'08.07-5

DIN-Gauge Operation Manual

DF05601,DF05602,DF05607,DF05608□
DF05609,DF05610,DF05611,DF05612

This product has additional meters 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 operations manual as well as those given in the operations 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 operations manual accompanies the product.

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

For safety handling (for customer and installation personnel)

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 an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ **Warning**	indicates a potential hazardous situation which, if not avoided, could result in death or serious injury.
⚠ **Caution**	indicates a potentially hazardous situation which not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
Confirmation	Indicates an instruction that must be performed or practice that must be maintained.

⚠ Danger

- 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.
- Use a solderless connector or similar device 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.
- 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.
- Use a fuse of regulated capacity when the fuse of the power wire is changed. Using a fuse that exceeds regulated capacity may cause fire.

⚠ Warning

- Carefully consider the installation location and driver's operation of the product before installation. 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 present the severe danger of impeding driving.
- Do not disassemble or modify this product. Such actions can not only damage or destroy the product but will also void the warranty.
- 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.
- Please keep children and infants away from the installation area. Children may swallow small parts or be injured in other ways.
- Please have this product installed by the retail store or dealer where it was purchased. Installation by the customer will void the warranty.
- In order to ensure safe driving, check the information on the meters only for a short period of time. Looking at the meters for long periods of time could distract adequate attention from the road and result in an accident.
- Discontinue use of this product if meters don'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.

⚠ Caution

- This product is for use ONLY on vehicles with a 12V electrical system. Never use the product on 24V vehicles.
- Use only the wires provided. If additional wires are required, use the same wire as provided with the kit.
- Insulate any unused wires. If any wires or connectors loosen during installation, please make sure they are correctly reattached.
- Dropping any of the components of this product will result in damage to the product.
- Excessive force on switches/terminals may result in damage to the product.
- Do not attach wires on the body of the vehicle or to engine parts as this may result in damage to the product.
- Install sensors away from hot or wet places.
- Do not pull the wires out of the gauge. Unclip them.
- Install sensors away from high tension wires and also away from radio transmitters and antennas as this could cause the gauges to malfunction.
- Do not wire the sensor wires near the engine, exhaust pipe or turbine. It may result in damage or fusion of wires.
- When diverging any wires, make sure the exposed wires are recovered and made waterproof.
- Wear gloves so as not to get burnt when soldering.
- If the negative battery terminal is disconnected, audio and clock memory data may be lost. The necessary data will have to be reset after installation.
- Do not pull the wires out of connectors forcefully. The connectors and the wires may be broken. When pulling out the wires, press the lock firmly and unclip the locks of connectors.

Confirmation

- The gauge pointers may not be in the proper position when you purchase the product. Normal function will resume when power is connected.
- After installation is complete, return this operations manual to the customer along with the warranty.
- Be sure to follow all instructions in this manual to ensure safe installation and operation of the product.
- This product cannot be linked to the Defi-Link System.

Lineup (for customer)

Part Number	Dial Face Angle	Dial Color	Color of Characters	Illumination Color
DF05601□	Right	White	Gray	Green
DF05602□	Right	Black	White	Green
DF05607	Right	Black	Amber Red	Amber Red
DF05608	Left	Black	Amber Red	Amber Red
DF05609	Right	White	Gray	Amber Red
DF05610	Left	White	Gray	Amber Red
DF05611	Right	Black	White	White
DF05612	Left	Black	White	White

Warranty

* Refer to Terms and Conditions.
* Do not peel the labels sticked on this warranty card and the product.

Product No.	DF056	Lot. No.	

Customer:
Name/Address

Shop:
Name/Address/Phone No.

Warranty Period
From the date of purchase . . ' ~ 1 year

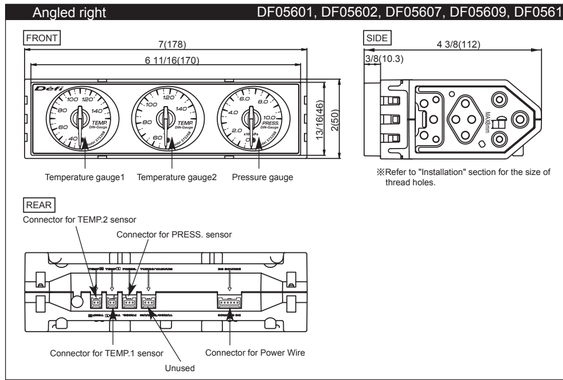
NIPPON SEIKI CO.,LTD.
Defi Business Division
190-1 Fujihashi 1-chome, Nagaoka-shi, Niigata 940-2141 JAPAN
E-mail: defishop@nippon-seiki.co.jp
URL: http://www.defi-shop.com/

Main Features (for customer)

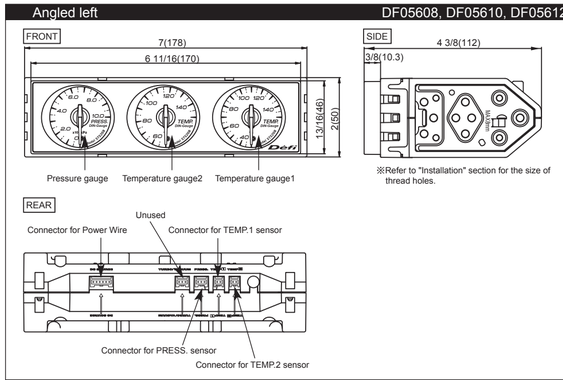
- Three gauges are fitted into one DIN size.
- The front cover of the gauge has flat face glass.
- Opening and Closing mode: The needle pointers of three gauges move sequentially.
- The three meters are angled towards the driver for a higher level of visibility.
- Stepping motor
  - ・Maximum angle 270° is controlled by the microcomputer up to 4,600 divisions(0.059°)to provide high precision in the accuracy of information generated.
  - ・Quick response which is sustainable in racing scenes.
- Bright transparent gauge dials and instrument needle pointers are used in the gauges to increase visibility at night.
- The lights are produced from super high bright LED lamps.

Part Names and Dimensions in inches(mm)

Angled right — DF05601, DF05602, DF05607, DF05609, DF05611



Angled left — DF05608, DF05610, DF05612

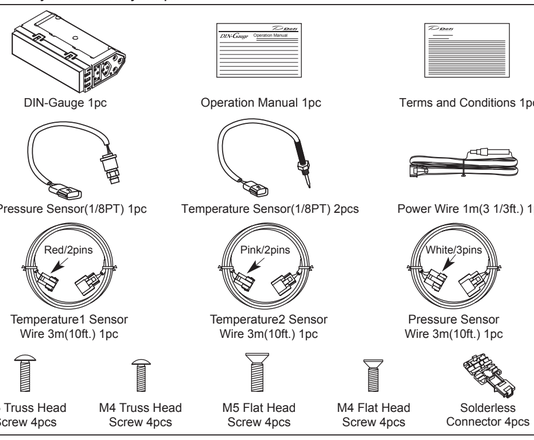


Product Specifications (for customer and installation personnel)

Power Supply Voltage	10V to 15V DC（For 12V vehicles）	
Current Consumption	+B line MAX 0.5A (Dark current 0mA)	
	IGN line MAX 0.5A	
	ILM line MAX 0.2A	
Operational Temperature Range	-20 to +60℃, -4 to +140°F（under 80% relative humidity）	
Storage Temperature Range	-40 to +80℃, -40 to +176°F（under 80% relative humidity）	
Display Range	TEMP.1 30 to 150℃	
	TEMP.2 50 to 150℃	
	PRESS. 0 to 1,000kPa	
Sensor Thread Size	TEMP. Sensor 1/8PT	
	PRESS. Sensor 1/8PT	
Dimensions	178mm(7")[W] x 50mm(2")[H] x 112mm(4 3/8")[D]	
Gross Weight	1,000g, 2.2 lb.（Including main unit, harnesses, parts, package）	

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, so contact your retailer for further information.
Attachments and seal tapes for sensor installation are not included with the product. Please purchase separately.
NOTE: A Japanese operation manual and a questionnaire card are included other than the parts listed below. They are effective only in Japan.



Optional Parts (for customer)

Item	Model Number
Pressure Sensor Extension Wire 1m (3 1/3ft.)	PDF06013H
Pressure Sensor Extension Wire 2m (6 3/5ft.)	PDF00707H
Temperature Sensor Extension Wire 1m (3 1/3ft.)	PDF06014H
Temperature Sensor Extension Wire 2m (6 3/5ft.)	PDF00906H
Temperature Sensor (1/8 NPT)	PDF03905S
1/8 NPT/PT Conversion Socket (for Pressure Sensor)	PDF00708G

Repair Parts (for customer)

Item	Model Number
Pressure Sensor(1/8PT)	PDF00703S
Temperature Sensor(1/8PT)	PDF00903S
DIN-Gauge Temperature1 Sensor Wire 3m(10ft.)	PDF05602H
DIN-Gauge Temperature2 Sensor Wire 3m(10ft.)	PDF05603H
DIN-Gauge Pressure Sensor Wire 3m(10ft.)	PDF05604H
DIN-Gauge Power Wire 1m(3 1/3ft.)	PDF05601H
Fuse for Power Wire(1A) 2pcs	PDF07113G

Troubleshooting (for customer and installation personnel)

⚠ Warning

- 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.

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

Condition	Possible Cause	Corrective Action
○When the engine is turned off, the pointers of gauges don't point at the bottom.	○The battery wire (+B, red color) of the Power Wire is not properly installed. ○The fuse is blown out.	○Check if the wiring is proper as per instructions in this manual. If the wire is installed properly, the pointers point at the bottom after the closing mode. ○Make sure the wiring is not touched on the vehicle body and then contact us.
○When the ignition key is turned on, the movement of the pointers are strange.	○DIN-Gauge carries out the opening mode. The check function is also carried out during the opening mode.	○This condition is normal; however, it means "wire disconnection" or "short circuit" when the pointer shakes at a regular interval after the opening mode. Refer to the "Operation" section and contact the retail outlet where the unit was purchased.
○The genuine water temperature gauge points a constant value, but the pointer of DIN-Gauge's water temperature continues to move.	○The genuine water temperature's pointer doesn't move at a certain value except in a dangerous conditions so as not to make the drivers nervous. DIN-Gauge's water temperature gauge points an accurate value.	○This condition is normal.
○The indication of water and oil temperature is not accurate. It indicates lower values.	○In the case that a conversion adapter or a Three-way joint is used between a sensor attachment and the sensor, sensors cannot measure the accurate temperature.	○Use a different type of attachment so that a conversion adapter is not necessary.
○Engine gets hot gradually, but water temperature indication begins to go up suddenly when a short time passes after the engine is started.	○This happens because the water temperature sensor is installed at an upper hose coming out from the radiator, and the thermostat opens to circular the coolants.	○This condition is normal.
○Gauge pointers move abnormally.	○Wiring is improper.	○Check wiring as per instructions in this manual.
○Does not operate.	○Wiring is improper.	○Check wiring as per instructions in this manual.
○The car condition is not good after installing the product.	○It may be caused by installation sensors.	○Ask the shop where the sensors were installed to recheck.
○The illumination switch of the vehicle is turned on, but the gauge Illumination does not come up.	○The illumination switch of the vehicle is turned on while the ignition key is off. ○Wiring is improper or connection is loose.	○This condition is normal. The illumination comes up by turning on the ignition ○Check wiring as per instructions in this manual.
○TEMP1（30℃～150℃) is connected to water temperature and TEMP2 (50℃～150℃) is connected to oil temperature, but the display is opposite.	○Connectors of sensor wires were inserted to incorrect connectors of DIN-Gauge.	○Check the position of connectors as per instructions in this manual.
○When the ignition key is turned off, the movement of the pointers is strange.	○DIN-Gauge carries out the closing mode.	○This condition is normal.

Installation (for installation personnel)

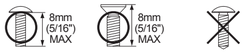
⚠ Warning

- 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.
- Do not connect any connector to the terminal stamped "TURBO/VACUUM."

○Four kinds of screws (M5 truss head, M4 truss head, M5 flat head, and M4 flat head) are included. Please use any one of these kind of four screws.
○Depending on the type of car, a crevice may be made to the surroundings of DIN-Gauge. Please purchase a commercial face panel separately if needed.

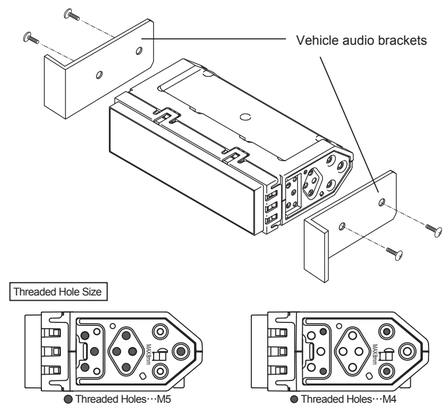
⚠ Caution

- The commercial audio brackets classified by the type of cars may be required separately.
- Be sure to use attached screws for installation. If long screws other than attachment are used, there is a possibility that the inside of DIN-Gauge may be damaged. Moreover, if a short screw is used, DIN-Gauge may separate from the DIN space of the vehicle. In addition, please use the screws which are suited vehicles from the four kinds of attached screws for installation.



- Depending on a type of car, the genuine vehicle brackets may have a positioning projection. Please flatten a positioning projection with a hammer before installation.
- Although the protection sheet is stuck on the glass surface, the glass of DIN-Gauge may crack when sharp or hard instruments hit the glass or when DIN-gauge is dropped. Please install carefully.

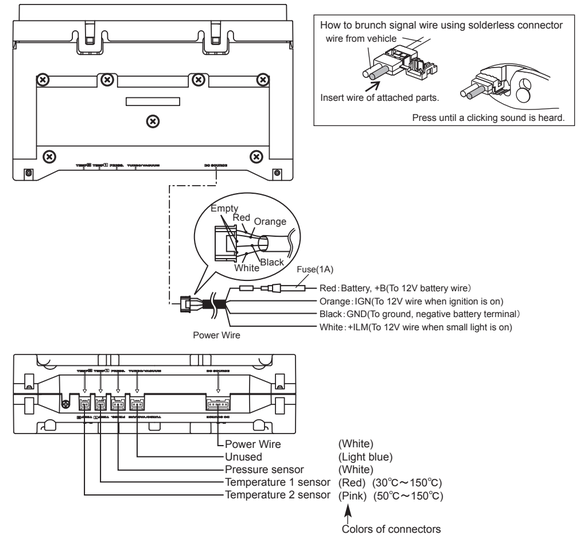
NOTE: The following illustration is an example for installation in Japanese vehicles. If this product is installed in vehicles made in other countries than Japan, please consult with a shop where it was purchased.



【Wiring Diagram】

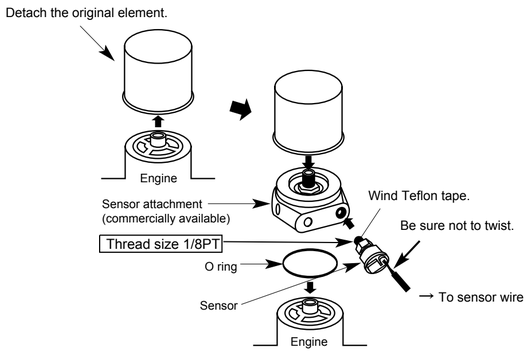
⚠ Caution

- Please insert the connector of the sensor wire in the correct connector of DIN-Gauge. Normal operation cannot be performed if the connection is wrong.
- Pull out each connector by pressing the lock firmly.



How to attach sensors (for installation personnel)

OIL PRESSURE (Use a commercial sensor attachment)



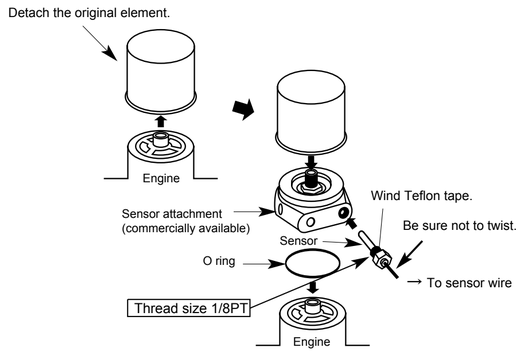
⚠ Warning

- 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 tubing and 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.

Confirmation

- The thread size of the pressure sensor is 1/8PT. If the thread size of the sensor attachment for the pressure sensor is 1/8NPT, you will need the 1/8NPT-1/8PT conversion socket (optional part). If it is neither 1/8PT nor 1/8NPT, you will need to purchase a conversion adapter available from hardware stores.
- **Tighten the sensor into the sensor attachment and then connect it to the sensor wire.**

OIL TEMPERATURE (Use a commercial sensor attachment)



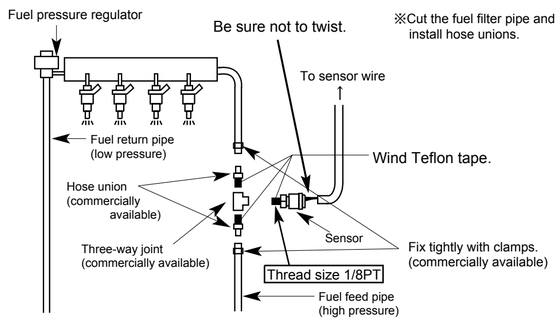
⚠ Warning

- 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 tubing and 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.

Confirmation

- The thread size of the temperature sensor is 1/8PT. If the thread size of the sensor attachment for the temperature sensor is 1/8NPT, you will need the 1/8NPT sensor (optional part).
- **Tighten the sensor into the sensor attachment and then connect it to the sensor wire.**

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.
- When cutting the fuel feed pipe, be certain to discharge static electricity. Otherwise, there is a possibility of the ignition in gasoline.
- Wear glasses to protect eyes when cutting the fuel filter pipe.
- To avoid fuel leaks during installation of the sensors, use Teflon tape. Attach hose connection and fuel feed tubing with clamps. Inspect pipes and hose connections for leaks before driving.
- To avoid the damage of the sensor wire, please fix the waterproof connector on the vehicle body.

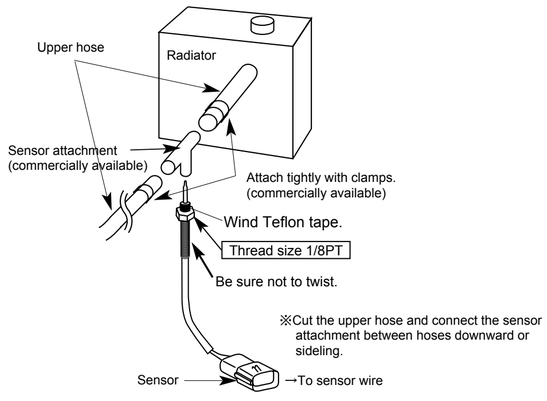
Confirmation

- 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.

- The thread size of hose unions and the three-way joint need to be 1/8PT. If the thread size of the three-way joint is 1/8NPT, you will need the 1/8NPT-1/8PT conversion socket (optional part). If it is neither 1/8PT nor 1/8NPT, you will need to purchase a conversion adapter available from hardware stores.
- **Tighten the sensor into the sensor attachment and then connect it to the sensor wire.**

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.

Confirmation

- The thread size of the temperature sensor is 1/8PT. If the thread size of the sensor attachment for the temperature sensor is 1/8NPT, you will need the 1/8NPT sensor (optional part).
- **Tighten the sensor into the sensor attachment and then connect it to the sensor wire.**

Final Confirmation After Installation (for installation personnel)

⚠ Warning

- After installation, check that no materials or tools remain in the driver's seat or the engine compartment. If there are tools at the feet of the driver's seat, this may cause brake operation failure because of tools or materials caught under the brake pedal. If there are tools in the engine compartment, the engine may be damaged.
- Please be sure to check the following items. Otherwise, there is a possibility that a serious accident may occur.

- Ensure that all hoses and tubing are properly attached. Also ensure that there is no leakage of oil, fuel, water and exhaust.
- Check that the sensor and wires are not interfering with the engine.
- Ensure that devices associated with the ignition (ie. ignition coil, distributor, plug cord, etc.) were not damaged or disconnected during the installation of the sensors and wires.
- Ensure that the DIN-Gauge and wires are tightly attached, so they don't come loose and hinder driving.
- Check that all wires disconnected from the vehicle during installation have been properly reattached.
- Ensure that the negative battery terminal is tightly attached. Close the hood properly.

This concludes the installation process.

Confirmation

- The protection sheet is stuck to the glass for protection. Please remove the sheet in the customer's presence after installation of the product.

Operation (for customer)

【TURNING ON and OFF POWER】

- Once the ignition key is turned on, gauges come into operation after the needle pointers of three gauges move sequentially (opening mode).
- Once the ignition key is turned off, gauge operations stop after the needle pointers of three gauges move sequentially (closing mode).

【ILLUMINATION】

- The gauge dials and needle pointers light up being interlocked with switching on and off of the illumination of the vehicle.
- The illumination of the gauge dials and needle pointers lights up during the opening and closing modes without reference to the illumination of the vehicle.

【CHECK FUNCTIONS】

⚠ Warning

- Please check meters after starting the engine and be sure there are no abnormalities in the car's function. If you start to drive without checking, there is a possibility an accident may occur.

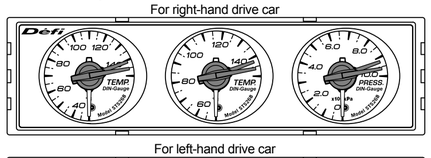
Wire disconnections and short circuits of sensors and sensor wires can be checked by movement of pointers. If the pointers move as follows after installation of the product, please contact the installation personnel.

WIRE DISCONNECTION CHECK

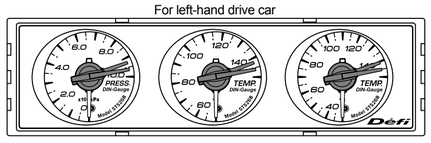
This function reports the wrong wiring and/or disconnected sensors and wires. The pointer of a gauge which the wire is disconnected moves between 250˚and 260˚ at the same interval.

※The following illustration shows the angle of pointers. All the pointers of three gauges do not move simultaneously.

For right-hand drive car



For left-hand drive car



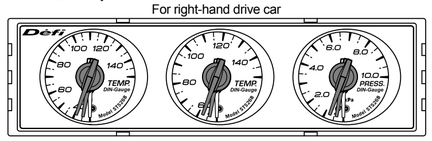
Operation (for customer)

SHORT CIRCUIT CHECK

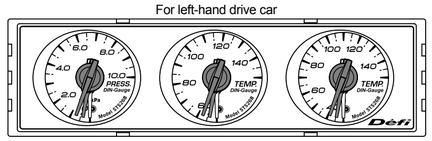
This function reports the short circuits of sensors and wires. The pointer of a gauge which has a short circuit moves between 10˚and 20˚ at the same interval.

※The following illustration shows the angle of pointers. All the pointers of three gauges do not move simultaneously.

For right-hand drive car



For left-hand drive car



Conversion Table (for customer)

Temperature	
℃	°F
0	32
10	50
20	68
30	86
40	104
50	122
60	140
70	158
80	176
90	194
100	212
110	230
120	248
130	266
140	284
150	302

$°F=℃x\frac{9}{5}+32$

Pressure	
kPa	PSI
0	0.0
50	7.3
100	14.5
150	21.8
200	29.0
250	36.3
300	43.5
350	50.8
400	58.0
450	65.3
500	72.5
550	79.8
600	87.0
650	94.3
700	101.5
750	108.8
800	116.0
850	123.3
900	130.5
950	137.8
1000	145.0

1kPa=0.145PSI