

# VALCON EasyWriter Ver1.0E Manual

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Ver3-1.03

HKS Co., Ltd.

## Revision History

Revision Date	Contents
2008/12/10	First Edition (Ver3-1.01)
2010/4/2	Second Edition (Ver3-1.02)
2010/12/22	Third Edition (Ver3-1.03)

### Warning

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

**To prevent the PC from running out of the battery, short circuits, and/or fire, disconnect the USB connector when the VALCON is not in use.**

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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.

<b>⚠Caution</b> There may be risk of severe injury or death.
--

<b>⚠Warning</b> There may be risk of injury. There may be risk of damage or fire of vehicle.
---

<b>⚠Caution</b>
-----------------

\*Do not attempt to tune on the street.

Always maintain on a dyno.

<b>⚠Warning</b>
-----------------

\*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

- \* Pentium3 500MHz or higher processor (Recommended : Pentium3 or higher)
- \* [32Bit Edition] Windows XP, Vista, 7 (Recommended : Windows XP)
- \* [64Bit Edition] Windows Vista, 7 (Recommended : Windows XP 32 Bit Edition)
- \* 32MB of RAM (1GB or higher for Windows Vista or Windows 7, 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 XP, Vista, 7 is a product of Microsoft Corporation.**

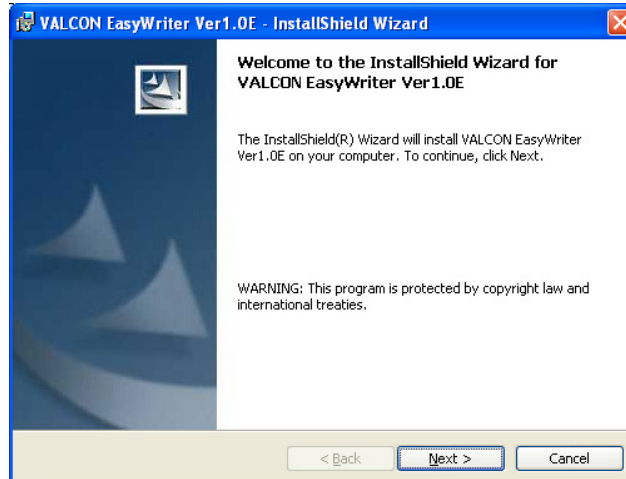
## 1. Installation

### 1-1. Preparation

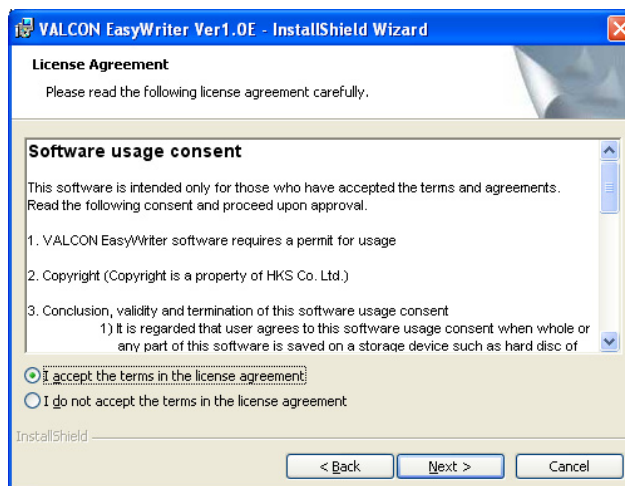
- (1) Download VALCON EasyWriter from the website of EasyWriter (<http://www.hks-power.co.jp/easywriter/en/>).
- (2) As the file is compressed, extract in any folder.

### 1-2. Initial Installation Setting

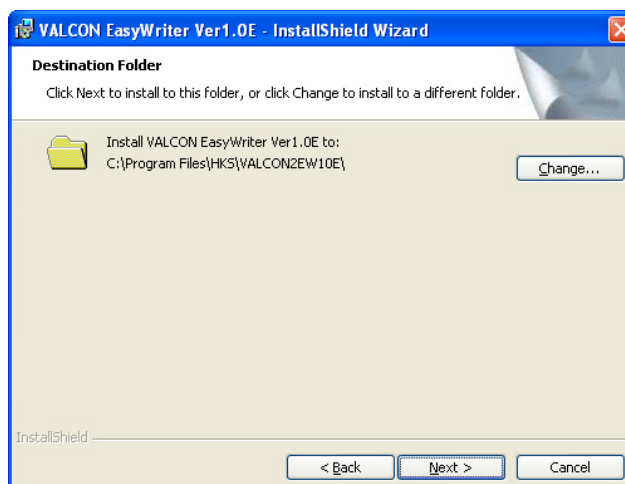
- (1) Double click the extracted file(Setup.exe) to start installer.  
Press "Next" to proceed.



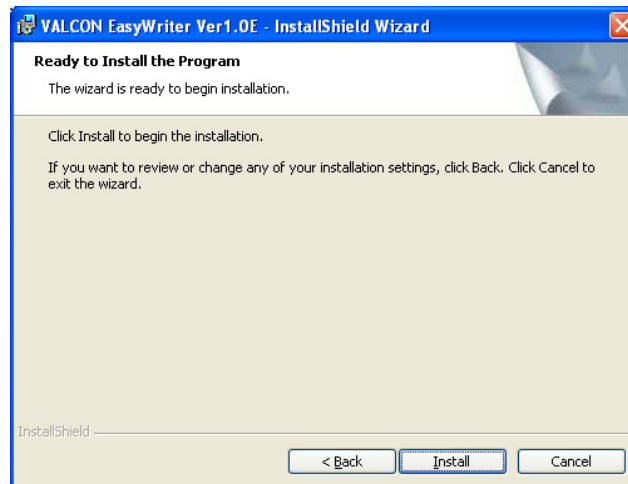
- (2) Read the software agreement and agree to proceed to the next step.



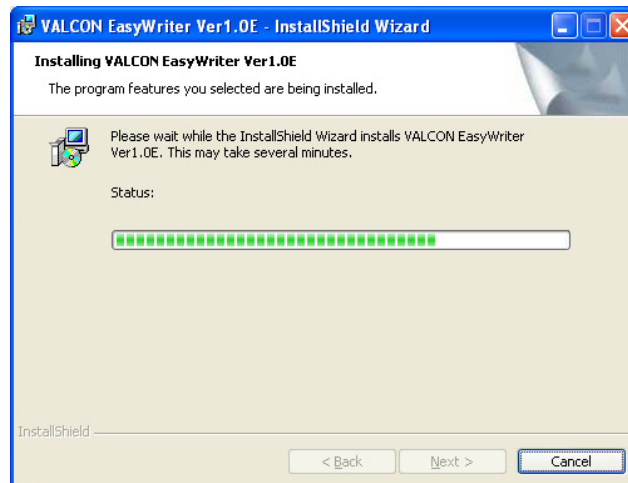
- (3) Select a folder to install to. If the default folder is used, press "Next".



(4) Press "Install" to start installation.

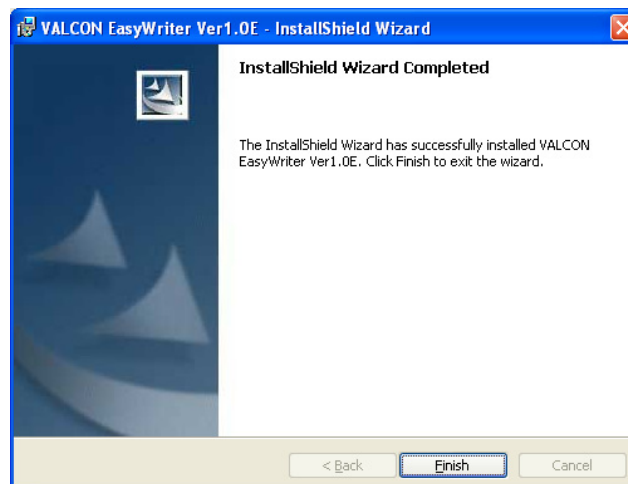


(5) During installation, the following screen appears.



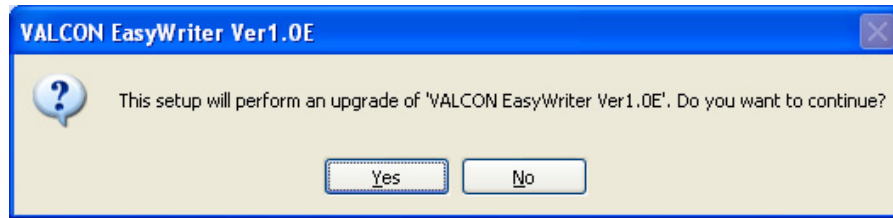
(6) When all process has finished, following screen appears.

Click "Finish" to complete the installation.

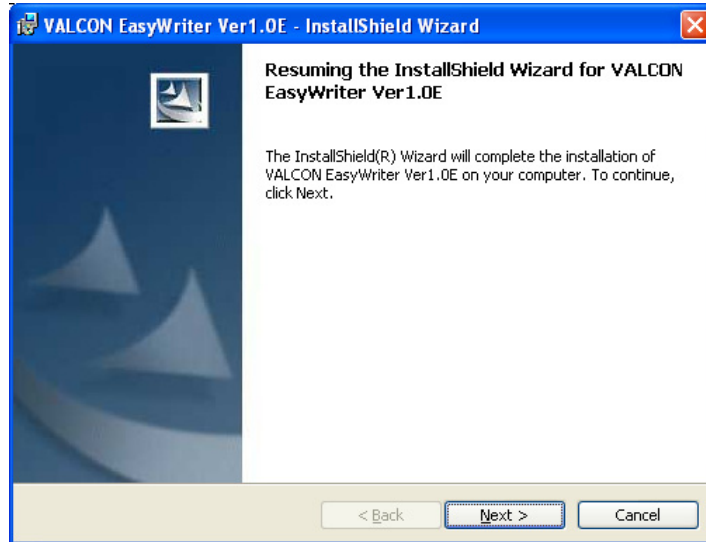


### 1-3. Installation of an upgrade

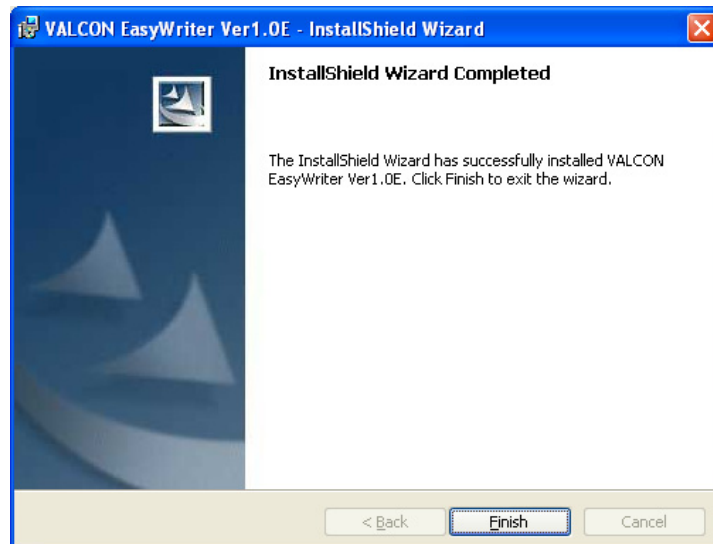
- (1) Double click the extracted file(Setup.exe) to start installer.  
Press "Next" to proceed.



- (2) Select "Next" then continue



- (3) When all process has finished, following screen appears.  
Click "Finish" to complete the installation.





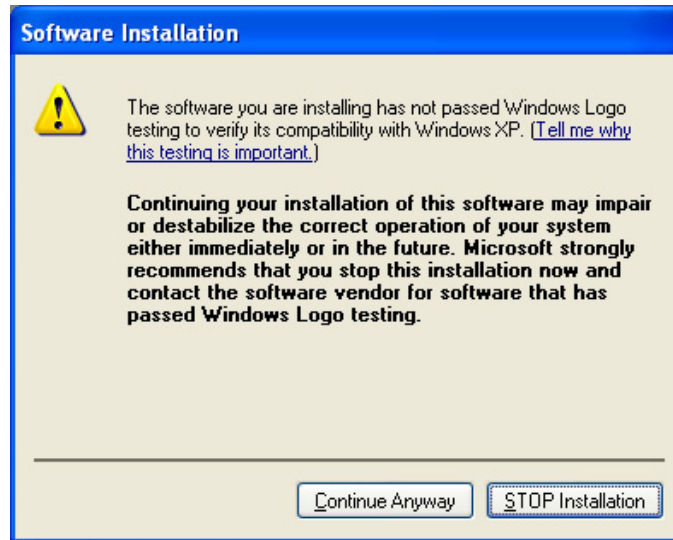
#### 1-4. Initial Start-up

Install the USB driver when starting the software for the first time.

Window below appears. Follow the instruction to install the USB driver.

No window appears after installation completes.

Click "Continue Anyway" to start installation.



## 2. Initial Connection of VALCON unit and PC

\*\* After completing 1-4, connect the VALCON main unit to the PC.

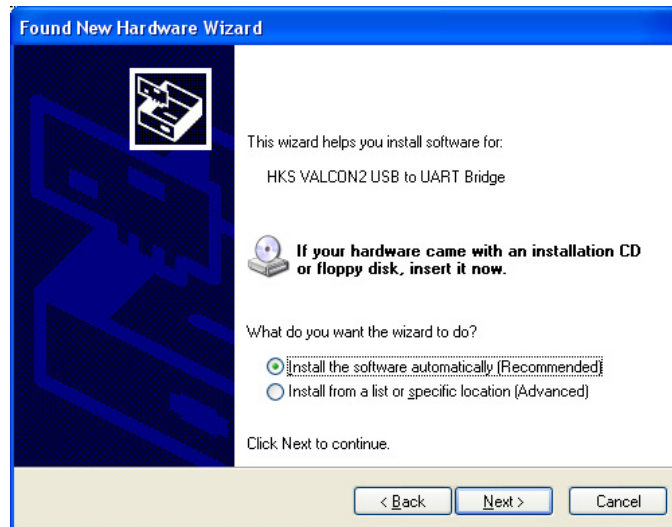
- (1) When VALCON unit is connected to the PC for the first time, following 2 messages appear and detection of the USB driver starts.



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



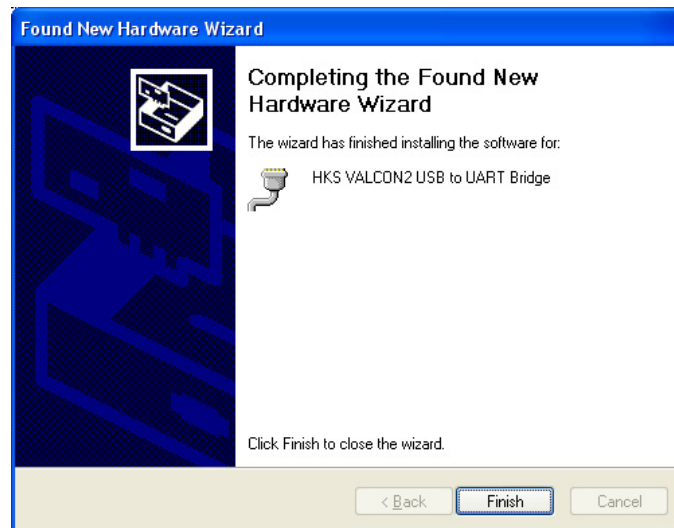
- (3) At the following window, select "Install the software automatically." and press "Next".



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



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



(6) After 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**

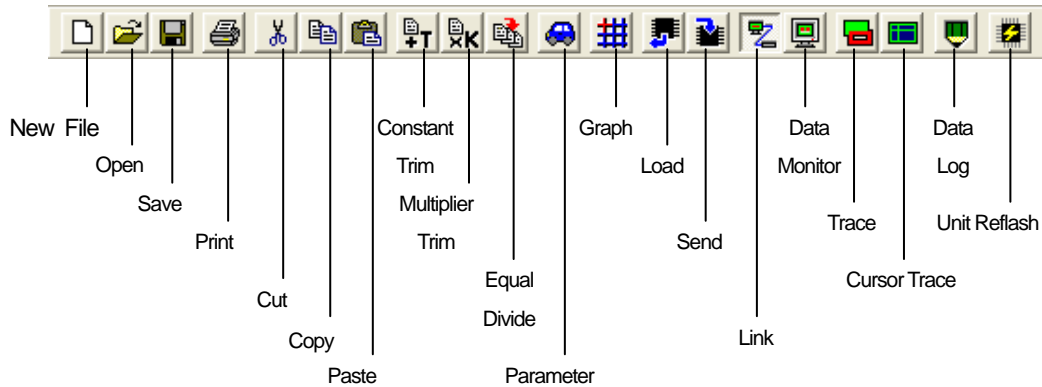
**VALCON can be operated with power supply only from USB connector.**

**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.

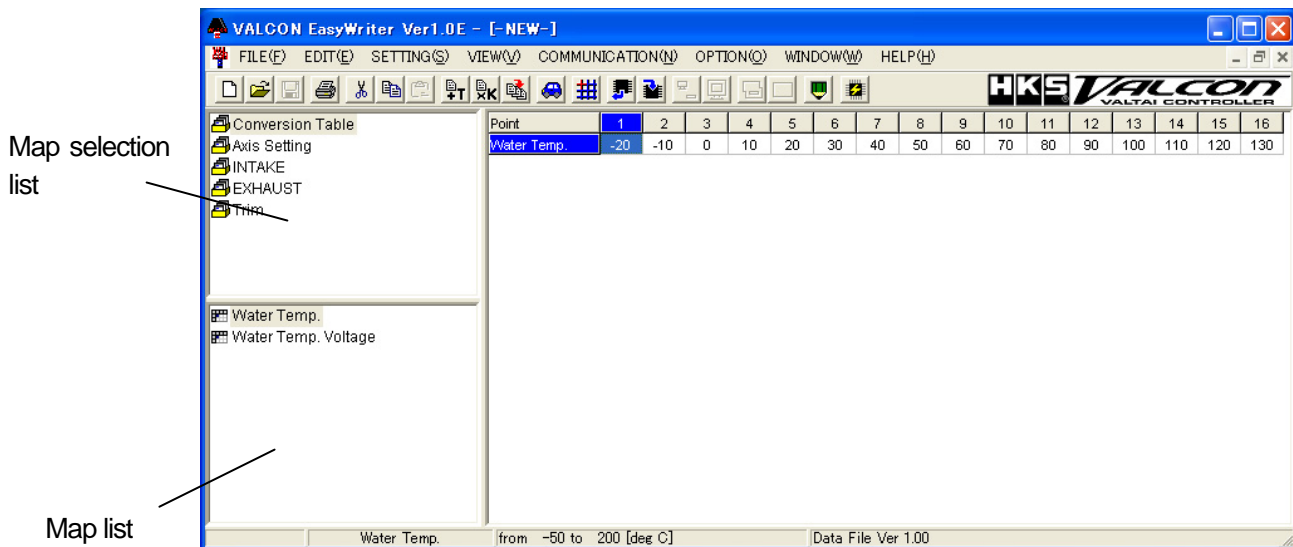
Select "Save" to save and replace data that is being edited.

#### 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 decide 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.

When "Hi Cam Control" is selected, Map1 is Lo cam map, map 2 is Hi cam map.

## 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.

**"Main Map 2" value is total of map value + Hi cam offset value.**

### 6-3. OPTION

The screenshot shows the 'PARAMETER SETTING' dialog box with the 'OPTION' tab selected. The 'Y Axis' section (1) contains eight dropdown menus for 'Intake Main 1', 'Intake Main 2', 'Exhaust Main 1', 'Exhaust Main 2', 'Intake Sub 1', 'Intake Sub 2', 'Exhaust Sub 1', and 'Exhaust Sub 2', all set to 'Air Flow Voltage'. The 'Valve Timing Display Offset' section (2) contains four input fields for 'Intake R Valve Timing', 'Intake L Valve Timing', 'Exhaust R Valve Timing', and 'Exhaust L Valve Timing', all set to '0' with a unit of '[deg-CA]'. At the bottom are 'PRINT(P)', 'OK', and 'CANCEL' buttons.

**\* 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

The screenshot shows the 'PARAMETER SETTING' dialog box with the 'MEMO' tab selected. The 'MEMO' section (1) is a large text area containing the text '(1)'. At the bottom are 'PRINT(P)', 'OK', and 'CANCEL' buttons.

#### (1) Memo

Can save up to a maximum of 48 characters.

It is also recorded in VALCON unit.



## 7. Graph

### 7-1. Display Graph

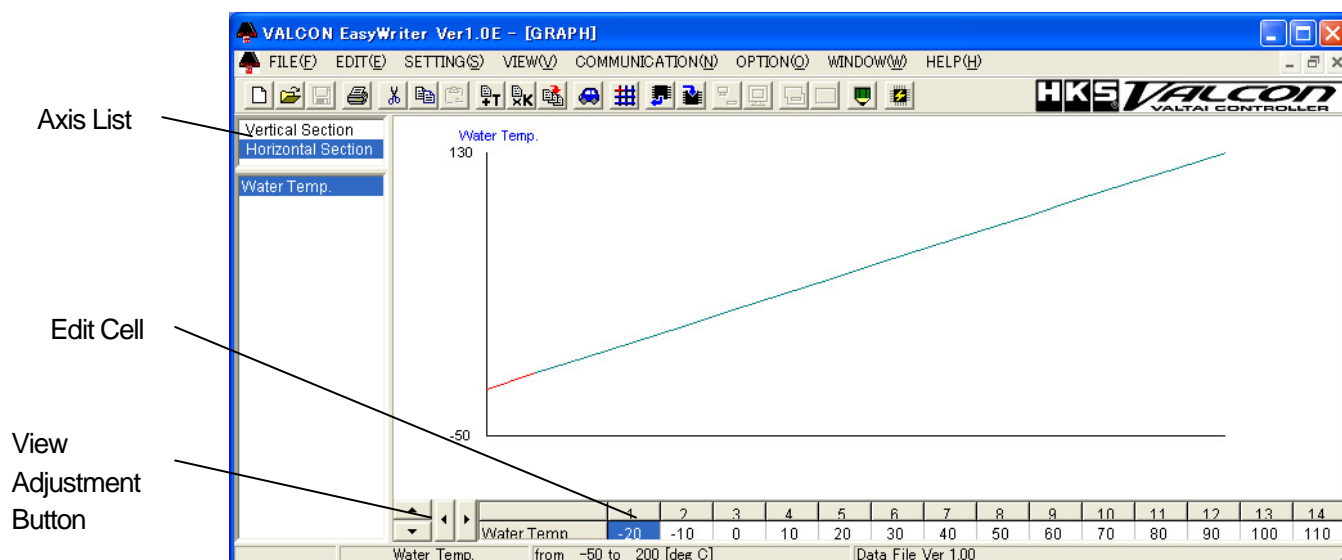
Select the "Graph" icon to display the graph window.

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.



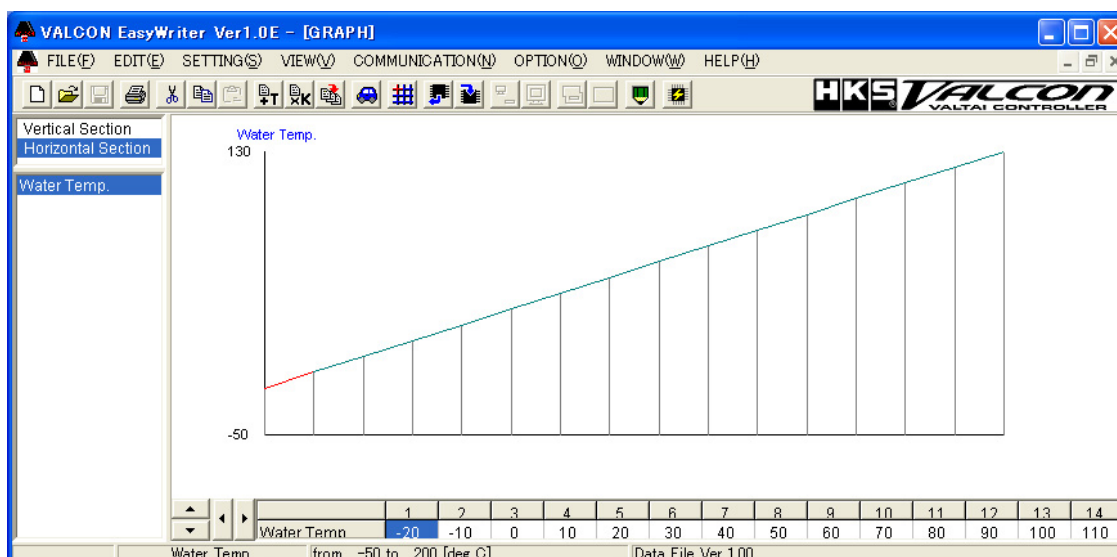
### 7-2. Graph Edit

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.

### **Advice**

Application Specific units are only compatible with application specific data.  
Universal units are only compatible with universal data.  
Evolution X (CZ4A) and Impreza (GRB) are regarded as Universal units in this instance.


### 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

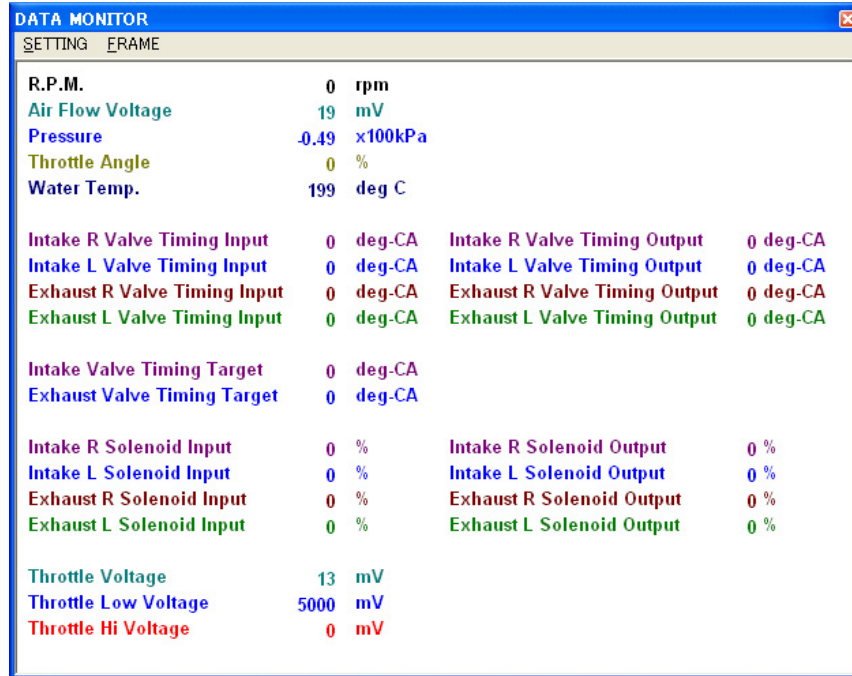
Press the "Data Monitor" icon to display a data monitor window which will monitor the input and output signals of the VALCON. 

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.

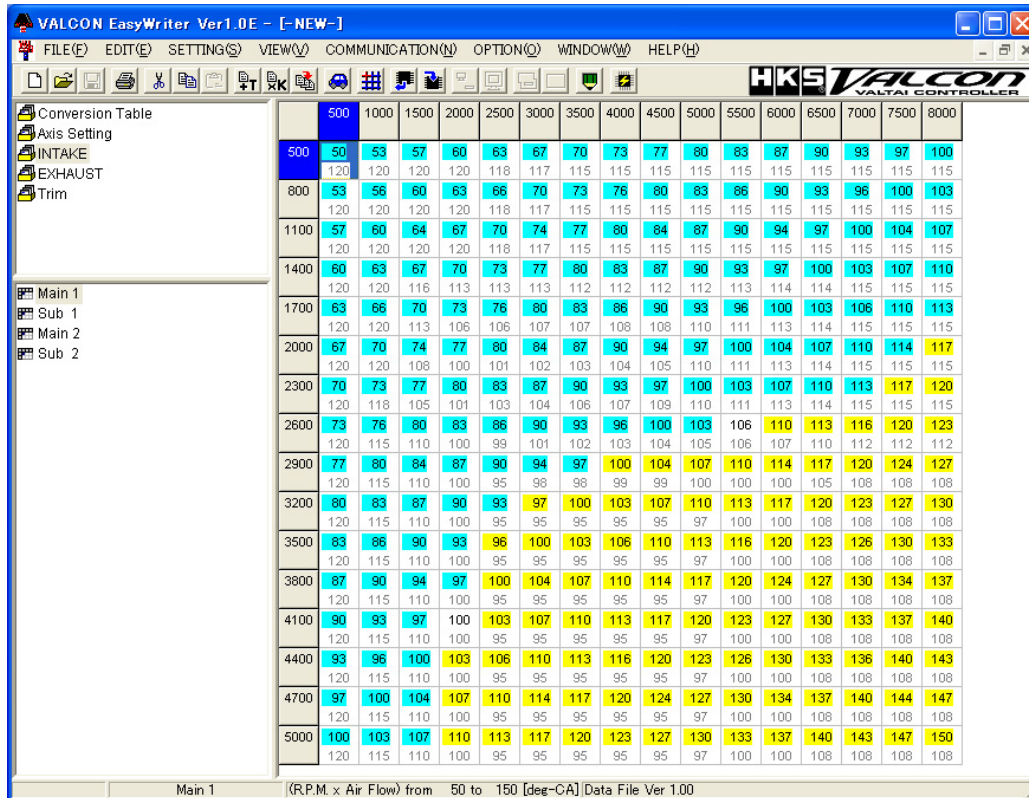
## 9. View/Option Function

### 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.



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.

VALCON EasyWriter Ver1.0E - [UNIT DATA]

FILE(F) EDIT(E) SETTING(S) VIEW(V) COMMUNICATION(N) OPTION(O) WINDOW(W) HELP(H)

Conversion Table  
Axis Setting  
INTAKE  
EXHAUST  
Trim

	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	106	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

LINK Main 1 (R.P.M. x Pressure[x100kPa]) from 77 to 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).

VALCON EasyWriter Ver1.0E - [UNIT DATA]

FILE(F) EDIT(E) SETTING(S) VIEW(V) COMMUNICATION(N) OPTION(O) WINDOW(W) HELP(H)

Conversion Table  
Axis Setting  
INTAKE  
EXHAUST  
Trim

	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	106	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

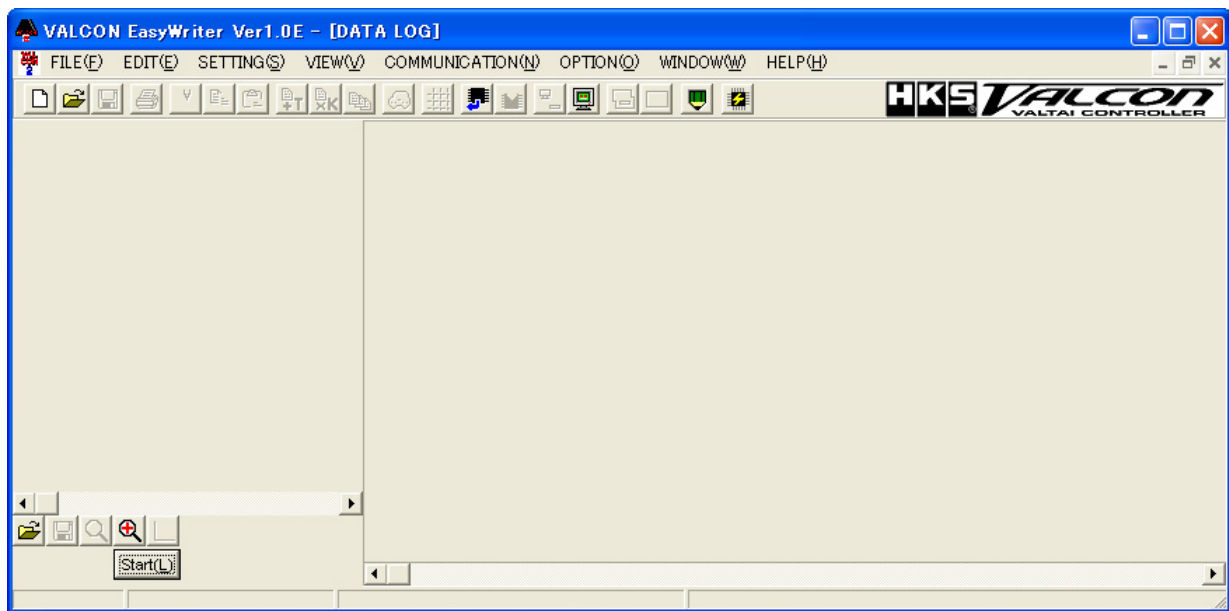
LINK Main 1 (R.P.M. x Pressure[x100kPa]) from 77 to 123



## 10. Data Log Function

### 10-1. Data Log

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

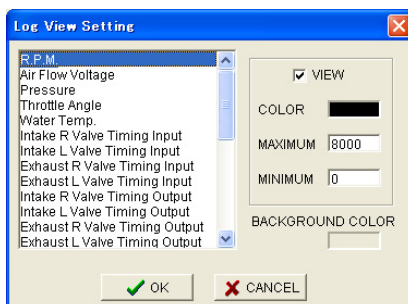


Use the buttons on the bottom left of the window to control.

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.

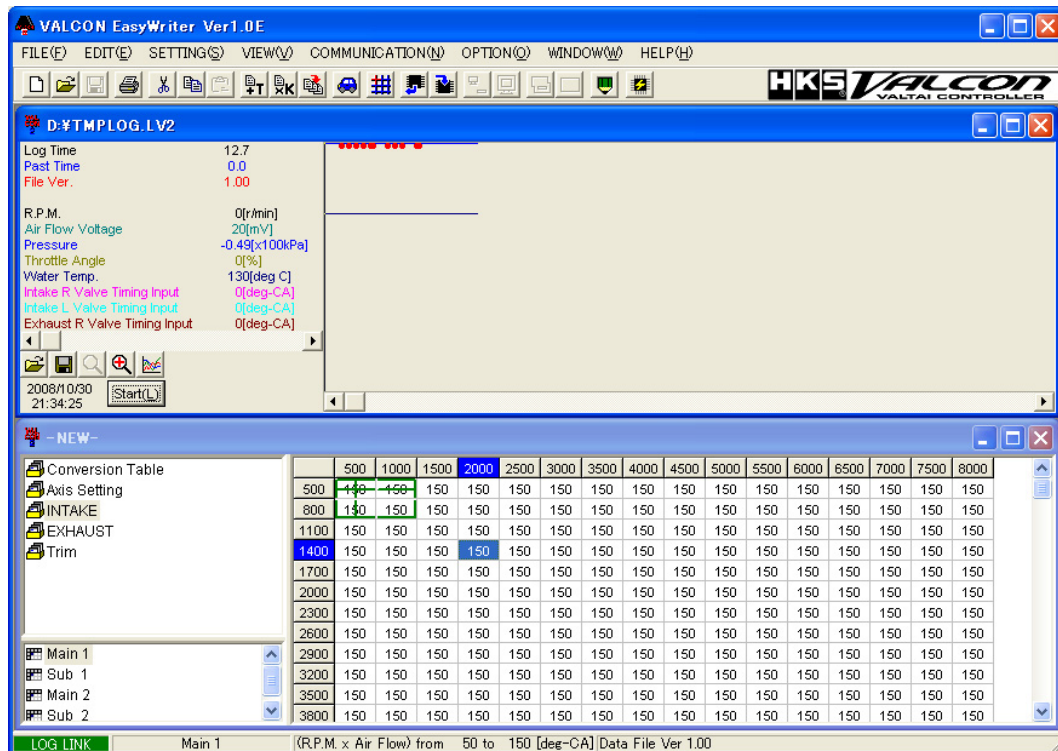
- \* Press START to display the data monitor window and start logging. The item displayed on the monitor window will be the log item. (With some exceptions)  
Place markings by pressing the space bar on the key board while logging.

## 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

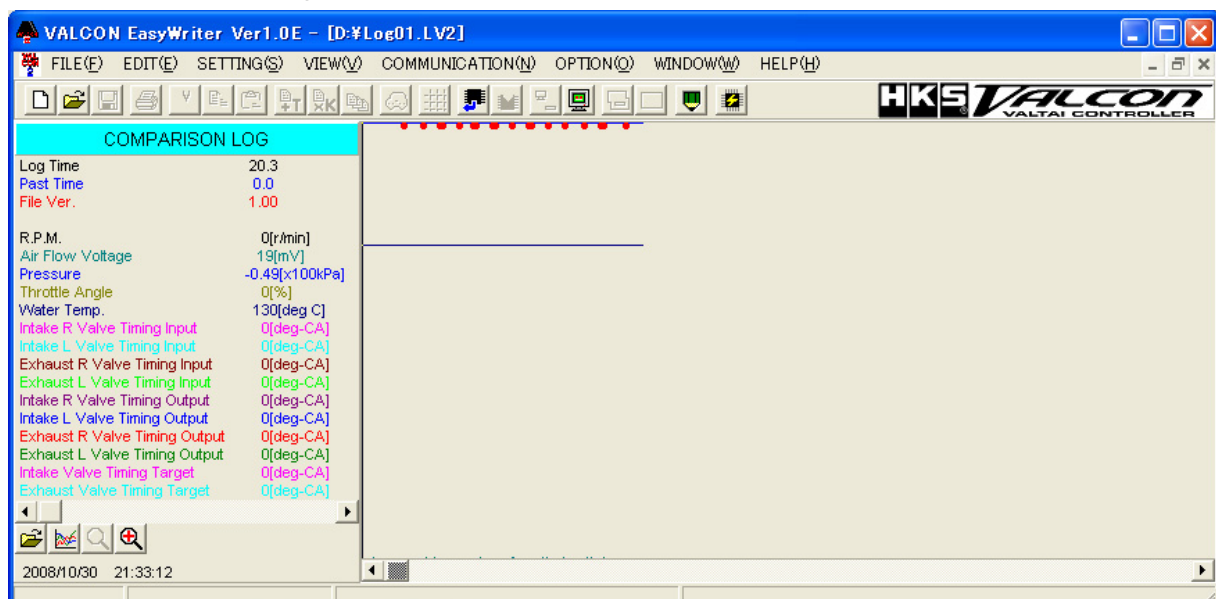
Select "Comparison Log" to display a data log window as shown below.

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.

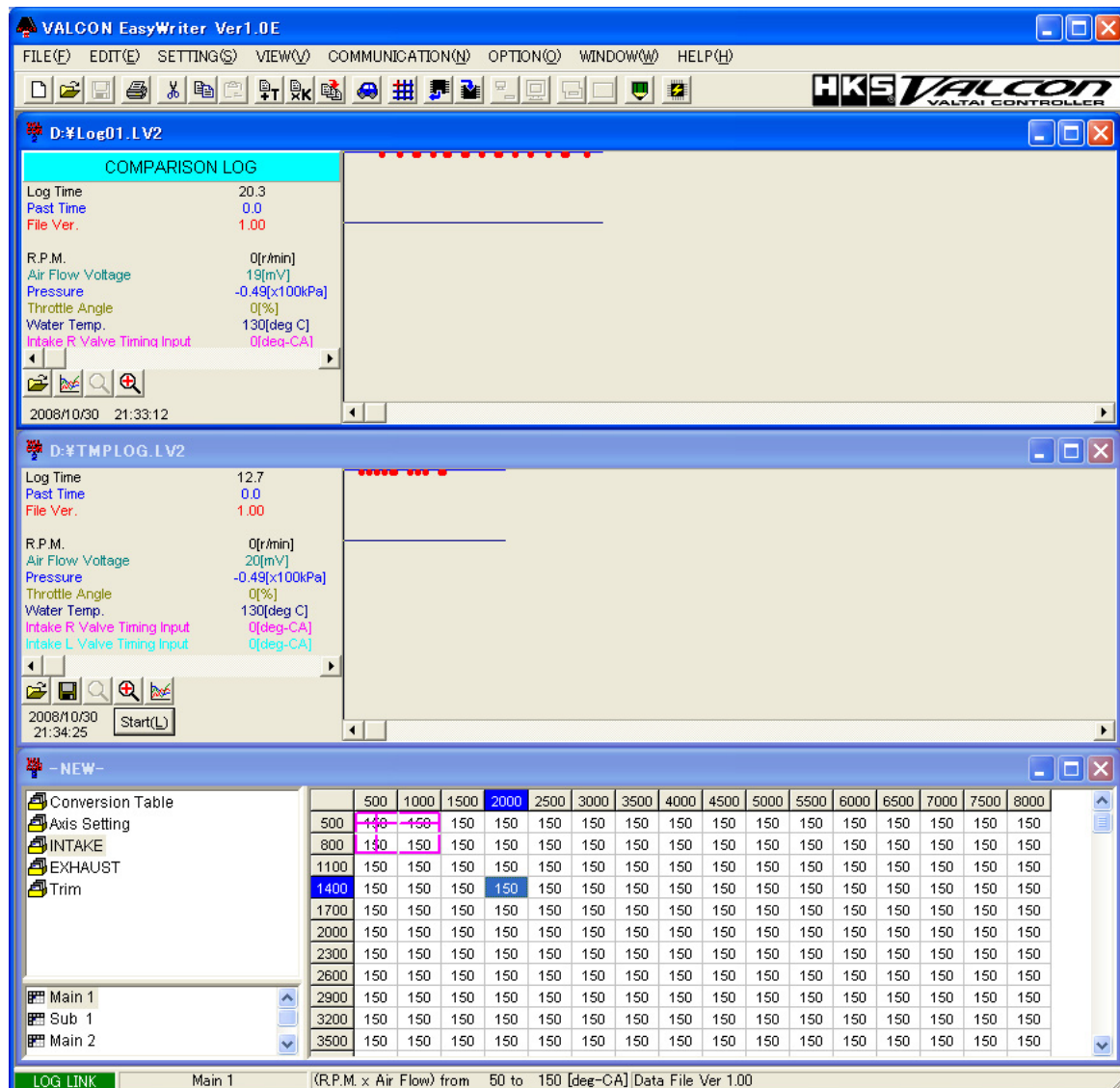
The buttons starting from the left will be "Open Log File", "View Setting", "Minimize", and "Maximize".

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.





## 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.  
The operation system of the PC can be verified.

### 11-3. Start Device Manager

Start "DEVICE MANAGER" from the VALCON EasyWriter to confirm Windows' hardware settings.  
Use this menu to search cause(s) of error(s).

**\*\* To avoid any error, close unnecessary menu(s).**

## 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.

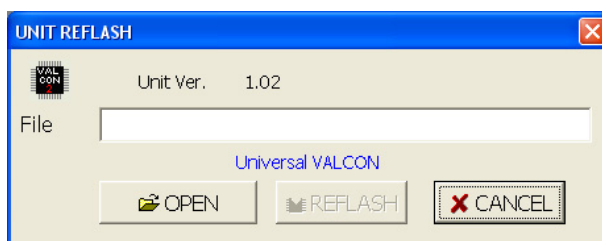
**NOTE : When upgrading, turn the ignition on without starting the engine.**

**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.
2. Open VALCON EasyWriter and press the "Unit Version Up" button to display the window below.  
Select "Open File" to select the update file and "Data Send" button is activated.  
(Image is an example to update from Ver 1.00 to Ver 1.01.)



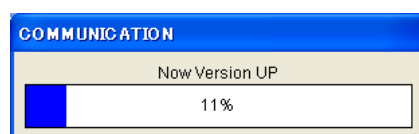
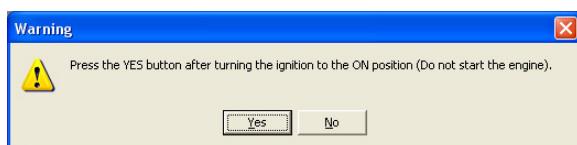
3. When "REFLASH" button is pressed, caution about ignition will appear.

When it is ready, press "Yes".

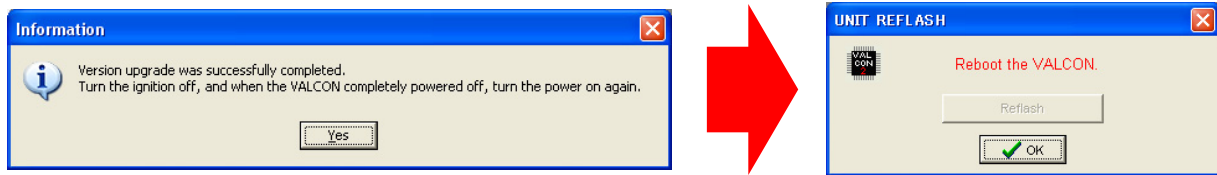
Version up will start.

**\* 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.**