Defi-Link Meter ADVANCE FD Operation Manual

DF17801

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.

1. Contents

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.

Some functions differ when connected to the DF077 ADVANCE Control Unit and DF177 ADVANCE Control Unit. For details, refer to the manual of each control unit.

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.

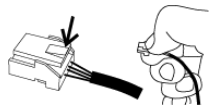
⃠Do not apply excessive force on switches/terminals. It may result in damage to the product.

⃠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.

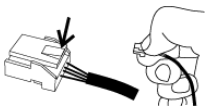
❗In the case any of the warning lamps of vehicle (check engine lamp, etc.) is lighted, stop the vehicle and turn off the engine immediately. After turning off the engine, detach this product from the OBDII connector. Continued use while in a faulty state could result in accidents or malfunction.

❗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.

⚠This product uses high luminance LEDs. When several gauges are lined up, there might be color difference in the LED production tolerance, but it is not malfunction.

⚠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.

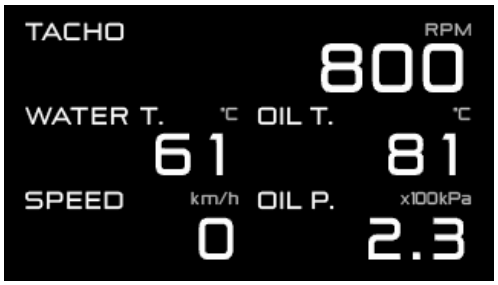
⚠The TFT color LCD will be dimmed to prevent damage from heat automatically when heated. It is not malfunction. As the temperature is decreased, the brightness will be increased.

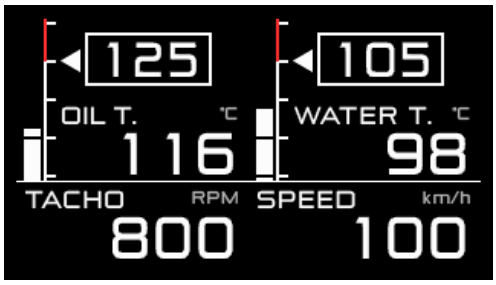
3. Features <for customer>

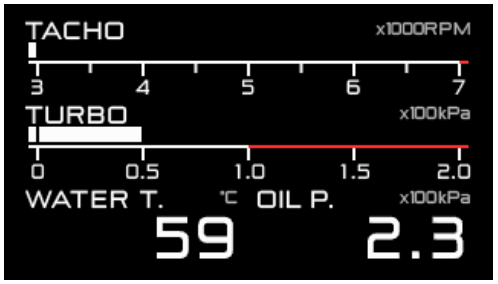
・The ADVANCE system (interactive communication) is implemented.

・By connecting this product to the ADVANCE system, the illumination of ADVANCE gauges is controlled automatically.

・4 Display patterns can be set.







・Display items can be set optionally and maximum 6 items can be displayed all together on one display.

・Warm-up mode is equipped to guard engine.

・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 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.

・Equipped with a shift-up sequential indicator with 8 LEDs.

・Equipped with a master warning function that outputs warnings for all the input signals. (ON/OFF can be set.)

・Odometer and trip meter functions are equipped.
・Oil, water, and exhaust temperatures can be displayed from 0℃ (32°F).
・Graphic animation plays during idling. (Special mode)

4. Specifications <for customer and installation personnel>

Power supply voltage	10V ～ 16V DC(For 12V vehicle)	
Current consumption of ADVANCE Control unit	+B line	2A（IGN ON） 1mA（IGN OFF）
	ILM line	5mA
(Maximum value obtained when connecting 7 gauges and displays)		
Operation temperature range	-20 ～ +60℃ , -4 ～ +140°F（Under 80% relative humidity）	
Storage temperature range	-30 ～ +80℃ , -22 ～ +176°F（Under 80% relative humidity）	
Applicable speed pulse	2/4/8/16pulse (mainly for Japanese vehicles) Pulse free setting: 1,274 ～ 16,562pulse/km, 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.	

4.1. Display items

Display item		Display range	Format
Speed		0 ～ 399km/h（0 ～ 239MPH）	numeral
Tachometer		0 ～ 11,000rpm	numeral/bar
OP1	Turbo/Boost/ Intake manifold press.	-100 ～ 300kPa (-29.5inHg ～ 45.0PSI)	numeral/bar
OP2	Oil Press.	0 ～ 1,000kPa（0 ～ 145PSI）	numeral
OP3	Fuel Press.	0 ～ 600kPa（0 ～ 87PSI）	numeral
OP4	Oil Temp.	0 ～ 150℃（32 ～ 302°F）	numeral
OP5	Water Temp.	0 ～ 150℃（32 ～ 302°F）	numeral
OP6	Exhaust temp.	0 ～ 1,100℃（32 ～ 2,012°F）	numeral
Differential press.		0 ～ 1,000kPa（0 ～ 145PSI）	numeral
Volt		10 ～ 16V	numeral
Odo		0 ～ 999,999km (0 ～ 999,999mile)	numeral
Trip		0.0 ～ 9999.9km (0.0 ～ 9999.9mile)	numeral
Idling		00:00 ～ 59:59	numeral

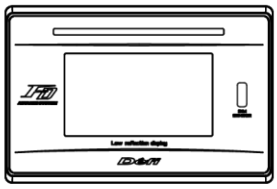
⚠OP means optional parts. To display OP1 through OP6, optional sensor sets need to be purchased separately. If ADVANCE gauges (sensors) are already installed, the sensor set is not necessary additionally. (e.g. Oil pressure sensor and the ADVANCE oil pressure sensor wire are already installed, oil pressure can be displayed without purchasing OP2 sensor set.)

⚠A turbo sensor for 300kPa (45PSI) is required to correctly display the boost pressure over 200kPa (29PSI).

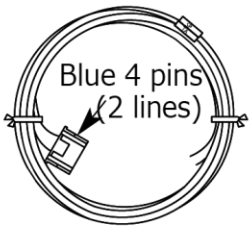
⚠Turbo and fuel pressure sensor inputs are required to display the differential pressure.

⚠The odometer accumulates up to the upper limit of the display range, but at that point the display is locked and the addition stops.

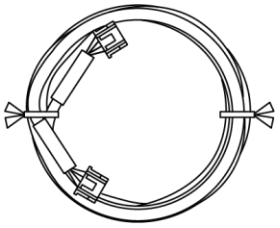
5. Components <for customer and installation personnel>



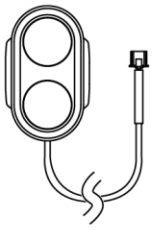
FD
1pc



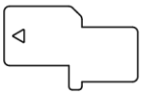
Speed & tachometer
signal wire 2m (6 3/5ft) 1pc



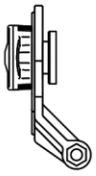
Meter wire 1m
(3 1/3ft) 1pc



Switch (wire 45cm, 1 1/2ft)
1pc



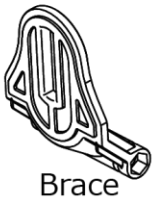
Switch bracket
1pc



Brace set
1pc

Components of Brace set

Knob



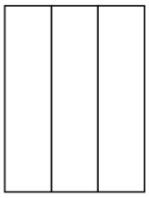
Brace

Components are set in brace.

Bolt holder

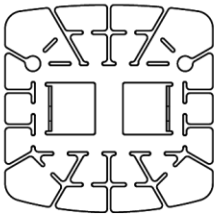
Hexagon
head bolt

Installation parts

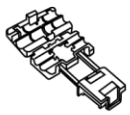


Double sided tape
1pc

M4 bolt, nut,
washer 1pc

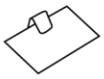


Mounting
bracket 1pc



Soderless
connector 2pcs

Buffer
1pc



Clip
2pcs

Tie wrap
2pcs

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

⚠ADVANCE Control Unit is required for the operation of this product. Please prepare separately.

6. Optional / repair parts <for customer and installation personnel>

Optional part name		Part No.
OP1	AD Turbo sensor set	PDF07806SS
OP2	AD Oil press sensor set	PDF08106SS
OP3	AD Fuel press sensor set	PDF08205SS
OP4	AD Oil temp sensor set	PDF08305SS
OP5	AD Water temp sensor set	PDF08405SS
OP6	AD Ext. Temp sensor set	PDF08505SS
ADVANCE Indicator		DF09601

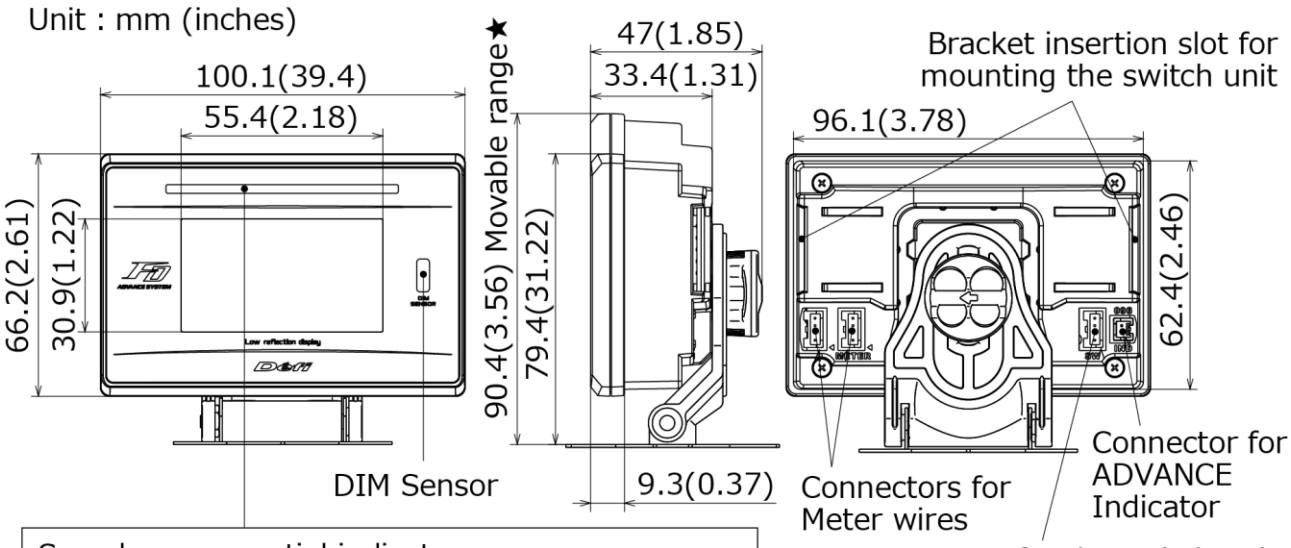
Repair part name	Part No.
FD switch bracket	PDF17801G
Switch for FD & Tachometer	PDF17803G
AD Speed & Tachometer signal wire (2m, 6 3/5ft)	PDF09705H
AD Meter wire (1m, 3 1/3ft)	PDF07709H
AD Installation parts for gauge and display	PDF07809G
Brace set	PDF09702G
Turbo/Boost sensor (Max 200kPa/29PSI)	PDF06503S
Turbo/Boost sensor (Max 300kPa/45PSI)	PDF14604S
Pressure sensor (for oil press. and fuel press.)	PDF00703S
Temperature sensor (for oil temp. and water temp.)	PDF00903S
Exhaust temp. sensor	PDF01103S
Fitting for Exhaust temp. sensor	PDF01105G
Turbo/Boost sensor wire (2.5m, 8 1/5ft)	PDF06505H
AD Oil press. Sensor wire (3m, 10ft)	PDF08105H
Fuel press. Sensor wire (2.5m, 8 1/5ft)	PDF06603H
Oil temp. sensor wire (3m, 10ft)	PDF05602H
Water temp. sensor wire (3m, 10ft)	PDF05603H
Exhaust temp. Sensor wire (2.5m, 8 1/5ft)	PDF06803H

AD: For ADVANCE System only

❗Please check our website for the latest information.

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

Unit : mm (inches)

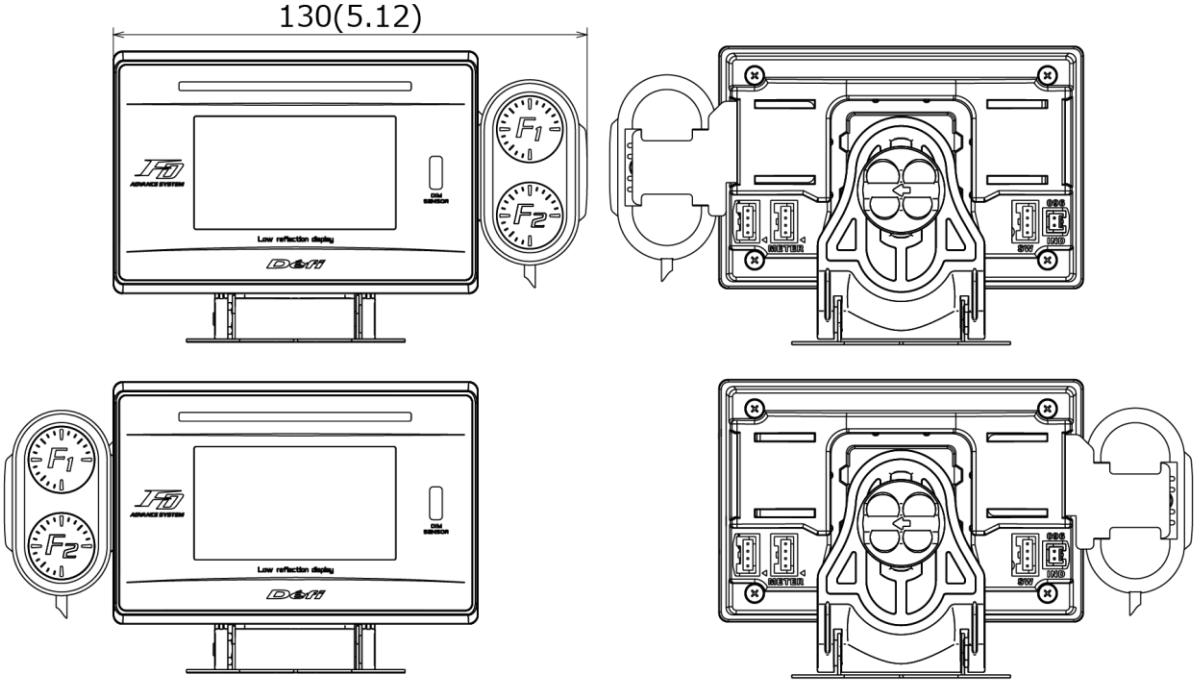


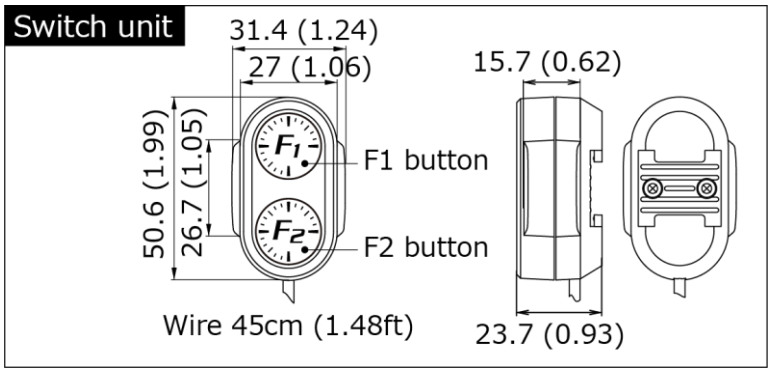
Seamless sequential indicator

Equipped with 10 LEDs
1 LED on each end: Master warning (green)
8 LEDs in the center: Sequential indicator (red)

★Movable range
FD 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.

【Switch installation diagram】 The switch can be attached to either the left or right side.

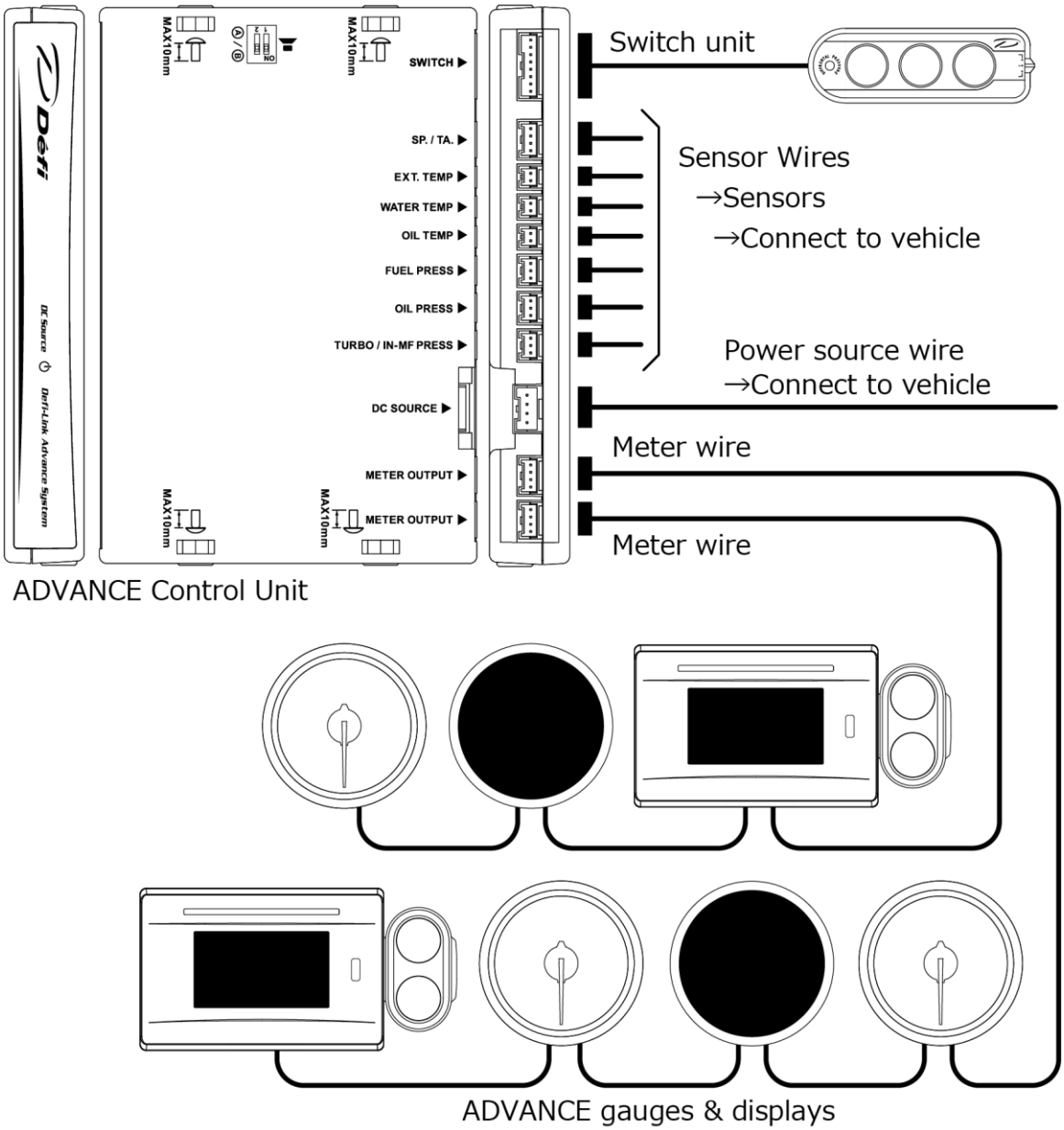




The master warning lights up at the time of warning, as does the ADVANCE indicator.
ADVANCE indicator is sold separately.

⇒8 How to install <for customer and installation personnel>
⇒9.8 Warning setup mode

■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.

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. Installation of ADVANCE Control unit and sensors

Install ADVANCE Control unit, sensors, and sensor wires by referring to the manuals.

⇒ Refer to manuals for ADVANCE Control Unit, gauges, and sensor sets

8.3. 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. In the case, 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.)

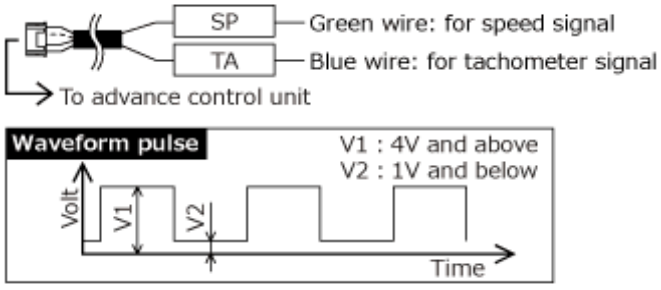
5. Connect the negative (-) battery terminal.

6. Set the speed pulse, number of cylinders, and tachometer response after all the installation and wiring are done by referring operation section.

⇒9 How to operate <for customer>

⚠Caution for wiring of speed and tachometer signal wires

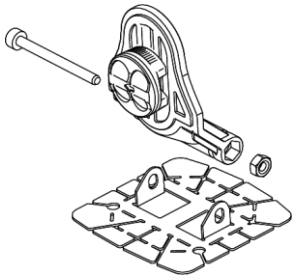
❗If there is an unconnected wire, be sure to insulate it.



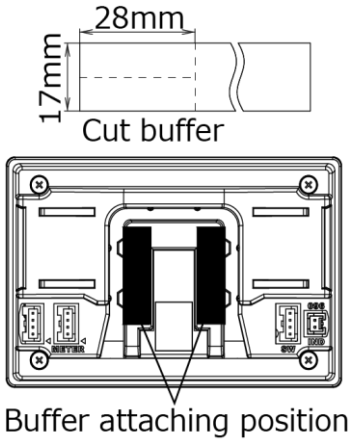
8.4. Installation of FD and wiring of meter wire

1. Check the bolt holder and hexagon head bolt are inserted into the slit of the brace in advance and the knob is already set.

2. Insert convex part of the mounting bracket over the legs of the brace. Attach the mounting bracket to the brace with the bolt, nut and washer included in the kit

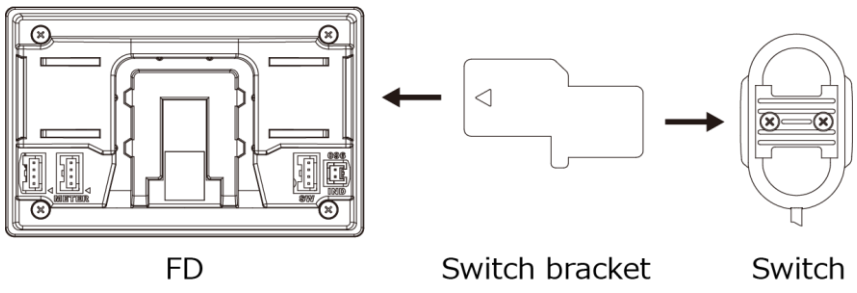


3. Cut the buffer into 28×8.5mm (2 pieces) and attach them to the backside of the FD.



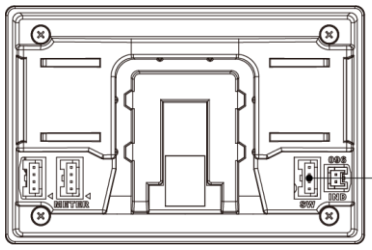
4. Attach the switch to the FD.

4-1. Insert the switch bracket into the FD and the switch.



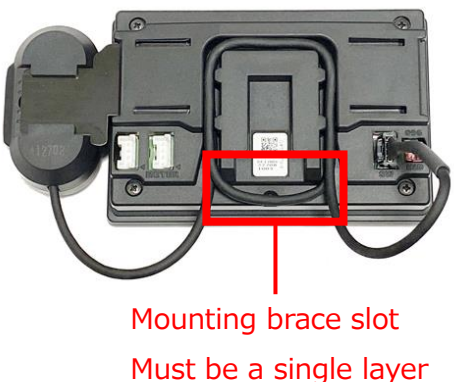
⚠The side with the triangular (▷) hole comes to the FD body side.
⚠The switch can be attached to either the left or right side of the FD body.
❗When inserting the switch stay into the FD body, insert it so that the FD body and the stay are horizontal.

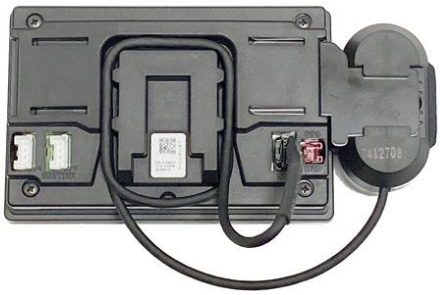
4-2. Connect the connector of the switch wire to the FD.



❗Plug the black connector of the switch wire into the black connector of the FD.
⃠Do not plug the black connector into the white connector for meter wire.

4-3. Wrap the switch wire around the groove on the back of the FD as needed.

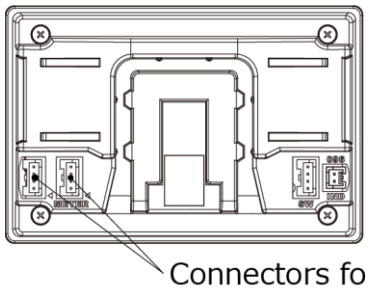




Wrapping example

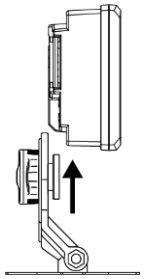
❗The harness should be wired with slack. Pulling too hard may break the wire.
❗When storing the wire in the groove for the switch wire on the back of the FD, wrap the wire around the mounting brace slot in a single layer. Double wrapping may cause unstable fixing of the mounting brace or generate noise may affect the FD itself and vehicle functions.

5. Connect the meter wire to the FD.



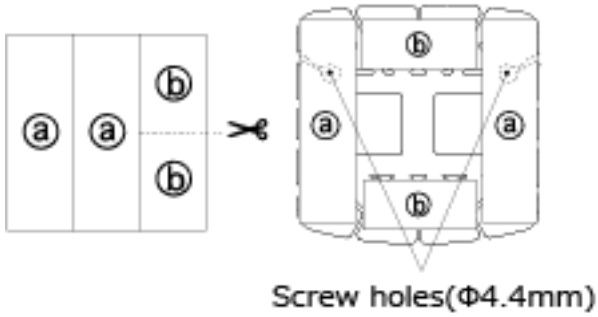
❗Plug the white connector of the meter wire into the white connector of the FD.
⃠Do not plug the white connector into the black connector for the switch wire.

6. Insert the bolt holder of brace into the groove of the FD and then fasten the knob. If it is too tight to insert, unfasten the knob once.



7. Adjust the angle and location to attach. The mounting bracket is bendable to fit on the place to attach.

8. Attach double sided tape on the backside of the mounting bracket (4 places). Fix the FD on the place where you intend to attach it.



9. Confirm the knob and bolts are fastened firmly and the FD is fixed firmly.

10. Carry out the final confirmation according to the manual of ADVANCE Control unit.

⇒Refer to manual of ADVANCE Control unit.

Confirmation

❗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)

⚠We recommend embedding the FD body into the instrument panel of the vehicle for sports driving. If you embed the FD body, use the pattern paper which can be downloaded from the manual page of our website.

8.5. Setting and checking of operations

Both the switch unit of ADVANCE Control Unit and the buttons on the FD are used to set up and operate.

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 the real time mode is displayed).
⇒9.6 Opening/Ending mode

3. Confirm short-circuit (SHORT) or disconnected (OPEN) errors are not displayed.
⇒9.9 Error display

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.
⇒9.3 System setup mode

5. Set up the items displayed and warning values.
⇒9.4 Display setup mode
⇒9.8 Warning setup mode

6. Confirm the FD functions properly.

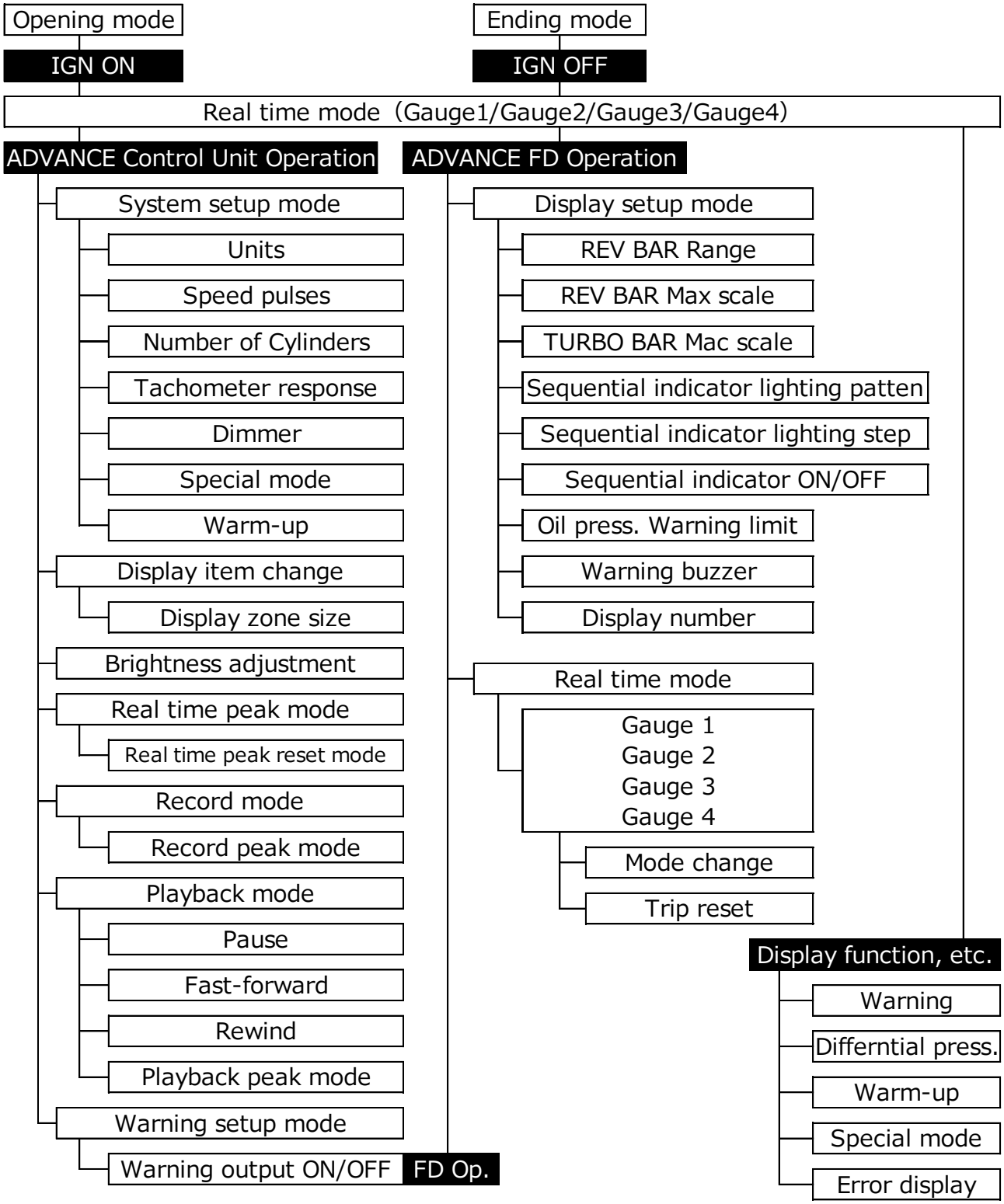
⚠Warning

❗Set up while the vehicle is stopped.

9. How to operate <for customer>

9.1. System transition diagram

ADVANCE FD is composed as following diagram:



⚠When linked to DF177 ADVANCE Control Unit, recording and playback functions are not available.

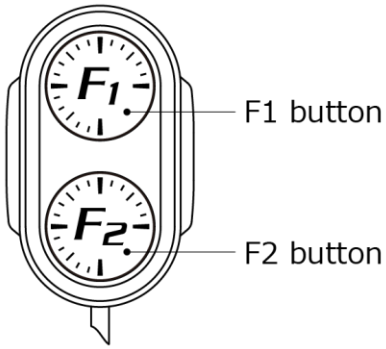
9.2. Names of switches and buttons

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

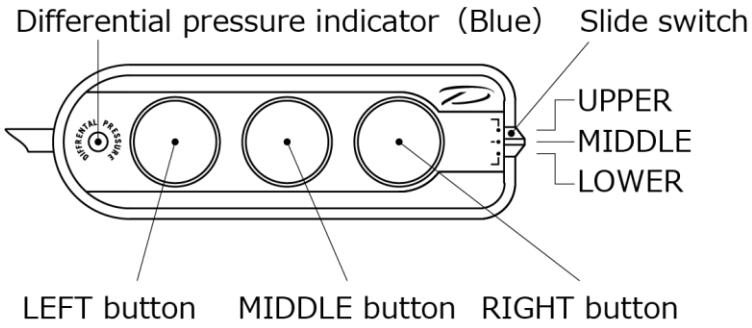
ADVANCE FD operation … FD OPR

ADVANCE Control Unit operation … CU OPR

Switch unit for ADVANCE FD　Illumination color : White



Switch unit for Control Unit　Illumination color : White



⚠Caution

⃠Do not press the switch with excessive force. Doing so may deform the bracket or destroy the case.

9.3. System setup mode

Set the speed pulse, number of cylinders, tachometer response, and so on. If ADVANCE tachometer has been installed and number of cylinders and tachometer response are already set, the settings are applied to the FD too.

⚠Caution

❗Make sure all the setting is done correctly. The product doesn't operate properly.

❗Set up while the vehicle is stopped.

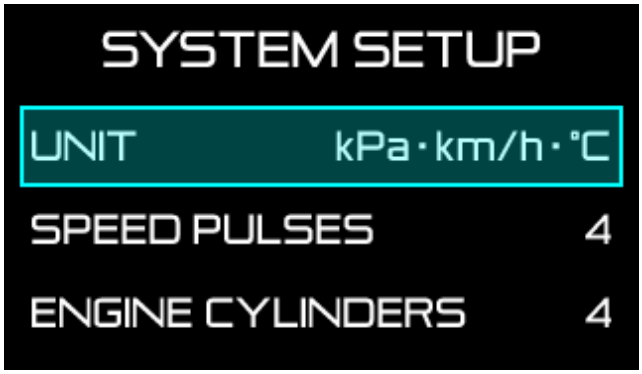
Setting items	On the screen	Setting options	Default
Unit setting	UNIT	kPa･km/h･℃ / PSI･MPH･℉	kPa･km/h･℃
Spped pulses setting	SPEED PULSES	2 / 4 / 8 / 16 / FREE	4
Number of cylinders setting	ENGINE CYLINDERS	1 / 2 / 3 / 4 / 5 / 6 / 8	4
Tachometer response setting	TACHO RESPONSE	1:HIGH / 2:MID / 3:LOW	1 : HIGH
Dimmer setting	DIMMER	AUTO / MANUAL	MANUAL
Special display setting	SPECIAL MODE	ON / OFF	OFF
Warm-up setting	WARM UP MODE	WATER TEMP / OIL TEMP / OFF	OFF

[CLOCK] appears at the end of the menu, but the FD does not have a clock function and cannot be set.

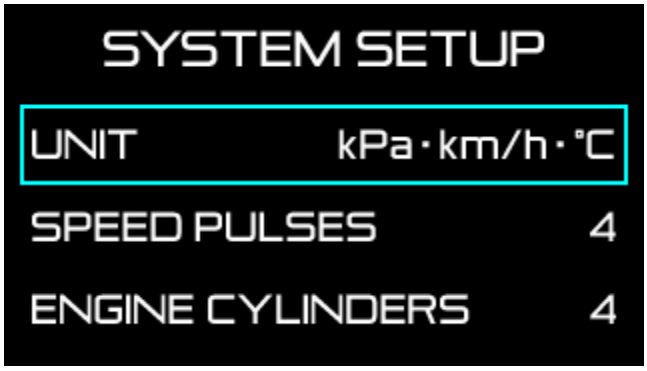
CU OPR (Slide switch position :【LOWER】)

1. Set the slide switch to【LOWER】.

2. Press and hold the【LEFT Button】to enter the setup mode, and the [SYSTEM SETUP] menu will be displayed on the FD. The unit setting is highlighted first. The inside of the selection frame is light blue until you decide to select one of the items.



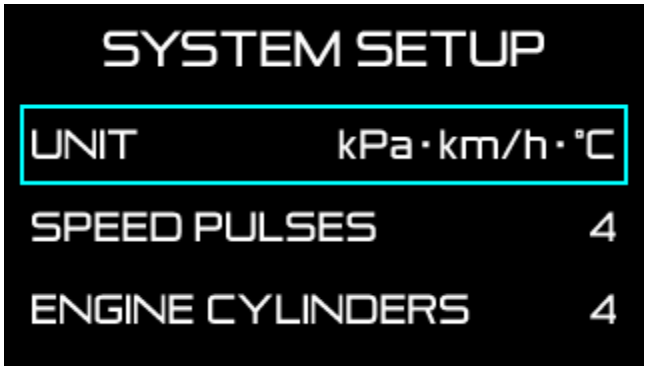
3. Press the【MIDDLE button】or【RIGHT button】to move to the setting item, and press the【LEFT button】at the item you want to set. The light blue color inside the selection frame will disappear and the setting can be changed.



4. Change the setting with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm the change. The inside of the selection frame turns light blue.

5. After completing all the settings, return the slide switch to【UPPER】or【MIDDLE】.

9.3.1. Units setting [UNIT]

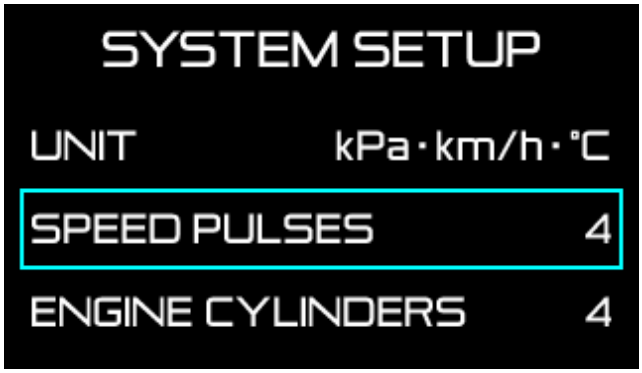


Setting items	On the screen	Setting options	Default
Units setting	UNIT	kPa･km/h･℃ / PSI･MPH･℉	kPa･km/h･℃

Use【MIDDLE button】or【RIGHT button】to move the selection frame to [UNIT] and press【LEFT button】.

Select either [kPa･km/h･℃] or [PSI･MPH･°F] with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm.

9.3.2. Speed pulses setting [SPEED PULSES]



Setting items	On the screen	Setting options	Default
Spped pulses setting	SPEED PULSES	2 / 4 / 8 / 16 / FREE	4

Use【MIDDLE button】or【RIGHT button】to move the selection frame to [SPEED PULSES] and press【LEFT button】.

Select an appropriate speed pulse with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm.

■About the number of speed pulses

The number of speed pulses varies depending on the car model. Choose an appropriate speed pulse to your vehicle. If none of the numbers match the genuine gauge, use the FREE setting.

■Pulse free setting

1. For cars with speed pulses other than 2, 4, 8, and 16 pulses, select [FREE] and press the【LEFT button】.

2. If you do not change the pulse setting in PULSE FREE, select [CURRENT VALUE] with the【MIDDLE button】or【RIGHT button】, and press the【LEFT button】.

To change the pulse setting, select [NEW VALUE] with the【MIDDLE button】or the【RIGHT button】, and press the【LEFT button】.

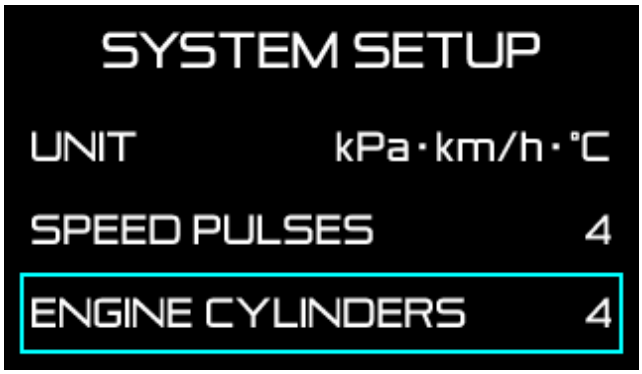
3. After [NEW VALUE] is selected, press【LEFT button】while the vehicle speed of the genuine gauge is 60km/h or 40MPH to complete the speed pulse setting.

4. If the speed pulse is within the setting range, a buzzer sounds and [COMPLETED] is displayed. Press the【LEFT button】to confirm. If the speed pulse is out of the set range, [INCOMPLETED] will be displayed. Press the【LEFT button】to return to the setup screen.

❗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.

9.3.3. Number of cylinders setting [ENGINE CYLINDERS]



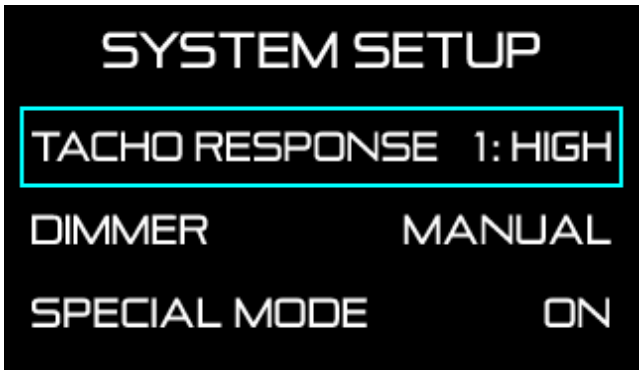
Setting items	On the screen	Setting options	Default
Number of cylinders setting	ENGINE CYLINDERS	1 / 2 / 3 / 4 / 5 / 6 / 8	4

Use【MIDDLE button】or【RIGHT button】to move the selection frame to [ENGINE CYLINDERS] and press【LEFT button】.

Select an appropriate number of cylinders with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm.

⚠When setting the number of cylinders for a rotary engine, set it to 4 cylinders for 2 rotors and to 6 cylinders for 3 rotors.

9.3.4. Tachometer response setting [TACHO RESPONSE]



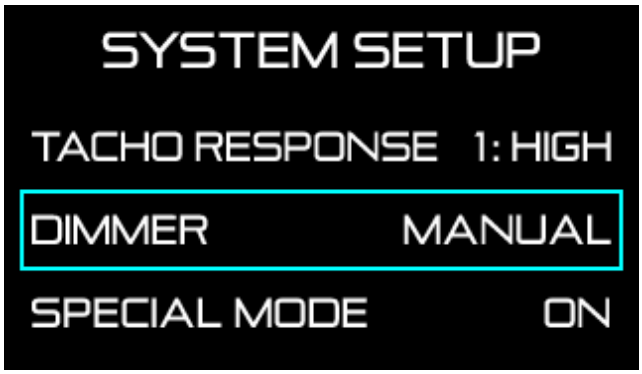
Setting items	On the screen	Setting options	Default
Tachometer response setting	TACHO RESPONSE	1:HIGH / 2:MID / 3:LOW	1 : HIGH

Use【MIDDLE button】or【RIGHT button】to move the selection frame to [TACHO RESPONSE] and press【LEFT button】.

Select an appropriate tachometer response level with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm.

Check the actual response and select your preferred level.

9.3.5. Dimmer setting [DIMMER]



Setting items	On the screen	Setting options	Default
Dimmer setting	DIMMER	AUTO / MANUAL	MANUAL

Set whether to perform dimming automatically or manually.

Use【MIDDLE button】or【RIGHT button】to move the selection frame to [DIMMER] and press【LEFT button】.

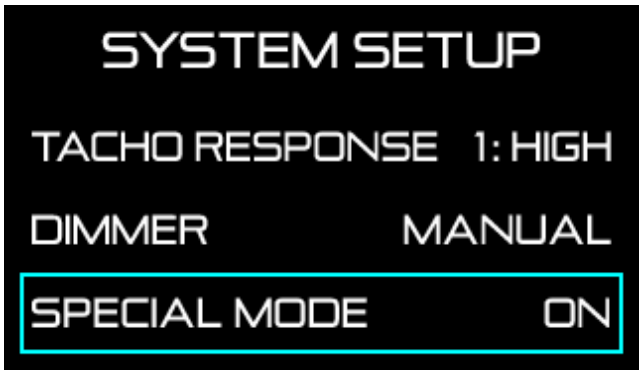
Select [AUTO] or [MANUAL] with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm.

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

If [MANUAL] is selected, the brightness of display is fixed. MANUAL level can be selected from 5 levels (one more constant maximum brightness level in nighttime) by pressing button in the real time mode or record mode.

⇒9.7.1 Brightness adjustment

9.3.6. Special display setting [SPECIAL MODE]



Setting items	On the screen	Setting options	Default
Special display setting	SPECIAL MODE	ON / OFF	OFF

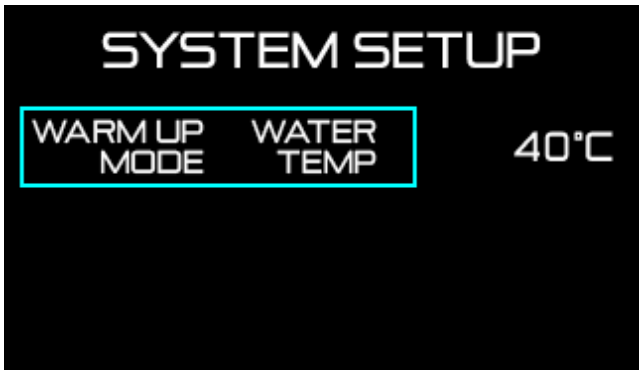
Use【MIDDLE button】or【RIGHT button】to move the selection frame to [SPECIAL MODE] and press【LEFT button】.

Select [ON] or [OFF] with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm.

If [ON] is selected, the special mode is displayed after the speed signal keeps 0km/h (0MPH) for more than 10 seconds.

⇒9.7.2.5 Special mode

9.3.7. Warm-up setting [WARM UP MODE]

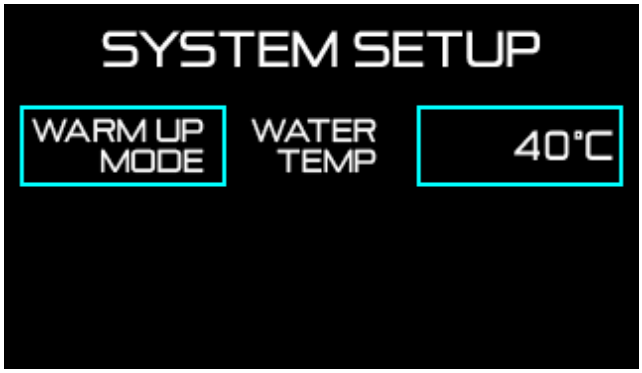


Setting items	On the screen	Setting options	Default
Warm-up setting	WARM UP MODE	WATER TEMP / OIL TEMP / OFF	OFF

Use【MIDDLE button】or【RIGHT button】to move the selection frame to [WARM UP MODE] and press【LEFT button】.

Select [WATER TEMP] or [OIL TEMP], or [OFF] with【MIDDLE button】or【RIGHT button】, and press【LEFT button】to confirm.

If [WATER TEMP] or [OIL TEMP] is selected, set the temperature which warming-up is done by pressing【MIDDLE button】or【RIGHT button】. The setting value changes quickly by pressing and holding【MIDDLE button】or【RIGHT button】.



Then press button to set.

⇒9.7.2.4 Warm-up display

9.3.8. Active display setting

■The role of the active display

The display is equipped with a dimmer sensor.

When multiple displays are connected, there will be multiple dimmer sensors in a single ADVANCE System, so it is necessary to decide which dimmer sensor should be used as the representative.

When the dimmer setting is set to [AUTO], the dimmer sensor of the display configured as the active display among the multiple displays will be used to sense the ambient brightness and control the display brightness according to the respective functions of the ADVANCE System.

❗To set up an active display, a different display No. must be assigned to each display. Linking multiple displays with the same display No. will not work properly.

⇒9.4.9 Display number setting [DISPLAY NO.]

■How to check and change the active display

CU OPR (Slide switch position :【LOWER】)

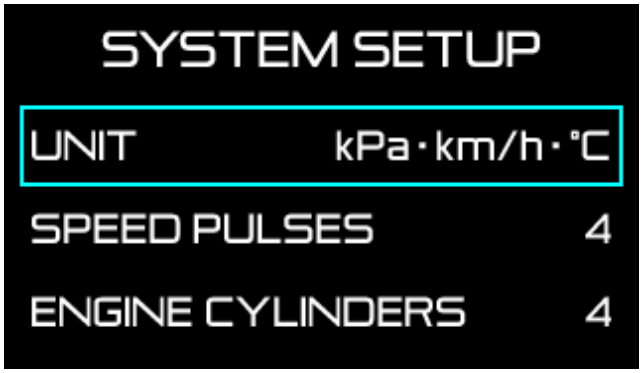
1. Set the slide switch to【LOWER】.

2. Press the【RIGHT button】to display [ACTIVE] in the FD multi-display zone. Each time you press the【RIGHT button】, the active display switches.

※If only one display is connected, [ACTIVE] will not be displayed.

⇒9.5.1 Multi-display zone

During the system setup, [SYSTEM SETUP] menu appears only on the active display.



No menu is displayed on screens other than the active display.

Only the following items in the system setup can be set for each FD.

・9.3.1Units setting [UNIT]
・9.3.6Special display setting [SPECIAL MODE]
・9.3.7Warm-up setting [WARM UP MODE]

To change these settings for each FD when multiple FDs are connected, switch the FD you want to change the settings to the active display.

All the display setup menus in next section can be set for each FD.

9.4. Display setup mode

This mode is for setting the FD display. If multiple FDs are installed, it is necessary to set for each FD.

⚠Caution

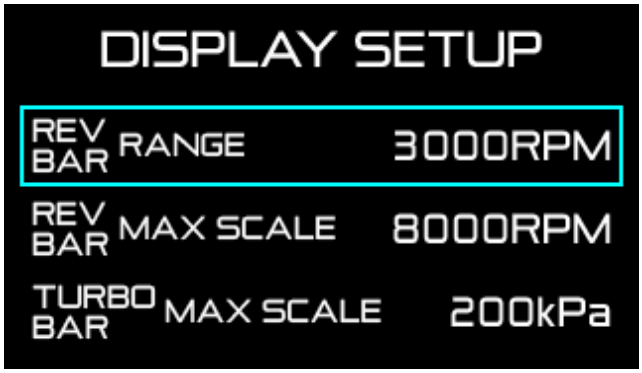
❗Set up while the vehicle is stopped.

If the special mode is displayed, press the【F1 button】or【F2 button】once to exit the mode, and then make the setting.

Setting items	On the screen	Setting options	Default
REV BAR scale range setting	REV BAR RANGE	3000 / 4000	3000RPM
REV BAR maximum scale value setting	REV BAR MAX SCALE	3000～11000	8000RPM
TURBO BAR maximum scale value setting (When the unit kPa is set)	TURBO BAR MAX SCALE	300 / 200 / 120 / 20	200kPa
TURBO BAR maximum scale value setting (When the unit PSI is set)	TURBO BAR MAX SCALE	45 / 30 / 15 / 3	30PSI
Sequential indicator lighting pattern setting	SEQ. IND. PATTERN	SINGLE / DUAL	SINGLE
Sequential indicator lighting step setting	SEQ. IND. STEP	100 / 200 / 250 / 500	200RPM
Sequential indicator lighting ON/OFF setting	SEQ. IND.	ON / OFF	ON
Oil pressure warning limit setting	OIL PRESS WARNING LIMIT	0～11000	3000RPM
Warning buzzer setting	DISPLAY WARNING BUZZER	OFF / ON	OFF
Display number setting	DISPLAY NO.	0～7	No.6
MANUAL	2D Barcodes for Manual page	—	—

FD OPR

1. In the real time mode, press the【F1 button】and【F2 button】at the same time to enter the display setup mode, and the [DISPLAY SETUP] menu will be displayed on the FD. The rev bar range setting is highlighted first.

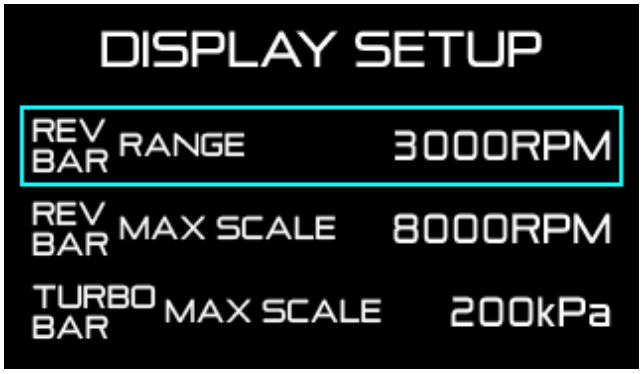


2. Press the【F2 button】to move the selection frame to the item you want to set, and press the【F1 button】to change the setting.

3. After all settings are completed, press the【F1 button】and【F2 button】at the same time to return to the real time mode.

9.4.1. REV BAR scale range setting [REV BAR RANGE]

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



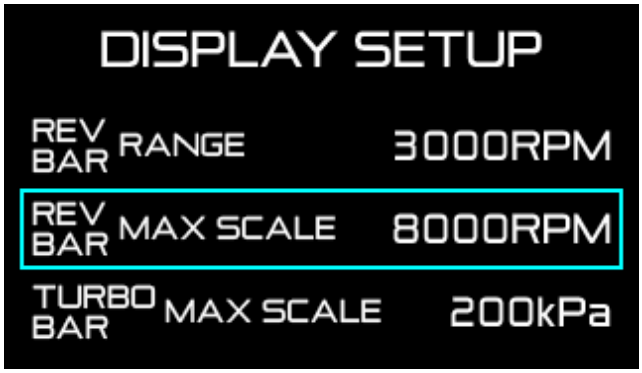
Setting items	On the screen	Setting options	Default
REV BAR scale range setting	REV BAR RANGE	3000 / 4000	3000RPM

Use【F2 button】to move the selection frame to [REV BAR RANGE].

Select [3000RPM] or [4000RPM] with【F1 button】.

9.4.2. REV BAR maximum scale value setting [REV BAR MAX SCALE]

The maximum scale value of the rev bar can be set.



Setting items	On the screen	Setting options	Default
REV BAR maximum scale value setting	REV BAR MAX SCALE	3000～11000	8000RPM

Use【F2 button】to move the selection frame to [REV BAR MAX SCALE].

Press the【F1 button】to set the maximum scale value.　Each press of the【F1 button】increases the set value by 500 RPM.

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.

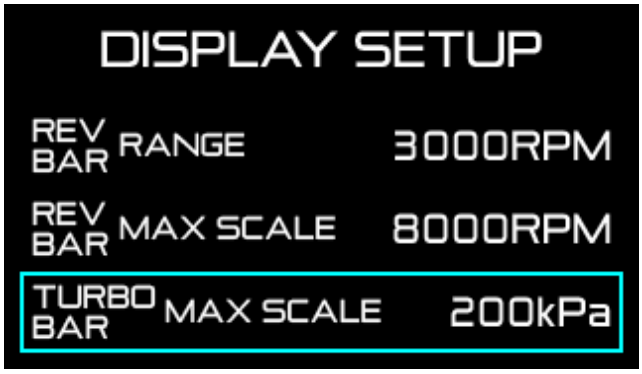
<Setting examples>

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

REV BAR RANG E: 4000RPM
REV BAR MAX SCALE: 8000RPM
Display range : 4000RPM ～ 8000RPM

9.4.3. TURBO BAR maximum scale value setting [TURBO BAR MAX SCALE]

The maximum scale value of the turbo/manifold pressure bar can be set.



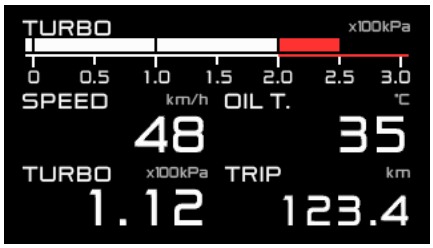
Setting items	On the screen	Setting options	Default
TURBO BAR maximum scale value setting (When the unit kPa is set)	TURBO BAR MAX SCALE	300 / 200 / 120 / 20	200kPa
TURBO BAR maximum scale value setting (When the unit PSI is set)	TURBO BAR MAX SCALE	45 / 30 / 15 / 3	30PSI

Use【F2 button】to move the selection frame to [TURBO BAR MAX SCALE]。

Press the【F1 button】to select the TURBO BAR maximum pressure value.

❗The [300] must be used in combination with the turbo sensor dedicated for 300 kPa. If it is used in combination with other turbo sensors, the correct value will not be displayed.

300kPa



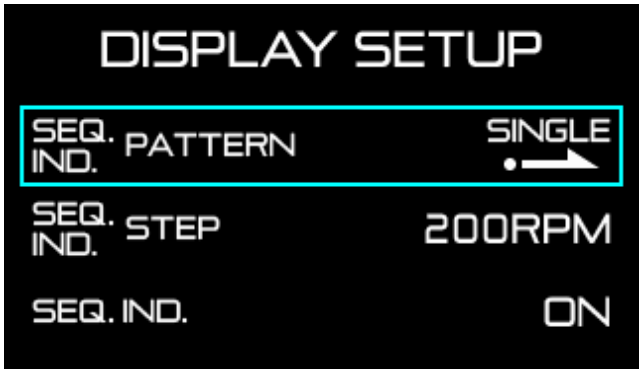
200kPa

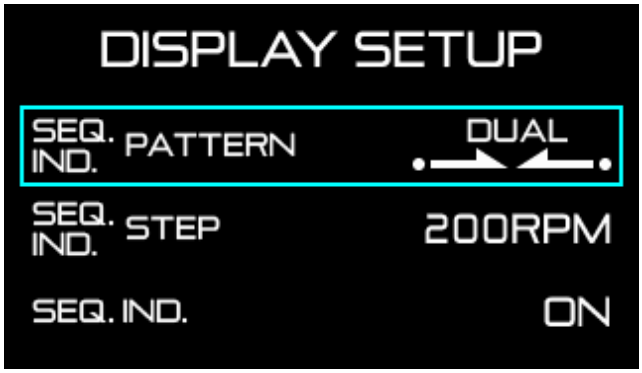
120kPa

20kPa

9.4.4. Sequential indicator lighting pattern setting [SEQ. IND. PATTERN]

The sequential indicator lighting pattern can be selected from two types.





Setting items	On the screen	Setting options	Default
Sequential indicator lighting pattern setting	SEQ. IND. PATTERN	SINGLE / DUAL	SINGLE

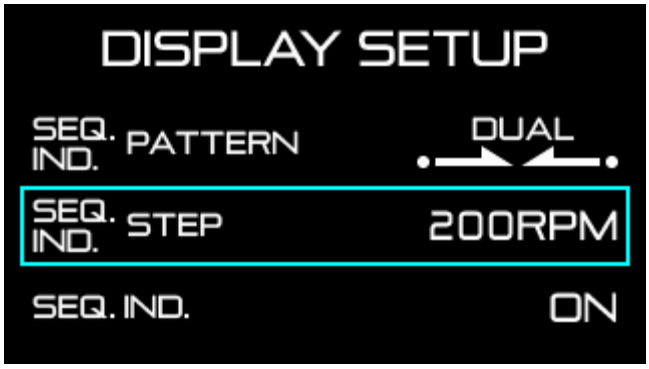
Use【F2 button】to move the selection frame to [SEQ. IND. PATTERN].

Select [SINGLE] or [DUAL] with【F1 button】.

⇒9.10 Sequential indicator

9.4.5. Sequential indicator lighting step setting [SEQ. IND. STEP]

Sequential indicator lighting step can be set.



Setting items	On the screen	Setting options	Default
Sequential indicator lighting step setting	SEQ. IND. STEP	100 / 200 / 250 / 500	200RPM

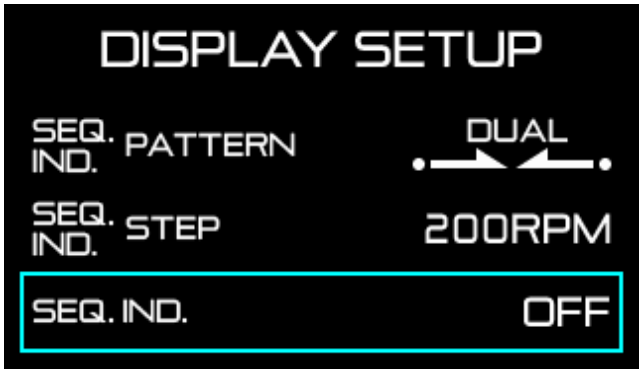
Use【F2 button】to move the selection frame to [SEQ. IND. STEP].

Press the【F1 button】to select the sequential indicator lighting step.

⇒9.10 Sequential indicator

9.4.6. Sequential indicator lighting on/off setting [SEQ.IND.]

Sequential indicator lighting can be set to ON or OFF.



Setting items	On the screen	Setting options	Default
Sequential indicator lighting ON/OFF setting	SEQ. IND.	ON / OFF	ON

Use【F2 button】to move the selection frame to [SEQ. IND.].

Select [ON] or [OFF] with【F1 button】.

⇒9.10 Sequential indicator

9.4.7. Oil pressure warning limit setting [OIL PRESS WARNING LIMIT]

While the engine speed drops below the set value, the oil pressure warning function will be stopped. It will be reflected only to the changed FD.

Setting items	On the screen	Setting options	Default
Oil pressure warning limit setting	OIL PRESS WARNING LIMIT	0～11000	3000RPM

Use【F2 button】to move the selection frame to [OIL PRESS WARNING LIMIT].

Press the【F1 button】to set the oil pressure warning limit value.　Each press of the【F1 button】increases the set value by 500 RPM.

9.4.8. Warning buzzer setting [DISPLAY WARNING BUZZER]

The warning buzzer can be turned on or off.

In the playback mode, the buzzer will not sound even if the warning buzzer setting is on. (Warning will be displayed.)

Setting items	On the screen	Setting options	Default
Warning buzzer setting	DISPLAY WARNING BUZZER	OFF / ON	OFF

Use【F2 button】to move the selection frame to [DISPLAY WARNING BUZZER].

Select [ON] or [OFF] with【F1 button】.

⚠The buzzer setting of FD is not interlocked with that of ADVANCE Control unit. Refer to the manual of ADVANCE Control unit. The following settings are recommended:
ADVANCE Control unit buzzer ⋯ OFF
FD buzzer ⋯ ON

⚠Warning buzzer can be turned on and off, but the bleep of operation cannot be turned off.

9.4.9. Display number setting [DISPLAY NO.]

Display products, including FDs, have a display number setting, and if multiple displays are to be installed, a different display number must be assigned to each. By default, the numbers are assigned as follow:

Display products that can be connected to the ADVANCE System and default display No.
ADVANCE FD: No. 6
ADVANCE ZD (discontinued): No. 1
Defi Sports Display F: No. 7

Setting items	On the screen	Setting options	Default
Display number setting	DISPLAY NO.	0～7	No.6

Use【F2 button】to move the selection frame to [DISPLAY No.].

Press the【F1 button】to set the display number.

If the display number is changed, turn the ignition key off and on again.

❗When removing a display from another vehicle and adding it to a vehicle already equipped with another display, or when installing multiple new FDs at the same time, change the display number so that each display does not have the same display number. If only one display is installed, it is not necessary to change the default number. If multiple displays with the same display number are linked in one ADVANCE System, they will not operate properly.

The numbers do not have to be consecutive, and there is no rule for the order of the numbers.

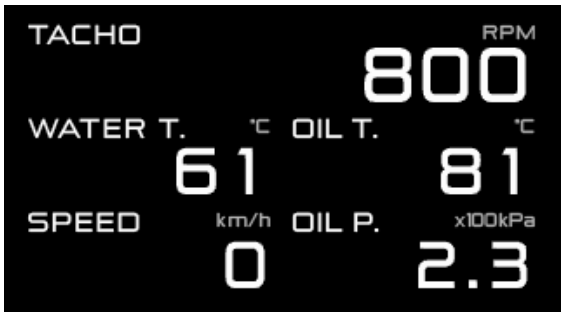
⇒9.3.8 Active display setting

9.4.10. 2D barcodes for manual pages [MANUAL]

2D barcodes with a link to the manual data on the Defi Web site will be displayed.

9.5. Switching of display items and size

There are 4 display modes (Gauge 1 through 4) in FD. The sizes and positions of display items can be changed in each display mode. The default display mode is Gauge 1 after the opening mode is performed.



Gauge 1

⇒4.1 Display items
⇒9.7.2 Real time mode
⇒9.7.2.1 Gauge mode

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 A3	Zone A4
Zone A5	Zone A6

Zone B1	
Zone B2	
Zone A5	Zone A6

Zone C1	Zone C2
Zone A5	Zone A6

■Displayable items

Zone A : Basic style

Speed / RPM (digital) / Turbo and intake manifold pressure (digital) / Oil pressure / Fuel pressure / Oil temperature / Water temperature / Exhaust temperature / Voltage / Odometer / Trip meter / No display

Zone B : Expanded style and bars

Speed / RPM (digital) / RPM (bar) / Turbo and intake manifold pressure (digital) / Turbo and intake manifold pressure (bar) / Oil pressure / Fuel pressure / Oil temperature / Water temperature / Exhaust temperature / Voltage / Odometer / Trip meter / No display

Zone C : Graph style

Oil temperature / Water temperature / No display
(Graph showing −15 to +5℃ (°F) of warning value & basic display & warning set value)
In zone A and B, turbo and intake manifold pressure are displayed as TURBO when 300,

200, or 120kPa is selected and as IN-MF. P. when 20kPa is selected in the TURBO BAR maximum scale value setting in the display setup.

CU OPR (Slide switch position :【LOWER】)

1. Set the slide switch to【LOWER】.

2. By pressing【MIDDLE button】and【RIGHT button】simultaneously, the selection frame will be displayed in Zone 1 (A1 or B1 or C1).

3. Select the zone to change with【MIDDLE button】.

4. Press【RIGHT button】to switch between zones A, B and C.

Zone A1 ⇔ B1 ⇔ C1 (⇔ repeat)
Zone A3 ⇔ B2
Zone A2 ⇔ C2

⇒9.7.2.1 Gauge mode

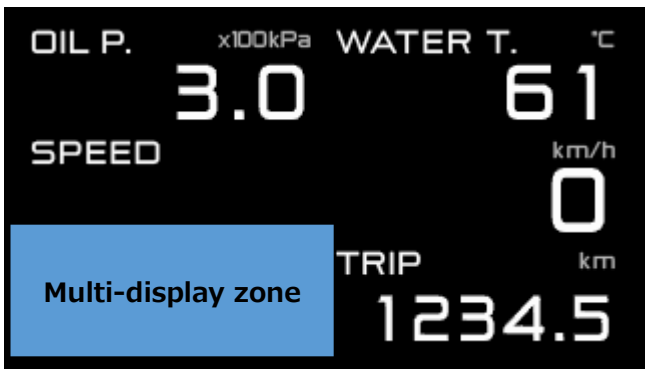
5. After pressing【LEFT button】to confirm the size, the light blue color inside of the selection frame will disappear, and you can select the items to be displayed.

6. Press【MIDDLE button】or【RIGHT button】to change the display item, and press【LEFT button】to confirm the change.

7. After all settings are completed, move the slide switch to【UPPER】or【MIDDLE】.

9.5.1. Multi-display zone

Zone A5 is a multi-display zone. The display will automatically switch when the dimming level is changed or when a warning occurs, and so on. Do not use the position for items that you want to be always displayed.



9.6. Opening/Ending mode

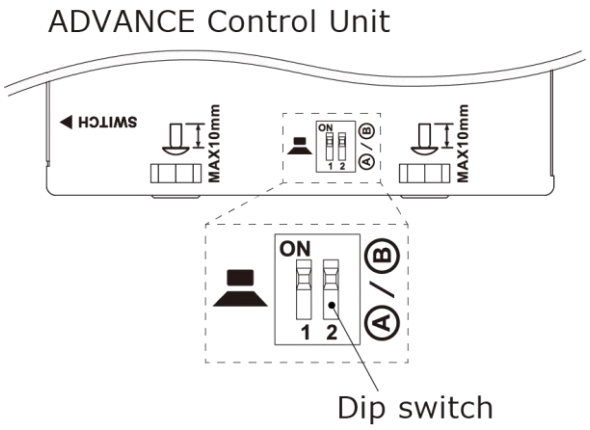
When the ignition is turned on, the FD performs the opening mode. When the ignition is turned off, the FD performs the ending mode.　And then the power supplies to the Control Unit and FD are shut off.

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

■Change of Opening/Ending mode

The 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.

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



❗Change the mode when the ignition is off.

9.7. Operation mode

⚠Warning

❗In order to ensure safe driving, check the information on the display 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.

⚠When linked to DF177 ADVANCE Control Unit, recording and playback functions are not available.

9.7.1. Brightness adjustment

CU OPR (Slide switch position :【UPPER】)

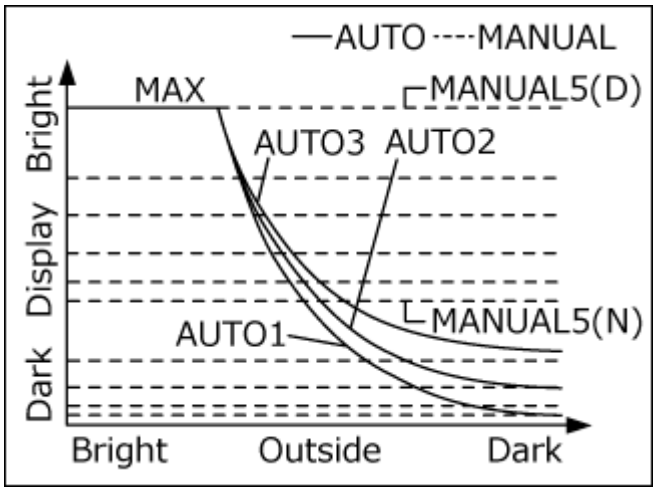
The brightness can be adjusted by pressing【RIGHT button】button in real time mode. [AUTO] or [MANUAL] can be selected in the dimmer setting in the system setup mode.

⇒9.3.5 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 vehicle 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 connecting FD and ADVANCE gauges in one ADVANCE System and by using the [AUTO] as follows:

	AUTO	MANUAL
FD Display	controlled automatically	interlocked with vehicle dimmer (5 levels each in day & nighttime)
FD sequential indicator	changed automatically (one level each in day & nighttime)	interlocked with vehicle dimmer (one level each in day & nighttime)
FD 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/RS illumination	changed automatically (light up/light off)	interlocked with vehicle dimmer (light up/light off)
ADVANCE BF/A1 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.

9.7.2. Real time mode

After the opening mode is done, the display switches to the real time mode. During real time mode, vehicle information is displayed in real time.

9.7.2.1. Gauge mode

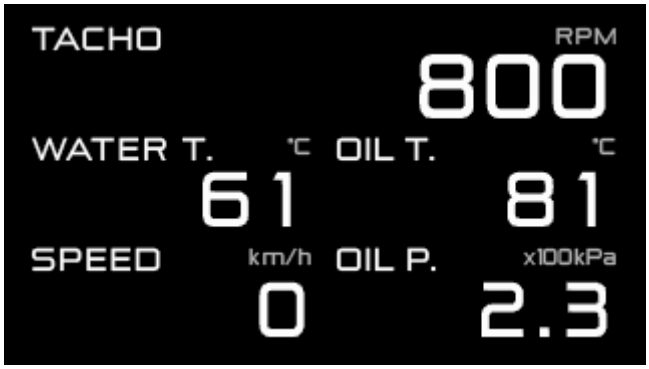
The real time mode has four different gauge modes (layouts), 1 through 4. Display items can be changed in all zones.

■Change the gauge mode

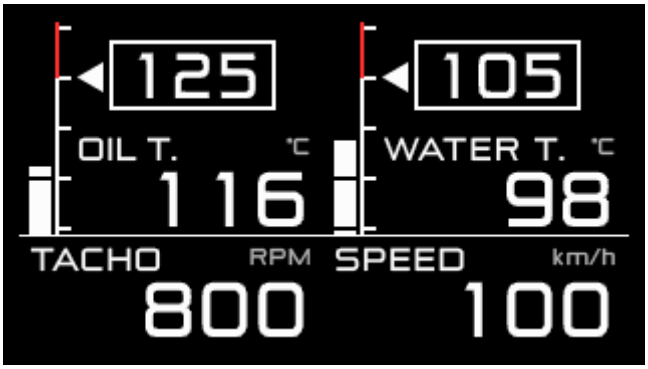
FD OPR

The gauge modes can be changed each time【F1 button】is pressed.

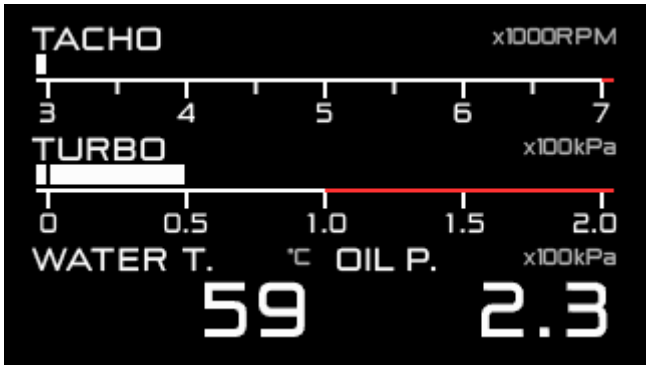
Gauge1



Gauge 2



Gauge 3



Gauge 4

If the sensor of the displayed item is not connected, "x" is displayed in the zone.

⇒9.5 Switching of display items and size

■Trip reset

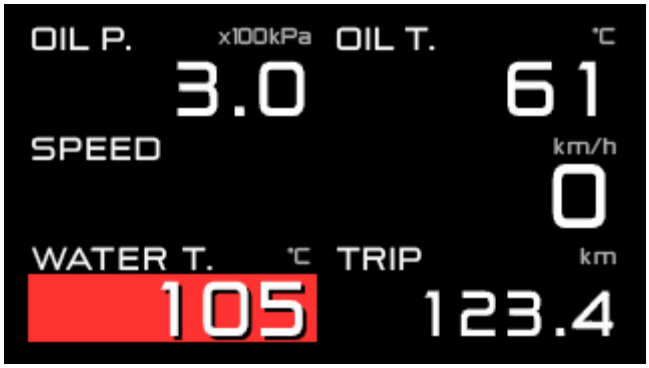
FD OPR

Trip meter can be reset by pressing and holding【F2 button】while the trip meter is displayed.

⚠The odometer cannot be reset.

⚠ The vehicle speed, odometer, and trip meter are for reference only. If there is an error in the vehicle speed setting, the error not only in vehicle speed but also in odometer and trip meter will accumulate.

9.7.2.2. Warning display



While the value exceeds the set warning value, the corresponding item in the digital display turns to a red background.

The oil pressure and fuel pressure display will turn to a red background when the warning value is less than the set warning value.

At the time, a warning buzzer will sound if the warning buzzer setting is ON.

RPM (digital), RPM (bar), and turbo/intake manifold pressure (bar) will not display a red background even if the warning value is exceeded. Also, there is no warning function for vehicle speed or voltage.

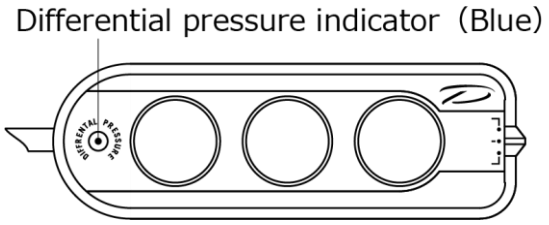
Warning buzzers are located on each of the control unit and FD, and can be turned on and off individually.

When the warning output of the FD is on, the master warning LEDs are lighted, and when the optional advance indicator is connected to the FD, the advance indicator is lighted.

⇒9.4.8 Warning buzzer setting [DISPLAY WARNING BUZZER]
⇒9.8 Warning setup mode

9.7.2.3. 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 the fuel pressure zone. Differential pressure cannot be displayed in the peak mode. The differential pressure indicator (blue) is lighted up during display of differential pressure



CU OPR (Slide switch position :【UPPER】)

1. Set the slide switch to【UPPER】.

2. Press【MIDDLE button】and【RIGHT button】at the same time to display the differential pressure. To exit the differential pressure display, press【MIDDLE button】and【RIGHT button】at the same time again.

9.7.2.4. Warm-up display

If the warm-up mode is set to water temperature or oil temperature in the system setup and the actual temperature is lower than the set temperature, warm-up is displayed.

Under the warm-up condition, the background of the warm-up item (water temperature or oil temperature) turns blue. (When Zone C is displayed, the background of the warm-up set temperature area turns blue.)

When the actual temperature reaches or exceeds the set temperature, the warm-up display is terminated.

⚠During warm-up display, special display is not played even if the special display is set to on.

9.7.2.5. Special mode

If the special display is set to [ON] in the system setup mode and the vehicle speed of 0 km/h (0 MPH) continues for more than 10 seconds, the special mode will be shown. During the special mode, the odometer, trip meter, and idling time are displayed.

Idling time is not counted while the engine is stopped.

In the following cases, the special mode is terminated and the display returns to the gauge mode.

・When a speed pulse is input
・When【F1 button】or【F2 button】is pressed
・When the mode is changed by unit operation

Special mode will not be shown in the following cases, even if the special display is set to [ON].

・During warm-up
・When a warning occurs
・When any of the sensors is open or short-circuited

If【F1 button】or【F2 button】is pressed during the special mode, or if the mode is changed by unit operation, the special mode display will be terminated.
If there is no vehicle speed input, the idling time will continue to be counted, and after 10 seconds, the accumulated time will be displayed when the special mode is displayed.

9.7.3. Real time peak mode

This mode displays the maximum value of during driving and idling in real time mode. As for oil pressure and fuel pressure, the maximum and minimum values are displayed in order. By resetting, the peak values from that point are displayed. Even when differential pressure is displayed, the peak value of fuel pressure is displayed on the fuel pressure zone. While in the peak mode, [PEAK] is displayed in the multi-display zone. At that time, if the tachometer is above the warning set point, the sequential indicator will blink.

CU OPR (Slide switch position :【UPPER】)

■If neither oil pressure sensor nor fuel pressure sensor is connected

1. Set the slide switch to【UPPER】.
2. Press the【MIDDLE button】to shift to the real time peak mode.
3. Press the【MIDDLE button】again to return to the real time mode.

■If either oil pressure sensor or fuel pressure sensor is connected

1. Set the slide switch to【UPPER】.
2. Press the【MIDDLE button】to shift to the real time peak mode (high peak) and the maximum values are displayed.
3. Press the【MIDDLE button】while the high peak to shift to the real peak mode (low peak). The minimum values are displayed for oil pressure and fuel pressure, and the maximum values for all others.
4. Press the【MIDDLE button】again to return to the real time mode.

9.7.4. Real time peak reset mode

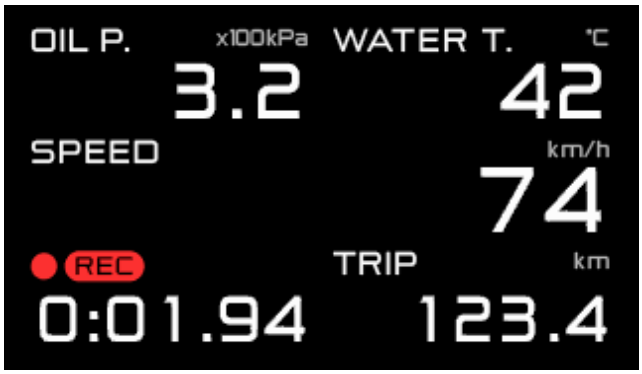
This mode resets the maximum value (maximum and minimum values for oil pressure and fuel pressure) of during driving and idling up to that point. During the peak reset mode, [RESET] is displayed in the multi-display zone for 1 second.

CU OPR (Slide switch position :【UPPER】)

1. Set the slide switch to【UPPER】.
2. Press the【MIDDLE button】to shift to the real time peak mode.
3. Press the【RIGHT button】during the real time peak mode to reset the peak values.

After resetting, the display returns to the real time mode. Both the maximum and minimum values are reset at the same time when either low peak or high peak is displayed.

9.7.5. Record mode

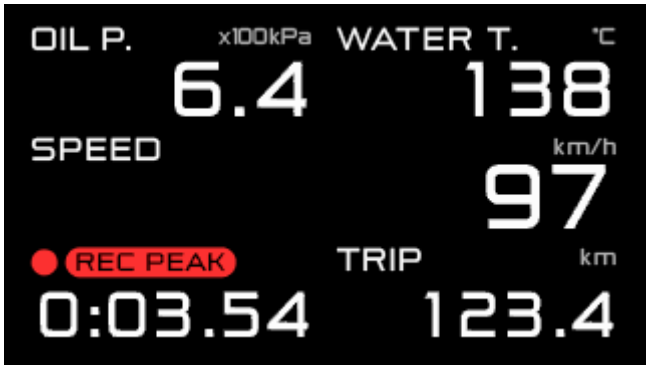


This mode records the driving data for up to 3 minutes. During the record mode, [●REC] is displayed in the multi-display zone.

CU OPR (Slide switch position : 【UPPER】)

1. Set the slide switch to 【UPPER】.
2. Press the 【LEFT button】 to enter the record mode and start recording.
3. Pressing the 【LEFT button】 again terminates recording and returns to the real time mode. It also returns to the real time mode when 3 minutes have elapsed from the start of recording.

9.7.6. Record peak mode



This mode displays the maximum values from the time that recording was started during the record mode. For oil pressure and fuel pressure, the maximum and minimum values are displayed in sequence. Even when differential pressure is displayed, the peak fuel pressure value is displayed in the fuel pressure zone. During the record peak mode, [●REC PEAK] is displayed in the multi-display zone.

CU OPR (Slide switch position :【UPPER】)

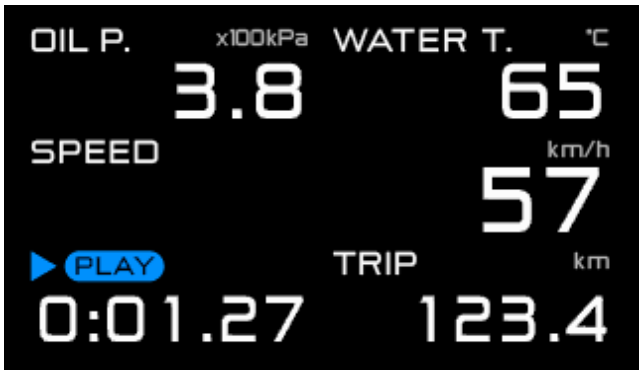
■If neither oil pressure sensor nor fuel pressure sensor is connected

1. Press the【MIDDLE button】during the record mode to shift to the record peak mode.
2. Press the【MIDDLE button】again to return to the record mode. After 3 minutes from the start of recording, it will return to the real time mode.

■If either oil pressure sensor or fuel pressure sensor is connected

1. Press the【MIDDLE button】during the record mode to shift to the record peak mode (high peak) and the maximum values are displayed.
2. Press the【MIDDLE button】during the high peak display to shift to the record peak mode (low peak). The minimum values are displayed for oil pressure and fuel pressure, and the maximum values are displayed for other items.
3. Press the【MIDDLE button】again to return to the record mode. When the【LEFT button】is pressed or 3 minutes have elapsed since the start of recording, the display returns to the real time mode.

9.7.7. Playback mode



This mode plays back recorded data. Pause, frame advance, fast forward, frame back, and rewind are also possible. During the playback mode, [▶PLAY] and the playback time are displayed in the multi-display zone.

CU OPR (Slide switch position :【MIDDLE】)

1. Set the slide switch to【MIDDLE】.
2. Press the【LEFT button】to shift to the playback mode and plays back the recorded data.
3. Press the【LEFT button】during playback to end playback and return to the real time mode. After the playback of the recorded data is ended, it returns to the real time mode.

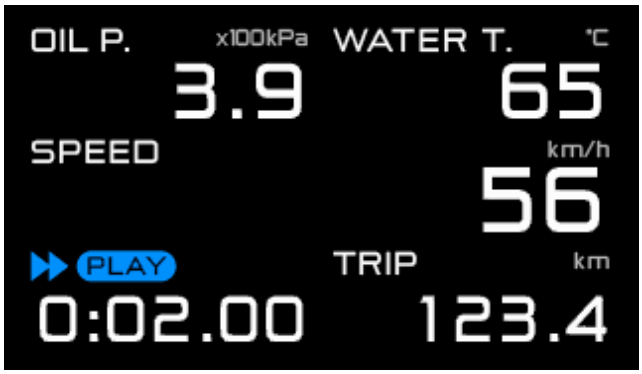
9.7.7.1. How to operate in the playback mode

■Pause

Press the【MIDDLE button】or【RIGHT button】during playback to pause playback. Press the【LEFT button】during pause to return to playback. During pause, [||PAUSE] will be displayed in the multi-display zone.

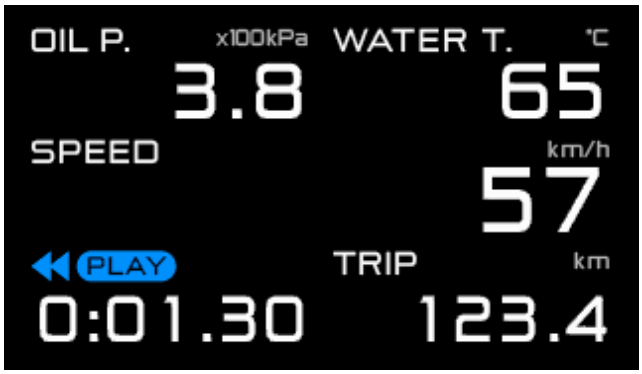
■Frame advance and fast forward

Press the【RIGHT button】during pause to advance frame by frame. Press and hold the【RIGHT button】to fast-forward.
[||PAUSE] is displayed during frame advance and [▶▶PLAY] is displayed during fast forward in the multi-display zone.



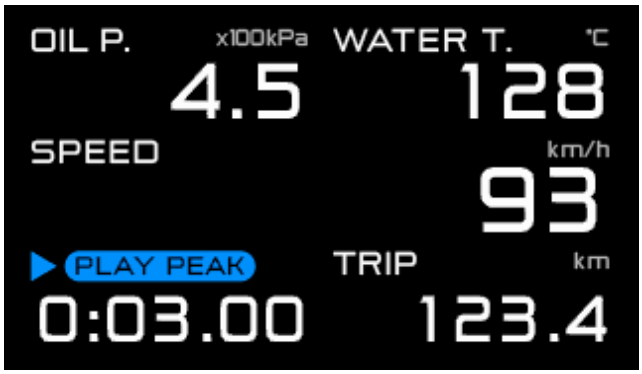
■Frame back and rewind

During pause, press the【MIDDLE button】to rewind frame by frame, and press and hold the【MIDDLE button】to rewind.
[||PAUSE] is displayed during frame back and [◀◀PLAY] is displayed during rewind in the multi-display zone.



※Frame advance/back is in 0.02 second increments.

9.7.8. Playback peak mode



This mode displays the maximum values in the recorded data during the playback mode. For oil pressure and fuel pressure, the maximum and minimum values are displayed in sequence. During the playback peak mode, [▶PLAY PEAK] is displayed in the multi-display zone.

Data playback continues during the playback peak mode.

CU OPR (Slide switch position : 【MIDDLE】→【UPPER】)

■If neither oil pressure sensor nor fuel pressure sensor is connected

1. Set the slide switch to 【MIDDLE】.
2. Press the 【LEFT button】 to enter the playback mode and play the data.
3. Set the slide switch to 【UPPER】 during playback or pause.
4. Press the 【MIDDLE button】 to display the peak values in the recorded data.
5. Press the 【MIDDLE button】 again to return to data playback. Alternatively, move the slide switch to the 【MIDDLE】 and then press and hold the 【LEFT button】 to return to real time mode.

■If either oil pressure sensor or fuel pressure sensor is connected

1. Set the slide switch to 【MIDDLE】.
2. Press the 【LEFT button】 to enter the playback mode and play the data.
3. Set the slide switch to 【UPPER】 during playback or pause.
4. Press the 【MIDDLE button】 to display the maximum values in the recorded data.
5. Press the 【MIDDLE button】 displays the minimum values in the recorded data for oil pressure and fuel pressure, and the maximum values for other data.
6. Press the 【MIDDLE button】 again to return to data playback. Alternatively, move the slide switch to the 【MIDDLE】 and then press and hold the 【LEFT button】 to return to real time mode.

	Real time peak	Record peak	Playback peak
Displayed during	Real time 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 time peak mode	Being reset automatically when recording is started	

9.8. Warning setup mode

Warning values can be set as desired.
There is no warning function for vehicle speed or voltage.
⇒9.7.2.2 Warning display

■Factory default settings of warning values

Gauge	Default setting	Unit	Setting range		Warning condition	Warning output
			Minimum	Maximum		
Turbo/ In-mani press	100	kPa	-100	300	Set value and above	ON
	14.5	PSI	-14.5	45		
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	℃	0	150	Set value and above	ON
	257	°F	32	302		
Water temp	105	℃	0	150	Set value and above	ON
	221	°F	32	302		
Exhaust temp	850	℃	0	1100	Set value and above	ON
	1562	°F	32	2012		

If ADVANCE Control Unit is already installed, the warning values which have already set are valid.

❗Depending on the type and condition of the vehicle, damage may occur to the vehicle even if the warnings are below the initial values (in cases of oil pressure and fuel pressure, above the initial values), so consult your store and set values at the time of installation.

9.8.1. How to change the warning setting values

CU OPR (Slide switch position :【LOWER】)

1. Set the slide switch to【LOWER】.

2. Press the【LEFT button】to enter the warning setup mode.

3. Press the【LEFT button】to select the item to be set. Items which sensors are not connected will not be selected.

The order of selection is as follows.

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

⚠If Φ80 tachometer is connected, the 2 steps of tachometer warning can be set.

4. With the desired item selected, press the【MIDDLE button】to decrease the setting value, and press the【RIGHT button】to increase the setting value. Pressing and holding each button will change the setting value faster.

5. After all settings are completed, return the slide switch to【UPPER】or【MIDDLE】.

9.8.2. Setting of warning output ON/OFF

The master warning and advance indicator (sold separately) will light up when the items set to [ON] reaches the warning value if the warning output is set to [ON].

Regardless of whether the warning output is [ON] or [OFF], items that have reached the warning value are displayed with a red background, and a buzzer sounds if the buzzer setting is [ON].

⚠The tachometer (digital and bar) and turbo/intake-manifold pressure (bar) do not have a red background.

The warning output [ON/OFF] setting is linked to the operation of both the master warning and the advance indicator (sold separately), so they cannot be set separately.

⇒9.7.2.2 Warning display

CU OPR (Slide switch position :【LOWER】)

1. Set the slide switch to【LOWER】.

2. Press the【LEFT button】to enter the warning setup mode.

3. Select the item to change the warning output ON/OFF by pressing the【LEFT button】.

FD OPR

4. Each press of the【F2 button】toggles between having [IND. OUT□] checked and unchecked. If checked, the warning is output when any of the checked items reaches the warning.

CU OPR (Slide switch position :【LOWER】)

5. After completing the setting, return the slide switch to【UPPER】or【MIDDLE】.

9.9. Error display

If the sensor is open or short circuit, the corresponding display item will turn red background and show [OPEN] or [SHORT]. Once [OPEN] or [SHORT] is displayed, it will remain displayed until the ignition is turned off. Regarding the oil pressure and fuel pressure, [SHORT] is only displayed during a short circuit.

If a sensor is connected and is in the condition of open or short circuit for an item not shown, [OPEN] or [SHORT] will be displayed in the multi-display zone. If multiple open or short circuits occur on items that are not displayed, [OPEN] or [SHORT] will appear in the multi-display zone, toggling every 2 seconds.

If communication between the FD and the unit is lost, [SERIAL LINE ERROR!] will be displayed.

If an error is displayed, turn off the ignition immediately and check the sensor and wiring. If any defects are not found, ask the shop where the products were installed for inspection.

9.10. Sequential indicator

8 red LEDs light up according to engine speed, and all LEDs flash when the engine speed exceeds the warning set point. The lighting pattern can be selected from [SINGLE] and [DUAL].

The lighting pattern, step, and ON/OFF is set in the display setup mode.

⇒9.4.4 Sequential indicator lighting pattern setting [SEQ. IND. PATTERN]
⇒9.4.5 Sequential indicator lighting step setting [SEQ. IND. STEP]
⇒9.4.6 Sequential indicator lighting on/off setting [SEQ.IND.]

If the dimmer setting is [AUTO], the brightness of LEDs is decreased 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.

⇒9.3.5 Dimmer setting [DIMMER]

■Engine revolutions that LEDs start to light 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 light up

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

■Engine revolutions that all LEDs blink

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

■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 Φ 80 Tachometer is connected, the higher setting value of warning would be the basing point for lighting and blinking of LEDs.

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
○Does not operate. ○Power is not supplied. ○DC Source LED of the unit doesn't light.	○Wiring of the power supply wire is improper. ○Connectors are plugged into wrong positions. ○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 gauge.	○Check wiring of +B, IGN, GND as per instructions in this manual. ○Check connectors' position. ○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.
○Does not carry out the ending mode.	○The battery wiring is improper.	○Check wiring of +B as per instructions in this manual. ○Check the solderless connector of battery wiring. ○Please ask the store for inspection.
○The illumination of gauge does not turn on.	○The ILM wiring is improper. ○The locks of the solderless connectors are not locked tightly. ○The brightness level is set at MANUAL LEVEL:0. ○The dimmer setting is AUTO and the outside is bright.	○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.
○Error (SHORT or OPEN) is displayed.	○There is a wire short circuit or a wire disconnection somewhere on sensor or sensor wire.	○Check the sensor and sensor wire as per instructions in this manual. If any defects are not found, please ask the shop for inspection.

Condition	Possible Cause	Corrective Action
○Serial line error is displayed.	○Communication error is occurred between FD 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.
○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 tachom- eter 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.
○The speed is not displayed correctly.	○Wiring of the speed signal wire is wrong. ○The speed pulse setting is wrong.	○Check wiring as per instructions in this manual. ○Check the speed pulse as per instructions in this manual.
○Cannot set up the System setup.	○Several FDs have the same display number.	○Change the display number as per instructions in this manual.
○System setup menu is not displayed.	○Active display is not set.	○Set an active display as per instructions in this manual.
○FD doesn't respond by pressing the switches.	○The switch wire is connected to the meter wire connector (white).	○Reconnect to the switch wire connector (black).

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 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. 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 DAM- AGES WHETHER IN CONTRACT OR IN TORT ARISING OUT OF OR IN CONNEC- TION 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 IN- VESTIGATION, 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 ac- knowledge 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.

Defi-Link Meter ADVANCE FD Operation Manual

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【Instagram account】https://www.instagram.com/defi_ns_official/

Website YouTube Facebook Instagram

PATENT PENDING

NIPPON SEIKI

FD-E: 22.12-2