

Vehicle Interface Module (VIM) Instruction Manual

DENSO CORPORATION

Preface

Read this manual before use.

Read this document carefully so that you can use this tool correctly and safely.

For safe usage

This document uses symbols for warnings, cautions, and prohibitions. These symbols and their meanings are as follows. Please make sure you fully understand the meanings of these symbols before reading the rest of this document.

 WARNING	This indicates an item for which incorrect handling can result in a major accident involving death or serious injury.
 CAUTION	Indicates an item for which incorrect handling can lead to injury or damage to property. Under certain conditions, more serious consequences may result.
 PROHIBITED	Indicates a prohibited method of handling.

WARNING

- Do not work connect the tool cables etc. while the vehicle is running.
Doing so could result in an accident. 
- Always observe the following rules. Failure to do so can result in heat generation, fire, blowout, or electrical shock.
 - Do not use this device with anything other than the AC adapter specifically designed for this tool. 
 - Do not disassemble or alter this tool. 
 - Do not connect this tool to anything with a voltage exceeding the ratings of this tool. 



CAUTION

- Do not work anywhere that water could come in contact with the equipment.
- Do not drop this tool or subject it to a strong impact.
- Do not lift or drag the VIM by holding the cable connected to the VIM. When moving or installing, move the VIM by holding with hands.
- Do not apply the load causing stress to the connector connected to the VIM.
Failure to do so could result in an accident.
- Inspect for adhesion of foreign materials to or pin breakage of each connector of VIM before use.
- Block the wheels of the vehicle with chocks before carrying out work.
Failure to do so could result in an accident.
- When working anywhere not be easily visible, for example under the vehicle, always remove the key from the ignition to ensure the vehicle cannot be moved.
Failure to do so could result in an accident.
- When working near the engine compartment, be careful of the engine and other high-temperature parts.
High-temperature parts can cause burns.



Trademarks

- Microsoft and Windows[®] CE are trademarks or registered trademarks of the Microsoft Corp. of the United States in the United States and other countries.
- CompactFlash[™] is a registered trademark of the SanDisk Corp. of the United States and is licensed to the CFA (CompactFlash[™] Association).

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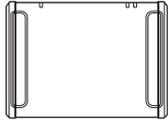
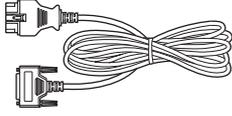
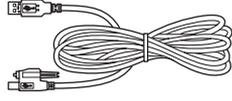
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1 Before Use

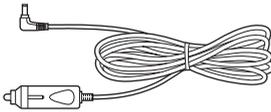
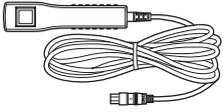
1-1 Product Configuration

Check that you have all the following standard components before using this tool.

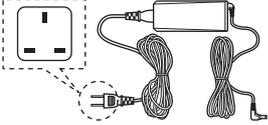
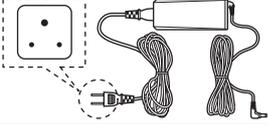
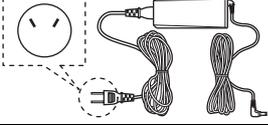
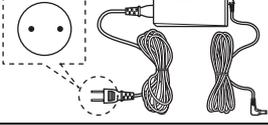
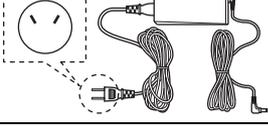
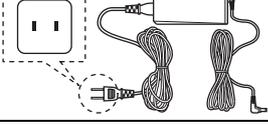
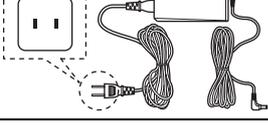
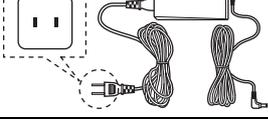
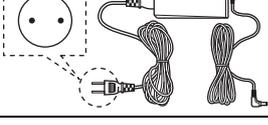
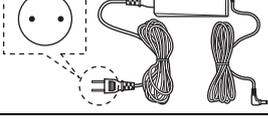
Components

No.	Part Name	Illustration	Part No.	Q'ty
1	VIM (Vehicle Interface Module)		-	1
2	Datalink Cable (DLC3)		95171-11110	1
3	USB Cable		95171-12230	1
4	Instruction Manual		-	1

Options

Part Name	Illustration	Part No.	Q'ty
DC Power Cable for Cigarette Lighter Socket		95171-11251	1
Trigger Switch		95171-10150	1

AC / DC Power Supply

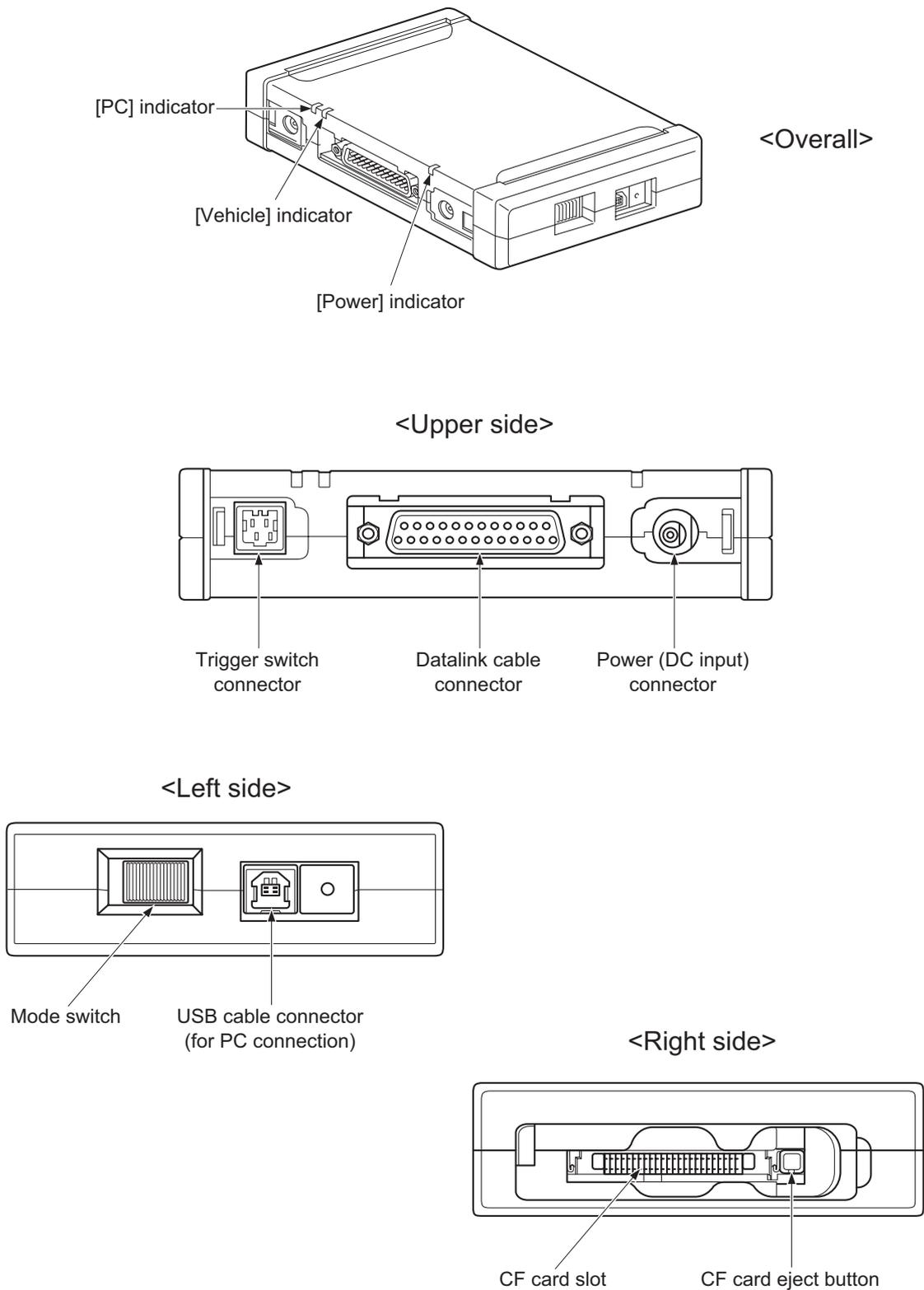
Part Name	Illustration	DENSO Part No.	Rated Voltage	Country	Q'ty
AC / DC Power Supply		95171-11650	250V	Hong Kong Malaysia England Singapore	1
		95171-11660	250V	South Africa	1
		95171-11670	250V	Argentina	1
		95171-11680	250V	Israel	1
		95171-11750	250V	Australia New Zealand	1
		95171-10321	125V	U.S.A Canada	1
		95171-11261	250V	China	1
		95171-11441	125V	Taiwan	1
		95171-11641	250V	Korea	1
		95171-11690	250V	Other countries or Russia	1

NOTE

- Some of power plugs are same shape, but they are different by regulations in each country. When you purchase AC/DC Power Supply, please refer the end user country in the above list and choose carefully the appropriate product number.
- If you don't find the name of the country in the above list, please check the plug shape and the rated voltage, then choose the appropriate one.

1-2 Names of the Parts

The names of the VIM parts are as follows.



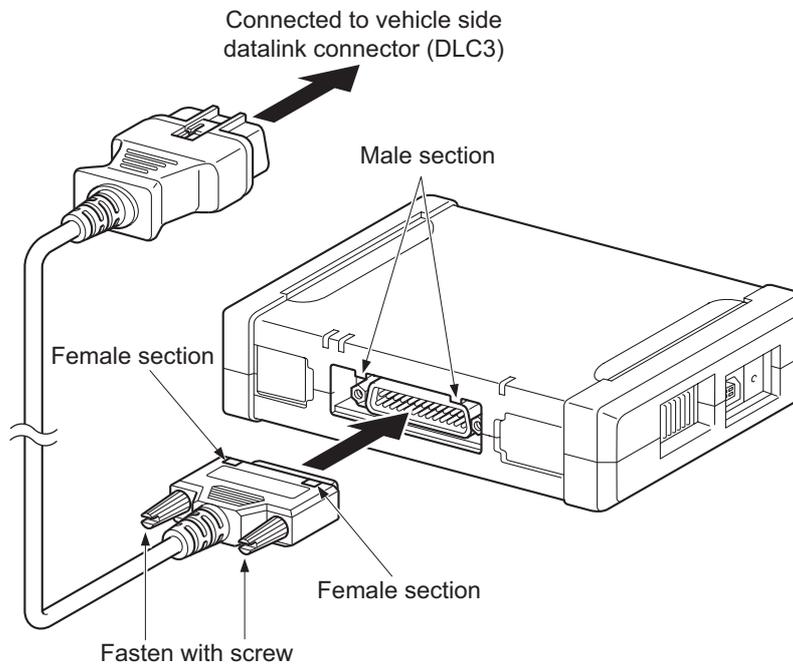
"Power connector", "Trigger switch connector" and "CF card slot" are provided with the rubber caps. In this figures, the rubber cap is omitted.

1-3 Connection

Connecting to the Vehicle

Use the datalink cable to connect the VIM to the vehicle.

Check the position of the vehicle-side datalink connector (DLC3) in the vehicle repair manual.



CAUTION

- When connecting the datalink cable to the VIM and the vehicle side datalink connector (DLC3), gently insert it gently straight into the connector.
Inserting the cable at a slant can break the connector pins.
- When connecting the datalink cable to the VIM, make sure the connector is in the right direction.
(When connecting to VIM, make sure that female section of the data link cable connector is lined up with the male section of the VIM.)
If you connect it the wrong way up or insert it at an angle, there is a risk of damaging the connector terminal and causing a malfunction of the vehicle or VIM.
- After connecting the data link cable to the vehicle, do not touch the connectors on both vehicle and VIM sides until the work is finished.
- Do not apply the load causing stress to the connector connected to the VIM.
Failure to do so could result in an accident.
- Inspect for adhesion of foreign materials to or pin breakage of each connector of VIM before use.

NOTE

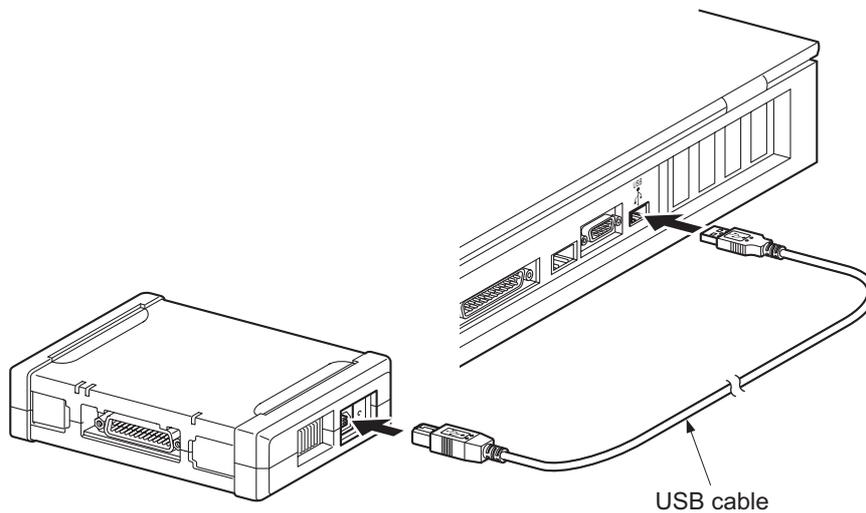
- When communication with the vehicle is established, the [VEHICLE] indicator on the VIM turns blue.

Connecting to a PC

Use a USB cable to connect the VIM to a PC.

CAUTION

- You must install the USB driver software onto your PC before you connect the USB cable to your PC.
- When connecting a USB cable to the VIM and the PC, gently insert the cable straight into the connector.
Inserting the cable at a slant can break the connector pins.
- Do not apply the load causing stress to the connector connected to the VIM.
Failure to do so could result in an accident.
- Inspect for adhesion of foreign materials to each USB connector before connection.



Tighten the screw of the attached USB cable to prevent the connector from unexpectedly coming off.

NOTE

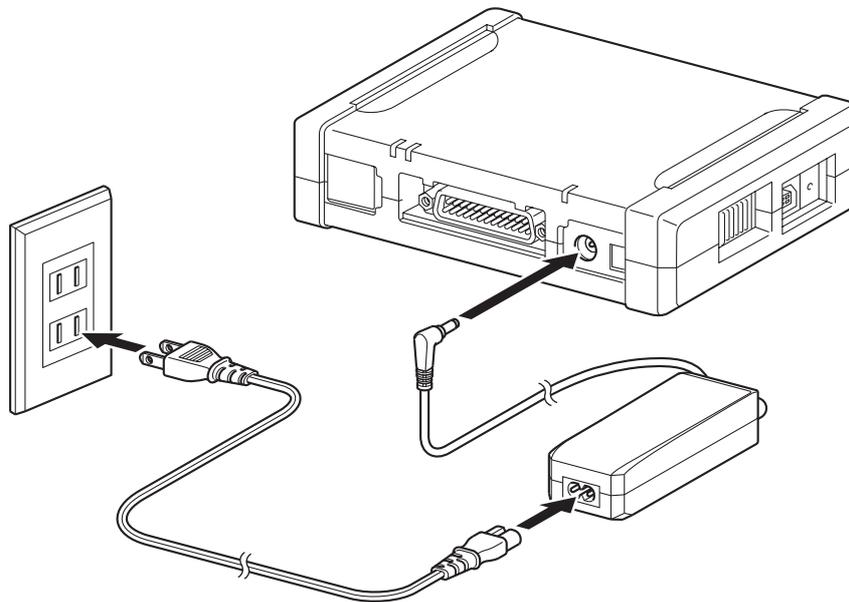
- When communication with the PC is established, the [PC] indicator on the VIM turns green.

1-4 To use option parts

Connecting the AC/DC adapter

When there is a concern that the vehicle battery runs out or when updating the VIM operation program, use the AC/DC adapter.

1. Remove the rubber cap of "Power connector".
2. Connect the AC/DC adapter DC plug to the AC/DC adapter connector of the VIM.
3. Plug the AC/DC adapter power plug into an electrical socket.



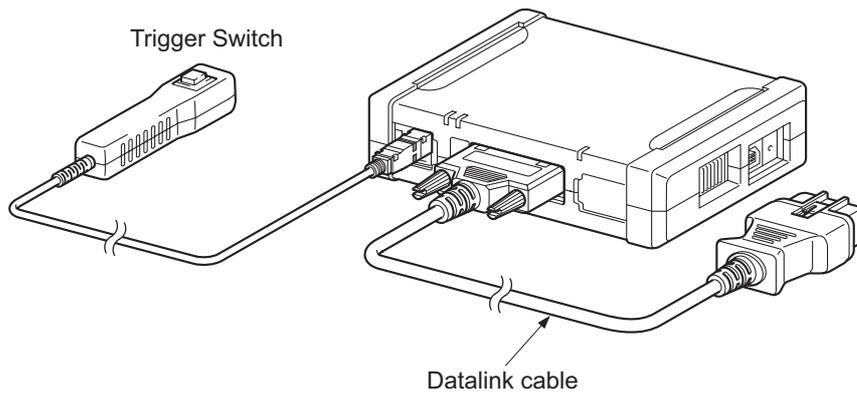
CAUTION

- Do not use it with anything other than the AC/DC adapter that is supplied as a dedicated part for VIM.
When using something other than the AC/DC adapter that is supplied as a dedicated part for VIM, the adapter can heat up and become damaged.
- After using it, do not leave the AC/DC adapter in a household power outlet.
Dust can build up between the socket and the plug and cause tracking and fire.
- Do not apply the load causing stress to the connector connected to the VIM.
Failure to do so could result in an accident.

Connecting the Trigger Switch

Trigger switch allows you to stop recording the vehicle data without operating the PC.

1. Remove the rubber cap of "Trigger switch connector".
2. Connect the connector of trigger switch to the trigger switch connector of the VIM.



CAUTION

- When connecting the trigger switch to the VIM, gently insert it straight into the connector. Inserting the probe at a slant can break the connector pins.
- Do not apply the load causing stress to the connector connected to the VIM. Failure to do so could result in an accident.

Inserting a CF Card

The VIM can use CF (CompactFlash™) cards.

CAUTION

- Please use the recommended CF card (DENSO Supply No. 95171-12340).
* The number shown is the DENSO Part No.
We cannot guarantee proper operation if a different CF card is used.
- Inspect for inclusion of foreign materials in the CF card slot or adhesion of foreign materials to the connector (pin hole) of CF card before use.
Failure to do so could result in an accident.

The methods for inserting/removing CF cards are as follows.

● Inserting a CF card

Remove the rubber cap of "CF card slot".

Gently insert the CF card with the larger indentation (notch) facing to the left side.

When the CF card is fully inserted and set correctly, the CF card eject button is click out.

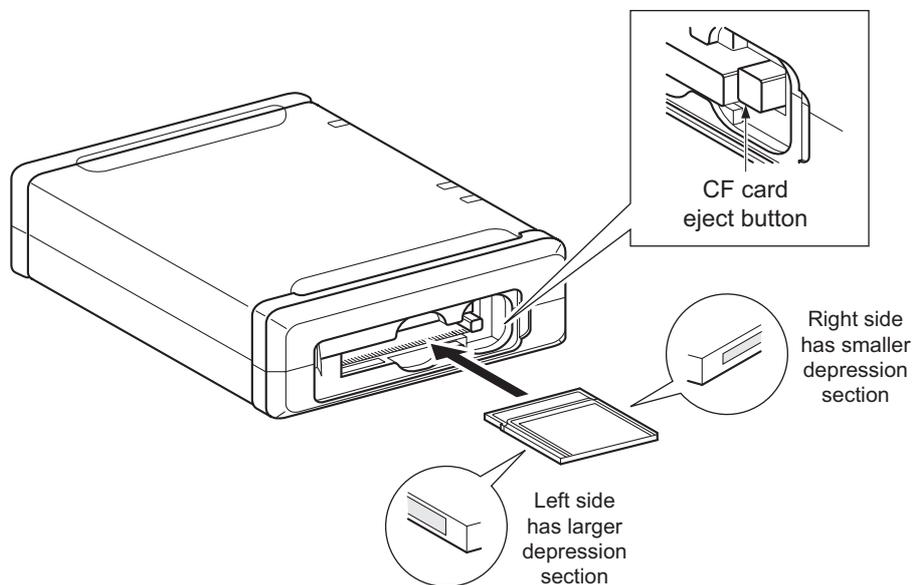
Tightly fit the rubber cap of "CF card slot".

● Removing a CF card

Press the CF card eject button.

The CF card will eject slightly, so gently pull it out the rest of the way.

Tightly fit the rubber cap of "CF card slot".



CAUTION

- Do not insert anything but a CF card in this card slot.
- Do not pull out a CF card when power is on.

The CF card slot is provided with a rubber cap.
In this figure, the rubber cap is omitted.

2 Basic Operations

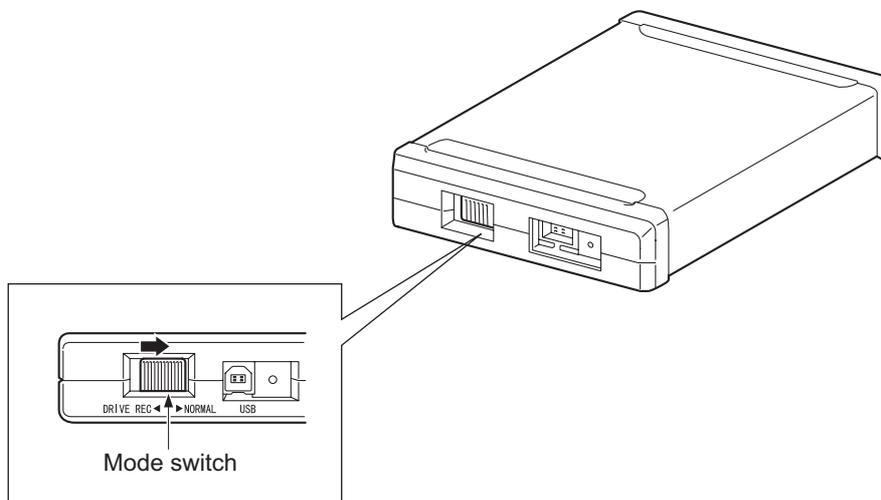
2-1 Starting

1. Connect the VIM and vehicle side datalink connectors (DLC3) with the datalink cable.
Reference: Page 4 Connecting to the Vehicle (Chapter 1 Before Use/1-3 Connection)
2. Connect the VIM and PC with the USB cable.
Reference: Page 5 Connecting to a PC (Chapter 1 Before Use/1-3 Connection)
3. Turn the vehicle ignition switch ON.

NOTE

- Communication with the vehicle computer (ECU) is not possible if the ignition switch is at OFF or ACC. When the VIM is turned ON, always switch the ignition switch ON or start the engine.
- If the VIM is connected to the vehicle's datalink connector (DLC3) by a datalink cable and supplied with power via an AC/DC adapter or DC power cable for a cigarette lighter socket, the VIM can be operated even with its power switch turned off.
- When the power is turned on, the [POWER] indicator on the VIM turns green.

Set the mode switch to "NORMAL" position for normal use.



NOTE

- When using the drive recorder function, move the mode switch to "DRIVE REC" position.

2-2 Indicator

Three indicators provided are explained below.

- [Power] indicator:

Lights up green during power up.

Lights up green during the operation in the NORMAL mode.

Lights up red during the operation in the DRIVE RECORDER mode.

- [Vehicle] indicator:

Lights up and flashes blue or red.

Flashes blue during the execution of communication with the vehicle.

The lighting condition in case of abnormality is described in "Chapter 3 Error Information".

- [PC] indicator:

Lights up and flashes green or red.

Flashes green during the execution of communication with the PC.

The lighting status in case of abnormality is described in "Chapter 3 Error Information".

NOTE

- [Vehicle] and [PC] indicators sometimes flash once per second or once per 0.5 second.

2-3 Ending

1. Finish communication with the vehicle computer (ECU) by PC application software.
2. Turn the vehicle ignition switch OFF.
3. Perform the "Safely Remove USB" operation on the PC.
After that, pull out the USB cable from the PC.
4. Disconnect the datalink cable from the vehicle side datalink connector (DLC3).
5. Tightly fit the rubber caps of "CF card slot", "Power connector", and "Trigger switch connector" to prevent foreign materials from entering.

CAUTION

- When disconnecting the datalink cable from vehicle side datalink connector (DLC3), gently pull it straight out of the connector.
Pulling the cable at a slant can break the connector pins.
- When pulling the cable out, hold it by the connector section, and never by the cord section.
Pulling on the cord section can break the lines in the cable.

3 Error Information

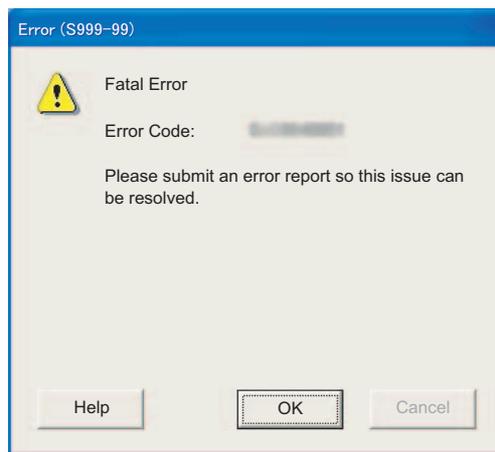
3-1 Error Information Display

The screen of GTS application when an error occurred is shown below.

1) Fatal error due to software or hardware failure

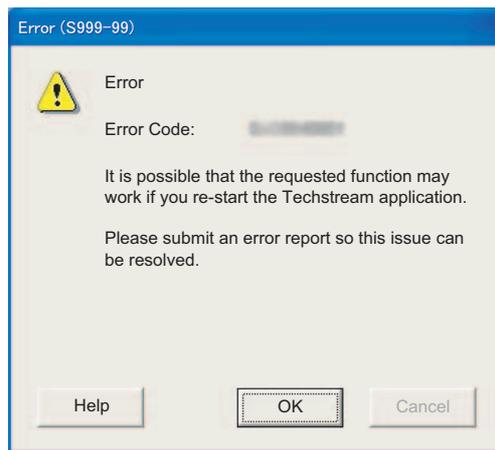
The following error display shows the fatal error due to failure of GTS application or GTS VIM and accessory or PC.

The operation cannot be continued. Send the error information and contact the designated service center.



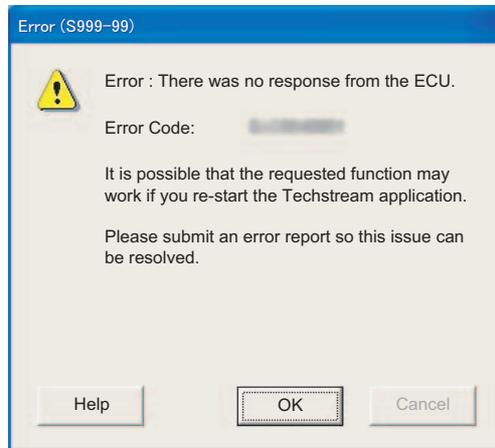
2) Error recoverable by restarting the GTS application

The following error display shows the error that is recoverable by restarting the GTS application. After sending the error information, shut down and restart the GTS application.



3) Error that the function is executable by retrying

The following error display shows the error that the requested function may succeed by trying the function again. After sending the error information, try the function again. When the same error occurred even if the function was tried again, shut down and restart the GTS application.



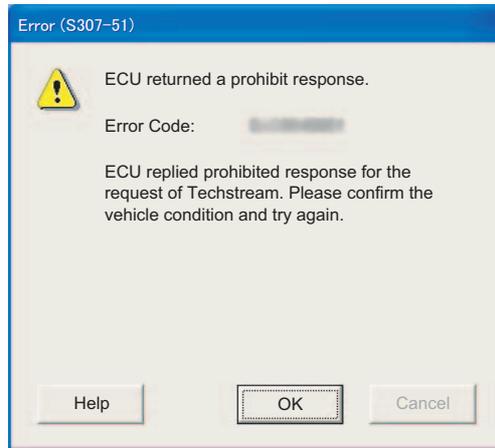
4) Error that there is a problem in a part of a function

The following error display shows the error that negative response was returned from the ECU and a problem occurred in a part of a function executable. Although there is a problem, the operation can be continued. After sending the error information, try the function again. When the same error occurred even if the function was tried again, shut down and restart the GTS application.



5) Error that the ECU prohibited to execute the function

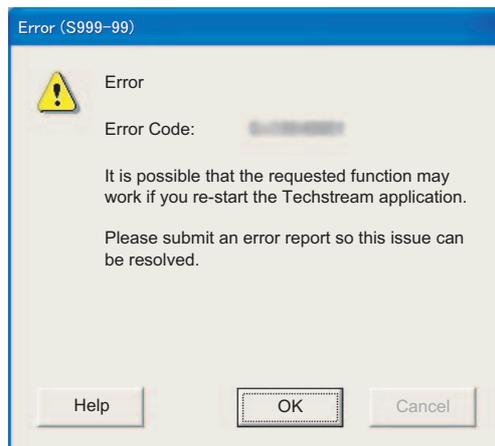
The following error display shows the error that the ECU doesn't reply any response. Confirm the vehicle status and try again.



6) Error due to other communication problems

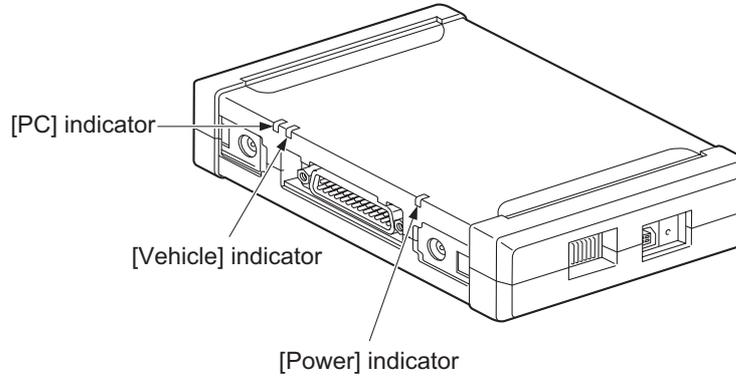
The following error display shows that the error that was caused by some communication problem although there is no problem in the cable connection.

After sending the error information, shut down and restart the GTS application.



3-2 Error Distinction by Indicator

The GTS VIM has three indicators shown below. The indicators show the following status in case of fault.



1) OS start error

Both [Vehicle] and [PC] indicators flash.

Turn off the power, then turn on the power again, and restart the GTS application.

2) Application error

[PC] indicator flashes.

([Vehicle] indicator is not lit.)

Turn on the power again after turning off the power, and restart the GTS application.

3) Communication establishment error with ECU

[Vehicle] indicator flashes.

([PC] indicator is not lit.)

Turn off the ignition switch of the vehicle and try again.

4) Error during communication with ECU

Both [Vehicle] and [PC] indicators continuously light up.

Turn off the ignition switch of the vehicle and try again.

4 Handling

4-1 Handling Precautions

Pay attention to the following points when handling the VIM and its accessories.

- Do not leave the VIM or any of its accessories exposed to direct sunlight for long periods of time.
- Use and store in locations with low humidity.
- Do not expose to rain water, water or oil.
- Do not use in extremely dusty environments.
- Do not lift or drag the VIM by holding the cable connected to the VIM. When moving or installing, move the VIM by holding with hands.
- Do not apply the load causing stress to the connector connected to the VIM.
Failure to do so could result in an accident.
- After connecting the data link cable to the vehicle, do not touch the connectors on both vehicle and VIM sides until the work is finished.
- Inspect for adhesion of foreign materials to or pin breakage of each connector of VIM before use.
- When cleaning the VIM or accessories, never use paint thinner or any other solvent or volatile oil product. This could cause deformation, discoloration, and other such problems as well as loss of function. Wipe gently with a soft cloth dipped in a diluted neutral detergent.

4-2 Disposal Requirements

The disposal of this product shall be in accordance with all applicable legislation for disposal of Electrical and Electronic Equipment in each country and region. (e.g. WEEE Directive in EU)

Please contact our authorized distributor or our sales agent when disposing it.

5 Product Specifications

5-1 VIM Specifications

Item	Specifications
Dimensions	101mm (W) x 140mm (H) x 31mm (D)
Weight	500g
Power supply voltage	DC8 - 32V
Memory	32MB SDRAM, 16MB Flash ROM (for OS), 128MB Flash ROM (for software and user use)
OS	Windows CE 3.0
Host interface	USB2.0
Support protocols	CAN, ISO9141-2, KWP2000 (ISO14230), J1850 VPW, J1850 PWM
Battery	Not included.
Indicator	Three LED. LED indicate VIM status and/or error codes.
Operating temperature	0 - 50°C

Regulatory Information to user

MODEL : DN-VIM-001

1. FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions :

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance void the user's authority to operate the equipment.

2. ICES-001

This Class A digital apparatus complies with Canadian ICES-001.

Cet appareil numérique de la class A est conforme à la norme NMB-001 du Canada.

3. 2004/108/EC

Harmonize Standards applied : EN 55011 (This product falls under group 1 and class A)
: EN 61000-6-2

Manufacturer

Name : DENSO CORPORATION
Address : 1-1 Showa-cho, Kariya-shi, Aichi-ken, 448-8661 Japan

Importer

Name : DENSO EUROPE B.V.N
Address : Hogeweyselaan 165, 1382 JL Weesp, the Netherland

Caution

- Replace only with the same or equivalent type batteries recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

Vehicle Interface Module (VIM)
Instruction Manual

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3rd Ed. September, 2010