  |   | - F N M   |   |   |                 |        | ×           |
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| 👌 Music   | EV_Demo.a2I   | 2017/4/26 11:50   | A2L File  | 269 KB  |                 |        |             |
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| © Open<br>Organize ♥ New for<br>Pesktop<br>Downloads<br>© Downloads<br>© Subversion<br>© Local Disk (C:)<br>© Local Disk (D:)<br>© Downloads<br>© Downlo | uter > Local Disk (C:) > EcoCAL ><br>Ider  Name HelpDoc Kerneldlis Picture Picture Picture Fecord Uninstall EDemo.cal EV_Demo.cal           | Date modified<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/2/23 20:30<br>2017/4/26 11:50 | Type<br>File folder<br>File folder<br>File folder<br>File folder<br>CAL File<br>CAL File                | • <b>4</b><br>Size<br>18 KB<br>4 KB                                 | Search EcoCAL   | •      |             |
| ♥ Open         ♥ Organize       New for         ♥ Favorites       ■ Desktop         ● Desktop       ● Downloads         ● Downloads       ● Recent Places         ● Libraries       ● Documents         ● Documents       ● Music         ● Pictures       ● Subversion         ● Videos       ● Videos         ● Local Disk (C:)       ● Local Disk (C:)         ● Local Disk (D:)       ● States  | uter > Local Disk (C:) > EcoCAL ><br>Ider<br>Name<br>HelpDoc<br>kerneldlls<br>Picture<br>record<br>Uninstall<br>EV_Demo.cal<br>EV_Demo.cal  | Date modified<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/2/23 20:30<br>2017/4/26 11:50                    | Type<br>File folder<br>File folder<br>File folder<br>File folder<br>CAL File<br>CAL File                | • 49<br>Size<br>18 KB<br>4 KB                                       | Search EcoCAL   | Cancel |             |

Click "Open", and then load the A2I and CAL files successfully.



**Note**: You also can use the shortcut button of "Open" to open the files.



Note: The default Demo file is not correct for user. Please find the correct A2L, CAL files in CD.

#### 1.3 Activate EcoCAL

#### 1.3.1 Get the key file

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

To generate related seed file, save it, then send the seed file to ECOTRONS

| Adv | vanced Window Help       |  |  |  |  |
|-----|--------------------------|--|--|--|--|
|     | Calibration Data Manager |  |  |  |  |
|     | Debug                    |  |  |  |  |
|     | Get ECU Version          |  |  |  |  |
|     | Info                     |  |  |  |  |
|     | Flash                    |  |  |  |  |
|     | Page Setting             |  |  |  |  |
|     | Alias Manager            |  |  |  |  |
|     | EcoCAN                   |  |  |  |  |
|     | Auto-Tuning Settings     |  |  |  |  |
|     | License Manage           |  |  |  |  |

Click" Create Key File ".

| 觉 License Manage | ×                |
|------------------|------------------|
|                  | Create Key File  |
|                  | Register License |
|                  |                  |

Save the key file, for example, choose "Save key file" as the file name, then click "Save".

| Save key file   | -                             |                         |               |                         | 14                 |                                 | ×      |
|---|-------------------------------|-------------------------|---------------|-------------------------|--------------------|---------------------------------|--------|
| Com   | puter 🕨 Local Di              | isk (D:) 🕨 EcoCAL 🕨 lie | ense          |                         |                    | ✓ <sup>4</sup> → Search license | ٩      |
| Organize 🔻 New f  | folder                        |                         |               |                         |                    |                                 | ⊞ - 🕡  |
| ★ Favorites ■ Desktop ● Downloads ● Recent Places                   | Name                          | *                       | Date modified | Type<br>items match you | Size<br>Ir search. |                                 |        |
| Libraries<br>Documents<br>Music<br>Pictures<br>Subversion<br>Videos | Ŧ                             |                         |               |                         |                    |                                 |        |
| File <u>n</u> ame: Sa<br>Save as <u>t</u> ype: ke                   | ave key file.key<br>zy(*.key) |                         |               |                         |                    |                                 | •      |
| Hide Folders  |                               |                         |               |                         |                    | Save                            | Cancel |

Please send the key file to ev-support@ecotrons.com for license file.

Note: After you send the key to us, please do not regenerate it.

| Save key file.key | 2018/3/9 9:22 | KEY File | 1 KB |
|-------------------|---------------|----------|------|
|                   |               |          |      |

#### 1.3.2 Activate EcoCAL by license file

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

| 🔯 License Manage | 23                |
|------------------|-------------------|
|                  |                   |
|                  | Create Key File   |
|                  | Register License  |
|                  | Register Electise |

For example, select "License EcoCAL.lic", then select "Open".



| 😈 Register License          |          |                              |               |         | 24         |                  |        | X   |
|-----------------------------|----------|------------------------------|---------------|---------|------------|------------------|--------|-----|
| 00-10 · Co                  | mputer   | ► Local Disk (D:) ► EcoCAL ► | license       |         | <b>↓</b> 4 | • Search license |        | ٩   |
| Organize 🔻 New              | w folder |                              |               |         |            | :== 🔻            |        | (?) |
| ጵ Favorites                 |          | Name                         | Date modified | Туре    | Size       |                  |        |     |
| Desktop                     |          | License EcoCAL.lic           | 2018/3/9 9:26 | License | 1 KB       |                  |        |     |
| Downloads     Recent Places | =        |                              |               |         |            |                  |        |     |
| <u>an</u> necent noces      |          |                              |               |         |            |                  |        |     |
| 📜 Libraries                 |          |                              |               |         |            |                  |        |     |
| Documents                   |          |                              |               |         |            |                  |        |     |
|                             |          |                              |               |         |            |                  |        |     |
| Subversion                  |          |                              |               |         |            |                  |        |     |
| Videos                      | -        |                              |               |         |            |                  |        |     |
|                             | File nam | e: License EcoCAL.lic        |               |         | -          | Lic(*.Lic)       |        | •   |
|                             |          |                              |               |         |            | Open 🔽           | Cancel |     |

Click "OK". The activation is successful if the "Message" window is displayed as follows.

| Message                |
|------------------------|
| Activation successful. |
| ОК                     |

### Chapter 2 Connect to VCU/HCU and Record data

#### 2.1 Connect VCU/HCU to laptop

**Note**: When you want to connect the VCU/HCU to laptop via EcoCAL, you must make sure you have powered on the VCU/HCU. When you power on the VCU/HCU, you can see the vehicle would be power on.

#### 2.1.1 Communication Settings

You should select the communication mode first

#### Go to menu->Settings->Communication Settings:

| Select the communication mode. | 🆏 Communication Settings       | X  |
|--------------------------------|--------------------------------|--|
| Cancel                         | Select the communication mode. | CAN Settings<br>Device Type EcotronsCAN •<br>Device Index 0 •<br>Channel 1 •<br>Baud Rate 500kbs • |

#### CAN communication mode

Our customized VCU/HCU supports the CAN communication.

| Communication Settings         | ×  |
|--------------------------------|--|
| Select the communication mode. | CAN Settings<br>Device Type EcotronsCAN •<br>Device Index EcotronsCAN<br>Channel 1 •<br>Baud Rate 500kbs • |

Select the device you are using. There are two choices of Device Type in CAN Settings: EcotronsCAN and Kvaser. If you get the CAN device from Ecotrons, please choose the "EcotronsCAN", and we send this CAN device to customer in default.

You also choose other Device Type if you have the corresponding CAN device. You need to choose the CAN device Type, Baud Rate, after finishing setting,

then click "Open Device" to open the CAN device.

And if you don't want to use the CAN device, you also need to click "**Close Device**" to close the CAN device.



| Communication Settings         | ×  |
|--------------------------------|--|
| Select the communication mode. | CAN Settings<br>Device Type EcotronsCAN •<br>Device Index 0 •<br>Channel 1 •<br>Baud Rate 500kbs • |

#### Open device successfully

When you click the "Open Device", if the equipment is existed and working, the message will pop up, "Open device successfully!" Then you can connect to VCU/HCU.

| 4/12/2017 1:38:46 PM:www.ecotrons.com          | $\wedge$ |
|--|----------|
| 4/12/2017 1:38:46 PM:Converting the file       |          |
| 4/12/2017 1:38:46 PM:Parsing the file          |          |
| 4/12/2017 1:38:47 PM:Linking the file          |          |
| 4/12/2017 1:38:47 PM:File loaded successfully! |          |
| 4/12/2017 1:38:47 PM:Load configuration        |          |
| successfully! File path: D:                    |          |
| EcoCAL1.8.5.9\current_config.xml               |          |
| 4/12/2017 1:38:58 PM:Open device successfully! | ٦.       |
|  | ۰.       |
|  |          |



#### 2.1.2 Connect to VCU/HCU

After finishing communication setting, you can try to connect VCU/HCU to laptop.

#### Go to menu->Run->Connect

| - ·                           |  |
|-------------------------------|--|
| Connect                       | F5   |
| Disconnect                    | Ctrl+R   |
| Fetch from ECU<br>Burn to ECU |  |
| Start Measuring               | F8   |
| Start Recording               | F9   |
| Stop Measuring                | F11  |
| Play Back                     |  |
|                               | Disconnect<br>Fetch from ECU<br>Burn to ECU<br>Start Measuring<br>Start Recording<br>Stop Measuring<br>Play Back |

Note: You also can use the shortcut button ( ) of "Connect" to Connect to VCU/HCU

| File | Edit | Settings   | ; Run | Variables | Diagr |
|------|------|------------|-------|-----------|-------|
|      |      | ) <b>S</b> | •     |           | 0     |

When you connect to VCU/HCU successfully, the left lower corner of window will show "Connect" in Green color.

"This calibration data set matches with the ECU's"





**Note 1**: If there is a warning window popped up as below, this means the software version of A2I and CAL files you loaded doesn't match the VCU/HCU, and you need contact us to get the right files.



**Note 2**: If there is a message window popped up as below, it means the settings of Calibration data file (CAL file) is different from the VCU/HCU in, you need to "Burn to ECU", burn the CAL files you use to VCU/HCU.



And if burn to ECU successfully, the VCU/HCU would be worked normally. If not, please do again and check all of connection is right.

And if you do not have other operations, you should click "Cancel".

**Note 3**: If you want to know the settings in ECU, you also can click "Fetch from ECU", this will save one new CAL file.



Save it as to be "Fetch from ECU.CAL" file



| 😈 Upload  |                                    |                                    |                            |                  | ×      |
|---|------------------------------------|------------------------------------|----------------------------|------------------|--------|
| Com   | puter 🕨 Local Disk (C:) 🕨 EcoCAL 🕨 |                                    |                            | ✓ 4y Search EcoC | AL 🔎   |
| Organize 🔻 New  | folder                             |                                    |                            |                  | := • 🔞 |
| 〕 Downloads   | * Name                             | Date modified                      | Туре                       | Size             |        |
| 🖳 Recent Places   | HelpDoc                            | 2017/5/25 17:53                    | File folder                |                  |        |
| 🔚 Libraries   | kerneldlls                         | 2017/5/25 17:53                    | File folder                |                  |        |
| Documents   | Picture                            | 2017/5/25 17:53<br>2017/5/25 17:15 | File folder<br>File folder |                  |        |
| Music     Distures  | 🔋 🐌 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<br>Local Disk (C:)<br>Local Disk (D:)<br>Local Disk (E:) |                                    |                                    |                            |                  |        |
| File name: F  | etch from ECU                      |                                    |                            |                  | •      |
| Save as type:   | al(*.cal)                          |                                    |                            |                  | •      |
| Aide Folders  |                                    |                                    |                            | Save             | Cancel |

Then, the EcoCAL will load the CAL file automatically.

**Note:** make sure your 12V battery is healthy, before you do any "burn to ECU" or "fetch from ECU"!

During the upload or download, users are not allowed to do any operations to your system.

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

#### 2.1.3 Disconnect to ECU

#### Go to menu->Run->Disconnect





**Note**: You also can click the shortcut button (**Solution**) to disconnect to VCU/HCU.

#### 2.1.4 Start Measuring

When you connect to VCU/HCU successfully, you can measure the data of sensors' and do the calibration.

#### Go to menu->Run->Start Measuring



Then you can see the values of measured variables.



| 🔯 Scope        |                |        |      |         |          |   |                 |
|----------------|----------------|--------|------|---------|----------|---|-----------------|
| 250 -          |                |        |      |         |          | у | Name            |
|                |                |        |      |         |          |   | V CANA_nTxTimes |
| 200 -          |                |        |      |         |          |   | CANB_flgStart   |
| 150 -          |                |        |      |         |          |   | CANB nTxOnce    |
|                |                |        |      |         |          |   | v =0[]          |
| 100 -          |                |        |      |         |          |   |                 |
|                |                |        |      |         |          |   |                 |
| 50 -           |                |        |      |         |          |   |                 |
|                |                |        |      |         |          |   |                 |
| 0.0 1.0        | 2.0 3.0 4.     | .0 5.0 | 6.0  | 7.0 8.0 | 9.0 10.0 |   |                 |
| ,<br>          |                |        |      |         |          |   |                 |
| o Measurements |                |        |      |         |          |   |                 |
| Alias          | Name           | Value  | Unit | Rate    |          |   |                 |
| Task_tCMxL50ms | Task_tCMxL50ms | 0.755  | NM   | Syn     |          |   |                 |
| Task_tCMxL5ms  | Task_tCMxL5ms  | 0.356  | NM   | Syn     |          |   |                 |
| Task_tIH10ms   | Task_tIH10ms   | 10.000 | NM   | Syn     |          |   |                 |
|                |                |        |      |         |          |   |                 |
|                |                |        |      |         |          |   |                 |
|                |                |        |      |         |          |   |                 |
|                |                |        |      |         |          |   |                 |

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



Note: The "Start measuring" only works when connect to VCU/HCU successfully.

#### 2.1.5 Stop Measuring

When you finish the test and want to do other operation, for example, read the

**DTC, or add measurement variable, burn to /fetch from ECU**, you should stop measuring first.



#### Go to menu->Run->Stop Measuring



**Note**: You also can use the shortcut button (**I**) of "Stop Measuring" to stop measuring.



#### 2.2 Record data and Play-back

#### 2.2.1 Record data

Sometimes, you need to record the data to analyze for VCU/HCU tuning, or you need us to help you on tuning, so you need to log data while do test and send us.

#### Start Recording

After successfully to connect ECU and start measuring, you can read the values of measured variables, then you can click the "Start recording" button to record the data.

#### Go to menu->Run->Start Recording



**Note**: You also can use the shortcut button (<sup>●</sup>) of "Start Recording" to record the data.



When you click down the button, EcoCAL will record the data automatically. And save the record file at the installation path of EcoCAL, "C:\EcoCAL\record", and it is named with the time of recording.



| Driver Sensors | Vehicle Control       | Motor Limited |
|----------------|-----------------------|---------------|
|                |                       | -             |
| 2017/5/26 9:55 | :28:Stop measuring    |               |
| 355\AllData-2  | 017-5-26-9-55-22-356  | .csv          |
| \EcoCAL\reco   | ord\2017-5-26-9-55-22 | -             |
| 2017/5/26 9:55 | :22:Recorded file say | ve path C:    |
| 2017/5/26 9:55 | :22:Recording Starte  | đ             |
| 2017/5/26 9:52 | :25:Start measuring!  |               |
| 2017/5/26 9:51 | :00:Stop measuring    |               |
| 2017/5/26 9:49 | 02:Start measuring    |               |
| 2017/5/26 9:48 | 42.Ston measuring     |               |
| 2017/5/26 9:48 | 27.Start measuring    | =             |
| 2017/5/26 9:47 | -59 Ston measuring    |               |
| 2017/5/26 9.47 | ·54·Start measuring!  |               |
| matches with   | the FCU's             |               |
| 2017/5/26 9:43 | 52. This calibration  | fata set      |

For example, the record named "2017-5-26-9-55-22-355" is the record file in record.

| State of the local division of the local div | 2                                   |                 |               |             | - | x |
|--|-------------------------------------|-----------------|---------------|-------------|---|---|
| 🕞 🕞 🗢 🕌 🕨 Computer 🕨   | Local Disk (C:)   EcoCAL   record   |                 | 👻 🍫 Search n  | ecord       |   | ٩ |
| File Edit View Tools He  | lp                                  |                 |               |             |   |   |
| Organize 🔻 🛛 🔭 Open  | Include in library                  | Burn New folder |               | 1<br>1<br>1 | • | 0 |
| ☆ Favorites  | Name                                | Date modified   | Туре          | Size        |   |   |
| 📃 Desktop  | 2017-5-26-9-55-22-355               | 2017/5/26 9:55  | File folder   |             |   |   |
| Downloads  | Error_Message.txt                   | 2017/5/25 17:15 | Text Document | 1 KB        |   |   |
| 🔠 Recent Places  |                                     |                 |               |             |   |   |
| 🚍 Libraries  |                                     |                 |               |             |   |   |
| Documents  |                                     |                 |               |             |   |   |
| J Music  |                                     |                 |               |             |   |   |
| Pictures =   |                                     |                 |               |             |   |   |
| Subversion   |                                     |                 |               |             |   |   |
| Videos   |                                     |                 |               |             |   |   |
| Computer   |                                     |                 |               |             |   |   |
| Local Disk (C:)  |                                     |                 |               |             |   |   |
| Local Disk (D:)  |                                     |                 |               |             |   |   |
| 👝 Local Disk (E:)  |                                     |                 |               |             |   |   |
| 🥅 Local Disk (F:)  |                                     |                 |               |             |   |   |
| 👝 Local Disk (G:)  |                                     |                 |               |             |   |   |
| My Web Sites on MS   |                                     |                 |               |             |   |   |
|  |                                     |                 |               |             |   |   |
| 2017-5-26-9-55-2:<br>File folder   | 2-355 Date modified: 2017/5/26 9:55 |                 |               |             |   |   |

Note: If you need us to help you on tuning, please send the recorded files to us.

#### **Stop Recording**



When you finish the test and want to see the record file, please stop recording first.

#### Go to menu->Run->Stop Measuring



**Note**: You also can use the shortcut button (**I**) of "Stop Measuring" to stop recording.



#### 2.2.2 Play-back with data analyzer

After the data files are recorded, the user can select "**Run ->Play Back**" or click

the button 1 to play back the data.



The play-back software, "Data Analyzer", can start as below:

|             | Data Analyzer V4 | .1        |                 |                 | ~     |       |       | 2     |           |        |     |
|-------------|------------------|-----------|-----------------|-----------------|-------|-------|-------|-------|-----------|--------|-----|
| File Edit H | lelp             |           |                 |                 |       |       |       |       |           |        |     |
| Open        | Plot Sh          | ow Cursor | Show All Signal | Show Full Range |       |       |       |       | Tim       | 0 to 0 | 0 0 |
|             |                  |           |                 |                 |       |       |       |       | Variables |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             |                  |           |                 |                 |       |       |       |       |           |        |     |
|             | 0.000 0.000      | 0.000     | 0.000           | 0.000 0.000     | 0.000 | 0.000 | 0.000 | 0.000 | 0.0       |        |     |
| Active:     | T1[s]:           | T2[s]:    | T2-T1[s]:       | Working page:   |       |       |       |       |           |        | li. |

#### **Open Data Files**

In Data Analyzer, Go to "File->open", select the data file you want to analyze:

Again, by default, your saved files are under: "...\EcoCAL\record"; where "..." is your EcoCAL installation folder, usually it is "C:\EcoCAL\record".

| File | Edit | Help |             |     |
|------|------|------|-------------|-----|
| 0    | pen  | Plot | Show Cursor | 2.0 |



|   | Open  |              | 1.00                |                    |                               | -  |  |   |   | ×   |
|---|---|--------------|---------------------|--------------------|-------------------------------|--|--|---|---|---|
| K   | 🕒 🔾 🗢 🔰 🖉 Coci  | al Disk      | (C:) ► EcoCAL ►     | record > 2017-5-   | 26-9-55-22-355                | <b>▼</b>   <del>•</del>                  | • Search 2017-   | -5-26-9-55  | 5-22-355  | 2   |
| -   | Organize 🔻 New  | / folder     | r                   |                    |                               |  |  | •   |   | ?   |
|   | 🔆 Favorites   | *            | Name                | *                  | Date m                        | odified 1                                | Гуре   | Size  |   |   |
|   | E Desktop   |              | ᆁ AllData-2017-5    | 5-26-9-55-22-356.c | sv 2017/5/                    | /26 9:55                                 | Microsoft Excel 97   |   | 206 KB  |   |
|   | Downloads   |              |                     |                    |                               |  |  |   |   |   |
|   | Recent Places   |              |                     |                    |                               |  |  |   |   |   |
|   | 🥃 Libraries   | E            |                     |                    |                               |  |  |   |   |   |
|   | Documents   |              |                     |                    |                               |  |  |   |   |   |
|   | J Music   |              |                     |                    |                               |  |  |   |   |   |
|   | Subversion  |              |                     |                    |                               |  |  |   |   |   |
|   | Videos  |              |                     |                    |                               |  |  |   |   |   |
|   |   |              |                     |                    |                               |  |  |   |   |   |
|   | Local Disk (C:)   |              |                     |                    |                               |  |  |   |   |   |
|   | Local Disk (D:)   | -            |                     |                    |                               |  |  |   |   |   |
|   |   | File nar     | me: AllData-2017-5- | -26-9-55-22-356.cs |                               |  | csv(* csv)   |   |   | -   |
|   |   |              |                     |                    | V                             | •  |  |   |   |   |
|   |   |              |                     | 20 5 55 22 55010   | v                             | •  | Open   |   | Cancel  |   |
|   |   |              |                     |                    |                               |  | Open   | -   | Cancel  |   |
| File E  | Edir Help   | _            |                     |                    |                               |  | Open   |   | Cancel  |   |
| File E  | Edit Help<br>en Plot Show Cursor Show   | v All Signal | Show Full Range     |                    |                               | Time 1         0         to         [103 | Open   |   | Cancel  |   |
| File E<br>Ope<br>50   | Edit Help en Plot Show Cursor Show  | v All Signal | Show Full Range     |                    |                               | 2 Time 1 0 103                           | Open           369         0         -         103369 [s]           Variables  | ↔ ¢÷  | Cancel  | ks Descrit ~  |
| File E<br>Ope<br>50   | Edit Help<br>en Plot Show Cursor Show<br>000  | v All Signal | Show Full Range     |                    |                               | S Time 1 10 10                           | Open           369         0         –         103.369 [s]           Vanishes  | ↔ ←↔  | Cancel  | ks Descrif A  |
| File E<br>Ope<br>50<br>45<br>40   | Edit Help en Plot Show Cursor Show 500 000  | v All Signal | Show Full Range     |                    |                               | 3 Time 1 0 103                           | Open           369         0         - 103.369 [s]           Variables         V         - 0.00 Kg/model, pol           V         colds Kg/model, pol  |   | Rate         Un           1         20me           00         20me           01         20me           00         20me           01         20me           01         20me           01         20me           020me         20me   | As Descrit -  |
| File E<br>Ope<br>50<br>45<br>40   | Edit Help<br>na Plot Show Curser Show<br>500<br>000   | v All Signal | Show Full Range     |                    |                               | Time 1 0 to 103                          | Open           369         0         –         103.369 [s]           Variables         1         0         c.0.01,07/mbit.gt           Vol         Colout_07/mbit.gt         0         v.0.01,07/mbit.gt           V         drout_06/mbit.gt         0         drout_06/mbit.gt           V         drout_06/mbit.gt         0         drout_06/mbit.gt           V         drout_06/mbit.gt         0         drout_06/mbit.gt           V         drout_06/mbit.gt         0         drout_06/mbit.gt  | ← ↓ ← ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓   | Cancel  | k Descrip -   |
| File E Ope<br>50<br>45<br>40<br>11 dba1D1<br>50   | Edit Help<br>en Pet Show Cursor Show<br>500<br>500<br>500   | v All Signal | Show Full Range     |                    |                               | Time 1 0 to 103                          | Open           169         0         - 103.369 [s]           Variables         V         Vold, Norder State           Visitables         V         cold, Ripitable           V. cold, Ray and State         - 0.00, Ripitable         - 0.00, Ripitable           V. cold, Ray and Ra  |   | Cancel  |   |
| File E<br>Ope<br>50<br>45<br>40<br>(]] d <sup>D</sup> a 35<br>40<br>(]] d <sup>D</sup> a 35<br>30<br>7 Jp   | Edit Help<br>n Plot Show Cursor Show<br>500<br>500<br>500<br>500<br>500   | v All Signal | Show Full Range     |                    |                               | Time 1 0 to 1103                         | Open           369         0         –         103.369 [s]           Variables         1         0         Cold. Glybracht<br>Cold. Glybracht<br>Or do'the Issendigrad           Variables         1         dv/drb, Issendigrad         0           V. dv/drb, Issendigrad         0         dv/drb, Issendigrad         0           V. dv/drb, Issendigrad         0         dv/drb, Issendigrad         0           V. dv/drb, Issendigrad         0         cold. Igf.note         0           V. drb/drb, drb, drb, drb, drb, drb, drb, drb,  |   | Cancel  | As Description  |
| File E Ope<br>50<br>45<br>40<br>01,4ba35<br>30<br>,45<br>40<br>25   | Edit Help<br>en Pot Show Curser Show<br>500<br>500<br>500<br>500<br>500<br>500<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | v All Signal | Show Full Range     |                    | h-yrthyllheiterth-utyltaure   |  | Open           399         0         -         103.369 [s]           Vanishes         V         Cold, IgDuele         V           V         cold, IgDuele         V         Cold, IgDuele           V         cold, IgDuele         V         Cold, IgDuele         V           V         cold, IgDuele         cold, IgDuele         V         cold, IgDuele           V         cold, IgDuele         cold, IgDuele         V         cold, IgDuele           V         cold, IgDuele         cold, IgDuele         Cold, IgDuele         Cold, IgDuelee         Cold, IgDuelee         Cold, IgDuelee         Cold, IgDuelee <t< td=""><td>← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←</td><td>Rate         Un           1         20me           1         20me           00         20me           1         20me           00         20me           1         20me           2         20me           3         20me           3         20me           38         20me</td><td>82 Descrit -<br/>100<br/>100<br/>100<br/>100<br/>100<br/>100<br/>100<br/>10</td></t<>   | ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←   | Rate         Un           1         20me           1         20me           00         20me           1         20me           00         20me           1         20me           2         20me           3         20me           3         20me           38         20me  | 82 Descrit -<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>10 |
| File E Ope<br>50<br>45<br>40<br>(I) dba.ba.soo_Ap<br>25<br>25   | Edit Help<br>m Plot Show Cursor Show<br>500<br>500<br>500<br>500<br>500<br>500<br>500<br>50   | v All Signal | Show Full Range     |                    | v-hardy your of the second    |  | Open   | →         ↓↓↓           Mm         Max           0         0           0         10           0         50           0         10           10         10           10         10           10         10           12         11           13         14           142:83         3.46           46:43         3.46           128         14           128         14           128         3.46           128         3.46           128         3.46           128         3.46           128         3.46           128         3.46  | Rate         Un           1         20ms           2         20ms           30         20ms           32         20ms           33         20ms           34         20ms           35         20ms           36         20ms           37         20ms  |   |
| File E Cope<br>50<br>45<br>40<br>11 dba1b41800 App<br>25<br>20  | Edit Help<br>en Pet Show Cursor Show<br>500<br>500<br>500<br>500<br>500<br>500<br>500<br>50   | + All Signal | Show Full Range     | - Andread we       | v-have hyperter ward hyperter |  | Open           367         0         -         103.369 [s]           Vanitelis         [W         Cold. Holizable         V           V cold. Holizable         V         Cold. Holizable         V           V cold.  | →         ←         ↓           Mn         Max         0           0         0         0           0         1         1           0         0         0           0         0         5           10         7         1           0         0         5           10         3         4           12         1         1           0         3         4           128         3         4           128         3         4           128         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148         3         4           148   | Bate U     Bate U     Bate U     Dens     D |   |
| File E E Operation 500 455 400 455 400 110 110 110 110 110 110 110 110 110  | Edit Help<br>m Pet Show Curror Show<br>500 500 500 500 500 500 500 500 500 50   | r Al Signal  | Show Full Range     |                    | v-hardyreenowycepee           |  | Open           369         0         - 103.369 [s]           Variables         V         Voriables           Voriables         V         cold, lipbuske           V         cold, lipbuske         V           v   | Mm         Max           0         0           0         0           0         1           0         0           0         1           0         0           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           10         1           10         1           10         1           12         1           146:3         3 46:4           12         1           12         1           12         1           126:3         3 46:4           128:4         3 46:4           128:4         3 46:4   | Rate         Un           1         20ms           1         20ms           1         20ms           0         20ms           1         20ms           3         20ms           1         20ms           3         20ms           3         20ms           3         20ms           1         20ms           3         20ms           3         20ms           3         20ms           3         20ms           3         20ms  |   |
| File E Cope<br>50<br>45<br>40<br>(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)  | Edit Help<br>en Pet Show Cursor Show<br>500<br>500<br>500<br>500<br>500<br>500<br>500<br>50   | AB Signal    | Show Full Range     |                    | v-hayAlprodynkerVYhyeene      |  | Open           367         0         -         103.369 [s]           Vantables         [W]         Cold. Infolmation           V         cold. Infolmation   | ↓         ↓             | Bate         Unit           1         20ms           1         20ms           1         20ms           00         20ms           01         20ms           02         20ms           1         20ms           27         20ms           38         20ms           1         20ms           1         20ms           1         20ms           27         20ms           28         20ms           29         20ms           20ms         1           20ms         1           20ms         1           27         20ms           28         20ms           1         20ms           27         20ms           28         20ms           29         20ms           20ms         38           20ms         38 </td <td></td>  |   |
| File E Cope<br>50<br>45<br>40<br>01,404,500 <sup>-</sup> , a<br>20<br>25<br>20<br>15<br>10  | Edit Help   | All Signal   | Show Full Range     |                    | v-haada                       |  | Open           369         0         103.369 [s]           Variables             Vorables             Vorables <td>Mm         Mgx           0         1           0         1           0         1           0         5           0         5           0         5           0         1           0         5           0         1           0         5           0         0           0         0           0         3           4         3<td>Bate Us     Bate Us     Bate Us     Come     Come</td><td>h         Descent        </td></td> | Mm         Mgx           0         1           0         1           0         1           0         5           0         5           0         5           0         1           0         5           0         1           0         5           0         0           0         0           0         3           4         3 <td>Bate Us     Bate Us     Bate Us     Come     Come</td> <td>h         Descent        </td> | Bate Us     Bate Us     Bate Us     Come     Come    | h         Descent   |
| File E Cope<br>50<br>45<br>40<br>41<br>45<br>40<br>45<br>40<br>45<br>40<br>45<br>40<br>45<br>40<br>45<br>40<br>45<br>40<br>45<br>40<br>45<br>45<br>40<br>45<br>45<br>40<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45 | Edit Help<br>m Pot Show Curser Show<br>500<br>500<br>500<br>500<br>500<br>500<br>500<br>50  | All Signal   | Show Full Range     |                    |                               |  | Open           369         0         103.369 [s]           Variables         V           Variables         V           V Col: Non-one of the second  | Mm         Max           0         0           0         0           0         1           0         0           0         1           0         5           0         1           0         1           0         1           0         1           0         1           10         1           12         1           46:30         3 46:4           128         1           146:30         3 46:4           0         0           128         1           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4           146:30         3 46:4   | Rate         Un           1         20ms           30         20ms           31         20ms           32         20ms           33         20ms           34         20ms           35         20ms           36         20ms           37         20ms           38         20ms           39         20ms           31         20ms           32         20ms           33         20ms           34         20ms           35         20ms           36         20ms           37         20ms           38         20ms<   |   |

#### Show/Hide all signals

Click "show all signals / hide all signals", toggle the signal displays.

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

#### Show/Hide Cursors

Click "**show cursors / hide cursors**", toggle the cursors. There are 2 cursors in the scope window. The values of all signals at the 2 cursor locations will be displayed on the right, in the variable list window:



You can move the either cursor by put your mouse on it, press the mouse button and drag it to your desired location. It will show the values of all the signals at the new cursor location.



#### Line/Step curve type

Select curve type: Step / Line, to see the different curve effect.

"Line" means between 2 sample points the curve is connected by a straight line.

"Step" means between 2 sample points the curve is connected by a step change.

| Edit | Help              |        |   |                |
|------|-------------------|--------|---|----------------|
|      | Plot              | Ctrl+R | н | ide All Signal |
|      | Hide Signal List  | Ctrl+H | H | ide All Signal |
|      | Show Cursor       | Ctrl+T |   |                |
|      | Display Mode      | •      | √ | Line           |
|      | Sort              | +      |   | Step           |
|      | Hide All Signal   |        |   |                |
|      | Show Full Range   | Ctrl+Z |   |                |
|      | ECU Version       |        |   |                |
|      | Adjust Resolution |        |   |                |

#### Zoom in/out X-axis

Input the "start time" value, and "end time" value, shown as below, to zoom in/zoom out the X-axis.

Click "show all time", to get the full time range of the data file.

You can also the mouse to zoom in the X-axis direction. Just press, drag and release.

| Open Plot | Show Cursor Hide All Signal | Show Full Range | Time | 0 to 16.828 |
|-----------|-----------------------------|-----------------|------|-------------|

#### Zoom in/out Y-axis

File Edit Help

Double click the "Max / Min" fields in the signal list, you can modify the max and min range of the signals, it 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    |

#### Save the Data Analyzer configuration



After you spend time to zoom in/out and/or select signals, you want to save these configurations. Just right click and choose "save configuration" and store it in a configuration file. Next time you run Data Analyzer; you can open that configuration file and load all your previous settings.

| File | ) Edit Help        |        |
|------|--------------------|--------|
|      | Open               | Ctrl+0 |
|      | Load Configuration | Ctrl+L |
|      | Save Configuration | Ctrl+S |
|      | Exit               |        |

You also can click the "Load Configuration" that you have saved before.

## Chapter 3 Operation for tuning

- 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 window, click "Add Calibrations"



Then, the "Add Advanced Calibrations" window wills pop-up,

| o Add Advanced Calibrations          | ×                               |
|--------------------------------------|---------------------------------|
| TC 1 T                               |                                 |
| All calibration datas                | Selected calibration datas Next |
| Name       ^         CAN_flgTest_val | Add>>><br><< Delete             |
| Descriptions :                       | ,                               |
|                                      | OK                              |

Input the variable on the left side, then you can see the calibration variable, select some variables, then click "Add" button, add it to be right side, then Click "OK", you can see the calibration window.

| o Add Advanced Calibrations  | ×                               |
|--|---------------------------------|
| °C ≧ ≝   |                                 |
| All calibration datas  | Selected calibration datas      |
| Name         actrAdas_flgtrqMnSorce_val         actrAuxDcdc_flgDis_val         actrAuxDcdc_flgMskSt_val         actrAuxDcdcDisDo_flgDiagMdDfit_val         actrAuxVlatch1_tHvilDly_val         actrClim_period_val         actrDfbk_capLow_val         actrDfbk_sohLow_val         actrDfbk_sohLow_val         actrDfbk_sohLow_val         actrDfbk_sohLow_val | Add>>>         Add>>>         < |
|  | OK Cancel                       |

| To Calibration                 |                                   |                                   |         |      |  |
|--------------------------------|-----------------------------------|-----------------------------------|---------|------|--|
| + 0.001 _ * 1 / Selected = 1 5 |                                   |                                   |         |      |  |
|                                |                                   |                                   |         |      |  |
|                                | Alias                             | Name                              | Value   | Unit |  |
| 0                              | actrAuxDcdcDisDo_flgDiagMdDflt_va | actrAuxDcdcDisDo_flgDiagMdDflt_va | 1       | -    |  |
| 0                              | actrAuxVlatch1_tHvilDly_val       | actrAuxVlatch1_tHvilDly_val       | 2.400   | -    |  |
| 0                              | actrClim_period_val               | actrClim_period_val               | 200.000 | -    |  |
| 0                              | actrDfbk_capLow_val               | actrDfbk_capLow_val               | 0.000   | -    |  |
|                                |                                   |                                   |         |      |  |
|                                |                                   |                                   |         |      |  |
|                                |                                   |                                   |         |      |  |
|                                |                                   |                                   |         |      |  |
|                                |                                   |                                   |         |      |  |

**Note:** Above method is to add new calibration window, if you want to add the calibration variables at the current calibration window, please use following method.

Right click on the calibration window, and then click "Add Calibrations"
| 👸 Calibration                                   |                             |                     |  |  |  |  |  |  |
|---|-----------------------------|---------------------|--|--|--|--|--|--|
| + 0.001 _ * 1 / Selected = 1 5 2                |                             |                     |  |  |  |  |  |  |
| Data: actrAuxDcdcDisDo_flgDiagMdDflt_val,[-],"" |                             |                     |  |  |  |  |  |  |
| Alias   | Unit                        |                     |  |  |  |  |  |  |
| actrAuxDcdcDisDo_flgDiagMdDflt_va               | actrAuxDcdcDisDo_flgDiagMdD |                     |  |  |  |  |  |  |
| @ actrAuxVlatch1_tHvilDly_va1                   | actrAuxVlatch1_tHvilDly_val | Add Calibrations    |  |  |  |  |  |  |
| @ actrClim_period_val                           | actrClim_period_val         | Delete              |  |  |  |  |  |  |
| @ actrDfbk_capLow_val                           | actrDfbk_capLow_val         | Change Alias        |  |  |  |  |  |  |
|   |                             | Desires la Disalau  |  |  |  |  |  |  |
|   |                             | Decimais Display    |  |  |  |  |  |  |
|   |                             | Hide Alias Column   |  |  |  |  |  |  |
|   |                             | Variable Properties |  |  |  |  |  |  |
|   |                             | Window Properties   |  |  |  |  |  |  |
| 1   |                             | window roperties    |  |  |  |  |  |  |

Then, use the same method to add the calibration variables.

If you want to add the "**MAP**" and "CUR" variables, please right click on the corresponding window to add the calibration 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.

| 6 | Calibration                          |                          |                  |                  |          |  |  |  |
|---|--------------------------------------|--------------------------|------------------|------------------|----------|--|--|--|
| Ŀ | + 0.001 _ * 1 / Selected = 1 • /     |                          |                  |                  |          |  |  |  |
| D | ata: actrDfbk_flgImperial_val,[-],"" |                          |                  |                  |          |  |  |  |
|   | Alias                                | Name                     |                  | Value            | Unit     |  |  |  |
|   | actrAuxDcdcDisDo_flgDiagMdDflt_va    | actrAuxDcdcDisDo_flgD    | iagMdDflt_v      | a 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 C:           | La<br>librations | <u> </u> |  |  |  |
|   |                                      |                          | Add Calibrations |                  |          |  |  |  |
|   |                                      |                          | Delete           |                  |          |  |  |  |
|   |                                      |                          | Change           | e Alias          |          |  |  |  |
|   |                                      |                          | Decima           | ls Display       |          |  |  |  |
|   |                                      |                          | Hide A           | lias Column      |          |  |  |  |
|   |                                      |                          | Thuc A           |                  |          |  |  |  |
|   |                                      |                          | Variabl          | e Properties     |          |  |  |  |
|   |                                      |                          | Windo            | w Properties     |          |  |  |  |

Or click "Add", pop-up the "Add Calibrations" window, to delete the calibration variables that you have added it once. Click the calibration variable which one do you want to delete, then click "Delete" button, then click "OK"

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| 🔯 Calibration                                   |                             |                     |                  |  |  |  |  |  |
|---|-----------------------------|---------------------|------------------|--|--|--|--|--|
| + 0.001 _ * 1 / Selected = 1 *                  |                             |                     |                  |  |  |  |  |  |
| Data: actrAuxDcdcDisDo_flgDiagMdDflt_val,[-],"" |                             |                     |                  |  |  |  |  |  |
| Alias   | Name                        | Value               | Unit             |  |  |  |  |  |
| @ actrAuxDcdcDisDo_flgDiagMdDflt_va             | actrAuxDcdcDisDo_flgDiagMdD | 4 1                 | _                |  |  |  |  |  |
| @ actrAuxVlatch1_tHvilDly_val                   | actrAuxVlatch1_tHvilDly_val | Add Calibrations    | Add Calibrations |  |  |  |  |  |
| @ actrClim_period_val                           | actrClim_period_val         | Delete              | Delete           |  |  |  |  |  |
| actrDfbk_capLow_val                             | actrDfbk_capLow_val         | Change Alias        |                  |  |  |  |  |  |
|   |                             | Change Allas        |                  |  |  |  |  |  |
|   |                             | Decimals Display    | - 1              |  |  |  |  |  |
|   |                             | Hide Alias Column   |                  |  |  |  |  |  |
|   |                             | Variable Properties |                  |  |  |  |  |  |
|   |                             | we have been a      | - 1              |  |  |  |  |  |
|   |                             | window Properties   |                  |  |  |  |  |  |



# 3.2 Add and Delete Measured Variables

## 3.2.1 Add Measured Variables

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



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

#### 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 wills pop-up,

|   | Search |                 |      |      | Search |
|---|--------|-----------------|------|------|--------|
| CANA flgStart<br>CANA_nTxOnce<br>CANA_nTxTimes                            |        | Add To Syn>>    | Name | Rate |        |
| CANB_flgStart<br>CANB_flgStart<br>CANB_nTxOnce                            |        | Add To 20ms >>  |      |      |        |
| esmcDcdc_flgEn<br>ceyCycle_flgKeyOff                                      |        | Add To 100ms >> |      |      |        |
| teyCycle_flgPwrDelay<br>teyCycle_uKeyOn                                   |        |                 |      |      |        |
| VVMDataCtrl_flgRam2Rom<br>VVMDataCtrl_flgRom2Ram<br>VVMDataCtrl_flgUpdate |        | << Delete       |      |      |        |
|   | -      |                 |      |      |        |

Input the variable on the left side, then you can see the measured variable, select some measured variables, then click "Add to 100ms" button, add it to be right side, and then click "OK", you can see the measured window.

Note: You also can add the variables to be "Syn","20ms", this means the display frequency.

Here, we also add some other variables as example.



| o Add Measurements     |        |                 |                   |       | X      |
|------------------------|--------|-----------------|-------------------|-------|--------|
|                        | Search |                 |                   |       | Search |
| drv_linspdLimActv1     | *      | Add To Syn >>   | Name              | Rate  |        |
| dry_linspdLimActv2     |        |                 | drv_linspdLimDes2 | 100ms |        |
| drv_linspdLimDes2      |        | A 44 T- 20      | drv_linspdLimEv1  | 100ms |        |
| drv_linspdLimEv1       |        | Add To 20ms >>  | drv_linspdLimEv2  | 100ms |        |
| drv_linspdLimEv2       |        |                 |                   |       |        |
| dry linspol imEydHigh? |        | Add To 100ms >> |                   |       |        |
| drv linspdLimpSt1      |        | L               |                   |       |        |
| drv_linspdLimpSt1Raw   |        |                 |                   |       |        |
| drv_linspdLimpSt2      |        |                 |                   |       |        |
| drv_linspdLimpSt2Raw   |        |                 |                   |       |        |
| drv_linspdLimRev1      |        | contract in     |                   |       |        |
| dry pctAccArb          | -      | << Delete       |                   |       |        |
| ,                      |        |                 |                   |       |        |
| A11 :999               |        | Syn :0          | 20ms :0 100ms :3  | OK    | Cancel |

**Note:** Above method is to add new measured variables window, if you want to add the measured variables at the current Selected Variables window, please use following method.

Right click on the Selected Variables window, and then click "Add Measurements".

| <b>ত</b> । | 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<br>Change Alia<br>Hide Alias O<br>Variable pro<br>Window Pro | rements<br>as<br>Column<br>operties<br>operties |       |



| o Add Measurements          | Supervised and |               |                |       | ×      |
|-----------------------------|----------------|---------------|----------------|-------|--------|
|                             | Search         |               |                |       | Search |
| actrAux_flgDcdcEn           | ^ Add 1        | To Syn >> Nar | ne             | Rate  |        |
| actrAux_stChgrRlv           |                |               | Aux_stHandBrk  | 100ms |        |
| actrAuxDcdc flgDis          |                |               | _linspdLimDes2 | 100ms | /      |
| actrAuxVlatch1_flgEn        | Add 1          | o 20ms >> drv | _linspdLimEv1  | 100ms |        |
| actrClimAcComprs_flgEn      |                | drv           | _linspdLimEv2  | 100ms |        |
| actrClimAcComprs_rotspd1rgt | Add T          | o 100ms >>    |                |       |        |
| actrClimPtc flgEn           |                |               |                |       |        |
| actrClimPtc_flgPwm          |                |               |                |       |        |
| actrDfbk_flgChgPlease       |                |               |                |       |        |
| actrDfbk_flgStonAndDown     |                |               |                |       |        |
| actrDfbk_flgVehReady        | ~~             | Delete        |                |       |        |
| actrDfbkGauge1_pct          | -              |               |                | l 📕   |        |
|                             |                |               |                |       |        |
| A11 :999                    |                | Syn :0 20ms   | s :0 100ms :4  | OK    | Cancel |

Then you can see all of the variables that you have chosen, and then you can add the new measure variables as you want by using the above method.

## 3.2.2 Delete Measured Variables

 Right click on the Selected Variables, choose "Add Measurements", and then delete the variables those you want.

| <b>छ</b> । | 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<br>Change Ali<br>Hide Alias<br>Variable pro<br>Window Pr | arements<br>as<br>Column<br>operties<br>operties |  |



| Add Measurements  | Search   | _              |                        |                    |                | Search |
|---|----------|----------------|------------------------|--------------------|----------------|--------|
| actrAux_flgDcdcEn<br>actrAux_stChgrRly  | <b>^</b> | Add To Syn >>  | Name<br>dry linsp      | dLimDes2           | Rate<br>100ms  |        |
| actrAux_stHandBrk<br>actrAuxDcdc_flgDis<br>actrAuxVlatch1_flgEn   |          | Add To 20ms >> | drv_linsp<br>drv_linsp | dLimEv1<br>dLimEv2 | 100ms<br>100ms |        |
| actrClimAcComprs_tigen<br>actrClimAcComprs_rotspdTrgt<br>actrClimAtrconCan_flgTxEn<br>actrClimPtc_flgEn<br>actrClimPtc_flgPwm<br>actrDfbk_flgChgPlease<br>actrDfbk_flgChgPlease |          | Add To 100ms>> |                        |                    |                |        |
| actrDfbk_flgStopAndDown<br>actrDfbk_flgVehReady<br>actrDfbkGauge1_pct   | Ŧ        | << Delete      |                        |                    |                |        |
| A11 :999  |          | Syn :0         | 20ms :0                | 100ms :3           | ОК             | Cancel |

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

| Variables Diagnostics Advanced | Wind |
|--------------------------------|------|
| Add Measurements               | +    |
| Add Calibrations               |      |
| Show All Selected Variables    |      |

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



A window will pop-up, all of the selected measured variables showing are there, then you can find out the variable that you want to delete, and then delete it. **Note**: if you add one variable in all of the layers, this way will delete the measured variable in all layers.

|                        |      | Sear | rch |           |
|------------------------|------|------|-----|-----------|
| Name                   | Rate |      | *   | Svn :0    |
| CANB_flgStart          | 20ms |      |     | -,        |
| CANB_nTxOnce           | 20ms |      |     |           |
| CANB_nTxTimes          | 20ms |      |     | 20ms :12  |
| esmcDcdc_flgEn         | 20ms |      | =   |           |
| keyCycle_flgKeyOff     | 20ms |      |     | 1005      |
| keyCycle_flgKeyOn      | 20ms |      |     | 100ms :5  |
| keyCycle_flgPwrDelay   | 20ms |      |     |           |
| keyCycle_uKeyOn        | 20ms |      |     |           |
| NVMDataCtrl_flgRam2Ron | 20ms |      |     | Delete >> |
| NVMDataCtrl_flgRom2Ran | 20ms |      |     |           |
| NVMDataCtrl_flgUpdate  | 20ms |      | ÷   |           |

# 3.3 Change Calibration (Tuning)

Calibration variables are 3 types: Values, Curves and Maps.

## 3.3.1 Change the value directly

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

| 😽 Calibration 📃 🗉 💌                 |                              |       |      |  |  |  |  |  |
|-------------------------------------|------------------------------|-------|------|--|--|--|--|--|
| + 0.001 - * 1 / Selected = 1 5      |                              |       |      |  |  |  |  |  |
| Data: CAN_flgTest_val,[NM],"Torque" |                              |       |      |  |  |  |  |  |
| 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 | -    |  |  |  |  |  |
| ? Test_flgDOS01_val_L95             | Test_flgDOS01_val_L95        | 0     | NM   |  |  |  |  |  |
| 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_val              | TestOPWM_dutyHSO12_val       | 0     | NM   |  |  |  |  |  |
| TestOPWM_dutyLSO16_val              | TestOPWM_dutyLSO16_val       | 0     | NM   |  |  |  |  |  |
| RestOPWM_frqHbridge1_val            | TestOPWM_frqHbridge1_val     | 20    | NM   |  |  |  |  |  |

2) Input the value that you want

| 😽 Calibration 📃 💷 💌                 |                              |       |      |  |  |  |  |  |
|-------------------------------------|------------------------------|-------|------|--|--|--|--|--|
| + 0.001 - * 1 / Selected = 1 5      |                              |       |      |  |  |  |  |  |
| Data: CAN_flgTest_val,[NM],"Torque" |                              |       |      |  |  |  |  |  |
| Alias                               | Name                         | Vahue | Unit |  |  |  |  |  |
| CAN_flgTest_val                     | CAN_flgTest_val              | 1     | NM   |  |  |  |  |  |
| ReyCycle_tKeyOffDelay_val           | keyCycle_tKeyOffDelay_val    | 5.000 | S    |  |  |  |  |  |
| sigInDrvPedacc_dRawSigFac_va        | sigInDrvPedacc_dRawSigFac_va | 2.000 | -    |  |  |  |  |  |
| Test_flgDOS01_val_L95               | Test_flgDOS01_val_L95        | 0     | NM   |  |  |  |  |  |
| 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_val              | TestOPWM_dutyHSO12_val       | 0     | NM   |  |  |  |  |  |
| TestOPWM_dutyLSO16_val              | TestOPWM_dutyLSO16_val       | 0     | NM   |  |  |  |  |  |
| TestOPWM_frqHbridge1_val            | TestOPWM_frqHbridge1_val     | 20    | NM   |  |  |  |  |  |

Press Enter to finish it. The modified data will show as "red" color.

| ଷ                                   | 🛱 Calibration 📃 🗖 💌   |                           |       |      |  |  |  |  |  |
|-------------------------------------|---|---------------------------|-------|------|--|--|--|--|--|
| + 0.001 - * 1 / Selected = 1 🔨 🥐    |   |                           |       |      |  |  |  |  |  |
| Data: CAN_flgTest_val,[NM],"Torque" |   |                           |       |      |  |  |  |  |  |
|                                     | Alias   | Name                      | Value | Unit |  |  |  |  |  |
| 0                                   | CAN_flgTest_val   | CAN_flgTest_val           | 1.000 | NM   |  |  |  |  |  |
| 0                                   | keyCycle_tKeyOffDelay_val                                   | keyCycle_tKeyOffDelay_val | 5.000 | S    |  |  |  |  |  |
| 0                                   | sigInDrvPedacc_dRawSigFac_va                                | 2.000                     | -     |      |  |  |  |  |  |
| 0                                   | Test_flgDOS01_val_L95                                       | Test_flgDOS01_val_L95     | 0     | NM   |  |  |  |  |  |
| 0                                   | Test_flgDOS05_H108  | Test_flgDOS05_H108        | 0     | NM   |  |  |  |  |  |
| 0                                   | TestOPWM_dutyHbridge1_val                                   | TestOPWM_dutyHbridge1_val | 50    | NM   |  |  |  |  |  |
| 0                                   | TestOPWM_dutyHbridge2_val                                   | TestOPWM_dutyHbridge2_val | 50    | NM   |  |  |  |  |  |
| 0                                   | Participation TestOPWM_dutyHSO12_val TestOPWM_dutyHSO12_val |                           | 0     | NM   |  |  |  |  |  |
| 0                                   | TestOPWM_dutyLSO16_val TestOPWM_dutyLSO16_val               |                           | 0     | NM   |  |  |  |  |  |
| 0                                   | TestOPWM_frqHbridge1_val                                    | TestOPWM_frqHbridge1_val  | 20    | NM   |  |  |  |  |  |

## 3.3.2 Change the value with Formula

EcoCAL supports to use Formula to modify the calibration data.

|              | + 0.001 _     | * 1 /    | Selected = | 1           | 1           |
|--------------|---------------|----------|------------|-------------|-------------|
| Note:        |               |          |            |             |             |
| +<br>Plus;   |               |          |            |             |             |
| - : Minus;   |               |          |            |             |             |
| *: multiply  | y by;         |          |            |             |             |
| : be divi    | ded by;       |          |            |             |             |
| Selected = 1 | :be equal;    |          |            |             |             |
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# ECOTRONS

🕈 : Undo;

📌 : Redo.

## 1) Plus and Minus

You can input the value that you want to increase or decrease, and then choose the cell or area of table you want to change.

Click the Plus or Minus button to change the value.

## For example:

Input 0.1 in the box

| Ż  | To Calibration   |             |           |              |             |         |  |  |  |
|----|--|-------------|-----------|--------------|-------------|---------|--|--|--|
|    | + 0.1  | -           | * 1       | / Se         | elected = 1 | •       |  |  |  |
| It | Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [-],"" |             |           |              |             |         |  |  |  |
|    | Output   | : vehDrv_tr | qEcoTracN | lax_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 |  |  |  |

If you want to change one cell, click cell to choose it.

| o Calibration   |  |          |         |             |   |  |  |  |  |
|---|--|----------|---------|-------------|---|--|--|--|--|
| + 0.1   | -  | * 1      | / Se    | elected = 1 | l |  |  |  |  |
| Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [-] |  |          |         |             |   |  |  |  |  |
| 🕜 Outpu   | Output: vehDrv_trqEcoTracMax_map, [-],"" |          |         |             |   |  |  |  |  |
|   |  |          |         |             | Ē |  |  |  |  |
| 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 value by 0.1 step based on the stock value, please click

the "+" button.

| Calibration |   |            |       |       |      |           |  |  |
|-------------|---|------------|-------|-------|------|-----------|--|--|
| ÷           | 0.1   | -          | *     | 1     | 1    | Sel       |  |  |
| Inpu        | Input-X: vehDrv_linspd, [-],"" Input-Y: veh |            |       |       |      |           |  |  |
| 00          | utput                                       | : vehDrv_t | rqEco | TracN | Max_ | map, [-], |  |  |
|             |   |            |       |       |      |           |  |  |
| X           | /Y  | -20.000    | -5    | 000.  | 0    | .000      |  |  |
| 0.0         | 000   | 0.100      | 0     | .000  | 0    | .000      |  |  |
| 0.          | 100   | -445.000   | -44   | 3.000 | 44   | 1.000     |  |  |
| 0.1         | 200   | -465.000   | -46   | 3.000 | 46   | 1.000     |  |  |

And if you want to decrease the value, click" -" button

| or Calibration |   |           |              |  |  |  |  |  |
|----------------|---|-----------|--------------|--|--|--|--|--|
| + 0.1          |   | * 1       | / Se         |  |  |  |  |  |
| Input-X: v     | Input-X: vehDrv_linspd, [-],"" Input-Y: veh |           |              |  |  |  |  |  |
| Output         | : vehDrv_tr                                 | qEcoTracN | lax_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 also can tune more than one cell together by using the buttons.

| Choose the area of cells, then click "+" or "-" button. |  |
|---|--|
|---|--|

| 😽 Calibra  | tion                     |            |                  |            | 😽 Calibra  | ation        |              |              |              |
|------------|--------------------------|------------|------------------|------------|------------|--------------|--------------|--------------|--------------|
| + 0.1      | -                        | * 1        | / 5              | Selected = | + 0.1      | -            | * 1          | / Se         | elected = 1  |
| Input-X: v | ehDrv_lins               | pd, [-],"" | Input-Y: ve      | ehDrv_pct, | Input-X: v | ehDrv_lins   | pđ, [-],"" I | nput-Y: vel  | nDrv_pct, [- |
| Output     | : vehDrv_t               | rqEcoTracN | Max_map, [       | -],""      | (?) Output | t: vehDrv_tr | qEcoTracN    | lax_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  | 157 <b>6.000</b> | 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_t   | rqEcoTracM   | ax_map       |              |              |



## 2) Multiply and divided by

| 🔯 Calibration  |     |   |              |     |  |  |
|--|-----|---|--------------|-----|--|--|
| + 0.1 _  | * 2 | 1 | Selected = 1 | • 🛃 |  |  |
| Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [-],"" |     |   |              |     |  |  |
| Output: vehDrv_trqEcoTracMax_map, [-],""                   |     |   |              |     |  |  |

This is the same to the Plus or Minus function, it is to multiply or divided by the factor that you input.

## 3) Be equal

This is used to change the value of cell to be one constant value.

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

| . 01      |             | + 2        |             |            | 100     |          |        |
|-----------|-------------|------------|-------------|------------|---------|----------|--------|
| + 0.1     | -           | * 4        | /           | selected = |         |          |        |
| nput-X: v | ehDrv_lins  | pd, [-],"" | Input-Y: ve | ehDrv_pct, | [-],""  |          |        |
| Outpu     | t: vehDrv_t | rqEcoTracl | Max_map, [  | -],""      |         |          |        |
|           | I           |            |             |            |         |          |        |
| 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 " **\***" /" **\***" to undo or redo the calibration as below.

| 😽 Calibratio | on          |             |         |             |          |   | _ |  |
|--------------|-------------|-------------|---------|-------------|----------|---|---|--|
| + 0.1        | - *         | 2           | 1       | Selected =  | 100      | • | * |  |
| Input-X: veh | Drv_linspo  | l, [-],"" I | nput-Y: | vehDrv_pct, | , [-],"" |   |   |  |
| Output: v    | /ehDrv_trql | EcoTracM    | lax_map | o, [-],""   |          |   |   |  |
|              |             |             |         |             | 1        |   |   |  |



## 3.3.3 Export / Import Calibration Data for tuning

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

or Calibration + 0.1 \_ Selected = 100 **€** \* 2 / Input-X: vehDrv\_linspd, [-],"" Input-Y: vehDrv\_pct, [-],"" Output: vehDrv\_trqEcoTracMax\_map, [-],"' -----X/Y -20.000 -5.000 0.000 10.000 20.000 30.000 40.000 50.0 90.000 95.000 100.000 115.000 120.000 Add Calibrations 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00 0.000 0.000 0.000 0.000 0.000 0.000 Delete -445.000 -443.000 441.000 439.000 437.000 0.100 435,000 433.000 431.0 423,000 421.000 419.000 417.000 415,000 0.200 -465.000 -463.000 461.000 459.000 457.000 455.000 453.000 451.0 443.000 441.000 439.000 437.000 435.000 Import -570.000 565.000 0.300 -575.000 560.000 555.000 550.000 545.000 540.0 520.000 515.000 510.000 505.000 500.000 Export 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 Сору 0.500 -680.000 -679.000 678.000 677.000 676.000 675.000 674.000 673.0 669.000 668.000 667.000 666.000 665.000 Paste 0.600 -790.000 -787.000 784.000 781.000 778.000 775.000 772.000 769.0 757.000 754.000 751.000 748.000 745.000 -958.000 956.000 954.000 952.000 950.000 Smooth Cells 0.700 -960,000 948.000 946.0 938.000 936.000 934.000 932.000 930.000 1067.000 0.800 -1080.000 -1079.000 1078.000 1077.000 1076.000 1075.000 1074.000 1073. 1069.000 1068.000 1066.000 1065.000 Change Alias -1380.000 -1378.000 1376.000 1374.000 1372.000 1370.000 1368.000 1366. 1358.000 1356.000 1354.000 1352.000 0.900 1350.000 **Decimals Display** -1580.000 -1578.000 1576.000 1574.000 1572.000 1570.000 1568.000 1558.000 1556.000 1554.000 0.950 1566. 1552.000 1550.000 2D View 1.000 -1900.000 -1900.000 1900.000 1900.000 1900.000 1900.000 1900.000 1900.00 1900.000 1900.000 1900.000 1900.000 1900.000 3D View vehDrv\_trqEcoTracMax\_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.

And the **CSV** file will be opened automatically. You can choose to open the file by anyone method from your laptop, and the below showing opens as **xIs** 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 recommended to modify your curve and map tables in Excel, and smoothen them in Excel and then imported back to EcoCAL. And please save it after you finish tuning.

| vehDrv_tro  | [-]   |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------------|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Input-X: ve | 1-1   | Input-Y | 1-1   |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |       |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 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         | - 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 just edited calibration tables, Right-Click the parameter window, select the **Import** option.

| 🥳 Calibra  | tion       |            |             |            |          |          |        |          |            |          |          |          |          |          |          |          |
|------------|------------|------------|-------------|------------|----------|----------|--------|----------|------------|----------|----------|----------|----------|----------|----------|----------|
| + 0.1      | -          | * 2        | / 5         | Selected = | 100      | 5 🔿      |        |          |            |          |          |          |          |          |          |          |
| Input-X: v | ehDrv_lins | pd, [-],"" | Input-Y: ve | hDrv_pct,  | [-],""   |          |        |          |            |          |          |          |          |          |          |          |
| Output     | vehDrv_tr  | rqEcoTracM | Max_map, [  | -],""      |          |          |        |          |            |          |          |          |          |          |          |          |
|            |            |            |             |            |          |          |        |          |            |          |          |          |          |          |          |          |
| X/Y        | -20.000    | -5.000     | 0.000       | 10.000     | 20.000   | 30.000   | 40.00  | Add Cal  | ibrations  | - 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   | P L L    | Ibracions  |          | 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  | Export   |            |          | 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  | capoir   |            |          | 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  | ls 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 |
|            |            | Г          |             |            |          |          |        | 3D View  |            |          |          |          |          |          |          |          |
| vehDrv_tr  | qEcoTracM  | ax_map     |             |            |          |          |        | Fit Wind | low        |          |          |          |          |          |          |          |
|            |            |            |             |            |          |          |        | Et Cald  |            |          |          |          |          |          |          |          |
|            |            |            |             |            |          |          |        | Fit Grid |            |          |          |          |          |          |          |          |
|            |            |            |             |            |          |          |        | Variable | Properties |          |          |          |          |          |          |          |
|            |            |            |             |            |          |          |        | Window   | Properties |          |          |          |          |          |          |          |

Import the **CSV** file you just modified.

The modified cells will show as "red".

| 🔯 Calibra  | ation       |            |             |            |           |           |           |           |           |           |           |           |           |           |           | - 0       | × |
|------------|-------------|------------|-------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| + 0.1      | -           | * 2        | / 5         | Selected = | 100       | 5 🕐       |           |           |           |           |           |           |           |           |           |           |   |
| Input-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    | 40.000    | 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 |   |
| vehDrv_t   | rqEcoTracM  | ax_map     |             |            |           |           |           |           |           |           |           |           |           |           |           |           |   |

Note: when you finish the data changed, please save it as one new CAL file.

Please read the flowing chapter for how to save the new CAL files.

## 3.4 Save as calibration data file

When you finish VCU/HCU tuning or do some fine tuning, please save the tuning data before you exit the EcoCAL, otherwise, you will lose the tuning that you did.

# File Edit Settings Run Variables Diagnost Open Ctrl+O Save CAL Ctrl+S Save CAL as... Ctrl+F2 Save Configuration as... Ctrl+F3 Load Configuration Reset Exit

## Go to menu->File->Save CAL as

| 😈 Save As         |         |                       |         |                 |             |               |               |       | × |
|-------------------|---------|-----------------------|---------|-----------------|-------------|---------------|---------------|-------|---|
| Com               | puter   | ► Local Disk (C:) ► E | coCAL > |                 |             |               | Search EcoCAL |       | م |
| Organize 👻 New    | folde   | r                     |         |                 |             |               |               | •== • | ? |
| 〕 Downloads       | *       | Name                  | ^       | Date modified   | Туре        | Size          |               |       |   |
| 归 Recent Places   | _       | 퉬 HelpDoc             |         | 2017/5/25 17:53 | File folder |               |               |       |   |
| <b>E</b>          |         | 퉬 kerneldlis          |         | 2017/5/25 17:53 | File folder |               |               |       |   |
| Libraries         |         | 퉬 Picture             |         | 2017/5/25 17:53 | File folder |               |               |       |   |
| Music             | =       | 鷆 record              |         | 2017/5/26 10:00 | File folder |               |               |       |   |
| Pictures          |         | 퉬 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:        | V_Der   | mo1.cal               |         |                 |             |               |               |       | - |
| Save as type: c   | al(*.ca | al)                   |         |                 |             |               |               |       | • |
| ) Hide Folders    |         |                       |         |                 |             | $\rightarrow$ | Save          | Cance |   |

You can save it as the new calibration CAL file.

# 3.5 Burn to ECU and Fetch from ECU

## 3.5.1 Burn the CAL file to ECU

When you finish the data tuning, you want to see the performance of VCU/HCU, please burn the data to VCU/HCU, then VCU/HCU will use the data that you changed to control the vehicle.

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



| Burn or Fetch Pi | ogressBar | X      |
|------------------|-----------|--------|
|                  |           |        |
|                  |           | Cancel |
|                  |           |        |

When burn to ECU successfully, the vehicle will be power on.

**Note:** make sure your 12V battery is healthy, before you do any "burn to ECU" or "fetch from ECU"!

During the upload or download, users are not allowed to do any operations to the VCU/HCU system.

Do not turn off the VCU/HCU's power or disconnect the serial cable before the upload/download is finished

## 3.5.2 Fetch the CAL file from ECU

Sometimes, maybe you want to know which version of Calibration data is in VCU/HCU or you forgot the change that you did, you can fetch the data from VCU /HCU to compare.

## Connect ECU only; Go to menu->Run->Fetch from ECU



Save it as CAL file.

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# Chapter 4 Tuning help and support

## 4.1 Pop-up the Help and support window

In EcoCAL, there are many or marks in the window, you can click this to get the details of calibration variables and measure variables, and you can get the method of tuning and the meaning of measure variables.

| File | Edit Settings Run Variables Diagnostics Ad   | dvance      | d Window     | Help              |              |                  |               |                    |                |           |    |                |                |                   |           |              |        |           |           |           |
|------|--|-------------|--------------|-------------------|--------------|------------------|---------------|--------------------|----------------|-----------|----|----------------|----------------|-------------------|-----------|--------------|--------|-----------|-----------|-----------|
|      |  |             |              |                   |              |                  |               |                    |                |           |    |                |                |                   |           |              |        |           |           |           |
| -    | Project  | 6           | Calibration  |                   |              |                  |               |                    |                | • *       | 5  | Measuremer     |                |                   |           |              |        |           | - (       |           |
|      | EV_Demo.a21  | +           | 0.001 _      | * 1               | / 9          | elected - 1      | 50            |                    |                |           | Г  | Alies          |                | Name              | 14        | due II.      | -14    | Pata      | _         | -         |
|      | EV_Demo.cal  | II i =      |              |                   |              | ,                |               |                    |                |           |    | AND oT         | 0.000          | CANR aTrong       | V4        | lue o        | int    | 20mc      | -         | -         |
|      | Calibration  | li–         | Alias        |                   | Nam          |                  |               | Value              | Unit           |           |    | AND oT         | Times          | CANE oTrime       |           |              |        | 20005     | -         |           |
|      | EV Demo yl.cal   |             | CAN floTe    | et val            | CAN          | floTest vol      |               | 1.000              | NM             |           |    | AND III        | Alunes<br>RaTa | CAND_HIXIME       | 5         |              |        | 20ms      | -         |           |
|      |  |             | karrCusta t  | KarOfDalar v      | al kard      | unda tVanOPD     | eterr red     | 5,000              |                |           |    | rsincipede     | _ngen          | estilebede_light  | 000       |              |        | 20105     |           |           |
|      |  |             | cigleDg:Pa   | dace_dPauSial     | Fac an sigle | DerPadace dR     | eiay_vai      | 2,000              | 2              |           |    | eycycle_       | ngkey0n        | keyCycle_figKe    | -On       |              |        | 20ms      | -         |           |
|      |  |             | Test deDC    | Sol and Los       | Test         | daDOS01 val      | 1.05          | 0                  | NAC            |           |    | ceyCycle_      | ngkeyon        | keyCycle_figKe    | n n       |              |        | 20ms      | -         |           |
|      |  |             | Test light   | SOL 1100          | Test         | a-posos uto      | 0             | 0                  | NN1            |           |    | eycycle_       | ngrwiDelay     | keyCycle_figPw    | Delay     |              |        | 20ms      | _         |           |
|      |  |             | Test_fight   | /S05_H108         | Test         | _ngb0305_H10     | °             | 0                  | INIMI<br>INIMI |           |    | teyCycle_      | uKeyOn         | keyCycle_uKey     | )n        |              |        | 20ms      | -         |           |
|      |  |             | lestOPWN     | a_autyHonage      | I_val lest   | JPWM_dutyH       | mage1_val     | 50                 | NM             |           |    | NVMData        | Ctrl_figRam.   | NVMDataCtrl_fl    | gRam:     |              |        | 20ms      | _         |           |
| i    | 4/13/2017 9:24:16 AM:Recording Started   |             | TestOPWA     | 1_dutyHbndge.     | 2_val lest   | DPWM_dutyHt      | ondge2_val    | 50                 | NM             |           |    | NVMData        | Ctrl_flgRom    | NVMDataCtrl_fl    | gRom.     |              |        | 20ms      | _         |           |
|      | 4/13/2017 9:24:16 AM:Recorded file save path   |             | TestOPWA     | 1_dutyHS012_      | val lest     | JPWM_dutyH       | sol2_val      | 0                  | NM             |           |    | NVMData        | Ctrl_flgUpda   | NVMDataCtrl_fl    | gUpdi     |              |        | 20ms      |           |           |
|      | D:\EcoCAL1.8.5.9\record\2017-4-13-9-24-16-   |             | TestOPWN     | 1_dutyLSO16_v     | val lest     | OPWM_dutyLS      | O16_val       | 0                  | NM             |           |    | VVMTest        | bool           | NVMTest_bool      |           | N.           | М      | 20ms      |           | -         |
|      | 442\AllData-2017-4-13-9-24-16-491.csv  |             | TestOPWN     | frqHbridge1_      | val Test     | OPWM_frqHbri     | dgel_val      | 20                 | NM             |           | 15 | _              |                |                   |           |              |        |           |           |           |
|      | 4/13/2017 9:23:35 AM: Stop measuring<br>4/13/2017 9:27:54 AM: Stort measuring!           |             |              |                   |              |                  |               |                    |                | _         | _  |                |                |                   |           |              |        |           |           |           |
|      | 4/13/2017 9:27:54 AM:Recording Started   | 6           | Calibration  |                   |              |                  |               |                    |                |           |    |                |                |                   |           |              |        |           |           |           |
|      | 4/13/2017 9:27:54 AM:Recorded file save path   |             | 01           | + 2               | 1            | Salastad = 100   | 6             | è [                |                |           | _  |                |                |                   |           |              |        |           |           |           |
|      | D:\EcoCAL1.8.5.9\record\2017-4-13-9-27-54-   |             |              | E 47348           | -            | Selected - 1100  | 17 1          | <u></u>            |                |           |    |                |                |                   |           |              |        |           |           |           |
|      | 918 AllData-2017-4-13-9-27-34-919.csv  | Ing         | put-X: vehD  | rv_linspd, [-],"" | Input-Y: v   | ehDrv_pct, [-],' |               |                    |                |           |    |                |                |                   |           |              |        |           |           |           |
|      | 4/13/2017 9:29:12 AM:Start measuring!  |             | Output: vel  | hDrv_trqEcoTra    | scMax_map,   | [-],""           |               |                    |                |           |    |                |                |                   |           |              |        |           |           |           |
|      | 4/13/2017 9:29:13 AM:Recording Started   | <u>   -</u> | 20,000       | \$ 000            | 0.000        | 10.000           | 20,000        | 20.000             | 40,000         | \$0,000   |    | 60.000         | 70,000         | 80.000            | 00.00     | 0 05.0       | 00     | 100.000   | 115.000   | 120.000   |
|      | 4/13/2017 9:29:13 AM:Recorded file save path   |             | -20.000      | -0.000            | 0.000        | 0.000            | 20.000        | 0.000              | 40.000         | 0.000     |    | 0.000          | 0.000          | 0.000             | 90.00     | 0 95.0       | 00     | 0.000     | 0.000     | 0.000     |
|      | D:\EcoCAL1.8.5.9 record\2017-4-13-9-29-13-   |             | 500.000      | 500.000           | 500.000      | 600.000          | 500.000       | 500.000            | 500.000        | 500.000   | -  | 500.000        | 500.000        | 500,000           | 500.00    | 00 600       | 000    | 500.000   | 500.000   | 500.000   |
|      | 4/13/2017 9:29:16 AM:Stop measuring  |             | -500.000     | -300.000          | -300.000     | -300.000         | -300.000      | -300.000           | -300.000       | -300.000  | -  | -300.000       | -500.000       | -300.000          | -300.0    | -300.        | 000    | -300.000  | -300.000  | -500.000  |
|      | 4/13/2017 9:29:16 AM:Start measuring!  |             | -000.000     | -800.000          | -600.000     | -600.000         | -000.000      | -800.000           | -800.000       | -000.000  | -  | -800.000       | -600.000       | -600.000          | -600.0    | -600.        | 000    | -800.000  | -800.000  | -800.000  |
|      | 4/13/2017 9:29:55 AM:Recording Started   |             | -/00.000     | -700.000          | - /00.000    | -/00.000         | - /00.000     | -/00.000           | -/00.000       | -/00.000  | -  | -700.000       | -/00.000       | - /00.000         | - /00.0   | -/00.        | 000    | -/00.000  | -/00.000  | -/00.000  |
|      | 4/13/2017 9:29:55 AM:Recorded file save path   |             | -\$00.000    | -800.000          | -800.000     | -800.000         | -800.000      | -800.000           | -\$00.000      | -\$00.000 | _  | -\$00.000      | -800.000       | -800.000          | -800.0    | -800.        | 000    | -800.000  | -800.000  | -\$00.000 |
|      | D: EcoCAL1.8.5.9 record/2017-4-15-9-29-55-<br>86 AltData 2017-4-13.9.20.55, 158 cev      |             | -900.000     | -900.000          | -900.000     | -900.000         | -900.000      | -900.000           | -900.000       | -900.000  | _  | -900.000       | -900.000       | -900.000          | -900.0    | 00 -900.     | 000    | -900.000  | -900.000  | -900.000  |
|      | 4/13/2017 9:30:17 AM:Stop measuring  |             | -1000.000    | -1000.000         | -1000,000    | -1000.000        | -1000.00      | -1000.000          | -1000.000      | -1000.000 | •  | -1000.000      | -1000.000      | -1000.000         | -1000.0   | -1000        | .000   | -1000.000 | -1000.000 | -1000.000 |
|      | 4/13/2017 9:51:30 AM:Write successfully!   |             | -1100.000    | -1100.000         | -1100.000    | -1100.000        | -1100.00      | -1100.000          | -1100.000      | -1100.000 |    | -1100.000      | -1100.000      | -1100.000         | -1100.0   | -1100        | .000   | -1100.000 | -1100.000 | -1100.000 |
|      | 4/13/2017 10:15:53 AM:Write successfully!  |             | -1200.000    | -1200.000         | -1200.000    | -1200.000        | -1200.00      | -1200.000          | -1200.000      | -1200.000 |    | -1200.000      | -1200.000      | -1200.000         | -1200.0   | -1200        | .000   | -1200.000 | -1200.000 | -1200.000 |
|      | 4/13/2017 10:16:22 AM:Write successfully!  |             | -1300.000    | -1300.000         | -1300.000    | -1300.000        | -1300.00      | -1300.000          | -1300.000      | -1300.000 |    | -1300.000      | -1300.000      | -1300.000         | -1300.0   | -1300        | .000   | -1300.000 | -1300.000 | -1300.000 |
|      | 4/13/2017 10:20:45 AM: Write successfully!<br>4/13/2017 10:20:50 AM: Write successfully! |             | -1400.000    | -1400.000         | -1400.000    | -1400.000        | -1400.00      | -1400.000          | -1400.000      | -1400.000 |    | -1400.000      | -1400.000      | -1400.000         | -1400.0   | -1400        | .000   | -1400.000 | -1400.000 | -1400.000 |
|      | 4/13/2017 10:20:50 AM: Write successfully!<br>4/13/2017 10:20:52 AM: Write successfully! |             | -1500.000    | -1500.000         | -1500.000    | -1500.000        | -1500.00      | -1500.000          | -1500.000      | -1500.000 | 1  | -1500.000      | -1500.000      | -1500.000         | -1500.0   | -1500        | .000   | -1500.000 | -1500.000 | -1500.000 |
|      | 4/13/2017 10:20:52 AM:Write successfully!  |             | 1            |                   |              |                  |               |                    |                |           | 1  |                |                |                   |           |              |        |           |           |           |
|      | 4/13/2017 10:44:27 AM:www.ecotrons.com   | <u> </u>    |              |                   |              |                  |               |                    |                |           |    |                |                |                   |           |              |        |           |           | <u> </u>  |
|      | 4/13/2017 10:44:28 AM:Converting the file<br>4/13/2017 10:44:28 AM:Parsing the file      | ve          | ehDrv_trqEco | oTracMax_map      | J            |                  |               |                    |                |           |    |                |                |                   |           |              |        |           |           |           |
|      | · · · · · · · · · · · · · · · · · · ·  |             |              |                   | _            |                  | _             |                    |                | _         | _  |                | _              |                   |           |              |        | _         |           | _         |
| pro  | cess input signals vehicle motion request elect  | ctrical     | supply man   | agement pow       | vertrain con | trol thermal     | managemen     | t process outp     | out signals    |           |    |                |                |                   |           |              |        |           |           |           |
| D    | isconnected Disconnect successfully!   |             |              |                   |              | Working Pag      | e: C:\Users\B | aoLei\Desktop\bin\ | bin/EV_Demo_   | 1.cal     |    | Export file pa | th: C:\Users\  | BaoLei\Desktop\ve | hDrv_trqE | icoTracMax_m | ap.csv |           |           |           |

There is also help for each layer; you can click the main 🔞 in EcoCAL to get the layer help.

| File | Edit | Settings | Run | Variables | Diagnostics | Adv |
|------|------|----------|-----|-----------|-------------|-----|
|      |      | ) 🔄 🕨    |     |           | 0           |     |

In different layer, the help document is also different.

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# 4.2 Edit the Help and support window

You also can edit the content by yourself for easy to read based on your own understand.

First, click the low button to open the Help and support window,



Then choose the Edit option, from to to to the content by yourself.

For example, add the "vehicle speed in limphome mode" content.



After finishing, please click "Save" to save the change, otherwise, the change will be lost.

# Chapter 5 Advanced operation of EcoCAL

# 5.1EcoCAL setting in Customers' demand

EcoCAL supports custom design; you can set the window as your demand.

## 5.1.1 Page setting

In the default page setting of EcoCAL, you can see there are many pages, for example "process input signals", "vehicle motion request", "powertrain control",..., etc., they are the named "layer".



You can add or delete the layer as you want, for example, you don't want the "thermal management" layer, you can delete it, if you want to add the "Custom Calibration" layer, you can add the layer and re-set it as you want the calibration variables, measure variables, etc.

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





**Note**: you also can right click on the layer label, and then click the "Page setting", the window will pop-up.

| dle con | trols  | Global fue    | l Pag | e Setting | A | fter-start Warm-up Fu |
|---------|--------|---------------|-------|-----------|---|-----------------------|
|         | Discor | mect successi | ullyt |           |   |                       |

Page setting window:

| t | 🅉 Pa | ge Setting                   |
|---|------|------------------------------|
| Γ | No   | I aver 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   | Battery Charge               |
|   |      |                              |
|   |      |                              |
|   | •    |                              |
|   | N    | Iew Delete Up Down OK Cancel |

#### How to delete the layer?

ECOTRONS

First, click the label to choose it, then click "Delete", for example, delete the "Battery Charge" layer,

| 😇 Pa | age Setting                  |
|------|------------------------------|
| Na   | I                            |
|      | Layer Name                   |
|      | 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   | Battery Charge               |
| 11   | Test Layer                   |
| •    | New Delete Up Down OK Cancel |

When you click the "Delete" button, there is one message window to ask you whether you want to delete the layer, choose "Yes", the layer will be deleted.



Then you can see there is no "Battery Charge" layer in display.



| ł | 🕉 Pa | ge Setting                             |
|---|------|--|
| F |      |  |
|   | No.  | Layer Name                             |
| L | 1    | Driver Sensors                         |
| L | 2    | Vehicle Control                        |
| L | 3    | Motor Limited                          |
| L | 4    | Ess Limited                            |
|   | 5    | Driver Torque                          |
|   | 6    | Charger Control                        |
|   | 7    | Vehicle Setting                        |
| L | 8    | Auxiliaries Control                    |
|   | 9    | Cruise Control                         |
|   | 10   | Test Layer                             |
|   |      |  |
|   |      |  |
|   |      |  |
| L |      |  |
|   | •    | ······································ |
| L | N    | Jew Delete Up Down                     |
|   |      |  |
| L |      |  |

## How to add one new layer?

Click the "New" button to set up one new layer.

| ¢ | 🅉 Pa | ge Setting  |
|---|------|---|
| E |      |   |
|   | 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   | Rattery Charge  |
|   | 11   | New Layer   |
|   |      |   |
|   |      |   |
|   | •    | ۲ ( III ) ( I |
|   | [ ]  | Iew Delete Up Down OK Cancel  |



Double click the "New Layer" words, input the word as you want to re-name it, there, we re-name it be "Test Layer", then press the Enter button of keyboard to finish it.

| 1 | 🗊 Pa     | ge Setting                            |
|---|----------|---------------------------------------|
| F |          |                                       |
|   | No.      | Layer Name                            |
| L | 1        | Driver Sensors                        |
| L | 2        | Vehicle Control                       |
| L | 3        | Motor Limited                         |
| L | 4        | Ess Limited                           |
| L | 5        | Driver Torque                         |
|   | 6        | Charger Control                       |
|   | 7        | Vehicle Setting                       |
|   | 8        | Auxiliaries Control                   |
|   | 9        | Cruise Control                        |
|   | 10<br>11 | Battery Charge<br>Test Layer          |
|   |          |                                       |
|   | •        | · · · · · · · · · · · · · · · · · · · |
|   | 1        | New Delete Up Down OK Cancel          |

After finishing, click "OK".

Then you can see there is the new "Test Layer" layer in the window.

| Charger Control Vehicle Settin | ag Auxiliaries Control | Cruise Control | Battery Charge | Test Layer |  |
|--------------------------------|------------------------|----------------|----------------|------------|--|



You can use the "Up" and "Down" button to de change the display order of layers.

| 😇 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   | Cruise Control               |
| 10  | Test Layer                   |
|     |                              |
| 1.  |                              |
|     | New Delete Up Down OK Cancel |

| Ö F | age Setting                  |
|-----|------------------------------|
| N   | I aver 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 Layer setting

You can edit the Layer showing via adding calibration variables and measured variables.

First, click the layer that you want to edit, for example, "Test Layer" layer.



Right click on the window, there some menu you can choose, to set this layer.

About add Calibration variables and Measure variables, please read the chapter 3.1and chapter 3.2.You also can **Right click on the blank area of window**, **click** "Add Measurements->New Oscilloscope Window", more details, you can refer to the chapter 5.3.5

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

## 5.1.3 Alias setting

Maybe you don't know the meaning of calibration variables and measured variables, we have set the alias of variables in default, and you also can edit it for easy reading and remembering.



| <b>0</b> N | feasurements     |                  |       |      |       |  |
|------------|------------------|------------------|-------|------|-------|--|
|            | Alias            | Name             | Value | Unit | Rate  |  |
| 0          | drv_linspdLimEv1 | drv_linspdLimEv1 |       |      | 100ms |  |
| 0          | drv_linspdLimEv2 | drv_linspdLimEv2 |       |      | 100ms |  |
|            |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |
| 1          |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |

The words in red area are alias of variables, you can re-edit it or add new alias.

## How do edit the alias?

First, choose the variable name that you want to change, and then right click.

| Alias Name Value Unit Rate   | ন্ত। | Measurements                                  |  |   |   |                      |  |
|--|------|---|--|---|---|----------------------|--|
| ImspdLimEv1       drv_linspdLimEv1       100ms         ImspdLimEv2       drv_linspdLimEv2       Add Measurements         ImspdLimEv2       drv_linspdLimEv2       Oms         ImspdLimEv2       drv_linspdLimEv2       Add Measurements         ImspdLimEv2       drv_linspdLimEv2       Oms         ImspdLimEv2       drv_linspdLimEv2       Add Measurements         ImspdLimEv2       drv_linspdLimEv2       Oms         ImspdLimEv2       drv_lin | 2    | Alias<br>drv_linspdLimEv1<br>drv_linspdLimEv2 | Name<br>drv_linspdLimEv1<br>drv_linspdLimE | Value<br>Add Measure<br>Change Alias<br>Hide Alias Co<br>Variable prop<br>Window Prop | Unit<br>ments<br>lumn<br>erties<br>erties | Rate<br>100ms<br>Oms |  |

Here, we change the alias of drv\_linspdLimEv2, the current Alias is

"drv\_linspdLimEv2" Then click "Change Alias", the window will pop-up,

Double click the Alias, then input the words that you want to change, for example, "drv\_linspdLimEv", then press the Enter button of keyboard to finish it.

Then, click "OK"



| A | liasManag | e                   |                      |
|---|-----------|---------------------|----------------------|
| Γ | N.        | Variable            | Atia                 |
|   | 1         | Amentiness dLimEar2 |                      |
|   | 1         | arv_inspaLimEv2     | drv_LinspdLinEv]     |
|   | 2         | arv_imspaLimev2_vai |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
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|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   |           |                     |                      |
|   | Search:   | drv_linspdLimEv2    | Search By Variable 🗸 |
|   |           |                     | OK Cancel            |

So, we can see the Alias of drv\_linspdLimEv2 is changed.

| <b>₫</b> N | leasurements     |                  |       |      |       |  |
|------------|------------------|------------------|-------|------|-------|--|
|            | Alias            | Name             | Value | Unit | Rate  |  |
| 0          | drv linspdLimEv1 | drv_linspdLimEv1 |       |      | 100ms |  |
| 0          | drv_LinspdLinEv  | drv_linspdLimEv2 |       |      | 100ms |  |
| -          |                  | -                |       |      |       |  |
|            |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |
|            |                  |                  |       |      |       |  |

**Note**: when you change the Alias of variables, the Alias of same variable will be changed in all layers.

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



| 😽 Calibrat  | tion          |                  |               |                |          |          |          |               |         |          |          |          | - • •    |
|-------------|---------------|------------------|---------------|----------------|----------|----------|----------|---------------|---------|----------|----------|----------|----------|
| + 0.001     | - *           | 1 /              | Selected =    | 1 5            | 0        |          |          |               |         |          |          |          |          |
| Input-X: si | gInVeh_linspd | l, [-],"" Input- | Y: vehDrv_pct | AccArb, [-],"" |          |          |          |               |         |          |          |          |          |
| Output      | vehDrv_trqSr  | nowTracMax_m     | nap, [-],""   |                |          |          |          |               |         |          |          |          |          |
|             |               |                  |               |                |          |          |          |               |         |          |          |          |          |
| 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       | 429,000 | 427.000  | 425.000  | 423.000  | 421.000  |
| 0.200       | -465.000      | -463.000         | 461.000       | 459.000        | 457.000  | 455.000  | Add C    | 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   | t             | 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  | Copy     |               | 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    | th 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    | je Alias      | .000    | 1900.000 | 1900.000 | 1900.000 | 1900.000 |
| •           |               |                  |               |                |          |          | Decim    | als Display   |         |          |          |          | •        |
| vehDry tr   | oSnowTracMa   | x map            |               |                |          |          | 2D Vie   | w             |         |          |          |          |          |
|             | 1             | <u></u>          |               |                |          |          | 3D Vie   |               |         |          |          |          |          |
|             |               |                  |               |                |          |          |          |               |         |          |          |          |          |
|             |               |                  |               |                |          |          | Fit Wir  | ndow          |         |          |          |          |          |
|             |               |                  |               |                |          |          | Fit Grid | d             |         |          |          |          |          |
|             |               |                  |               |                |          |          | Variab   | le Properties |         |          |          |          |          |
|             |               |                  |               |                |          |          | Windo    | w Properties  |         |          |          |          |          |

| 😽 Calibration  |   |
|--|---|
| + 0.001 _ * 1 / Selected = 1   | 60  |
| Input: sigInDrvPedacc_voltMin12half, [-],""  |   |
| Output: sigInDrvPedacc_voltSync_cur, [-],""  |   |
| sigInDrvPedacc_voltMin12half 0.500 2.000<br>sigInDrvPedacc_voltSync_cur 0.200 0.500<br>sigInDrvPedacc_voltSync_cur | Add Calibrations         Delete         Import         Export         Copy         Paste         Smooth Cells         Change Alias         Decimals Display         2D View         Fit Window         Fit Grid |
|  | Variable Properties<br>Window Properties  |

Note: You can change and manage the alias of all variables at the same time

Go to menu->Advanced->Alias Mange, when you finish it, please click "OK".



| No.   | Variable         | Alias | -                   |
|-------|------------------|-------|---------------------|
|       | taskL50ms_time   |       |                     |
| !     | taskL50ms_pct    |       |                     |
|       | taskL20ms_time   |       |                     |
| Ļ     | taskL20ms_pct    |       |                     |
|       | taskL10ms_time   |       |                     |
| i     | taskL10ms_pct    |       |                     |
|       | taskL5ms_time    |       |                     |
|       | taskL5ms_pct     |       |                     |
| )     | taskH100ms_pct   |       |                     |
| 0     | taskH100ms_time  |       |                     |
| 1     | taskL200ms_pct   |       |                     |
| 2     | taskL200ms_time  |       |                     |
| 3     | taskH10ms_time   |       |                     |
| 4     | taskH10ms_pct    |       |                     |
| 5     | taskH5ms_time    |       |                     |
| 6     | taskH5ms_pct     |       |                     |
| 7     | taskH1ms_time    |       |                     |
| 8     | taskH1ms_pct     |       |                     |
| 9     | taskL1000ms_time |       |                     |
| 0     | taskL1000ms_pct  |       |                     |
| 1     | taskH20ms_pct    |       |                     |
| 2     | taskH20ms_time   |       |                     |
| 3     | taskL500ms_time  |       |                     |
| 4     | taskL500ms_pct   |       |                     |
| Searc | h:               |       | Search By: Variable |

## 5.1.4 Window setting

You also can change the name of different window in different layers, for example, the name of following window is "Measurements", now we change it to be "Test"



| ថ | Measurements     |                  |       |      |             |  |                      |  |
|---|------------------|------------------|-------|------|-------------|--|----------------------|--|
|   | Alias            | Name             | Value | Unit |             | Rate   |                      |  |
| 0 | drv_linspdLimEv1 | drv_linspdLimEv1 |       |      |             | 100ms  |                      |  |
| 0 | drv_LinspdLinEv  | drv_linspdLimEv2 |       |      |             | 100ms  |                      |  |
|   |                  |                  |       |      | 4<br>()<br> | Add Measurem<br>Change Alias<br>Hide Alias Colu<br>/ariable proper | ients<br>imn<br>ties |  |
|   |                  |                  |       |      | V           | Vindow Prope   | rties                |  |

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

A little window pop-up, change the stock words to be Tests", and then click "OK".

| To Window Property |        |
|--------------------|--------|
| Window Name: Test  | Cancel |

Then, the name of window is changed as you want.

| Ċ | Test               |                  |       |      |       |  |
|---|--------------------|------------------|-------|------|-------|--|
|   | Alias              | Name             | Value | Unit | Rate  |  |
|   | 🗿 drv_linspdLimEv1 | drv_linspdLimEv1 |       |      | 100ms |  |
|   | 🗿 drv_LinspdLinEv  | drv_linspdLimEv2 |       |      | 100ms |  |
|   |                    |                  |       |      |       |  |
|   |                    |                  |       |      |       |  |
|   |                    |                  |       |      |       |  |
|   |                    |                  |       |      |       |  |
|   |                    |                  |       |      |       |  |
|   |                    |                  |       |      |       |  |

Note: the method to change other windows is the same.



## 5.1.5 Fit window and grid

| + 0.001 _ * 1 / Selected = 1 5        |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
|---------------------------------------|------------------------|---|--|--|---|---|---|--|--|--|---|--|--|--|
| Input: sensAuxBatt_volt, [-],""       |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
| Output: auxcCltch_dcBoost_cur, [-],"" |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
|                                       |                        |   |  |  |   |   |   | F  |  |  |   |  |  |  |
| 9.000                                 | 10.000                 | 11.000  | 12.000   | 13.000   | 14.000  | 15.000  | 16.000  |  |  |  |   |  |  |  |
| 100.000                               | 100.000                | 100.000   | 100.000  | 100.000  | 100.000   | 100.000   | 100.000   |  |  |  |   |  |  |  |
|                                       |                        |   |  |  |   |   |   | -  |  |  |   |  |  |  |
|                                       |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
|                                       |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
|                                       |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
|                                       |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
|                                       |                        |   |  |  |   |   |   |  |  |  |   |  |  |  |
|                                       | 1<br>[-],""<br>300st_c | 1 /<br>[-],""<br>Boost_cur, [-],"'<br>9.000 10.000<br>100.000 100.000 | 1         /         Selected           Goost_cur, [-],""         9.000         10.000         11.000           100.000         100.000         100.000         100.000 | 1         /         Selected =         1           [-].""         Boost_cur, [-].""         9.000         10.000         11.000         12.000           100.000         100.000         100.000         100.000         100.000 | 1       /       Selected =       1         [-],""       Boost_cur, [-],""         9.000       10.000       11.000       12.000       13.000         100.000       100.000       100.000       100.000       100.000 | 1       /       Selected =       1       •       •         Goost_cur, [-],""       9.000       10.000       11.000       12.000       13.000       14.000         100.000       100.000       100.000       100.000       100.000       100.000 | 1         /         Selected =         1         •         •           [-].""         Boost_cur, [-].""         9.000         10.000         11.000         12.000         13.000         14.000         15.000           100.000         100.000         100.000         100.000         100.000         100.000         100.000 | 1       /       Selected =       1       •       •         [-].""       Boost_cur, [-],""       9.000       10.000       11.000       12.000       13.000       14.000       15.000       16.000         100.000       100.000       100.000       100.000       100.000       100.000       100.000       100.000 | 1       /       Selected =       1       •       •         [-].""       Boost_cur, [-],""       9.000       10.000       11.000       12.000       13.000       14.000       15.000       16.000         100.000       100.000       100.000       100.000       100.000       100.000       100.000 | 1       /       Selected =       1       •       •         [-].""       Boost_cur, [-].""       9.000       10.000       11.000       12.000       13.000       14.000       15.000       16.000         100.000       100.000       100.000       100.000       100.000       100.000       100.000 | 1       /       Selected =       1       )         Boost_cur, [-],""       9.000       10.000       11.000       12.000       13.000       14.000       15.000       16.000         100.000       100.000       100.000       100.000       100.000       100.000       100.000 | 1       /       Selected =       1       )       )         [-].""       Boost_cur, [-].""       9.000       10.000       11.000       12.000       13.000       14.000       15.000       16.000         100.000       100.000       100.000       100.000       100.000       100.000       100.000 | 1       /       Selected =       1       *       *         [-].""       Boost_cur, [-],""       9.000       10.000       11.000       12.000       13.000       14.000       15.000       16.000         100.000       100.000       100.000       100.000       100.000       100.000       100.000 | 1       /       Selected =       1       •       •         [-].""       Boost_cur, [-],""       9.000       10.000       11.000       12.000       13.000       14.000       15.000       16.000         100.000       100.000       100.000       100.000       100.000       100.000       100.000 |

Right click on the 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 grid the can be adjusted, according to the width of window,

| Calibration           +         0.001 | 1 /            | Selected = | 1       | <b>?</b> |         |         |         |         | • <b>X</b> |  |  |  |
|---------------------------------------|----------------|------------|---------|----------|---------|---------|---------|---------|------------|--|--|--|
| Input: sensAuxBatt_volt, [-],""       |                |            |         |          |         |         |         |         |            |  |  |  |
| Output: auxcCltch_dcB                 | oost_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 |            |  |  |  |

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Right click on the window, click "Fit Grid", the width of cells will be adjusted, according to the content-length.

| 🗑 Calibration                    | 😽 Calibration |         |         |         |         |         |         |         |  |  |  |  |  |
|----------------------------------|---------------|---------|---------|---------|---------|---------|---------|---------|--|--|--|--|--|
| + 0.001 - * 1 / Selected = 1 🔨 🏕 |               |         |         |         |         |         |         |         |  |  |  |  |  |
| Input: sensAuxBatt_volt, [-],""  |               |         |         |         |         |         |         |         |  |  |  |  |  |
| Output: auxcCltch_dcB            | oost_cur, [-] | ,<br>,  |         |         |         |         |         |         |  |  |  |  |  |
|                                  |               |         |         |         |         |         |         |         |  |  |  |  |  |
| 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 |  |  |  |  |  |

Then the width of grid the can be adjusted, according to the width of window,

## 5.1.6 Smooth Cells

This function is designed just for curve type variable, the function do not support map type now. The function is that you can set a maximum valve and a minimum, and then make all other valves move into the section. The detail operation is like this:

Set a maximum and a minimum:

| of Calibration                  |               |   |         |         |         |         |         |         |  |  |  |  |
|---------------------------------|---------------|---|---------|---------|---------|---------|---------|---------|--|--|--|--|
| + 0.001 _ * 1 / Selected = 1 •  |               |   |         |         |         |         |         |         |  |  |  |  |
| Input: sensAuxBatt_volt, [-],"" |               |   |         |         |         |         |         |         |  |  |  |  |
| Output: auxcCltch_dcB           | oost_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           |               |   |         |         |         |         |         |         |  |  |  |  |

Select this section, then right click on the window, select "Smooth Cells":



You can see the data which will be adjusted smoothly in this section, as below.

| 😽 Calibration                         |       |        |        |        |        |         |         | . • ×   |  |  |  |  |  |
|---------------------------------------|-------|--------|--------|--------|--------|---------|---------|---------|--|--|--|--|--|
| + 0.001 _ * 1 / Selected = 1 •        |       |        |        |        |        |         |         |         |  |  |  |  |  |
| Input: sensAuxBatt_volt, [-],""       |       |        |        |        |        |         |         |         |  |  |  |  |  |
| 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 | 21.429 | 42.857 | 64.286 | 85.714 | 107.143 | 128.571 | 150.000 |  |  |  |  |  |
| auxcCltch_dcBoost_cur                 |       |        |        |        |        |         |         |         |  |  |  |  |  |

## 5.1.7 Save configuration

When you re-set the window by using above methods, you can save the settings as one new configuration, so you can save it, and use it when you want.

## Go to menu->File->Save Configuration

| File | Edit Settings R       | un Variables | Diagnosti |
|------|-----------------------|--------------|-----------|
|      | Open                  |              | Ctrl+O    |
|      | Save CAL              |              | Ctrl+S    |
|      | Save CAL as           |              |           |
|      | Save Configuration    |              | Ctrl+F2   |
|      | Save Configuration    | as           |           |
|      | Load Configuration    |              | Ctrl+F3   |
|      | Default Configuration | on Reset     |           |
|      | Exit                  |              |           |

You also can save the setting based on the current loading configuration.

## Go to menu->File->Save Configuration as

| File | Edit Settings Run \      | /ariables Diagnosti |
|------|--------------------------|---------------------|
|      | Open                     | Ctrl+O              |
|      | Save CAL                 | Ctrl+S              |
|      | Save CAL as              |                     |
|      | Save Configuration       | Ctrl+F2             |
|      | Save Configuration as    |                     |
|      | Load Configuration       | Ctrl+F3             |
|      | Default Configuration Re | set                 |
|      | Exit                     |                     |

Then, name the new configuration file, "Customer Config", and then click "Save".

| Save Configuration   |         | + 1 2 Marsh               | - | 10               |              |        |      |       | ×   |
|----------------------|---------|---------------------------|---|------------------|--------------|--------|------|-------|-----|
| Search EcoCAL        |         |                           |   |                  |              |        |      |       |     |
| Organize 🔻 New       | folder  | ,                         |   |                  |              |        |      | •== • | (?) |
| 🚺 Downloads          | *       | Name                      |   | Date modified    | Туре         | Size   |      |       |     |
| 🔛 Recent Places      |         | 퉬 HelpDoc                 |   | 2017/5/25 17:53  | File folder  |        |      |       |     |
| <b>-</b>             |         | 퉬 kerneldlis              |   | 2017/5/25 17:53  | File folder  |        |      |       |     |
| Cibraries            |         | 퉬 Picture                 |   | 2017/5/25 17:53  | File folder  |        |      |       |     |
| Documents            | =       | 퉬 record                  |   | 2017/5/26 10:00  | File folder  |        |      |       |     |
| Initial      Initial | _       | 퉬 Uninstall               |   | 2017/5/25 17:53  | File folder  |        |      |       |     |
| Subversion           |         | 📄 current_config.xml      |   | 2017/5/26 9:43   | XML Document | 2 KE   |      |       |     |
| Videos               |         | Current_VariblesAlias.xml |   | 2017/5/26 9:43   | XML Document | 130 KE |      |       |     |
| Videos               |         | 🔮 gui.xml                 |   | 2016/12/2 10:08  | XML Document | 29 KE  |      |       |     |
| 🖳 Computer           |         | VariblesAlias.xml         |   | 2015/11/30 16:08 | XML Document | 130 KE |      |       |     |
| 🚢 Local Disk (C:)    |         |                           |   |                  |              |        |      |       |     |
| 👝 Local Disk (D:)    |         |                           |   |                  |              |        |      |       |     |
| 👝 Local Disk (E:)    | -       |                           |   |                  |              |        |      |       |     |
| File name:           | Suston  | ner Config                |   |                  |              |        |      |       | •   |
| Save as type: X      | (ML(*.: | xml)                      |   |                  |              |        |      |       | •   |
| Alide Folders        |         |                           |   |                  |              |        | Save | Cance | el  |

## 5.1.8 Reset default configuration

If you don't want to use the page configuration setting after you change much, you can use this to reset to be default configuration of EcoCAL.

| Go to menu->File->Default | configuration Reset |
|---------------------------|---------------------|
|---------------------------|---------------------|

| File | Edit   | Settings    | Run      | Variable | es Diagnosti |
|------|--------|-------------|----------|----------|--------------|
|      | Open   |             |          |          | Ctrl+0       |
|      | Save C | CAL         |          |          | Ctrl+S       |
|      | Save C | CAL as      |          |          |              |
|      | Save C | Configurati | on       |          | Ctrl+F2      |
|      | Save C | Configurati | on as    |          |              |
|      | Load ( | Configurat  | ion      |          | Ctrl+F3      |
|      | Defau  | lt Configu  | ration F | Reset    |              |
|      | Exit   |             |          |          |              |

Then, click "Yes".

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

The current setting is the default configuration setting.

## 5.1.9 Load configuration

Sometimes, we will send the page configuration based on your system for your tuning purpose. So you can load the configuration.

You also can load the configuration that you saved.

## Go to menu->File->Load configuration

| File | Edit   | Settings    | Run      | Variables | Diagnost |
|------|--------|-------------|----------|-----------|----------|
|      | Open   |             |          |           | Ctrl+O   |
|      | Save O | CAL         |          |           | Ctrl+S   |
|      | Save O | CAL as      |          |           |          |
|      | Save C | Configurati | ion      |           | Ctrl+F2  |
|      | Save O | Configurati | ion as   |           |          |
|      | Load ( | Configurat  | ion      |           | Ctrl+F3  |
|      | Defau  | lt Configui | ration F | Reset     |          |
|      | Exit   |             |          |           |          |

Choose the configuration file then click "Open".

| G Load Configuration          |                 |                           |                  |              |        |      |        |   |  |  |  |
|-------------------------------|-----------------|---------------------------|------------------|--------------|--------|------|--------|---|--|--|--|
| Con Com                       | Search EcoCAL > |                           |                  |              |        |      |        |   |  |  |  |
| Organize 🔻 New f              | folder          |                           |                  |              |        |      |        | 0 |  |  |  |
| 🔆 Favorites                   | -               | Name                      | Date modified    | Туре         | Size   |      |        |   |  |  |  |
| 🥅 Desktop                     |                 | 퉬 HelpDoc                 | 2017/5/25 17:53  | File folder  |        |      |        |   |  |  |  |
| 鷆 Downloads                   |                 | 퉬 kerneldlis              | 2017/5/25 17:53  | File folder  |        |      |        |   |  |  |  |
| 🖳 Recent Places               |                 | 퉬 Picture                 | 2017/5/25 17:53  | File folder  |        |      |        |   |  |  |  |
|                               | -               | 鷆 record                  | 2017/5/26 10:00  | File folder  |        |      |        |   |  |  |  |
| 门 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                  |                 | 堂 gui.xml                 | 2016/12/2 10:08  | XML Document | 29 KB  |      |        |   |  |  |  |
| 🛃 Videos                      |                 | VariblesAlias.xml         | 2015/11/30 16:08 | XML Document | 130 KB |      |        |   |  |  |  |
|                               |                 |                           |                  |              |        |      |        |   |  |  |  |
| Computer                      |                 |                           |                  |              |        |      |        |   |  |  |  |
| Local Disk (C:)               |                 |                           |                  |              |        |      |        |   |  |  |  |
|                               |                 |                           |                  |              |        | (    |        |   |  |  |  |
| File name: exp.xml vml(*.xml) |                 |                           | xml(*.xml)       |              | •      |      |        |   |  |  |  |
|                               |                 |                           |                  |              |        | Open | Cancel |   |  |  |  |

## 5.1.10 Language Setting

The user can select "Settings  $\rightarrow$  Language", then select the language you want.

**Note:** click "English" to get the English interface;

Click "Chinese" to get the Chinese interface;


## 5.2 Diagnostics

#### 5.2.1 Failed to connect to ECU

If you can't connect to ECU, please do following steps to fix it.

- 1. Is the VCU/HCU power is ON? (The fuel pump will run for a few seconds when you key-on).
- 2. Do you have the latest and greatest EcoCAL version?
- 3. If you are running EcoCAL in Win Vista, have you set EcoCAL in "Win XP compatibility" mode? (Refer to the manual on how to do that).
- 4. Are you connecting the computer to the VCU/HCU via CAN mode?



| Communication Settings         | ×  |
|--------------------------------|--|
| Select the communication mode. | CAN Settings<br>Device Type EcotronsCAN •<br>Device Index 0 •<br>Channel 1 •<br>Baud Rate 500kbs • |

- 5.3 Advanced function of EcoCAL
- 5.3.1 Calibrations Data manger
- Go to menu->Advanced->Calibration Data Manger



## ECOTRONS

| C Compare v   | 2.4.6           |          |        |                            | X        |
|---------------|-----------------|----------|--------|----------------------------|----------|
| Select Files- |                 |          |        | Operate Output file for    | mak kut  |
| Source Files: |                 |          | Browse | Compare Copy Options       | iniattxt |
| Target Files: |                 |          | Browse | Calibration Variables      |          |
| Files Loaded  |                 |          |        | BreakPoints CURVE MAP VALU | E        |
| Files         | A2L File        | CAL File |        |                            |          |
| Source File:  | 5               |          |        |                            |          |
| Target Files  |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |
| Compare res   | ult information |          |        |                            |          |
| VALUE:        |                 |          |        |                            |          |
| CURVE:        |                 |          |        |                            |          |
| MAP:          |                 |          |        |                            |          |
| UnCopy:       |                 |          | View   | Number of Calibrations:    |          |
|               |                 |          |        |                            |          |
|               |                 |          |        |                            |          |

#### How to compare and copy files?

- 1) Open the software "Compare V2.4.6" first as above method.
- 2) Open the data file, to click "Browse" for opening file.

First, open the Source file (the file that you want to remain the same calibrated value by yourself)

Second, open the Target file (the file that replaced the some old variables value except your own calibrated value)

| Select Files  |        |
|---------------|--------|
| Source Files: | Browse |
| Target Files: | Browse |

Wait for about ten seconds.



Note: If the file loaded successfully, lower left corner will pop up message

"Analyze Successfully"

| _ Cor | mpare result information |      |
|-------|--------------------------|------|
|       | VALUE:                   |      |
|       | CURVE:                   |      |
|       | MAP:                     |      |
|       | UnCopy:                  | View |
| Ana   | lyze successfully!       |      |

3) Copy the date file.

Click the" Copy "button, it will copy the file

| Compare                              | Сору  | Options | Output file format: .cal |
|--------------------------------------|-------|---------|--------------------------|
| Calibration Variable:<br>BreakPoints | CURVE | MAP     | VALUE                    |

Precessing...

# ECOTRONS

| Compare v2.4.6  |  |
|---|--|
| - Select Files  | Operate                                      |
| Source Files: C:\EcoCAL\EV_Demo.cal   | Browse Copy Options Output file format: .cal |
| Target Files: C:\EcoCAL\EV_Demo1.cal  | Browse Calibration Variables                 |
| Files Loaded  | BreakPoints CURVE MAP VALUE                  |
| Files         A2L File         CAL File           Source Files         C:\EcoCAL\EV_Demo.a2l         C:\EcoCAL\EV_Demo.a2l           Target Files         C:\EcoCAL\EV_Demo.a2l         C:\EcoCAL\EV_Demo.a2l | no.cal<br>no1.cal                            |
|   | Message                                      |
|   | Save the Data?                               |
|   | OK Cancel                                    |
| Com Down his formations   |  |
| Lopy Result informations  |  |
| CURVE: 0  |  |
| MAP: 1  |  |
| UnCopy: 0   | View Number of Calibrations:                 |
| Copy Successful!  |  |

Click "OK" button and save the result (a new CAL file).

| C Source file(S12P)   |                                |                 |                 |           |
|-----------------------|--------------------------------|-----------------|-----------------|-----------|
| Computer              | r ► Local Disk (C:) ► EcoCAL ► | •               | ✓ Search EcoCAL | ٩         |
| Organize 👻 New folde  | r                              |                 |                 | := • 🔞    |
| ☆ 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     |           |
|                       | 🌗 record                       | 2017/5/26 10:00 | File folder     |           |
| 🥽 Libraries           | 퉬 Uninstall                    | 2017/5/25 17:53 | File folder     |           |
| Documents             | Demo.cal                       | 2017/2/23 20:30 | CAL File        | 18 KB     |
| J Music               | EV_Demo.cal                    | 2017/4/26 11:50 | CAL File        | 4 KB      |
| Pictures              | EV_Demo1.cal                   | 2017/5/26 11:36 | CAL File        | 4 KB      |
| Subversion            |                                |                 |                 |           |
| Videos                |                                |                 |                 |           |
| τ                     |                                |                 |                 |           |
| File name: Copy_      | File                           |                 |                 | •         |
| Save as type: cal(*.c | al)                            |                 |                 | <b></b> ] |
|                       | - /                            |                 |                 |           |
| Hide Folders          |                                |                 | Save            | Cancel    |



4) If you want to know whether the copy file is successfully you can compare the source file and the new saved file.

Using the above mentioned method to open the "Source file" that your own file and the "Target file" that the new saved file.

To click "Compare", button and save the compare result.

| Compare  | Сору   | Output file format: .cal                              |
|--|--|---|
| BreakPoints  | CURVE  | MAP VALUE   |
| Compare v2.4.6   |  |   |
| Select Files Source Files: C:\EcoCAL\EV_Demo.cal   | Browse                                       | Operate Output file format: .txt Compare Copy Options |
| Files Loaded Files A2L File CAL File Source Files C:\EcoCAL\EV_Demo.a2l C:\EcoC Target Files C:\EcoCAL\EV_Demo.a2l C:\EcoC | AL\EV_Demo.cal<br>AL\EV_Demo1.cal<br>Message | BreakPoints CURVE MAP VALUE                           |
|  | Save the C                                   | Compare result information?                           |
| Compare Result informations  |  |   |
| VALUE: 3   |  |   |
| MAP: 1   |  |   |
| UnCopy: 0  | View   | Number of Calibrations:                               |
| Compare successful!  |  |   |



| C Source file(S12P)   |  |   |   |      |     |
|---|--|---|---|------|-----|
| Comp  | uter 🕨 Local Disk (C:) 🕨 EcoCAL 🕨          |   | • 4• Search Ecol  | CAL  | ٩   |
| Organize 🔻 New fo   | lder                                       |   |   |      | (?) |
| 🖳 Recent Places   | Name                                       | Date modified   | Туре  | Size |     |
| <ul> <li>☐ Libraries</li> <li>☐ Documents</li> <li>↓ Music</li> <li>☐ Pictures</li> </ul> | HelpDoc<br>kerneldlls<br>Picture<br>record | 2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/25 17:53<br>2017/5/26 10:00<br>2017/5/25 17:53 | File folder<br>File folder<br>File folder<br>File folder<br>File folder |      |     |
| Subversion Videos Computer Computer   |  | 2017/5/23 11:53   | The folder  |      |     |
| Local Disk (D:)   | -  |   |   |      |     |
| File name: Co<br>Save as type: txt  | mpare<br>(*.txt)                           |   |   |      | •   |
| Hide Folders  |  |   | Save  | Canc | el  |

You can see the result through follow method.

| - Compare Result informations |
|-------------------------------|
| Compare rresult informations  |
| VALUE: 3                      |
| CURVE: 0                      |
| MAP: 1                        |
| UnCopy: 0                     |
|                               |

Note: if the result is 0, it means cope file is successfully.

Click" View" button to open the .txt file that just saved



| C Source file(S12P)   |                                    |                 |                   |            |  |
|---|------------------------------------|-----------------|-------------------|------------|--|
| Comp  | outer ► Local Disk (C:) ► EcoCAL ► | -               | • + Search EcoCAL | ٩          |  |
| Organize 🔻 New fo   | older                              |                 | Ē                 | =          |  |
| Desktop   | ^ Name                             | Date modified   | Туре              | Size       |  |
| Uownloads   | 📕 📗 HelpDoc                        | 2017/5/25 17:53 | File folder       |            |  |
| Recent Places   | 🐌 kerneldlis                       | 2017/5/25 17:53 | File folder       |            |  |
| 😑 Libertin  | Picture                            | 2017/5/25 17:53 | File folder       |            |  |
|   | = 📔 record                         | 2017/5/26 10:00 | File folder       |            |  |
| Documents   | 📕 📗 Uninstall                      | 2017/5/25 17:53 | File folder       |            |  |
| <ul> <li>Music</li> <li>Pictures</li> <li>Subversion</li> <li>Videos</li> </ul> | Compare.txt                        | 2017/5/26 11:41 | Text Document     | 11 KB      |  |
| 👰 Computer  |                                    |                 |                   |            |  |
| 🚢 Local Disk (C:)   |                                    |                 |                   |            |  |
| 👝 Local Disk (D:)   | -                                  |                 |                   |            |  |
| Fil   | e name: Compare.txt                |                 |                   | t)  Cancel |  |

New Version Calibration Comparison Report

| Reference calibration data:     | C:\EcoCAL\EV_Demo.cal  |
|---------------------------------|------------------------|
| Comparison calibration data:    | C:\EcoCAL\EV_Demo1.cal |
| Created by:                     | Default User           |
| Created on:                     | 2017/5/26 11:41:19     |
| Number of Differences:          | VAL=3, CURVE=0, MAP=1  |
| Number of variables uncompared: | 0                      |

If the number is 0, it means copy file successfully, you can use the new saved file

to run you bike.

Message: also, you can use above method to copy or compare other files.

#### 5.3.2 Debug

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

#### Go to menu->Advanced->Debug



| Ad | Ivanced Window   | Help    |  |  |  |  |  |
|----|------------------|---------|--|--|--|--|--|
|    | Calibration Data | Manager |  |  |  |  |  |
|    | Debug            |         |  |  |  |  |  |
|    | Get ECU Version  |         |  |  |  |  |  |
|    | Info             |         |  |  |  |  |  |
|    | Page Setting     |         |  |  |  |  |  |
|    | Alias Manager    |         |  |  |  |  |  |
|    | EcoCAN           |         |  |  |  |  |  |
|    | Auto-Tuning Set  | tings   |  |  |  |  |  |
|    | Read Computer    | NO.     |  |  |  |  |  |

| Γ | debug                    |           |       |                         |  |
|---|--------------------------|-----------|-------|-------------------------|--|
|   | Time                     | Direction | ID    | Message                 |  |
|   | 4/13/2017 4:47:26 PM:884 | Send      | 0x100 | 01 01 12 01 00 00 00 00 |  |
|   | 4/13/2017 4:47:27 PM:384 | Send      | 0x100 | 01 01 12 01 00 00 00 00 |  |
|   | 4/13/2017 4:47:27 PM:886 | Send      | 0x100 | 01 01 12 01 00 00 00 00 |  |
|   |                          |           |       |                         |  |

#### 5.3.3 Decimals Display

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

#### For example:

Right click on the window of calibration variables.

| 😽 Calibra  | tion   |           |             |          |          |          |          |          |            |            |        |         |          |          |          |          |          | × |
|------------|--|-----------|-------------|----------|----------|----------|----------|----------|------------|------------|--------|---------|----------|----------|----------|----------|----------|---|
| + 0.00     | + 0.001 - + 1 / Selected = 1 5                             |           |             |          |          |          |          |          |            |            |        |         |          |          |          |          |          |   |
| Input-X: v | Input-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pct, [-],"" |           |             |          |          |          |          |          |            |            |        |         |          |          |          |          |          |   |
| Output     | t: vehDrv_tr   | qEcoTracM | 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    | 425.00 | 0       | 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  | orations   |        | 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  |   |
| 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 (   | alle       |        | 00      | 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.    | Shiboury   | Jelis      |        | 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    |        |         |          |          |          |          |          |   |
| _vehDrv_t  | rqEcoTracM   | ax_map    |             |          |          |          |          | <b>_</b> | 2D View    |            | _      |         |          |          |          |          |          |   |
|            |  |           |             |          |          |          |          | _        | 2D View    |            |        |         |          |          |          |          |          | _ |
|            |  |           |             |          |          |          |          |          | SD VIEW    |            |        |         |          |          |          |          |          |   |
|            |  |           |             |          |          |          |          |          | Fit Windo  | W          |        |         |          |          |          |          |          |   |
|            |  |           |             |          |          |          |          |          | Fit Grid   |            |        |         |          |          |          |          |          |   |
|            |  |           |             |          |          |          |          |          | Variable F | roperties  |        |         |          |          |          |          |          |   |
|            |  |           |             |          |          |          |          |          | Window     | Properties |        |         |          |          |          |          |          |   |

The "Display setup" window pops up,

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

You can set the decimals, then click OK,

| 😈 Display setup |
|-----------------|
|                 |
| Value decimals  |
| 2               |
|                 |
| X-Axis decimals |
| 2               |
| Y-Axis decimals |
| 2               |
| 1               |
|                 |
| OK Cancel       |

Then, you can see the difference.

| 😽 Calibra  | 🧭 Calibration   |          |         |         |         |         |         |         |         |         |         |         |         | ×       |         |         |   |
|------------|---|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|
| + 0.00     | + 0.001 - + 1 / Selected = 1 + /                          |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |
| Input-X: v | mput-X: vehDrv_linspd, [-],"" Input-Y: vehDrv_pot, [-],"" |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |
| 🕜 Outpu    | 2 Output: vehDrv_trqEcoTracMax_map, [-],""                |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |
|            |   |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         | • |
| 0.00       | 0.00  | 0.00     | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |   |
| 0.10       | -445.00   | -443.00  | 441.00  | 439.00  | 437.00  | 435.00  | 433.00  | 431.00  | 429.00  | 427.00  | 425.00  | 423.00  | 421.00  | 419.00  | 417.00  | 415.00  |   |
| 0.20       | -465.00   | -463.00  | 461.00  | 459.00  | 457.00  | 455.00  | 453.00  | 451.00  | 449.00  | 447.00  | 445.00  | 443.00  | 441.00  | 439.00  | 437.00  | 435.00  |   |
| 0.30       | -575.00   | -570.00  | 565.00  | 560.00  | 555.00  | 550.00  | 545.00  | 540.00  | 535.00  | 530.00  | 525.00  | 520.00  | 515.00  | 510.00  | 505.00  | 500.00  |   |
| 0.40       | -620.00   | -617.00  | 614.00  | 611.00  | 608.00  | 605.00  | 602.00  | 599.00  | 596.00  | 593.00  | 590.00  | 587.00  | 584.00  | 581.00  | 578.00  | 575.00  |   |
| 0.50       | -680.00   | -679.00  | 678.00  | 677.00  | 676.00  | 675.00  | 674.00  | 673.00  | 672.00  | 671.00  | 670.00  | 669.00  | 668.00  | 667.00  | 666.00  | 665.00  |   |
| 0.60       | -790.00   | -787.00  | 784.00  | 781.00  | 778.00  | 775.00  | 772.00  | 769.00  | 766.00  | 763.00  | 760.00  | 757.00  | 754.00  | 751.00  | 748.00  | 745.00  |   |
| 0.70       | -960.00   | -958.00  | 956.00  | 954.00  | 952.00  | 950.00  | 948.00  | 946.00  | 944.00  | 942.00  | 940.00  | 938.00  | 936.00  | 934.00  | 932.00  | 930.00  |   |
| 0.80       | -1080.00  | -1079.00 | 1078.00 | 1077.00 | 1076.00 | 1075.00 | 1074.00 | 1073.00 | 1072.00 | 1071.00 | 1070.00 | 1069.00 | 1068.00 | 1067.00 | 1066.00 | 1065.00 |   |
| 0.90       | -1380.00  | -1378.00 | 1376.00 | 1374.00 | 1372.00 | 1370.00 | 1368.00 | 1366.00 | 1364.00 | 1362.00 | 1360.00 | 1358.00 | 1356.00 | 1354.00 | 1352.00 | 1350.00 |   |
| 0.95       | -1580.00  | -1578.00 | 1576.00 | 1574.00 | 1572.00 | 1570.00 | 1568.00 | 1566.00 | 1564.00 | 1562.00 | 1560.00 | 1558.00 | 1556.00 | 1554.00 | 1552.00 | 1550.00 |   |
| 1.00       | -1900.00  | -1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | 1900.00 | Ţ |
|            |   |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |
| _vehDrv_t  | rqEcoTracM  | ax_map   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |
|            |   |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |

#### 5.3.4 Signal/Parameters properties

The detailed properties of the variables (signals and parameter calibrations), can be viewed in the variable property window.

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

| 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   |

| 😈 Variable properties   | X                            |
|-------------------------|------------------------------|
| Property                | Value                        |
| Name                    | sigInDrvPedacc pctLin cur    |
| Alias                   | sigInDrvPedacc_pctLin_cur    |
| Long Identifier         |                              |
| Туре                    | CURVE                        |
| Unit                    | -                            |
| Record Type             | FLOAT32_IEEE                 |
| Lower Limit             | -3.4E+38                     |
| Upper Limit             | 3.4E+38                      |
| X-Axis Points           | sigInDrvPedacc_pctLin_bp     |
| X-Axis Reference to Inp | sigInDrvPedacc_voltUnJit     |
| X_Point Description     |                              |
| Memory Address          | 0x8090                       |
| Conversion Method       | BSW_Test_V1_3_PWM_2010a_CM_s |
| Conversion Formula      | "Q = V"                      |
|                         |                              |
|                         |                              |
|                         |                              |

#### Measure variables' properties:

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

# ECOTRONS

| 😽 Measurements         |                                 |           |                     |      |      | × |
|------------------------|---------------------------------|-----------|---------------------|------|------|---|
| Alias                  | Name                            |           | Value               | Unit | Rate |   |
| CANB_nTxOnce           | CANB_nTxOnce                    |           |                     | 20ms |      |   |
| CANB_nTxTimes          | CANB nTxTimes                   |           |                     |      | 20ms |   |
| 🕜 esmcDcdc_flgEn       | esmcDcdc_flgEn Add Measurements |           |                     |      | 20ms |   |
| 😧 keyCycle_flgKeyOff   | keyCycle_flgKeyOt               | nge Alias |                     | 20ms |      |   |
| 😧 keyCycle_flgKeyOn    | keyCycle_flgKeyOt               | Hid       | e Alias Colum       | n    | 20ms |   |
| 😧 keyCycle_flgPwrDelay | keyCycle_flgPwrDe               | Vari      | Variable properties |      | 20ms |   |
| 🕜 keyCycle_uKeyOn      | keyCycle_uKeyOn                 | Win       | dow Properti        | PC   | 20ms |   |
| NVMDataCtrl_flgRam2Rom | NVMDataCtrl_flgRa               | marcon    | downropera          |      | 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_u |
| Conversion Formula | "Q = V"                      |
|                    |                              |
|                    |                              |
|                    |                              |
|                    |                              |



#### 5.3.5 Virtual Oscilloscope

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



You also can 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 only can add one Oscilloscope in each layer.

2) Add the measured variables that you want to show in the Oscilloscope window, here, we as the "SensVeh\_accel" variables as example.

| 😈 Add Measurements   |        |                 |                       |              | ×      |
|--|--------|-----------------|-----------------------|--------------|--------|
| sensveh_accel  | Search |                 |                       |              | Search |
| sensVeh_accel<br>sensVeh_flgLinspdValid<br>sensVeh_flgLinspdValidZ1          |        | Add To Syn >>   | Name<br>sensVeh_accel | Rate<br>20ms |        |
| sensVeh_flgRev<br>sensVeh_flgUseKph<br>sensVeh_linspd                        |        | Add To 20ms >>  |                       |              |        |
| sensVeh_linspdFwd<br>sensVeh_linspdRev<br>sensVeh_linspdZ1                   | 1      | Add To 100ms >> |                       |              |        |
| sensVehDshaft_flgRotspdValid<br>sensVehDshaft_rotspd<br>sensVehEstop_flgActy |        |                 |                       |              |        |
| SoftwareVer<br>SRS_1_UnpackEN<br>SRS_AirbagWarningStatus                     |        | << Delete       |                       |              |        |
| A11 :1915  |        | Syn :0          | 20ms :1 100m          | s :0 OK      | Cancel |

3) Click "OK", the Scope will pop up.



| 🛱 Scope                                      |   |   | - • •                        |
|--|---|---|------------------------------|
| 100 ]  | y |   | Name                         |
|  |   | v | rxCANABMSBMS_SOC<br>= [ NM ] |
| 80 -   | Г |   |                              |
|  |   |   |                              |
| 60 -   |   |   |                              |
|  |   |   |                              |
|  |   |   |                              |
| 40 -   |   |   |                              |
|  |   |   |                              |
| 20 -   |   |   |                              |
|  |   |   |                              |
|  |   |   |                              |
| 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 |   |   |                              |

- 4) Connect to ECU, and start measuring, you can see the signal of variables.
- 5) You can add or delete the variable that you choose

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

| 🗑 Scope |         |          |   |   | - • <b>•</b>      |
|---------|---------|----------|---|---|-------------------|
| 1.00    |         |          | у |   | Name              |
| 0.00    |         |          |   | v | SensVeh_accel     |
| 0.00    |         |          |   | L | Add Measurements  |
|         |         |          |   | Г | Delete Variable   |
| 0.60 -  |         |          |   |   | Window Properties |
|         |         |          | 5 |   |                   |
| 0.40 -  |         |          |   |   |                   |
| -       |         |          |   |   |                   |
| 0.20 -  |         |          |   |   |                   |
| -       |         |          |   |   |                   |
| 0.00 J  |         |          |   |   |                   |
| 0.0 2.0 | 4.0 6.0 | 8.0 10.0 |   |   |                   |

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

6) You also can change the properties of scope window.

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

| To Properties |               |          |             |            |         |
|---------------|---------------|----------|-------------|------------|---------|
| 🔒 General     | ShowName      | ShowType | YAxis Range | Line color | Visible |
| A Varibles    | SensVeh_accel | Alias    | 0~1         |            | Yes     |
|               |               |          |             |            |         |
|               |               |          |             |            |         |
|               |               |          |             |            |         |
|               |               |          |             |            |         |
|               |               |          |             |            |         |
|               |               |          |             | ок         | Cancel  |

#### 5.3.6 Gauge monitoring

You can use this function to monitor the Gauge window of calibration data.

You can select "Variables->Add Measurements->New Gauge Window" or right click on the table, then choose "New Gauge Window", and then you can see the gauge window as below.

| 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 | Show All Selected Variables |                         |  |  |  |

Add the measured variables that you want to show in the Gauge window, here, we select the "CANA\_nTxTimes" variable as example.



| o Add Measurements                                    |        |                 |                  |          | ×      |
|---|--------|-----------------|------------------|----------|--------|
|   | Search |                 |                  |          | Search |
| CANA_flgStart   | *      | Add To Syn >>   | Name             | Rate     |        |
| CANA nTxOnce  |        |                 | CANA_nTxTimes    | 20ms     |        |
| CANB_figStart<br>CANB_nTxOnce                         |        | Add To 20ms >>  |                  |          |        |
| CANB_nTxTimes<br>esmcDcdc_flgEn<br>keyCycle_flgKeyOff |        | Add To 100ms >> |                  |          |        |
| keyCycle_flgKeyOn<br>keyCycle_flgPwrDelay             |        |                 |                  |          |        |
| keyCycle_uKeyOn                                       |        |                 |                  | <b>\</b> |        |
| NVMDataCtrl_flgRam2Rom<br>NVMDataCtrl_flgRom2Ram      |        |                 |                  |          |        |
| NVMDataCtrl_flgUpdate                                 |        | << Delete       |                  |          |        |
| NVMTest_bool  | Ŧ      |                 |                  |          |        |
| A11 :239  |        | Syn :0          | 20ms :1 100ms :0 | ОК       | Cancel |



You can add or delete the variable that you choose

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



You also can change the value of variable.

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. Click "OK" when finished.



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



#### 5.3.7 3D/2D view of maps

You can use this function to see the graph of calibration tables.

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



You can use this function to check the table whether is smooth. If it is not smooth, you need to smooth the value of table.

| 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   |











"2D View" window also support calibration-graph function. You can use mouse to drag one of the point to revise calibration value. You can operate it like the below steps:

Press the point you need without losing, then the mouse gets into the shape of the upper and lower arrow. And move the point to your target, then lose your mouse, as below.





#### 5.3.8 Cope/ Paste in tables

In EcoCAL, it supports the Copy and Paste function in CUR and MAP tables, the function is the same to Excel. You can copy the part of value then past it into the part of cells.

#### For example

Move the mouse to choose the area of cell you want to copy, then right click, and click "Copy",

| 😽 Calibra  | 🧭 Calibration |                  |             |          |          |          |          |          |          |          |          |          |          |
|------------|---------------|------------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| + 0.001    | 1_ *          | 1 /              | Selected =  | 1 5      | e        |          |          |          |          |          |          |          |          |
| Input-X: v | ehDrv linspd  | , [-],"" Input-Y | vehDrv pct, | -1.""    |          |          |          |          |          |          |          |          |          |
| Output     | : vehDrv_trqE | coTracMax_ma     | p, [-],""   |          |          |          |          |          |          |          |          |          |          |
|            |               |                  | ļ           |          |          | I        | l        |          |          |          |          |          |          |
| 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         | Add Calibra      | ations      | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    |
| 0.100      | -445.000      | Delete           | D.L.        |          | 437.000  | 435.000  | 433.000  | 431.000  | 429.000  | 427.000  | 425.000  | 423.000  | 421.000  |
| 0.200      | -465.000      | Delete           |             | 459.000  | 457.000  | 455.000  | 453.000  | 451.000  | 449.000  | 447.000  | 445.000  | 443.000  | 441.000  |
| 0.300      | -575.000      | Import           |             | 560.000  | 555.000  | 550.000  | 545.000  | 540.000  | 535.000  | 530.000  | 525.000  | 520.000  | 515.000  |
| 0.400      | -620.000      | Export           |             | 611.000  | 608.000  | 605.000  | 602.000  | 599.000  | 596.000  | 593.000  | 590.000  | 587.000  | 584.000  |
| 0.500      | -680.000      | Canu             | Conv        |          | 676.000  | 675.000  | 674.000  | 673.000  | 672.000  | 671.000  | 670.000  | 669.000  | 668.000  |
| 0.600      | -790.000      | Сору             |             | 781.000  | 778.000  | 775.000  | 772.000  | 769.000  | 766.000  | 763.000  | 760.000  | 757.000  | 754.000  |
| 0.700      | -960.000      | Paste            |             | 954.000  | 952.000  | 950.000  | 948.000  | 946.000  | 944.000  | 942.000  | 940.000  | 938.000  | 936.000  |
| 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 | 1068.000 |
| 0.900      | -1380.000     | Change Alia      | 26          | 1374.000 | 1372.000 | 1370.000 | 1368.000 | 1366.000 | 1364.000 | 1362.000 | 1360.000 | 1358.000 | 1356.000 |
| 0.950      | -1580.000     | Change And       |             | 1574.000 | 1572.000 | 1570.000 | 1568.000 | 1566.000 | 1564.000 | 1562.000 | 1560.000 | 1558.000 | 1556.000 |
| 1.000      | -1900.000     | Decimals D       | isplay      | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 |
|            |               | 2D View          |             |          |          |          |          |          |          |          |          |          |          |
|            |               | 3D View          |             |          |          |          |          |          |          |          |          |          |          |
|            |               | Fit Window       | r           |          |          |          |          |          |          |          |          |          |          |
|            |               | Fit Grid         |             |          |          |          |          |          |          |          |          |          |          |
| •          |               | Variable Pro     | operties    |          |          |          |          |          |          |          |          |          | Þ        |
| vehDrv_tr  | qEcoTracMa    | Window Pro       | operties    |          |          |          |          |          |          |          |          |          |          |

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

| 👸 Calibrat  | tion             |                |             |          |                  |           |          |          |          |          |          |          |          |
|-------------|------------------|----------------|-------------|----------|------------------|-----------|----------|----------|----------|----------|----------|----------|----------|
| + 0.001     | - *              | 1 /            | Selected =  |          | 1                |           |          |          |          |          |          |          |          |
| Input-X: ve | hDrv linspd.     | [-],"" Input-Y | vehDrv pct, | -1.""    | <u> </u>         |           |          |          |          |          |          |          |          |
| Output:     | vehDrv_trqEc     | coTracMax_ma   | р, [-],""   |          |                  |           |          |          |          |          |          |          |          |
|             |                  |                |             |          |                  |           |          |          |          |          |          |          |          |
| 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    | Add Caliba       |           |          | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    |
| 0.100       | -445.000         | -443.000       | 441.000     | 439.000  | Add Calibrations |           | 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  | inport           |           | 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           |           | 674.000  | 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 | 1068.000 |
| 0.900       | -1380.000        | -1378.000      | 1376.000    | 1374.000 |                  |           | 1368.000 | 1366.000 | 1364.000 | 1362.000 | 1360.000 | 1358.000 | 1356.000 |
| 0.950       | -1580.000        | -1578.000      | 1576.000    | 1574.000 | Change Al        | ias       | 1568.000 | 1566.000 | 1564.000 | 1562.000 | 1560.000 | 1558.000 | 1556.000 |
| 1.000       | -1900.000        | -1900.000      | 1900.000    | 1900.000 | Decimals [       | Display   | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 | 1900.000 |
|             |                  |                |             |          | 2D View          |           |          |          |          |          |          |          |          |
|             |                  |                |             |          | 3D View          |           |          |          |          |          |          |          |          |
|             |                  |                |             |          | Fit Window       |           |          |          |          |          |          |          |          |
|             |                  |                |             |          | The William      | •         |          |          |          |          |          |          |          |
|             |                  |                |             |          | Fit Grid         |           |          |          |          |          |          |          |          |
| 4           |                  |                |             |          | Variable Pr      | operties  |          |          |          |          |          |          | •        |
| vehDry tr   | EcoTracMax       | man            |             |          | Window P         | roperties |          |          |          |          |          |          |          |
|             | queen activitat_ |                |             | L,       |                  |           |          |          |          |          |          |          |          |



You can see the values of cells are changed.

| 😽 Calibra  | tion          |                |             |           |          |          |          |          |          |          |          |          |          |
|------------|---------------|----------------|-------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| + 0.001    | - *           | 1 /            | Selected =  | 1 5       | 1        |          |          |          |          |          |          |          |          |
| Input-X: v | ehDrv_linspd, | [-],"" Input-Y | vehDrv_pct, | -,""      |          |          |          |          |          |          |          |          |          |
| (?) Output | vehDrv_trqEc  | oTracMax ma    | p, [-],""   |           |          |          |          |          |          |          |          |          |          |
|            |               | ļ              | 1           |           | ļ        |          |          | ļ        |          |          | J        |          |          |
| 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  | 421.000  |
| 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  | 441.000  |
| 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  | 515.000  |
| 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  | 584.000  |
| 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  | 668.000  |
| 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  | 754.000  |
| 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  | 936.000  |
| 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 | 1068.000 |
| 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 | 1356.000 |
| 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 | 1556.000 |
| 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 | 1900.000 |
|            |               |                |             | 2         |          |          |          |          |          |          |          |          |          |
|            |               |                |             |           |          |          |          |          |          |          |          |          |          |
|            |               |                |             |           |          |          |          |          |          |          |          |          |          |
|            |               |                |             |           |          |          |          |          |          |          |          |          |          |
|            |               |                |             |           |          |          |          |          |          |          |          |          |          |
| 1          |               |                |             |           |          |          |          |          |          |          |          |          | •        |
| rehDar te  |               |                |             |           |          |          |          |          |          |          |          |          |          |
| venDrv_tr  | qr.colracMax_ | map            |             |           |          |          |          |          |          |          |          |          |          |

#### 5.3.9 Highlight of table cells

When you tune the tables on the fly or you want to know which cell of tables is used, so we add the highlight function, when you add the Input-X and Input-Y variable in measured variables, the cell that used will be highlight.

| 😽 Calibration              |                                       |            |             |             | 🖸 😽 Measurements |   |          |      |       |      |      |   |   |
|----------------------------|---------------------------------------|------------|-------------|-------------|------------------|---|----------|------|-------|------|------|---|---|
| + 0.001 _ *                | 1 /                                   | Selected = | 1           | <u>6</u>    |                  | Г | Alias    | Name | Value | Unit | Rate | Т |   |
| Input: vehl_stLimp, [-],"" |                                       | 0          | vehl stLimp | vehl stLimp | 0                |   | 20ms     |      |       |      |      |   |   |
| Output: drv_linspdLim      | Output: drv_linspdLimpSt1_cur, [-],"" |            |             |             |                  |   |          |      |       | _    |      |   | - |
|                            |                                       |            |             |             |                  |   | <u> </u> |      |       |      |      |   |   |
| 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    |                                       |            |             |             |                  |   |          |      |       |      |      |   |   |

**Note**: If the Input variable of table is not measured, the highlight will be disabled.

#### 5.3.10 EcoCAN

This software EcoCAN is used for CAN bus monitoring, recording CAN data and generating M file(The M file is used for ecocoder\_sfun\_can\_readmsg block and ecocoder\_sfun\_can\_sendmsg block in EcoCoder. If need, please refer to Chapter 4 in "EcoCoder Manual 2.5" for more details.).

#### **Open EcoCAN:**



#### Go to menu->Advanced->EcoCAN

| File Edit Settings | Run Variables Diagnostics | Advanced | Window | Help |
|--------------------|---------------------------|----------|--------|------|
| 😑 🗏 🖬 🗳 🕨          | Calibration Data Manag    | jer      | 1      |      |
|                    | Debug                     |          |        |      |
|                    | Get ECU Version           |          |        |      |
| EV EV              | , Info                    |          |        |      |
| E C                | Page Setting              |          |        |      |
|                    | Alias Manager             |          |        |      |
|                    | EcoCAN                    |          |        |      |
|                    | Auto-Tuning Settings      |          |        |      |
|                    | Read Computer NO.         |          |        |      |
|                    |                           |          | ,      |      |
| r                  |                           |          |        |      |
| EcoCAN v1.8        | - and                     |          |        |      |
| ☆ いち ● ■           |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |
|                    |                           |          |        |      |

#### Open .dbc file:

Click the icon to open a .dbc file. On the opened window, select a .dbc file, then click the button "Open". Shown as below:





| E Open DBC File                  | -      | And Address                | -                                  |                            |             |                 | x           |  |  |  |
|----------------------------------|--------|----------------------------|------------------------------------|----------------------------|-------------|-----------------|-------------|--|--|--|
| Com V Com                        | puter  | Local Disk (C:)     EcoCAL | -                                  | • 🐓 Search EcoC            | AL          |                 | ٩           |  |  |  |
| Organize 👻 New f                 | folder | ,                          |                                    |                            | -           |                 | 0           |  |  |  |
|                                  | *      | Name                       | Date modified                      | Туре                       | Size        |                 |             |  |  |  |
| Cibraries                        |        |                            |                                    |                            | HelpDoc     | 2017/8/22 11:38 | File folder |  |  |  |
| Music                            |        |                            | Picture                            | 2017/8/22 11:38            | File folder |                 |             |  |  |  |
| Subversion                       | =      | record Uninstall           | 2017/8/22 11:40<br>2017/8/22 11:38 | File folder<br>File folder |             |                 |             |  |  |  |
| Videos                           |        | 🔁 EV-Demo.dbc              | 2016/7/29 10:08                    | Microsoft Visual F         |             | 34 KB           |             |  |  |  |
| 🔞 Homegroup                      |        |                            |                                    |                            |             |                 |             |  |  |  |
| I도 Computer<br>실 Local Disk (C:) | -      |                            |                                    |                            |             |                 |             |  |  |  |
| Fi                               | ile na | me: EV-Demo.dbc            |                                    | ▼ DBC(*.dbc) Open          | <b>-</b>    | Cancel          | •           |  |  |  |

When the EcoCAN has loaded a .dbc file, it will like this:

| EcoCAN v1.8   |             |                 |             |           |                    |          |          |              |         | • X |
|---|-------------|-----------------|-------------|-----------|--------------------|----------|----------|--------------|---------|-----|
| 😑 🎘 🖆 🔹 🖡   |             |                 |             |           |                    |          |          |              |         |     |
| ≡ ListView  |             |                 |             |           |                    |          |          |              |         | • 💌 |
| Na Network Nodes  | ame Phy     | Value Hex Value | Start Bit I | ength Byt | e Order Value Type | Factor 0 | lffset M | ax Value Min | Value U | nit |
| Te:   | est_U8 ·    |                 | 40          | 8 Inte    | Unsigned           | 5        | -10      | -10          | -137.5  |     |
| I I I I I I I I I I I I I I I I I I I   | est_S16 ·   |                 | 48          | 16 Inte   | l Signed           | 5        | 0        | 0            | -9      |     |
| Test_S_2  | est_S24 ·   | -               | 16          | 24 Inte   | l Signed           | 2        | 1        | 0            | 0       |     |
| HCU_COMM Te   | est_512 -   | •               | 0           | 12 Inte   | l Signed           | .5       | 1        | 0            | 0       |     |
| HCU_BMS_0   |             |                 |             |           |                    |          |          |              |         |     |
| E BMS   |             |                 |             |           |                    |          |          |              |         |     |
|   |             |                 |             |           |                    |          |          |              |         |     |
|   |             |                 |             |           |                    |          |          |              |         |     |
|   |             |                 |             |           |                    |          |          |              |         |     |
|   |             |                 |             |           |                    |          |          |              |         |     |
| I → III |             |                 |             |           |                    |          |          |              |         |     |
|   |             |                 |             |           |                    |          |          |              |         |     |
|   |             |                 |             |           |                    |          |          |              |         |     |
|   | L:\EcoUAL\E | V_Demo.dbc      |             |           |                    |          |          |              |         | //  |

#### Set up device information:

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:



|                                | ×   |
|--------------------------------|---|
| Select the communication mode. | CAN Settings<br>Device Type Kvaser •<br>Device Index 0 •<br>Channel NO. 1 •<br>Baud Rate 500kbs • |

The EcoCAN window will show the device which you chose.



**Open CAN device:** 

Click the icon  $\stackrel{\textcircled{loc}}{=}$  to open device.





If open successfully, the status bar will show green light.

| BMS<br>⊕ MCU    |                       |
|-----------------|-----------------------|
| Kvaser,1,500kbs | C:\EcoCAL\EV_Demo.dbc |

#### Monitor CAN bus:

When connect successfully and the CAN device has received data, the software interface will show the values of the variables.

| EcoCAN v1.8       |                  |           |               |               | _          | _      | -      |           |           |      |
|-------------------|------------------|-----------|---------------|---------------|------------|--------|--------|-----------|-----------|------|
| 🤐 🎘 🖆 🗕 🖬         |                  |           |               |               |            |        |        |           |           |      |
| i≡ ListView       |                  |           |               |               |            |        |        |           | _         |      |
| Network Nodes     | ne PhyValue      | Hex Value | tart Bit Leng | th Byte Order | Value Type | Factor | Offset | Max Value | Min Value | Unit |
| E Vector_XXX Dem  | nand_Sp -15000   | 0         | 56            | 16 Motorola   | Unsigned   | 1      | -15000 | 0         | 0         |      |
| HCU Dem           | nand_Tc -5000    | 0         | 40            | 14 Motorola   | Unsigned   | 1      | -5000  | 0         | 0         |      |
| Test_S_2 Fault    | ltReset 0        | 0         | 39            | 1 Motorola    | Unsigned   | 1      | 0      | 0         | 0         |      |
| HCU_COMN Dem      | nand_Lir 0       | 0         | 38            | 1 Motorola    | Unsigned   | 1      | 0      | 0         | 0         |      |
| HCU BMS 0 Dem     | nand_Lir 5128    | 1282      | 24            | 12 Motorola   | Unsigned   | 4      | 0      | 0         | 0         |      |
| - Dem             | nand_Lir 76      | 19        | 20            | 12 Motorola   | Unsigned   | 4      | 0      | 0         | 0         |      |
| Live              | e_Counte 0       | 0         | 4             | 4 Motorola    | Unsigned   | 1      | 0      | 0         | 0         |      |
| Cont              | trol_Moc 0       | 0         | 1             | 3 Motorola    | Unsigned   | 1      | 0      | 0         | 0         |      |
| MCL               | J_Enabl 1        | 1         | 0             | 1 Motorola    | Unsigned   | 1      | 0      | 0         | 0         |      |
|                   |                  |           |               |               |            |        |        |           |           |      |
|                   |                  |           |               |               |            |        |        |           |           |      |
|                   |                  |           |               |               |            |        |        |           |           |      |
|                   |                  |           |               |               |            |        |        |           |           |      |
| Kusser 1 500kba   |                  | a dha     |               |               |            |        |        |           |           |      |
| Kvaser, 1, SUUKDS | C:\ECOUAL\EV_Den | 10. dDC   |               |               |            |        |        |           |           |      |

#### **Record CAN data:**

1) Click the icon 📍 to start record.





| EcoCAN v1.8     |             |            |           |           |        | 11          |            |        | -      |           |           | • ×  |
|-----------------|-------------|------------|-----------|-----------|--------|-------------|------------|--------|--------|-----------|-----------|------|
| 🕘 🎘 🖆 🗕 🛛       |             |            |           |           |        |             |            |        |        |           |           |      |
| ≡ ListView      |             |            |           |           |        |             |            |        |        |           | -         | • ×  |
| ⊡ Network Nodes | Name        | Phy Value  | Hex Value | Start Bit | Length | Byte Order  | Value Type | Factor | Offset | Max Value | Min Value | Unit |
| Wector_XXX      | Demand Sp   | -15000     | 0         | 56        |        | 16 Motorola | Unsigned   |        | -15000 | 0         | 0         |      |
| HCU             | Demand Tc   | -5000      | 0         | 40        |        | 14 Motorola | Unsigned   |        | -5000  | 0         | 0         |      |
| Test_S_2        | FaultReset  | 0          | 0         | 39        |        | 1 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |      |
| HCU COMN        | Demand_Lir  | 0          | 0         | 38        |        | 1 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |      |
| HCU BMS 0       | Demand_Lir  | 5128       | 1282      | 24        |        | 12 Motorola | Unsigned   |        | 4 0    | 0         | 0         |      |
| BMS             | Demand_Lir  | 76         | 19        | 20        |        | 12 Motorola | Unsigned   | 4      | 4 0    | 0         | 0         |      |
| MCU             | Live_Counte | 0          | 0         | 4         |        | 4 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |      |
| +               | Control_Moc | 0          | 0         | 1         |        | 3 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |      |
|                 | MCU_Enabl   | 1          | 1         | 0         |        | 1 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |      |
| <               |             |            |           |           |        |             |            |        |        |           |           |      |
|                 |             |            |           |           |        |             |            |        |        |           |           |      |
| Start Record    | C:\Ecol     | CAL\EV_Dem | io.dbc    |           |        |             |            |        |        |           |           |      |

2) Click the icon **•** to stop record.



| EcoCAN v1.8     |             |            | _         |           |        |             |            |        |        |           |           | • <b>X</b> |
|-----------------|-------------|------------|-----------|-----------|--------|-------------|------------|--------|--------|-----------|-----------|------------|
| ڬ 🎘 🖆 🔹 🔳       |             |            |           |           |        |             |            |        |        |           |           |            |
| ≔ ListView      |             |            |           |           |        |             |            |        |        |           |           |            |
| □ Network Nodes | Name        | Phy Value  | Hex Value | Start Bit | Length | Byte Order  | Value Type | Factor | Offset | Max Value | Min Value | Unit       |
| Wector_XXX      | Demand_Sp   | -15000     | 0         | 56        |        | 16 Motorola | Unsigned   |        | .15000 | 0         | 0         |            |
| HCU             | Demand_Tc   | -5000      | 0         | 40        |        | 14 Motorola | Unsigned   |        | -5000  | 0         | 0         |            |
| Test_S_2        | FaultReset  | 0          | 0         | 39        |        | 1 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |            |
| HCU COMN        | Demand_Lir  | 0          | 0         | 38        |        | 1 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |            |
| HCU BMS 0       | Demand_Lir  | 5128       | 1282      | 24        |        | 12 Motorola | Unsigned   |        | 4 0    | 0         | 0         |            |
| = =             | Demand_Lir  | 76         | 19        | 20        |        | 12 Motorola | Unsigned   | -      | 4 0    | 0         | 0         |            |
| MCU             | Live_Counte | 0          | 0         | 4         |        | 4 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |            |
| HILLO           | Control_Moc | 0          | 0         | 1         |        | 3 Motorola  | Unsigned   | -      | 1 0    | 0         | 0         |            |
|                 | MCU_Enabl   | 1          | 1         | 0         |        | 1 Motorola  | Unsigned   |        | 1 0    | 0         | 0         |            |
| < >             |             |            |           |           |        |             |            |        |        |           |           |            |
| Start Record    | C:\Eco      | CAL\EV_Dem | io.dbc    |           |        |             |            |        |        |           |           |            |

3) The record file is saved in the "record" folder.



|                       | And Personal Property in which the  |                 |                 |
|-----------------------|-------------------------------------|-----------------|-----------------|
| CO V V EcoCAL         | ▶ record ▶ 2017-9-13-11-17-6-141    | ✓ 4y Search     | h 2017-9-13-1 🔎 |
| Organize 👻 Include in | library 👻 Share with 👻 Burn         | New folder      | • 🔟 🔞           |
| ☆ Favorites           | Name                                | Date modified   | Туре            |
| 📃 Desktop 🛛 🗉         | 🗟 AllData-2017-9-13-11-17-6-187.csv | 2017/9/13 11:17 | Microsoft Excel |
| Becent Places         |                                     |                 |                 |
| 📜 Libraries           |                                     |                 |                 |
| Documents             |                                     |                 |                 |
|                       |                                     |                 | ۱.              |
| 1 item                |                                     |                 |                 |

#### Generate M file:

1) Click the icon 📕 to generate M file.



2) In the opened window, give the M file a name, then click the button "Save".

| ≡ Save            | 012                               | 5.0 1           | lei l       | l         | X |
|-------------------|-----------------------------------|-----------------|-------------|-----------|---|
| Comp              | uter 🕨 Local Disk (C:) 🕨 EcoCAL 🕨 | _               | ✓ 4 Search  | EcoCAL    | ٩ |
| Organize 🔻 New fo | older                             |                 |             | !≡ ▼      | 0 |
| ☆ Favorites       | Name                              | Date modified   | Туре        | Size      |   |
| 🧮 Desktop         | 퉬 HelpDoc                         | 2017/8/22 11:38 | File folder |           |   |
| 🚺 Downloads 🗏     | 퉬 kerneldlis                      | 2017/8/22 11:38 | File folder |           |   |
| 🖳 Recent Places   | 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)                             |                 |             |           | • |
| ) Hide Folders    |                                   |                 | Sav         | /e Cancel |   |

ECOTRONS

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

|                     | inter 1 1                                     |                 |                    |        |
|---------------------|---|-----------------|--------------------|--------|
| Comp                | uter 🕨 Local Disk (C:) 🕨 EcoCAL 🕨             |                 | ✓ 4 Search EcoCA   | AL 🔎   |
| Organize 🔻 👩 Op     | en Burn New folder                            |                 |                    |        |
| ☆ Favorites         | Name  | Date modified   | Туре               | Size 🔺 |
| 🧮 Desktop           | \mu HelpDoc                                   | 2017/8/22 11:38 | File folder        |        |
| 🐌 Downloads         | 📔 kerneldlis                                  | 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        |        |
| 肩 Libraries 🗧       | Uninstall                                     | 2017/8/22 11:38 | File folder        |        |
| Documents           | 1.m   | 2017/9/13 11:22 | M File             | 23     |
| J Music             | BitOpt.dll                                    | 2010/3/15 11:08 | Application extens | 22     |
| Pictures            | 🚳 Comm.dll                                    | 2011/4/20 9:53  | Application extens | 26     |
| Subversion          | C Compare.exe                                 | 2016/9/23 11:39 | Application        | 78     |
| 😸 Videos            | Compare.txt                                   | 2017/8/22 14:43 | Text Document      |        |
|                     | ScontrolCAN.dll                               | 2014/5/29 9:20  | Application extens | 5      |
| 🔞 Homegroup         | current_config.xml                            | 2017/8/23 11:38 | BaiduBrowser HT    | 3      |
|                     | Current_VariblesAlias.xml                     | 2017/8/23 11:38 | BaiduBrowser HT    | 13     |
| 👰 Computer          | 🖉 Demo.A2L                                    | 2015/6/17 16:10 | A2L File           | 1,07 👻 |
| 🚢 Local Disk (C:) 🔻 | •   | III             |                    | F.     |
| 1.m (               | Date modified: 2017/9/13 11:22                |                 |                    |        |
| Mile                | 5128: 238 NB<br>Date created: 2017/9/13 11:22 |                 |                    |        |

# Chapter 6 Exit or Uninstall the 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 C                      | CAL         |       |           | Ctrl+S    |  |  |  |  |  |
|      | Save C                      | CAL as      |       |           |           |  |  |  |  |  |
|      | Save C                      | Configurati |       | Ctrl+F2   |           |  |  |  |  |  |
|      | Save C                      | Configurati | on as |           |           |  |  |  |  |  |
|      | Load (                      | Configurat  | ion   |           | 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       |             |                 |                         |  |           | 10            | 0 X         |
|--|--------------------------|------------------------|---------------------|-----------------------------|--------------------------------|--------------|----------------------|-------------|-----------------|-------------------------|--|-----------|---------------|-------------|
| Edit Settings Run Varial   | bles Diagnostics         | Advanced Window H      | elp                 |                             |                                |              |                      |             |                 |                         |  |           |               | ٨           |
| :  | 0                        |                        |                     |                             |                                |              |                      |             |                 |                         |  |           |               | <u> </u>    |
| Project  |                          | To Scope               |                     |                             |                                |              |                      |             | to Measurements |                         |  |           | -             | - 9 %       |
| EV_Demo.a2   | -                        | 1.00                   |                     |                             |                                | y Name       |                      |             | A               | Alias                   | Name                                     | Value     | Unit          | Rate        |
| Collipsotion   | ai                       |                        |                     |                             |                                | y pwtr       | Bmsc_ligReconnReq    | pc          | 🤨 p             | wrtmBmsc_flgDisReq      | pwrtmBmsc_flgDisReq                      |           |               | 20ms        |
| Caloradon  |                          | 0.80 -                 |                     |                             |                                |              |                      |             | P P             | wrtmBmsc_flgReconnReqc  | pwrtmBmsc_flgReconnReqc                  | -         |               | 20ms        |
|  |                          |                        |                     |                             |                                | 2 V =·[]     | iomsc_st             |             | p p             | wrtmBmscPack_flgConnRe  | pwrtmbmsc_st<br>pwrtmBmscPack_flgConnReg | -         |               | 20ms        |
|  |                          |                        |                     |                             |                                | 3 V pwth     | BmscPack_figConnR    | leq         | e p             | wrtmBmscPack1 flgConn   | pwrtmBmscPack1 flgConn                   | -         |               | 20ms        |
|  |                          | 0.60 -                 |                     |                             |                                | [ ]          | Proceed in the Comp  |             | 😯 p             | wrtmBmsl_flgChgrDisReq  | pwrtmBms1_flgChgrDisReq                  |           |               | 20ms        |
|  |                          |                        |                     |                             |                                | 4 ∨ =·[]     | ionitor eost_ingconn |             | 😯 p             | wrtmBmsl_flgDerLdDisReq | pwrtmBmsl_flgDerLdDisReq                 |           |               | 20ms        |
|  |                          | 0.40 -                 |                     |                             |                                | 5 V peetr    | Bmsl_flgChgrDisReq   |             | 🤁 p             | wrtmBmsl_flgDerLdReq    | pwrtmBmsl_flgDerLdReq                    |           |               | 20ms        |
| 2017/8/22 16:37:06:www.ecotro                                      | ns.com                   | ×                      |                     |                             |                                |              | Brost Balled dDisBea |             |                 |                         |  |           |               |             |
| 2017/8/22 16:37:06:Converting<br>2017/8/22 16:37:07:Parsing the    | the file                 |                        |                     |                             |                                | e v = · [ ]  |                      | 4           |                 |                         |  |           |               |             |
| 2017/8/22 16:37:07:Linking the                                     | file                     | 0.20 -                 |                     |                             |                                | 7 ∨ pwitr    | nBmsl_figDerLdReq    |             |                 |                         |  |           |               |             |
| 2017/8/22 16:37:07:File loaded :<br>2017/8/22 16:37:07:Load config | successfully!            |                        |                     |                             |                                |              |                      |             |                 |                         |  |           |               |             |
| successfully! File path: C:\Eco                                    | CAL                      | 0.00                   |                     |                             |                                |              |                      |             |                 | 1                       |  |           |               |             |
| current_config.xml<br>2017/8/22.16:37:07:The license               | file is                  | 0.0                    | 2.0                 | 4.0 6.0                     | 8.0 1                          | ao I         |                      |             | <u> </u>        | _                       |  |           |               | -           |
| successfully resolved.   |                          |                        |                     |                             |                                | _            |                      |             |                 |                         |  |           |               |             |
|  |                          | Calibration            |                     |                             |                                |              |                      |             |                 |                         |  |           |               |             |
|  |                          | + 0.001                | + 1 /               | Selected = 1                |                                |              |                      |             |                 |                         |  |           |               |             |
|  |                          |                        |                     |                             | 7                              |              |                      |             |                 |                         |  |           |               |             |
|  |                          | Alias                  |                     | Name                        | V                              | alue         |                      |             | Unit            |                         |  |           |               |             |
|  |                          | esmcDcdc_flgF          | rcEn_val            | esmcDcdc_flgFrcEn_          | val 0                          |              |                      |             | -               |                         |  |           |               |             |
|  |                          | esmcDcdc_pwr           | Off_val             | esmcDcdc_pwrOff_v           | ral 0                          | .000         |                      |             | -               |                         |  |           |               |             |
|  |                          | esmcDcdc_pwr           | On_val              | esmcDcdc_pwrOn_v            | al 0                           | .000         |                      |             | -               |                         |  |           |               |             |
|  |                          | esmcDcdc_tRe           | Start_val           | esmcDcdc_tReStart_          | val 0                          | .000         |                      |             | -               |                         |  |           |               |             |
|  |                          | esmcDcdc_volt          | BattLoIhr_Val       | esmcDcdc_voltBattL          | olhr_val 1<br>MinLin Adi val 1 | 1.000 000    |                      |             | -               |                         |  |           |               |             |
|  |                          | with building w        | II torewini Lini Ao | uj_vai pwidiibiiisi_pwirtoi | civinican/rog_var_i            | 1000.000     |                      |             |                 |                         |  |           |               |             |
|  |                          |                        |                     |                             |                                |              |                      |             |                 |                         |  |           |               |             |
|  |                          |                        |                     |                             |                                |              |                      |             |                 |                         |  |           |               |             |
|  |                          |                        |                     |                             |                                |              |                      |             |                 |                         |  |           |               |             |
|  |                          |                        |                     |                             |                                |              |                      |             |                 |                         |  |           |               |             |
| 1  |                          |                        |                     |                             |                                |              |                      |             |                 |                         |  |           |               |             |
| 1  | 1                        |                        |                     |                             |                                | _            | III                  |             | _               | -                       |  | _         | _             |             |
| I basic setting Servo Motor  | Idle controls            | Global fuel enrichment | Start fuel          | After-start Warm-up Fuel    | Steady-State                   | Acceleration | Deceleration P       | Performance | ice WO          | OT Altitude Calibration | Advanced Tuning for injection            | 1 Advance | ed Tuning for | ignitic 4 🕨 |
| Disconnected The   | license file is successi | fully resolved.        |                     | Working Page: C:            | EcoCAL/EV Demo.                | cal          |                      |             |                 |                         |  |           | Activated     |             |

**Note**: If you have done some tuning and change, and you don't save it, the "Exit EcoCAL" warning window will pop-up, please choose "Yes" or "No" or "Cancel" based on your demand.

| Exit EcoCAL  |     |    | 8      |  |  |  |  |  |  |
|--|-----|----|--------|--|--|--|--|--|--|
| Do you want to save the calibration data before exit EcoCAL? Note: If you click NO, exit EcoCAL directly ! |     |    |        |  |  |  |  |  |  |
|  | Yes | No | Cancel |  |  |  |  |  |  |

### 6.2 Uninstall the EcoCAL

If you want to uninstall the EcoCAL, please click:

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

