



Racer Gauge N2 SI series/USDM series

Racer Gauge N2 Ø52mm (2 1/16") / 60mm (2 3/8")
SI series: DF16001~DF17101, DF16003~DF17103
USDM series: DF16002~DF16502

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.

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.

Table with 2 columns: Symbol and Description. Symbols include Danger, Warning, Caution, Confirmation, Prohibited, and Must.

Properties for safety warning

Table with 2 columns: Symbol and Description. Symbols include Attention, Restricted actions, and Must actions.

Before handling (for installation personnel)

Do not install the product at the wet places. It may result in a fire caused by an electrical short circuit. Ensure that the vehicle will remain stationary and turn off the engine before installing this product.

Warning: 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.

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.

Confirmation: Do not lay the gauge face down due to oil leakage. Angle "A" must be more than 90 degrees. Be sure to follow all instructions in this manual to ensure safe installation and operation of the product.

About Installation and Operation (for customer and installation personnel)

Warning: Do not operate during driving. Do not disassemble or modify this product. Such actions will not only void the warranty but also damage or destroy the product.

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.

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.

Lineup (for customer)
SI models: White illumination (Sold globally except the USA)

Table with 9 columns: Product Name, Display Range, Blue ring, Red ring, Blue ring, Red ring, Blue ring, Red ring. Lists models like TURBO 2.0, TURBO 3.0, PRESS., TEMP., E.G.T., VOLT, Tachometer 9000rpm, Tachometer 11000rpm.

USDM models: Red illumination (Sold only in the USA)

Table with 5 columns: Product Name, Display Range, Ø2 1/16", Ø2 3/8", Ø3 1/8". Lists models like BOOST 30PSI, BOOST 45PSI, PRESS., TEMP., E.G.T., VOLT, Tachometer 9000rpm, Tachometer 11000rpm.

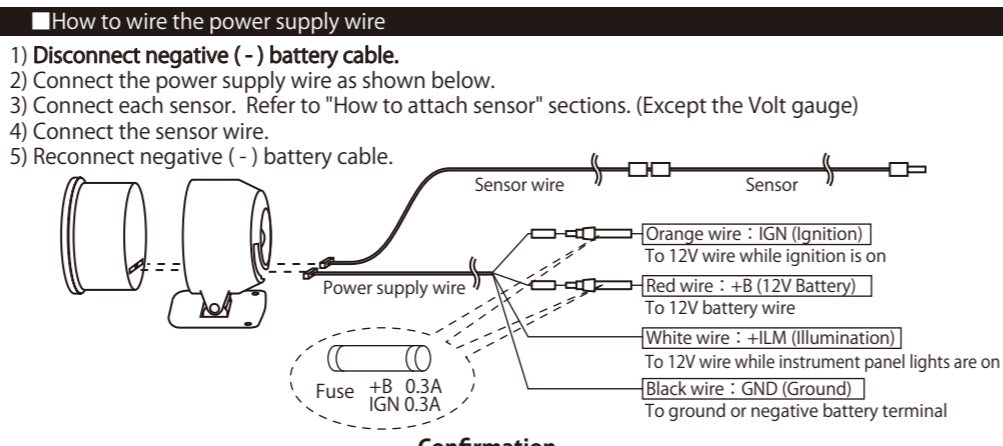
Main Features (for customer)

- Stepping motor "STEP MASTER VS-2" provides smooth operation.
Full 270° sweep dial provides ultimate visibility.
Ignition ON initiates self-luminescence gauge.
Illumination using high-brightness LEDs.
Lighting-like opening / ending ceremony.
A mounting bracket and instrument case is provided with the product.

Product Specifications (for customer and installation personnel)

- Power-supply voltage: 10V to 15V DC (12V vehicles only)
Current consumption: +B line: MAX 120mA (Dark current 0mA)
IGN line: MAX 120mA
ILM line: MAX 2mA
Temperature range (humidity is assumed to be 80% or lower) Unit: °C(°F)

Installation (for customer and installation personnel)

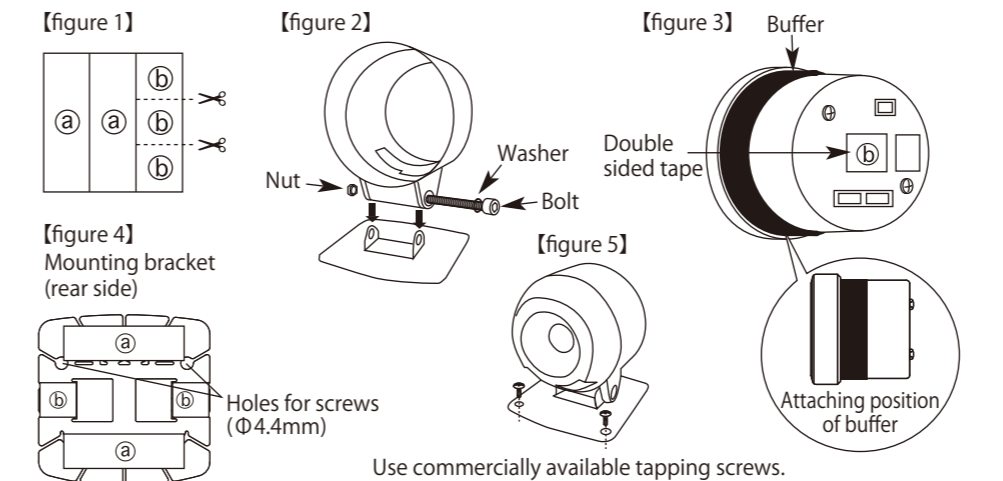


Confirmation: When several gauges are installed into a vehicle, use each power supply wire to connect gauges to the vehicle independently. Do not join multiple power supply wires.

How to attach Mounting bracket set

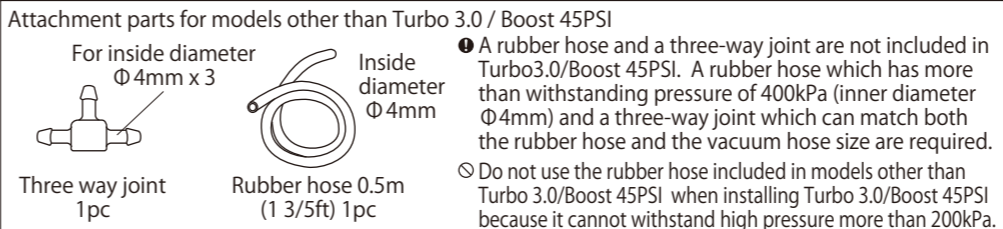
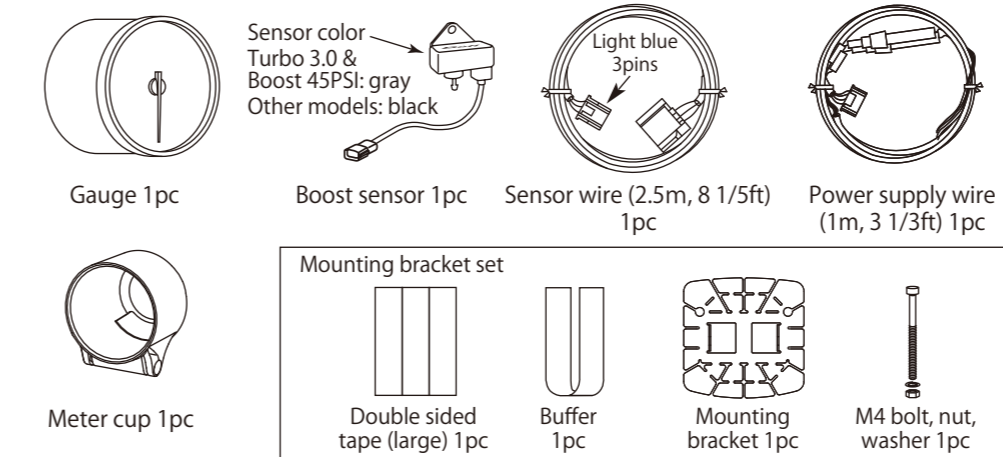
- Cut the double sided tape as shown in figure 1.
Insert convex part of the mounting bracket over the legs of the meter cup.
Attach one piece of double sided tape and the buffer on the gauge as shown in figure 3.

Confirmation: Do not lay the gauge face down due to oil leakage. Angle "A" must be more than 90 degrees. Use appropriate dashboard cleaning liquids (commercially available) to clean the area where the double sided tape will be attached.



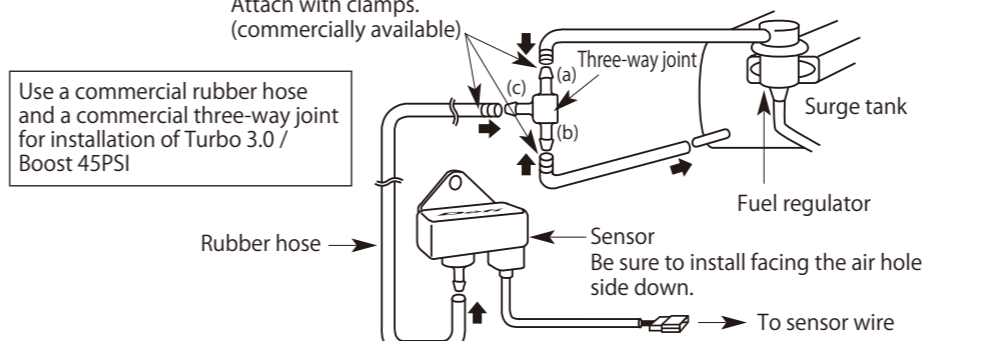
TURBO/BOOST (DF160, 161, 166, 167 series)

Components



Operation manual (this sheet) and warranty card are included other than the parts listed above. Keep them at hand.

How to attach boost sensor (e.g. for gasoline vehicle)



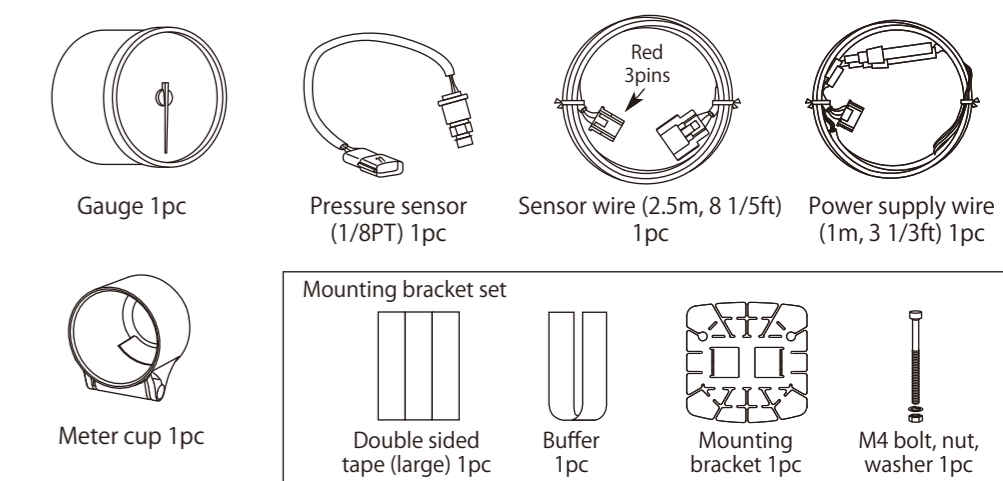
- The rubber hose attached to the sensor should be as short as possible. Attach the sensor with bolts (M6) in the engine compartment in an area where it will not be subject to excess heat or vibration.
Access to the air pressure intake may be obtained between the surge tank and the fuel regulator.

Warning: Be sure to use commercial hoses which can withstand more than 400kPa for installation of Turbo 3.0 / Boost 45PSI. Failure to do so could cause serious damage to the engine, such as engine blowout or hose burst.

Confirmation: The sensor must be installed being the rubber hose connection side faced down. For vehicles which have a solenoid valve between the surge tank and the fuel pressure regulator, place a three-way joint closer to the surge tank side than to the solenoid side.

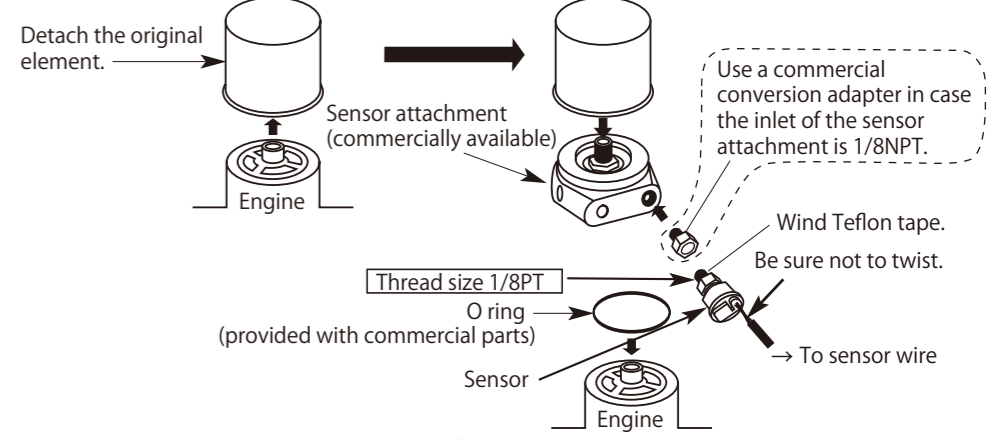
PRESS. (DF162, 168 series)

Components



Operation manual (this sheet) and warranty card are included other than the parts listed above. Keep them at hand.

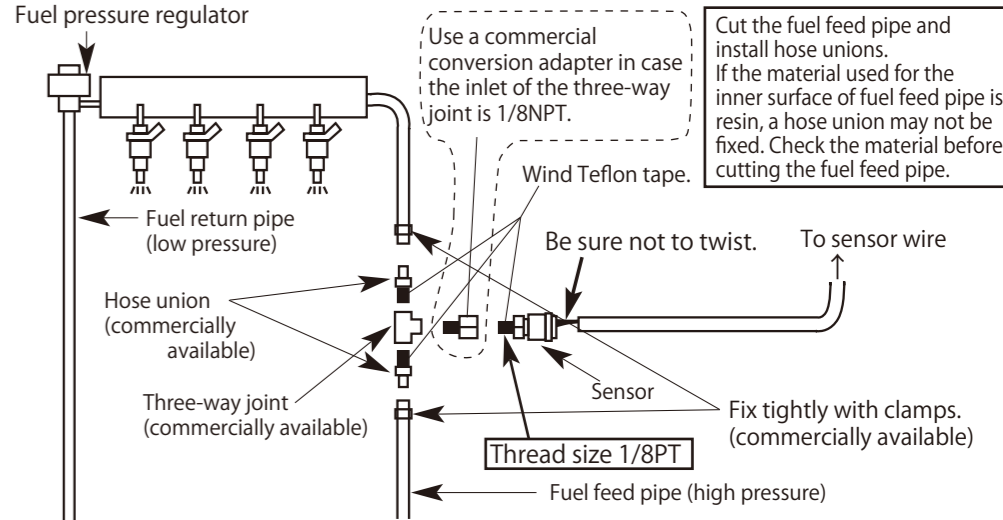
How to attach pressure sensor for oil pressure (Use a commercial sensor attachment.)



Warning: Do not install the sensor near oil pump. Do not install the sensor to pressure switch directly. Failure to do so could damage the sensor because the pressure pulsation is too big and exceed three times full-scale momentarily.

Confirmation: The thread size of the pressure sensor is 1/8PT. Use a sensor attachment of 1/8PT. If the thread size of the sensor attachment for the pressure sensor is 1/8NPT, use a conversion adapter available from hardware stores.

How to attach pressure sensor for fuel pressure (Use a commercial three-way joint and hose unions.)

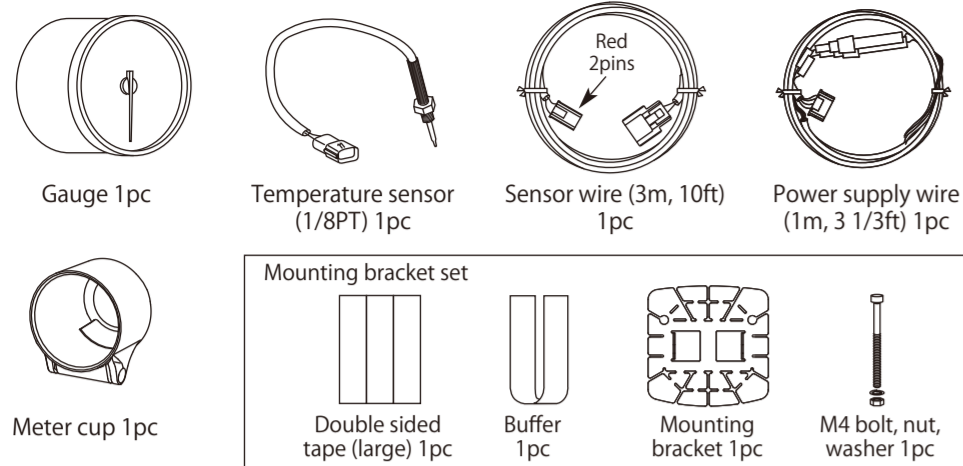


Warning: Be sure the sensor wire is not twisted when installing the sensor. The sensor wire will be cut. Before cutting the fuel feed pipe, be certain to remove the gas cap to relieve any pressure built up in the fuel tank.

Confirmation: The sensor must be installed on the feed (high pressure) pipe side between the fuel tank and the fuel pressure regulator. It is not possible to obtain accurate fuel pressure from the return (low pressure) side at the rear of the fuel pressure regulator.

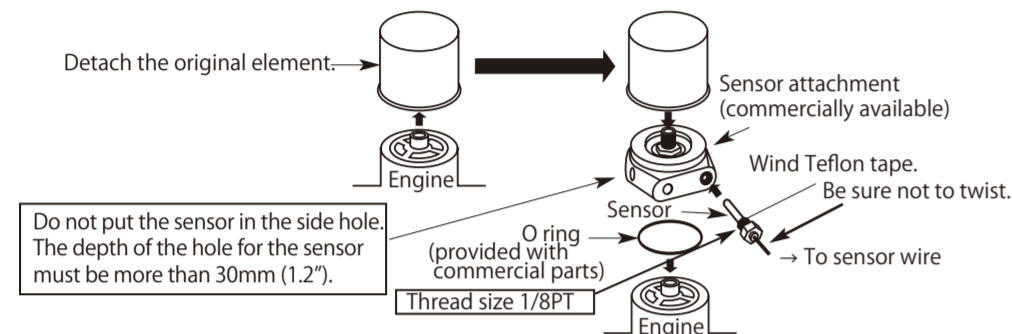
TEMP. (DF163, 169 series)

Components



① Operation manual (this sheet) and warranty card are included other than the parts listed above. Keep them at hand.

How to attach temperature sensor for oil temperature (Use a commercial sensor attachment.)

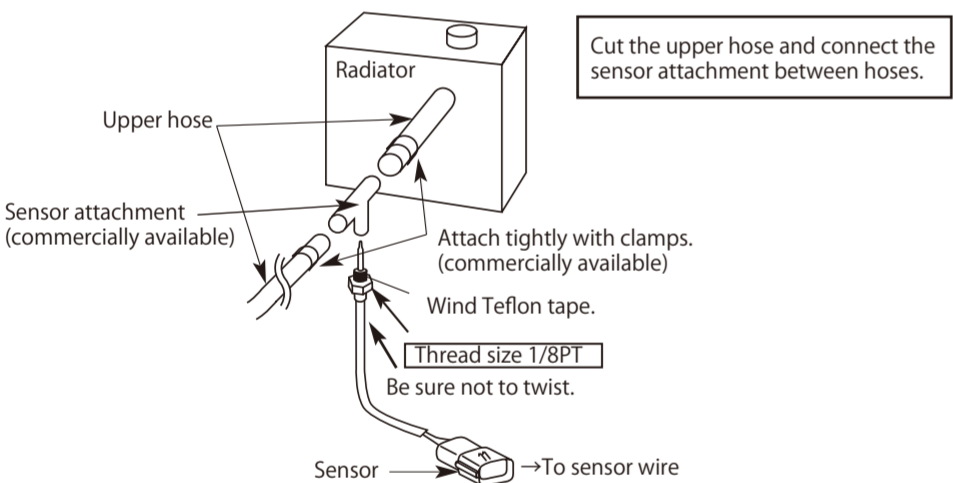


- Warning**
- Be sure the sensor wire is not twisted when installing the sensor. The sensor wire will be cut.
 - Oil spills by the installation work. Please replenish the engine with oil. The engine might overheat when oil is too little.
 - To avoid oil leaks by installing of the sensors, use Teflon tape. Before driving, inspect oil blocks for leaks. Leaks could cause a fire or damage the engine.
 - To avoid the damage of the sensor wire, please fix the waterproof connector on the vehicle body and do not bend the sensor wire near the sensor.

Confirmation

- The thread size of the temperature sensor is 1/8PT. Use a sensor attachment of 1/8PT. If the thread size of the sensor attachment for the temperature sensor is not 1/8PT, and you use a conversion adapter available from hardware store, note that the temperature is displayed lower than the actual value.
- The depth of the hole for the sensor must be more than 30mm (1.2").
- Tighten the sensor into the sensor attachment and then connect it to the sensor wire.

How to attach temperature sensor for water temperature (Use a commercial sensor attachment.)



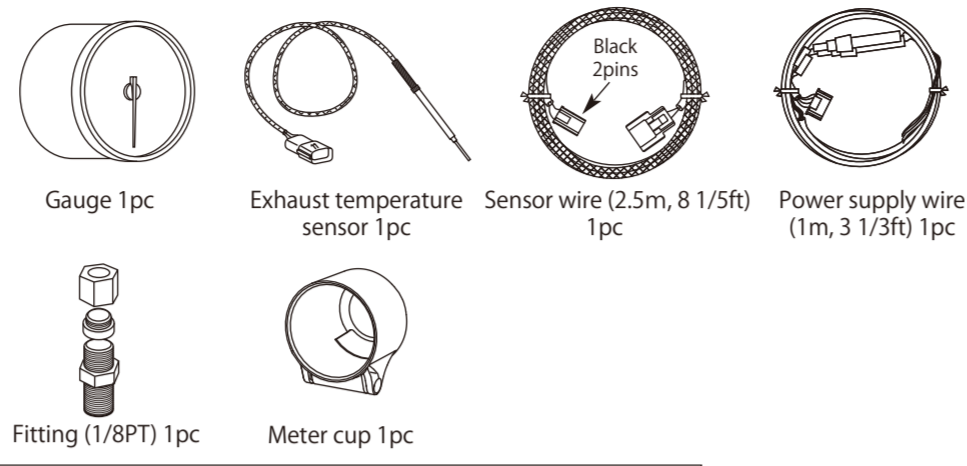
- Warning**
- Be sure the sensor wire is not twisted when installing the sensor. The sensor wire will be cut.
 - Coolant spills by the installation work. Please replenish the engine with coolant and bleed the air from the system, or the engine might overheat.
 - To avoid water leaks during installation of the sensors, use Teflon tape. Attach the sensor attachment and upper hose with clamps. Inspect hose connections for leaks before driving.
 - To avoid the damage of the sensor wire, please fix the waterproof connector on the vehicle body and do not bend the sensor wire near the sensor.

Confirmation

- The thread size of the temperature sensor is 1/8PT. Use a sensor attachment of 1/8PT. If the thread size of the sensor attachment for the temperature sensor is not 1/8PT, and you use a conversion adapter available from hardware store, note that the temperature is displayed lower than the actual value.
- Tighten the sensor into the sensor attachment and then connect it to the sensor wire.

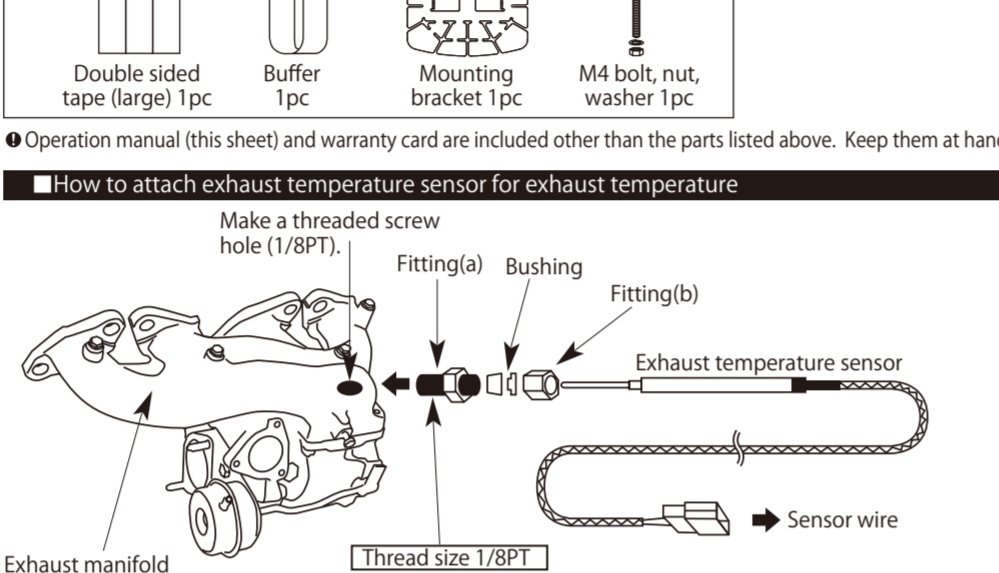
E.G.T. (DF164, 170 series)

Components



① Operation manual (this sheet) and warranty card are included other than the parts listed above. Keep them at hand.

How to attach exhaust temperature sensor for exhaust temperature



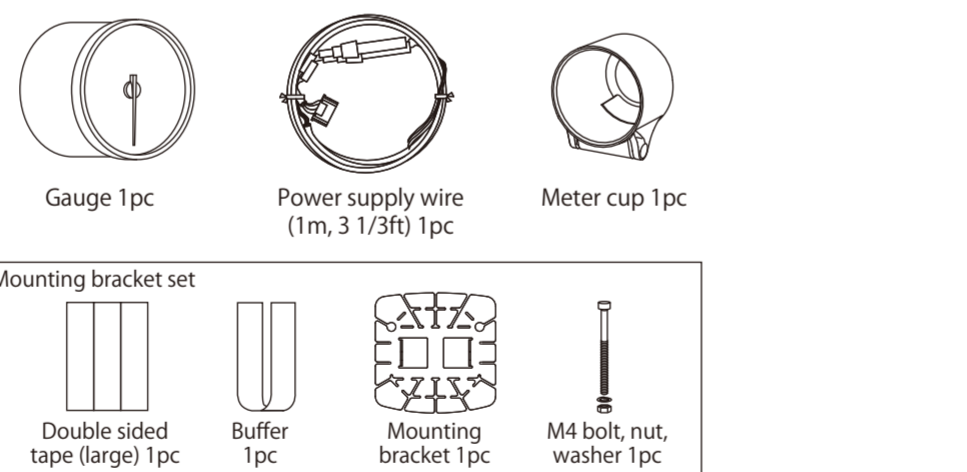
- Make a 1/8PT threaded screw hole in the exhaust manifold pipe. (Weld if the pipe wall thickness is not enough)
- Dismantle the fitting. Do not crush the bushing inside the fitting.
- Tighten the fitting(a) to the hole of the exhaust manifold.
- Pierce the sensor through the fitting(b) and the bushing.
- Insert the edge of the sensor into the fitting(a) and position it at the center of the exhaust pipe.
- Tighten the fitting(b).

- Warning**
- To avoid personal injury, do not install the exhaust temperature sensor while the engine is hot.
 - When making a hole, make sure no chip remains in the exhaust pipe or turbine. It may result in damage to the engine, exhaust pipe, or turbine.

- Confirmation**
- The thread size of the fitting is 1/8PT. Make a threaded screw hole of 1/8PT.
 - Tighten the sensor into the sensor attachment and then connect it to the sensor wire.

VOLT (DF165, 171 series)

Components

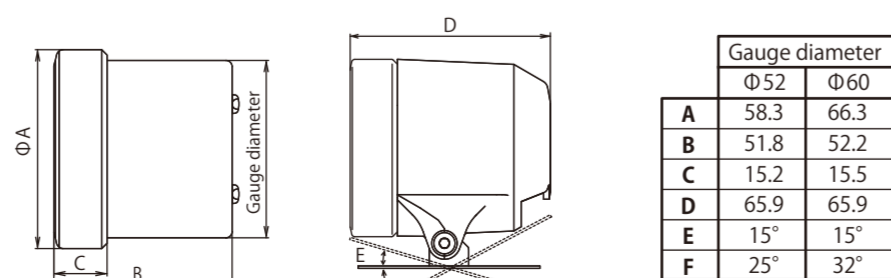


① Operation manual (this sheet) and warranty card are included other than the parts listed above. Keep them at hand.

How to attach Volt gauge

- Volt is displayed by connecting the power supply wire.
- Confirmation**
- Use the tube fuse of repair part when the fuse of the power supply wire is changed. Using a commercial fuse may affect the accuracy.

Dimensions in mm (1mm=0.039in)



Repair Parts (for customer)

Item	Part number
Fuse 0.3A (2pcs)	PDF06508G
Mounting Bracket set for Φ52 & 60mm gauge	PDF07809G
Power Supply wire	PDF06504H
Boost Sensor (for 200kPa/30PSI)	PDF06503S
Boost Sensor (for 300kPa/45PSI)	PDF14604S
Boost Sensor wire	PDF06505H
Pressure Sensor (1/8PT)	PDF00703S
Pressure Sensor wire	PDF06603H
Temp. Sensor (1/8PT)	PDF00903S
Temp. Sensor wire	PDF05602H
Exhaust Temp. Sensor	PDF01103S
Exhaust Temp. Sensor wire	PDF06803H
1/8PT Fitting for Exhaust Temp. Sensor	PDF01105G

Optional Parts (for customer)

Item	Part number
Boost Sensor extension wire 1m(3 1/3ft.)	PDF06002H
Pressure Sensor extension wire 2m(6 3/5ft.)	PDF00707H
Temp. Sensor extension wire 2m(6 3/5ft.)	PDF00906H
Exhaust Temp. Sensor extension wire 2m(6 3/5ft.)	PDF01107H

Troubleshooting (for customer and installation personnel)

- Warning**
- If any indications of troubles are found in the product, stop the engine and check the product, wiring, and the vehicle right away. Continued use without checking could result in a serious accident. If any trouble is found while using, setting, and operating, ask the store where this product was installed or purchased to check the trouble. Inspection by a customer could result in accidents or malfunction.

Condition	Possible Cause	Corrective Action
○A gauge lapses into the disconnection check mode. (Except VOLT gauge)	○Disconnection of sensor or sensor wire ○Connector is unhooked. ○Incorrect wiring	○Check the disconnection of connectors and wires.
○A gauge lapses into the short circuit check mode. (Except VOLT gauge)	○Sensor or sensor wire has a short circuit. ○Sensor or sensor wire is shorted to the vehicle body.	○Look for the point of short circuit with the following procedures. [Step 1] Unplug the sensor from sensor wire. <1> The gauge lapses into the disconnection check mode. →Short circuit of the sensor. <2> The short circuit check mode continues. →Go to [Step 2] [Step 2] Unplug the sensor wire from the gauge. <1> The gauge lapses into the disconnection check mode. → Sensor wire has a short circuit.
○A gauge doesn't operate.	○Fuse on the power supply wire is blown out.	○Check the wiring. ○Do not share single fuse with multiple gauges. Every gauge requires independent fuse for IGN and +B line.
○A gauge doesn't perform the opening mode.	○Wiring of IGN wire or GND wire of the power supply wire to the vehicle is wrong. ○Fuse on the IGN wire of the power supply wire is blown out.	○Check the wiring. ○Replace the fuse of the power supply wire.
○A gauge doesn't perform the closing mode.	○Wiring of constant battery+ wire of the power supply wire to the vehicle is wrong. ○Fuse on the constant battery+ wire of the power supply wire is blown out.	○Check the wiring. ○Replace the fuse of the power supply wire.
○Dimmer is not working.	○Wiring of ILM wire of the power supply wire to the vehicle is wrong.	○Check the wiring.
○Malfunctioning operation	○Wrong wiring of the power supply wire	○Check the wiring.

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.
- Caution**
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 on 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.
- Label**
The label stucked on the product is for the product traceability. 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.

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 N2 Φ52 & 60mm Operation Manual

■ Issue 2nd edition: October, 2019

■ Manufacturer Nippon Seiki Co., Ltd.

■ Contact Information Defi, Nippon Seiki Co., Ltd.

[Address] 2-34 Higashi-Zaoh 2-chome, Nagaoka-shi, Niigata 940-8580 JAPAN

[URL] <https://www.defi-shop.com>

AS NIPPON SEIKI