

TRUST SUPER TUNING SYSTEMS AIMED AT REAL COMPETITORS.

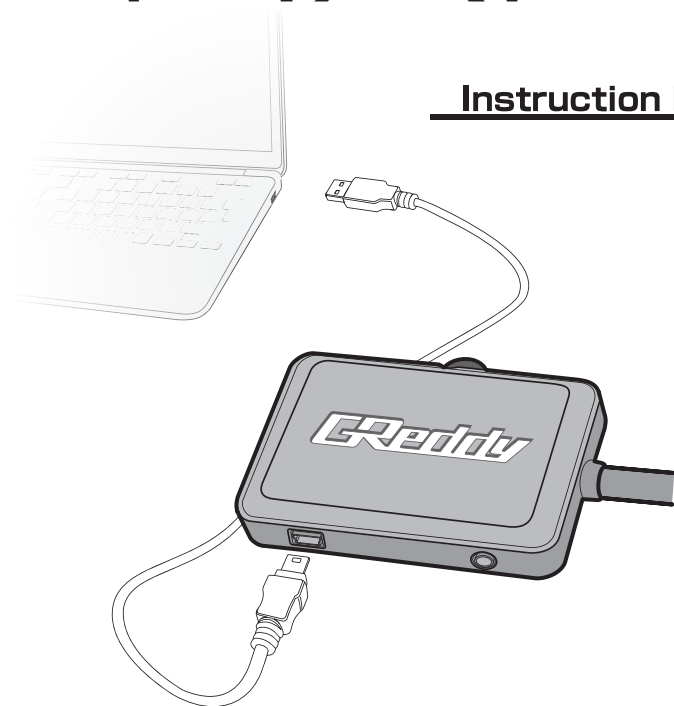
Reddy

Profec

ELECTRONIC BOOST CONTROLLER

MAP

Instruction Manual



Prior to use please read this manual carefully, and check that all parts listed are included.

TRUST

Please read

Thank you very much for your recent purchase: Profec MAP. Please read this manual thoroughly before installation and operation. We hope this instruction manual will be helpful whether you are a novice or a technician. This product is intended for off-road use.

Please keep this manual for future reference.

Disclaimer : Please read

To the best of our knowledge, the information contained herein is accurate.

However, neither TRUST CO., LTD nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. All materials may present unknown hazards and should be used with caution. Improper use of our products and their inappropriate combination with other products and/or substances may produce harmful results which cannot be anticipated. The suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist. All service performed on internal parts and equipment should be performed by qualified technicians.





Contents

Disclaimers	4
Basic operation	8
Parts List	9
Product Description	10
Installation Overview	11
System Overview	12
Software Requirements	13
How to update Control unit	14
How to use Software	
Menu Bar	18
Tool bar	22
How to use parameter setting window	
"Profec control unit setting" tab	24
Boost setting list	30
"Vehicle" tab	32
RPM signal setting list	32
Throttle position setting list	33
Vehicle Speed Setting List	34
"MAP SELECT" tab	35
"MAP unit setting" tab	36
Correction MAP(s)	38
The Data logger	41
Using the control unit after update	48
Supplementary information	50
Service	51
	Final Page

Disclaimers

Please read the safety precautions in this manual and the instruction manual of the vehicle to which this product is installed carefully prior to use.

Inappropriate use of this product can potentially do harm, and important guidelines for using this product correctly are contained within this manual.

 Warning	Ignoring this can result in injury or death.
 Caution	Ignoring this and incorrect usage can result in equipment failure and damage the vehicle.
 Important	To insure proper use please observe these important precautions.
 Information	In order to use this product properly, please take these cautionary measures.

WARNING!

- Personal injury may result from improper handling of equipped vehicle.
- Please read the instruction manual of the vehicle to be equipped carefully to insure safe operation.
- Prior to installation check that there are no flammable items under the car. It may be possible to ignite combustible materials such as dry grass due to the high temperature of the exhaust system.
- Unless it is absolutely necessary, please be sure to turn the engine off. Carbon monoxide poisoning may occur from exhaust emissions due to poor ventilation. When using the engine, make sure there is sufficient ventilation.
- In order to prevent injury, burns, vehicle fire, or malfunction, it is recommended that anyone installing or wiring this product receives specialized training.
- Please consult with a professional mechanic.
- There is a risk of accident, vehicle failure, or fire, if this product falls while in use due to vibrations. Please carefully consider installation location and installation method.
- When lending or transferring the equipped vehicle, be sure to inform the operator that this product is installed, also be sure to transfer ownership of this manual.
- When using a soldering iron or nipper, injury may occur due to incorrect usage. Please read the instruction manuals of the tools carefully to insure proper usage.
- After completing installation, be sure to check that no items can cause pedal operation to be hindered. If empty cans or tools are caught under the pedals they may become inoperable.
- Do not install this product near the deployment zone of the air bag. There is a high risk of injury from the airbag's momentum.
- Never operate this product while driving. Inattentive driving increases the risk of an accident.

Disclaimers

CAUTION

- Do not disassemble, or modify this product. Not only may it cause failure, it will void the warranty.
- If boost pressure is increased, please be aware of excessive boost. This product will not increase the amount of fuel beyond normal, so please install an e-manage. Be sure to supplement and adjust the fuel.
- High boost may cause a lean fuel condition resulting in engine damage. We can not assume any responsibility for damages such as engine failure caused by use of this product. Adjust according to the specifications of the engine.
- Depending on the type of vehicle, fuel cut may occur if boost pressure is raised. In such a case, please install an e-manage to prevent fuel cut. For adjustments regarding fuel type, please consult your dealer or our company.
- Please do not miss-wire, product will short circuit. There is a risk of damaging not only this product, but also the electrical system of the vehicle. We can not assume any responsibility for related damages.
- Installation of this product involves working inside and outside of the vehicle with the electrical system. We can not assume any responsibility for related damages, please work carefully.
- Please do not install this product in places with high humidity, dust, direct sunlight, hot exhaust air, or high temperatures.
- Do not use this product in places where powerful radio waves are generated. Feedback from radio waves may cause this product to malfunction.
- When wiring, remove the key from the ignition and disconnect the battery.
- Insulate by winding vinyl tape on solders. Where applicable, connectors should be used.
- It is recommended to use a hose clamp when plumbing so that hoses do not come loose.

IMPORTANT

- This product is intended for race use only.
- On public roads it is mandatory to travel according to the law.
- This product is for use in vehicles equipped with a 12V battery.
- By disconnecting the battery, saved information will be erased clock/audio, the navigation system, electric seat, ect.
- Please check the operation manual of each product beforehand. After installation, please reconfigure each product according to their instruction manual.
- If you have any questions about this product, please contact us.

INFORMATION

- Because this product is a precision device, please handle with care.
- When cleaning this product, wipe it with a dry cloth. If extremely dirty, wipe with a damp cloth wrung well after being immersed in a small amount of water. Do not use benzene thinners, the case and paint will deteriorate.
- Please understand that this product and this instruction manual may be revised without notice for improvement.
- Trust does not export this product, should you have any issues please contact the reseller.
- For sale and use in Japan only.

Basic Operation

■ Detailed Boost Pressure Control Using Various Maps

By acquiring information from the vehicle such as engine speed, gear position, vehicle speed, and throttle position. More precise boost control is possible.

■ Real time display of vehicle information

RPM, gear position, vehicle speed, throttle position, and temperature can be displayed in real time.

■ Synchronized brightness adjustment

Enables you to adjust the screen brightness of the Profec control unit.(night/day)

■ Temperature linked boost control

If a temperature sensor is connected, it is possible to control boost by temperature.

The turbine can be controlled by setting the boost value immediately after starting before the engine has "warmed up" .

■ MAP trace function

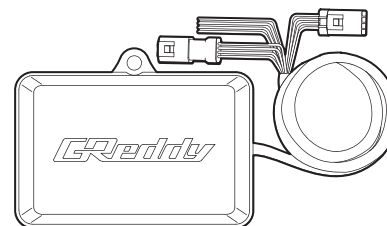
The value currently being read in the map is displayed with a colored frame making visual confirmation easier.

■ Data logger function

You can connect a PC to the control unit to use the data logger function.

■ Operation by external switches

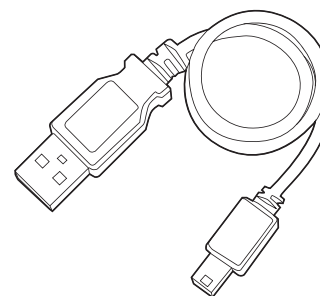
External switches can be installed by connecting an optional switch harness.



Profec MAP Unit

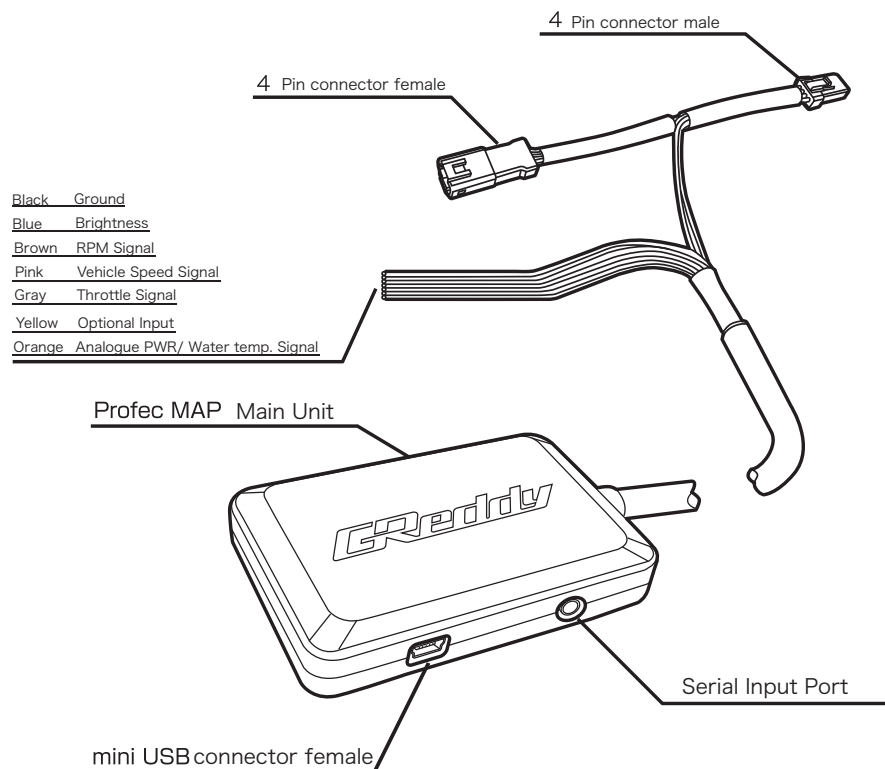


Instruction Manual



USB-mini USB cable

Product Description



※ 「 Yellow optional input 」 Automatically recognizes a 12 volt signal, turning ON when connected to a 12V signal, and turning OFF when the signal is cut.

By connecting external switches to the serial input port or the yellow wire, it will be possible to change boost settings.

If the scramble boost function or LO/HI mode is chosen within the software from the option or serial drop down menus.

Note: it is recommended to use a toggle switch with the optional input and a biased switch with the serial input port.

Installation Overview

Parts check list

p.9

System overview

p.12

Tools required for installation

p.12

How to download and install software

p.13 ~ p.17

How to set-up software

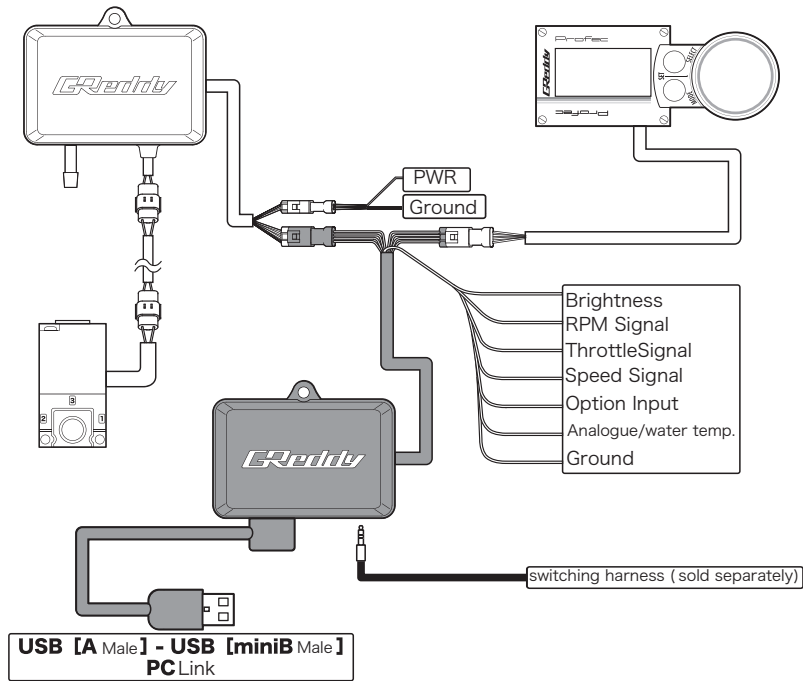
p.18 ~ p.40

Engine start and check

Setting adjustments

Hardware Installation

System Overview



Tools required for installation

- Tester (one capable of measuring 15 V or more)
- Nipper
- * +/- driver
- * Pliers
- * Soldering iron, solder, bullet terminals, crimp splice
- * Electrical tape, zip ties
- * Double-sided tape (for affixing the main unit)

How to download and install software

Software Requirements

- OS: Windows Vista
Windows 7
Windows 8
- * Although the software operates on Windows XP, it is NOT recommended, because the OS support period has ended.
- CPU: 32 bit or 64 bit processor with 1 GHz or more
System memory: 1 GB or more
Hard Drive free space: 20 MB or more

Software Download

Please download the latest version of Profec MAP software from our product support page.
<http://www.trust-power.com/support.html>

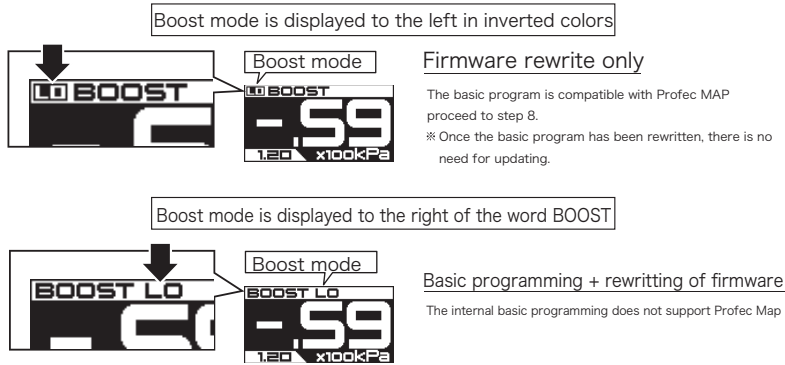
Software Installation

Double-click the icon to start installation.
Follow the instructions during installation.
During installation, you will be prompted to enter the serial number of the Profec MAP Unit.
Please enter the 5 digit serial number stated on back of the Profec MAP unit.

How to update control unit

Before Updating

Depending on the Profec version, the process of updating varies.
The version can be determined by the control unit's display format.



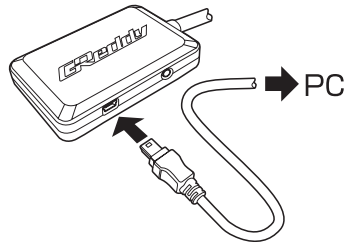
Update Procedure

1. Wiring the Profec MAP

Refer to the System Overview and Product Description sections.

2. Connection between Profec MAP and PC

After completing the installation of Profec MAP software, connect the Profec MAP to a computer with a USB cable.



3. Power ON

Turn the vehicles engine key to the ON position. (Do NOT crank the motor)



4. Activate/update program (update basic programming)

Launch "Profec Update.exe" from the PC.

Click the "update" button in the window you launched and wait until the process has completed.

* It takes time to update. Do NOT turn off the power while updating.

* Please do not run "profec_map.exe" at this time. If it is operating with "Profec Update.exe", it will interfere with communication to the control unit.



Profec Update.exe

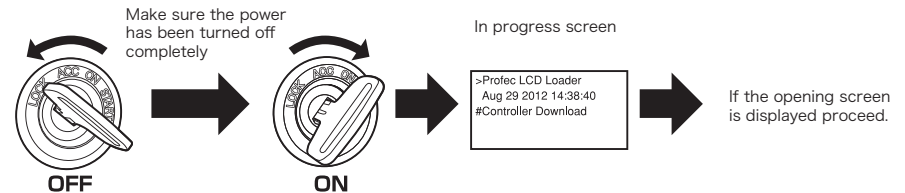


← Updatebutton

5. Restart/Update Process (First Time)

Once step 4 is complete, turn the key OFF once, then turn it off completely, and return it to the ON position. (The engine should NOT be started)

The control unit will display a message indicating that the update is in progress. After that, once the opening screen appears, proceed to the next step.



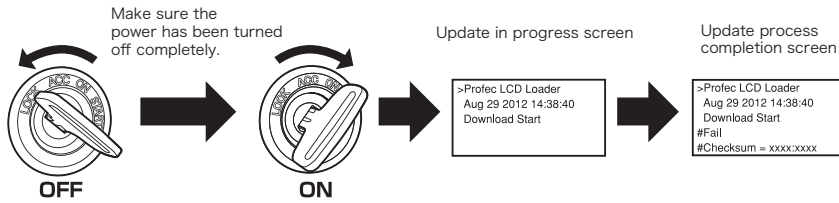
How to update control unit

6. Restart/update process (Second time)

Once step 5 has completed, turn the key OFF once, after completely turning off the power, return it to the ON position. (The engine should NOT be started)

The control unit will display a message indicating that the update is in progress. (the process will proceed automatically)

When "#Fail" is displayed on the screen, this step is complete. Proceed to the next step.



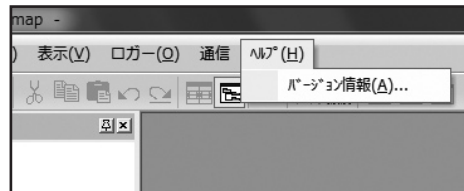
7. Exiting Profec Update.exe



8. Start profec_map.exe (update firmware)

Launch "profec_map.exe" on the computer and check the version information. [Help] → [Version information]

* At this stage, the control unit will display an update complete screen.

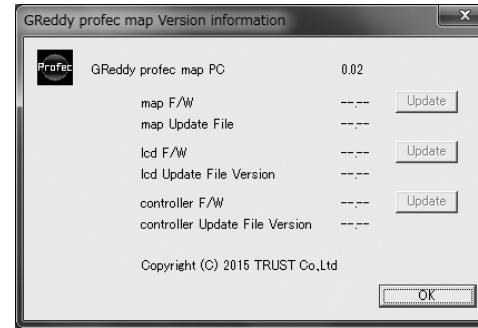


9. Rewriting Firmware

In the version information, click the "Update" button next to ["map F/W" and wait for rewriting to end.

Click "Update" next to "lcd F/W" and wait for rewriting to end.

Click "Update" next to "controller F/W" and wait for rewriting to end.



← map F/W (map of the main unit) Update button

← lcd F/W (main lcd firmware) Update button

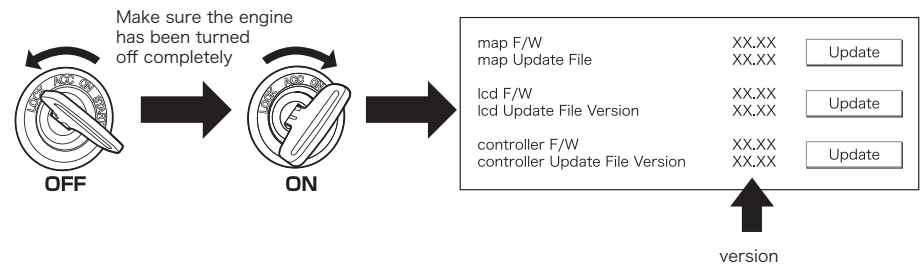
← controller F/W (controller firmware of the main unit) Update button

10. Reboot • Confirm

Once step 9 has completed, turn the key to the OFF position, after power is completely turned off, turn it to the ON position again. (Do NOT start the engine)

After being turned on and communication with the control unit has resumed, the version information will be displayed.

Check that the versions of the control unit's firmware (F / W) and the software's update file (Update File) match, if they match the update process is complete.



How to use software

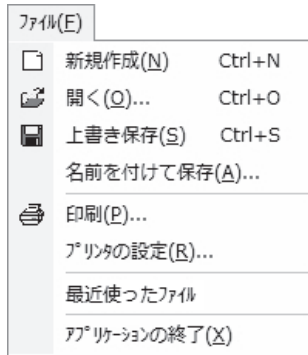
Using GReddy Profec Map software you can set the parameters of the control unit using a computer, and create a boost pressure MAP.

Tool Bar Description

Menu bar

File tab

Commands related to file operations.



● **Create new**

Create a new file.

● **Open**

Open a saved file.

● **Overwrite Save**

Overwrites and saves data in the open file.

● **Save As**

Launch a prompt to save an alias of your work.

● **Print**

Parameter settings of the MAP are printed.

● **Printer settings**

Changes printer related settings.

● **Recently used files**

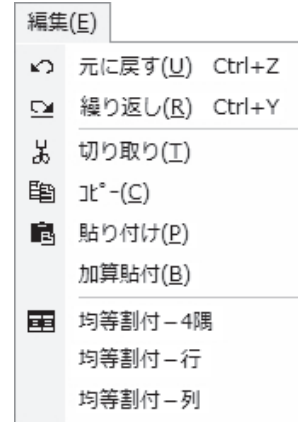
The most recently used file will be displayed.

● **Exit application**

Exit the Profec MAP software.

Editing tab

Summary of editing commands.



● **Undo**

Cancel the previous operation.

● **Redo**

Repeat the previous operation.

● **Cut**

Cut the selected data.

● **Copy**

Copy the selected data.

● **Paste**

Paste the selected data.

● **Additive attachment**

Cut or copy selected data.

Choose location within a MAP range.

Data is added to the existing value where pasted.

● **Equal assignment - 4 corners**

Data within the range is made uniform with the values at the four corners of the selected range.

● **Equal assignment - lines**

Makes data within the range uniform based on the values at the right and left ends of the selected range.

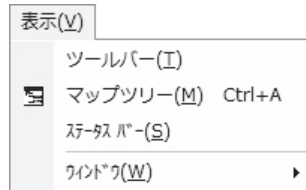
● **Equal assignment - Columns**

Makes data within the range uniform based on the values at the upper and lower ends of the selected range.

How to use software

■ Display tab

Summary of display commands.



● Toolbar

Show or hide tool bar.

● MAP Tree

Show or hide map tree.

● Status Bar

Show or hide status bar.

● Window

▼ superimposed display

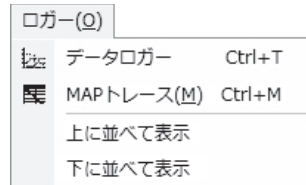
If multiple correction MAP windows and setting windows are opened, they will be superimposed.

▼ display side by side

If multiple correction MAP windows and setting windows are opened, they will be displayed side by side.

■ Logger tab

Summary of logger menu commands.



● Data Logger

Open the data logger window.

● MAP trace

A cell with a value from the correction MAP is stored and displayed on the correction MAP.

● Bring display to front

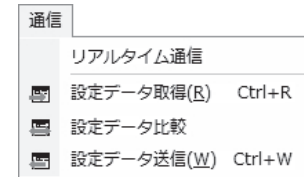
Display the data logger window on top of the Profec MAP main window.

● Send display to rear

Hide the data logger window.

■ Signal Transmission tab

Summary of Signal Transmission Commands.



● Real time communication

Send/Receive information in real time.

● Retrieve data setting

The setting data on the control unit side is received by the software.

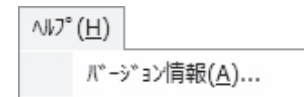
● Compare data setting

Compares data from the control unit with the software and checks for consistency.

● Transmit data settings Send data from the software to the control unit.

■ Help Menu tab

Summary of Help commands



● Version information

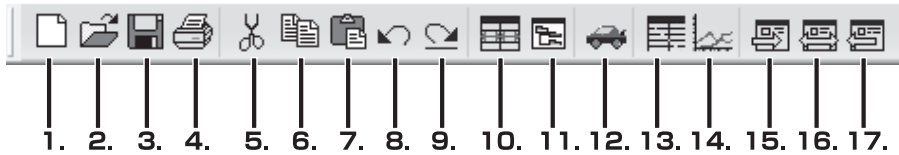
Update files, check firmware version.

Also updates the control unit and software.

How to use software

Tool bar explanation

Frequently used commands on the toolbar.



1. New file

Create a new file.

2. Open

Selects the file you want to open from the existing files and opens it.

3. Save

Overwrites the existing file and saves it.

4. Print

Print correction MAP and setting contents.

5. Cut

Cut data from a selected range.

6. Copy

Copy data from a selected range.

7. Paste

Cut or paste copied data to the current cursor position. (range)

8. Undo

Cancel last edit.

9. Redo

Redo last edit.

10. Equal assignment - 4 corners

Data within the range is rendered uniform in reference to the values at the four corners of the selected range.

11. Show/hide map tree

Toggle (display/hide) the map tree.

12. Parameter setting

Open the parameter settings screen.

13. MAP trace

Cells containing values from the correction MAP are displayed.

14. data logger

Open the data logger window.

15. Acquire setting data of control unit

Setting data of the control unit is received by the software.

16. Data Comparison

Compare software data with control unit data, and check for consistency.

17. Transmit

Send setting data from the computer to the control unit.

How to use software

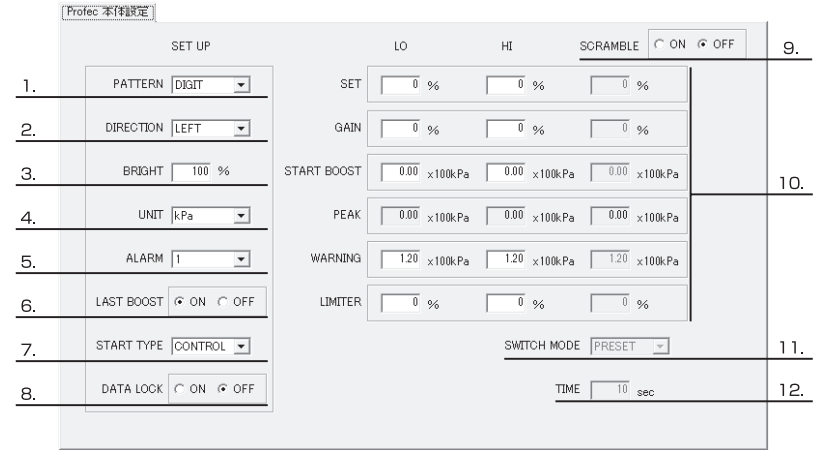
Operating the parameter setting window

Launch the GReddy Profec MAP software and click the parameter setting icon to open the parameter setting window.



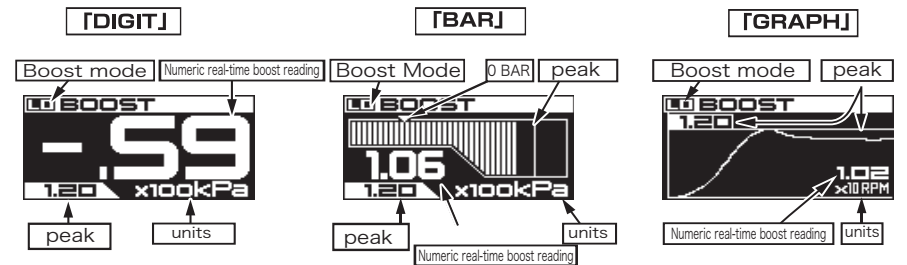
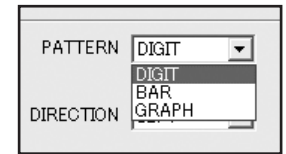
"Profec control unit settings" tab

The setting values of the Profec control unit can be changed and set on the computer.



1. PATTERN configures the real-time (boost gauge) display's pattern type.

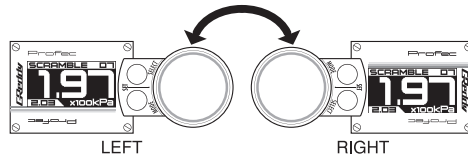
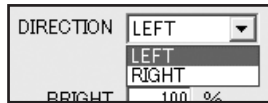
- DIGIT** (Values are displayed in digital numerical format)
- BAR** (Values are displayed in bar format)
- GRAPH** (Values are displayed in graph form)



How to use software

2. DIRECTION...Reverse the control unit direction allowing controls to be on either side of the screen.

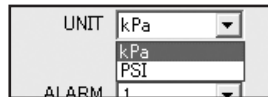
- LEFT** (will position the display on the left side of the SET DIAL)
- RIGHT** (will position the display on the right side of the SET DIAL)



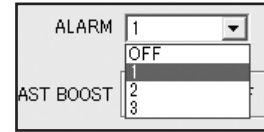
3. BRIGHT...(BRIGHT OFF) sets the screen's daytime brightness. (0 ~ 100%)



4. UNIT...Configure the display of boost units in either kPa or PSI.
 $100\text{kPa} = 1.01972\text{kg/cm}^2 = 14.5\text{PSI}$

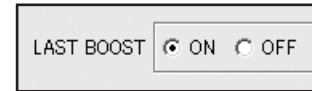


5. ALARM...set the display units alarm. (OFF, 1, 2, 3)



6. LAST BOOST...displays the highest boost reading from the last boost session, when the throttle is released. Configure the feature ON or OFF.

- ON** (LAST BOOST function in use.)
- OFF** (LAST BOOST function not in use.)



When "LAST BOOST" is set to ON, every time one drives (gets positive to negative pressures), the highest peak value will blink for 3 seconds on the real time display.

*value will blink for 3 seconds on the real time display.



How to use software

7. START TYPE...Determines how the boost controller will function until the START BOOST value.

CONTROL Attempts to control the wastegate with the solenoid valve for the entire boost range so that the boost pressure reaches the target value as soon as possible.

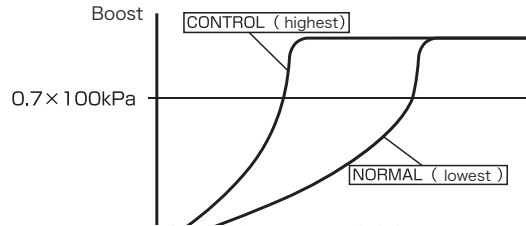
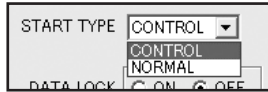
*Refer to; ("Parameter settings - control unit setting tab - Boost setting list") as the target.

*Compared to NORMAL, boost pressure will rise sharply.

NORMAL Only activates the boost control solenoid from the programmed START BOOST value on.

When the value set in ("Parameter settings - Profec main unit setting tab - Boost setting list") is surpassed.

Since minimum startup control to the target value is bypassed, boost pressure rises gently.



※ Example; if the START BOOST value is programmed at $0.7 \times 100 \text{ kPa}$, CONTROL will allow for quicker boost response.

8. DATA LOCK...To prevent unwanted changes or data loss, DATA LOCK can password protect the program setting for LO/HI/SCRAMBLE/START (BOOST), but will not prevent changes to PATTERN or ALARM.

ON Once the data lock is ON, a new screen will appear and allow you to program a 3 digit password for the DATA LOCK.

* to cancel and return to the main SET UP screen, press MODE.

It is necessary to input the password when communicating data between ProfecMAP software and the control unit because data from the control unit will be restricted.

OFF Deactivates the DATA LOCK function.



9. SCRAMBLE...controls the scramble boost function.

ON Activates the scramble boost function.

OFF Deactivates the scramble boost function.



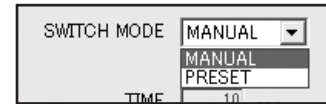
10. BOOST setting list...Display or program the BOOST LO/ BOOST HI/ BOOST SCRAMBLE mode settings.

==> Parameter settings - Profec control unit setting tab - Boost setting list"

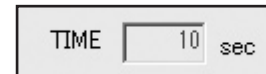
11. SWITCH MODE...Configure the transition to SCRAMBLE feature.

MANUAL SCRAMBLE feature is activated as long as the SET DIAL is pushed and held down, while in a BOOST LO/HI real-time (boost gauge) mode.

PRESET SCRAMBLE feature is activated for a timed duration once the SET DIAL is pressed, while in a BOOST LO/HI real-time (boost gauge) mode.



12. TIME...once the PRESET is selected for the SWITCH MODE, you can program the duration of TIME the SCRAMBLE feature will be activated for.



How to use software

Boost Setting List

Display or program the BOOST LO/ BOOST HI/ BOOST SCRAMBLE mode settings.

	LO Boost Setting	HI Boost Setting	Scramble Boost Setting
SET	0 %	0 %	0 %
GAIN	0 %	0 %	0 %
START BOOST	0.00 ×100kPa	0.00 ×100kPa	0.00 ×100kPa
PEAK	0.00 ×100kPa	0.00 ×100kPa	0.00 ×100kPa
WARNING	1.20 ×100kPa	1.20 ×100kPa	1.20 ×100kPa
LIMITER	0 %	0 %	0 %

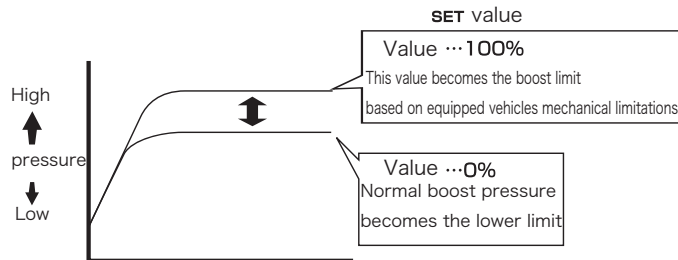
SCRAMBLE: ON OFF

● **SET**...Changes the boost pressure by controlling the boost pressure solenoid valve.

This SET value in percentage (%) adjusts the boost control solenoid valve duty cycle, it does not set an actual boost pressure value.

Raising the value increases the boost pressure, and lowering it decreases the boost pressure.

* Important: There may be vehicles or turbocharger set-ups which are unable to reach your target boost pressure.

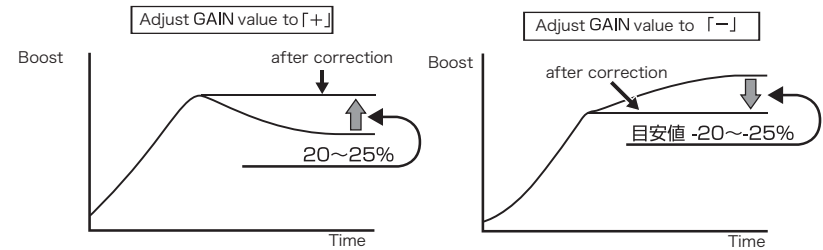


● **GAIN**...Controls the boost curve tendency after the START pressure value. (stability and consistency at higher RPMs) -9~100%

To prevent boost from dropping in the higher RPM range(boost fall off), adjust the GAIN to a positive value.

If the GAIN value is programmed too high it may cause unstable boost, with a fluctuating boost curve. (boost creep)

It is recommended to set the value within a range of 20 to 25%.

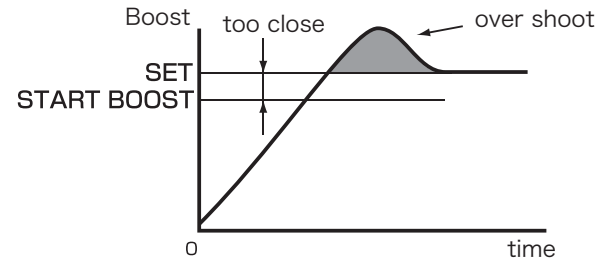


● **START BOOST**...Effects initial boost response. (0 ~ 3.00 × 100kPa)

CONTROL: maximizes the boost response to the targeted boost pressure. Boost will rise faster by selecting a START value closer to the targeted boost pressure.

(however, too high of a setting may result in boost spike)

In which case please lower the START BOOST value.



● **PEAK**...Display the peak boost value in memory. (Only positive pressure)

The peak value won't be deleted until it is reset by the control unit.

Refer to "PEAK" in the instruction manual of the Profec control unit for more information.

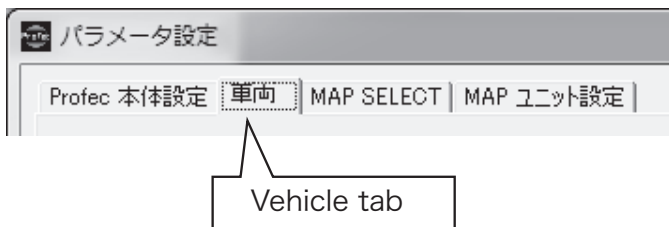
How to use software

● **WARNING**...An audible/visual alarm will activate if boost pressure exceeds this value.
Program the maximum acceptable boost level. (0 ~ 3.00 × 100kPa)

● **LIMITER**...A safety function to lower boost, once the WARNING boost value is exceeded.
The percentage boost lowered can be programmed (0 ~ 20%)
Once the limiter is activated at the WARNING boost value, it will continue to reduce boost by the programmed percentage until boost pressure falls to negative pressure. (vacuum)
The limiter function continues to operate until boost pressure reaches
0 × 100 kPa, i.e. when the accelerator is off.

[Vehicle] tab

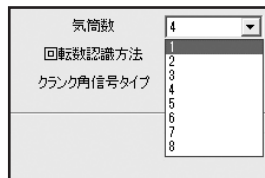
Makes settings related to information obtained from the vehicle.



■ "RPM signal" setting list

Settings related to the recognition of engine speed.

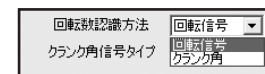
● **Number of cylinders**...Select the number of cylinders the engine has. (1,2,3,4,5,6,7,8)



● **How RPM is verified**...Select verify engine speed.

RPM signal (The RPM signal can be used for the engine speed.)

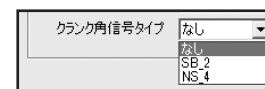
Crank angle (Select when vehicle wiring has no RPM signal. The crank angle signal is used for engine speed.) * Supported models only



● **Crank angle signal type**...When the RPM verification method is set to "crank angle", select the signal type from the drop down list. This list will be updated from time to time.

SB-2 (FA20(ZN6/ZC6), EJ20(GRB,GD* ,B*5), LF-VE(NCEC))

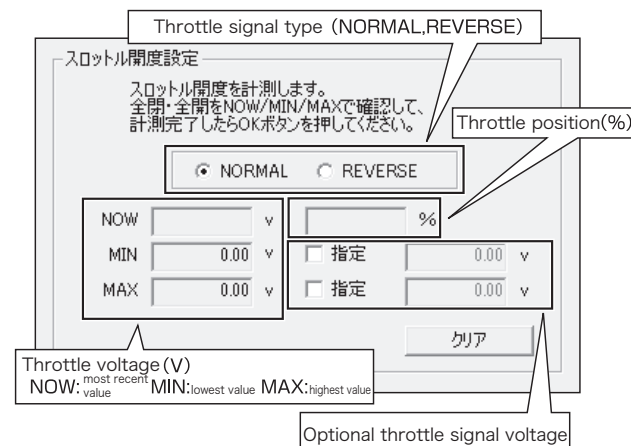
NS-4 (VQ20, VQ25, VQ35, VR38(R35))



■ Throttle position setting list

Configure throttle position verification.

● Throttle position setting performs throttle position signal voltage verification and settings.



How to use software

● **Throttle signal type**...select vehicle throttle signal type.

NORMAL (Type in which voltage rises with acceleration)

REVERSE (Type in which voltage drop with acceleration)

● **Throttle voltage**...Display and set the throttle signal voltage.

NOW (Displays the current throttle position signal voltage)

MIN (The minimum throttle position signal voltage is displayed

by checking the designated check box, you can specify the voltage manually.)

MAX (The maximum throttle position signal voltage is displayed by checking the

designated check box, you can specify the voltage manually.)

● **Throttle Position**...Calculate and display the throttle opening percentage (%) using the maximum and minimum throttle voltage values.

● **Optional throttle signal voltage**...By checking the designated box, you can manually enter any throttle signal voltage value.

■ "Vehicle speed setting" list

Vehicle speed pulse signal width set-up.

● **Vehicle speed pulse rate**...Set the pulse rate output of the vehicle's speed signal.

2,4,8,16, optional input 2 ~ 64)

● **Vehicle speed display correction value**...You can set the Vehicle speed correction as a percentage. This value is calculated from the vehicle speed pulse rate. (-100 ~ +100km/h)

● **Gear Setting**...Select the number of gears the vehicle has, and input the value for the rate of speed of each gear at a selected RPM.

Gear quantity (selects the number of forward gears)

Vehicle speed value input the vehicle speed at 2500 rpm for each gear.

1	2	3	4	5	6	7	8
15	30	40	60	80	100	120	140

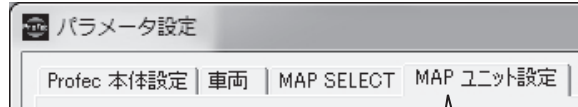
[MAP SELECT] Tab

From the boost Lo / Hi / Scramble modes, select the map you want to use.

Select the MAP you want to use with the check box.

How to use software

[MAP unit Setting tab.



[MAP unit settings] Tab

● **Temperature Sensor verification**...The output voltage of the connected temperature sensor can be set based on the temperature reading.

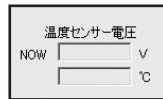
The upper row can be set according to temperature, and the lower row by voltage.

Initially the default value for a GReddy temperature sensor is set.

Temperature sensor reference values for each manufacturer are listed in the "supplementary information" section.

0	20	40	60	70	80	90	100	110	120	温度:℃
4.58	4.25	3.55	2.80	2.43	2.12	1.85	1.65	1.42	1.30	単位:V

In the "NOW" section of "Temperature sensor voltage", the voltage currently output from the temperature sensor is displayed, and the calculated temperature value is displayed in the lower column.

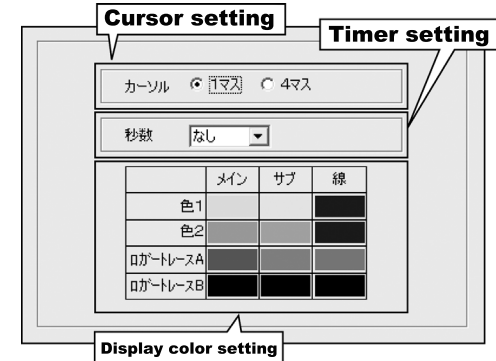


● **OPTION / SERIAL**...Connecting an external switch to the Optional input wire/Serial input port.

Lo/Hi (Connect a switch for Boost mode i.e. Lo / Hi switch)

SCRAMBLE (Connect a switch for activating SCRAMBLE boost)

Unused (if an extension is not used please select Unused)



● **Cursor**...The readout can display one space or four spaces.

If 4 spaces are selected, the current reading is displayed in the main color, and the correction value is displayed in the color selected from the sub column.

● **Timer Select**... "None", "1 second", "3 seconds", "10 seconds", or "Continuous"

● **Display Color**...The display can be any color available in the color row.

The main/sub/line colors can also be set here.

Color 1 (2) (The color of the displayed value within each correction map can be selected "color 1" or "color 2")

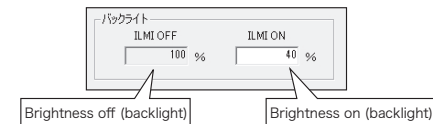
Logger Trace A (B) when a point on the logger graph is selected in the chosen color, the value is displayed on the correction map in the selected position.

Main The spaces containing the current values are displayed in the selected color.

Sub The main value border is displayed in the selected color. *Valid only when the cursor is set to display four spaces.

● **Back Light**...Brightness can be adjusted when [BRIGHT] is on.

When [BRIGHT] is off, in the "Parameter settings- Profec control unit setting tab - SET UP - BRIGHT".



Brightness off (backlight)

Brightness on (backlight)

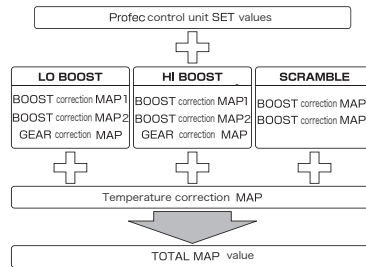
How to use software

Correction maps

The boost pressure correction MAP of this program has two BOOST correction MAP(s) and one GEAR correction MAP in LO BOOST/HI BOOST mode. It also has two BOOST correction MAP(s) in SCRAMBLE mode.

It has a temperature correction MAP, which is constant across all modes.

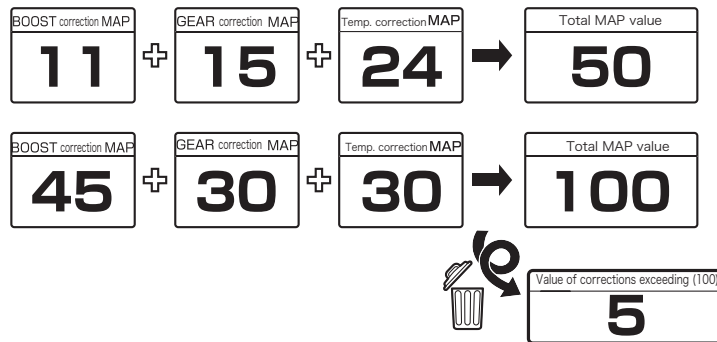
[MAP SELECT] The MAP selected from the tab will be used.



In each mode LO / HI / SCRAMBLE, the boost pressure correction value is the sum of their respective correction MAP(s).

The correction value limit is "100", any value above that is considered invalid.

It is possible to know the total value using the TOTAL MAP value data logger function.



BOOST Correction/GEAR Correction MAP

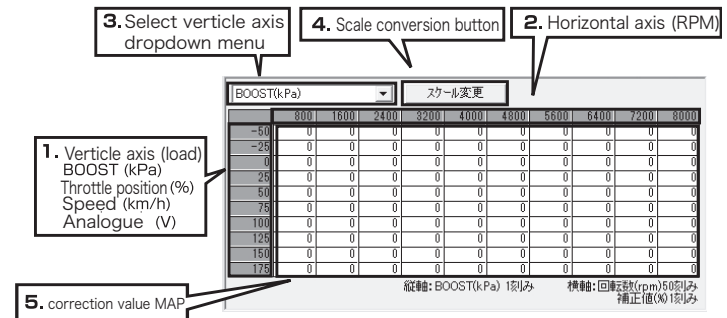
Select an item as the vertical axis (load), and control the boost pressure at the intersection of the vertical axis and the horizontal axis (RPM) using the boost pressure correction value.

There are two MAP(s) for each mode, LO, HI, and SCRAMBLE.

The GEAR correction MAP can map up to 6 gears. (LO/Hi boost mode)

*It is possible to display up to 8 gears.

When using the GEAR correction MAP input the number of gears the vehicle has in advance. (Refer to "Parameter settings - Vehicle tab - Gear" setting.)

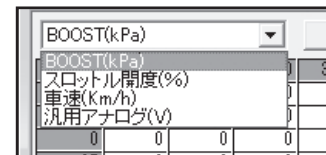


1. Vertical Axis (load)...Is the load of the correction value MAP.

The selected item from the vertical axis dropdown menu (3) becomes the load axis.

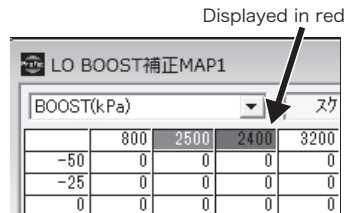
2. Horizontal Axis (RPM)...is the RPM correction MAP.

3. Select Vertical Axis dropdown menu...The parameter used as the load axis of the correction value map can be chosen. BOOST (kPa), throttle position (%), speed (km/h), analogue (V)



How to use software

4.Scale conversion button...Click to use scale conversion when you want to change the scale of each axis (vertical axis, horizontal axis). Click again to exit. * **When converting the scale, the values must be in ascending order. If the numbers are not in ascending order, the incorrect cells will be filled in red.**



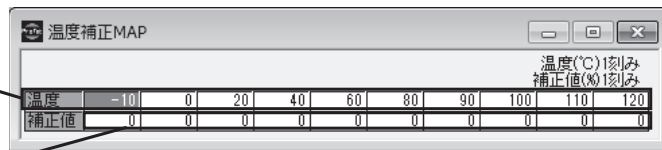
5.Correction Value MAP...is used to enter the corresponding boost pressure correction value. (Vertical axis [load] horizontal axis [RPM])

Temperature correction MAP

Boost pressure is controlled according to the correction value on the current horizontal axis. (temperature)

It operates the same on every boost map i.e. LO, HI, SCRAMBLE.

*When using the temperature correction MAP, in order to correctly recognize the current temperature, be sure to calibrate the temperature sensor in "parameter settings - MAP unit setting tab - temperature sensor verification".

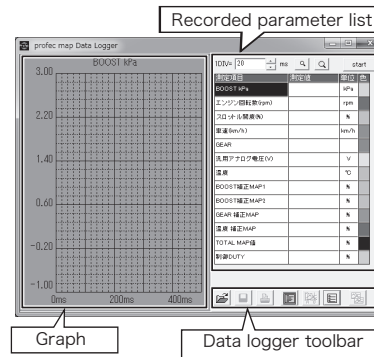


1.Horizontal Axis (Temperature(°C))...Temperature value used for boost pressure compensation.

2.Value Correction MAP...used to input the boost pressure correction value corresponding to the temperature axis.

Using the DATA LOGGER

Profec MAP input options make it possible to display, record, and analyze data.



Graph display area

Here a graph of the recorded data is displayed.

Recorded parameter list

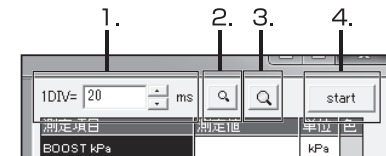
Here you can select the parameters you want to record.

Data logger toolbar

Summary of commands related to the Data logger.

Recorded item list

Here you can select the parameters you want to record.



1.Display interval setting

The display intervals on the graph can be set. They can be adjusted by entering a numeric value or by using the increase/decrease button. (The minimum display interval is 20 ms)

2.Decrease button

Interval per point on the graph is decreased. The graph display will be reduced by 20 ms with each press.

3.Increase button

Interval per point on the graph is increased. The graph display will be extended by 20 ms with each press.

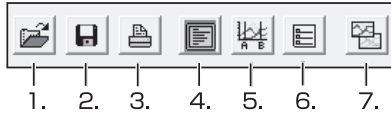
4.Start Button

Starts or stops the data logger.

How to use software

■ Data Logger Toolbar

Summary of commands related to data logger operation.



1. File Open

Open saved data.

2. Save

Save the current data recorded by the logger.

3. Print

Prints the displayed data.

4. Display real-time monitor

Display data recorded in real time.

START The START button switches from the real time monitor display and begins recording data.

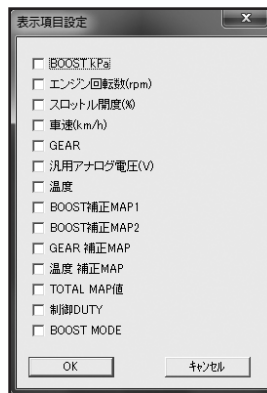
STOP When finished recording data press the STOP button, the recorded data will be displayed in graph form.

5. A-B cursor

Displays the measured values of two selected points e.g. (point A to point B)

6. Set display parameter

Select the parameter to be displayed on the graph.



■ Logger display parameters

BOOST (kPa)	The boost pressure value recognized by Profec.
Engine Speed (rpm)	The engine speed obtained from the RPM signal.
Throttle Position (%)	The voltage of the throttle signal line. Calculates the throttle opening degree (%) and displays it.
Speed (km/h)	The vehicle' s rate of speed obtained from the speed signal.
GEAR	Displays the number of gears, information is obtained using the vehicle speed and the RPM set in "Gear setting".
Analog voltage (V)	(Green wire) Used for analog, voltage, or water temperature.
Temperature (°C)	(Green wire) Multiplied by the coefficient set with "temperature sensor recognition" parameter.
BOOST CORRECTION MAP1	Boost correction value read from BOOST correction MAP 1.
BOOST CORRECTION MAP2	Boost correction value read from BOOST correction MAP 2.
GEAR CORRECTION MAP	Boost correction value read from GEAR correction MAP.
Temperature correction MAP	Boost correction value read from temperature correction MAP.
TOTAL MAP value	The sum of boost correction values from every correction MAP.
DUTY Cycle	Changes the boost pressure by controlling the boost control solenoid valve. Mechanical factors have a big influence, essentially the boost pressure increases as this value increases, and the boost pressure decreases as this value decreases.
BOOST MODE	Control the boost mode (LO, HI, SC, OFF)

How to use software

7. Creating a new logger screen

To compare data, open a new logger screen with the current data logger window open.

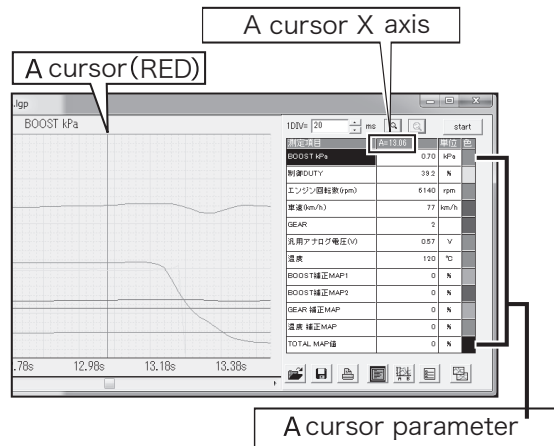
After opening a new logger screen the previous logger screen will be offline, you will not be able to start collecting data with it again.

If you close the new logger screen and only the offline logger screen remains, a new logger screen must be launched in order to go back on-line. Do this by pressing the data logger button on the tool bar.

■ Graph display area

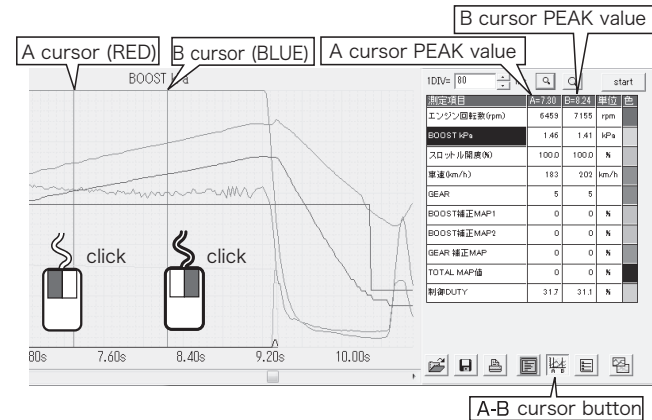
● Shows recorded values as points on a graph.

By choosing an arbitrary position on the graph, the A cursor (vertical line, red) is displayed and the value of each item at the elapsed time of their position will be displayed.



● A-B Cursor

The value of 2 points will be given; by left clicking the mouse the A cursor (red) will appear and right clicking will display the B cursor (blue).

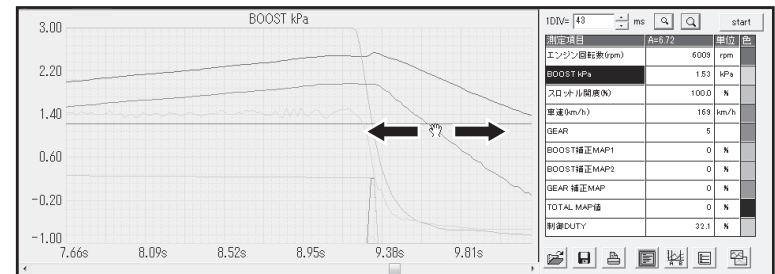


When you press the A-B cursor button if there is logger data recorded, the measurement value displayed in the parameter list will be divided by two, and the A cursor and B cursor values will be displayed.

Use the A-B cursor to know the value of any position. The A cursor appears by left clicking and the B cursor appears by right clicking. The value will be displayed in the parameter list.

● Graph Scroll

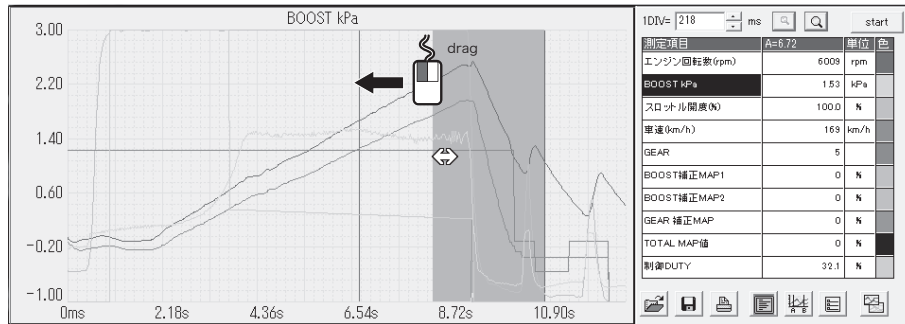
By holding down the left mouse button and moving the mouse to the right or left on the graph, it changes to a palm-shaped cursor and you can scroll through the displayed area.



How to use software

● Expanding a selected portion of the graph

On the graph, while holding down the right mouse button, move the mouse cursor to the right or left, a band of inverted colors showing the selected range appears, when you release the mouse button, you can enlarge the selected range on the graph.



● Scale

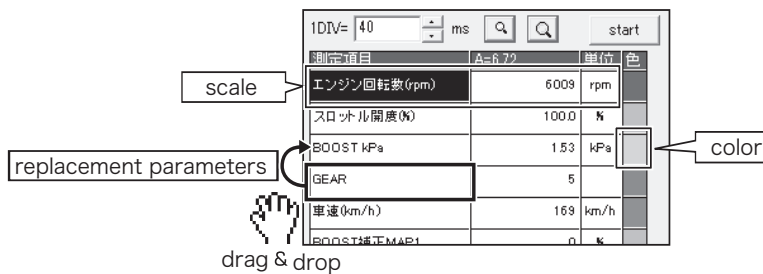
In the measurement parameter, double-click any square other than color to change the maximum value (MAX) and minimum value (MIN) of the graph display range.

● Color

Double-click on a color cell to change the waveform color of the graph.

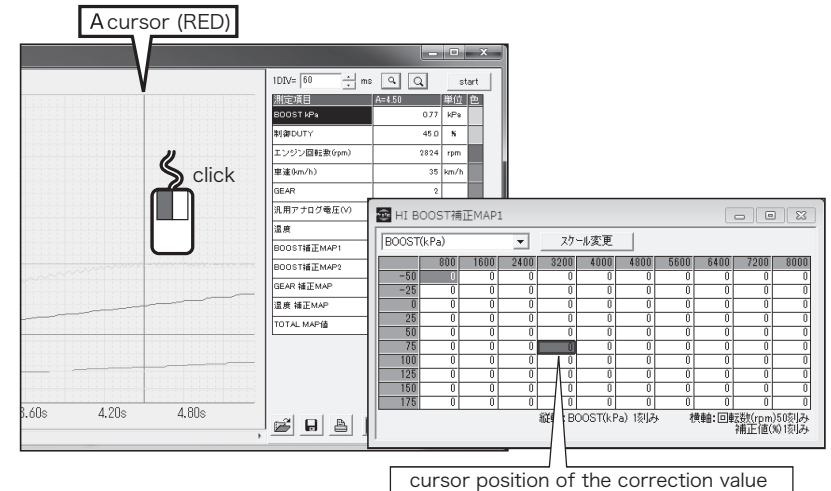
● Replacing Parameters

By dragging and dropping a parameter where you want, you can change the display order of the parameters.



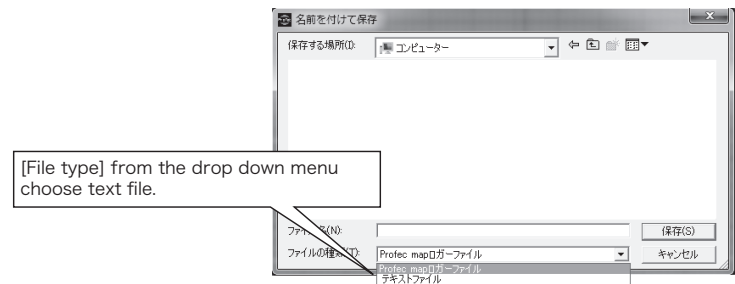
● Logger Trace

After you open the correction MAP window the A cursor and the B cursor can be displayed on the graph by clicking anywhere on the logger (see "AB cursor function"), the value at the position of the cursor can be colored and traced on the map.



● Export logger data to text file

When saving the recorded data, it can be exported to text file format (.txt) by changing the save format, and the data can be used for graphing with other programs.



Control unit instructions

Using the control unit

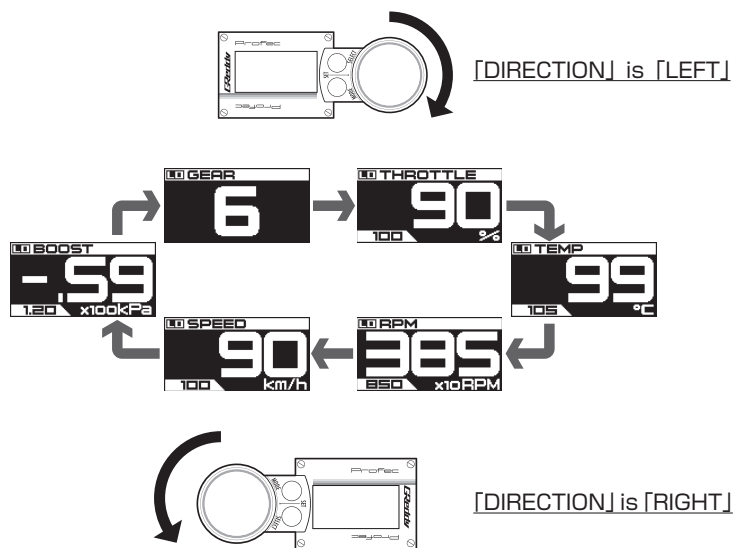
How to use the control unit after updating

● How to change the real-time display parameters

In the main SETUP screen, rotate the SET dial right (clockwise)

(*When "DIRECTION" in PROFEC control unit is "RIGHT", turn it left (counterclockwise)) Parameters can be changed this way.

Parameters can be changed in this order BOOST → GEAR → THROTTLE → TEMP → RPM → SPEED (→ back to BOOST)



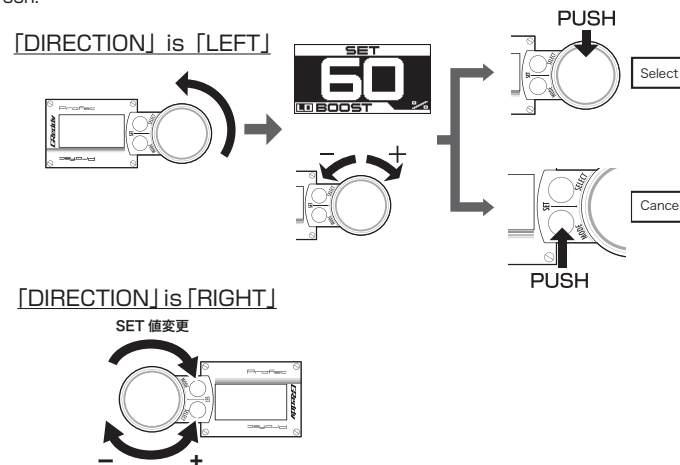
● Change the boost SET value

Turn the SET dial left (counterclockwise) (* turning right (clockwise) when "DIRECTION" is "RIGHT" on * PROFEC control unit) to change the SET value in the current mode.

(1) In the BOOST mode set up screen, highlight SET and press the SET DIAL to confirm.

(2) Rotate the SET DIAL to change the SET % value. To cancel and return to the previous setting and the BOOST mode set-up screen, press MODE.

(3) To program the SET % value, press the SET DIAL to confirm and return to the BOOST mode set up screen.



● Changing boost mode display

The current boost mode is indicated by the following symbols to the left of the real time display parameter name.

- LO** indicates boost mode LO
- HI** indicates boost mode HI
- SC** indicates scramble boost mode
- OFF** indicates boost mode off

Temperature sensor characteristic reference values by manufacturer.

These are reference values of temperature sensor characteristics by manufacturer. They represent the input voltage for "temperature sensor recognition" in the "MAP unit setting".

make \ temp.	-20	-10	0	10	20	30	40	50
TOYOTA1	4.55	4.55	4.00	3.35	2.69	2.02	1.57	1.26
TOYOTA2	5.00	5.00	3.80	2.86	2.29	1.83	1.51	1.18
NISSAN	4.67	4.67	4.20	3.88	3.53	3.12	2.73	2.28
DAIHATSU	4.66	4.66	4.11	3.47	2.80	2.13	1.68	1.37
HONDA	4.24	3.88	3.45	2.97	2.47	2.01	1.60	1.26
HONDA2	4.78	4.50	4.08	3.63	3.16	2.67	2.19	1.77
MAZDA_RE	5.00	5.00	3.45	2.86	2.39	1.90	1.47	1.16
MINISUBISHI	4.38	4.02	3.53	3.10	2.65	2.24	1.85	1.53
MINISUBISHI2	3.72	3.40	3.08	2.75	2.42	2.08	1.73	1.42
SUBARU	4.67	4.67	4.20	3.88	3.53	3.12	2.73	2.28
SUZUKI	4.55	4.10	3.65	3.25	2.80	2.33	1.89	1.45
GReddyTemp sensor	-	-	4.58	4.25	4.05	3.82	3.53	3.18

voltage (V)

make \ temp.	60	70	80	90	100	110	120	130
TOYOTA1	1.00	0.77	0.57	0.39	0.22	0.06	0.06	0.06
TOYOTA2	0.88	0.69	0.51	0.40	0.29	0.22	0.12	0.06
NISSAN	1.88	1.51	1.22	0.98	0.78	0.65	0.53	0.45
DAIHATSU	1.11	0.88	0.68	0.51	0.33	0.17	0.17	0.17
HONDA	0.99	0.77	0.60	0.47	0.37	0.29	0.24	0.19
HONDA2	1.35	1.02	0.77	0.60	0.46	0.35	0.29	0.26
MAZDA_RE	0.90	0.71	0.53	0.37	0.26	0.14	0.02	0.00
MINISUBISHI	1.26	0.98	0.69	0.51	0.27	0.13	0.13	0.13
MINISUBISHI2	1.16	0.92	0.70	0.52	0.32	0.21	0.13	0.11
SUBARU	1.88	1.51	1.22	0.98	0.78	0.65	0.53	0.45
SUZUKI	1.17	0.90	0.68	0.52	0.40	0.31	0.23	0.15
GReddy Temp sensor	2.81	2.45	2.13	1.80	1.50	1.24	1.05	0.86

voltage (V)

*Depending on the vehicle, actual values may not be on the above table. Please use it only as a reference.

Please contact us if you have any questions or concerns.

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