



# Defi-Link Meter **ADVANCE ZD**

## デフィーリンクメーターアドバンスズィーディー取扱説明書 Defi-Link Meter ADVANCE ZD Operation Manual

DF09701

**日本国内でご購入の場合は 2 ページから 52 ページをお読みください。**

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※英語の部分は国内では無効です。

【Web サイト】 <http://www.nippon-seiki.co.jp/defi/>

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【受付時間】 10:00～12:00、13:00～17:00 (土・日、祭日、当社休日を除く平日)

**English section is from P.53 to P.107.**

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 personnels. After installation, please keep this manual for future reference.

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

※ Japanese section is effective only in Japan.

【Web site】 <http://www.defi-shop.com/>

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本製品は Defi-Link ADVANCE Control Unit (アドバンスコントロールユニット) と一緒に使用する製品です。本製品だけでは動作しません。本製品をご使用の際は必ず別売のアドバンスコントロールユニットをご購入頂き、取扱説明書も合わせてお読みください。

### ❶安全・取り扱いに関するご注意【必ずお読みください】

本製品は車両情報を表示する製品です。本製品をお取り付けの前に本取扱説明書及び取り付ける車両のメーカーが発行している整備解説書、配線図に示されている内容や安全に関する注意事項をよくお読みいただき、十分に理解された上でお取り付けいただけますようお願い申し上げます。また、本製品（及び本製品の取り付けられている車）を他の人に貸し出したり譲渡する場合は、取扱説明書と保証書を必ずお渡してください。

なお、エンジンコンピュータ配線図は当社 Web サイトに掲載しておりますので、ご確認ください。

本書では、取り扱いを誤った場合などの危険の程度を「危険」「警告」「注意」の3つのレベルで分類しています。また、本製品を安全に正しくお使いいただくために必ず行っていただきたい事項と、守っていただきたい事項を「確認」として分類しています。内容をよくお読みいただき、十分に理解された上でお取り付けください。

|      |  |
|------|--|
| ⚠ 危険 | 取り扱いを誤った場合、死亡、又は重傷を負うことがあり、かつその切迫度合いが高いことが想定される場合。 |
| ⚠ 警告 | 取り扱いを誤った場合、死亡、又は重傷を負う可能性が想定される場合。                  |
| ⚠ 注意 | 取り扱いを誤った場合、傷害を負う危険が想定される場合、または物的損害の発生が想定される場合。     |
| 確認   | 「必ず行っていただきたい事」、「必ず守っていただきたい事」を示しています。              |

注意内容の性質表示

|   |                                 |
|---|---------------------------------|
| ⚠ | ⚠注意（警告を含む）をしなければならない記号です。       |
| 🚫 | 🚫は、行為を禁止する記号です。（絶対にしてはいけない事です。） |
| 👉 | 👉は、行為を指示する記号です。（必ず行って頂くことです。）   |

This product functions with Defi-Link ADVANCE Control unit. This product alone does not function. Please refer to Defi-Link ADVANCE Control unit operation manual as well.

### 1 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 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.

|   |   |
|---|---|
|  <b>Danger</b>  | Indicates the imminent dangerous situation of death or serious injury if the product is mishandled              |
|  <b>Warning</b> | Indicates the possibility of death or serious injury if the product is mishandled.                              |
|  <b>Caution</b> | Indicates a conceivable source of personal injury or damage to equipment if the product is improperly operated. |
| <b>Confirmation</b>   | 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)    |
|    | Indicates restricted actions. (PROHIBITED actions)            |
|  | Indicates actions that need to be carried out. (MUST actions) |

### ■ Before handling (for installation personnel)

#### Danger

- ① Ensure that the vehicle will remain stationary and turn off the engine before installing this product. Failure to do so could result in a fire, and could make the vehicle move during installation.
- ① 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.
- ① 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.
- ① 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.
- ① 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.
- ① 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.
- ① Use the tube fuse of regulated capacity when the fuse of the power wire is changed. Using a fuse that exceeds regulated capacity may cause fire.
- ⊘ Do not install the product in wet places. It may result in a fire caused by an electrical short circuit.
- ① 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

- ❗ 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.
- ⊘ 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.
- ❗ Ensure that the wiring of this product does not have an adverse impact on the other wiring of the vehicle. Before tapping speed or engine rev signal from the ECU, please make sure that you have connected power cables inside power supply wire properly. Then confirm that the DC Source LED is lighted with ignition on. If it is functioning normally, remove negative terminal connector from battery and go ahead with wiring procedure. Incorrect wiring may destroy your ECU, ignition system and other engine management devices.
- ⊘ 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.

## ⚠ Caution

- ❗ 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.
- ⊘ 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 attach wires on the body of the vehicle or engine parts as this may result in damage to the product.
- ⚠ 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 should not touch the unit. It may result in incorrect operation.
- ⊘ Do not place wires near the engine, exhaust pipe or turbine. It may result in damage or fusion of wires.
- ⚠ 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.
- ⊘ Do not expose the unit to moisture, dust or direct sunlight, or place product directly in front of heat vents.
- ❗ Install sensors away from hot or wet places.
- ❗ When using sunshade, put sunshade between products and windshield to avoid direct sun exposure.
- ⚠ Use a dried soft cloth for cleanup. Do not use cleaners except neutral detergent. It may damage the product.
- ⊘ 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 to unclip the locks of connectors. 
- ⊘ Do not install gauges, including this product, into the passenger side or center of the dashboard. It doesn't meet vehicle safety standards.

## Confirmation

- ❗ Be sure to follow all instructions in this manual to ensure safe installation and operation of the product.

- ⚠ 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.
- ❶ After installation is complete, return this operation manual, warranty card, and the package along with the warranty to the customer .
- ❶ Please confirm with the maintenance book that the car manufacturer issued when installing and detaching genuine parts.
- ❶ 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.

### ■ About Installation and Operation (for customer and installation personnel)

#### ⚠ Warning

- ❶ Please have this product installed by store professional or dealer where it was purchased. Installation by the customer will void the warranty.
- ⊘ Do not disassemble or modify this product. Such actions will not only void the warranty but also damage or destroy the product.
- ❶ 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.
- ❶ Discontinue use of this product if the gauge 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.
- ⊘ Do not operate while driving.



- ❶ Fix the switch unit and other parts tightly to the vehicle to avoid children's accidentally swallowing them.
- ⊘ Do not use the TIME ATTACK function in open roads. It is only for closed courses.

#### ⚠ Caution

- ⚠ On no event will Nippon Seiki Co., Ltd. be liable 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.
- ⊘ 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 to unclip the locks of connectors.

#### Confirmation

- ⚠ This product cannot be linked to the previous version of Defi-Link System.
- ❶ 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.
- ❶ Please check the installed product regularly. Durability might deteriorate according to use conditions, etc.

## ② Product Features

- The display is high-brightness and high-definition OLED made by Nippon Seiki.
- The advanced system (interactive communication) is implemented.
- By connecting this product to the ADVANCE system, the illumination of ADVANCE BF and CR gauges is controlled automatically.
- Time of 0-100km/h(60MPH) and 0-200km/h(100MPH) can be measured.
- Warm-up mode is equipped to guard engine.
- Opening and ending mode 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 display is highlighted and buzzer sounds during warning. (The buzzer can be set ON/OFF.)
- Data obtained during driving (including peak value and warning value) can be stored up to 3 minutes, and the data can be replayed after driving.
- When both fuel pressure sensor and turbo sensor installed, differential pressure can be displayed.
- Display pattern can be selected from 4 display modes. (Maximum 6 items can be displayed all together on one GAUGE display.)



STREET display



TIME ATTACK display



GAUGE1 display



GAUGE2 display

- The display items and the layout can be changed.
- Equipped with sequential indicator with 8 LEDs.
- Equipped with clock and alarm functions.
- Mounting angles are more flexible than conventional products
- Equipped with odometer and trip meter
- Oil, water, and exhaust temperatures can be displayed from 0°C (32°F).
- Graphic animation plays during idling (Special mode).

## ③ List of Products ◯ Optional Parts

| Product name               | Product No. |
|----------------------------|-------------|
| Defi-Link Meter ADVANCE ZD | DF09701     |

| Product name                   | Product No. |
|--------------------------------|-------------|
| Defi-Link ADVANCE Control Unit | DF07703     |

Defi-Link ADVANCE Control Unit is necessary to operate ADVANCE ZD.  
One ADVANCE Control Unit can control up to 7 gauges and ZDs all-in.

### ■ Optional parts AD = For ADVANCE System exclusive use

| Part name                    | Part No.   |
|------------------------------|------------|
| OP1 AD Oil press sensor set  | PDF08106SS |
| OP2 AD Fuel press sensor set | PDF08205SS |
| OP3 AD Oil temp sensor set   | PDF08305SS |
| OP4 AD Water temp sensor set | PDF08405SS |
| OP5 AD Ext. temp sensor set  | PDF08505SS |

#### 4 Specification

|   |  |                            |
|---|--|----------------------------|
| Power supply voltage                                      | 10V ~ 16V DC(For 12V vehicle)  |                            |
| ADVANCE Control unit Current consumption                  | +B line  | 2A (IGN ON)                |
|   | ILM line   | 5mA (IGN OFF)              |
|   | 800mA  |                            |
| (Maximum value obtained when connecting 7 gauges and ZDs) |  |                            |
| Operation temperature range                               | -20 ~ +60°C , -4 ~ +140° F (Under 80% relative humidity)   |                            |
| Storage temperature range                                 | -30 ~ +80°C , -22 ~ +176° F (Under 80% relative humidity)  |                            |
| Display range   | Speed  | 0 ~ 400km/h(0 ~ 240MPH)    |
|   | Tachometer   | 0 ~ 11,000rpm              |
|   | OP1 Oil Pressure   | 0 ~ 1,000kPa(0 ~ 145PSI)   |
|   | OP2 Fuel Pressure  | 0 ~ 600kPa(0 ~ 87PSI)      |
|   | OP3 Oil Temperature  | 0 ~ 150°C (32 ~ 302°F)     |
|   | OP4 Water Temperature  | 0 ~ 150°C (32 ~ 302°F)     |
|   | OP5 Exhaust temperature  | 0 ~ 1,100°C (32 ~ 2,010°F) |
|   | Volt   | 10 ~ 16V                   |
|   | Clock  | 12 hours display           |
| Applicable speed pulse                                    | 2 · 4 · 8 · 16pulse(mainly for Japanese vehicles)  |                            |
|   | Pulse free setting: 1,274 ~ 16,562pulse/km,<br>2,051 ~ 26,665pulse/mile (corresponds to 2 ~ 26pulse) |                            |
| Applicable number of cylinders                            | 1·2·3·4·5·6·8 (4cycle)   |                            |
| Dimensions  | Refer to part names and dimensions section.  |                            |
| Weight  | 400g, 0.9lb (including box, mounting parts, wires, and accessories)                                  |                            |

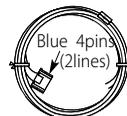
※ To display OP1 through OP5 in Display range, the sensor sets OP1 through OP5 need to be purchased separately. (Ex. To display Oil pressure, AD Oil pressure sensor set OP1 needs to be purchased separately.) However, ADVANCE gauges are already installed, the sensor set is not necessary to be purchased separately.

※ ADVANCE ZD cannot display turbo or intake manifold pressure.

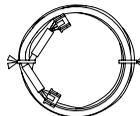
#### 5 Parts list



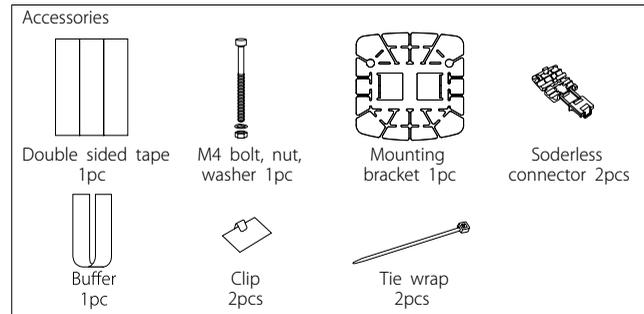
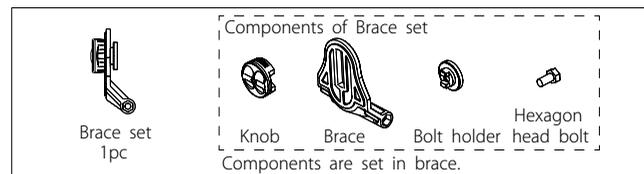
ZD  
1pc



Speed & tachometer  
signal wire 2m (6 3/5ft) 1pc

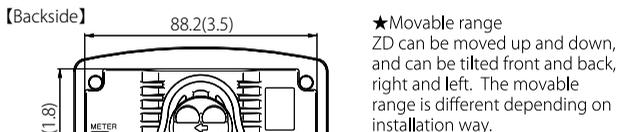
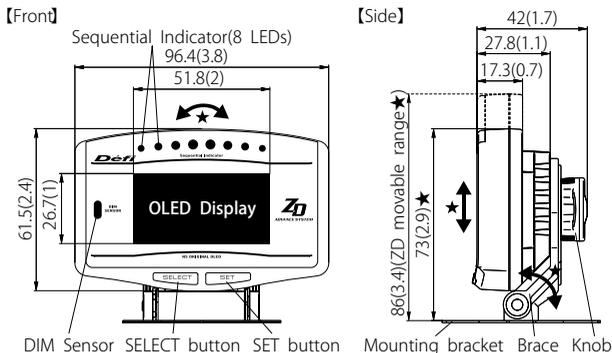


Meter wire 0.5m  
(1 3/5ft) 1pc



Operation manual (this booklet), and warranty card are included with the parts listed above.

## 6 Part names/Dimensions in mm(inches)



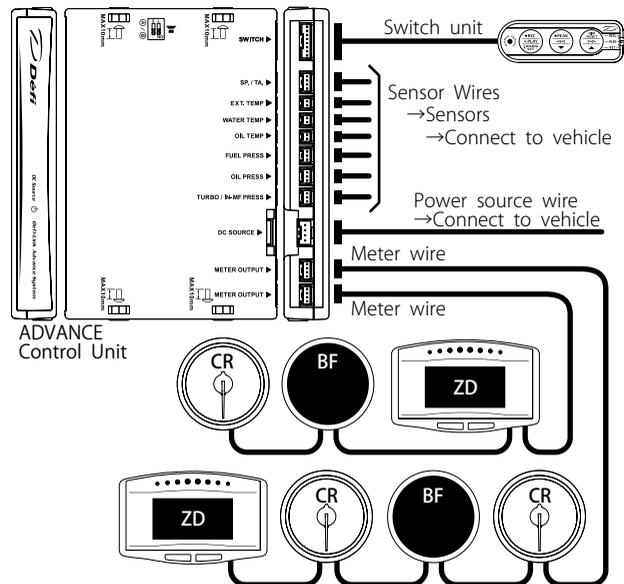
★Movable range  
ZD can be moved up and down, and can be tilted front and back, right and left. The movable range is different depending on installation way.

## Buttons

In this manual, the SELECT button and the SET button are illustrated as follows:



## Installation diagram



The meter wire can be connected to both two connectors of METER OUTPUT. Up to 7 gauges and displays in all can be connected to one control unit. (Ex. 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.)

※Do not connect more than one gauge of the same variety. (Ex. You can NOT connect 2 turbo gauges together.) However, several ZDs can be connected.

## 7 Installation

### 7 -1. Confirmation of contents.

Confirm the contents. ⇒ Refer to 5 Parts list.

### 7 -2. Installation of ADVANCE Control unit and sensors

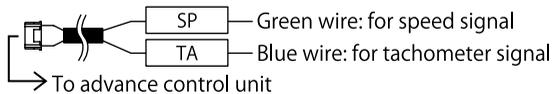
Install ADVANCE Control unit, sensors, and sensor wires by referring to the manuals.  
⇒ Refer to manuals of ADVANCE Control unit, gauges, and sensor sets

### 7 -3. Wiring of speed and tachometer signal wire

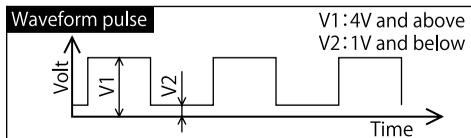
1. Disconnect the negative(-) battery terminal.
2. Connect the green wire(SP) to SP signal of ECU.
3. Connect the blue wire(TA) to TA signal of ECU. If the tachometer signal wire of ADVANCE series is already wired, connect only the green wire. (Do not use the speed and tachometer signal wire included in this product.)  
⇒ Refer to how to solder and how to use the solderless connectors.
4. Connect the speed and tachometer signal wire to ADVANCE Control unit. (In case the wire is already connected, skip this step.)
5. Connect the negative(-) battery terminal.
6. Set the speed pulse, number of cylinders, and tachometer response after all the installation and wiring are done by referring operation section.

### ■ Caution for wiring of speed and tachometer signal wires

**⚠ Caution** If there is an unconnected wire, be sure to insulate it.

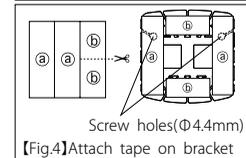
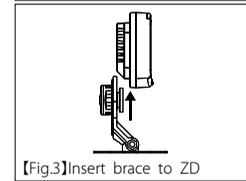
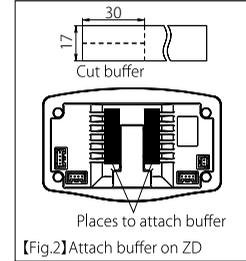
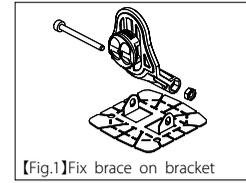


Connect the blue wire to TA signal wire of ECU.  
The TA signal needs to meet the requirements of the following graph.



## 7 -4. Installation of ZD and wiring of meter wire

1. The bolt holder and the hexagon head bolt are inserted into the slit of brace. And the knob is temporarily fastened.
2. Insert convex part of the mounting bracket over the legs of the brace. And Attach the mounting bracket to the brace with the bolt, nut and washer included in the kit as shown in the figure 1.
3. Cut the buffer into 30x85mm (2 pieces) and attach them to the backside of ZD (2 places) as shown in figure 2.
4. Connect the meter wire to the connector on the backside of ZD.
5. Insert the bolt holder of brace into the groove of ZD and then fasten the knob as shown in figure 3. If it is too tight-fitting to insert, unfasten the knob once.
6. Adjust the angle and location to attach. The mounting bracket is bendable to fit on the place to attach.
7. Attach double sided tape on backside of the mounting bracket (4 places) as shown in figure 4. Fix ZD on the place where you intend to attach it.
8. Confirm the knob and bolts are fastened firmly and ZD is fixed firmly.
9. Carry out the final confirmation according to the manual of ADVANCE Control unit.  
⇒ Refer to manual of ADVANCE Control unit.



## Confirmation

- ① Use appropriate dashboard cleaning liquids (commercially available) to clean the area where the double sided tape will be attached.
- ⚠ If the adherence of double sided tape is not enough, use commercial tapping screws(4mm).

## ⑦ -5. Setting and checking of operations

Both the switch unit of ADVANCE Control Unit and the buttons on ZD are used to set up and operate. In this manual, each operation is indicated as:

ADVANCE Control unit operation → **CU OPR** ZD operation → **ZD OPR**

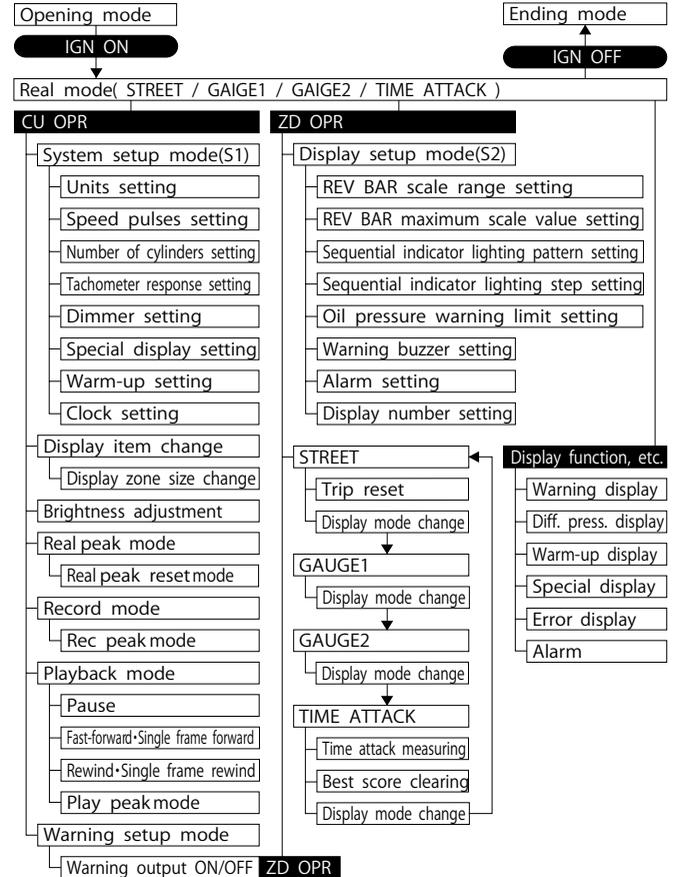
1. Turn the ignition ON. Confirm DC SOURCE LED of ADVANCE Control unit lights up.
  - ⇒ Refer to manual of ADVANCE Control unit.
2. Confirm the opening mode is performed (and then STREET display mode is displayed).
  - ⇒ Refer to ⑧ -5. Opening mode, ⑧ -6-2. Real mode
3. Confirm short-circuit (SHORT) or disconnected (OPEN) errors are not displayed.
  - ⇒ Refer to ⑧ -8. Error display
    - ① If an error is displayed
      - Turn the ignition off immediately, and then confirm the wiring of the sensor and the sensor wire.
4. Set up the speed pulse, number of cylinders, and tachometer response in the system setup mode.
  - ⇒ Refer to ⑧ -2. System setup mode
5. Set up the items displayed and warning values.
  - ⇒ Refer to ⑧ -3. Display setup mode, ⑧ -7. Warning setup mode
6. Confirm ZD functions properly.

### ⚠ Warning

- ① Set up while the vehicle is stopped.

## ⑧ Operation ⑧ -1. State transition diagram

Defi-Link ADVANCE System is composed as following diagram:





4. The speed pulse is within the limits of setting, COMPLETED is displayed and buzzer sounds. Press **[L!WARN.SET]** button to set. When the speed pulse is NOT within the limits of setting, INCOMPLETED is displayed. Press **[L!WARN.SET]** button to return the system setup mode.



- ※ Ask fellow passengers to set up. Do not set up at the wheel.
- ※ It may be unable to be adapted for some models of vehicles.

### ⑧ -2-3. Number of cylinders setting [ENGINE CYLINDERS]

Choose [ENGINE CYLINDERS] by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]** button. Choose proper number of cylinders by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]**

button.

1 ↔ 2 ↔ 3 ↔ 4 ↔ 5 ↔ 6 ↔ 8

- ※ When setting the number of cylinders for a rotary engine, set it to 4 cylinders for 2 rotors(setting of RX-8 is 2 cylinders), and to 6 cylinders for 3 rotors.



### ⑧ -2-4 Tachometer response setting [TACHO RESPONSE]

Choose [TACHO RESPONSE] by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]** button. Choose preferred number of level by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]** button. Check the actual response and select your preferred level.

1:HIGH ↔ 2:MIDDLE ↔ 3:LOW



### ⑧ -2-5. Dimmer setting [DIMMER]

Choose [DIMMER] by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]** button. Select [AUTO] or [MANUAL] by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]** button.

If [AUTO] is selected, the brightness of display is adjusted automatically depending on the outside light. If [MANUAL] is selected, the brightness of display is fixed. AUTO level can be selected from 4 levels (3 automatic levels and constant maximum brightness level) by pressing **[R DIM/RESET]** button in real mode or record mode. (It is easy to realize the difference between 3 levels in dark place.)

MANUAL level can be selected from 5 levels (one more constant maximum brightness level in nighttime) by pressing **[R DIM/RESET]** button in real mode or record mode.

⇒ Refer to ⑧ -6-1. Refer to brightness adjustment.



### ⑧ -2-6. Special display setting [SPECIAL MODE]

Choose [SPECIAL MODE] by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]** button. Select [ON] or [OFF] by pressing **[M ▼]** or **[R ▲]** button, and then press **[L!WARN.SET]** button.



If [ON] is selected, a graphic animation is played after the speed signal keeps 0km/h(0MPH) for more than 10 seconds.

### ⑧ -2-7. Warm-up setting [WARM UP MODE]

Choose [WARM UP MODE] by pressing **M** ▼ or **R** ▲ button, and then press **L!** [WARN.SET] button. Select [WATER TEMP] or [OIL TEMP] by pressing **M** ▼ or **R** ▲ button, and then press **L!** [WARN.SET] button.

WATER TEMP ↔ OIL TEMP ↔ OFF



If [WATER TEMP] or [OIL TEMP] is selected, set the temperature which warming-up is done by pressing **M** ▼ or **R** ▲ button. If **M** ▼ or **R** ▲ button is pressed long, the setting value changes quickly. Then press **L!** [WARN.SET] button to set.



### ⑧ -2-8. Clock setting [CLOCK]

Choose [CLOCK] by pressing **M** ▼ or **R** ▲ button, and then press **L!** [WARN.SET] button. Set the watch(hour) by pressing **M** ▼ or **R** ▲ button, and then press **L!** [WARN.SET] button.



Set the watch(minute) by pressing **M** ▼ or **R** ▲ button, and then press **L!** [WARN.SET] button.

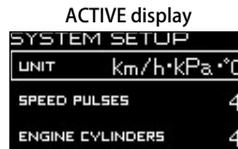


### If you connect more than one ZD

※ If you additionally connect ZD which was connected to other vehicle to your vehicle, you need to set the display number first.  
⇒ Refer to ⑧ -3-8. Display number setting.

If you connect more than one ZD, one of the ZDs is set as an ACTIVE display.

■ The role of ACTIVE display  
ACTIVE display controls the brightness of all the connected displays (and gauges) by sensing the outside brightness with the dim sensor if the AUTO dimmer is on. SYSTEM SETUP menu is displayed only on the ACTIVE display.



■ How to change the ACTIVE ZD

**CU OPR** (slide switch position : **L!** [SET] )

1. Set the slide switch to **L!** [SET] .
2. The ACTIVE ZD is changed each time **M** ▼ or **R** ▲ button is pressed and [ACTIVE] is displayed in multi-display zone (Zone A5).

※ [ACTIVE] is not displayed when only one ZD is connected to the ADVANCE system.



⇒ Refer to ⑧ -4. Display item change as for multi-display zone.

The settings of the following system setup menu can be changed in each ZD.  
⑧ -2-1. Units setting / ⑧ -2-6. Special display setting / ⑧ -2-7. Warm-up setting

Change the ACTIVE ZD first to change the settings of ⑧ -2-1, ⑧ -2-6, and ⑧ -2-7 if several ZDs are connected to the ADVANCE system.

### ⑧ -3. Display setup mode (S2)

Set the rev bar display, indicator lighting, and warning buzzer, etc.

#### ⚠ Caution

- ① Set up while the vehicle is stopped.
- ※ Stop the special display by pressing **[L SELECT]** or **[SET R]** button once when you set up if the graphic animation of special display is being played.

#### ZD OPR

- By pressing **[L SELECT]** and **[SET R]** buttons at the same time, the display shifts to display setup mode, and display setup menu is displayed. REV BAR SCALE setup is highlighted at the start.
- Choose the item to change by pressing **[SET R]** button. By pressing **[L SELECT]** button, the setting is changed.
- After all the display settings are done, press **[L SELECT]** and **[SET R]** buttons at the same time to return to real mode.

| Setting items                                 | On the screen           | Default |
|---|-------------------------|---------|
| REV BAR scale range setting                   | REV BAR RANGE           | 3000RPM |
| REV BAR maximum scale value setting           | REV BAR MAX SCALE       | 8000RPM |
| Sequential indicator lighting pattern setting | SEQ. IND. PATTERN       | SINGLE  |
| Sequential indicator lighting step setting    | SEQ. IND. STEP          | 200RPM  |
| Oil pressure warning limit setting            | OIL PRESS WARNING LIMIT | 3000RPM |
| Warning buzzer setting                        | DISPLAY WARNING BUZZER  | ON      |
| Alarm setting                                 | ALARM                   | OFF     |
| Display number setting                        | DISPLAY NO.             | No.1    |

#### ⑧ -3-1. REV BAR scale range setting [REV BAR RANGE]

The scale range of rev bar (the difference between maximum and minimum scale values) in digital display can be set.

Choose [REV BAR RANGE] by pressing **[SET R]** button. Select [3000RPM] or [4000RPM] by pressing **[L SELECT]** button.



#### ⑧ -3-2. REV BAR maximum scale value setting [REV BAR MAX SCALE]

The maximum scale value in digital display can be set. Choose [REV BAR MAX SCALE] by pressing **[SET R]** button. Each time **[L SELECT]** button is pressed, the value increases by 500RPM.

When the setting of REV BAR RANGE is 3000RPM, the lower limit of REV BAR MAX SCALE is 3000RPM. When the setting of REV BAR RANGE is 4000RPM, the lower limit of REV BAR MAX SCALE is 4000RPM.

Setting range : 3000(4000)RPM → 11000RPM

REV BAR RANGE: 3000RPM  
REV BAR MAX SCALE: 8000RPM  
Display range: 5000RPM to 8000RPM

REV BAR RANGE: 4000RPM  
REV BAR MAX SCALE: 8000RPM  
Display range: 4000RPM to 8000RPM



#### ⑧ -3-3. Sequential indicator lighting pattern setting [SEQ. IND. PATTERN]

Choose [SEQ. IND. PATTERN] by pressing **[SET R]** button. Select [SINGLE] or [DUAL] by pressing **[L SELECT]** button.



⇒ Refer to ⑧ -9. Sequential indicator

#### ⑧ -3-4. Sequential indicator lighting step setting [SEQ. IND. STEP]

Choose [SEQ. IND. STEP] by pressing **[SET R]** button. Select preferred step by pressing **[L SELECT]** button.

Lighting step:  
100RPM → 200RPM → 250RPM → 500RPM



⇒ Refer to ⑧ -9. Sequential indicator

### ⑧ -3-5. Oil pressure warning limit setting [OIL PRESS WARNING LIMIT]

The warning function of oil pressure is put out when engine revolutions are under the set value. ※ This setting is reflected only to the ZD which is changed.

Choose [OIL PRESS WARNING LIMIT] by pressing **[SET R]** button. Each time **[L SELECT]** button is pressed, the value increases by 500RPM.

Setting range : ORPM → 11000RPM



### ⑧ -3-6. Warning buzzer setting [DISPLAY WARNING BUZZER]

The warning buzzer can be turned on and off.

Buzzer does not sound in playback mode independently of buzzer setting even while values exceed the warning settings. (Warning items are highlighted.)

Choose [DISPLAY WARNING BUZZER] by pressing **[SET R]** button. Select [ON] or [OFF] by pressing **[L SELECT]** button.



- ※ The buzzer setting of ZD is not interlocked with that of ADVANCE Control unit. Refer to manual of ADVANCE Control unit. We recommend for the following setting: ADVANCE Control unit buzzer - OFF, ZD buzzer - ON
- ※ Warning buzzer can be turned on and off, but bleep of operation cannot be turned off.

### ⑧ -3-7. Alarm setting [ALARM]

Alarm can be activated at the set time.

(To activate the alarm, ignition key needs to be on at the set time.)

Choose [ALARM] by pressing **[SET R]** button.

To set the alarm OFF, select [OFF] by pressing **[L SELECT]** button and then press **[SET R]** button.



To set the alarm ON, select [ON] by pressing **[L SELECT]** button and then press **[SET R]** button.

Set the watch(hour) by pressing **[L SELECT]** button and then press **[SET R]** button. If **[L SELECT]** button is pressed long, the digit changes quickly.

Set the watch(minute) by pressing **[L SELECT]** button and then press **[SET R]** button. If **[L SELECT]** button is pressed long, the digit changes quickly.

### ⑧ -3-8. Display number setting [DISPLAY NO.]

Choose [DISPLAY NO.] by pressing **[SET R]** button. Select proper display number by pressing **[L SELECT]** button.

- ※ When one brand-new ZD is purchased at store and installed, the display number is not necessary to be changed. When more than one brand-new ZDs are connected or when you additionally connect ZD which was connected to other vehicle to your vehicle, you need to set the display number first. Set different numbers to each ZD. If ZDs that have the same display number are connected, those ZDs do not function normally.

Turn the ignition key off once and turn on again if the display numbers are changed.



## ⑧ -4. Display item change

There are 4 display modes (STREET, GAUGE1, GAUGE2, and TIME ATTACK). The sizes and positions of display items can be changed in each display mode.

(The default display mode is STREET after the opening mode is performed.)

⇒ Refer to ⑧ -6-2. Real mode for display modes

Changes in positions (zones) and sizes are limited differently in each display mode.

⇒ Refer to ⑧ -6-2-5, ⑧ -6-2-6, and ⑧ -6-2-7. for changeable zone.

Display is divided into 6 zones (Zone A), and the size of each zone can be changed as following figure (Zone B and C):

|         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|
| Zone A1 | Zone A2 | Zone B1 |         | Zone C1 | Zone C2 |
| Zone A3 | Zone A4 | Zone B2 |         |         |         |
| Zone A5 | Zone A6 | Zone A5 | Zone A6 | Zone A5 | Zone A6 |

### Items which can be selected

Zone A : Basic style

Speed ↔ Oil Press ↔ Fuel Press ↔ Oil Temp ↔ Water Temp  
 ↓ ↑  
 No Display ↔ Clock ↔ Volt ↔ Ext. Temp

Zone B : Expanded style and REV BAR

Speed ↔ Tacho(Digital) ↔ Tacho(Bar) ↔ Oil Press ↔ Fuel Press  
 ↓ ↑  
 No Display ↔ Clock ↔ Volt ↔ Ext. Temp ↔ Water Temp ↔ Oil Temp

Zone C : Graph style

(Graph showing -15 to +5°C (°F) of warning value & basic display & warning set value)

Oil Temp ↔ Water Temp ↔ No Display  
 ↑ ↓

**CU OPR** (slide switch position : **L SET**)

1. Set the slide switch to **L SET**.
2. Press **M** and **R** buttons at the same time. Zone 1 changes to check.
3. Choose a zone to change by pressing **M** button.
4. Choose zone A, B, or C by pressing **R** buttons.  
 Zone A1 → B1 → C1    Zone A3 → B2    Zone A2 → C2

⇒ Refer to ⑧ -6-2-5, ⑧ -6-2-6, and ⑧ -6-2-7. for changeable zone.

By pressing **L!WARN.SET** button, the zone is highlighted.

5. Press **M** or **R** button to select an item to display in the zone. Then press **L!WARN.SET** button to set.
6. Return the slide switch to **U REAL** or **M PLAY** after all the settings are done.

※ Zone A5 is a multi-display zone. When the dimmer level is changed, etc., the message is displayed in the multi-display zone for a moment even while the set item is displayed. When values exceed the warning settings, etc., the warning message is also displayed in the multi-display zone automatically. Do not set an item you want to check all the time in the multi-display zone.

## ⑧ -5. Opening mode, Ending mode

When the ignition is turned on, ZD performs opening mode. When the ignition is turned off, ZD performs ending mode and then the power supplies to the unit and ZD 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.

### ■ Change of Opening mode/Ending mode

Opening and ending modes can be selected from A and B types by sliding the dip switch 2 on the ADVANCE Control unit. (If gauges are connected the ADVANCE system, the opening/ending modes for gauges are also changed.) Change the type when the ignition is off.

Both types consist of digital displays and lighting of sequential indicators. Try both types!

## ⑧ -6. Operation mode

### ⚠ Warning

❗ 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.

🚫 Do not operate while driving.

### ⑧ -6-1. Brightness adjustment

**CU OPR** (slide switch position : **U REAL** > )

The brightness can be adjusted by pressing **R DIM/RESET** button in real mode and record mode. AUTO and MANUAL can be selected in the setting of dimmer control in system setup mode.

⇒⑧ -2-5. Refer to Dimmer setting [DIMMER]

**AUTO** : 3 automatic levels and constant maximum brightness level (AUTO is not interlocked with vehicle dimmer switch on/off.)

**MANUAL** : 5 constant levels each in daytime and nighttime being interlocked with ve-

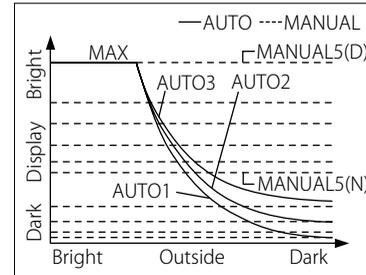
hicle dimmer switch (and one more constant maximum brightness level in nighttime)

Defaults are as follows: MANUAL···ILM. LEVEL5

AUTO···ILM. LEVEL3

The illumination of all the connected gauges is controlled automatically by using the AUTO dimmer control and by connecting ZD and ADVANCE CR or ADVANCE BF in the ADVANCE system as following list:

|                                     | AUTO  | MANUAL  |
|-------------------------------------|---|---|
| ZD OLED Display                     | controlled automatically                                  | interlocked with vehicle dimmer (5 levels each in day & nighttime)  |
| ZD sequential indicator             | changed automatically (one level each in day & nighttime) | interlocked with vehicle dimmer (one level each in day & nighttime) |
| ZD switch illumination              | changed automatically (light up/light off)                | interlocked with vehicle dimmer (light up/light off)                |
| Switch illumination of control unit | changed automatically (light up/light off)                | interlocked with vehicle dimmer (light up/light off)                |
| ADVANCE CR illumination             | changed automatically (light up/light off)                | interlocked with vehicle dimmer (light up/light off)                |
| ADVANCE BF illumination             | controlled automatically                                  | interlocked with vehicle dimmer (5 levels each in day & nighttime)  |



The illumination level is displayed for 0.5 second in multi-display zone (Zone A5) when the brightness is adjusted.



## ⑧ -6-2. Real mode

After the opening mode ends, display in ZD shifts to real mode. The real-time vehicle condition is displayed during real mode.

### ZD OPR

There are 4 display modes. The display modes can be changed each time **L SELECT** button is pressed. The default is STREET display mode.

STREET → GAUGE1 → GAUGE2 → TIME ATTACK

#### STREET



#### GAUGE1



#### GAUGE2



#### TIME ATTACK



## ⑧ -6-2-1. Warning display

While a value exceeds the warning setting, the zone that the warning item is displayed is highlighted. (The warning setting value is highlighted in Zone C.) The warning display continues for 5 seconds at shortest even when the warning condition is for less than 5 seconds. Oil pressure and fuel pressure warnings are displayed when dipping from the warning settings.

While warnings are displayed, buzzer sounds if the buzzer sounds is set on. Tachometer (digital and bar) is not highlighted even while the value exceeds the warning setting. There is no warning function in speed and volt display. Warning buzzers on Control unit and ZD can be turned on/off separately.

ADVANCE indicator sold separately can be connected to ZD. By setting the ZD warning output on, the ADVANCE indicator lights up.

⇒ Refer to ⑧ -7. Warning setup mode for how to set warnings.



## ⑧ -6-2-2. Differential pressure display

If both of the turbo sensor and the fuel sensor are installed, the differential pressure value between fuel pressure and intake manifold pressure can be displayed in fuel pressure zone. Differential pressure can not be displayed in peak mode.

**CU OPR** (slide switch position : **U REAL**)

1. Set the slide switch to **U REAL**.
2. Differential pressure is displayed by pressing **M** and **R** buttons at the same time. The display returns to fuel pressure from differential pressure by pressing **M** and **R** buttons at the same time again.

DIFFERENTIAL PRESSURE indicator (blue) is lighted up during display of differential pressure.



### ⑧ -6-2-3. Warm-up display

Setting the water temperature or oil pressure in system setup mode runs warm-up display. While the actual temperature is lower than the set value, the name of item (oil press or water temp) blinks once a second.

Blinking stops when the actual temperature exceeds the setting value.

※ Special display is not performed independently of setting of special display during warm-up display.

### ⑧ -6-2-4. Special display

A graphic animation is played after the speed signal keeps 0km/h(0MPH) for more than 10 seconds by setting the special mode on.

Sensing information, clock, and idling time are displayed during the special display. Idling time is not counted when the vehicle engine is stopped even when the ignition is on.



Special display is stopped when

- speed signal is input
- **L SELECT** or **SET R** button is pressed
- the mode is changed with the switch unit of Control unit

※ Unless the speed signal is not input, even if special display is stopped the idling time keeps being counted. And the cumulative idling time is displayed after the speed signal keeps 0km/h(0MPH) for more than 10 seconds again.

Special display is not played during

- warm-up
- warning
- short-circuit or wire disconnection
- alarm
- time attack mode
- measuring time attack

### ⑧ -6-2-5. STREET

STREET display mode displays speed, odometer, and tripmeter all the time.

※ The speed, odometer, and tripmeter are just for reference. If there is a margin of error in speed pulses setting, the margin of error is accumulated not only on the speed but also on the odometer and tripmeter.

■ Default display setting

|       |            |
|-------|------------|
| Clock | Water Temp |
| Speed |            |
| ODO   | TRIP       |

× is displayed on the item zone that sensors are not connected.

■ Zones which the display item can be changed

|         |         |
|---------|---------|
| Zone A1 | Zone A2 |
| Speed   |         |
| ODO     | TRIP    |

Zones that the display item can be changed are A1 and A2.

⇒ Refer to ⑧ -4. Display item change.

■ Reset of tripmeter

#### ZD OPR

The tripmeter can be reset by pressing **SET R** button long during STREET display mode.

※ The odometer cannot be reset.

### ⑧ -6-2-6. GAUGE1, GAUGE2

Display items can be changed in all the zones in GAUGE display modes. 2 layouts can be set in GAUGE1 and GAUGE2. (Odometer and tripmeter cannot be displayed.)

### ■ Default display setting

GAUGE1

|              |           |
|--------------|-----------|
| REV(Digital) |           |
| Water Temp   | Oil Temp  |
| Speed        | Oil Press |

GAUGE2

|          |            |
|----------|------------|
| Oil Temp | Water Temp |
| Clock    | Speed      |

× is displayed on the item zone that sensors are not connected.

### ■ Zones which the display item can be changed

|         |         |
|---------|---------|
| Zone A1 | Zone A2 |
| Zone A3 | Zone A4 |
| Zone A5 | Zone A6 |

Zones that the display item can be changed are A1 through A6.

⇒ Refer to ⑧ -4. Display item change.

## ⑧ -6-2-7. TIME ATTACK

Clockings of 0-100km/h and 0-200km/h are available in real mode. While using MPH setting not km/h, clockings of 0-60MPH and 0-100MPH are available instead.

※ Please read the part of 0-100km/h and 0-200km/h in a different way as 0-60MPH and 0-100MPH if you use MPH setting.

### ⚠ Warning

⊙ Do not use the TIME ATTACK function in open roads. It is only for closed courses.

### ■ Default display setting

|           |      |
|-----------|------|
| REV(Bar)  |      |
| Speed     |      |
| BEST TIME | TIME |

× is displayed on the item zone that sensors are not connected.

### ■ Zones which the display item can be changed

|           |         |
|-----------|---------|
| Zone A1   | Zone A2 |
| Speed     |         |
| BEST TIME | TIME    |

Zones that the display item can be changed are A1 and A2.

⇒ Refer to ⑧ -4. Display item change.

### ■ Time attack setting (Switchover of 0-100km/h and 0-200km/h)

#### ZD OPR

1. Time attack menu appears by pressing **SET R** button.
2. Highlight [SET UP] by pressing **L SELECT** button, and then press **SET R** button.
3. Highlight [SELECT 0-100 km/h] or [SELECT 0-200 km/h] by pressing **SET R** button.
4. Press **L SELECT** button to set.
5. Highlight [RETURN] by pressing **L SELECT** button, and then return to the time attack menu by pressing **SET R** button.
6. Highlight [RETURN] by pressing **L SELECT** button, and then return to the time attack display by pressing **SET R** button.



### ■ Measuring time attack

#### ZD OPR

1. Time attack menu appears by pressing **SET R** button.
  2. Highlight [START] (by pressing **L SELECT** button), and then press **SET R** button. [0-100km/h] or [0-200km/h] blinks with 0:00:00 on the display and ZD is ready to measure. If **SET R** button is pressed (measuring is started) while driving, measuring is not started up until the speed gets to 0 km/h (0MPH) and then speed signal is input again. Buzzer sounds when measuring starts.
  3. Measuring is terminated when the vehicle speed gets to 100km/h under 0-100 km/h setting or 200km/h under 0-200 km/h setting. Best time part blinks and buzzer sounds when a new record is set. Time part blinks when a new record is not set.
- ※ Press **SET R** button to cancel measuring while measuring.
- ※ While measuring 0-200km/h, the best time record for 0-100km/h will be renewed when a new record of 0-100km/h is set.

## ■ Clearing the best score

### ZD OPR

1. Time attack menu appears by pressing **SET R** button.
2. Highlight [SET UP] by pressing **L SELECT** button., and then press **SET R** button.
3. Highlight the score to delete by pressing **L SELECT** button.
4. Press **SET R** button. The score is cleared and the best time display indicate 0:00:00.
5. Highlight [RETURN] by pressing **L SELECT** button., and then press **SET R** button to return to the time attack menu.
6. Highlight [RETURN] by pressing **L SELECT** button, and then return to the time attack display by pressing **SET R** button.



### ⑧ -6-3. Real peak mode

The peak values recorded while driving and idling are displayed during real 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 differential pressure.

▲ **PEAK** is displayed in multi-display zone (Zone A5) during peak mode.



### CU OPR (slide switch position : U REAL > )

IF NEITHER OIL PRESSURE NOR FUEL PRESSURE SENSOR IS CONNECTED:

1. Set the slide switch to **U REAL >**.
2. Press **M OPEAK** button to change the display to real peak mode.
3. By pressing **M OPEAK** button, the display shifts to real mode.

IF EITHER OIL PRESSURE OR FUEL PRESSURE SENSOR IS CONNECTED:

1. Set the slide switch to **U REAL >**.
2. Press **M OPEAK** button to change the display to real peak mode (maximum value).

3. Press **M OPEAK** button again to change the display to real peak mode (minimum value of oil pressure and fuel pressure).
4. By pressing **M OPEAK** button, the display shifts to real mode.

### ⑧ -6-4. Real peak reset mode

Peak values can be reset. Regarding oil pressure and fuel pressure, both the maximum value and the minimum value are reset. **PEAK RESET** is displayed for one second in multi-display zone (Zone A5) during peak reset mode.



### CU OPR (slide switch position : U REAL > )

1. Set the slide switch to **U REAL >**.
2. Press **M OPEAK** button to change the display to real peak mode.
3. By pressing **R DIM/RESET** button, the peak values are reset and the display shifts to real mode.

### ⑧ -6-5. Record mode

Driving data can be recorded up to 3 minutes.

● **REC** and recording time are displayed in multi-display zone (Zone A5) during record mode.



### CU OPR (slide switch position : U REAL > )

1. Set the slide switch to **U REAL >**.
2. Press **L O REC** button to change the display to record mode.
3. Recording is terminated by pressing **L O REC** button again or after 3 minutes go by from start of recording. And then the display shifts to real mode.

### ⑧ -6-6. Rec peak mode

The peak values recorded while recording are displayed during record mode. The maximum and minimum values are displayed for oil pressure and fuel pressure. The peak value of fuel pressure is displayed in the fuel pressure zone

even while displaying differential pressure.

●▲ **REC PEAK** is displayed in multi-display zone (Zone A5) during rec peak mode.



**CU OPR** (slide switch position : **U REAL**)

IF NEITHER OIL PRESSURE NOR FUEL PRESSURE SENSOR IS CONNECTED:

1. By pressing **M ○ PEAK** button in rec mode, the display shifts to rec peak mode.
2. Press **M ○ PEAK** button to shifts to record mode. Or press **L ○ REC** button to shift to real mode. Recording is terminated after 3 minutes go by from start of recording, and then the display shifts to real mode.

IF EITHER OIL PRESSURE OR FUEL PRESSURE SENSOR IS CONNECTED:

1. By pressing **M ○ PEAK** button in rec mode, the display shifts to rec peak mode (maximum value).
3. Press **M ○ PEAK** button again to change the display to rec peak mode (minimum value of oil pressure and fuel pressure).
3. Press **M ○ PEAK** button to shifts to record mode. Or press **L ○ REC** button to shift to real mode. Recording is terminated after 3 minutes go by from start of recording, and then the display shifts to real mode.

### ⑧ -6-7. Playback mode

Recorded data is replayed. Pausing, fast- forwarding, rewinding, single frame forwarding, and single frame rewinding for data are possible.

▶ **PLAY** and the playback time are displayed in multi-display zone (Zone A5) during playback mode.



**CU OPR** (slide switch position : **M PLAY**)

1. Set the slide switch to **M PLAY**.
2. The recorded data is replayed by pressing **L ▶ PLAY** button.
3. Playback is stopped by pressing **L ▶ PLAY** button or when the data is replayed to the end. And then the display shifts to real mode.

### ⑧ -6-7-1. How to operate recording data

■ Pause

To stop replaying, press **M ◀◀** button or **R ▶▶** button during playback. Data is replayed again by pressing **L ▶ PLAY** button. **II PAUSE** is displayed in multi-display zone (Zone A5) during pause.



■ Fast-forward, single frame forward

To fast-forward single frames, press **R ▶▶** button. To fast-forward, press **R ▶▶** button long. **II PAUSE** is displayed in multi-display zone (Zone A5) during fast-forward of single frames.



▶▶ **PLAY** is displayed in multi-display zone (Zone A5) during fast-forward.

■ Rewind, single frame rewind

To rewind single frames, press **M ◀◀** button. To rewind, press **M ◀◀** button long. **II PAUSE** is displayed in multi-display zone (Zone A5) during rewind of single frames. ◀◀ **PLAY** is displayed in multi-display zone (Zone A5) during rewind.



※ The single frame is 0.02 seconds.

### ⑧ -6-8. Play peak mode

The peak values recorded while recording are displayed during playback mode. The maximum and minimum values are displayed in order as for oil pressure and fuel pressure.

▶▲ **PLAY PEAK** is displayed in multi-display zone (Zone A5) during play peak mode.



### CU OPR (slide switch position : **M PLAY** → **U REAL**)

IF NEITHER OIL PRESSURE NOR FUEL PRESSURE SENSOR IS CONNECTED:

1. Set the slide switch to **M PLAY**.
2. The recorded data is replayed by pressing **▶PLAY** button.
3. Set the slide switch to **U REAL** during playback (or during pause).
4. The peak values are displayed by pressing **M PEAK** button.
5. The recorded data is displayed again by pressing **M PEAK** button again.  
Or set the slide switch to **M PLAY** and press **▶PLAY** button long to shift to real mode. Playback is not stopped during play peak mode.

IF EITHER OIL PRESSURE OR FUEL PRESSURE SENSOR IS CONNECTED:

1. Set the slide switch to **M PLAY**.
2. The recorded data is replayed by pressing **▶PLAY** button.
3. Set the slide switch to **U REAL** during playback (or during pause).
4. The peak (maximum) values are displayed by pressing **M PEAK** button.
5. By pressing **M PEAK** button again, The peak values (minimum values of oil pressure and fuel pressure) are displayed.
5. The recorded data is displayed again by pressing **M PEAK** button again.  
Or set the slide switch to **M PLAY** and press **▶PLAY** button long to shift to real mode. Playback is not stopped during play peak mode.

#### ■ Difference between real peak, rec peak, and play peak

|                  | Real peak                    | Rec peak  | Play peak     |
|------------------|------------------------------|---|---------------|
| Displayed during | Real mode                    | Record mode   | Playback mode |
| Displayed values | Peak values in all modes     | Peak value recorded in record mode                  |               |
| Update           | In all modes                 | During record mode                                  |               |
| Peak reset       | Operatable in real peak mode | Being reset automatically when recording is started |               |

### ⑧ -7. Warning setup mode

Warning values can be set.

- ※ Warning function is not applied to either speed or volt.  
⇒ Refer to ⑧ -6-2-1. Warning display

#### ■ Factory default settings of warning values

| Gauge                   | Default setting | Unit | Setting range |         | Warning condition   | Warning output |
|-------------------------|-----------------|------|---------------|---------|---------------------|----------------|
|                         |                 |      | Minimum       | Maximum |                     |                |
| Turbo/<br>In-mani press | 100             | kPa  | -100          | 200     | Set value and above | ON             |
|                         | 14.5            | PSI  | -14.5         | 29      |                     |                |
| Tachometer              | 7000            | RPM  | 300           | 11000   | Set value and above | ON             |
| Oil press               | 120             | kPa  | 0             | 1000    | Set value and below | ON             |
|                         | 17.5            | PSI  | 0             | 145     |                     |                |
| Fuel press              | 150             | kPa  | 0             | 600     | Set value and below | ON             |
|                         | 21.8            | PSI  | 0             | 87      |                     |                |
| Oil temp                | 125             | °C   | 0             | 150     | Set value and above | ON             |
|                         | 257             | ° F  | 32            | 302     |                     |                |
| Water temp              | 105             | °C   | 0             | 150     | Set value and above | ON             |
|                         | 221             | ° F  | 32            | 302     |                     |                |
| Exhaust temp            | 850             | °C   | 0             | 1100    | Set value and above | ON             |
|                         | 1562            | ° F  | 32            | 2010    |                     |                |

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

※ Regarding turbo/in-mani pressure:

**ZD cannot display turbo/in-mani pressure**, but the warning values can be set if turbo sensor is installed. The warning buzzer sounds if the setting of warning buzzer is ON, and warning signal is output if warning output is ON, but **there is no warning display for turbo/in-mani pressure**.

### ⑧ -7-1. How to change the warning setting values

**CU OPR** (slide switch position : **L SET**)

1. Set the slide switch to **L SET**.
2. Press **L ! WARN.SET** button to shift to warning setup mode.
3. Select the item to set up by pressing **L ! WARN.SET** button. The selected item is highlighted and setting value is displayed. Un-connected items (sensors) cannot be selected. The order is as follows:



- ※ If ADVANCE BF Φ 80 Tachometer are connected, 2 levels of tachometer warnings can be set.
4. Press **M ▼** button to lower the setting value. Press **R ▲** button to raise the setting value. Press each button long to change fast.
  5. Return the slide switch to **U REAL** or **M PLAY** after all the settings are done.

### ⑧ -7-2. Setting of warning output ON/OFF

If ADVANCE Indicator (sold separately) is connected to ZD and the warning output is on, the ADVANCE Indicator lights up while the item that the output is on is under condition of warning. While a value exceeds the warning setting, the zone that the warning item is displayed is highlighted and buzzer sounds irrespective of the setting of warning output ON/OFF.

**CU OPR** (slide switch position : **L SET**)

1. Set the slide switch to **L SET**.
2. Press **L ! WARN.SET** button to shift to warning setup mode.
3. Select the item to change ON/OFF by pressing **L ! WARN.SET** button.

**ZD OPR**

4. Each time **SET R** button is pressed, the check of **IND. OUT**  is switched over. If the check is on, the warning signal is output while the item is under the condition of warning.

**CU OPR** (slide switch position : **L SET**)

5. Return the slide switch to **U REAL** or **M PLAY** after all the settings are done.

### ⑧ -8. Error display

When the sensor wiring is disconnected or short-circuit, the item zone is highlighted and OPEN or SHORT is displayed. Once OPEN or SHORT is displayed, the sign keeps being displayed until ignition is turned off. The short-circuit error displays for oil pressure and fuel pressure are displayed only during short-circuiting.



The error of sensor wiring that is not displayed on ZD is displayed and highlighted in multi-display zone (Zone A5). If there are more than 2 errors that are not displayed, highlights of OPEN or SHORT are displayed for 2 seconds each in order.



When a communication error between ZD and ADVANCE Control unit, Serial line 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.

## 8 -9. Sequential indicator

8 LEDs (red) light up or blink depending on the engine revolutions. The lighting pattern can be selected from [SINGLE] and [DUAL]. The lighting pattern and step is set in display setup mode.

⇒ Refer to 8 -3. Display setup mode (S2).

### ■ Engine revolutions that LED is lighted up

[SINGLE] = (warning setting value of engine revolutions) – (lighting step) × 8

[DUAL] = (warning setting value of engine revolutions) – (lighting step) × 4

### ■ Engine revolutions that all LEDs are lighted up

[SINGLE] = [DUAL] = (warning setting value of engine revolutions) – (lighting step)

### ■ Engine revolutions that all LEDs blink

At higher than or equal to warning setting value of engine revolutions

If the dimmer setting is AUTO, the brightness of LEDs is decreased one level automatically depending on the outside brightness. If the dimmer setting is MANUAL, the brightness of LEDs is decreased one level being interlocked with the illumination switch of the vehicle.

<Lighting example> warning setting value : 8000RPM lighting step : 100RPM

[SINGLE]

| LEDs (from left)          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | Blink |
|---------------------------|------|------|------|------|------|------|------|------|-------|
| Lighting revolutions(RPM) | 7200 | 7300 | 7400 | 7500 | 7600 | 7700 | 7800 | 7900 | 8000  |

[DUAL]

| LED (from left)           | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | Blink |
|---------------------------|------|------|------|------|------|------|------|------|-------|
| Lighting revolutions(RPM) | 7600 | 7700 | 7800 | 7900 | 7900 | 7800 | 7700 | 7600 | 8000  |

※ If ADVANCE BF Ø 80 Tachometer is connected, the higher setting value of warning would be the basing point for lighting and blinking of LED.

## 8 -10. Alarm function

If the alarm is set, buzzer sounds and sequential indicator blinks at the setting time. Buzzer sounds for a minute. Sequential indicator (all the LEDs) blinks at the same time.

※ The alarm does not function unless the ignition is on at the set time.

### ZD OPR

Press **[L SELECT]** or **[SET R]** button to stop the alarm during the alarm.

⇒ Refer to 8 -3-7. Alarm setting [ALARM] for how to set up.

※ The clock is semidiurnal. Alarm can be set within only 12 hours. This function alarms only one time after setting. The alarm needs to be set again after using the function once.

## 9 Troubleshooting

### ⚠ 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"> <li>○ Does not operate.</li> <li>○ Power is not supplied.</li> <li>○ DC Source LED of the unit doesn't light.</li> </ul> | <ul style="list-style-type: none"> <li>○ Wiring of the power supply wire is improper.</li> <li>○ The fuse of the power supply wire is blown out.</li> <li>○ The locks of the solderless connectors are not locked tightly.</li> </ul>  | <ul style="list-style-type: none"> <li>○ Check wiring of +B, IGN, GND as per instructions in this manual.</li> <li>○ Check wiring and replace the fuse.</li> <li>○ Check the lock of the solderless connectors.</li> </ul>  |
| <ul style="list-style-type: none"> <li>○ DC Source LED of the unit is blinking.</li> </ul>  | <ul style="list-style-type: none"> <li>○ There is a wire short circuit or disconnected wire somewhere. Maybe there is something wrong on gauge.</li> </ul>   | <ul style="list-style-type: none"> <li>○ Please reconfirm the wiring and the gauge according to operation manual. If any defects are not found, please ask the shop for inspection.</li> </ul>  |
| <ul style="list-style-type: none"> <li>○ Does not carry out the ending mode.</li> </ul>   | <ul style="list-style-type: none"> <li>○ The battery wiring is improper.</li> </ul>  | <ul style="list-style-type: none"> <li>○ Check wiring of +B as per instructions in this manual.</li> <li>○ Check the solderless connector of battery wiring.</li> <li>○ Please ask the store for inspection.</li> </ul>   |
| <ul style="list-style-type: none"> <li>○ The illumination of gauge does not turn on.</li> </ul>   | <ul style="list-style-type: none"> <li>○ The ILM wiring is improper.</li> <li>○ The locks of the solderless connectors are not locked tightly.</li> <li>○ The brightness level is set at MANUAL LEVEL:0.</li> <li>○ The dimmer setting is AUTO and the outside is bright.</li> </ul> | <ul style="list-style-type: none"> <li>○ Check wiring of ILM as per instructions in this manual.</li> <li>○ Check the lock of the solderless connectors.</li> <li>○ Release illumination cancel function as per instructions in this manual.</li> <li>○ Change the dimmer setting.</li> </ul> |

| Condition   | Possible Cause  | Corrective Action  |
|---|---|--|
| <ul style="list-style-type: none"> <li>○ Error (SHORT or OPEN) is displayed.</li> </ul>   | <ul style="list-style-type: none"> <li>○ There is a wire short circuit or a wire disconnection somewhere on sensor or sensor wire.</li> </ul>         | <ul style="list-style-type: none"> <li>○ Check the sensor and sensor wire as per instructions in this manual. If any defects are not found, please ask the shop for inspection.</li> </ul>   |
| <ul style="list-style-type: none"> <li>○ Serial line error is displayed.</li> </ul>   | <ul style="list-style-type: none"> <li>○ Communication error is occurred between ZD and ADVANCE Control unit.</li> </ul>                              | <ul style="list-style-type: none"> <li>○ Check the meter wire as per instructions in this manual. If any defects are not found, please ask the shop for inspection.</li> </ul>   |
| <ul style="list-style-type: none"> <li>○ The RPM is not displayed correctly.</li> </ul>   | <ul style="list-style-type: none"> <li>○ Wiring of the tachometer signal is wrong.</li> <li>○ Setting of the number of cylinders is wrong.</li> </ul> | <ul style="list-style-type: none"> <li>○ Check wiring as per instructions in this manual.</li> <li>○ Check the number of cylinders as per instructions in this manual.</li> </ul>  |
| <ul style="list-style-type: none"> <li>○ The tachometer is reading slightly lower than the original tachometer.</li> </ul>      | <ul style="list-style-type: none"> <li>○ Generally tachometer readings are about up to 10 %higher than actual RPM.</li> </ul>                         | <ul style="list-style-type: none"> <li>○ 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.</li> </ul> |
| <ul style="list-style-type: none"> <li>○ The speed is not displayed correctly.</li> </ul>                                       | <ul style="list-style-type: none"> <li>○ Wiring of the speed signal wire is wrong.</li> <li>○ The speed pulse setting is wrong.</li> </ul>            | <ul style="list-style-type: none"> <li>○ Check wiring as per instructions in this manual.</li> <li>○ Check the speed pulse as per instructions in this manual.</li> </ul>  |
| <ul style="list-style-type: none"> <li>○ Cannot set up the System setup.</li> </ul>   | <ul style="list-style-type: none"> <li>○ Several ZDs have the same display number.</li> </ul>   | <ul style="list-style-type: none"> <li>○ Change the display number as per instructions in this manual.</li> </ul>  |
| <ul style="list-style-type: none"> <li>○ System setup menu is not displayed.</li> </ul>   | <ul style="list-style-type: none"> <li>○ Active display is not set.</li> </ul>  | <ul style="list-style-type: none"> <li>○ Set an active display as per instructions in this manual.</li> </ul>  |
| <ul style="list-style-type: none"> <li>○ Serial error is displayed and the clock returns to 1:00 at starting engine.</li> </ul> | <ul style="list-style-type: none"> <li>○ The battery is weakening and power-supply voltage is lowering.</li> </ul>                                    | <ul style="list-style-type: none"> <li>○ Change the battery.</li> </ul>  |

## 10 Repair parts

AD = For ADVANCE System exclusive use

| Parts Number | Repair Parts Name                                 |
|--------------|---|
| PDF09702G    | Brace set   |
| PDF09705H    | AD Speed & Tachometer signal wire (2m, 6 3/5ft)   |
| PDF07708H    | AD Meter wire (0.5m, 1 3/5ft)                     |
| PDF07809G    | AD Installation parts for meter and ZD            |
| PDF00703S    | Pressure sensor (for oil press. or fuel press.)   |
| PDF00903S    | Temperature sensor (for oil temp. or water temp.) |
| PDF01103S    | Exhaust temp. sensor                              |
| PDF01105G    | Fitting for Exhaust temp. sensor                  |
| PDF08105H    | AD Oil press. Sensor wire (3m, 10ft)              |
| PDF06603H    | Fuel press. Sensor wire (2.5m, 8 1/5ft)           |
| PDF05602H    | Oil temp. sensor wire (3m, 10ft)                  |
| PDF05603H    | Water temp. sensor wire (3m, 10ft)                |
| PDF06803H    | Exhaust temp. Sensor wire (2.5m, 8 1/5ft)         |

※ For more information, contact our official distributor, or visit our website.

## 11 Maintenance & Check/Warranty & Servicing

### ■ Warranty card • Terms and conditions

This product is delivered with this operation manual and 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.

### ⚠ Warning

- ⚠ 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 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 shop, please ask the nearest Defi 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<br>(including the products that do not need inspection this time)  |      |         |
| 5. Describe your experience<br>(when? do what?, what product? what happened? then what?) |      |         |

### ■ Label

The label stucked on the product is for the product traceability. Do not peel it off.

### ■ Repairing

When a repair is necessary, we will return the inspection result report through the store to you. After receiving a repair service request, we start repairing. Ask the store how much it costs and how long it takes to repair.

### ■ 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.

## 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. Out 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 YOUR 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 to 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.

## デフィーリンクメーターアドバンスズィーディー取扱説明書

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## Defi-Link Meter ADVANCE ZD Operation Manual

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