

Defi-Link **ADVANCE** Control Unit SE

Defi-Link ADVANCE Control Unit SE Operation Manual

DF17701/DF17702/DF17703



Thank you very much for purchasing our product. Before installing and using the product, please read this manual thoroughly. All sections are for customers and installation personnel.

Defi will not be held responsible for accidents or damages related to installation of this product.

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This product is required for ADVANCE gauges and displays. This product does not function alone. Please use this product with ADVANCE gauges or displays. As for installation and operation, please refer to the manual for the gauges and displays as well.

In this manual, this product is described by names such as advance control unit, control unit, and unit. Read it as ADVANCE Control Unit SE.

2. Safety Warning **【Please read carefully.】**

This product is an additional product for providing information to automobile users about engine conditions and other important factors. When installing and operating this product, be sure to read the cautionary items of this operation manual as well as those given in the operation manual for the vehicle in which this product will be installed. Please obtain a full understanding of the cautionary items and use the product accordingly. In the event that this product (or the vehicle in which it is installed) is lent to or transferred to another person, please be sure this operation manual and the warranty card accompany the product.

In this manual, the degree of hazard arising from actions such as improper operation is separated into the 3 levels "Danger," "Warning," and "Caution." In addition, instructions that must be followed for safe and proper use of this product as well as practices that must be maintained are marked with a "Confirmation" heading. Please read and become familiar with these sections.

⚠ Danger	Indicates a hazard that could cause death or serious personal injury if the product is mishandled.
⚠ Warning	Indicates a possibility of death or serious personal injury if the product is mishandled.
⚠ Caution	Indicates a conceivable source of personal injury or damage to equipment if the product is improperly operated.
Confirmation	Indicates an instruction that must be performed or practice that must be maintained.

Properties for safety warning

⚠	⚠ indicates attention needs to be paid. (Including warnings)
⊘ Prohibited	⊘ indicates restricted actions. (PROHIBITED actions)
ⓘ Must	ⓘ indicates actions that need to be carried out. (MUST actions)

2.1. Before handling <for installation personnel>

⚠ Danger

- ⊘ Do not install the product in wet places. It may result in a fire caused by an electrical short circuit.
- ⊘ Keep the wiring away from locations which affect steering, safety and brake systems. Interfering with normal operation of the vehicle can result in an accident or fire.
- ⚠ Ensure that the vehicle will remain stationary and turn the power off before installing this product. Failure to do so could result in a fire, and could make the vehicle move during installation.
- ⚠ Remove the key from the ignition and disconnect the negative (-) battery terminal prior to installation of this product. Failure to do so could result in a fire caused by an electrical short circuit.
- ⚠ Take care not to install this product in a way that interferes with safety equipment such as seat belts and air bag systems or vehicle operation equipment such as engine controls, steering wheel and brake systems. Interference with normal operation of the vehicle can result in an accident or fire.
- ⚠ Solder or use a solderless connector for wiring connections and make sure connections are insulated. In areas where there could be tension or sudden impacts on the wiring, safeguard the wiring with corrugated tubing or other shock absorbent material. Accidental shorts can cause fires.
- ⚠ While wiring power supply wire, to avoid the risk of electrical shock or fire, be sure to confirm that there is no disconnection or breakage of wire. Poor connection can result in short-circuit, electrical shock, fire, or other hazards.
- ⚠ The ignition-switched +12V (IGN) line must be connected to the vehicle's ignition-switched wire with a fuse of 30A or less. High-capacity fuse (more than 30A) will not blowout even with an abnormal current flow and may cause fire.
- ⚠ Discontinue use of this product if a blowout of the fuse has occurred. Continued use while the condition exists could result in an accident, fire, or damage to the vehicle.
- ⚠ Use the tube fuse of regulated capacity when the fuse of the power source wire is changed. Using a fuse that exceeds regulated capacity may cause fire.
- ⚠ Discontinue use of this product if the product doesn't operate or operates improperly. Continued use while the condition exists could result in an accident or damage.

⚠Warning

⊘ Do not disassemble or modify this product. Such actions can not only damage or destroy the product but also will void the warranty.



Disassemble/modify

⊘ Do not perform installation of this product immediately after the engine has been switched off. The engine and exhaust system are extremely hot at this time and can cause burns if touched.

⊘ Please keep children and infants away from the installation area. Children may swallow small parts or be injured in other ways.

⊘ Do not install this product in the area where safety equipment such as air bags are mounted. This may cause more injuries in the event of accident.

❗ Carefully consider the installation location and driver's operation of the product before installation. Do not install the product where it interrupts driving and the safety devices of vehicle such as air bags. Be sure not to install the unit where it could fall. Improper installation or operation could cause the product to fall and damage the vehicle or cause serious danger by impeding driving.

❗ Ensure that the wiring of this product does not have an adverse impact on the other wiring of the vehicle. Incorrect wiring may destroy your ECU, ignition system and other engine management devices. When tapping engine rev or speed signal from the ECU, please make sure to follow the procedure as below:

1. Make sure that you have connected the power supply wire of the advance control unit.
2. Confirm that the DC Source LED of the advance control unit is lighted with ignition on.
3. Remove negative terminal connector from battery and tap engine rev or speed signal from ECU.

⚠Caution

⊘ Do not drop any of the components of this product. It may result in damage to the product.

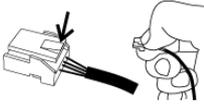
⊘ Do not apply excessive force on switches/terminals. It may result in damage to the product.

⊘ Do not use wires other than the provided wires.

⊘ Do not place wires near the engine, exhaust pipe or turbine. It may result in damage or fusion of wires.

⊘ Do not expose this product to moisture, dust or direct sunlight, or place product directly in front of heat vents.

⊘ Do not pull the wires out of connectors forcefully. The connectors may be broken and the wires may be cut. When pulling out the wires, press the lock firmly and unclip the locks of connectors.



⊘ Do not install this product or gauges into the passenger side or center of the dashboard. It doesn't meet vehicle safety standards.

⊘ Do not attach wires on the body of the vehicle or engine parts as this may result in damage to the product

⚠ This product is designed for use on 12V vehicles. Do not install this product on vehicles with 24V systems.



⚠ Insulate any unused wires. If any wires or connectors loosen during installation, please make sure they are correctly reattached.

⚠ Install wires away from ignition and also radio signal frequency interference as this could cause the gauges to malfunction. Install wires away from ignition and also radio signal frequency interference as this could cause the gauges to malfunction.

⚠ Please set it up so that the equipment, such as the wireless machines and cellular phones that emit electric waves, does not touch this product. It may result in incorrect operation.

⚠ Make sure the waterproof processing is done when diverging wires in the engine compartment.

⚠ When installing the sensor, do not bend the wire near the sensor body.

⚠ Wear gloves to avoid burns when soldering and cuts when installing wires, sharp edges of parts.

⚠ Install sensors away from hot or wet places.

- ❗ When using sunshade, put sunshade between products and windshield to avoid direct sun exposure.
- ❗ Turn the power off and use a dried soft cloth for cleanup. Do not use cleaners except neutral detergent. It may damage the product.

Confirmation

- ❗ When the negative (-) battery terminal is disconnected, equipment such as clocks and audio components having internal memory may lose their memory data. Follow the operation manual of each component to reset data after installation of this product.
 - ❗ After installation is complete, return this operation manual, warranty card, and the package along with the warranty to the customer.
 - ❗ Please confirm with the maintenance book that the car manufacturer issued when installing and detaching genuine parts.
 - ❗ Before tapping wires, check the voltage of the existing wire. After tapping the wire, check the voltage of the tapped wire again to confirm whether you have tapped into the proper place.
 - ❗ If car navigation system or car television is installed in vehicle, gauges and wires of this product need to be kept as far away as possible from the wiring and installing positions of car navigation system or car television. Failure to do so may result in interference of television display (VHF).
- ⚠ On no event will Nippon Seiki Co., Ltd. be liable to you for any damages or losses of genuine parts for your vehicle while installing.

2.2. About installation and operation <for customer and installation personnel>

⚠Warning

⊘ Do not disassemble or modify this product. Such actions will not only void the warranty but also damage or destroy the product.



Disassemble/modify

⊘ Do not operate while driving.

❗ Discontinue use of this product if it doesn't operate, water gets into the unit, or smoke or a strange odor comes from the unit. If such a condition occurs, contact the store or installation personnel as soon as possible.

❗ Continued use while the condition exists could result in an accident or fire. Please have this product installed by store professional or dealer where it was purchased. Installation by the customer will void the warranty.

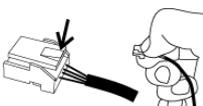
❗ In the case any of the warning lamps of vehicle (check engine lamp, etc.) is lighted, stop the vehicle and turn off the engine immediately. After turning off the engine, detach this product from the OBDII connector. Continued use while in a faulty state could result in accidents or malfunction.

❗ In order to ensure safe driving, check the information on the gauge only for a short period of time. Looking at the display for a long period of time could distract attention from the road and result in an accident.

❗ Fix the switch unit and other parts tightly to the vehicle to avoid that children swallow those.

⚠Caution

⊘ Do not pull the wires out of connectors forcefully. The connectors may be broken and the wires may be cut. When pulling out the wires, press the lock firmly and unclip the locks of connectors.



⚠ On no event will Nippon Seiki Co., Ltd. be liable to you for any damages arising out of the use or inability to use the product, even if Nippon Seiki Co., Ltd. has been advised of the possibility of such damage.

Confirmation

⊘ This product can be linked to the ADVANCE System NOT to the previous version of Defi-Link System.

❗ The information displayed on this product are for reference purposes only. Please drive according to the indication of vehicle's originally equipped instruments.

❗ This product can be used only on 1, 2, 3, 4, 5, 6, and 8 cylinder vehicles with 4 cycle engine. This product cannot be used on diesel vehicles. Only in case in which vehicles are compatible with the OBD specifications of this product, it can be used on diesel vehicles.

❗ Please check the installed product regularly. Durability might deteriorate according to use conditions, etc.

❗ Detach this product from the vehicle when not in use for a long time.

⚠ In the case of idling stop vehicles, the power of the product is turned off and restarted in some cases by a drop in battery voltage when the engine is restarted while idling stop function is active. It is not malfunction.

3. Features <for customer>

- The ADVANCE system (interactive communication) is implemented.
- This product can control up to 7 ADVANCE gauges and displays in all.
- The installation of additional gauges is easy. Just connect an additional gauge to other connected gauge and attach the sensor to this product.
- Gauges can be controlled from distance with the included switch unit.
- By connecting ADVANCE FD/ZD to the ADVANCE system, the illumination of ADVANCE gauges is controlled automatically.
- Opening and ending modes can be selected from 2 variations.
- Self-diagnosis system detects a disconnection of wire, short circuit and communication error, and indicates the error condition.
- Warning value can be set. The warning condition is noticed by warning LEDs in connected gauges, displays and buzzer. (The buzzer can be set ON/OFF.)
- With both fuel pressure and turbo sensors installed, differential pressure can be monitored on the fuel pressure gauge or ADVANCE FD/ZD.

4. Specifications <for customer and installation personnel>

Power supply voltage	10V ~ 16V DC (For 12V vehicle)	
Current consumption	+B (battery) line	2A (IGN ON) 1mA (IGN OFF)
	+ILM (illumination) line	5mA
(Maximum value obtained when connecting 7 gauges and displays)		
Illumination color	Control Unit DC Source LED : white Switch unit : white (while illumination is on) Switch unit differential pressure LED : blue	
Applicable number of cylinders	1·2·3·4·5·6·8 (4cycle)	
Dimensions	Refer to part names and dimensions section.	
Illumination input	①Illumination signal (12V wire while small lamp is on) ②Illumination control signal range frequency range : 50~300Hz voltage range : 5~16V minimum pulse width : 0.2msec and above	

Temperature range (Under 80% relative humidity) Unit: °C (°F)		
Part	Operation temperature range	Storage temperature range
Gauges/Displays	-30 (-22) ~ +80 (176)	-20 (-4) ~ +60 (140)
Control Unit	-30 (-22) ~ +80 (176)	-20 (-4) ~ +60 (140)
Switch Unit	-30 (-22) ~ +80 (176)	-20 (-4) ~ +60 (140)
Boost sensor	-30 (-22) ~ +100 (212)	-30 (-22) ~ +80 (176)
Press. sensor	-30 (-22) ~ +140 (284)	-30 (-22) ~ +120 (248)
Temp. sensor	-30 (-22) ~ +150 (302)	-20 (-4) ~ +150 (302)
Exhaust Temp. sensor	-30 (-22) ~ +130 (266)	-30 (-22) ~ +130 (266)

※ The upper temperature limit of sensor connectors is 105°C (221°F) .

※ The sensing part of exhaust temp. sensor is not included in the temperature range above.

4.1. Connectable items

ADVANCE gauges and displays, e.g. ADVANCE A1, BF and FD can be connected.

In addition, Defi Sports Display F (DSDF) can be connected.

△Some ADVANCE series' gauges and displays are no longer in production. Discontinued series can also be connected. (ADVANCE CR and ADVANCE ZD)

4.2. Difference between DF17701/02/03 and DF07701/03

Product No.	Product name	Production period
DF07701 DF07703	Defi-Link ADVANCE Control Unit (EOL)	Until November, 2022 (EOL)
DF17701 DF17702 DF17703	Defi-Link ADVANCE Control Unit SE	After December, 2022

Item		DF07701	DF07703	DF17701	DF17702	DF17703
Appearance	Unit panel design (lower right mark)	None	03	SE/SE BLK	SE SKY	SE SAKURA
	Color of the DC source LED	Blue		White	Light blue	Pink
	Color of the case	Black			Gray	
	Switch panel design	Refer to the next page.				
Function	Three minutes record and replay	Available		Not available		
	Clock display when ADVANCE FD/ZD is connected	Available in ZD		Not available		
	Stopping oil pressure warning buzzer	Not available		Available		
	Illumination control signal input	Not available		Available		

■ About stopping oil pressure warning buzzer

Even if oil pressure indicates 0kPa during idling stop, etc., the oil pressure warning buzzer can be prevented from sounding by setting the value to 0kPa.

⇒[9.7.2 Set of warning buzzer ON/OFF](#)

■ About illumination control signal input

In vehicles equipped with illumination control (vehicles with pulse-controlled illumination signals, such as European vehicles), the ADVANCE CAN Driver (DF156 series) is necessary to make the illumination of Defi gauges work properly with the DF077 unit, but the DF177 unit allows the illumination control signal of vehicle to be input as an illumination on/off signal to the ADVANCE system.

⚠The DF077 series has been discontinued. Some units included in set products with gauges may have different production periods.

⚠The first 1,000 units in the DF17701 will be a limited edition as "Black edition" and the panel design of the main unit will differ from that of the regular edition.

4.2.1. Panel design

DF177 シリーズ DF177 series

DF17701 通常版 SE Regular edition



DF17701 限定版 SE Black Limited edition



DF17702 限定版 SE SKY Limited edition



DF17703 限定版 SE SAKURA Limited edition



DF177 シリーズ スイッチ
DF177 Series Switch



DF077 シリーズ (生産終了) DF077 series (EOL)

DF07701



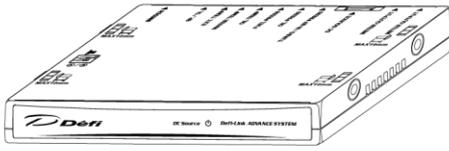
DF07703



DF077 シリーズ スイッチ
DF077 Series Switch



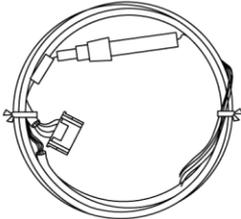
5. Components <for customer and installation personnel>



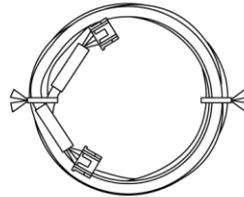
ADVANCE Control unit SE 1pc



Switch unit
 Wire 1.5m(5ft) 1pc



Power source wire
 1m(3 1/3ft.) 1pc



Meter wire
 2m(6 3/5ft.) 1pc

Accessories



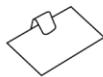
Double sided tape
 1pc



Tie wrap 2pcs



Solderless connector
 4pcs



Clip 1pc



Nut 4pcs



Bolt 4pcs

⚠ Start guide and a warranty card are included with the parts listed above. Keep them at hand.

6. Repair / optional parts <for customer and installation personnel>

Repair part name	Part No.
AD Power Supply Wire (3 1/3ft)	PDF07702H
AD Control Unit accessories	PDF07703G
AD Meter Wire (6 3/5ft)	PDF07710H
AD Switch unit (wire 5ft)	PDF17703G

AD: For ADVANCE System only

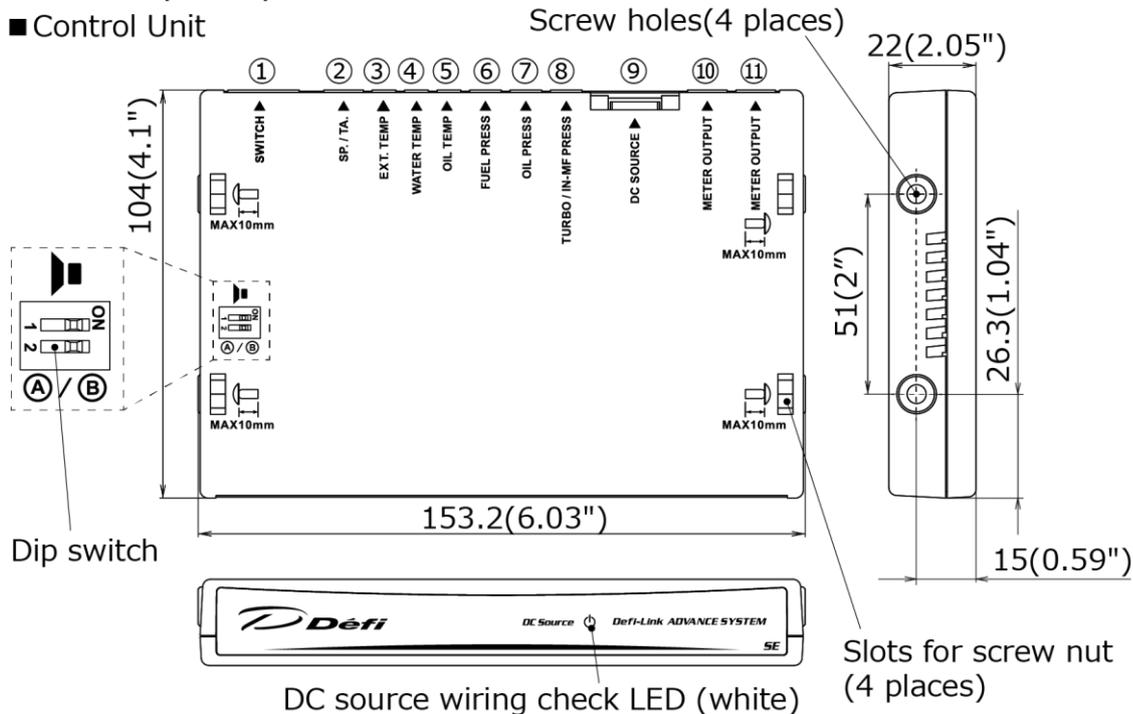
Please refer to [parts search database](#) on our website for optional parts.

❗ Please check our website for the latest information.

7. Part names / dimensions <for customer and installation personnel>

Unit : mm (inches)

■ Control Unit



● Dip switch 1&2

- 1: Warning buzzer sounds ON/OFF change
- 2: Opening•ending modes selection(A/B)

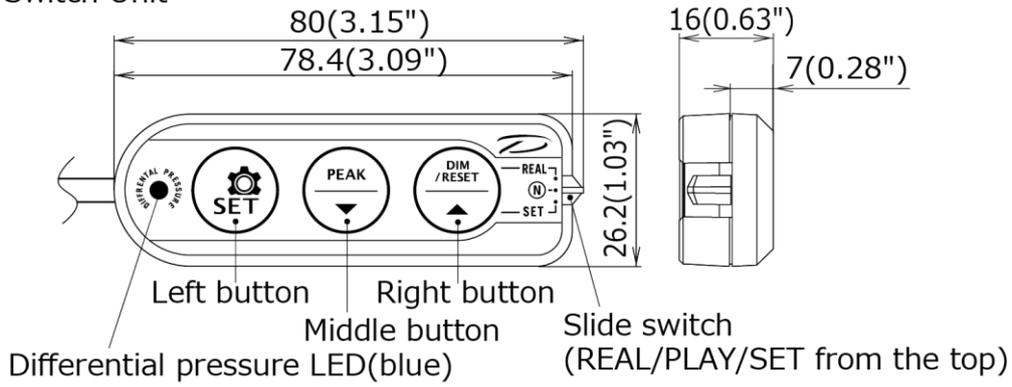
● Connectors for wires

- ① Switch unit (white)
- ② Speed&Tachometer signal wire (blue)
- ③ Exhaust temp sensor wire (black)
- ④ Water temp sensor wire (pink)
- ⑤ Oil temp sensor wire (red)
- ⑥ Fuel press sensor wire (red)
- ⑦ Oil press sensor wire (white)
- ⑧ Turbo/In-Mani sensor wire (light blue)
- ⑨ Power source wire (beige)
- ⑩ Meter wire (white) ⑪ Meter wire (white)

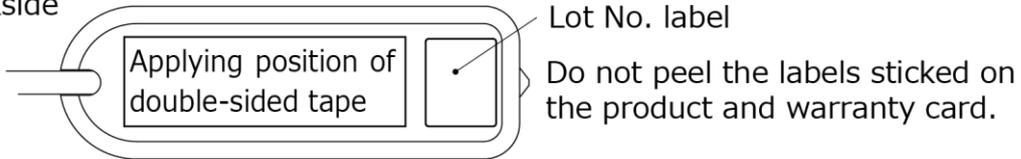
⚠ Meter wires can be connected to both ⑩ and ⑪ . To protect against short-circuit between two terminals, the convex connector is inserted into the concave connector ⑪ at the factory prior to shipment. If You don't use ⑪ , do not remove the convex connector. When using ⑪ , please pull out the convex connector by pressing the lock, and then connect the meter wire.

⚠ The front panel design of the first limited edition is partially different from the illustration shown above.

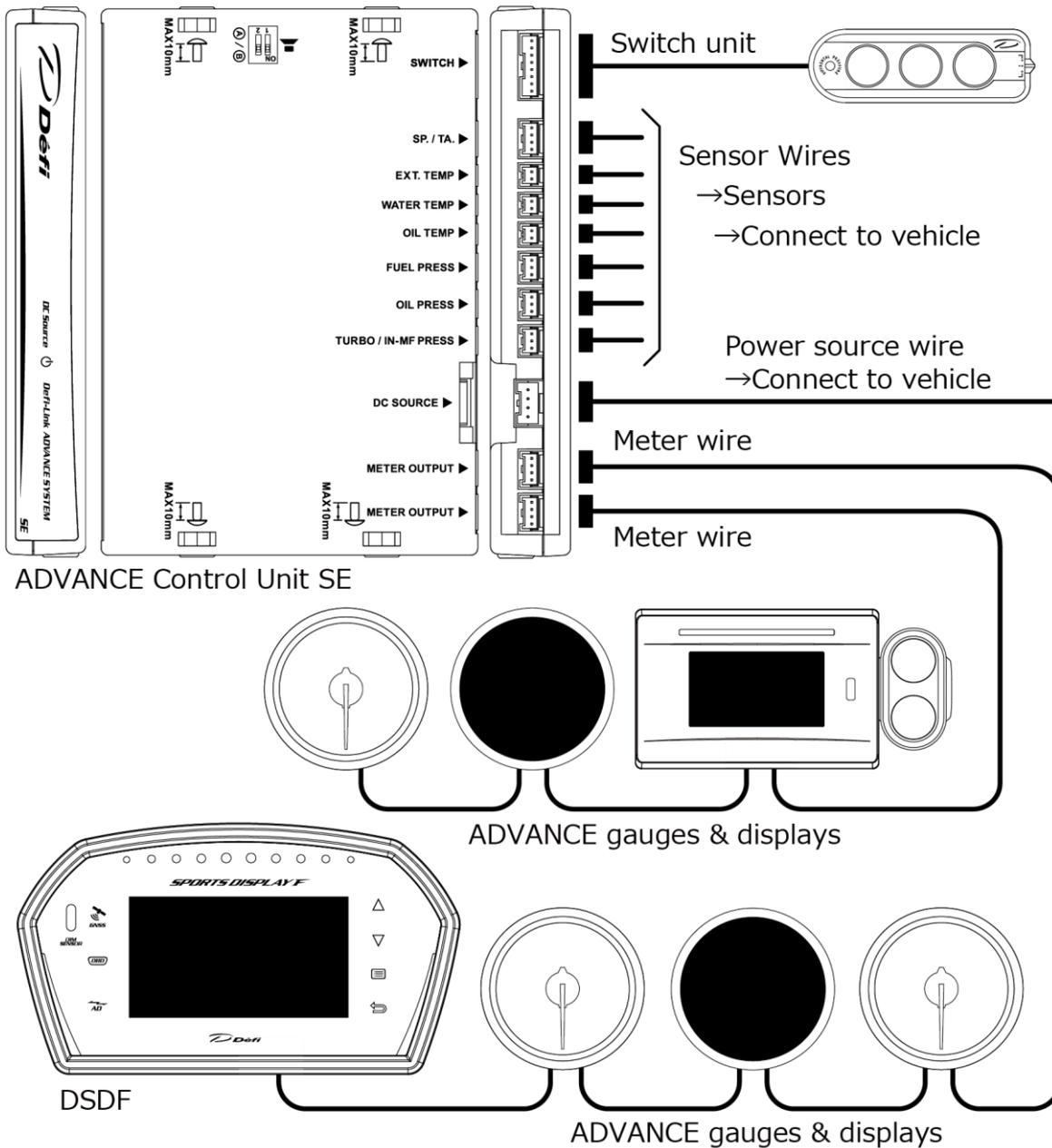
■ Switch Unit



Backside



■ ADVANCE System diagram



The meter wire can be connected to either of the two connectors of METER OUTPUT.

Up to 7 gauges and displays in all can be connected to one control unit. If 7 gauges are connected to one line, none can be connected to the other line. If three gauges are connected to one line, up to 4 gauges can be connected to the other line. DSDF can be connected separately from the 7 counts.

More than one gauge of the same variety cannot be connected in one ADVANCE System. (e.g. You can NOT connect 2 turbo gauges together.) However, several displays including FDs can be connected.

8. How to install <for customer and installation personnel>

8.1. Confirmation of contents

Check the contents of the package.

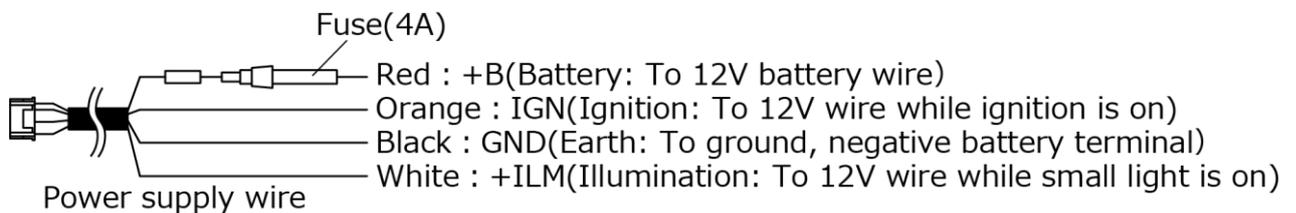
⇒5. Components <for customer and installation personnel>

8.2. Procedure

1. Confirm and prepare the necessary parts for installation.
Refer to the operation manual included with each gauge.

ⓘ Please purchase commercially available attachment parts.

2. Confirm the location of the power source (Battery, GND, IGN, ILM) and the sensor installation.
3. Disconnect the negative (-) battery terminal.
4. Connect the power supply wire to vehicle.



⇒8.4 How to solder / How to use the solderless connectors

⚠Warning

Do not connect the IGN wire to the ACC (power source for accessory) wire. Failure to do so way lead to a malfunction or accident.

5. Connect the power supply wire to the control unit. Connect the negative battery terminal and turn the ignition on. Then confirm DC SOURCE LED lights up, which is on the front of the control unit.

Confirmation

⚠If the power source wire is wired incorrectly, LED won't light. If LED doesn't light, please confirm wiring again.

6. Disconnect the negative battery terminal and install each sensor.
⇒Refer to the operation manual included with each gauge.

7. Connect the sensor and the sensor wire. Then connect to the control unit.
8. To confirm the wiring and connection, connect gauges and displays to the control unit temporarily by using meter wires. Do not fix the gauge at this stage.
 - ⊙ Do not remove the convex connector if you use only one METER OUTPUT connector to protect against short-circuit between two terminals.
9. Connect the negative battery terminal.
10. Confirm that the DC SOURCE LED is on when the ignition is on. If the power supply wire is wired correctly, the DC SOURCE LED of the control unit lights in white. And also look see that RS/CR gauges' illumination lights up or A1/BF gauges' illumination darkens or display's switch illumination lights up when the illumination switch of the vehicle is on.

- The DC SOURCE LED is not on: The power supply is not taken.

→ Turn the ignition off, then please confirm the wiring of the power supply wire.

- The warning LED of gauge is blinking or the warning LED and peak LED are blinking at the same time: disconnection, short circuit, or communication error is occurred.

→ Turn the ignition off, then please confirm the wiring of the sensor and the sensor wire.

⇒ [9.4.2 Error displays of wire disconnection, short circuit, and serial error](#)

⚠ Warning

If the wiring defects are not found, it is probable that there is a defect in the product. Please detach the product immediately and ask for inspection. It may damage the vehicle.

⇒ [11. Maintenance / Inspection / Warranty / After-sales service](#)

<for customer and installation personnel>

11. Turn the ignition OFF.
12. Disconnect the meter wire from the gauge, and attach the gauge by using mounting bracket. Confirm it is installed firmly, then connect the meter wire again.
 - ⇒ Refer to each gauge operation manual
13. Connect the switch unit to the control unit and fix the switch unit with double sided tape. Before attaching it, make sure the surface is clean.
 - ⇒ [7. Part names / dimensions](#)
 - <for customer and installation personnel>
14. Set 2 dip switches of the control unit.

- Dip switch 1: Setting the buzzer sound ON/OFF.
- Dip switch 2: Select the opening/ending mode from A or B when the ignition is on/off.

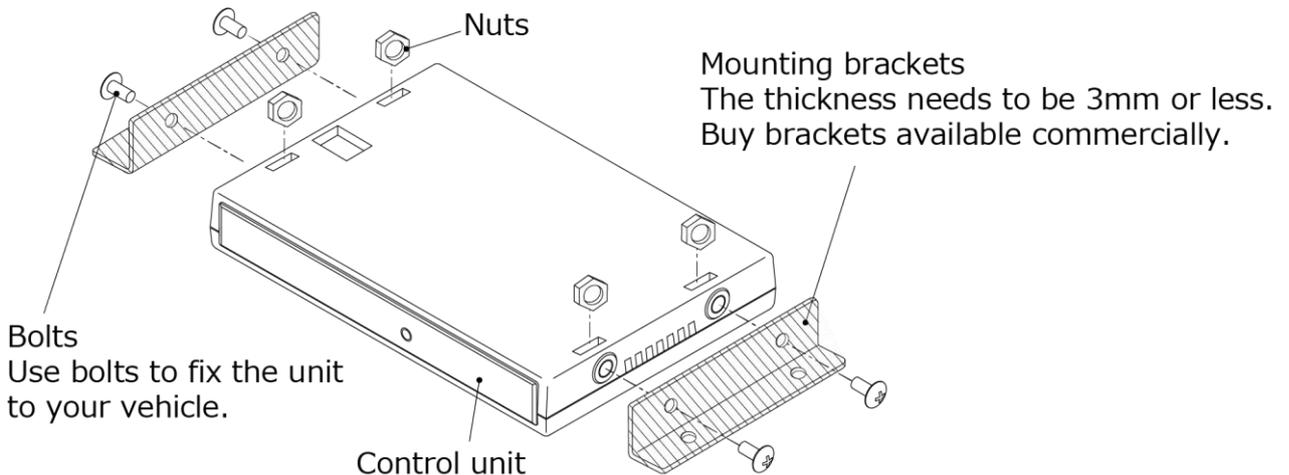
⇒7. Part names / dimensions

<for customer and installation personnel>

⇒9.7.2 Set of warning buzzer ON/OFF

⇒9.3 Opening mode / Ending mode.

15. After setting is done, fix the control unit with attached nuts and bolts and commercial mounting bracket.



Confirmation

- ⊗ Gauges, including this product, are not waterproof. Please do not install gauges near the vehicle floor or in wet areas.
- ⊗ Do not use other than the supplied bolts. Use of other bolts may damage the inside of the control unit.
- ⚠ Use mounting brackets with thickness of 3mm (0.1") and under.
- ⚠ It is possible to change the setting later. In order to change later, please fix the control unit in the position you can reach so as to operate the dip switch.
- ⚠ The control unit contains buzzer. So it may difficult to hear the sounds if the control unit is installed inside the dashboard or far from driver's seat.

8.3. Final confirmation of install completion

⚠ Warning

- ⚠ Please be sure to check the following list; otherwise, there is a possibility that a serious accident may occur.
- Ensure that all hoses and tubing are permanently attached. Also ensure that there is no liquid or exhaust leakage.

- Check that the sensor and wires are not interfering with the engine operation.
- Ensure that the gauge and wires are tightly attached, so they don't come loose and hinder driving.
- Check that all wires disconnected from the vehicle during installation have been properly reattached.

⚠ Warning

❗ After installation, check that no materials or tools remain in the driver's seat or the engine compartment. If there are tools left at the feet of the driver's seat, this may cause a driver to lose control of brake because of tools or materials caught under the brake pedal. If there are tools in the engine compartment, the engine may break.

- Ensure that the negative battery terminal is tightly attached. Close the hood properly.

This concludes the installation process.

Confirmation

❗ The protection film is attached to ADVANCE Control Unit and the switch unit. Please peel off before using. It may be stuck by aging of the glue.

8.4. How to solder / How to use the solderless connectors

⚠ Caution

- 🔊 Wear protective gloves to avoid getting burned during soldering.
- 🔊 Soldering is a better choice for wiring. Make sure no loose connection is found.

■ How to solder

(1) Strip off the outer wire insulating



(2) Wind to fasten the peeled wire



(3) Solder this part
(Make sure it is spread property)

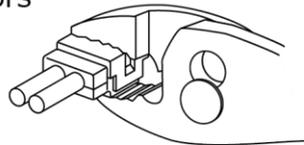
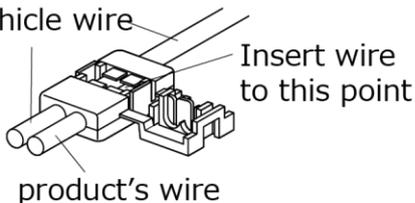


(4) Wrap tightly with insulating tape



■ How to use the solderless connectors

vehicle wire



Lock firmly.

※ Use a plier to a needle-nose plier to avoid poor contacting.

Confirmation

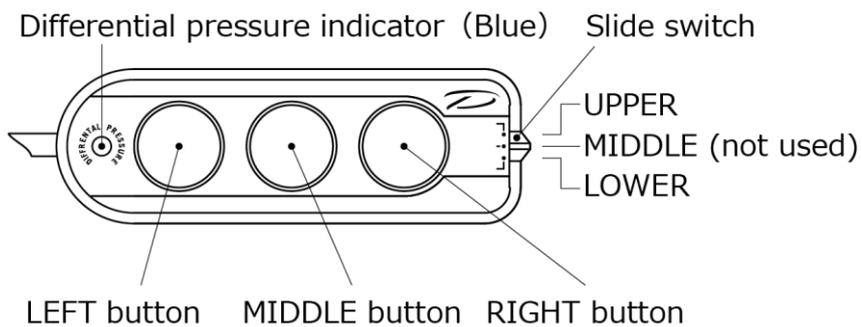
- ⊙ The solderless connectors that come with the product are for cable core of 0.3mm to 0.75mm diameter. Use them within the range.
- 🔊 Do not use the solderless connectors on wires that have thicker cable core than 0.75mm diameter. Cable core might be broken and produce heat.

9. How to operate <for customer>

9.1. Names of switches and buttons

In this manual, the switches and buttons to be operated are described as follows:

Switch unit for Control Unit Illumination color : White



⚠Caution

⊘ Do not press the switch with excessive force. Doing so may deform the switch.

9.2. Setting and checking of operations

In this instruction, there are two kinds of ways to press buttons, "press" and "press long." For "press," press the button for less than 1 second. For "press long," press the button for more than 1 second.

1. Turn the ignition ON. Confirm DC SOURCE LED of ADVANCE Control unit lights up.

⇒[7. Part names / dimensions](#)

<for customer and installation personnel>.

2. Confirm the opening mode is performed.

⇒[9.3 Opening mode / Ending mode](#)

3. Confirm that there is no error message of wire disconnection/short-circuit on the gauges and displays.

⇒[9.4.2 Error displays of wire disconnection, short circuit, and serial error](#)

If an error is displayed, turn the ignition off immediately, and then check the wiring of the sensors and the sensor wires.

4. If a tachometer is installed to the ADVANCE System, set the number of cylinders and the tachometer response. If displays are installed as well, settings for tachometer need to be done in System Setup Mode of the display. The settings of display are applied to other tachometers connected to the ADVANCE System. Refer to the display manual for setting.

⇒[9.5 Setting mode for number of cylinders](#)

⇒[9.6 Setting mode for tachometer response.](#)

If you do not install either display or tachometer, go to the next step.

5. Set warning values for all the connected gauges and displays. And then select illumination color for gauges. Warning values for gauges and displays are set at the same time.

⇒[9.7.3 Change of illumination color](#)

6. Confirm gauges and displays function normally. Settings are finished by confirming the operations.

⚠Warning

🔇 Set up while the vehicle is stopped.

9.3. Opening mode / Ending mode

When the ignition is turned on, gauges and ZDs perform opening mode. When the ignition is turned off, gauge and ZDs perform ending mode and then the power supplies of the control unit, gauges, and ZDs are shut off.

Confirmation

⚠ Depending on vehicles, the ignition is not turned off immediately after the key is turned off. In this case, ending mode doesn't start until the ignition is turned off.

⚠ If the ignition is turned off during setting, the setting data will not be saved.

⚠ If the power wire is wired correctly, the DC Source LED lights in white from the beginning of the opening mode. If it stays off or is blinking, turn the ignition off and check the wiring.

⇒ [8. How to install <for customer and installation personnel>](#).

9.3.1. Change of Opening mode / Ending mode

Opening and ending modes can be selected from "A" type (simple) and "B" type (special) by sliding the dip switch 2 on the control unit.

Both types consists of lighting/blinking of peak & warning LED, the dial illumination, and sequential indicators of displays, besides pointer movement and digital display. Try both types!

Confirmation

⚠ Please slide the switch when the ignition is off.

⚠ The modes for all the connected gauges and displays are changed at the same time.

⚠ It might be hard to see the dial illumination depending on outside light level.

9.4. Real Mode

Slide switch position : [UPPER]

After the opening mode finishes, the gauge shifts to the Real mode. The real-time vehicle conditions are displayed during this mode.

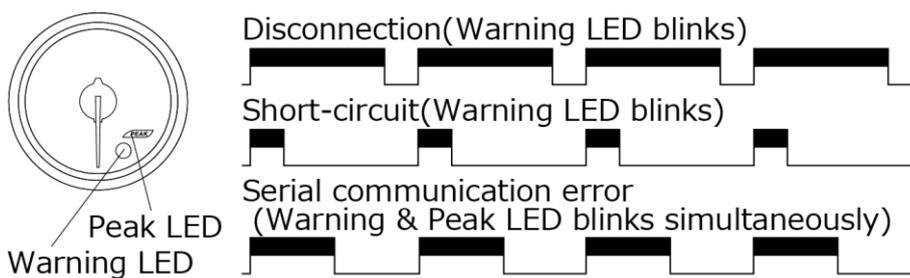
9.4.1. Warning display

If the gauge reaches or exceeds the value set for warning, the warning LED goes on. In case of oil pressure and fuel pressure, when the gauge reaches or falls below the value set for warning, the warning LED goes on. The zone that the warning item on a display is highlighted. If the buzzer sound setting is on, the buzzer sounds at the same time as well.

9.4.2. Error displays of wire disconnection, short circuit, and serial error

If there are disconnection of wire and/or sensor, or short circuits of wire and/or sensor, the warning LED blinks. Error messages are displayed on displays. Once the error message is displayed, the warning LED keeps blinking until the ignition is turned off. Please turn off the ignition immediately and check the wiring of sensors and wires. The short-circuit error display for oil pressure and fuel pressure are displayed only during short-circuiting.

If the communication between gauges/displays and the control unit is failed, serial error message is displayed and warning and Peak LEDs blink at the same time.



⚠Caution

❗ If an error is displayed, turn the ignition off immediately, and then confirm the wiring of the sensor and the sensor wire. If any defects are not found, please ask the shop for inspection.

9.4.3. Illumination

■ ADVANCE RS/CR gauges

The illumination of RS/CR gauges are turned on/off being interlocked with the vehicle illumination switch. By pressing 【RIGHT button】 several times during Real mode, the gauge illumination is turned off even if the vehicle illumination is on. (Illumination cancel)

■ ADVANCE A1/BF gauges

The brightness of gauge illumination can be adjusted by pressing 【RIGHT button】 during Real mode. Five levels of brightness are provided for daytime and nighttime separately. The brightness level is shifted from daytime level to nighttime level being interlocked with the vehicle illumination switch.

By pressing 【RIGHT button】 several times during Real mode, the gauge illumination is shifted to the maximum brightness level even if the vehicle illumination is on. (Illumination cancel)

■ ADVANCE FD/ZD

A dimming sensor is equipped with FD/ZD. For brightness adjustment, either AUTO or MANUAL control can be selected. If AUTO is selected, the brightness of the display is adjusted automatically depending on the outside light.

By connecting displays to the control unit and using AUTO control, the illuminations of the switch unit and connected gauges of ADVANCE series are controlled automatically.

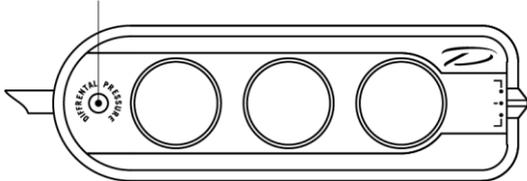
Switch unit/ADVANCE RS/CR: Turned ON/OFF automatically

ADVANCE A1/BF: Adjusted automatically

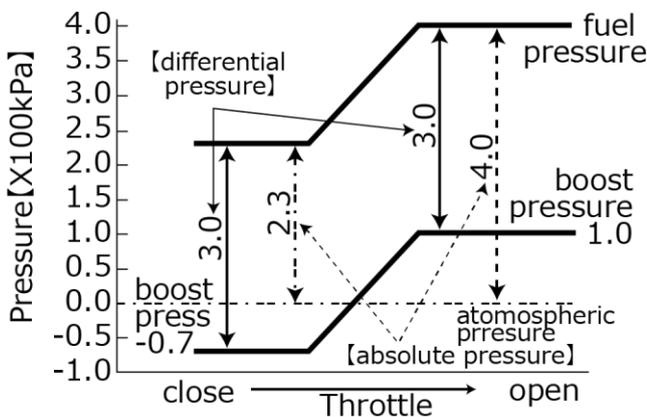
9.4.4. Differential pressure display

If both of the turbo and the fuel pressure gauge are installed (both of the turbo and fuel pressure sensors are installed in case of displays), the fuel pressure gauge can indicate the differential pressure value between fuel pressure and intake manifold pressure. During Real mode, the indicator of differential pressure on the switch unit is lighted up in blue.

Differential pressure indicator (Blue)



The relation between fuel pressure and intake manifold pressure



About differential pressure display of fuel pressure

Generally, fuel pressure of electric controlled engine car is fixed in contrast to intake manifold pressure by fuel pressure regulator. As shown in the graph, fuel pressure meter displaying absolute pressure value indicates 400kPa when boost pressure is 100kPa in case that differential pressure is set at 300kPa. Fuel pressure meter displaying the differential pressure value indicates 300kPa.

1. Set the slide switch to **[UPPER]**.
2. Press **[MIDDLE button]** and **[RIGHT button]** at the same time. The fuel pressure gauge displays the differential pressure and the indicator of differential pressure on the switch unit is lighted up. To cancel, press **[MIDDLE button]** and **[RIGHT button]** at the same time again.

⚠ This function is not available for Turbo 3.0 gauge.

9.5. Setting mode for number of cylinders

Slide switch position : **[LOWER]**

Set the number of cylinders if ADVANCE tachometer is installed.

Factory default setting: 4 cylinder

If displays are installed as well, settings for tachometer need to be done in the system setup mode. The settings of displays are applied to other tachometers connected to the

ADVANCE System. Refer to the display's manual for setting.

1. Set the slide switch to **【LOWER】**.
2. Press **【LEFT button】** long. The gauge shifts to the setting mode for number of cylinders, and warning and peak LEDs on the gauge blink alternately.
If displays are installed, the system moves into the system setup mode of display not the tachometer setting mode. LEDs on the gauge doesn't blink. If the tachometer is not installed, the system does not shift to the setting mode for number of cylinders.
3. Press **【RIGHT button】** to change the number of cylinders in this order: 1 → 2 → 3 → 4 → 5 → 6 → 8.
Press **【MIDDLE button】** to change the number of cylinders in this order: 8 → 6 → 5 → 4 → 3 → 2 → 1.
When the number of cylinders 1 is selected, the needle pointer points to 1000rpm when 4 is selected, the needle pointer points to 4000rpm. Please set the number according to your vehicle.
4. After completion of setting, return the slide switch to **【UPPER】**.

9.6. Setting mode for tachometer response

Slide switch position : **【LOWER】**

The response needs to be set if ADVANCE tachometer is installed. There are 3 levels.

Factory default setting: Level 1

If displays are installed as well, settings for tachometer need to be done in the system setup mode. The settings of displays are applied to other tachometers connected to the ADVANCE System. Refer to the display's manual for setting.

Adjust the response by moving the needle pointer.

Level	Response	Indicated position
1	high	1000rpm
2	middle	2000rpm
3	low	3000rpm

1. Set the slide switch to **【LOWER】**.
2. Press **【LEFT button】** long. The gauge shifts to the setting mode for number of cylinders, and warning and peak LEDs on the gauge blink alternately.
If displays are installed, the system moves into the system setup mode of display not the tachometer setting mode. LEDs on the gauge doesn't blink. If the tachometer is not installed, the system does not shift to the setting mode for number of cylinders and

tachometer response.

3. Press **[LEFT button]** long during the setting mode for the number of cylinders. The gauge shifts to the setting mode for tachometer response. The peak and warning LEDs in the gauge are lighted up.
4. Press **[RIGHT button]** to change the level in the following order: 1 → 2 → 3.
Press **[MIDDLE button]** to change the level in the following order: 3 → 2 → 1.
1000rpm, 2000rpm and 3000rpm indicate level 1, level 2 and level 3 respectively.
5. After completion of setting, return the slide switch to **[UPPER]**.

9.7. Setup mode

Slide switch position : **[LOWER]**

By setting warning values, the warning LEDs on the gauges light on when the gauges reach or exceed the values. In case of oil pressure and fuel pressure, the warning LED lights on when the gauge reaches or falls below the value set for warning. If displays are installed, the warning setting is displayed on the screen. Warning values for gauges and displays are set at the same time.

In addition, the illumination colors of RS/CR gauges can be selected from 2 colors in this mode. Illumination color of A1/BF and displays cannot be changed.

■ Warning factory default settings			Setting range		Lighting condition
Gauge	default setting	Unit	Minimum	Maximum	
Turbo3.0	166.7	kPa	-100	300	set value and above
Turbo1.2/2.0	100	kPa	-100	200	set value and above
In-Mani Press	10	kPa	-100	300	set value and above
Tachometer	7000	rpm	300	11000	set value and above
Oil Press	120	kPa	0	1000	set value and below
Fuel Press	150	kPa	0	600	set value and below
Oil Temp	125	°C	0	150	set value and above
Water Temp	105	°C	0	150	set value and above
Exhaust Temp	850	°C	0	1100	set value and above

Depending on vehicle type and/or condition, vehicle may be damaged even if the values are under the warning factory default setting value (over the warning factory default setting value in case of oil pressure and fuel pressure). Be sure to consult store professional to set warning values.

9.7.1. Set of warning values

1. Set the slide switch to 【LOWER】.
2. Press 【LEFT button】. The gauge shifts to the setup mode.
3. Select the gauge to set by pressing 【LEFT button】.

	Selected gauge	Unselected gauges
RS/CR	Warning LED: blinking	Warning LED: unlighted
	Illumination: bright (when vehicle illumination is ON)	Illumination: dark (when vehicle illumination is ON)
A1/BF	Warning LED: blinking	Warning LED: unlighted
	Illumination: bright	Illumination: dark

⚠ In case that RS/CR gauges and displays are installed together and the dimmer setting is AUTO, the illumination of RS/CR gauges turned ON/OFF automatically regardless ON/OFF of the illumination switch of the vehicle. If the setting is done in a bright location, the illumination of RS/CR gauges may be unlighted. Please place a hand over the dim sensor of the display or move vehicle to a dark place.

The gauge to set will be selected in the following order:

Turbo/Intake manifold pressure → Tachometer → Oil pressure →
 → Fuel pressure → Oil temperature → Water temperature →
 → Exhaust temperature → Turbo/Intake manifold pressure (→ repeat)

4. By pressing 【MIDDLE button】, the warning value for the selected gauge becomes lower. By pressing 【RIGHT button】, the warning value becomes higher. If each button is pressed long, the setting value changes quickly.

If turbo (2.0 or 1.2) and intake manifold pressure gauge are installed together, the setting value of turbo (2.0 or 1.2) becomes the setting value of intake manifold. You cannot set the value separately for each gauge. When both turbo2.0 and turbo1.2 are connected, turbo2.0 has a priority over turbo1.2.

⊙ Do not connect more than one gauge of the same variety. (Ex. You can NOT connect 2 turbo2.0 gauges together.)

5. After completion of setting, return the slide switch to 【UPPER】.

9.7.2. Set of warning buzzer ON/OFF

By sliding the dip switch¹ of the control unit, the warning buzzer sound is turned ON/OFF. The switch operation sound cannot be canceled.

For oil pressure, if the warning setting value is set to 0kPa, the buzzer will not sound even if oil pressure reaches 0kPa during idling stop, etc.

ⓘ Please set while the ignition is off.

⚠ The setting of warning buzzer for displays is controlled by displays. Refer to the manual.

9.7.3. Change of illumination color

The illumination color for RS/CR gauges can be selected from 2 colors. The illumination color of A1/BF and displays cannot be changed.

1. Set the slide switch to 【LOWER】.
2. Press 【LEFT button】. The gauge shifts to the setup mode.
3. Select the gauge to set by pressing 【LEFT button】.
4. Press 【MIDDLE button】 and 【RIGHT button】 at the same time. The illumination color changes.

CR white dial: blue ⇔ amber red

CR black dial: white ⇔ amber red

RS black dial: classic green ⇔ classic white

In case that RS/CR gauges and displays are installed together and the dimmer setting is AUTO, the illumination of RS/CR gauges turned ON/OFF automatically regardless ON/OFF of the illumination switch of the vehicle. If the setting is done in a bright location, the illumination of RS/CR gauges may be unlighted. Please place a hand over the dim sensor of the display or move vehicle to a dark place.

5. After completion of setting, return the slide switch to 【UPPER】.

9.7.4. Offset adjustment of Turbo (2.0 and 1.2) and In-Mani Press

The needle pointer of turbo should indicate 0kPa when the ignition is on. But in rare cases the needle pointer is not indicating exactly 0kPa. If this happens, it is possible to adjust.

1. Set the slide switch to 【LOWER】.
2. Press 【LEFT button】. The gauge shifts to the setup mode.
3. Select the gauge to set by pressing 【LEFT button】.
4. Press 【LEFT button】 long. The adjustment is confirmed by a short beep sound.
5. After adjustment is done, return the slide switch to 【UPPER】.

⚠ This function is not available for Turbo 3.0 gauge.

9.8. Real Peak mode

Slide switch position : [UPPER]

The peak values recorded while driving and idling are displayed during Real Peak mode. The maximum and minimum values are displayed in order as for oil pressure and fuel pressure. The peak values can be reset. The peak value of fuel pressure is displayed in the fuel pressure zone even while displaying the differential pressure.

■ IF NEITHER OIL PRESSURE NOR FUEL PRESSURE SENSOR IS CONNECTED:

1. Set the slide switch to [UPPER].
2. If [MIDDLE button] is pressed, the gauge shifts to Real Peak mode. The LED is lighted up during Real Peak mode.
3. If [MIDDLE button] is pressed, the gauge shifts to Real mode.

■ IF EITHER OIL PRESSURE OR FUEL PRESSURE SENSOR IS CONNECTED:

1. Set the slide switch to [UPPER].
2. If [MIDDLE button] is pressed, the gauge shifts to Real Peak mode (maximum value). All the connected gauges display maximum values. The LED is lighted up during Real Peak mode.
3. If [MIDDLE button] button is pressed again, the gauge shifts to Real Peak mode (minimum value). All the connected gauges except oil pressure and fuel pressure display maximum values. The LED is lighted up during Real Peak mode.
4. If [MIDDLE button] is pressed, the gauge shifts to Real mode.

9.9. Real Peak Reset mode

Slide switch position : 【UPPER】

The peak values recorded while driving and idling can be reset. Regarding oil pressure and fuel pressure, both the maximum values and the minimum values are reset.

1. Set the slide switch to 【UPPER】.
2. If 【MIDDLE button】 is pressed, the gauge shifts to Real Peak mode. The LED is lighted up during Real Peak mode.
3. If 【RIGHT button】 is pressed during Real Peak mode, the LED starts blinking and the peak value is reset. After resetting, the gauge returns to Real mode.

10. Troubleshooting <for customer and installation personnel>

⚠Warning

❗ If any indication of the problem is found in the product, check to make sure the product will operate as expected. Failure to do so can lead to serious accidents.

❗ If any problem is found during using, setting or operating this product, use the following table to confirm proper operation of the unit. If the operational problem is not found in the following table, contact the installation personnel at the store where this product was purchased.

Condition	Possible Cause	Corrective Action
<ul style="list-style-type: none"> ○ Does not operate. ○ Power is not supplied. ○ DC Source LED of the unit doesn't light. 	<ul style="list-style-type: none"> ○ Wiring of the power supply wire is improper. ○ The fuse of the power supply wire is blown out. ○ The locks of the solderless connectors are not locked tightly. ○ There is a wire short circuit or disconnected wire somewhere. Maybe there is something wrong on the gauge or sensor. 	<ul style="list-style-type: none"> ○ Check wiring of +B, IGN, GND as per instructions in this manual. ○ Check wiring and replace the fuse. ○ Check the lock of the solderless connectors. ○ Please reconfirm the wiring and the gauge according to operation manual. If any defects are not found, please ask the shop for inspection.
<ul style="list-style-type: none"> ○ Warning LED on gauge is blinking. 	<ul style="list-style-type: none"> ○ There is a wire short circuit or disconnected wire somewhere on sensor or sensor wire. Maybe there is something wrong between the gauge and control unit. 	<ul style="list-style-type: none"> ○ Reconfirm the sensor and sensor wire according to the manual. If any defects are not found, please ask the shop for inspection.
<ul style="list-style-type: none"> ○ Does not carry out the ending mode. 	<ul style="list-style-type: none"> ○ The battery wiring is improper. 	<ul style="list-style-type: none"> ○ Check wiring of +B as per instructions in this manual. ○ Check the solderless connector of battery wiring. ○ Please ask the store for inspection.
<ul style="list-style-type: none"> ○ The illumination of RS/CR gauges is not lighted. The illumination of A1/BF gauges is not darkened. 	<ul style="list-style-type: none"> ○ The ILM wiring is improper. ○ The locks of the solderless connectors are not locked tightly. ○ The illumination of gauge is set to off (illumination cancel). ○ The dimmer setting of FD/ZD is AUTO and vehicle is in bright light. 	<ul style="list-style-type: none"> ○ Check wiring of ILM as per instructions in this manual. ○ Check the lock of the solderless connectors. ○ Release illumination cancel function as per instructions in this manual. ○ Change the dimmer setting to MANUAL or move vehicle to a dark place.

Condition	Possible Cause	Corrective Action
○The needle pointer is not around right under 0 before starting installation with power off.	○The needle pointer moved in transit.	○It is the unique feature of stepping motor that the needle pointer may move when a slight impact is made to the gauge with electricity off. Check if the needle pointer goes back to around 0 when the ignition is turned from on to off. If it does not, please contact the store.
○The RPM is not displayed correctly.	○Wiring of the tachometer signal is wrong. ○Setting of the number of cylinders is wrong.	○Check wiring as per instructions in this manual. ○Check the number of cylinders as per instructions in this manual.
○The tachometer is reading slightly lower than the original tachometer.	○Generally tachometer readings are about up to 10% higher than actual RPM.	○Check if the difference is up to 10%. This product is designed for high accuracy and should have little error margin. If the difference is much more than 10%, check setting of the number of cylinders.
○Serial line error is displayed.	○Communication error is occurred between gauges and ADVANCE Control unit.	○Check the meter wire as per instructions in this manual. If any defects are not found, please ask the shop for inspection.
○All the connected gauges don't work.	○There is a wire short circuit or disconnected wire somewhere on meter wire or sensor wire. ○There is something wrong with one or more gauges.	○In case that the sensor is broken, it needs to be replaced. Please ask the shop for inspection. ○Check the meter wire and sensor wire as per instructions in this manual. If any defects are not found, please ask the shop for inspection.

11. Maintenance / Inspection / Warranty / After-sales service <for customer and installation personnel>

■ Warranty card / Terms and conditions

This product is delivered with a warranty card. Please read terms and conditions in this manual thoroughly and keep the warranty card in a safe place. Failure to show this warranty will void the warranty.

■ Warranty period

Limited one year warranty. The warranty period starts at the date of retail purchase by the original end-user purchase. Please confirm the warranty card is provided with the information of retail store where purchased. Please refer to Limited Warranty for details.

⚠ Except in the case of defects, we shall not be liable for any trouble including violation, accident or improper wiring resulting from using this product.

⚠ The warranty does not cover any unauthorized repair performed or caused to be performed by the end user. Such action can destroy or damage this product,

■ Inspection

Please ask the shop you purchased the product for inspection if any defect in product is suspected. We don't accept the order of fixing directly from end-users because Defi products require installation and wiring to the vehicle.

In case you cannot go to the shop you purchased because of move-out or closure of the shop, please ask the nearest Defi's Distributor listed in the [Defi website](#).

📌 For a repair/inspection service, take the warranty card and customer contact information with you.

Please conduct periodic inspections by Defi through a shop which sells Defi products or Defi's official distributor every five years. Inspection is available at an additional cost. In the case you purchase used products or used vehicles with products of Defi, please have an inspection by Defi as well before using them.

Customer contact information

Please provide the following information to a store representative when you ask for an inspection

1 Your contact information		
address, zip code :		
name :		
phone number :		
email address :		
2 Name and address of the store where purchased and installed.		
3 Information about your vehicle		
manufacture and car model :		
model year :		
vehicle type :		
engine type :		
engine displacement :		
transmission (MT/AT) :		
speed limit canceller	with	without
genuine tachometer	with	without
engine swap	with	without
changing ignition device	with	without
changing ECU	with	without
the way to install the sensor :		
other specification :		
4 Your Defi products (including the products that do not need inspection this time)		
5 Describe your experience (when? do what?, what product? what happened? then what?)		

■ Label

The label stuck on the product is for tracing purposes. Do not peel it off.

■ Discarding the products

Please dispose products in accordance with disposal laws, state laws and local government.
A recycle label on the package indicates that the package is recyclable

12. Terms and conditions

LIMITED PRODUCT WARRANTY AND LIMITED PRODUCT LIABILITY

A. Limited Warranty

- a. Our sole obligation to you after the sale of a product is to replace, without charge, the product or any component thereof discovered to be defective within a period of one (1) year from the purchasing date (the "Warranty Period"). You accept sole responsibility for the proper assembly operation and regular maintenance of the product. This limited warranty is void if any product is damaged by accident, misuse, improper installation, or abuse, including tampering or damage in transit. Further, this limited warranty is void if you sell or otherwise transfer a product to a third party, regardless of whether the transfer takes place within the Warranty Period.
- b. Our liability to you resulting from the sale of any product, including liability for any latent defects found within the Warranty Period, shall not exceed the total purchase price paid for the product by you.
- c. YOU UNDERSTAND AND AGREE THAT WE MAKE NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED AS TO ANY MATTER WHATSOEVER, INCLUDING THE CONDITION OF THE PRODUCT OR ANY COMPONENT PARTS THEREOF, ITS MERCHANTABILITY OR ITS FITNESS FOR ANY PARTICULAR PURPOSE AND YOU ACCEPT IT, "AS IS," "WHERE IS."
- d. You also understand that we are not granting any express warranties, other than those stated herein. These include only those warranties enumerated in paragraph A. a. There are no other express warranties granted anywhere in these terms and conditions of sale, and you understand and agree to this fact as part of the bargained for exchange of this sale. Nowhere else, except as stated in this paragraph, in this contract is there intended, by either party, for there to be any express warranties granted to you.
- e. EXCEPT AS OTHERWISE PROVIDED HEREIN, WE SHALL NOT BE LIABLE FOR DAMAGES, INCLUDING SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHETHER IN CONTRACT OR IN TORT ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF ANY PRODUCT OR ANY COMPONENT PART THEREOF OR ITS USE BY YOU, AND WE SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR

IN CONNECTION WITH YOUR USE OF THE PRODUCT.

- f. The warranty on this product is void if the product is modified, changed, adjusted or damaged. This product is to be used only in the ways for which it is designed and marketed for, any deviations from the intended uses will void the warranty and will excuse any possible liability of ours.
- g. You accept sole responsibility for the proper assembly, operation and regular maintenance of the product. This limited warranty is void if the product is damaged, changed, altered, or modified by accident, misuse, improper installation, or abuse, including tampering or damage in transit or while in use. YOU HAVE MADE AN INDEPENDENT INVESTIGATION OF THE PURCHASED COMPONENTS AND HAVE RELIED SOLELY ON YOU OWN INVESTIGATION, BARGAINING AND JUDGMENT IN REFERENCE THERETO. YOU ACKNOWLEDGE THAT YOU ARE NOT RELYING ON OUR SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS SUITABLE FOR ANY PARTICULAR PURPOSE IN PURCHASING OUR PRODUCTS, YOU HAVE NOT RELIED OR ACTED UPON ANY REPRESENTATIONS OR WARRANTIES ON OUR PART NOT SPECIFICALLY SET FORTH HEREIN.
- h. This limited warranty gives you specific legal rights. You may also have other rights which vary from state to state. Some states do not enforce contractual limitations on how long an implied warranty lasts, when an action may be brought, or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

B. Modification Strictly Prohibited

You understand and agree that any modification whatsoever, of the product, is strictly prohibited. You also agree not to modify the product in any manner regardless of whether such modification is material or immaterial. You also acknowledge that any modification of the product will void your limited warranty and bar you from any recovery or any remedy in a court of law or equity. Modification is strictly forbidden unless expressly authorized by our prior written approval. You agree not to make any modifications to the product and agree not to use any parts, components, or accessories in connection with the installation and use of the product that are not authorized and approved by us.

C. Indemnity and Release

- a. You understand and agree that many factors beyond our control affect the operational safety of the product, including but not limited to the installation of the product according to the instructions provided with the product.
- b. You also understand and agree that the installation of the product may involve the use of tools, equipment and construction methods which may present safety hazards which are beyond our control. You also understand and agree that the use of some of our products may create hazards and lower your ability to control your vehicle.
- c. You agree, as part of the bargained for exchange, to protect, indemnify, save harmless and release us, our authorized agents, employees, officers, directors and shareholders from and against all liabilities, obligations, claims, damages, penalties, causes of action, costs and expenses, imposed upon or incurred by or asserted against us or any assignees of ours, by you or any third party by reason of the occurrence or existence (or alleged occurrence or existence) of any use, installation, assembly, possession or operation of the product, any loss, damage or destruction of the product as of and after delivery (a "casualty occurrence"), and any other act or event relating to or caused by the product, including but not limited to, consequential or of the terms and conditions hereof, or any and all liability for property loss or damage, or any and all damage resulting from death or personal injuries, including loss of services which any person may sustain on account of, arising out of, or in connection with any use, maintenance, possession or operation of the product. In the event that any action, suit or proceeding is brought against us or any of our authorized agents, employees, officers, directors or shareholders by reason of any such occurrence, you will, upon our request and at your expense, resist and defend such action, suit or proceeding or cause the same to be resisted and defended by counsel designated and approved by us.

Defi-Link ADVANCE Control Unit SE Operation Manual

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