

Thank you very much for purchasing our product. This product is an additional product for providing information to automobile users about engine conditions and other important factors. Before installing and using the product, please read this manual and the warranty card thoroughly. All sections are for customers and installation personnels. After installation, please keep this manual and the warranty card for future reference. In the event that this product (or the vehicle in which it is installed) is lent to or transferred to another person, please be sure this operation manual and warranty card accompany the product.

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

When installing and operating this product, be sure to read the cautionary items in the operation manual for the vehicle in which this product will be installed in addition to the manual of this product. Please obtain a full understanding of the cautionary items and use the product accordingly. Before using the product, please confirm all the components are included in the package.

<http://www.defi-shop.com/>

Safety Warning (Please read carefully.)

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 the imminent dangerous situation of death or serious injury if the product is mishandled.
	Warning	Indicates the possibility of death or serious 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)
		Indicates restricted actions. (PROHIBITED actions)
		Indicates actions that need to be carried out. (MUST actions)

Before handling (for installation personnel)

- Ensure that the vehicle will remain stationary and turn off the engine before installing this product. Failure to do so could result in a fire, and could make the vehicle move during installation.
- 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 or 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.
- When 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 fuses (more than 30A) will not blowout even with an abnormal current flow and may cause fire.
- Use the fuse of regulated capacity when the fuse of the power wire is changed. Using a fuse that exceeds regulated capacity may cause fire and may affect the accuracy.
- Do not install the product at the wet places. It may result in a fire caused by an electrical short circuit.

Warning

- Carefully consider the installation location and driver's operation of the product before installation. Do not install the product where it interrupts driving and the safety devices of vehicle such as the airbag system. Be sure not to install the unit where it could fall. Improper installation or operation could cause the product to fall and damage the vehicle or cause serious danger by impeding driving.
- Do not disassemble or modify this product. Such actions will not only void the warranty but also damage or destroy the product.
- Do not perform installation of this product immediately after the engine has been switched off. The engine and exhaust system are extremely hot at this time and can cause burns if touched.
- Ensure that the wiring of this product does not have an adverse impact on the other wiring of the vehicle. Any controlling devices or other electronic components of the vehicle could be damaged.
- 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 fire.
- 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 airbags are mounted. This may cause more injuries in the event of an accident.

Caution

- This product is designed for use on 12V vehicles. Do not install this product on vehicles with 24V systems.
- Insulate any unused wires. If any wires or connectors loosen during installation, please make sure they are correctly reattached.
- Do not drop any of the components of this product. It may result in damage to the product.
- Do not apply excessive force on switches/terminals. It may result in damage to the product.
- Do not use wires other than the provided wires.
- Do not attach wires on the body of the vehicle or engine parts as this may result in damage to the product.
- Install wires away from ignition and also radio signal frequency interference as this could cause the gauges to malfunction.
- Do not place wires near the engine, exhaust pipe or turbine. It may result in damage or fusion of wires.
- Make sure the waterproof processing is done when diverging wires in the engine compartment.
- Wear gloves to avoid burns when soldering and cuts when installing wires, sharp edges of parts.
- When using sunshade, put sunshade between products and windshield to avoid direct sun exposure.
- Use the dried soft cloth for cleanup. Do not use the cleaner except for the neutral detergent. It result in the trouble.
- 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 gauges into the passenger side or center of the dashboard. It doesn't meet vehicle safety standards.

Confirmation

- Be sure to follow all instructions in this manual to ensure safe installation and operation of the product.
- When the negative (-) battery terminal is disconnected, equipment such as clocks and audio components having internal memory may lose their memory data. Follow the operation manual of each component to reset data after installation of this product.
- After installation is complete, return this operation manual, warranty card, and the package to the customer along with the warranty.
- The gauge pointer may not be in the proper position when you purchase the product. Normal function will resume when power is restored.
- Please confirm with the maintenance book on the car that the 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.
- On no event will Nippon Seiki Co., Ltd. be liable to you for any damages or losses of genuine parts for your vehicle while installing.

About Installation and Operation(for customer and installation personnel)

Warning

- Please have this product installed by the retail store or dealer where it was purchased. Installation by the customer will void the warranty.
- Do not disassemble or modify this product. Such actions will not only void the warranty but also damage or destroy the product.
- In order to ensure safe driving, check the information on the gauge only for short periods of time. Looking at the display for long periods of time could distract adequate attention from the road and result in an accident.
- Discontinue use of this product if the gauge doesn't operate, water gets into the unit, or smoke or a strange odor comes from the unit. If such a condition occurs, contact the sales outlet or installation personnel as soon as possible. Continued use while the condition exists could result in an accident or fire.
- Do not operate during driving.
- Fix the switch unit and other parts tightly to the vehicle to avoid that children swallow those.

Caution

- 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.
- 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.

Confirmation

- This product cannot be linked to either the ADVANCE System or the 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 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.
- This product can be used only on 1, 2, 3, 4, 5, 6, and 8 cylinder vehicles with 4 cycle engine. Refer to the Product Specifications. Engine revolution signal of diesel vehicles cannot be displayed.
- Please check the installed product regularly. Durability might deteriorate according to use conditions, etc.

Lineup (for customer)

Display range	Illumination color of gauge and switch		
	Blue	Red	White
0~9000RPM	DF12001	DF12002	DF12003
0~11000RPM	DF12101	DF12102	DF12103

Main Features (for customer)

- Stepping motor "STS26A"
Maximum angle of deflective 270°(full sweep) is controlled by the microcomputer up to 4600 division (0.057°each) to provide high precision in the accuracy of information generated. The stepping motor is sufficient for quick response of all sorts of professional motorsports.
- LED illumination
The gauge dial is invisible while the ignition switch is off. Once the ignition switch is turned on, a clear display appears by colored LED illumination. The gauge dial illumination and the red emitting needle pointer provide high visibility.
- Opening and closing modes
The gauge dial and the needle pointer performs opening and closing modes interlocked with turning ON/OFF of the ignition.
- Adjustable brightness
There are 5 stages of brightness for the daytime and 6 stages for the nighttime. The brightness can be decreased/increased with the vehicle lights switched on/off.
- Dual warnings of light and buzzer
Two customer-defined warning RPMs can be set. When the RPMs are exceeded, the warning LED blinks/lights up and the warning buzzer sounds.
- Exclusive large-sized indicator
The exclusive large-sized indicator which lights in green and red enhances the visibility of warnings in addition to the warning LED in the gauge.
- Peak memory function
The maximum RPM during driving can be stored and checked later.
- Detachable switch unit
The large-sized switch unit with light is fixable on the gauge and is also detachable.
- Exclusive mounting band and back case
The gauge is clinched by using the exclusive mounting band and back case. Wires can be stored in the back case neatly.

Product Specifications(for customer and installation personnel)

Power Supply Voltage	DC10V to 15V (For 12V vehicles)
Current Consumption	+B (red) line MAX 0.4A (Dark current 0mA) IGN (orange) line MAX 0.4A ILM (white) line MAX 2mA
Operational Temperature Range	-20 to +60°C, -4 to +140°F (under 80% relative humidity)
Storage Temperature Range	-30 to +80°C, -22 to +176°F (under 80% relative humidity)
Applicable Number of Cylinders	1·2·3·4·5·6·8
Applicable Engine Speed Pulse	The wave form of the engine speed signal should meet the requirements of the following graph.

Parts List (for customer and installation personnel)

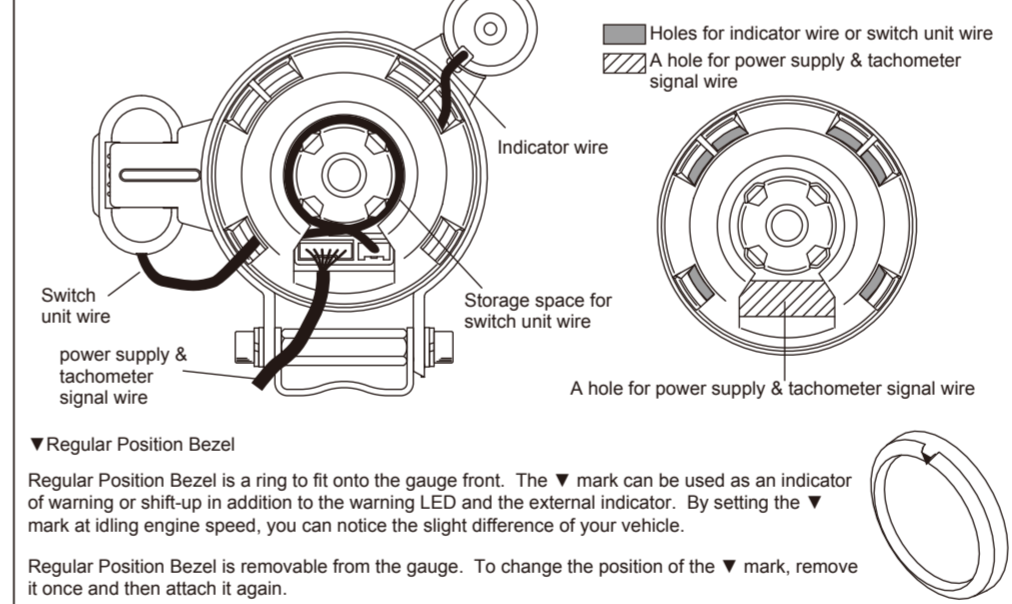
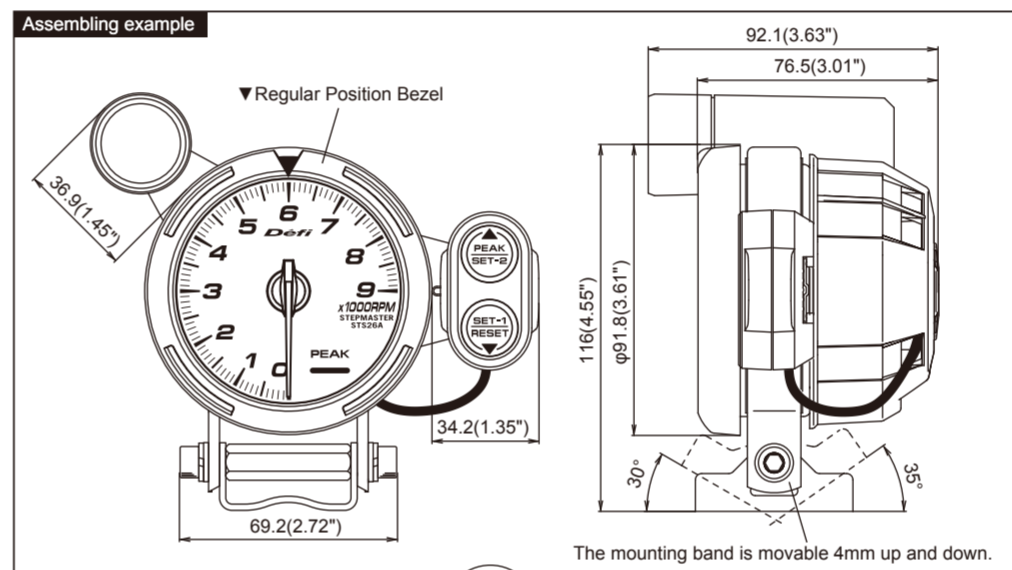
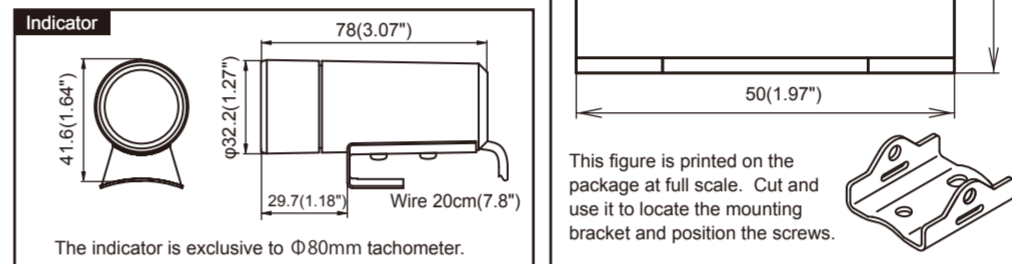
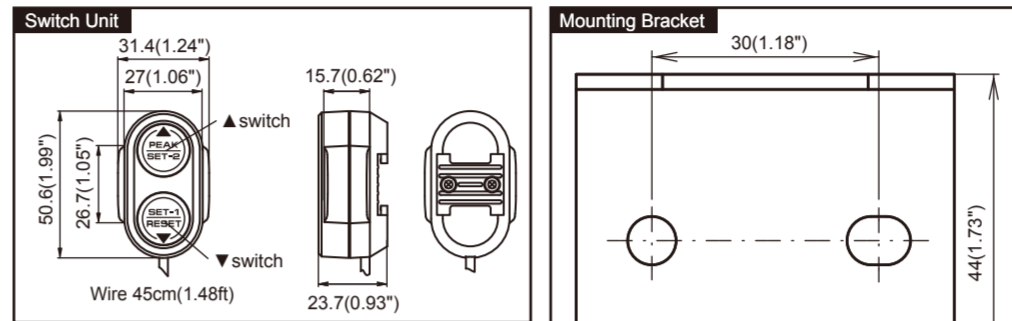
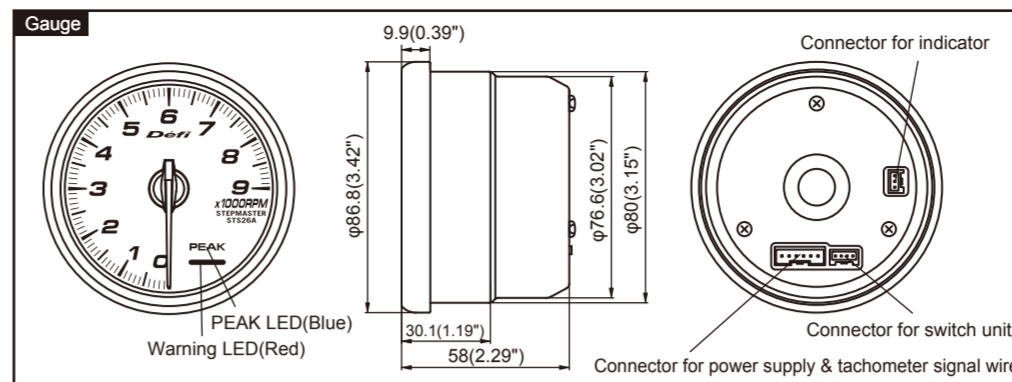
The following parts are included with this product. Confirm that all parts are present before installing the product. In addition, these parts are sold separately for part replacement. Contact your retailer for further information. NOTE: Japanese operation manual and wiring manual are included other than the parts listed below. They are effective only in Japan.

Part Name	Quantity	Part Name	Quantity
① Gauge	1	⑩ Mounting bracket	1
② Switch unit(wire 45cm, 1.48ft)	1	⑪ Attachment for switch unit	1
③ Regular Position Bezel	1	⑫ M6 bolt	2
④ Back case	1	⑬ Spring lock washer	2
⑤ Mounting band	1	⑭ Washer	2
⑥ Mounting rubber	1	⑮ Spacer	1
⑦ Power supply & tachometer signal wire 2.2m, 7.2ft	1	⑯ Buffer	1
⑧ Indicator(wire 20cm, 7.8in)	1	⑰ Double sided tape	1
⑨ Operation manual	1	⑱ Tapping screw	2
⑩ Warranty card	1	⑲ Solderless connector	5

Optional Parts(for customer)

Part Name	Part Number
Φ80(3 1/8") Back case set (Back case x 1, Buffer x 1)	PDF07101G
Power supply & tachometer signal wire	PDF12010H
Φ80(3 1/8") Mounting band set (Mounting band x 1, Mounting rubber x 1)	PDF07103G
Φ80(3 1/8") Mounting bracket set (Mounting bracket x1, M6 bolt x2, Spring lock washer x2, Washer x2, Spacer x1, Tapping screw x2)	PDF07104G
Φ80(3 1/8") Regular Position Bezel	PDF07105G
Fuse for Power supply wire(1A) 2pcs	PDF07113G

Dimensions in mm(inches) and part names



Installation (for customer and installation personnel)

Warning

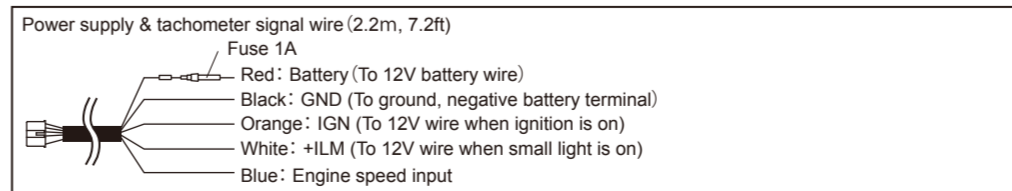
- Carefully read the "Before Installation" and "About Installation and Operation" sections of the manual concerning installation and operation. Then install the product properly and safely. Installation in an unsuitable location or improper installation can result in the product falling from its position or damage to the vehicle.

Caution

- Take care not to scratch the gauge or vehicle by hitting or gliding the parts.
- 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.

STEP 1 Wiring power supply & tachometer signal wire

- Disconnect negative (-) battery cable of the vehicle.
- Wire the power supply & tachometer signal wire as shown in the following figure.



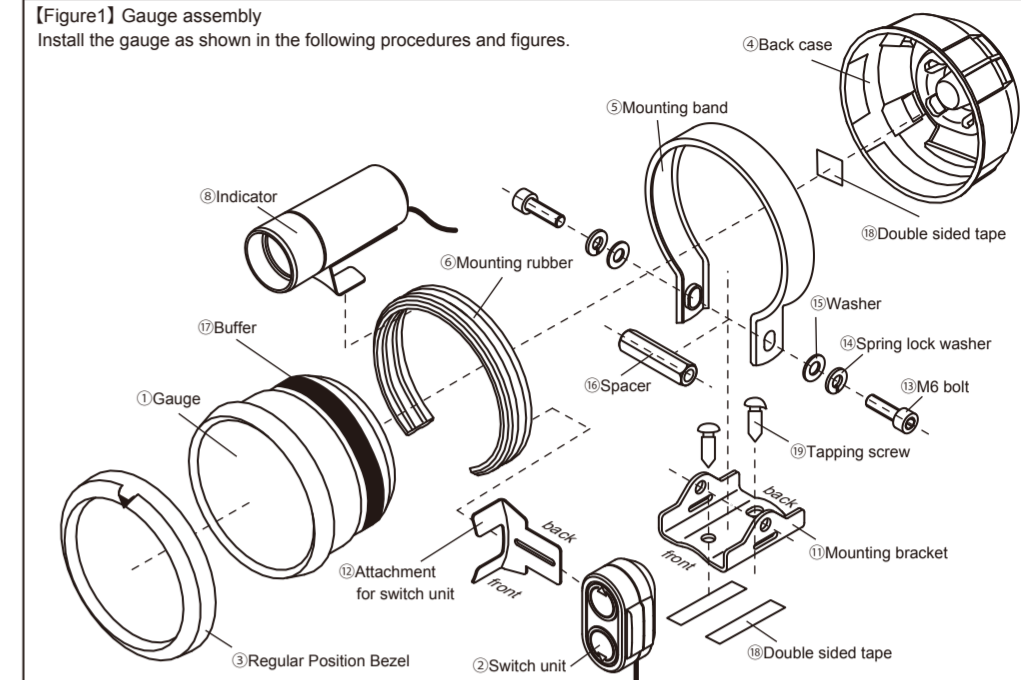
- Reconnect negative (-) battery cable of the vehicle.

STEP2 Wiring check

- Connect the power supply & tachometer signal wire to the back side of the gauge.
- Turn the key in the ignition. Then check the gauge illumination is lighted and the gauge pointer moves.
- Turn on the vehicle lights and make sure the gauge illumination is dimmed.
- Turn the ignition key off. Then check the gauge pointer points back to the zero point and the gauge illumination is turned off.
- To fix the gauge on a vehicle in the next step, disconnect the power supply & tachometer signal wire.

STEP3 Installing gauge

[Figure1] Gauge assembly
Install the gauge as shown in the following procedures and figures.



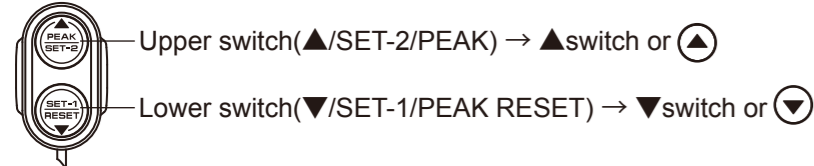
- Attach the buffer around the gauge. [Figure1]
※ Do not touch on the front face of the gauge so as not to put fingerprints.
- Fit the mounting rubber inside of the mounting band. [Figure2]
- Fix the mounting band to the mounting bracket temporarily with the spacer, bolts, washers, and spring lock washers. Tighten bolts loosely by hands. Do not use a hexagonal wrench (Allen key) at this stage. [Figure3]
- Insert the switch unit into the attachment for switch unit. [Figure1]
※ If the switch unit is fixed to another place other than the gauge, do not use the attachment for switch unit.
- Fit the attachment for switch unit and indicator into the mounting band. And then fit the gauge into the mounting band. Locate the switch unit and the indicator roughly at this stage. The switch unit and the indicator can be positioned in the range which they do not touch the mounting bracket and bolts. [Figure4] [Figure5]
※ Do not take hands off from the gauge so as the gauge does not fall down.
※ If the switch unit is fixed to another place other than the gauge, do not fix/use the attachment for switch unit to the mounting band.
- Identify the position of the mounting bracket with the gauge fitted into the mounting band. Mark the shape of the mounting bracket and the position of the screw holes. The figure printed on the package can be used to position the screw holes.
※ To check that there is enough space for installation, identify the gauge position with the gauge, switch unit, and indicator fitted into the mounting band.
※ When setting the gauge angle, take care not to scratch by hitting the gauge to the mounting bracket.
- Disassemble the mounting band from the mounting bracket, and disassemble the gauge, attachment for switch unit, and indicator from the mounting band.
- Attach double sided tapes on the bottom of the mounting bracket. [Figure1] [Figure6]
- Fix the mounting bracket on the gauge installing position by using the tapping screws.
- Fit the attachment for switch unit, indicator, and gauge into the mounting band again. Take notice that the angle of the switch unit and the indicator cannot be changed while the bolts are fastened.
※ If the switch unit is fixed to another place other than the gauge, do not fix/use the attachment for switch unit to the mounting band.
- Attach the double sided tape on the back side of the gauge. [Figure1] [Figure6]
- Pass the indicator wire and switch unit wire through the holes of the back case from the outside. Connect the indicator wire to the connector on the gauge. Refer to part names section. [Figure7] [Assembling example]
- Put the back case on the gauge. Position the hole for the power supply & tachometer signal wire to the gauge connector for it. Refer to part names section. The indicator wire can be stored in the back space in the back case. [Assembling example]
- Connect the switch unit wire to the connector on the back side of the gauge. The indicator wire can be stored in the storage space in the back case neatly. [Assembling example]
- Connect the power supply & tachometer signal wire to the connector on the back side of the gauge. [Assembling example]
- Fit the mounting band with the gauge in the mounting bracket by using a spacer, bolts, washer, and spring lock washer.
※ Depending on the installing space, it may difficult to fit the gauge. Do not pull wires forcefully and take notice not to hit the vehicle by parts.
- Fasten the bolts with a hexagonal wrench (Allen key) firmly. [Figure8]
- Fit the regular position bezel onto the gauge with setting the ▼ mark at the position you like.

STEP4 Final check and setup

- Make sure the gauge is fixed on the installing position firmly. Then turn the vehicle engine on and off and check the movement of the pointer, illumination of the gauge, and engine speed signal input.
※ Make sure there are no tools on the vehicle floor and that the vehicle surrounding is safe before turning on the engine.
- Go on to the operation section and set up the number of cylinders, and so on. Give this manual to the customer if he/she sets up by himself/herself.

Operation (for customer and installation personnel)

Two switches are expressed in this section as follows.



1. Function

Number of cylinder setup	To Set up the number of cylinders according to your vehicle
Warning setup	To Set up the RPMs of warning. Two points(SET1 and SET2) can be set.
Buzzer setup	To Set up the buzzer ON/OFF of warning SET2.
Opening/ Closing mode	When the ignition is turned on/off, the opening and closing motion is played by using the illumination of the gauge and movement of the pointer.
Real mode	Displays the RPM in real mode during driving and idling.
Warning mode	Informs the RPM exceeds the set warning RPMs by the warning LED, the buzzer, and the indicator.
Peak mode	Displays the maximum RPM recorded during driving. The maximum RPM is always recorded in the real and peak modes. It can be reset.
Dimmer control	Controls the brightness of the gauge illumination. There are 5 stages of brightness for the daytime and 6 stages for the nighttime. The brightness can be decreased/increased with the vehicle lights switched on/off.

2. Switch operation list

The following is the list of operations with switches. In the setup mode and the warning setup mode, the mode changes to the real mode when any switch is not pressed for more than 5 seconds.

Real mode	Setup mode	Warning setup mode SET1	Warning setup mode SET2	Peak mode	Dimmer control
<p>Press 2 switches at the same time for more than 2 seconds.</p>	<p>Press ▼ switch for more than 2 seconds.</p>	<p>Press ▲ switch for more than 2 seconds.</p>	<p>Press ▲ switch.</p>	<p>Press ▼ switch.</p>	<p>Press ▲ switch.</p>
<p>Operation after the mode is changed</p>	<p>Buzzer on/off of Warning SET2</p>	<p>Setting of number of cylinders</p>	<p>Raise setting To raise faster, push long.</p> <p>Lower setting To lower faster, push long.</p>	<p>Raise setting To raise faster, push long.</p> <p>Lower setting To lower faster, push long.</p>	<p>Returns to real mode</p> <p>Peak RPM is reset and returns to real mode.</p> <p>Brightness changes every time switch is pressed.</p>
<p>5sec later</p>	<p>Returns to the real mode</p>	<p>Returns to the real mode</p>	<p>Returns to the real mode</p>	<p>_____</p>	<p>_____</p>

3. Setup

<p>Confirmation</p> <p>Be sure to make preparatory settings. The unit will not operate properly without the settings being made.</p> <p>Set up while the vehicle is stationary.</p>

① Setup mode

Set up the number of cylinders and buzzer. The factory setting of the number of cylinders is 4. If the gauge is installed in a vehicle which the number of cylinders is not 4, change the number as follows. The factory setting of the buzzer is ON. ※Even if the battery is disconnected, the setting is not cleared.

In the real mode, the mode changed to the setup mode by pressing ▲switch and ▼switch at the same time for more than 2 seconds. In the setup mode, the peak and warning LEDs in the gauge blinks alternately. And the gauge pointer points the number of cylinders. The buzzer beeps. Set up the number of cylinders and the buzzer on/off in the setup mode. The mode returns to the real mode automatically when any switch is not pressed for more than 5 seconds.

The pointer points the number of cylinders.

● LED blinking	Time
Peak LED	● — ● — ● — ● — ● — ● —
Warning LED	— ● — ● — ● — ● — ● — ● —
Buzzer	Bleep (short beeps)

[A] Setup number of cylinders

In the setup mode, the setup of the number of cylinders changes every time ▼switch is pressed(4→3→2→1→8→6→5→4→... (repeat)). Match the number on the gauge dial and the number of cylinders of your vehicle.

The mode returns to the real mode automatically when any switch is not pressed for more than 5 seconds.

[B] Setup buzzer

Set whether to turn the buzzer on or off when warning SET2 is exceeded.

In the setup mode, the buzzer is turned on/off by pressing ▲switch. If the buzzer is set on, it beeps (short beeps) in time with blinking of the peak and warning LEDs. If the buzzer is set off, it does not sound.

If the buzzer is set on, it feeps (a long beep) when the RPM exceeds the warning SET2 in the real mode. If the buzzer is set off, it does not sound.

The mode returns to the real mode automatically when any switch is not pressed for more than 5 seconds.

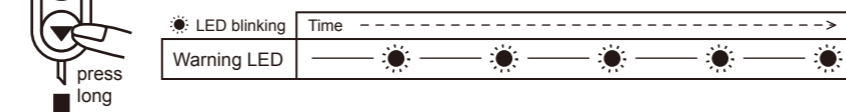
※The buzzer sounds when switches are pressed. It cannot be turned off.

② Warning setup mode

Two warning RPMs can be set at SET1 and SET2. Set the SET2 RPM higher than the SET1 RPM. The factory setting is at 6000rpm(SET1) and 7000rpm(SET2). Change the RPMs as you like. ※Even if the battery is disconnected, the setting is not cleared.

[A] Warning setup mode — SET1

In the real mode, the mode changes to the warning setup mode SET1 if ▼switch is pressed for more than 2 seconds. In the warning setup mode SET1, the warning LED blinks as follows:



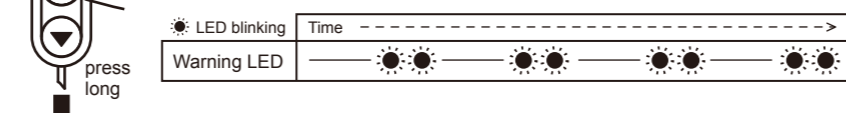
To raise the set RPM of the warning, press ▲switch. Every time ▲switch is pressed, the set RPM is raised in degree. If ▲switch is pressed long, the set RPM is raised faster. To lower the set RPM of the warning, press ▼switch. Every time ▼switch is pressed, the set RPM is lowered in degree. If ▼switch is pressed long, the set RPM is lowered faster.

The mode returns to the real mode automatically when any switch is not pressed for more than 5 seconds. ※The range of the warning RPM which can be set is from 500rpm to the maximum scale RPM. ※Set the lower RPM than the warning SET2 RPM.

If the warning SET1 RPM is set higher than the SET2 RPM:
→The warning SET2 RPM is changed to the same RPM as the SET1 RPM.
Ex) If the SET2 RPM is set at 6000rpm, it is changed to 7000rpm when the SET1 RPM is changed to 7000rpm.

[B] Warning setup mode — SET2

In the real mode, the mode changes to the warning setup mode SET2 if ▲switch is pressed for more than 2 seconds. In the warning setup mode SET2, the warning LED blinks as follows:



To raise the set RPM of the warning, press ▲switch. Every time ▲switch is pressed, the set RPM is raised in degree. If ▲switch is pressed long, the set RPM is raised faster. To lower the set RPM of the warning, press ▼switch. Every time ▼switch is pressed, the set RPM is lowered in degree. If ▼switch is pressed long, the set RPM is lowered faster.

The mode returns to the real mode automatically when any switch is not pressed for more than 5 seconds. ※The range of the warning RPM which can be set is from 500rpm to the maximum scale RPM. ※Set the higher RPM than the warning SET1 RPM.

If the warning SET2 RPM is set lower than the SET1 RPM:
→The warning SET1 RPM is changed to the same RPM as the SET2 RPM.
Ex) If the SET1 RPM is set at 7000rpm, it is changed to 6000rpm when the SET2 RPM is changed to 6000rpm.

4. Motion mode

① Opening and closing mode

The gauge performs the opening mode when the ignition key is turned on and performs the closing mode when the ignition key is turned off.

※The brightness is at the maximum level during the opening mode regardless of the dimmer control setup. ※In case any other Defi-Link products are already installed in the vehicle, supply power from the same source as the Defi-Link products to perform the opening and closing mode at the same time. If the power is supplied from the different source from the others, gauges may not perform the opening and closing mode at the same time.

② Real mode

The gauge pointer points at the RPM in real time. The maximum RPM is recorded during this mode.

③ Warning mode

In the real mode, when the RPM exceeds the set warning RPMs, the warning LED and the indicator light up/blinks as follows.

[Scene A] When the RPM is lower than the warning SET1 RPM

The warning LED is off. The buzzer is off. The indicator is off.

[Scene B] When the RPM is higher than the warning SET1 RPM

The warning LED is on. The buzzer is off. The indicator is on in green.

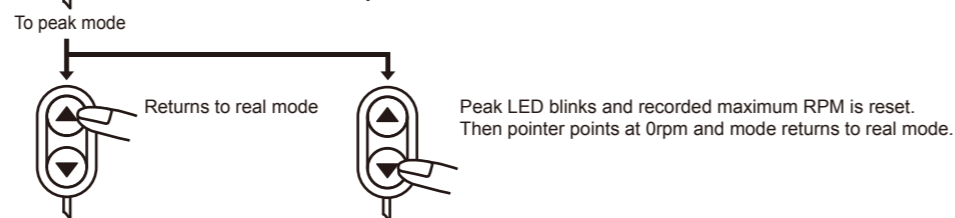
[Scene C] When the RPM is higher than the warning SET2 RPM

The warning LED blinks. The buzzer feeps (a long beep). The indicator is on in red.
※The buzzer does not sound if the buzzer is set off in the setup mode.

	Warning SET1: Factory setting 6000rpm	Warning SET2: Factory setting 7000rpm	
	Lower ←	Engine speed	→ Higher
Scene	[Scene A]	[Scene B]	[Scene C]
Warning LED	Off ○	On ●	Blink ●
Buzzer	Off	Off	Feep(a long beep)
Indicator	Off ○	On(green) ●	On(red) ●

④ Peak mode

In real mode
In the real mode, the peak LED lights up and the mode changes to the peak mode by pressing ▲switch. The recorded maximum(peak) RPM is displayed during the peak mode. Every time the maximum RPM is updated, it is recorded. The peak mode returns to the real mode by pressing ▲switch again. In the peak mode, the peak LED blinks and the maximum RPM is reset by pressing ▲switch. Then the peak mode returns to the real mode.
※Even if the battery is disconnected, the recorded maximum RPM is not cleared.



⑤ Dimmer control

In real mode
In the real mode, the brightness of the gauge illumination is controlled by pressing ▼switch. There are 5 stages for the daytime and 6 stages for the nighttime. The brightness can be decreased/increased with the vehicle lights switched on/off.
※Even if the battery is disconnected, the set level is not cleared.
※The brightness level does not change even if ▲switch is pressed. The mode changes to the peak mode.

Brightness level	Brighter ← → Darker
Daytime (vehicle lights off)	■ → ■ → ■ → ■ → ■
Nighttime (vehicle lights on)	■ → ■ → ■ → ■ → ■ → ■

Trouble Shooting(for customer and installation personnel)

<p>Warning</p> <p>If operation of the product seems unusual, inspect the product to confirm that there is no malfunction. If an operational problem has occurred, it could result in an accident.</p>

※In addition to a general inspection of the product, use the following table to confirm proper operation of the unit.

Condition	Possible Cause	Corrective Action
<input type="radio"/> Does not operate. <input type="radio"/> Power is not supplied.	<input type="radio"/> Wiring of the power supply wire is improper. <input type="radio"/> The locks of the solderless connectors are not locked tightly.	<input type="radio"/> Check wirings of +B, IGN, GND as per instructions in this manual. <input type="radio"/> Check the lock of the solderless connectors.
<input type="radio"/> The RPM is not displayed correctly.	<input type="radio"/> Wiring of the tachometer signal is wrong. <input type="radio"/> Setting of the number of cylinders is wrong.	<input type="radio"/> Check wiring as per instructions in this manual. <input type="radio"/> Check the number of cylinders as per instructions in this manual.
<input type="radio"/> Does not carry out the closing mode.	<input type="radio"/> The battery wiring is wrong. <input type="radio"/> The fuse of the power supply wire is blown out.	<input type="radio"/> Check wiring of +B as per instructions in this manual. <input type="radio"/> Make sure the wiring is not touched on the vehicle body and then change the fuse. <input type="radio"/> Check the solderless connector of battery wiring.
<input type="radio"/> The illumination brightness doesn't change by turning on/off the vehicle illumination.	<input type="radio"/> The illumination is in the brightest level of nighttime mode. <input type="radio"/> Wiring of the power supply wire is improper.	<input type="radio"/> Check if the illumination is in the brightest level of nighttime mode and press ▼switch. <input type="radio"/> Check wiring of ILM as per instructions in this manual. <input type="radio"/> Check the lock of the solderless connectors.
<input type="radio"/> The RPM gauge indicates a little lower than that of originally equipped gauge.	<input type="radio"/> Originally equipped gauges commonly indicate up to 10% higher RPM.	<input type="radio"/> Check if the difference is up to 10%. This product is designed emphasizing accuracy and should have little error margin. If the difference is bigger than 10%, check the setup of the number of cylinders.
<input type="radio"/> The warning LED lights up at the different RPMs than set RPMs.	<input type="radio"/> The warning set1 RPM is set higher than the warning set2 RPM or the warning set2 RPM is set lower than the warning set1 RPM.	<input type="radio"/> When the warning set1 RPM is set at the higher RPM than the warning set2 RPM or when the warning set2 RPM is set at the lower RPM than the warning set1 RPM, set RPMs are changed automatically. Refer to Operation section.
<input type="radio"/> The needle pointer is not downward before the electricity is turned on.	<input type="radio"/> The pointer moves during transfer.	<input type="radio"/> It is an inherent property of the stepping motor. The pointer may move when a slight impact is made to the gauge. Check if it operates normally by turning on and off the electricity and the pointer points zero after the ignition is turned off.

※If the problem is not solved after the remedies mentioned above are tried:
→Ask the installation personnel or the shop you purchased the gauge for inspection.
→Purchase new parts for replacing wear-out parts.

Maintenance & Check/Warranty & Servicing

■ Warranty card • Terms and conditions

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

■ Warranty period

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

- Except in the case of defects, we shall not be liable for any trouble including violation, accident or improper wiring resulting from using this product.
- The warranty does not cover any unauthorized repair performed or caused to be performed by the end user. Such action can destroy or damage this product.

■ Inspection

Please ask the shop you purchased the product for inspection if any defect in product is suspected. We don't accept the order of fixing because Defi products require installation and wiring to the vehicle. In case you cannot go to the shop you purchased because of move-out or closure of shop, please ask the nearest Defi Distributor listed in the Defi website.
※For a repair/inspection service, take the warranty card and customer contact information with you.

■ Label

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

■ Repairing

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

■ Discarding the products

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

Terms and Conditions (for customer)

LIMITED PRODUCT WARRANTY AND LIMITED PRODUCT LIABILITY

A. Limited Warranty

- 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.
- 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.
- 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."
- 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.
- EXCEPT AS OTHERWISE PROVIDED HEREIN, WE SHALL NOT BE LIABLE FOR DAMAGES, INCLUDING SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHETHER IN CONTRACT OR IN TORT ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF ANY PRODUCT OR ANY COMPONENT PART THEREOF OR ITS USE BY YOU, AND WE SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH YOUR USE OF THE PRODUCT.
- 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.
- You accept sole responsibility for the proper assembly, operation and regular maintenance of the product. This limited warranty is void if the product is damaged, changed, altered, or modified by accident, misuse, improper installation, or abuse, including tampering or damage in transit or while in use. YOU HAVE MADE AN INDEPENDENT INVESTIGATION OF THE PURCHASED COMPONENTS AND HAVE RELIED SOLELY ON YOUR OWN INVESTIGATION, BARGAINING AND JUDGMENT IN REFERENCE THERETO. YOU ACKNOWLEDGE THAT YOU ARE NOT RELYING ON OUR SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS SUITABLE FOR ANY PARTICULAR PURPOSE IN PURCHASING OUR PRODUCTS, YOU HAVE NOT RELIED OR ACTED UPON ANY REPRESENTATIONS OR WARRANTIES ON OUR PART NOT SPECIFICALLY SET FORTH HEREIN.
- This limited warranty gives you specific legal rights. You may also have other rights which vary from state to state. Some states do not enforce contractual limitations on how long an implied warranty lasts, when an action may be brought, or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

B. Modification Strictly Prohibited

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

C. Indemnity and Release

- You understand and agree that many factors beyond our control affect the operational safety of the product, including but not limited to the installation of the product according to the instructions provided with the product.
- 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.
- 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.

Racer Gauge Tachometer Ø80 Operation Manual

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NIPPON SEIKI CO. LTD.

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