

# VALCON EasyWriter Ver1.0E Manual

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HKS Co., Ltd.

## Revision History

Revision Date	Contents
2008/12/10	First Edition (Ver3-1.01)

### Warning

**VALCON can be operated with power supply only from USB connector.  
To prevent running out of battery of PC and short circuit or fire, disconnect USB connector when it is not needed.**

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## Introduction

Thank you for purchasing the HKS VALCON.

The VALCON EasyWriter is a data editing tool for the VALCON.

The VALCON data can be edited using this software.

Please read the following instructions carefully to understand the functions effectively and in a safe manner.

## Warnings for safety

Use the signals shown below to show the warning levels.

**⚠Caution** There may be risk of severe injury or death.

**⚠Warning** There may be risk of injury.  
There may be risk of damage or fire of vehicle.

**⚠Caution**

\*Do not attempt to tune on the street.

Always tune on a dyno.

**⚠Warning**

\*Be extremely careful not to input wrong values.

There is a risk of damaging the engine.

HKS will not be responsible for any damages.

\*The driver should not attempt to use the EasyWriter while driving.

There may be risk of causing an accident.

\*VALCON can be operated with power supply only from USB connector.

To prevent running out of battery of PC and short circuit or fire, disconnect USB connector when it is not needed.

## Software usage consent

This software is intended only for those who have accepted the terms and agreements. Read the following consent and proceed upon approval.

1. VALCON EasyWriter software requires a permit for usage
2. Copyright (Copyright is a property of HKS Co. Ltd.)
3. Conclusion, validity and termination of this software usage consent
  - 1) It is regarded that user agrees to this software usage consent when whole or any part of this software is saved on a storage device such as hard disc of PC. With agreement of user, this software usage consent is concluded and valid.
  - 2) User can terminate this software usage consent by deletion of all saved software.
  - 3) HKS Co., Ltd. has a right to terminate this software usage consent anytime by its own decision.
  - 4) User does not have any right to require any compensation or payment against HKS Co., Ltd. for termination of this software usage consent.
4. Reproduction and modification
  - 1) The VALCON EasyWriter disk and documents included are not to be reproduced (copied) or modified in any way.
  - 2) The user and/or any third party person(s) may not edit, change, disperse, or disassemble the program or hardware. Failure to comply will void all warranty claims.
  - 3) Reproduction of all or any part of this manual without permission from HKS Co., Ltd. is strongly prohibited unless stated by law.
5. Exemption

HKS Co., Ltd. will not be held responsible for any damages caused to the vehicle by use of this software. HKS Co. Ltd. cannot guarantee that this product will suit the users needs or guarantee that the program will not interrupt or cause an error.

HKS Co., Ltd. will not be held responsible for any damages inflicted directly or indirectly by use of this program. Also, HKS Co., Ltd. will not be held responsible for any conflict or dispute that may arise between the user and third party.

## System Requirements

- \* Pentium 200MHz or higher processor (Recommended: Pentium 3 or higher)
- \* Windows 2000, XP, Vista (Recommended: Windows XP)
- \* 32MB of RAM (1GB or higher for Windows Vista, 256MB or higher for others)
- \* 20MB or higher available hard disk space
- \* Internet connection (Only for download of software.)
- \* SVGA or higher video card
- \* Mouse or other pointing device
- \* USB Connector x 1

**\*\* Some laptops will not work even if it meets system requirements due to incompatibility.**

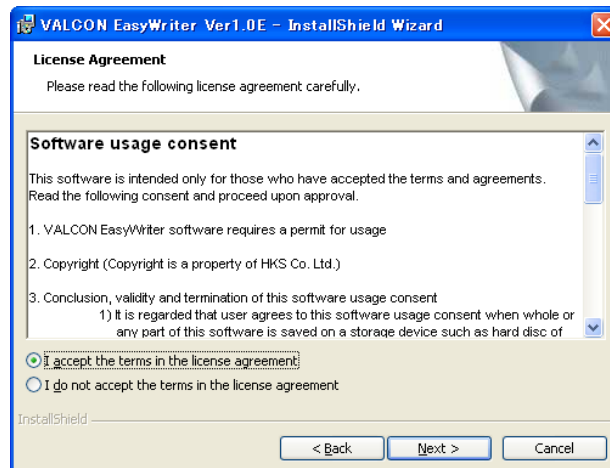
**\*\* Windows 2000, XP, Vista is a product of Microsoft Corporation.**

## 1. Installation

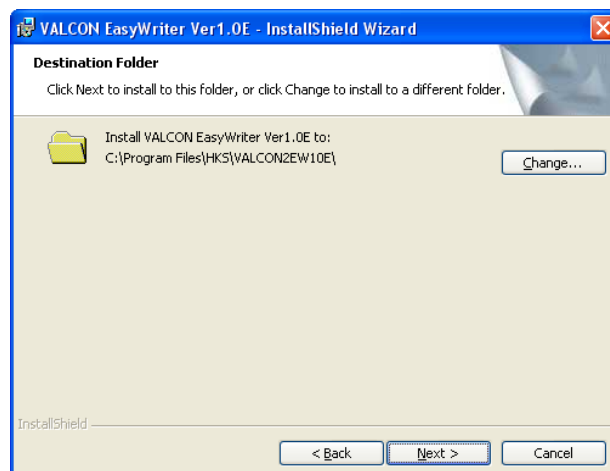
- (1) Download VALCON EasyWriter from the website of EasyWriter (<http://www.hks-power.co.jp/easywriter/en/>).
- (2) As the file is compressed, extract in any folder.
- (3) Double click the extracted file(Setup.exe) to start installer.  
Press "Next" to proceed.



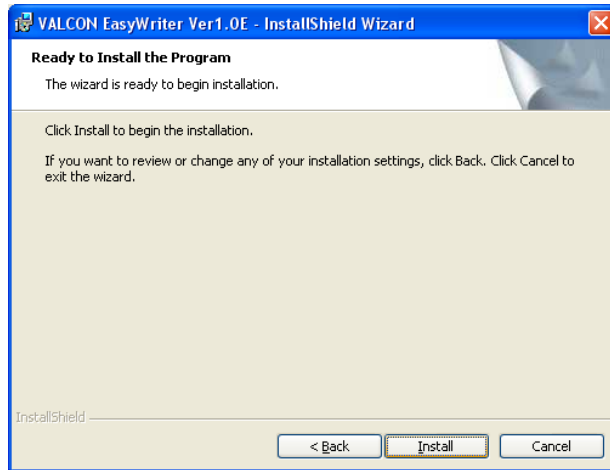
- (4) Read the software agreement and agree to proceed to the next step.



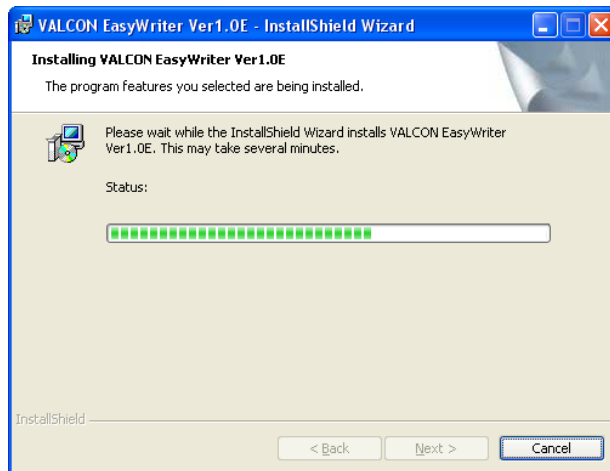
- (5) Select a folder to install to. If the default folder is used, press "Next".



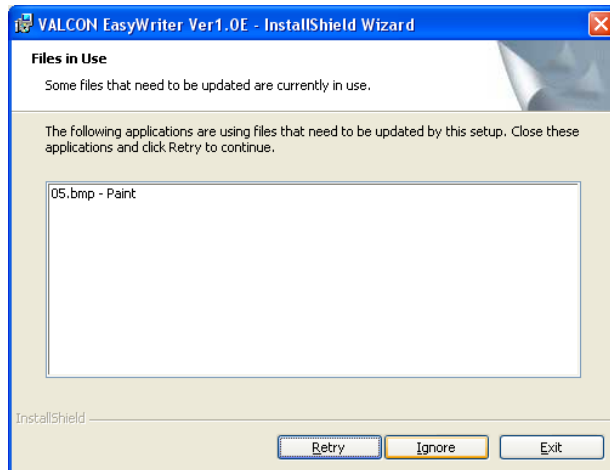
(6) Press "Install" to start installation.



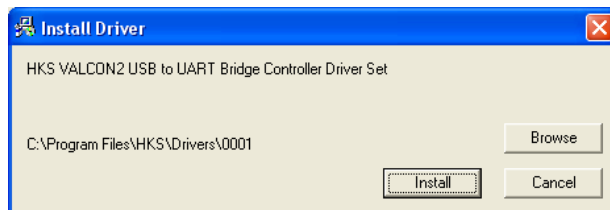
(7) During installation, the following screen appears.



(8) In case following message appears, press "Ignore" to proceed.



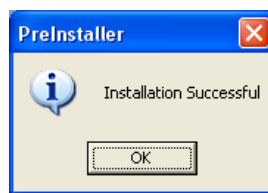
(9) After installation of EasyWriter, installer of USB driver will start.  
Press "Install".



(10) The following screen may appear twice. Press "Continue Anyway" for both of them.

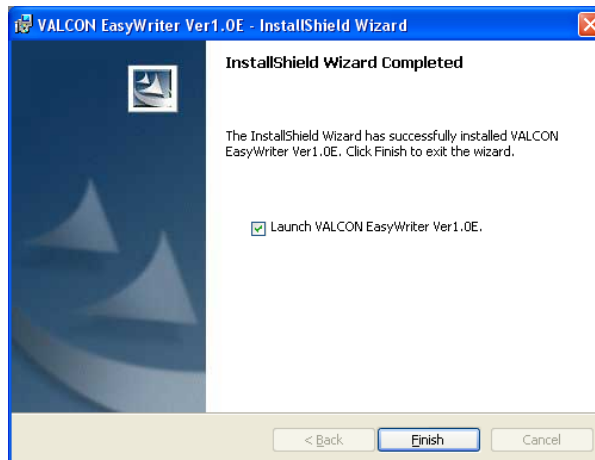


(11) When this message appears, installation of USB driver has completed. Press "OK".



(12) When all process has finished, following screen appears.

To start VALCON EasyWriter, check "Launch VALCON EasyWriter Ver 1.0E".  
Click "Finish" to complete the installation.



## 2. When VALCON unit is connected to PC for the first time.

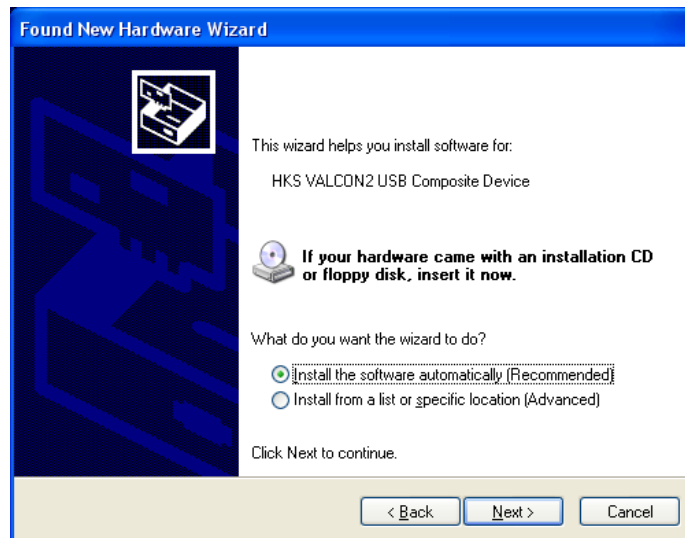
(1) When VALCON unit is connected to PC for the first time, following 2 messages appear and detection of USB driver starts.



(2) When the following window appears, select "No, not this time." and press "Next".



(3) At the following window, select "Install the software automatically." and press "Next".

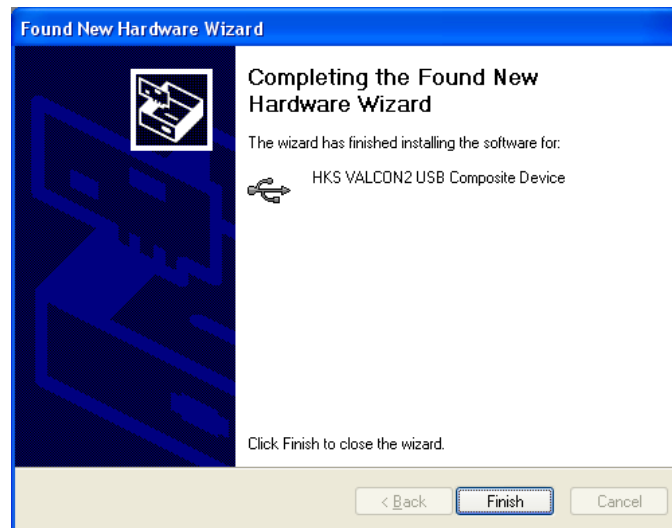


(4) As the following window appears, press "Continue Anyway".



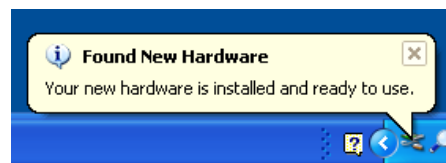


(5) When the following windows appears, press "Finish" to complete.



(6) After a while, there will be one more detection process of USB, do process of (1) - (5) one more time.

(7) After twice USB detection, the following message appears. Then, EasyWriter will be able to communicate with VALCON unit.



#### **Advice**

**"COM Port" Setting of EasyWriter is required to communicate with VALCON.**

**Connect PC and VALCON with a USB cable. Start EasyWriter and set "COM Port" in "OPTION" menu.**

**\* Only available port for connection at that moment will be shown.**

## **⚠ Warning**

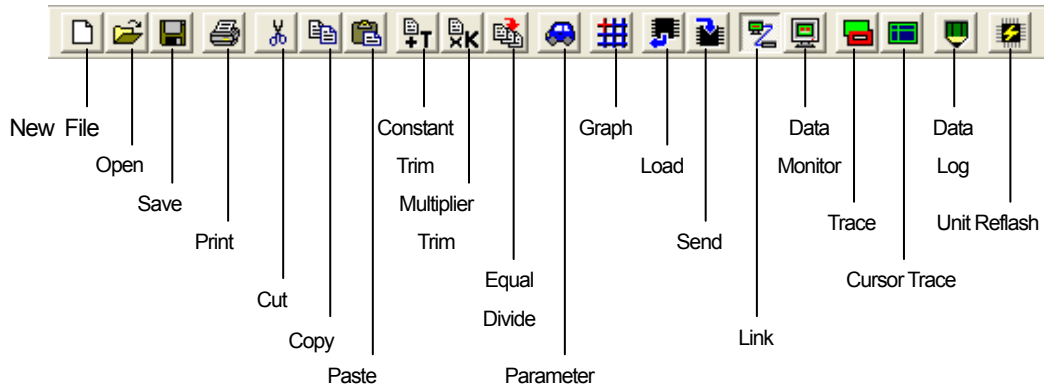
**VALCON can be operated with power supply only from USB connector.**

**To prevent running out of battery of PC, short circuit and fire, disconnect USB connector when it is not required.**

### 3. Icon

The main window will display at VALCON EasyWriter startup.

Below are functions of each icon.



### 4. File

#### 4-1. Create new data

Select "NEW FILE" to display a basic map window. When a new map is created, the all main map is set to 150 and all sub maps are set to 0 by default.

#### 4-2. Open file

Select "Open" to display a file selection dialog box.

The EasyWriter files have a file extension ".VT2".

Select file you want to open.

The map window will open when the file is selected.

#### 4-3. Save data

Select "Save As" to name and save data that is being edited.

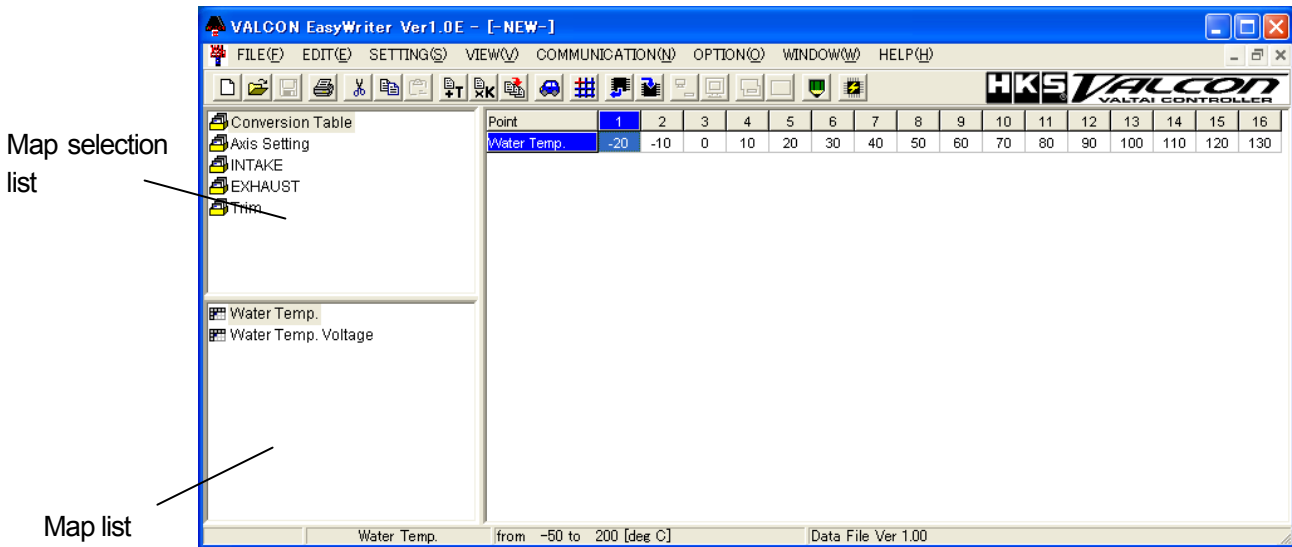
Select "Save" to save and replace data that is being edited.

#### 4-4. Print

Select "Print" to print the map on the screen.

## 5. Edit

Select "NEW FILE" or "Open" to display a map window.



### 5-1. Selecting a Map

Switch maps by selecting an item on the selection list or map list.

The light colored map is an invalid map. Change parameters to make it valid.

### 5-2. Editing a Map

Select a cell on the map to edit.

To select multiple cells, hold the left click at the starting point and drag the mouse over cells to edit.

This also can be done by moving the cursor while holding the SHIFT key.

Editing can be done only for the selected cells.

Press numerical keys to enter the value. If multi-cells are selected, the input values are entered to all cells.

Press "Page Up" or roll up with the mouse scroll to increase the value of the data selected.

Press "Page Down" or roll down with the mouse scroll to decrease the value of the data selected.

### 5-3. Edit Function



(1) "Undo" will undo the action that was just performed.

Data will be changed back to values when the map was selected. When data has been saved after editing, the data will be the saved data.

**Once another map is selected, "Undo" cannot be selected.**

(2) "Copy" will copy the selected area to the clip board.

(3) "Cut" will copy the selected area to the clip board and change that area to 0.

(4) "Paste" will focus on the top left cell that is selected and paste the data on the clip board.

(5) "Constant Trim" will add the input value to the value of the selected range.

(6) "Multiplier Trim" will multiply the input value to the value of the selected range.

(7) "Equal Divide" will average out the selected range by referring to the 4 neighboring cell values.

\* Right click on the map to display the same menu.

\* Edited values are shown in red.

**Advice** If the axis is changed, the map will automatically adjust to that axis.

## 6. Parameter Setting

### 6-1. BASIC

PARAMETER SETTING

BASIC | VALVE TIMING | OPTION | MEMO

Engine Maker (1) SUBARU Engine Type (2) EJ20(GRB)

Water Temperature Sensor (3) SUBARU1 Control Start Water Temperature (4) 60 [deg-C]

Pressure Sensor SUBARU3 External Signal Input Control (6) OFF

Pressure Conversion Parameter (5) X= 14 Y= 27 Z= -307

Throttle Parameter (7) CLOSE 0 [mV] SET OPEN 5000 [mV] SET

Camshaft Control

(8) Operation Map MAP1  IN  EX  High

Camshaft Changeover RPM Low->High 3000 [rpm] High->Low 2000 [rpm]

PRINT(P) OK CANCEL

**"Engine Maker", "Engine Type" and "Camshaft Control IN/EX/High" cannot be edited during communication with VALCON.**

**To change setting, disconnect communication. After setting, "Send Parameter" or "Send All Data" and reboot VALCON unit.**

#### **Advice**

**VALCON can be operated with power supply only from USB connection. Power will not be cut until USB connector is disconnected.**

(1) Engine Maker

Set Engine Maker of the vehicle.

(2) Engine Type

Set Engine Type of the vehicle.

(3) Water Temperature Sensor

Set water temperature sensor of the vehicle.

(4) Control Start Water Temperature

Set water temperature condition to start valve timing control by VALCON.

When temperature is below the value, stock ECU controls.

(5) Pressure Sensor/Pressure Conversion Parameter

Select a pressure sensor to use for VALCON.

When a pressure sensor is selected, Pressure Conversion parameter will be set automatically.

Set parameters that decides correlation of output voltage of pressure sensor and pressure.

Correlation of pressure and voltage can be shown with three parameters in the following calculation formula.

$$\text{Pressure(mmHg)} = \frac{X}{Y} \times \text{Voltage(mV)} + Z$$

(6) External Input Signal Control

Set to control valve timing with external input signal.

"IN" is for intake side. "EX" is for exhaust side. "IN+EX" controls both intake and exhaust sides with input signal.

(7) Throttle Parameter

Set the voltage output of the throttle sensor when the throttle is fully opened and fully closed.

If VALCON and EasyWriter are linked, voltage can be input with "SET" button.

## (8) Camshaft Control

Both intake and exhaust have 2 sets of main and sub maps.

Select "Map1" or "Map2" for control. Check camshaft for control.

Whether it is possible to control camshaft or not, depends on manufacturer of engine and the engine type.

### Changeover RPM

For camshaft that has high camshaft, set rpm to change to high camshaft.

Set 2 conditions for "Low -> High" and "High -> Low".

\* "Low -> High" needs to be larger value than "High -> Low".

## 6-2. VALVE TIMING

Section	Parameter	Value	Unit
INTAKE	Map Limitation - Most Retarded Angle (1)	150	[deg-CA]
	Map Limitation - Most Advanced Angle (2)	50	[deg-CA]
	Camshaft Output Limitation - Most Retarded Angle (3)	150	[deg-CA]
	Camshaft Output Limitation - Most Advanced Angle (4)	50	[deg-CA]
	High Camshaft Offset (5)	100	[deg-CA]
EXHAUST	Map Limitation - Most Retarded Angle (1)	150	[deg-CA]
	Map Limitation - Most Advanced Angle (2)	50	[deg-CA]
	Camshaft Output Limitation - Most Retarded Angle (3)	150	[deg-CA]
	Camshaft Output Limitation - Most Advanced Angle (4)	50	[deg-CA]
	High Camshaft Offset (5)	100	[deg-CA]

**Only camshaft that is selected in "Camshaft Control" of "BASIC" tab can be set.**

**\* It cannot be edited during communication with VALCON.**

**In order to change the setting, disconnect from VALCON. After setting, "Send Parameter" or "Send All Data" and reboot VALCON.**

### **Advice**

**VALCON can be operated with power supply only from USB connector. Power will not be cut until USB connector is disconnected.**

#### (1) Map Limitation - Most Retarded Angle

Set most retarded angle of maps for VALCON.

Setting range is from Most Advanced Angle to 150 degree.

#### (2) Map Limitation - Most Advanced Angle

Set most advanced angle of maps for VALCON.

Setting range is from 50 degree to Most Retarded Angle.

#### (3) Camshaft Output Limitation - Most Retarded Angle.

Set most retarded angle of emulated output signal for stock ECU.

Setting range is from Most Advanced Angle to 150 degree.

#### (4) Camshaft Output Limitation - Most Advanced Angle.

Set most advanced angle of emulated output signal for stock ECU.

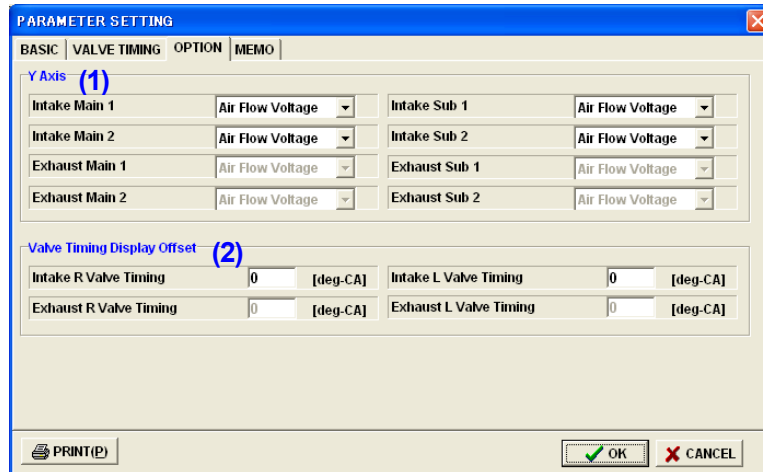
Setting range is from 50 degree to Most Retarded Angle.

#### (5) High Camshaft Offset

Set offset angle when camshaft is changed to high camshaft.

**\* It can be input only for vehicles with high camshaft changeover.**

### 6-3. OPTION



\* Only camshaft that is selected in "Camshaft Control" of "BASIC" tab can be set.

#### (1) Y Axis

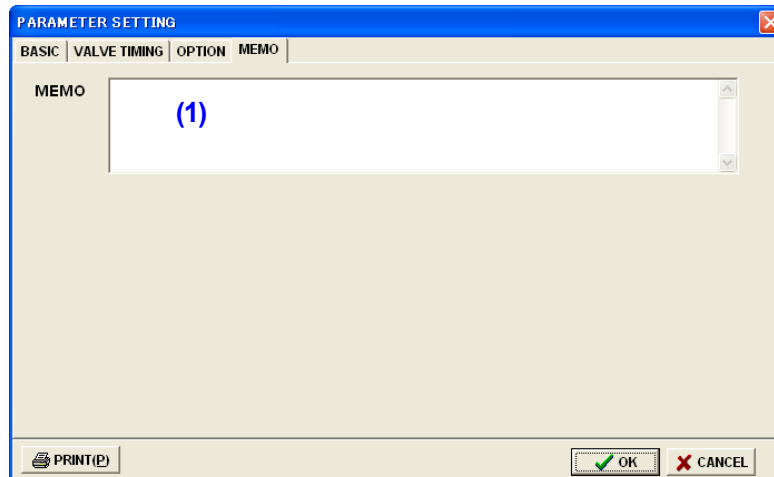
Select Y Axis for each map.

\* Unit of pressure sensor can be selected from Main Menu.

#### (2) Display Offset

For adjustment in case there is a gap of crankshaft angle between vehicle and EasyWriter.  
Setting range is -50 to 50 degree.

### 6-4. MEMO



#### (1) Memo

Can save up to a maximum of 48 characters.  
It is also recorded in VALCON unit.

## 7. Graph

### 7-1. Display Graph

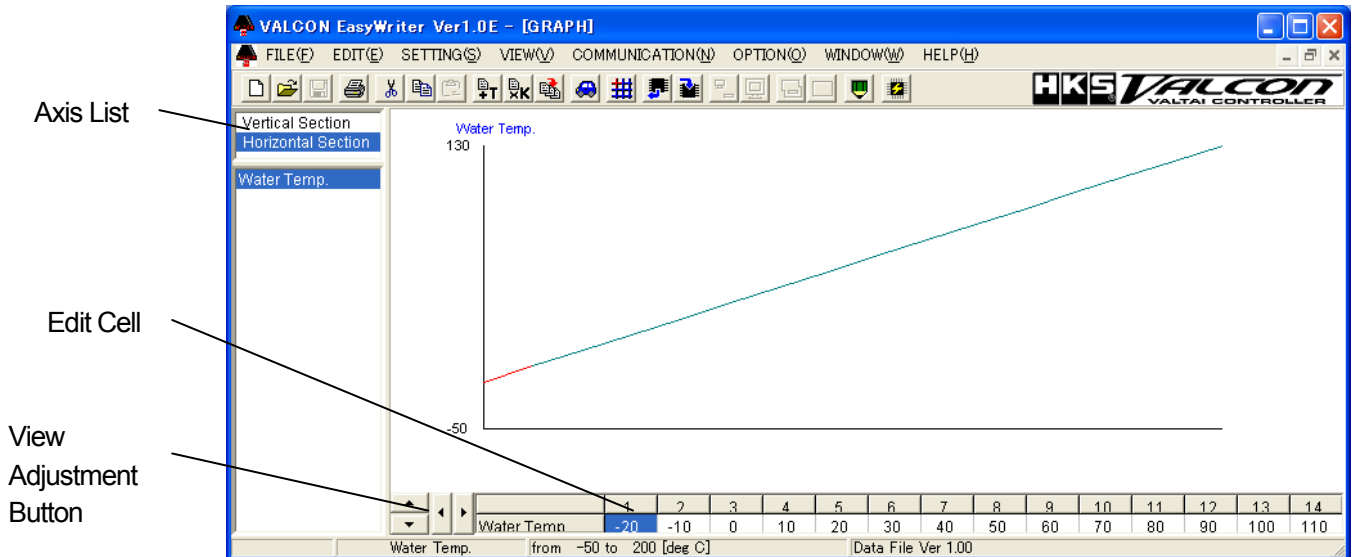
Select the "Graph" icon to display the graph window.

The graph window will always show the graph of the map.

The list on the left of the graph window is the axis of the map. The data of the axis will display on the bottom cell of the graph when an axis is selected from the list.

This cell can also be edited like the map edit.

Adjust the view angle using the 4 buttons on the bottom left of the window.



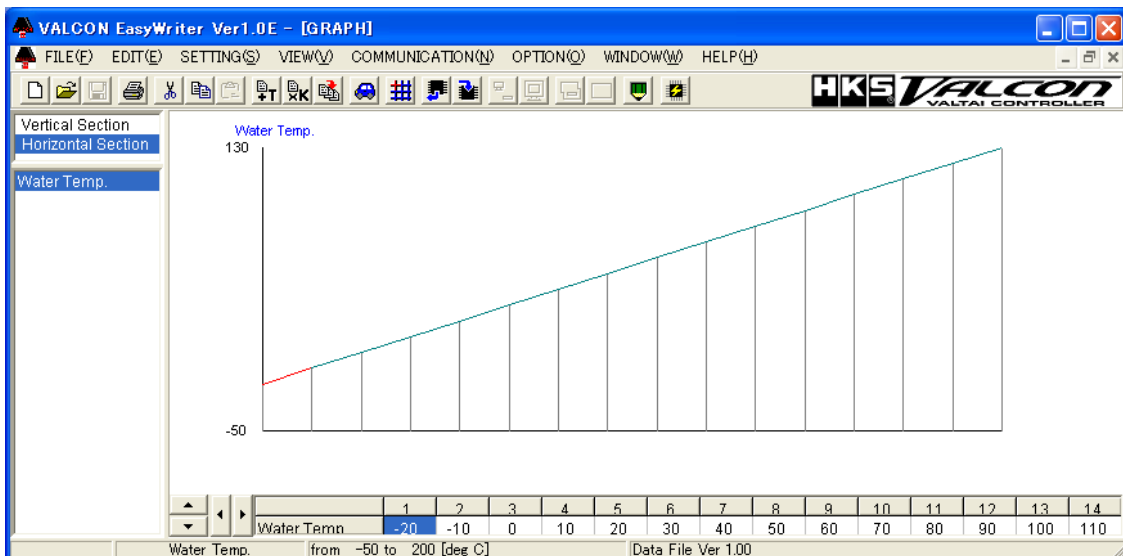
### 7-2. Graph Edit

Right click the graph to display a two dimensional view of the graph.

This graph will have the axis selected from the axis list.

Hit right click again for graph edit mode. Then use the left click to edit directly on the graph.

Hit right click once more to display a three dimensional view.



## **8. Communication**

### 8-1. Load All Data

Select "Load All Data" to load all maps and parameters stored on the VALCON to the EasyWriter.  
If a file is already open, a dialog will appear asking if you would like to save before closing.  
Select "Yes" to save or "No" not to save.  
After loading is complete, it will switch to link mode automatically.

### 8-2. Load Current Map

When " LOAD CURRENT MAP " is executed , only the map currently shown in EasyWriter will be loaded from VALCON unit.

### 8-3. Load Parameter

Select "Load Parameter" to load all parameter data from the VALCON.

### 8-4. Send All Data

Select "Send All Data" to send all map and parameter data edited from the EasyWriter.  
After sending is complete, it will switch to link mode automatically.

### 8-5. Send Current Map

When " SEND CURRENT MAP " is executed , only the map currently shown in EasyWriter will be sent to VALCON unit.

### 8-6. Send Parameter

Select "Send Parameter" to send all parameter data to the VALCON.

### 8-7. Protect

Protect is used to secure data of the main unit.

If "Protect" is properly set, a password is required to communicate with the VALCON.

Input the correct password which matches the password stored on the VALCON in order to communicate with the VALCON.

ON :Will set the protect on the VALCON.

A dialog box will appear twice to input password to avoid input error.

Type same password twice and hit OK.

OFF:Will cancel the protect on the VALCON.

A dialog box will appear so input the correct password and hit OK.

### 8-8. Reset

This function will reset all data including the VALCON protect setting.


All saved settings and data will be deleted as well.

After selecting RESET, EasyWriter will send all data to VALCON and reset the protect.

It is not possible to select RESET menu without data.



## 8-9. Data Monitor

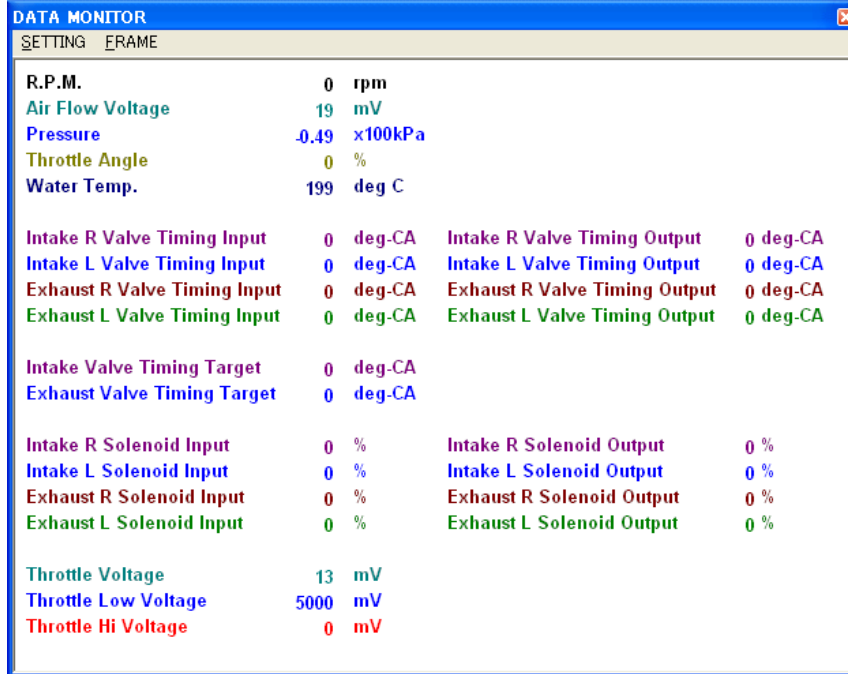
Press the "Data Monitor" icon to display a data monitor window which will monitor the input and output signals of the VALCON. 

The window size of the Data Monitor window can be adjusted.

Change font size using the "SETTING" - "FONT SIZE" menu.

If the "FRAME" - "SIZE" is changed to Auto, it will automatically change the window size according to the font.

It will remain the same size for the data monitor or the next time the program is ran.



DATA MONITOR				
SETTING		FRAME		
R.P.M.	0	rpm		
Air Flow Voltage	19	mV		
Pressure	-0.49	x100kPa		
Throttle Angle	0	%		
Water Temp.	199	deg C		
Intake R Valve Timing Input	0	deg-CA	Intake R Valve Timing Output	0 deg-CA
Intake L Valve Timing Input	0	deg-CA	Intake L Valve Timing Output	0 deg-CA
Exhaust R Valve Timing Input	0	deg-CA	Exhaust R Valve Timing Output	0 deg-CA
Exhaust L Valve Timing Input	0	deg-CA	Exhaust L Valve Timing Output	0 deg-CA
Intake Valve Timing Target	0	deg-CA		
Exhaust Valve Timing Target	0	deg-CA		
Intake R Solenoid Input	0	%	Intake R Solenoid Output	0 %
Intake L Solenoid Input	0	%	Intake L Solenoid Output	0 %
Exhaust R Solenoid Input	0	%	Exhaust R Solenoid Output	0 %
Exhaust L Solenoid Input	0	%	Exhaust L Solenoid Output	0 %
Throttle Voltage	13	mV		
Throttle Low Voltage	5000	mV		
Throttle Hi Voltage	0	mV		

### About data

- R.P.M. : Current engine speed.
- Air Flow Voltage : Current voltage of air flow meter in [mV].
- Pressure : When a pressure sensor is used, current pressure is shown.  
Pressure unit can be set with Main Menu "VIEW" -> "Pressure Unit".
- Throttle Angle : Current throttle angle.  
It is calculated with throttle "Close" and "Open" parameters.  
In case these parameter values are not correct, throttle angle cannot be shown correctly.
- Water Temp. : Current water temperature.  
Unit of water temperature can be set with Main Menu "VIEW" -> "Temperature Unit".
- Throttle Voltage : Current throttle voltage.
- Throttle Low Voltage : Lowest voltage since ignition is on. It is not renewed when rpm is below 2000rpm.  
Default value is 5000mV.
- Throttle Hi Voltage : Highest voltage since ignition is on. It is not renewed when rpm is below 2000rpm.  
Default value is 0mV.

### Following items will be available for "Intake" and "Exhaust" depends on engine and camshaft.

- Valve Timing Input : It shows current valve timing.
- Valve Timing Output : It shows emulated valve timing from VALCON to stock ECU.
- Valve Timing Target : It shows valve timing target value calculated with main and sub maps.
- Solenoid Input : It shows duty value of valve timing solenoid control signal from stock ECU.
- Solenoid Output : It shows duty value of valve timing solenoid control signal from VALCON.

## 9. View/Option Function

### 9-1. Map View

Choose a size in the VIEW menu sub directory between 1 (smallest) to 6 (largest).  
The default setting is at 3.

### 9-2. View Comparison File/Paste from Comparison File

Select "VIEW COMPARISON FILE" to open a dialog selection of the comparison file.  
Select the comparison file to display as shown below.

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000
500	50 120	53 120	57 120	60 120	63 118	67 117	70 115	73 115	77 115	80 115	83 115	87 115	90 115	93 115	97 115	100 115
800	53 120	56 120	60 120	63 120	66 118	70 117	73 115	76 115	80 115	83 115	86 115	90 115	93 115	96 115	100 115	103 115
1100	57 120	60 120	64 120	67 120	70 118	74 117	77 115	80 115	84 115	87 115	90 115	94 115	97 115	100 115	104 115	107 115
1400	60 120	63 120	67 116	70 113	73 113	77 112	80 112	83 112	87 112	90 112	93 112	97 112	100 112	103 112	107 112	110 112
1700	63 120	66 120	70 113	73 106	76 106	80 107	83 107	86 108	90 108	93 110	96 111	100 113	103 114	106 114	110 115	113 115
2000	67 120	70 120	74 108	77 100	80 101	84 102	87 103	90 104	94 105	97 110	100 111	104 113	107 114	110 115	114 115	117 115
2300	70 120	73 118	77 105	80 101	83 103	87 104	90 106	93 107	97 109	100 110	103 111	107 113	110 114	113 114	117 115	120 115
2600	73 120	76 115	80 110	83 100	86 99	90 101	93 102	96 103	100 104	103 105	106 106	110 107	113 110	116 112	120 112	123 112
2900	77 120	80 115	84 110	87 100	90 95	94 98	97 98	100 99	104 99	107 100	110 100	114 100	117 105	120 108	124 108	127 108
3200	80 120	83 115	87 110	90 100	93 95	97 95	100 95	103 95	107 95	110 97	113 100	117 100	120 108	123 108	127 108	130 108
3500	83 120	86 115	90 110	93 100	96 95	100 95	103 95	106 95	110 95	113 97	116 100	120 100	123 108	126 108	130 108	133 108
3800	87 120	90 115	94 110	97 100	100 95	104 95	107 95	110 95	114 95	117 97	120 100	124 100	127 108	130 108	134 108	137 108
4100	90 120	93 115	97 110	100 100	103 95	107 95	110 95	113 95	117 95	120 97	123 100	127 100	130 108	133 108	137 108	140 108
4400	93 120	96 115	100 110	103 100	106 95	110 95	113 95	116 95	120 95	123 97	126 100	130 100	133 108	136 108	140 108	143 108
4700	97 120	100 115	104 110	107 100	110 95	114 95	117 95	120 95	124 95	127 97	130 100	134 100	137 108	140 108	144 108	147 108
5000	100 120	103 115	107 110	110 100	113 95	117 95	120 95	123 95	127 95	130 97	133 100	137 100	140 108	143 108	147 108	150 108

The top section of each cell indicates the edit map and the bottom indicates the comparison file map.  
The yellow cells indicates that the edit map value is greater than the comparison map value.  
On the other hand, the light blue cell indicates that the edit map value is lesser than the comparison map value.

White cell indicates that is it the same value.

#### Advice

This function is simply a comparison of values on the map. The map values will display even if the axis is different.

#### Advice

"VIEW COMPARISON FILE" cannot be used together with "Trace".

"Paste from Comparison" can be used in "View Comparison File".

Select "Paste from Comparison" to paste the comparison data onto the map.

### 9-3. COM Port

Select a port for communication from sub item of "COM Port".

Only ports that can be used for communication at the moment will be shown.

Make sure that "COM PORT" is set to a serial port that is connected with the USB cable.

#### 9-4. Trace

Select a display time in the sub directory of "Trace".

The trace marker will disappear from the oldest mark unless "TRACE ON" is selected.

There are 4 selections for the time setting.

The screenshot shows the VALCON EasyWriter Ver1.0E software interface. The main window displays a data table with the following columns: 800, 1413, 2027, 2640, 3253, 3867, 4480, 5093, 5707, 6320, 6933, 7547, 8160, 8773, 9387, 10000. The rows represent different time intervals from -0.50 to 6.10. The sidebar on the left contains a tree view with categories: Conversion Table, Axis Setting, INTAKE, EXHAUST, Trim, Main 1, Sub 1, Main 2, and Sub 2. The status bar at the bottom indicates '(R.P.M. x Pressure[x100kPa]) from 77 to 125'.

	800	1413	2027	2640	3253	3867	4480	5093	5707	6320	6933	7547	8160	8773	9387	10000
-0.50	77	77	79	81	83	84	86	88	90	92	94	95	98	100	103	105
-0.06	75	80	82	84	86	87	89	91	93	95	97	99	100	103	105	108
0.38	80	82	84	86	88	89	91	93	95	97	99	100	103	105	108	110
0.82	82	84	86	88	90	91	93	95	97	99	101	102	105	107	110	112
1.26	84	86	88	90	92	93	95	97	99	101	103	104	107	109	112	114
1.70	87	89	91	93	95	96	98	100	102	104	106	107	110	112	115	117
2.14	89	91	93	95	97	98	100	102	104	106	108	109	112	114	117	119
2.58	91	93	95	97	99	100	102	104	106	108	110	111	114	116	119	121
3.02	93	95	97	99	101	102	104	106	108	110	112	113	116	118	121	123
3.46	96	98	100	102	104	105	107	109	111	113	115	116	119	121	123	123
3.90	98	100	102	104	106	107	109	111	113	115	117	118	121	123	123	123
4.34	100	102	104	106	108	109	111	113	115	117	119	120	122	123	123	123
4.78	103	105	107	109	111	112	114	116	118	120	122	123	123	123	123	123
5.22	106	108	110	112	114	115	117	119	121	123	123	123	123	123	123	123
5.66	109	111	113	115	117	118	120	122	123	123	123	123	123	123	123	123
6.10	112	114	116	118	120	121	123	123	123	123	123	123	123	123	123	123

#### 9-5. Cursor Trace


There are three areas "1", "4" and "9" to select. "1" is the cell that lines of trace mark are crossed ( 1 x 1 cell ).

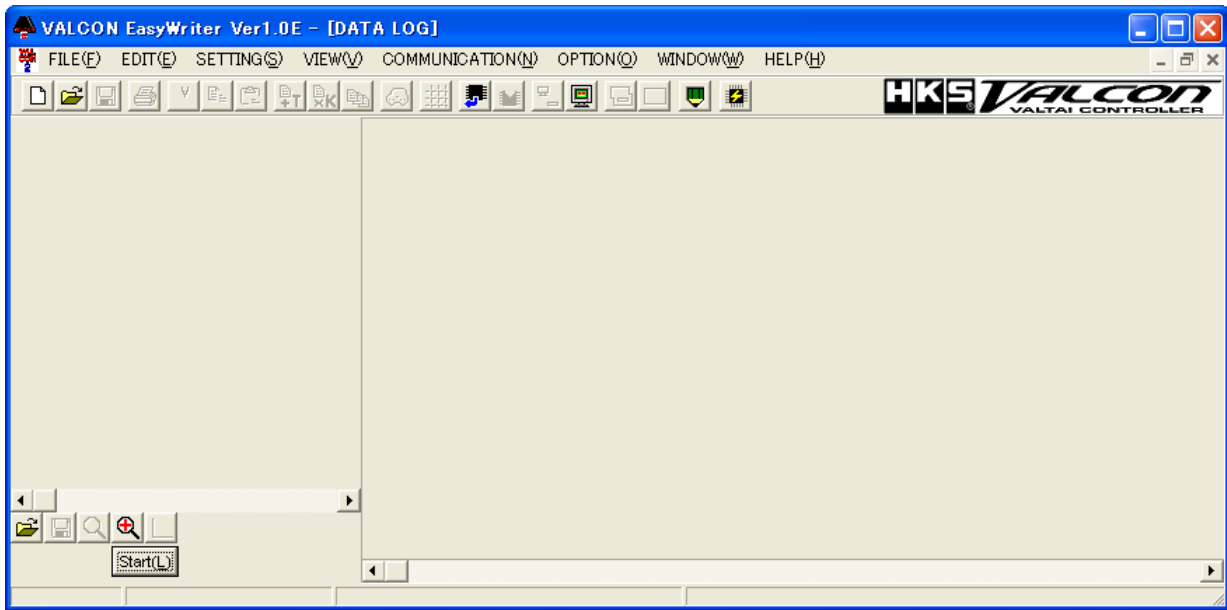
"4" is the whole area of trace mark ( 2 x 2 cells ). "9" is 9 cells around trace mark ( 9 x 9 cells ).

The screenshot shows the same VALCON EasyWriter Ver1.0E software interface as above. A red cursor trace mark is positioned over the cell at row -0.06 and column 800. The rest of the data table and interface elements are identical to the previous screenshot.

## 10. Data Log Function

### 10-1. Data Log






Press the Data Log icon to display a data log window as shown below. 

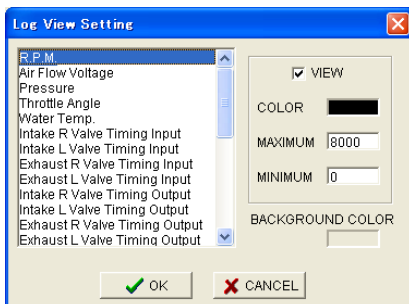


Use the buttons on the bottom left of the window to control.


In the bottom icon section, the buttons on the top starting from the left will be "Open Log File", "Save Log File", "Minimize", "Maximize", and "View Setting".

The bottom row starting from the left will be "Start Log".

- \* Press the "Open Log File" button to display a list of log files to open.   
Files that can be opened will have a file extension ".LV2".
- \* Press the "Save Log File" to save all the log data being displayed.   
Saved files will have a file extension ".LV2".  
The data log file can also be saved as a text file by selecting ".txt" in the "save as type" section of the save dialog window.
- \* Press the "Minimize" button to minimize the display of the time axis of the log data. 
- \* Press the "Maximize" button to maximize the display of the time axis of the log data. 
- \* Press "View Setting" to open a log display setting window as shown below. Select display settings in this data log window. 



- \* The display/hide, color, maximum/minimum range of an item can be displayed by selecting an item from the list on the left.
- \* To change the color of the display, click on the "Color" panel to open a dialog box to list the available colors.
- \* Input values in the "Maximum" and "Minimum" column to set the desired maximum and minimum display area.
- \* To change the color of the background, click on the "Background Color" panel to open a dialog box to list the available colors.
- \* Press OK to complete setup.

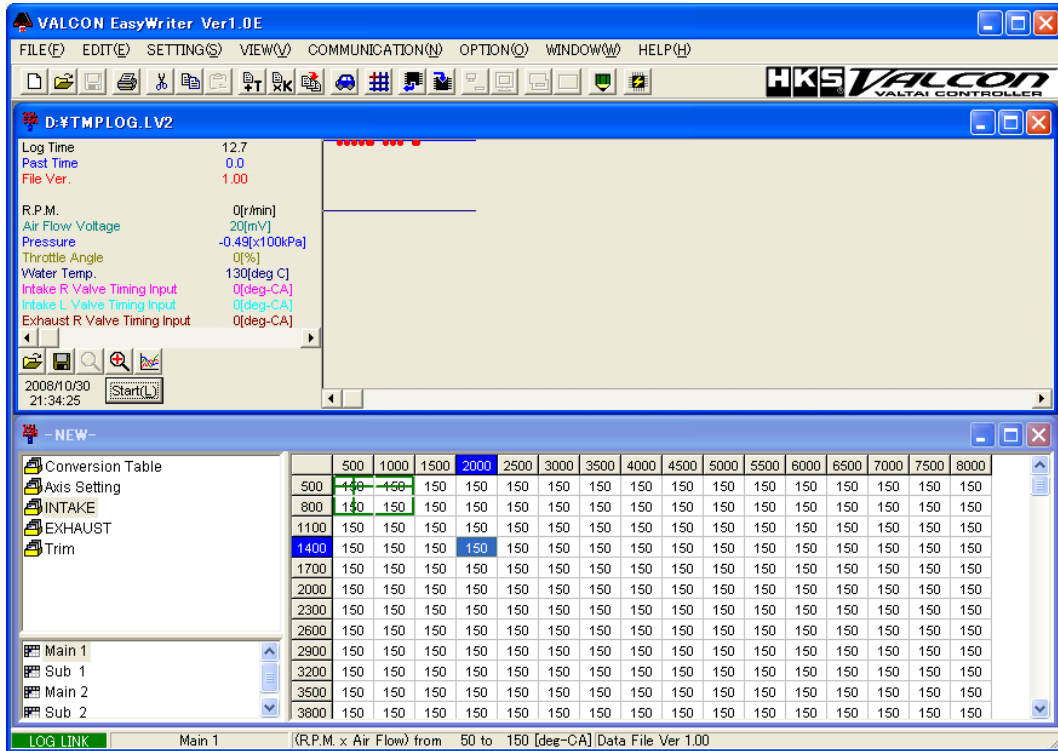
- \* Press START to display the data monitor window and start logging.   
The item displayed on the monitor window will be the log item. (With some exceptions)  
Place markings by pressing the space bar on the key board while logging.

## 10-2. Log Link

The "Log Link" can only be used when the map window and data log window are both open.

The trace marker can be displayed on the data log window as shown below.

This case the trace marker will be green.



**Advice** Make sure the correct data is selected. The function will execute even for the log data that is not recorded in the display window.

**Advice** "Log Link" and "Link Mode" cannot be used together.

## 10-3. Comparison Log

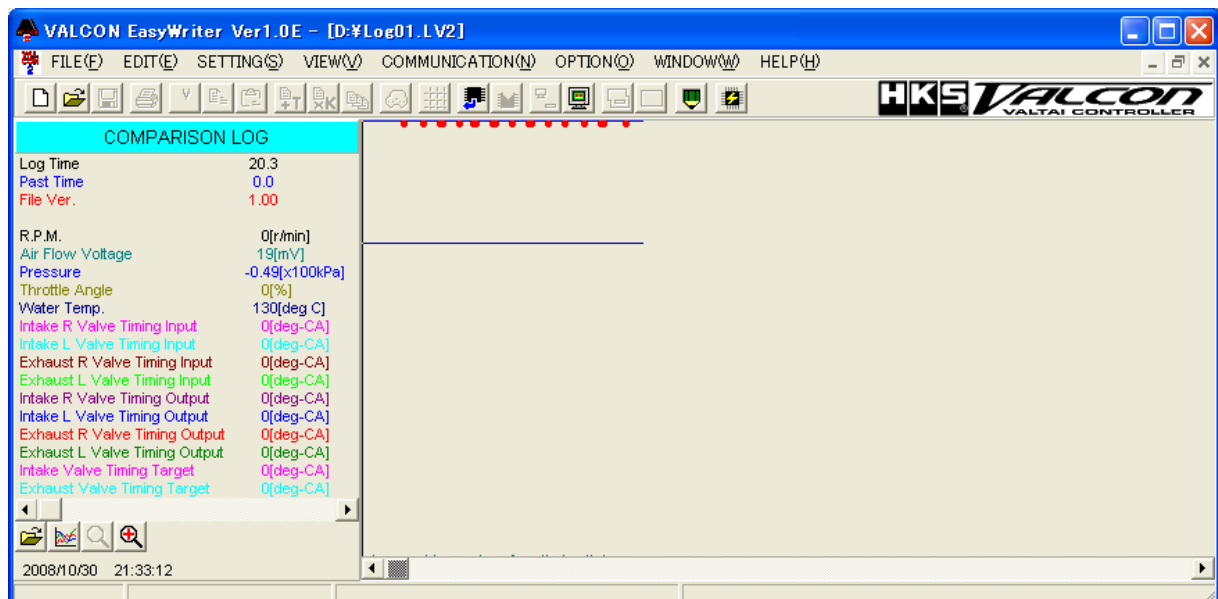
Select "Comparison Log" to display a data log window as shown below.

The log data can be compared by opening both the data log window and comparison log window.

The log can be controlled by the buttons on the bottom left of the window.

The buttons starting from the left will be "Open Log File", "View Setting", "Minimize", and "Maximize".

Refer to "10-1. Data Log" for details for each button.



By opening the map window, data log window, and comparison log window all together and performing "Log Link" can display what is shown below.

In addition to the log link, a purple trace marker will display for use with the comparison log.

The screenshot displays the VALCON EasyWriter Ver1.0E software interface. It features three main windows:

- COMPARISON LOG (D:\Log01.LV2):** Shows log details for a comparison log. Parameters include R.P.M. (0[r/min]), Air Flow Voltage (19[mV]), Pressure (-0.49[x100kPa]), Throttle Angle (0[%]), Water Temp. (130[deg C]), and Intake R Valve Timing Input (0[deg-CA]). The log time is 20.3, and the file version is 1.00. The date and time are 2008/10/30 21:33:12.
- TMPLOG (D:\TMPLOG.LV2):** Shows log details for a temporary log. Parameters include R.P.M. (0[r/min]), Air Flow Voltage (20[mV]), Pressure (-0.49[x100kPa]), Throttle Angle (0[%]), Water Temp. (130[deg C]), Intake R Valve Timing Input (0[deg-CA]), and Intake L Valve Timing Input (0[deg-CA]). The log time is 12.7, and the file version is 1.00. The date and time are 2008/10/30 21:34:25, with a "Start(L)" button.
- Conversion Table:** A table with RPM values in the first column and corresponding values in the next 16 columns. The 2000 RPM row is highlighted in blue, and the 1400 RPM row is highlighted in purple. The table shows that for most RPM values, the corresponding value is 150.

The status bar at the bottom indicates "LOG LINK" is active for "Main 1" with the data "(R.P.M. x Air Flow) from 50 to 150 [deg-CA] Data File Ver 1.00".

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000
500	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
800	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
1100	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
1400	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
1700	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
2000	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
2300	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
2600	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
2900	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
3200	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
3500	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150

## 11. Other

### 11-1. VALCON EasyWriter Ver1.0E HELP

Select "VALCON EasyWriter Ver1.0E HELP" to display help information of the EasyWriter.  
For details on the VALCON, refer to the instruction manual.

### 11-2. VERSION INFORMATION

Select "VERSION INFORMATION" in the help files to display a dialog box with version information.  
EasyWriter version and unit version can be confirmed.  
But, the unit version will only work when the unit is connected.

## 12. Unit Reflash

VALCON EasyWriter can update firmware of VALCON unit.

When new update firmware is released, it will be announced at the website of EasyWriter.

To access to the website of EasyWriter, click the logo on top right of the main screen of VALCON EasyWriter.

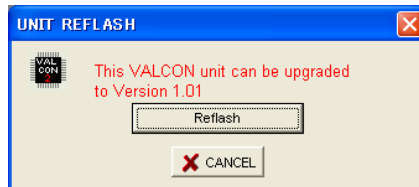
**NOTE : When upgrading, turn the ignition on without starting the engine.**

**Otherwise, the upgrade cannot be processed correctly.**

**Do not turn the power off while upgrading to avoid damage.**

### How to update the version.

1. When update version of VALCON firmware is available, download it from the website.  
Save the downloaded file in "FILES" folder of installation folder for VALCON EasyWriter.
2. Start VALCON EasyWriter and press "Unit Reflash" button. Then, the following window will appear.  
(Image is an example to update from Ver 1.00 to Ver 1.01.)



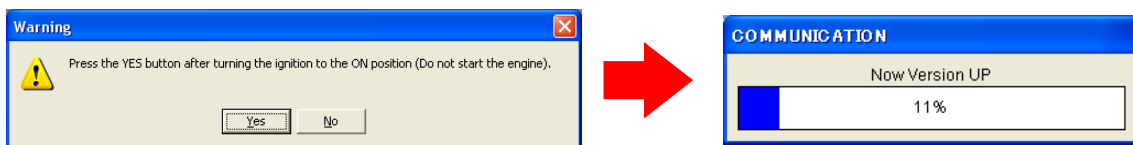
3. When "Unit Reflash" button is pressed, caution about ignition will appear.

When it is ready, press "Yes".

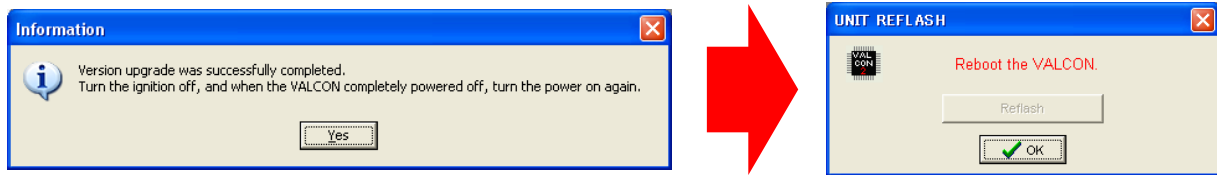
Version up will start.

**\* During version up, do not start engine or do not turn the ignition off.**

**Do not connect or disconnect USB connector. Otherwise, VALCON unit may be damaged.**



4. When screen of version up completion appears, press "Yes".  
Then, press "OK" of Unit Reflash window to finish version up.  
Turn the ignition off and remove USB connector so that power supply of VALCON unit will be off.  
**\* While USB connector is inserted, power is kept supplying from PC to VALCON.**



5. Ensure that power of VALCON unit is off. Reconnect USB connector and turn ignition on.  
Check the version information and make sure version of the unit is updated.  
**\*During version up, in case power is cut or USB connector is disconnected, start version up process from the beginning.**

## ⚠Caution

**VALCON can be operated with power supply only from USB connector.  
To prevent running out of battery of PC, short circuit and fire, disconnect USB connector when it is not required.**