
User Manual



Ver. 180719

CARMAN IT CO., LTD.

Contents

Precautions for Use	4
Chapter 1: General	
1. Product Feature.....	7
2. Product Specification.....	8
3. Component List.....	9
4. Component Pictures and Description	11
5. Name and Function of Each Part.....	20
6. Power Supply.....	22
Chapter 2: Menu Configuration	
1. Menu Description.....	23
2. Icons on Main Screen.....	24
Chapter 3: Vehicle Diagnosis	
1. How to Connect Diagnostic Connector and Select Diagnosis Program	25
2. Diagnostic Trouble Codes.....	29
3. Erase/Reset DTC.....	32
4. Parameter Data.....	33
5. Actuator Test.....	39
6. Resetting Adaptive Values.....	42
7. Evap. Leakage Test.....	43
8. PCM Lock(MEC) Setting.....	44
9. Misfire Delay Reason.....	45
10. System Information.....	46
Chapter 4: OBD-II/EOBD Diagnosis Menu	
1. OBD-II/EOBD Overview	47
2. Readiness Test	48
3. Parameter Data	49
4. Diagnostic Trouble Codes.....	50
5. Erase/Reset DTC	51
6. Monitoring Test results	52
7. BI-Directional Control.....	54
8. Vehicle Information	55

Contents

Chapter 5: Stored Data

1. Parameter Record.....	56
2. Text Shot.....	57
3. Image Shot.....	58
4. Print.....	59

Chapter 6: Repair Information

1. Repair Information Menu.....	60
2. Sorted By Parts.....	61
3. Sorted By Troubles.....	65
4. Circuit Diagram.....	67
5. Parts Description.....	68
6. Parts Location.....	69
7. Repair Data.....	70
8. Web Manual.....	71

Chapter 7: Configuration

1. System Configuration.....	72
2. Lock	78
3. Graph Configuration.....	80
4. System Information	81
5. User Information	82

Chapter 8: Update

1. Update	83
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FCC and CE Certificates.....	86
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Precautions for Use

Safety Regulations

1. Precautions for use

The AUTO-i 100 described in this guide was manufactured for those who have the basic knowledge required for its use.

Users should follow the safety instructions described in this manual for safe and efficient use of the product.

1-1. Safety precaution symbols



Failure to adhere to the instructions of this symbol may result in serious property damage or bodily injuries.



Failure to adhere to the instructions of this symbol may result in slight property damage or bodily injuries.



This symbol appears when references or information are provided for user's convenience.

Precautions for Use

2. Before using the product

2-1. Confirm the power supply before using the product.

Note that power can be supplied through the vehicle's diagnostic connector if a module is connected to a vehicle.



When power is not supplied through the vehicle diagnostic connector, Connect cigar cable for power supply before communicating with the vehicle.

If voltage levels are not matched between ECU and AUTO-i 100, it may disable Communication.

2-2. Before using the product, make sure to download the latest diagnostic program.

Before using the product, confirm whether the diagnostic program is compatible with the option purchased.

Latest diagnostic data can be updated through our homepage (www.carmanit.com) or distributor.

3. Safety regulations for overall use are as follows

3-1. Power source



Do not touch power cords with wet hands.
It may result in an electric shock.



Do not use the product under electrically unstable conditions.
It may result in damage to a power supply unit.



Push down the plug until it clips securely into place.
Otherwise, it may result in a fire.

3-2. Wireless Communication



Avoid high tension currents or electronic jamming.
It could be affected by external environment.



Be cautious of wet-damage or loss of Bluetooth dongle.

Precautionsfor Use

3-3. Usage



Do not drop the product.
It may cause damage to the product.



Do not put the product on a distributor.
Although manufactured to prevent interference of internal electromagnetic wave, any strong interference beyond the setlimit mayresult in damage to the product.



Do not attempt to repair, disassemble or alter the product yourself.
It may cause damage to the product.

3-4. Upgrade



Never attempt to disassemble the power supply unit or adaptor.
It may cause damage to the product.

3-5. Storage and carriage



Avoid storage in a humid place.
It may cause damage to the product.



Use the carrier bag provided with this product when carrying.
It will protect the product from external impacts.

Chapter 1: General

1. Product Feature

AUTO-i 100 can detect malfunction in vehicle's engine, automatic transmission, ABS, air bag, immobilizer and other devices, confirm parameter data, and operate the actuator through OBD-I, OBD-II, and MOBD communication.

Functions supported in AUTO-i 100

- ▶ Diagnoses Korean, Japanese and European vehicles.
 - Support OBD-II/EOBD, MOBD
 - Support CAN, SAE-J1850, ISO9141-2/KWP2000, J1587

- ▶ Supports vehicle troubleshooting and parameter data search.
 - You can diagnose vehicles with their sensors and switches, and save and reload the parameter data.

- ▶ Supports automatic actuator inspection.
 - This function runs/stops the actuator and switches forcibly in order to check if the corresponding active device is normal.

- ▶ Maintenance is possible during operation since maintenance information is provided.

- ▶ As a PC-based device with an unlimited data storage space, it can easily update the diagnostic program through internet.

- ▶ You can change the sound effects and display unit of the AUTO-i 100.

- ▶ Wireless communication provides more convenient vehicle diagnosis.

Chapter 1: General

2. Product Specification

Item	Specifications	
OS And Recommended PC specification	Windows XP, Windows VISTA, Windows7 (32bit), Windows8 (32bit), Windows10 (32bit) Over 1GHz processor, 1GB RAM, Hard Disc. Space 16GB, DirectX 9 Graphic (WDDM 1.0 Driver)	
Connecting Method	Bluetooth	2.0
	USB	USB 2.0 (Compliant)
Protocol	Protocols: - Dual CAN(2.0A,2.0B), Singlewire CAN - ISO9141-2, KWP2000, J1850P, J1587 - K/L-line High Speed Serial, Flashing Code - Ethernet	
J2534	Support	
OperatingTemperature	0~45℃(32~113°F)	
Operating Voltage	-20~70℃(-4~158°F)	



Please keep operating temperature to avoid shortening battery life or abnormal voltage usage.

Chapter 1: General

3. Component List

◆ Basic kit(AUTO-i100)

NO	Part No.	Description
1	FE-MUDE-0052	USB Memory Stick
2	AY-ELPT-A100	AUTO-i100 Main Module
3	FE-MUDE-0051	Mini Bluetoothdongle
4	CB-CYAU-001A	USB Cable(B Type)
5	CB-CYVG-0006	Cigarette Lighter Power Cable
6	CB-CYAU-010A	OBD-II Extension Cable 1m
7	PK-BGTT-0007	AUTO-i100 Carrier Bag

◆ Tablet Option

NO	Part No.	Description
1	TA-AUTO-100B	TECLAST T book 10+
2	TA-AUTO-101B	TABLET PC Boots

※ The model and specifications of the tablet PC can be changed without notice.

Chapter 1: General

◆ Asian kit

NO	Part No.	Description
1	CB-AYVG-0008	SAMSUNG / NISSAN ADAPTOR (14P)
2	CB-AYHC-0018	KIA ADAPTOR 20P (BLUE)
3	CB-AYVG-0005	DAEWOO,GM ADAPTOR (12P)
4	CB-AYVG-0006	SSANGYONG ADAPTOR (14P)
5	CB-AYVG-0007	SSANGYONG ADAPTOR (20P)
6	CB-AYVG-0001	TOYOTA, LEXUS ADAPTOR (17P"R")
7	CB-AYVG-0002	TOYOTA, LEXUS ADAPTOR (17P"C")
8	CB-AYVG-0009	HONDA ADAPTOR (3P)
9	CB-AYVG-0012	HONDA ADAPTOR (5P)
10	CB-AYVG-0011	SUBARU ADAPTOR (16P-9P)
11	CB-AYVG-0010	MAZDA "C" ADAPTOR (17P)
12	CB-AYVG-0003	MAZDA ADAPTOR (6P + 1P)
13	CB-CYHC-0018	MITSUBISHI ADAPTOR (12P)
14	CB-CYVG-0007	MITSUBISHI CABLE (12P + 16P)

◆ European kit

NO	Part No.	Description
1	CA-PSA1-0002	PSA CABLE (2P)
2	CB-CYHC-0022	AUDI / VW CABLE (2+ 2P)
3	CN-T005-AM06	FIATCABLE (3P)
4	CB-AYVG-0014	OPELADAPTOR (10P)
5	CB-AYVG-0013	BMW ADAPTOR (20P)

◆ USA/Australian kit

NO	Part No.	Description
1	CB-CYHC-0031	FORDCABLE (20P)
2	CB-CYVG-0009	HOLDENCABLE (6P)

Chapter 1: General

4. Component pictures and description

1-1.USB Memory Stick



1-2. AUTO-i100 Main Module



Chapter 1: General

1-3. Mini Bluetooth Dongle



1-4. USB Cable



Be sure to use a dedicated USB cable only.

A dedicated USB cable of AUTO-i 100 is not allowed to use for other purpose.

Chapter 1: General

1-5. Cigar Light Power Cable



- Cigar Light Power Cable -

The Cigar Light Cable connects the AUTO-i 100 to the cigar jack for power supply.

1-6. OBD-II Extension Cable (1m)



-OBD-II Extension Cable-

Chapter 1: General

1-7. Tablet Option

- TECLAST T book 10+
- TABLET PC Boots



- Tablet Kit -

※ The model and specifications of the tablet PC can be changed without notice.

Chapter 1: General

1-8.DLC ADAPTER

The DLC Adapter is used to diagnose vehicles by connecting to the main connector. Do check name of brand written on adapter before use since shape of DLC Adapters are similar.

Some products of the same brand include more than one adapter. Therefore do check form and number of pin of the diagnostic connector which is attached to the vehicle.

CAUTION! Some vehicles do not supply power through the diagnostic connector. Do not connect any power supply if power can be supplied through the diagnostic connector.

1) Asian kit



SAMSUNG / NISSAN ADAPTOR (14P) KIA ADAPTOR 20P (BLUE)



DAEWOO,GM ADAPTOR (12P) SSANGYONG ADAPTOR (14P)



SSANGYONG ADAPTOR (20P)

Chapter 1: General



TOYOTA, LEXUS ADAPTOR (17P"R") TOYOTA, LEXUS ADAPTOR (17P"C")



HONDA ADAPTOR (3P) HONDA ADAPTOR (5P)



SUBARU ADAPTOR (16P-9P) MAZDA "C" ADAPTOR (17P)



MAZDA ADAPTOR (6P + 1P)

Chapter 1: General



mitsubishi cable (12P) mitsubishi cable (12P+16P)

Chapter 1: General

2) European kit



MERCEDES BENZ BORAD (38P) MERCEDES BENZ CABLE (3 liners)



PSA CABLE(2P) AUDI / VW CABLE(2+ 2P)



FIAT CABLE(3P) OPEL ADAPTOR (10P)



BMW ADAPTOR (20P)

Chapter 1: General

3) USA/ Australian kit



FORDCABLE(20P) HOLDENCABLE(6P)

Chapter 1: General

5. Name and function of each part

Front View of Main Module



1. DLC LED: Communication with a vehicle
2. Bluetooth LED: Bluetooth communication
3. USB LED: Communication with a USB port
4. PWR LED: External power supply. (12V DC, DLC power supply)

Chapter 1: General

Upper part of Main Module



1. Power connector: It is for a AC/DC power adaptor and a cigar light power cable.
2. USB B TYPE: Connecting to PC for USB communication & update.
3. RS232: It connects to TPMS module for read sensor data and coding.

Back of Main Module



1. Serial No. label.

Chapter 1: General

6. Power Supply

Power can be supplied through the following 3 ways.

1. Cigarette Lighter Power Cable

Power is fed through the cigarette lighter power cable.

However, when the vehicle ignition switch is in the “OFF” position or upon starting a vehicle, power is not supplied to the cigarette lighter socket.

2. Vehicle Battery

Power can be supplied through the cigar lighter cable after the red alligator clip of battery extension cable is attached to the positive battery terminal (+), and the black alligator clip to the negative battery terminal (-).

In this case, power can be supplied continuously regardless of the position of the ignition switch or a startup situation of the vehicle.

(Be careful no to discharge the battery.)



Caution! Improper connection of (+) and (-) may cause damage to the product.

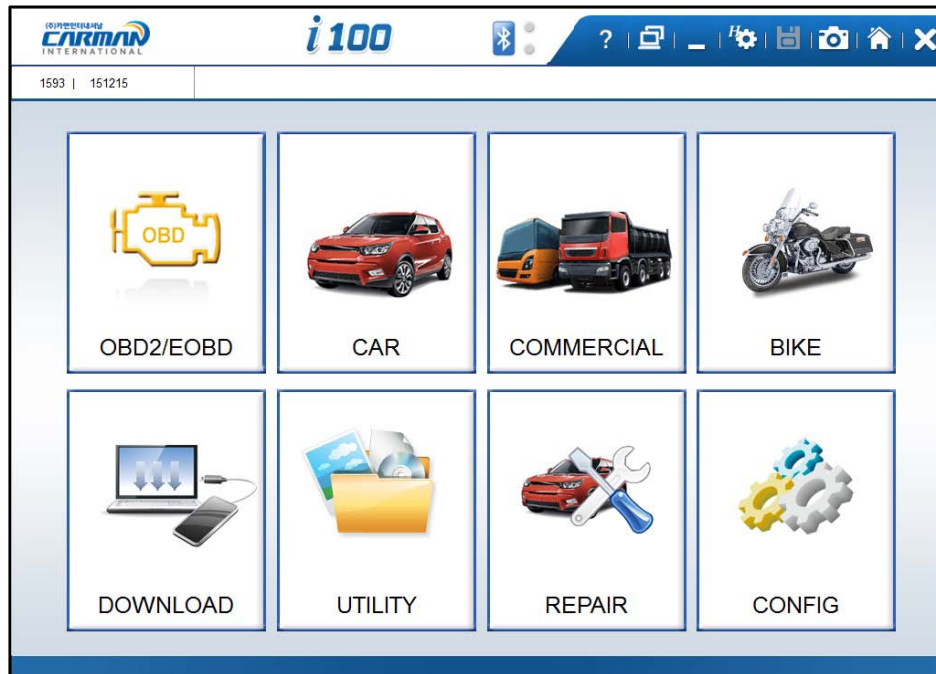
3. DLC Communication Cable

Vehicles satisfying OBD-II communication protocol and 20PIN diagnostic connector can directly receive a power supply through DLC communication cable without a separate power supply unit.

Chapter 2: Menu Configuration

1. Menu Description

This is the description for each menu displayed on the initial screen when AUTO-i 100 is program on.



01. OBD2/EOBD

- This menu is to diagnose and test some parts that are related with exhaust gas only if user`s vehicle has OBD 2/EOBD

02. CAR, COMMERCIAL, BIKE

- This menu provides scanner's own functionality such as vehicle diagnosis, service data search, actuator activation, etc.
- Depending on your option, you can perform diagnosis on Korean, Japanese, European, Australian and USA vehicles.

03. DOWNLOAD

- This is the menu for upgrading software and firmware of AUTO-i100.

04. UTILITY

- In this menu, you can check the system display unit, favorite maker setting, screen setting, time setting and system information

05. REPAIR

- You can save and use any PDF files.

06. CONFIG

- This menu provides setting function of System Display Unit, Maker, Display, Time, and System and User information.

Chapter 2: Menu Configuration

2. Icons on Main Screen

This is description of each menu displayed on the initial screen when AUTO-i 100 is program on.



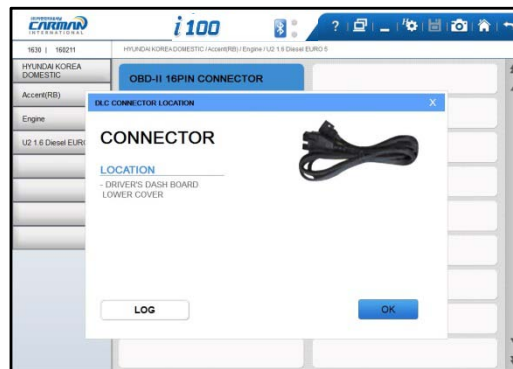
①②③④⑤⑥⑦⑧

1. Help: Provides User Manual.
2. Remote Control: Runs remote control program, TeamViewer Ver.10.
3. Minimize: Minimize the program.
4. Setting: Selects “Auto select Car Menu”, “Show DLC Message Box” function.
 - If each function is selected, it becomes colorized.
 - * “Show DLC Message Box” will be available soon.
5. Text Shot: Saves the sensor data at specific time point.
6. Screen capture: Saves the image on the screen as image file (.bmp).
7. Home: Goes to main menu.
8. Exit: Exits this program.

Chapter 3: Vehicle Diagnosis

1. How to Connect Diagnostic Connector and Select Diagnosis Program

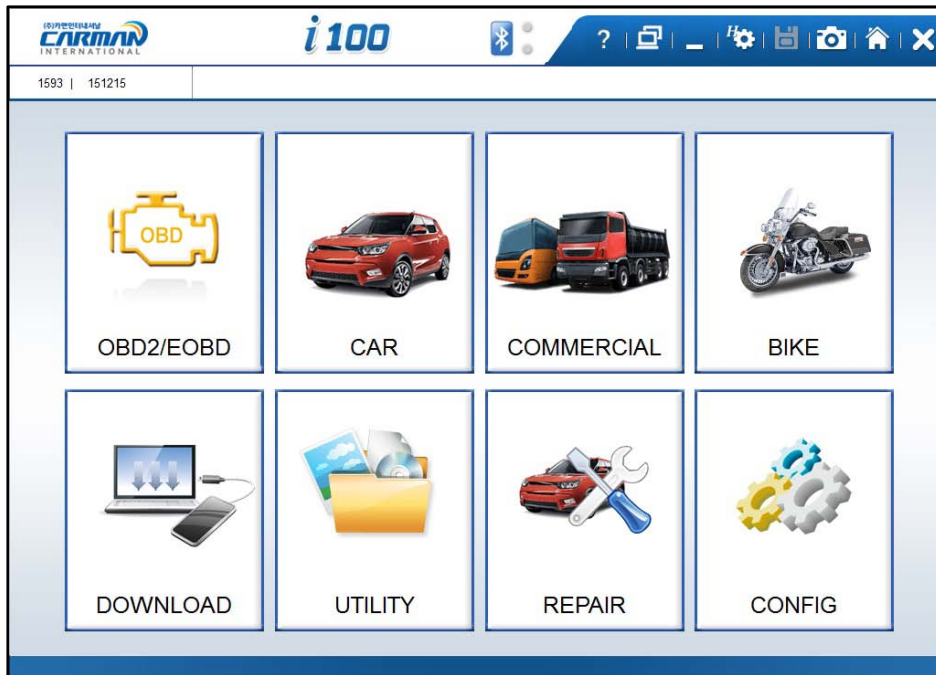
1. Locate the diagnostic connector in the vehicle.
 - Most vehicles released after year 2002 conform to the OBD-II Protocol and have OBD-II diagnostic connectors.
 - Most OBD-II vehicles have their diagnostic connectors on the section over the brake pedal under the steering wheel.
 - If an additional adaptor is required, the scanner display shows the type of the necessary adaptor and the location of the diagnostic connector.



2. Power is turned on if a module is connected to a vehicle by a OBD-II extension cable.

Chapter 3: Vehicle Diagnosis

3. Click on “CAR”.



4. Select the vehicle maker.



-Selection of vehicle maker-

*RECENT LIST: Save ten latest diagnosed vehicles to simplify same procedures.

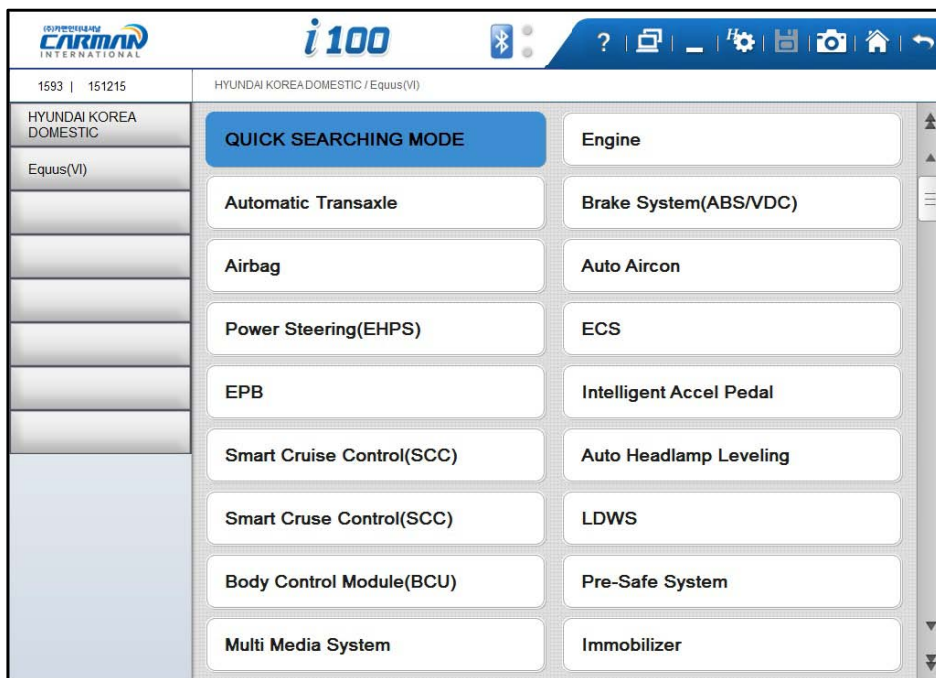
*GUIDE: Provides “Demo Mode”, “VIN Decoder”, “PIN Code Generator”, Hardware Check” functions.

Chapter 3: Vehicle Diagnosis

5. Select the vehicle name.

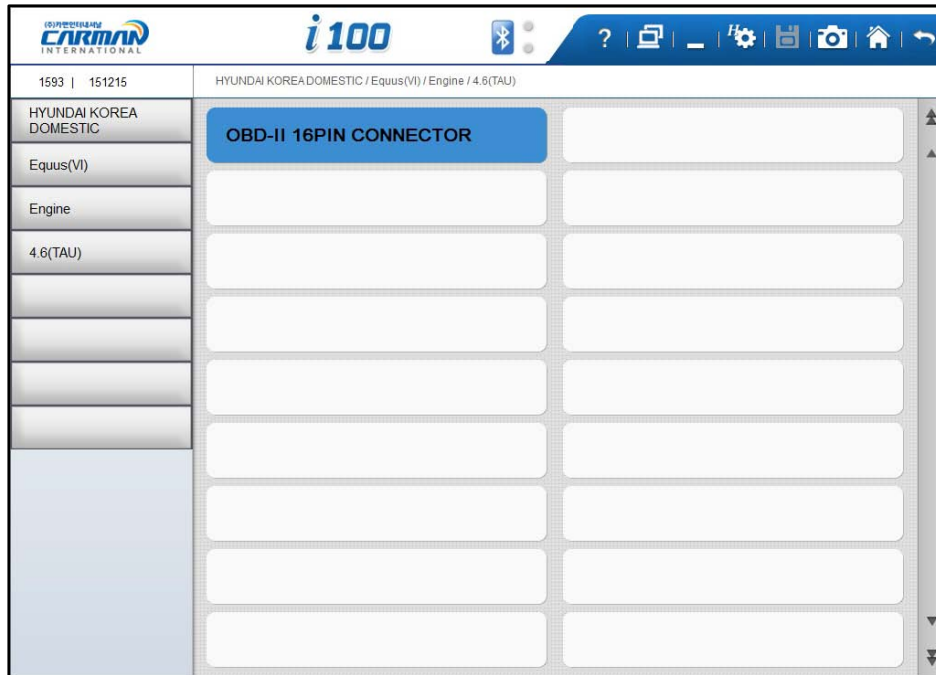


6. Select the system.



Chapter 3: Vehicle Diagnosis

7. Click on “OBD-II 16PIN CONNECTOR”.



Chapter 3: Vehicle Diagnosis

2. Diagnostic Trouble Codes

- In this menu, it is possible to check for any malfunction of the selected vehicle system through the communication with the ECU in the vehicle. As AUTO-i 100 displays DTCs (Diagnostic Trouble Codes), you can easily check where malfunction occurs. Also, the description for DTCs is displayed as well to help you service your vehicle.



In order to diagnose DTC correctly, please check the connection between connector and AUTO-i 100. Please refer to Chapter4: Diagnosis menu and check details such as Vehicle maker, model and displacement etc.

The help function may differ between vehicle makers.



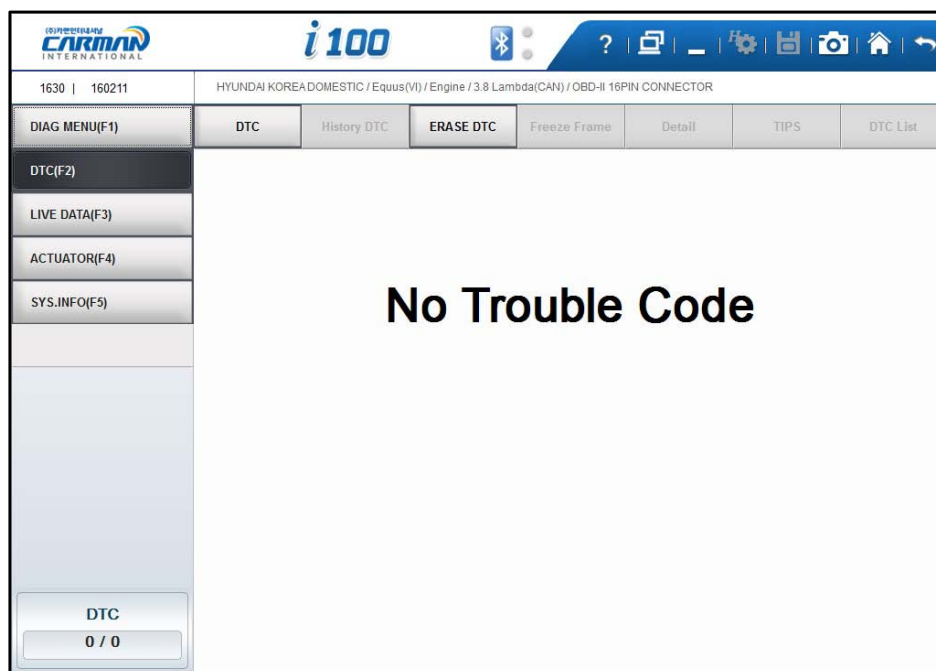
- Diagnostic Trouble Codes-

1. If a car and a system are selected correctly in the Vehicle Diagnosis menu and communication with vehicle is stable, the above picture will be shown.

Chapter 3: Vehicle Diagnosis



If it does not show a menu like page 31 and shows "Communication Error" or does not communicate stably, please check first status of the target car or connection of cables.



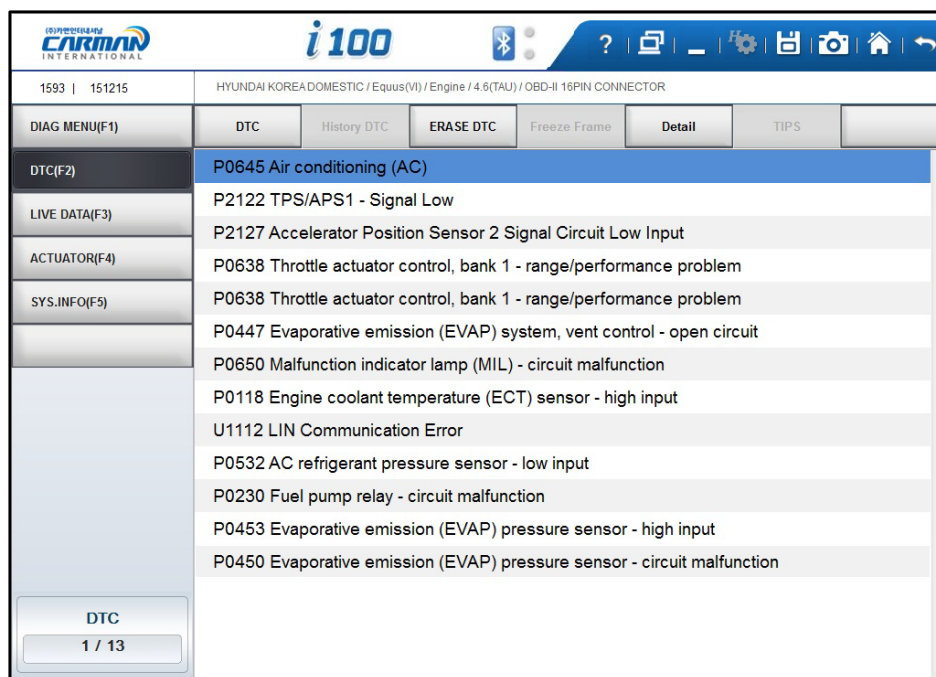
2. The DTC search screen appears. Now, you can check current and old DTCs and erase them.



- Old DTCs are not activated unless there is no corresponding fault history.
- Only detected DTC can be saved.

Chapter 3: Vehicle Diagnosis

3. Click current DTC icon to confirm its content.



3-1. DTC – Press this button to check current DTCs.

– In the case of MIL type vehicle, you can check codes through the DTC list.

3-2. History DTC – Press this button to check old DTCs.

3-3. Erase DTC – Press this button to clear DTCs.

3-4. Freeze Frame – Press this button to check data at that moment of malfunction.

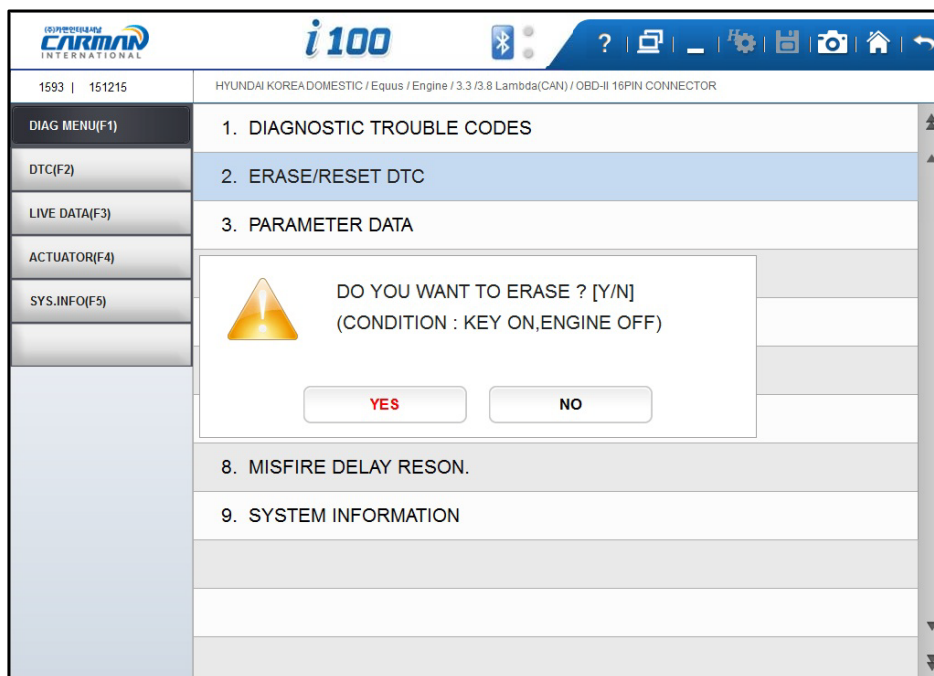
3-5. Detail – Press this button to display detailed information for DTCs.

Chapter 3: Vehicle Diagnosis

3. Erase/Reset DTC

1. If you select a car and a system correctly on the menu and if communication with a car works successfully, it shows the DIAG MENU like a picture below.

Press the ERASE/RESET DTC button.



- Erase/Reset DTC-

2. You can see "Yes" & "No" buttons. If you choose the YES button, the DTC is deleted. If you choose the No button, it returns to previous step.



There are current and old DTCs. When trying to clear old DTCs, they are cleared immediately and they are not set again. However, when trying to clear current DTCs, they are cleared for a short period of time but they are activated again. In this case, clear DTCs again after checking and repairing malfunction parts for the corresponding DTCs.

Chapter 3: Vehicle Diagnosis

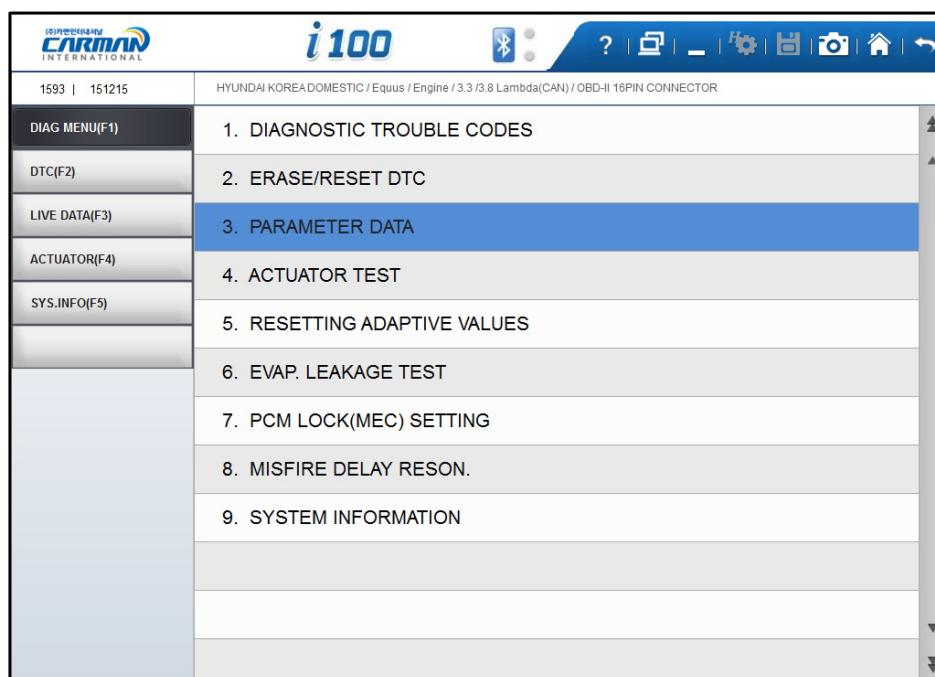
4. Parameter Data

- In the PARAMETER DATA menu, the module can communicate with the vehicle ECU to check data and control values of each sensor of the selected system and to check conditions of various switches and actuators.



It is important to select the vehicle specifications correctly for accurate sensor data measurement.

Make sure to set the vehicle displacement, manufactured year, fuel, etc. correctly. The live data list can differ even with the same vehicle models.



-Parameter Data -

1. When selecting the correct vehicle model and system from the menu and communication with the vehicle is properly established, the menu appears as the picture above.

Select Parameter DATA and press the ENTER key



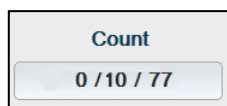
If the message indicating a communication error is displayed instead of the menu like the figure above or communication cannot be established, check the vehicle condition and the connection status of the diagnostic connector again..

Chapter 3: Vehicle Diagnosis

2.The Live data list is displayed as shown in the below picture.

DIAG MENU(F1)	Fix	Graph Mode	Flight Record Start	Dual DTC	TIPS	Change Unit	Compare
DTC(F2)	SENSOR			VALUE	UNIT	MIN	MAX
LIVE DATA(F3)	<input checked="" type="checkbox"/>			Engine Speed	0	rpm	0.0 0.0
ACTUATOR(F4)	<input type="checkbox"/>			Engine Warning Lamp (DTC)	OFF	-	-
SYS.INFO(F5)	<input type="checkbox"/>			Battery Voltage	11.9	V	11.9 11.9
	<input type="checkbox"/>			Cooling Fan (Low Speed)	OFF	-	-
	<input type="checkbox"/>			Fuel Pump Relay	OFF	-	-
	<input type="checkbox"/>			Mass Air Flow	16	Kg/h	16.0 16.0
	<input type="checkbox"/>			Accelerator Position Sensor	0	%	0.0 0.0
	<input type="checkbox"/>			Fuel Pressure Regulator (Rail)	0	%	0.0 0.0
	<input type="checkbox"/>			EGR Actuator	0	%	0.0 0.0
	<input type="checkbox"/>			Barometric Pressure Sensor	102	kPa	102.0 102.0
	<input type="checkbox"/>			Intake Temperature Sensor	29	°C	29.0 29.0
	<input type="checkbox"/>			Cooling Temperature Sensor	-11	°C	-11.0 -11.0
	<input type="checkbox"/>			Clutch Switch (M/T)	ON	-	-
	<input type="checkbox"/>			A/C Switch	OFF	-	-

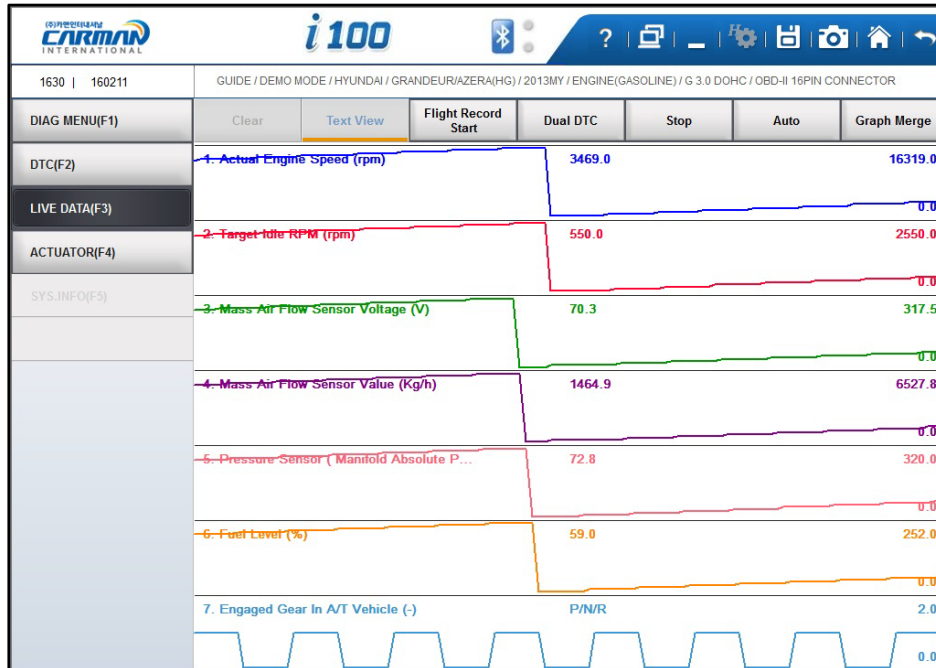
- Fix: Select sensor(s) to use Graph Mode and Flight Record Start.
(Maximum 32 item-selection available.)
- Graph Mode: Converts sensor data to graph for analyzing data stream.
(Maximum eight (8) graphs on screen.)
- Flight Record Start: Saves sensor data.
- Dual DTC: Displays selectedDTC and its sensor data together.
- TIPS: For the system “Help” function supportive, you can see its helping information.
(Available year 2015)
- Change Unit: Changes measure of sensor data.
- Compare: The compared sensor data value use by the maximum and minimum values of the reference vehicle.



1. Count: Number of selected sensor data item.
2. Position: Position of selected sensor data item. (1 from top)
3. Number of total item: Number of total items of sensor data.

Chapter 3: Vehicle Diagnosis

- Graph Mode: This function is to check live data in graph forms for tendency analysis.



- Stop: More accurate failure analysis is available at any point in time.

Select cursor A/B to each value and the time difference between A/B.

- Auto/Reset: Change graph range adjusting maximum and minimum value.

- Graph Merge: Merge each graph.

- Flight Record Start: Saves data of selected sensor data.

Maximum data saving time is one hour and it might be different up to the number of selected data. (One hour after Flight Record Start, it stops automatically.)

DIAG MENU(F1)	Clear	Graph Mode	Stop [00:02]	Dual DTC	TIPS	Change Unit	Compare
DTC(F2)	SENSOR			VALUE	UNIT	MIN	MAX
LIVE DATA(F3)	Engine Speed			0	rpm	0.0	0.0
ACTUATOR(F4)	Engine Warning Lamp (DTC)			OFF	-	-	-
SYS.INFO(F5)	<div style="border: 1px solid gray; padding: 5px;"> <p>Flight Record Start : 20161107_160617_Engine Control Diesel (EURO 5).frf You can save the record up to 1 hour.</p> <p style="text-align: center;">OK</p> </div>			11.9	11.9		
				-	-		
				-	-		
				16.0	16.0		
				0.0	0.0		

Count
7 / 7 / 97

Chapter 3: Vehicle Diagnosis

- Dual DTC: Displays DTC and its sensor data.

Top half screen displays sensor data and bottom half screen displays its DTC.

DIAG MENU(F1)		Fix	Graph Mode	Flight Record Start	Hide DTC	TIPS	Change Unit	Compare
DTC(F2)		SENSOR			VALUE	UNIT	MIN	MAX
LIVE DATA(F3)	<input checked="" type="checkbox"/>	Engine Speed	0	rpm	0.0	0.0		
ACTUATOR(F4)	<input type="checkbox"/>	Engine Warning Lamp (DTC)	OFF	-	-	-		
SYS.INFO(F5)	<input type="checkbox"/>	Battery Voltage	11.9	V	11.9	11.9		
	<input type="checkbox"/>	Cooling Fan (Low Speed)	OFF	-	-	-		
	<input type="checkbox"/>	Fuel Pump Relay	OFF	-	-	-		
	<input type="checkbox"/>	Mass Air Flow	16	Kg/h	16.0	16.0		
	<input type="checkbox"/>	Accelerator Position Sensor	0	%	0.0	0.0		
	<input type="checkbox"/>	Fuel Pressure Regulator (Rail)	0	%	0.0	0.0		
		P0193	Fuel rail pressure (FRP) sensor - high input			Pending		
		P0253	Rail Pressure Regulator (Pump) Circuit - Control Value Low			Pending		
		P0091	Fuel metering solenoid - short to ground			Pending		
		P0047	VGT / WGT Actuator Circuit - Control Value Low			Pending		
		P0101	Mass air flow (MAF) sensor/volume air flow (VAF) sensor - range/perfor...			Pending		
Count		0 / 1 / 97						

Chapter 3: Vehicle Diagnosis

- Compare : based on the reference sensor data (normal vehicle) and the current vehicle sensor data value, the comparison is made using the maximum and minimum values of the reference vehicle.
- Saving reference sensor data : Save sensor data by existing text shot button

DIAG MENU(F1)	Fix	Graph Mode	Flight Record Start	Dual DTC	TIPS	Change Unit	Compare
DTC(F2)	SENSOR			VALUE	UNIT	MIN	MAX
LIVE DATA(F3)	<input type="checkbox"/>	Engine Speed	0	rpm	0.0	0.0	▲
ACTUATOR(F4)	<input type="checkbox"/>	Engine Warning Lamp (DTC)	OFF	-	-	-	—
SYS.INFO(F5)	<input type="checkbox"/>	Battery Voltage	11.9	V	11.9	11.9	
	<input type="checkbox"/>	Cooling Fan (Low Speed)	OFF	-	-	-	
	<input type="checkbox"/>	Fuel Pump Relay	OFF	-	-	-	
	<input type="checkbox"/>	Mass Air Flow	16	Kg/h	16.0	16.0	
	<input type="checkbox"/>	Accelerator Position Sensor	0	%	0.0	0.0	
	<input type="checkbox"/>	Fuel Pressure Regulator (Rail)	0	%	0.0	0.0	
	<input type="checkbox"/>	EGR Actuator	0	%	0.0	0.0	
	<input type="checkbox"/>	Barometric Pressure Sensor	102	kPa	▼ 102.0	102.0	
	<input type="checkbox"/>	Intake Temperature Sensor	29	°C	▼ 29.0	29.0	
	<input type="checkbox"/>	Cooling Temperature Sensor	-11	°C	▼ -11.0	-11.0	
	<input type="checkbox"/>	Clutch Switch (M/T)	ON	-	-	-	
	<input type="checkbox"/>	A/C Switch	OFF	-	-	-	

- Load comparison data: In the sensor data screen, press the comparison value button to select the comparison data. Click Apply to apply the comparison data.

PC List [19]	Size
<input checked="" type="checkbox"/> 20161103_164935	16 K
<input type="checkbox"/> 20161025_135233	16 K
<input type="checkbox"/> 20161025_114920	720 B
<input type="checkbox"/> 20161025_110959	8 K
<input type="checkbox"/> 20161025_110820	9 K
<input type="checkbox"/> 20161025_101820	708 B
<input type="checkbox"/> 20161025_101652	20 K
<input type="checkbox"/> 20161025_101646	868 B

Sensor	VALUE	UNIT	MIN	MAX
엔진회전수	0	rpm	0.0	0.0
엔진경고등(DTC)	OFF	-	0.0	2.0
배터리전압	12.0	V	11.9	12.0
냉각팬(저속)	OFF	-	0.0	2.0
엔진오일필레이	OFF	-	0.0	2.0

Chapter 3: Vehicle Diagnosis

- Comparison of sensor data: When a value outside the reference range, it is displayed in red.

DIAG MENU(F1)		Fix	Graph Mode	Flight Record Start	Dual DTC	TIPS	Change Unit	Compare
DTC(F2)	SENSOR				VALUE	UNIT	REF. MIN	REF. MAX
LIVE DATA(F3)	<input type="checkbox"/>	Engine Speed	0	rpm	24.0	306.0	▲	
ACTUATOR(F4)	<input type="checkbox"/>	Engine Warning Lamp (DTC)	OFF	-	-	-	—	
SYS.INFO(F5)	<input type="checkbox"/>	Battery Voltage	11.9	V	0.2	1.4		
	<input type="checkbox"/>	Cooling Fan (Low Speed)	OFF	-	-	-		
	<input type="checkbox"/>	Fuel Pump Relay	OFF	-	-	-		
	<input type="checkbox"/>	Mass Air Flow	16	Kg/h	8.0	55.0		
	<input type="checkbox"/>	Accelerator Position Sensor	0	%	1.0	5.0		
	<input type="checkbox"/>	Fuel Pressure Regulator (Rail)	0	%	1.0	5.0		
	<input type="checkbox"/>	EGR Actuator	0	%	1.0	5.0		
	<input type="checkbox"/>	Barometric Pressure Sensor	102	kPa	▼ 3.0	19.0		
	<input type="checkbox"/>	Intake Temperature Sensor	29	°C	▼ -36.0	-36.0		
	<input type="checkbox"/>	Cooling Temperature Sensor	-11	°C	▼ -36.0	-36.0		
	<input type="checkbox"/>	Clutch Switch (M/T)	ON	-	-	-		
	<input type="checkbox"/>	A/C Switch	OFF	-	-	-		

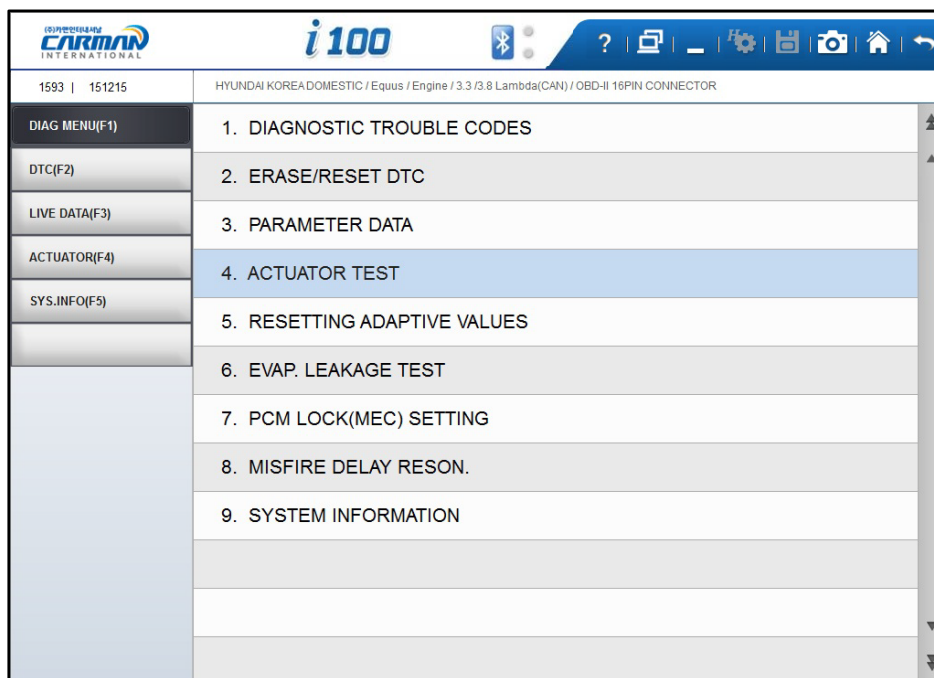
※ The value displayed from the comparison value may be different from the reference value range of actual sensor. Please use for reference only.

Chapter 3: Vehicle Diagnosis

5. Actuator Test

Actuator test is a function to diagnose abnormalities in the applicable product by forcefully operating or stopping actuator and switches.

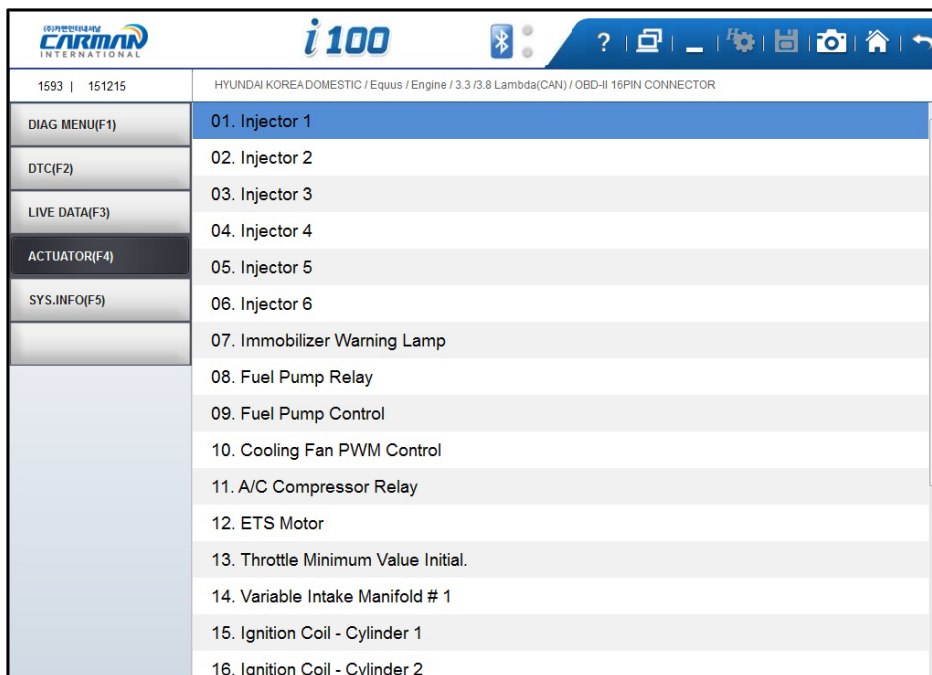
The support of Actuator test function depends on vehicle maker and vehicle type.



1. If a car and a system are selected correctly in the Vehicle Diagnosis menu and communication with vehicle is stable, the above picture will be shown. Select a Actuator Test.

Chapter 3: Vehicle Diagnosis

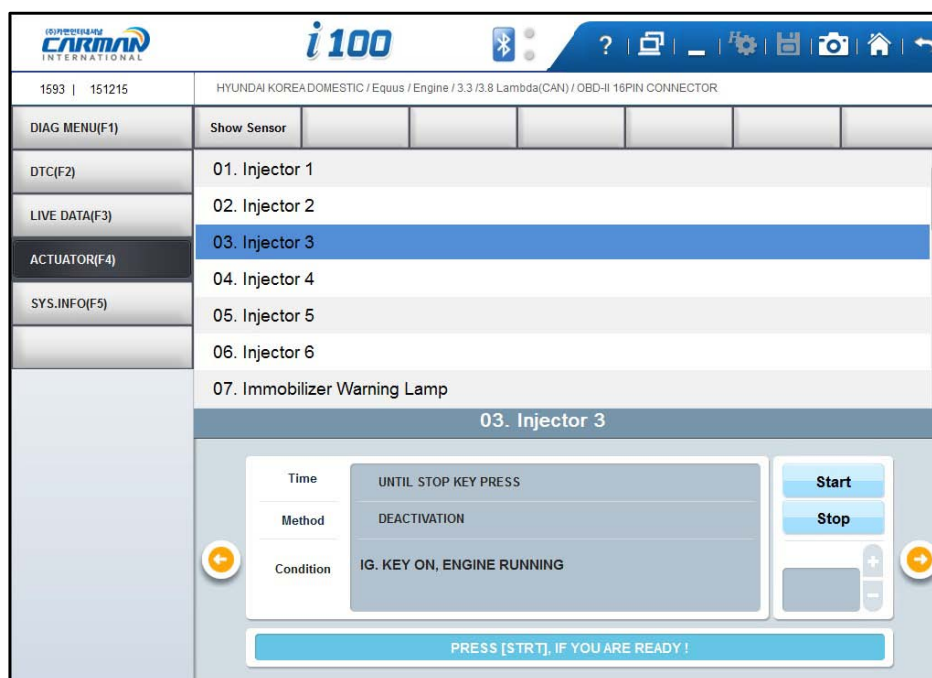
2.The screen as below appears.



3.When pressing start key icon, Actuator test starts.

Before starting inspection, confirm operation conditions and inspect accordingly.

Actuator test time varies according to items.



Chapter 3: Vehicle Diagnosis

4.When pressing stop key icon, Actuator test stops.Use this key to stop the inspection.

Inspection stops when pressing ESC key or arrow on the upper right of the screen.



Evaluation on Actuator test results is determined by operating sounds of actuator and switches, and vehicle's RPM change.

Therefore, Actuator test should be conducted in a quiet place where surrounding noises are limited. See current data values.

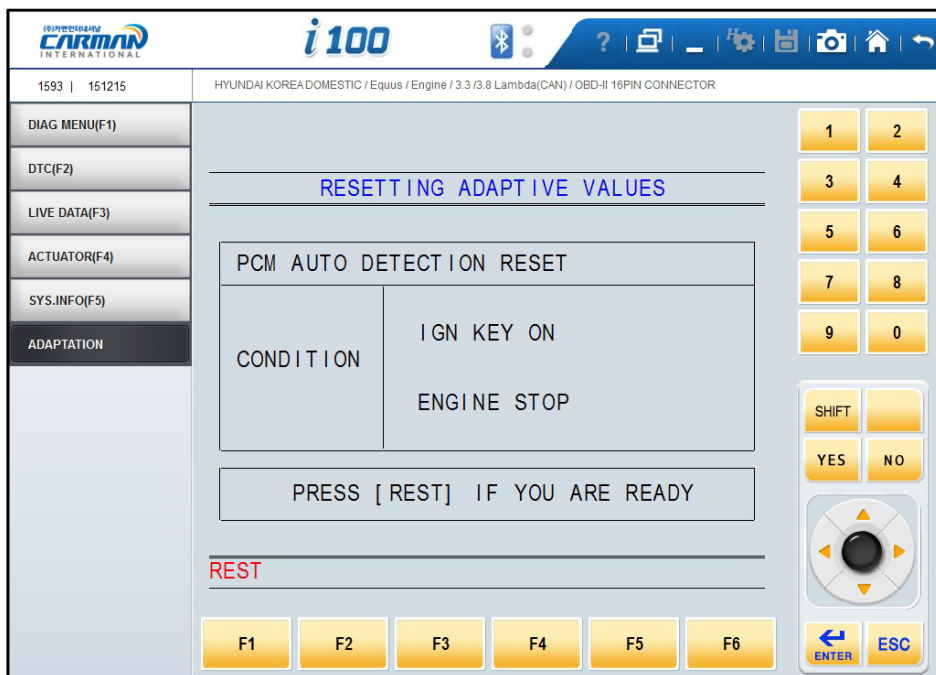
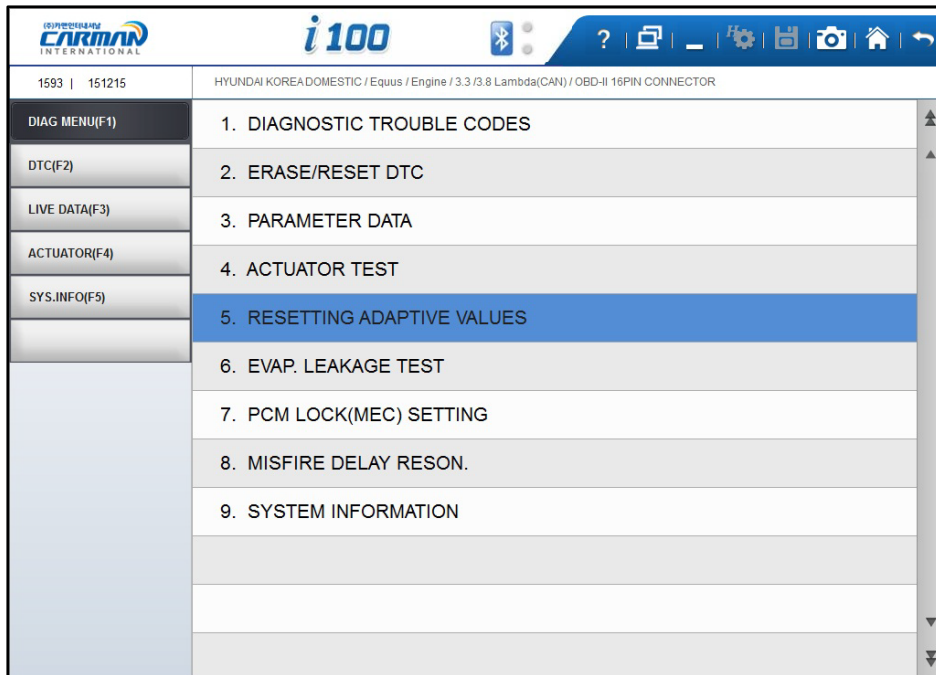


If the applicable system does not support sensor, actuator, and dual display, it supports only actuator operation items, not sensor items.

Chapter 3: Vehicle Diagnosis

6. Resetting Adaptive Values

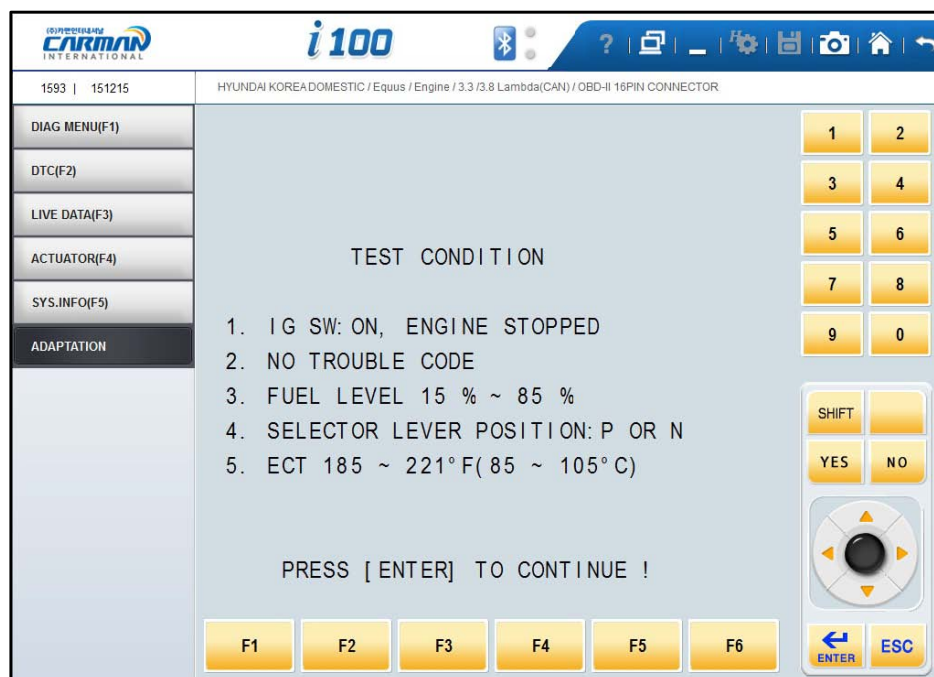
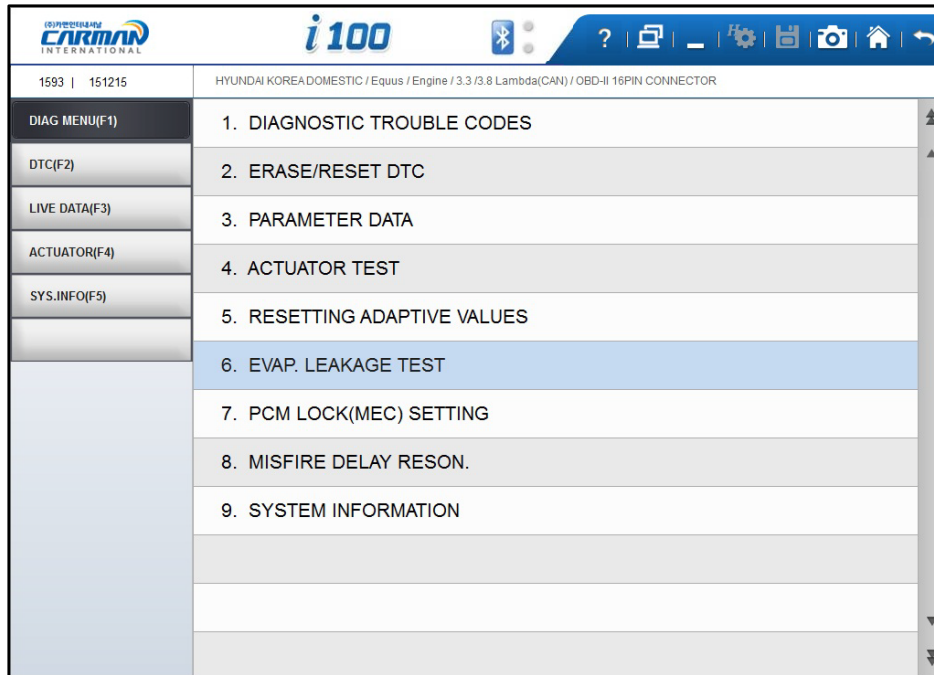
- The resetting adaptive values initiates ECU by clearing values of sets in ECU.
- The clearing learning values may be different depend on car makers and models.



Chapter 3: Vehicle Diagnosis

7. Evap. Leakage Test

- Press this button to check if there is leakage from an oil tank.

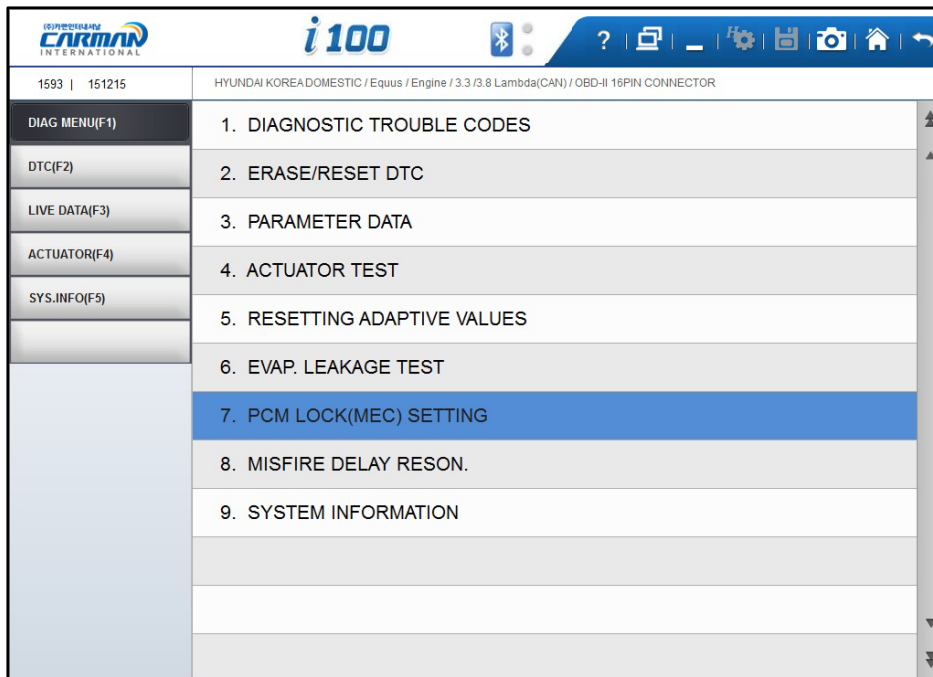


Chapter 3: Vehicle Diagnosis

8. PCM Lock(MEC) Setting

- This function is to prevent data or programs from adjustment.

- System information differs from depend on car makers and models.

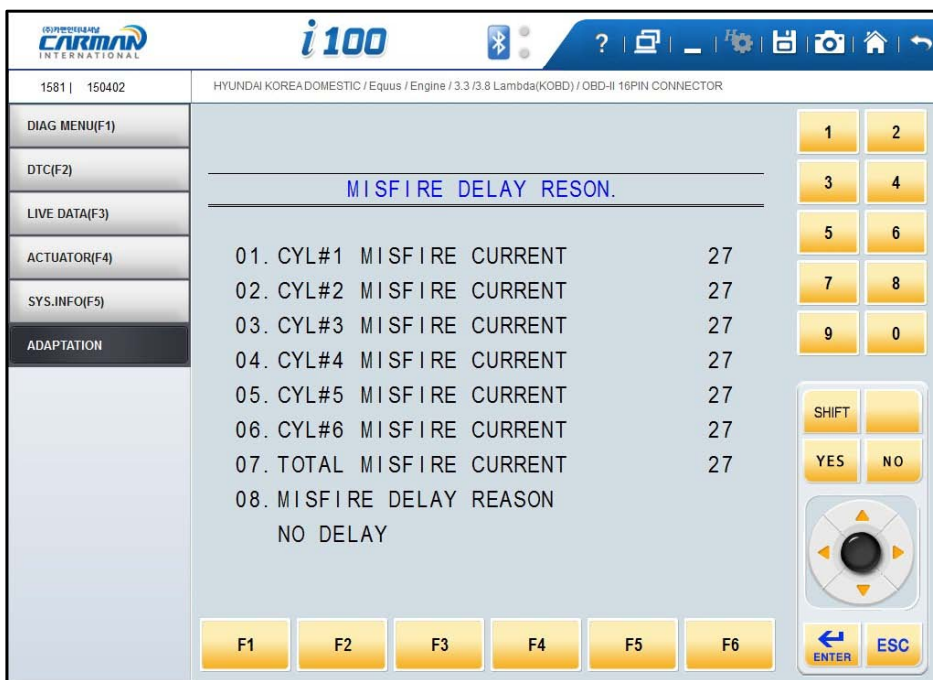
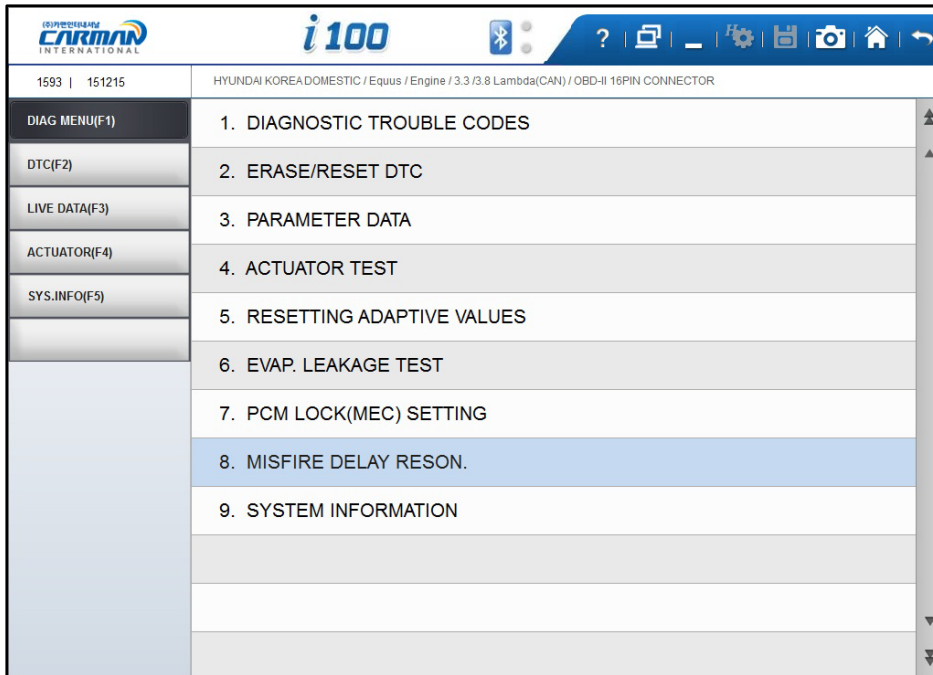


Chapter 3: Vehicle Diagnosis

9. Misfire Delay Reason

- This function is to check the number of misfire in each cylinders.

- System information differs from depend on car makers and models.

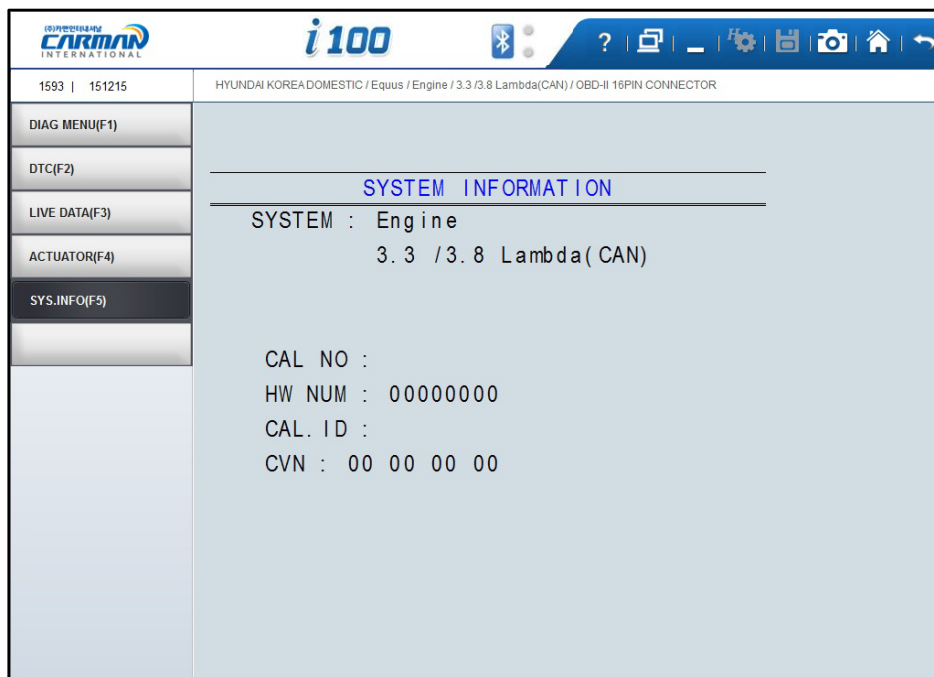
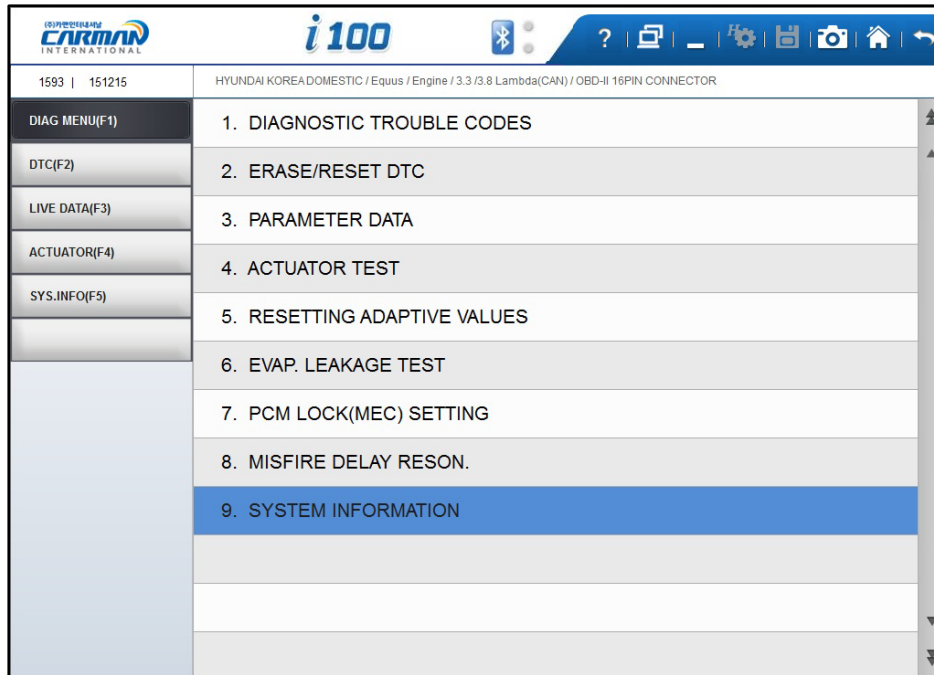


Chapter 3: Vehicle Diagnosis

10. System Information

-System Information shows information related with system such as system model and software version etc.

- System information differs from depend on car makers and models.



Chapter 4: OBD-II/EOBD Diagnosis Menu

1. OBD-II/EOBD Overview

■ Purpose of OBD-II

- To diagnose causes of increased exhaust gas from the vehicle and the applicable

component and then illuminate a malfunction indicator light(MIL) to notify the need of immediate and accurate repair.

■ OBD-II regulations

- If vehicle's exhaust gas increases due to malfunction of any component, diagnose the applicable component and causes and turn on MIL.
- Standard diagnostic device(GST) should be able to read malfunction description.

■ OBD-II regulations 《major diagnostic items》

The warning light shall be on before the emission reaches 1.5 times of the permissible limit due to any of the following troubles or performance degradation.

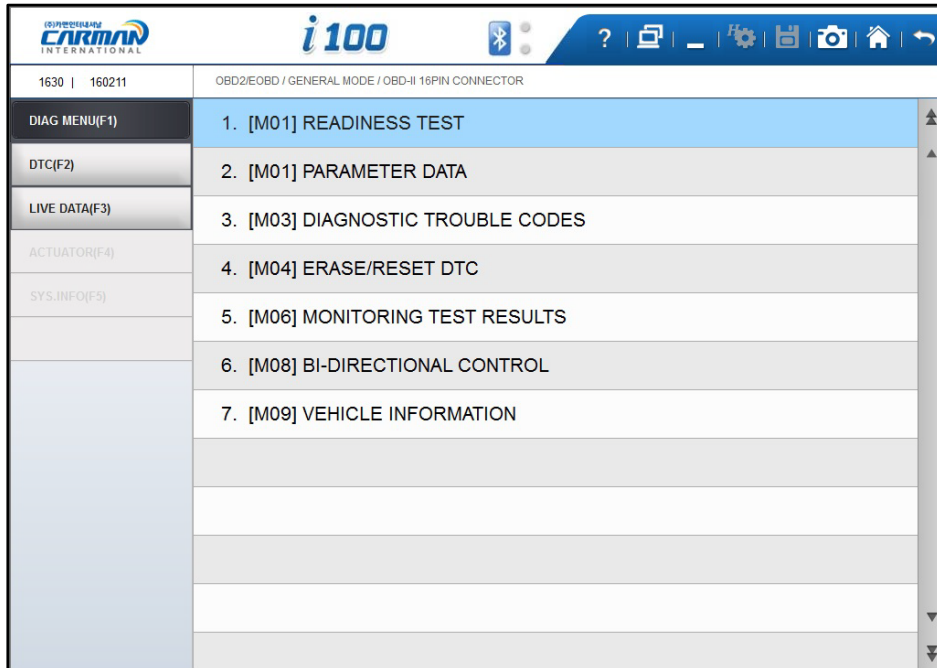
- Catalyst purification rate (this diagnosis is for HC emission only. This is being phased in for 1.75 times of HC limit from TLEV), misfire, EGR System, O2 sensor and fuel system secondary air system
- Diagnose all sensors and actuators used for controlling the engine to see if they function properly as well as wirings for an open/short circuit.
- Diagnose the entire evaporation system to see if it leaks.
- Perform diagnosis when the PCV valve and the crankcase or the PCV valve and the intake manifold are disconnected.
- Diagnose the thermostat when the coolant temperature fails to reach the specified temperature where the diagnosis can be made to other items in a given time after starting the engine.

Chapter 4: OBD-II/EOBD Diagnosis Menu

2. Readiness Test

The readiness test tries making communication with your vehicle to review general items of ECU modules that response.

- Once it communicates successfully with vehicle, the following menu is displayed. Please click READINESS TEST function.



– Readiness Test –



If no menu like above is displayed or communication cannot be established, check the vehicle condition and the connections status of the diagnostic connector again. In addition, check if your vehicle supports OBD-II communication.

***Result**

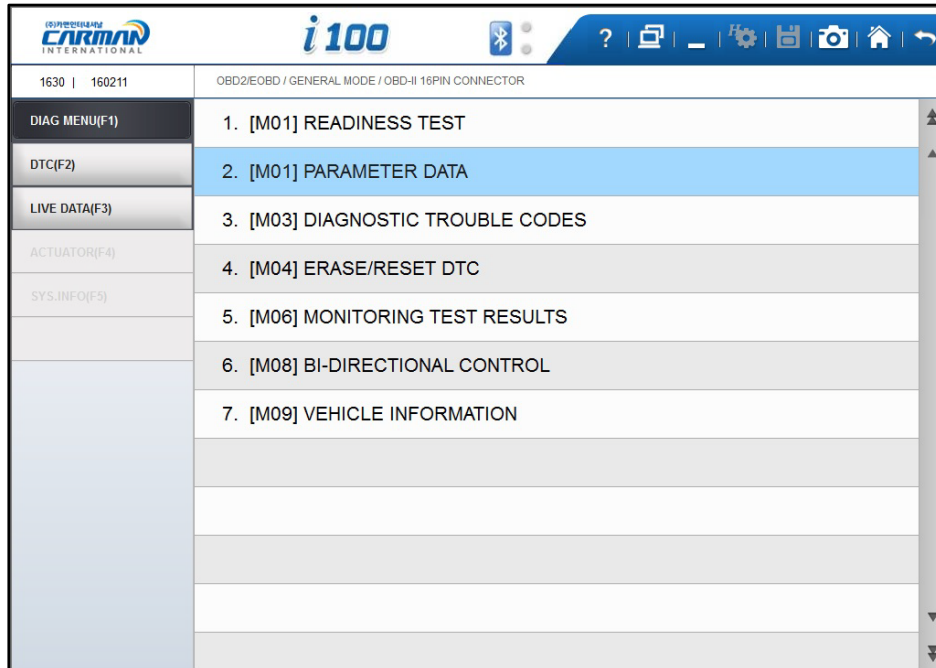
- NOT CMLPTD: The test has not been completed.
 - This appears when the test was not completed owing to the abnormal ECU or sensor required to display the test result..
- COMPLETED: The test has been completed.
- NON APPLIC: The item is not applied to the tested vehicle.

Chapter 4: OBD-II/EOBD Diagnosis Menu

3. Parameter Data

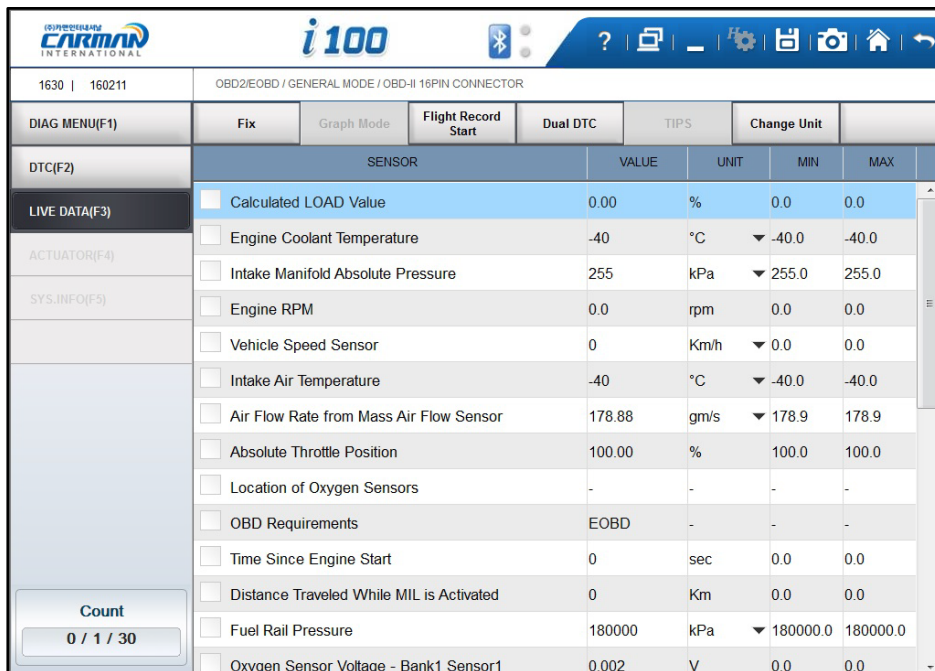
Current data item values specified in OBD-II regulations can be confirmed.

1. Once it communicates successfully with vehicle, click sensor data item as below.



- Parameter Data-

2. It displays selected sensor data as below, and you can check each data value



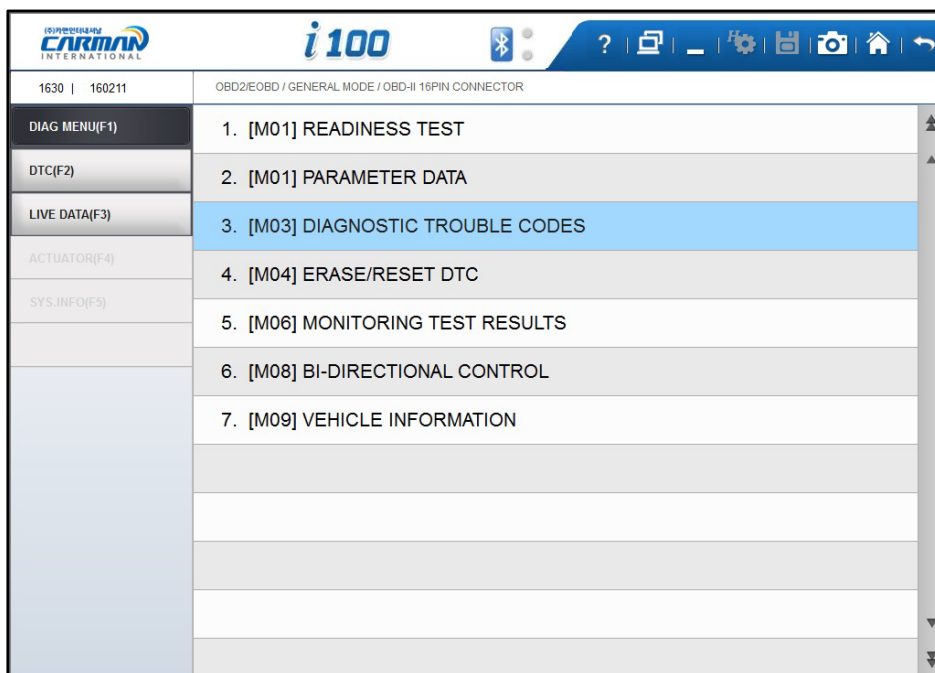
- OBD-II/EOBD Sensor Data -

Chapter 4: OBD-II/EOBD Diagnosis Menu

4. Diagnostic Trouble codes

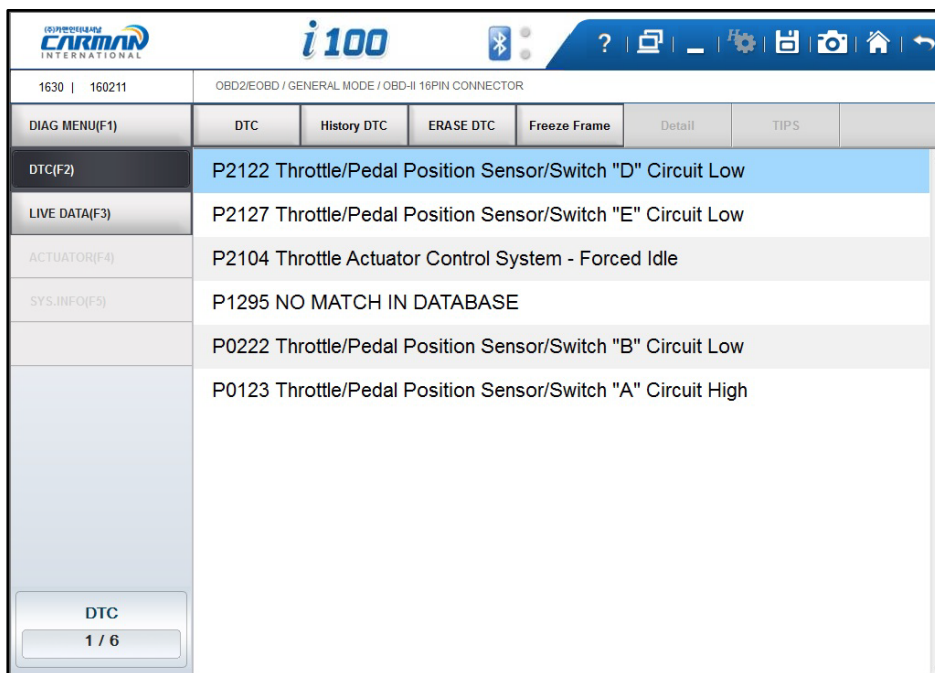
Press this button to check trouble code of current vehicle.

1. Once it communicates successfully with vehicle, click DTC item as below.



-Diagnostic Trouble codes-

2. It displays DTC as below, and it support DTC erase.



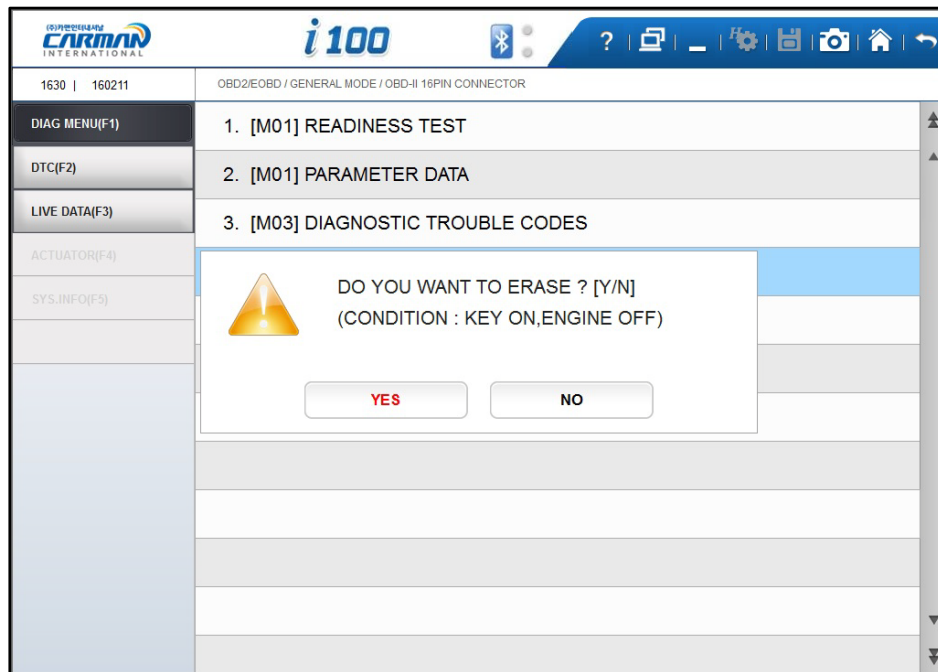
- DTC -

Chapter 4: OBD-II/EOBD Diagnosis Menu

5.Erase/Reset DTC

1. Select a car model and system in the diagnosis menu. Then, if communication with the

vehicle is established successfully, the menu shown in Figure of Page49 appears.
 Select the ERASE/RESET DTC button.



-Erase/Reset DTC-

2. If the “YES” button&“NO”button window are shown, Select the YES button to clear DTC or select the NO button to return back to previous step.

Chapter 4: OBD-II/EOBD Diagnosis Menu

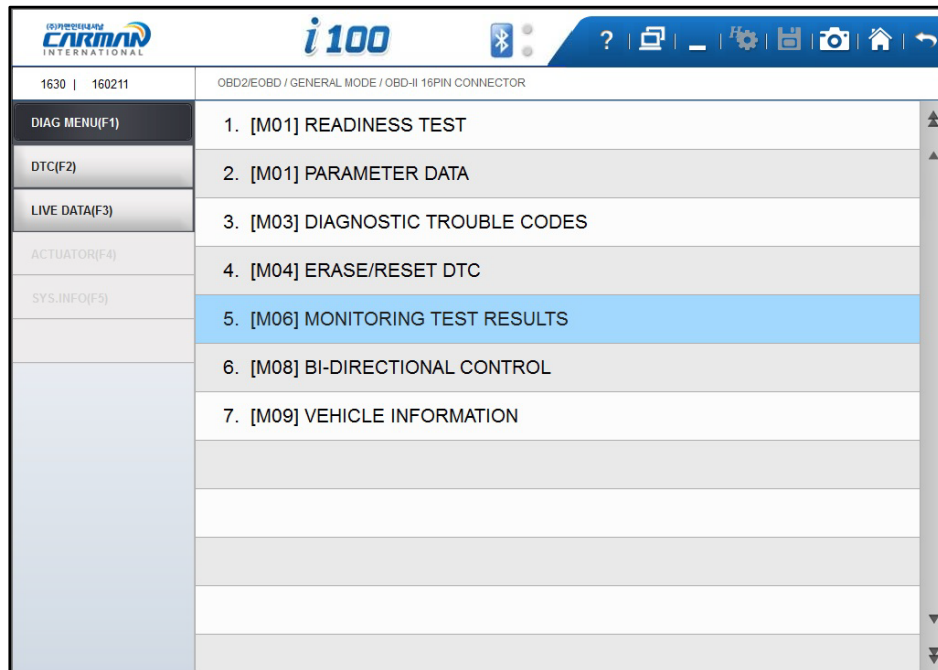
6. Monitoring test results

This menu displays the monitoring test results while the vehicle is being normally operated.
 - To test systems and units of different manufacturers, it is required to specify test IDs and

component IDs.

If there is no test item supported by the vehicle manufacturer, an error message will be displayed.

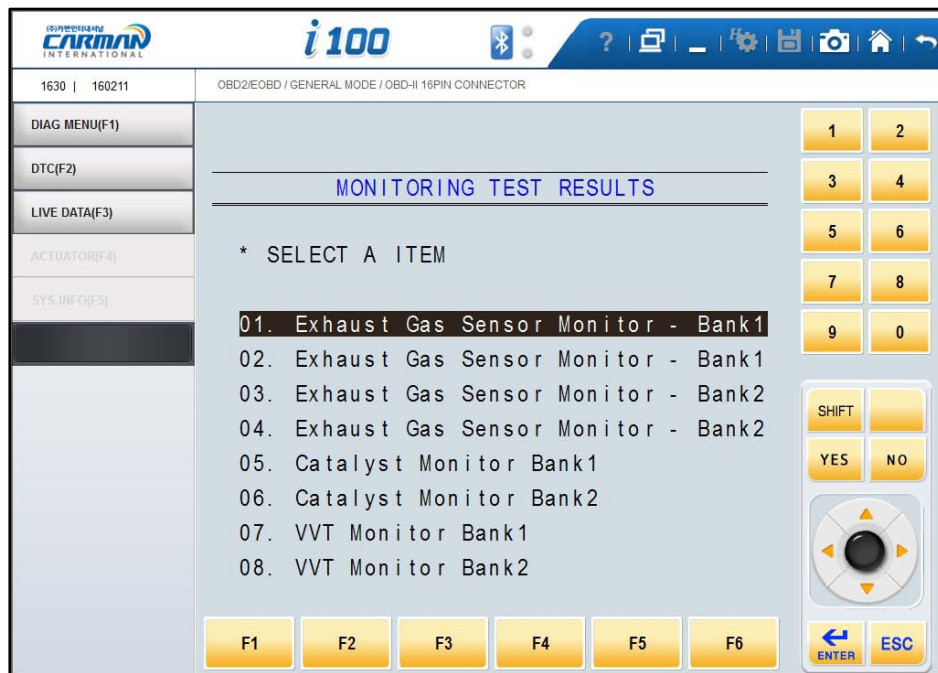
1. Once it communicates successfully with vehicle, click the item of Monitoring Test Result as below



- Monitoring Test Results -

Chapter 4: OBD-II/EOBD Diagnosis Menu

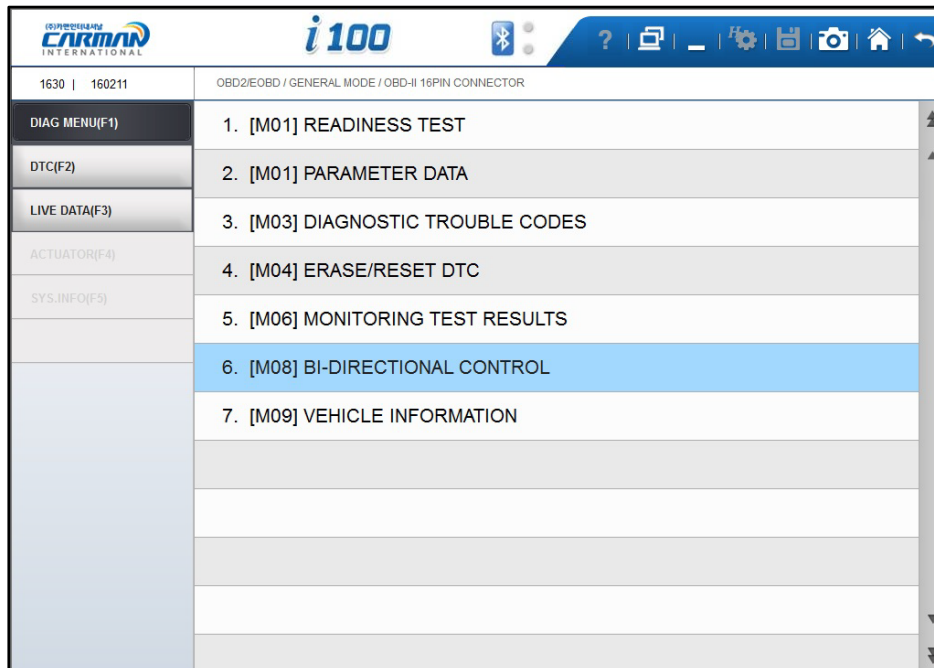
2. It displays test result of each Monitoring Test item.



Chapter 4: OBD-II/EOBD Diagnosis Menu

7.BI-Directional Control

- You can control and test functions related with OBD-II system.



-BI-Directional Control-

6-1. If communication with the vehicle is established successfully, the menu above appears.
Select BI-DIRECTIONAL CONTROL.



If no menu like picture above is displayed or communication cannot be established, check the vehicle condition and the connection status of the diagnostic connector again.

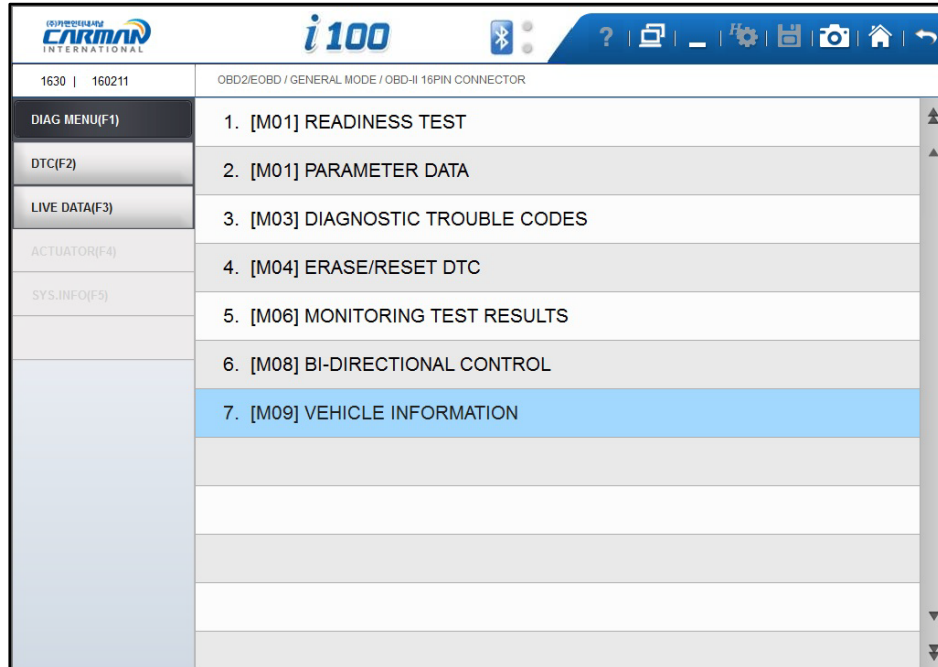
In addition, check if your vehicle supports OBD-II communication.

Chapter 4: OBD-II/EOBD Diagnosis Menu

8. Vehicle Information

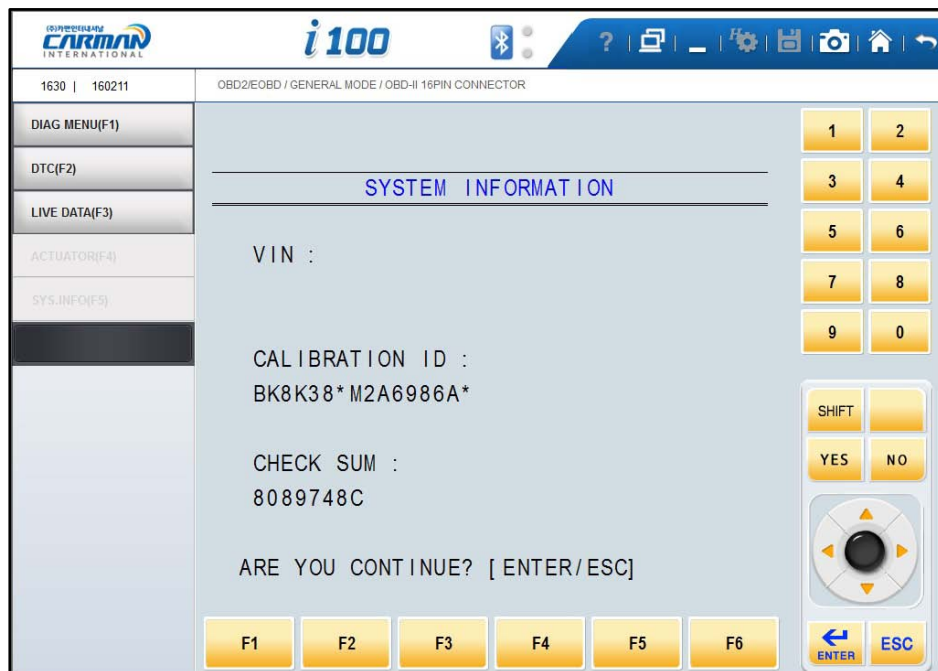
A function to confirm information on the installed ECU in the vehicle, which is executable only in ECU provided with module information.

1. Once it communicates successfully with vehicle, click vehicle information item as below.



– Vehicle Information –

2. It displays its ECU information as below.



Chapter 5: Stored Data

1. Parameter Record

- A function to view the saved vehicle's service data for analyzing.



1. Rename: Changes file name on the list.

2. Delete: Deletes file on the list.

3. Data View: Views detail information of the selected file on the list.

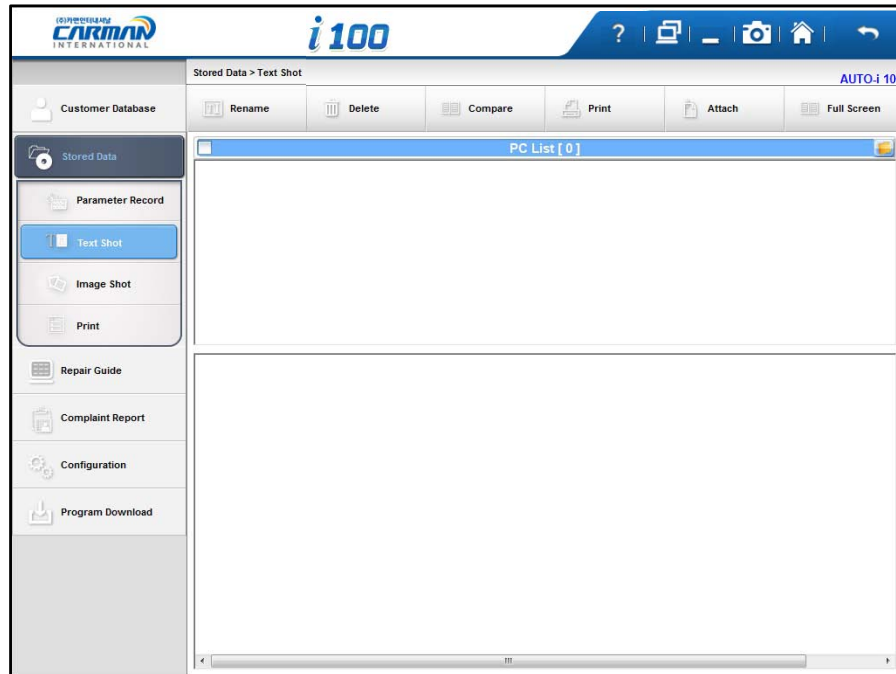
4. Convert Excel: Converts to type of Excel file.

5. Attach: Attached the selected file to email to the Technical Support Team of Carman IT Co. Ltd.

Chapter 5: Stored Data

2. Text Shot

- A function to view and compare the saved DTC and sensor data at specific time point for analyzing



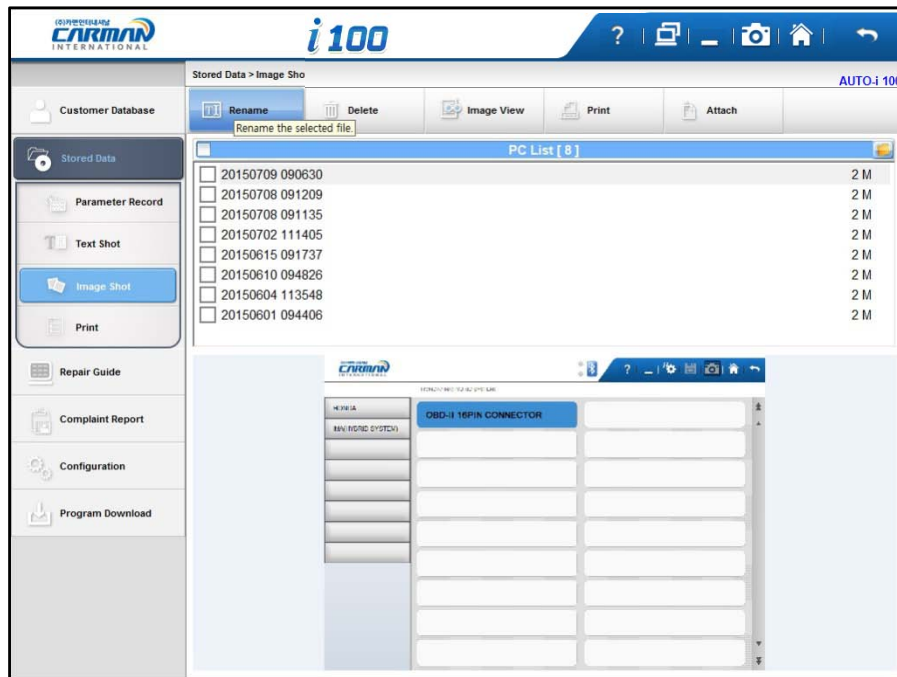
1. Compare: Compares selected two lists.

2. Print: Prints selected file.

Chapter 5: Stored Data

3. Image Shot

- Displays saved image file.

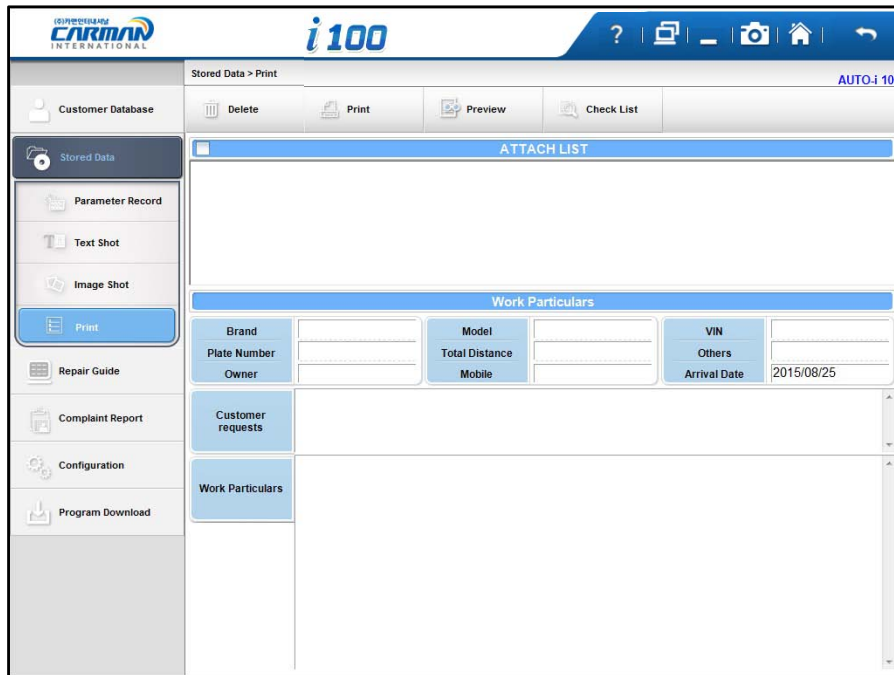


1. Image View- Displays full screen.

Chapter 5: Stored Data

4. Print

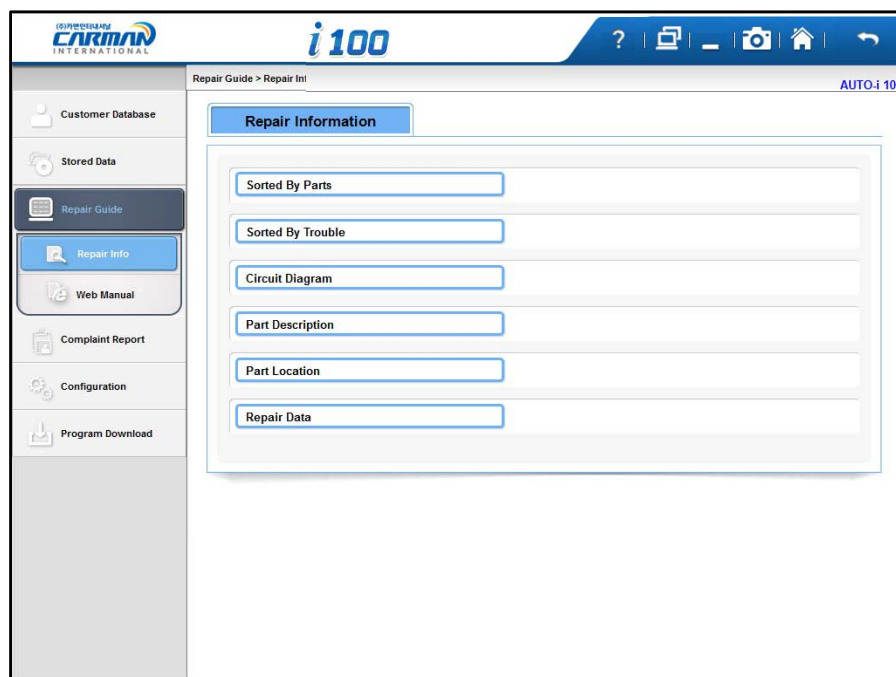
- It prints the Check List or selected file from the saved list through the connected printer.



1. Preview: Previews the prints.
2. Check List: Views and prints Check List.

Chapter 6: Repair Information

1. Repair Information Menu



1. Sorted By Parts

Tips are provided for the desired component by 4 systems; engine / engine(LPG) / ABS / suspension system.

2. Sorted By Troubles

Tips are provided for desired malfunction type by 4 systems; engine / engine(LPG) / automatic transmission/ suspension system.

3. Circuit Diagram

You can search wiring diagram of the desired vehicle by maker.

4. Parts Description

You can search description of components of the desired vehicle by maker.

5. Parts Location

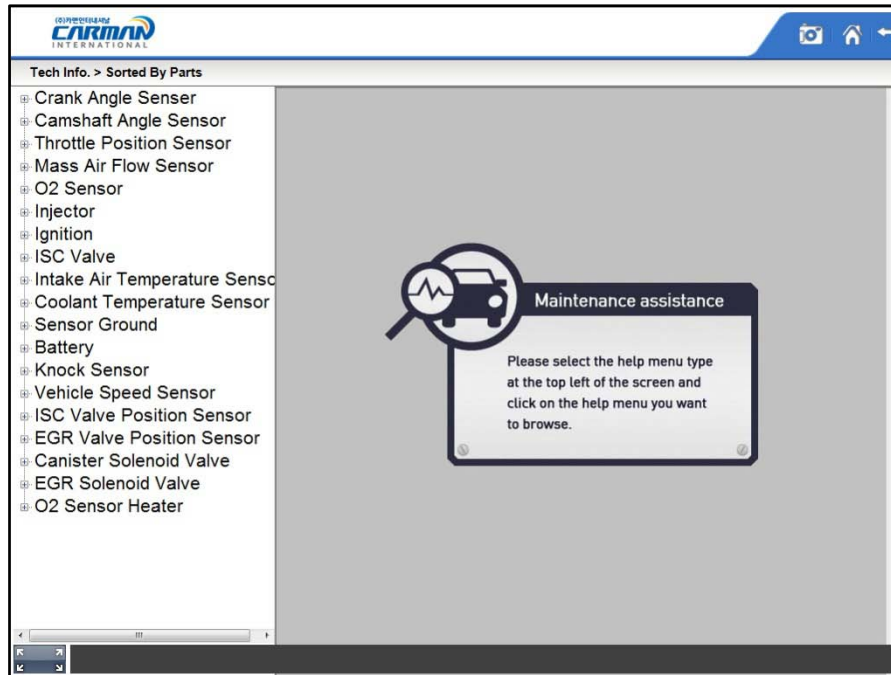
You can search location of components of the desired vehicle by maker.

6. Repair Data

You can search maintenance data of the desired vehicle by maker.

Chapter 6: Repair Information

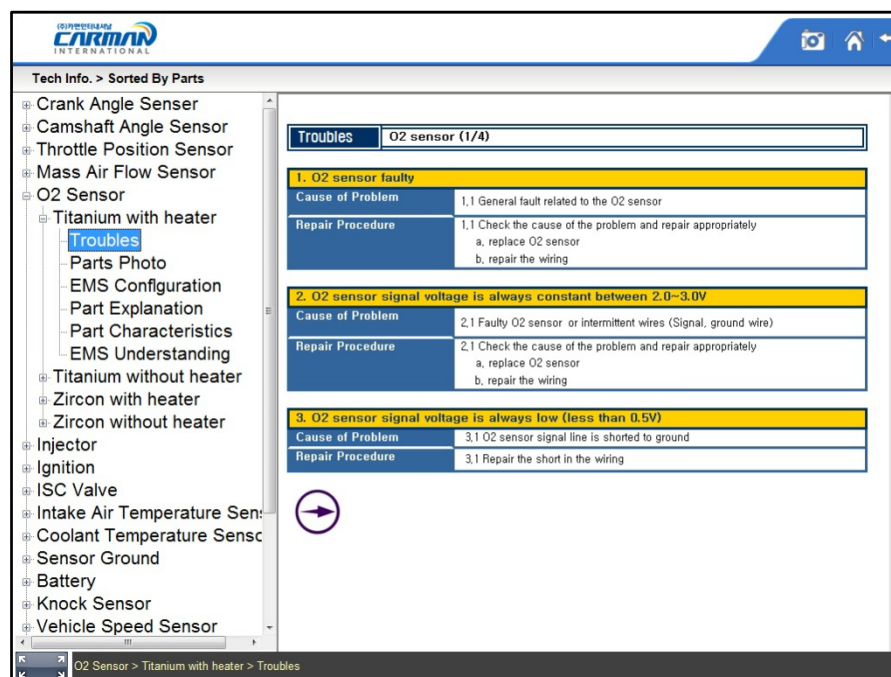
2. Sorted By Parts



- Menu by Component Type -

Click [Troubles] in menu window on the left.

↳ Tips for malfunction description of selected sensor and repair method.

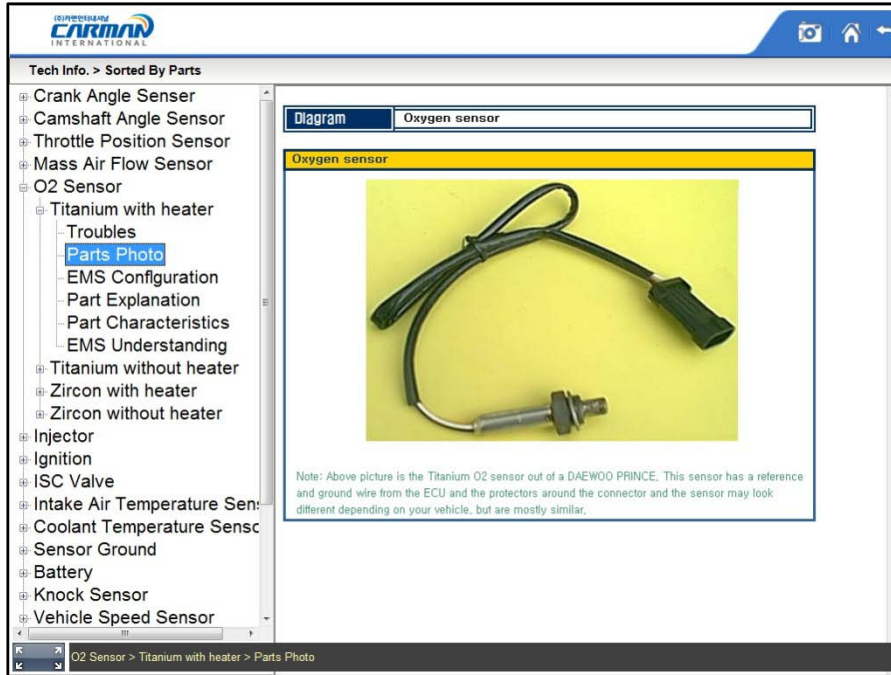


- Troubles -

Chapter 6: Repair Information

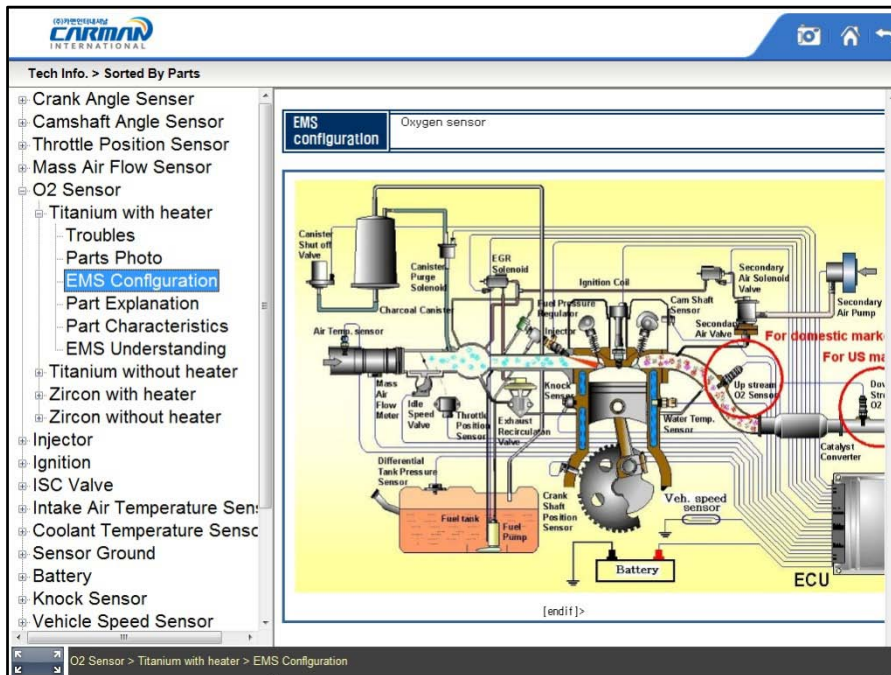
Click [Pictures of parts] in menu window on the left.

↳ Tips for picture of selected sensor



Click [Location of Parts] in menu window on the left.

↳ Tips for location of part of selected sensor



Chapter 6: Repair Information

Click [Part Description] in menu window on the left.

↳ Tips for detailed principles and function of parts

The screenshot shows the CARMAN software interface. On the left, a tree view lists various sensors, with 'O2 Sensor > Titanium with heater > Part Explanation' selected. The main window displays the 'Part Description' for an 'Oxygen sensor'. The description includes an explanation of how the titanium sensor's resistance changes with oxygen density and temperature, and an application section detailing the ECU's feedback control based on the sensor's output voltage.

-Part Description-

Click [Part Characteristics] in menu window on the left.

↳ Tips for characteristics of selected sensor.

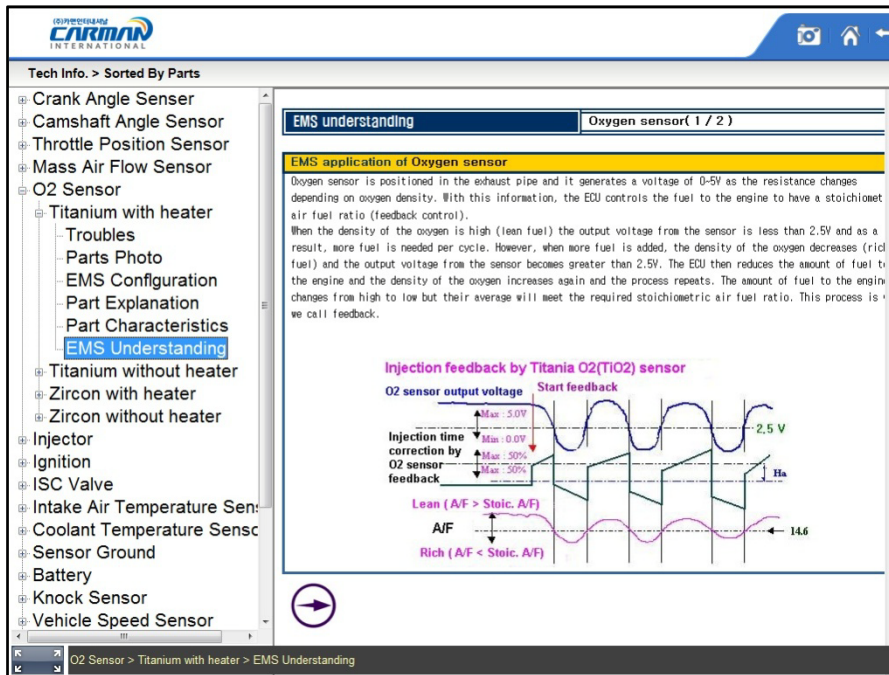
The screenshot shows the CARMAN software interface with 'Part Characteristics' selected for the 'Oxygen sensor'. It features two graphs. The top graph, 'Output voltage of oxygen sensor', shows a step function where the voltage is 5V for lean fuel (A/F > 14.6) and 2.5V for rich fuel (A/F < 14.6), with a transition at the stoichiometric ratio (A/F = 14.6). The bottom graph, 'Output voltage via, tip temperature', shows a similar step function but with a hysteresis loop, where the voltage is 5V for lean fuel and 2.5V for rich fuel, with a transition at the stoichiometric ratio (A/F = 14.6). Both graphs indicate that the output voltage can be reversed depending on the ECU internal circuit.

-Part Characteristics-

Chapter 6: Repair Information

Click [Principles Understanding] in menu window on the left.

Tips for principles of parts.



-Principles Understanding -



: icon to move to next screen.



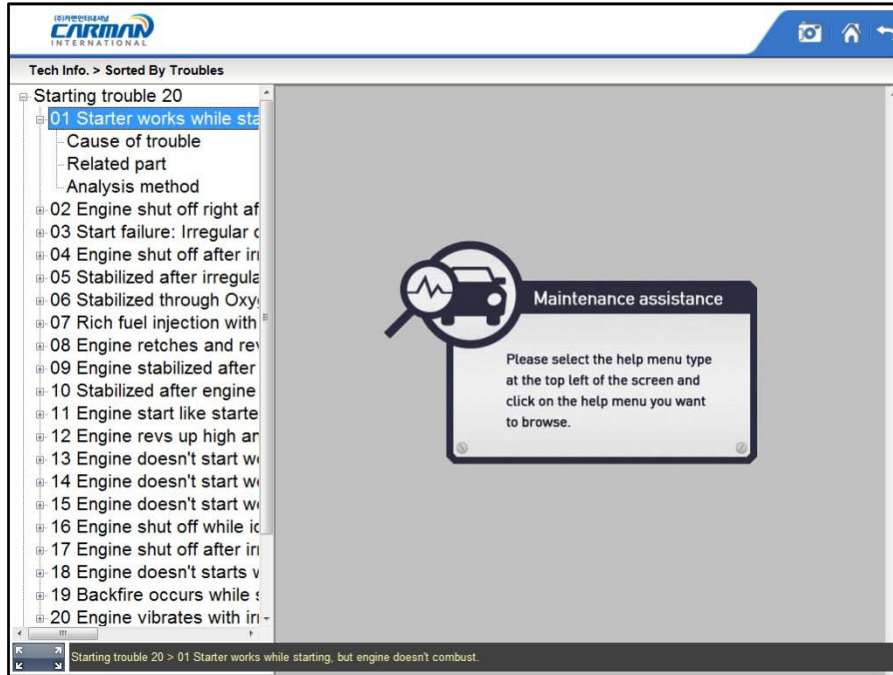
: icon to move to previous screen.



: icon to change the menu window on the left to full screen or basic screen.

Chapter 6: Repair Information

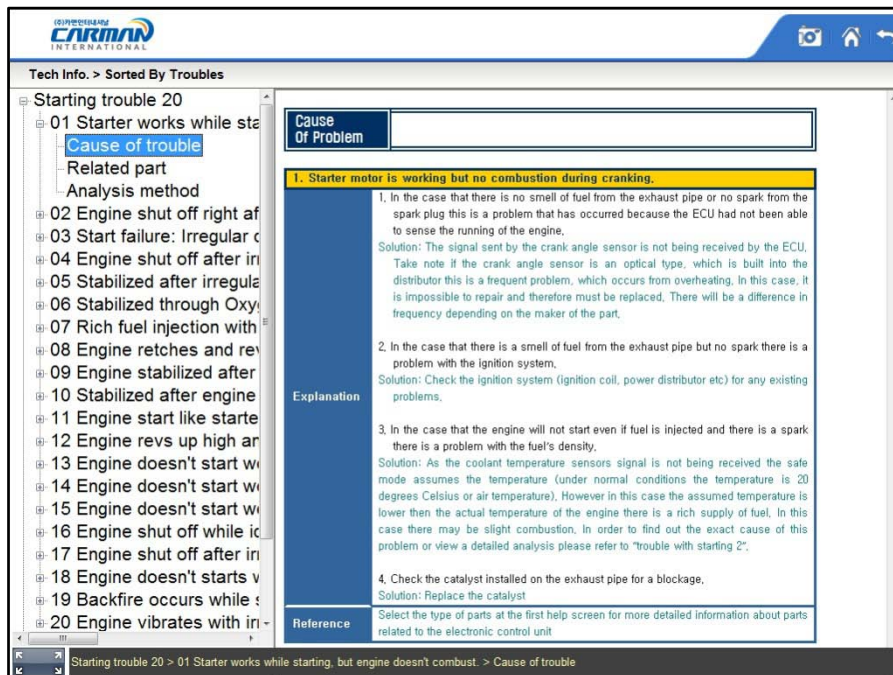
3. Sorted By Troubles



-Menu by Type of Malfunction-

Click [Cause of Problem] in menu window on the left.

👉 Tips for cause of malfunction



-Cause of Problem -

Chapter 6: Repair Information

Click [Related Parts] in menu window on the left.

Description of component related to malfunction.

The screenshot shows the CARMAN software interface. On the left, a list of starting troubles is displayed, with '01 Starter works while starting, but engine doesn't combust' selected. The main window is titled 'Related Parts' and contains the following information:

1. Starter motor is working but no combustion during cranking.

Explanation

1. Crank angle sensor: If there is no signal from the crank angle sensor the ECU assumes the engine has been stopped and therefore stops ignition and any fuel injection. Furthermore when there is no signal from the crank angle sensor the fuel pump and main relay stops operating.
2. Coolant temperature sensor: If the signal of the coolant temperature sensor is not being received the ECU reads the air temperature sensor and determines the temperature of the coolant temperature sensor. Therefore with no regard to the actual engine temperature if a low air temperature is recognized there is fuel injection in accordance to this temperature. In this case the recognized temperature has led to a rich fuel state.
3. Ignition coil: In order to have sufficient ignition there is a need for a sufficient supply of power (around 6.0± 0.5A). In order to achieve this there needs to be a sufficient dwell time for the coil, (Around 3-4 msec: when the battery is 13Volts)
4. Others
 - (1) Ignition System: Examine the second ignition wave and determine how it is actually combusted at the engine.
 - (2) Catalyst: Check for blockages.

Reference

Select the type of parts at the first help screen for more detailed information about parts related to the electronic control unit

-Related Parts-

Click [Analysis Method] in menu window on the left.

Tips for analysis method for malfunction symptoms.

The screenshot shows the CARMAN software interface. On the left, the same list of starting troubles is displayed, with '01 Starter works while starting, but engine doesn't combust' selected. The main window is titled 'Method of Analysis' and contains the following information:

1. Starter motor is working but no combustion during cranking.

1. Check whether the signal from the crank angle sensor is clear.
(1) Magnetic type signal

Explanation

The explanation includes a diagram of a magnetic crank angle sensor. It shows a 'Crank angle sensor' with an 'Air gap: 1 ± 0.5mm' between it and a 'Target wheel'. The target wheel has 'Long teeth' and 'Short teeth'. An arrow indicates the 'Direction of target wheel rotation'. Below the diagram, two waveforms are shown: a red waveform for 'High engine speed / big air gap' and a purple waveform for 'Low engine speed / small air gap'.

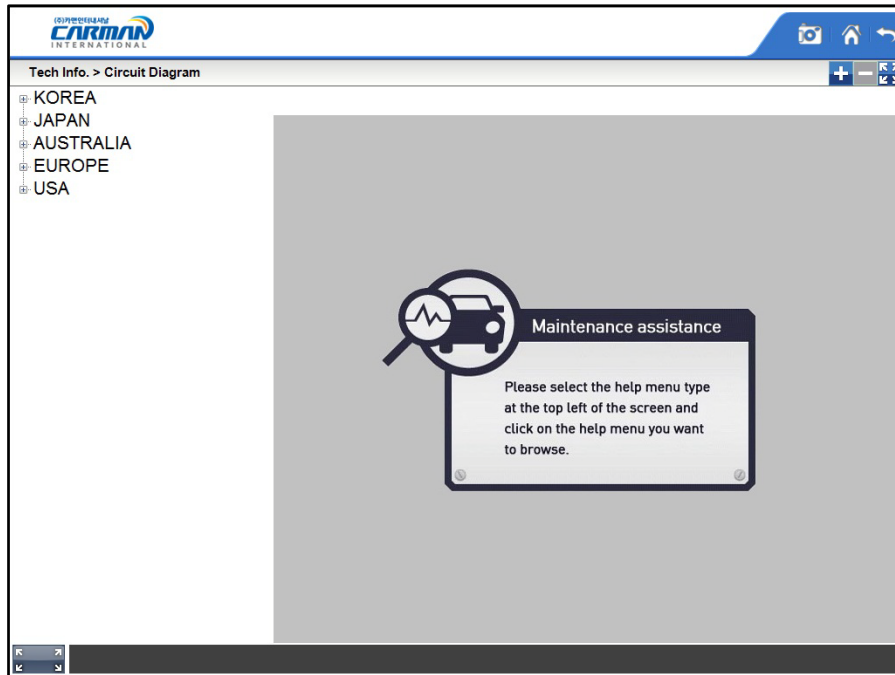
Reference

Select the type of parts at the first help screen for more detailed information about parts related to the electronic control unit

-Analysis Method-

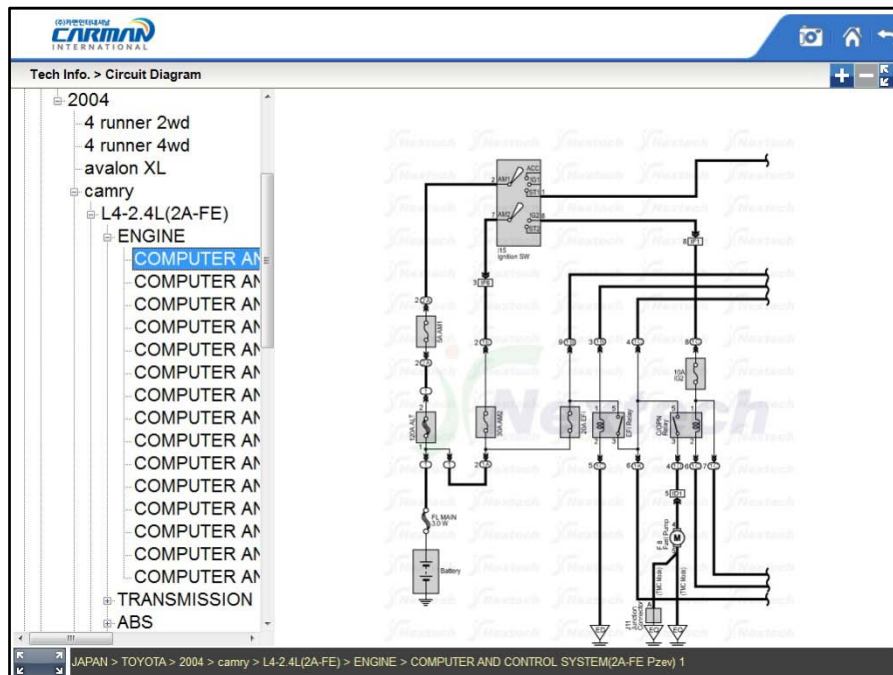
Chapter 6: Repair Information

4. Circuit Diagram



-Vehicle wiring diagrams menu -

If you “drag” the screen, the wiring diagram location changes.



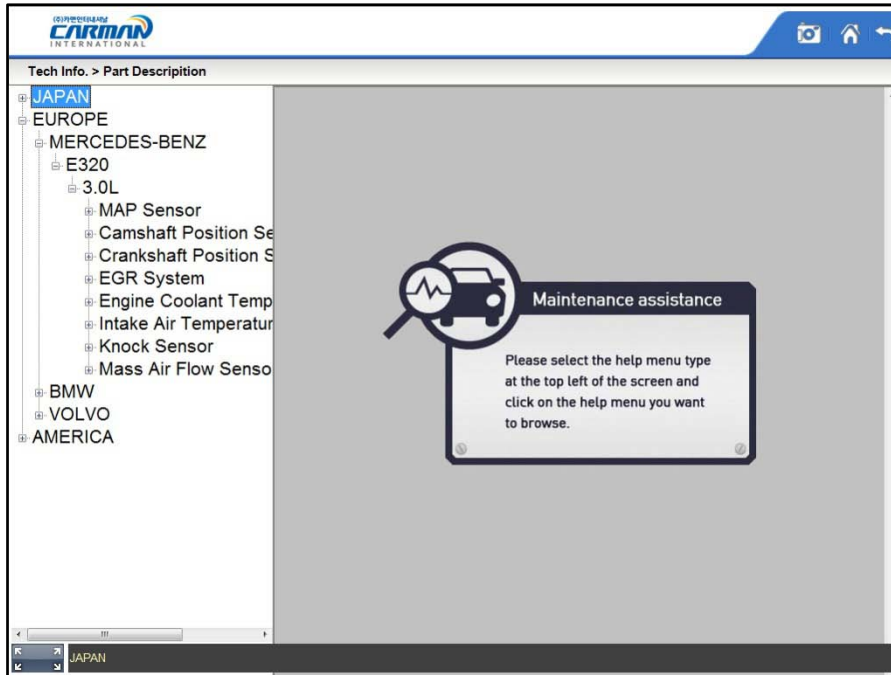
-Vehicle wiring diagram-



: Screen can be adjusted to condensed / extended / full screen with icons on the top of the screen.

Chapter 6: Repair Information

5. Parts Description



– Part Description Menu–

Click the desired part in menu window on the left.

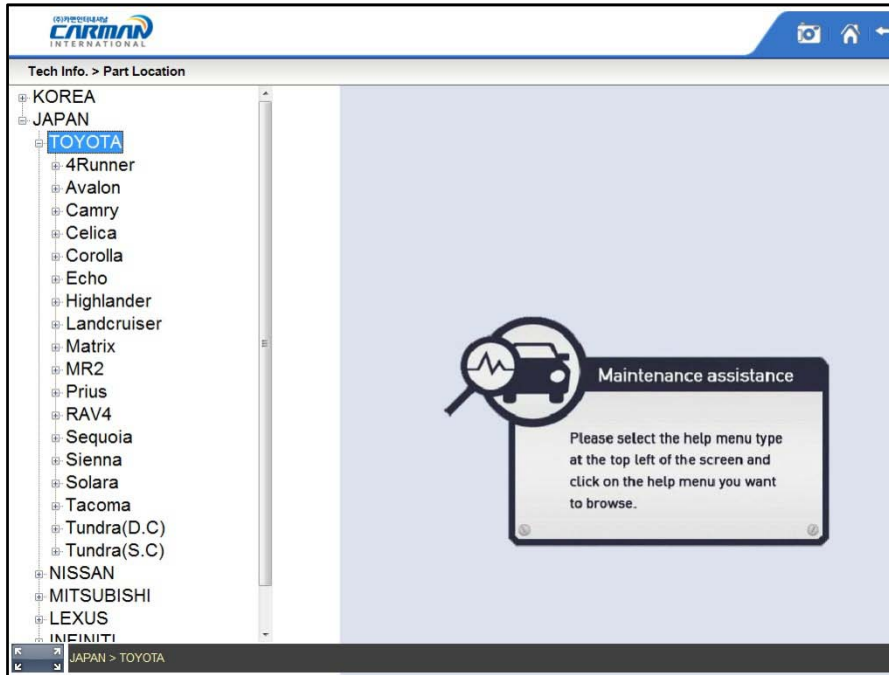
👉 Tips for parts description



– Part Description–

Chapter 6: Repair Information

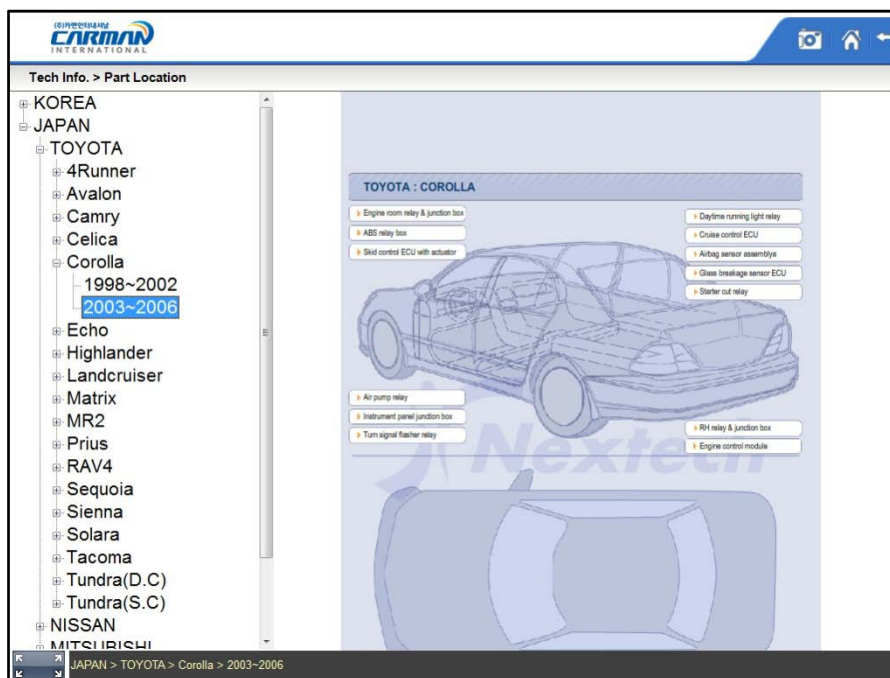
6. Parts Location



– Parts Location Menu –

Click the vehicle and model year to be confirmed in menu window on the left.

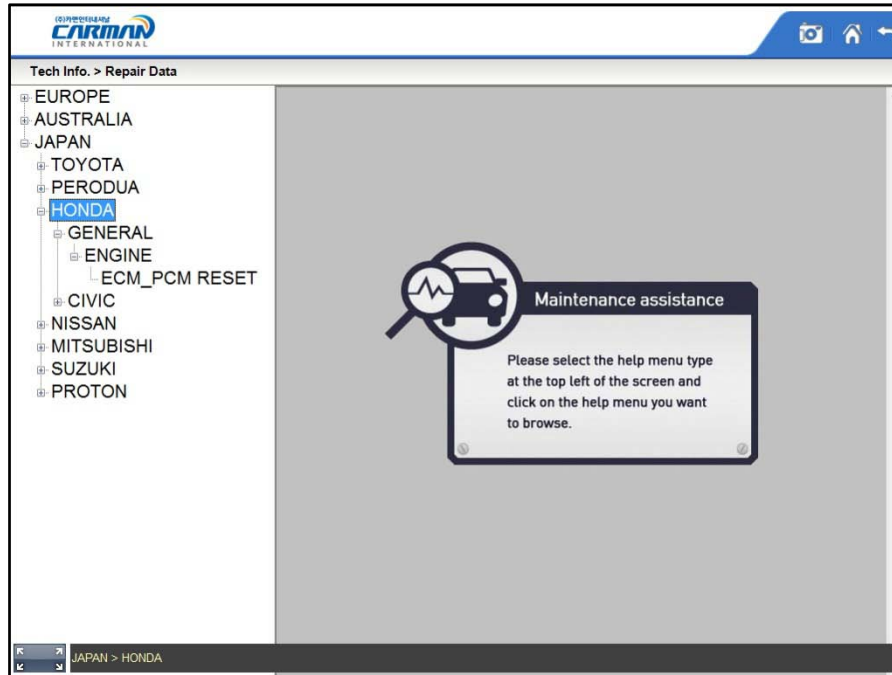
Location will be confirmed by clicking the name of part in activated window on the right.



– Part Description –

Chapter 6: Repair Information

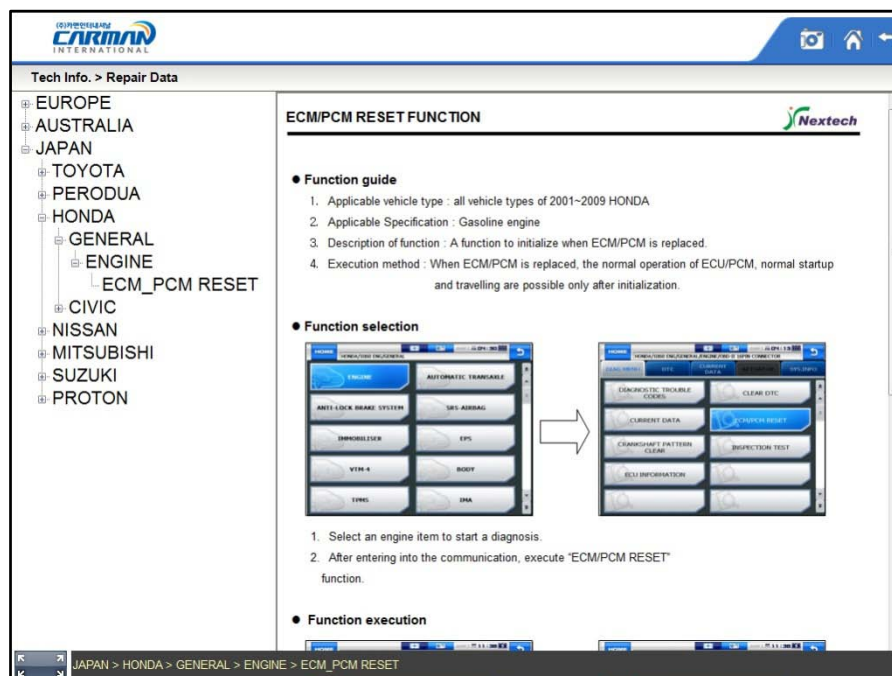
7. Repair Data



– Maintenance Data Menu –

Click the vehicle and system to be confirmed in menu window on the left.

Applied vehicle type, applied specification, function description, execution method, and order of execution will appear in the window on the right.

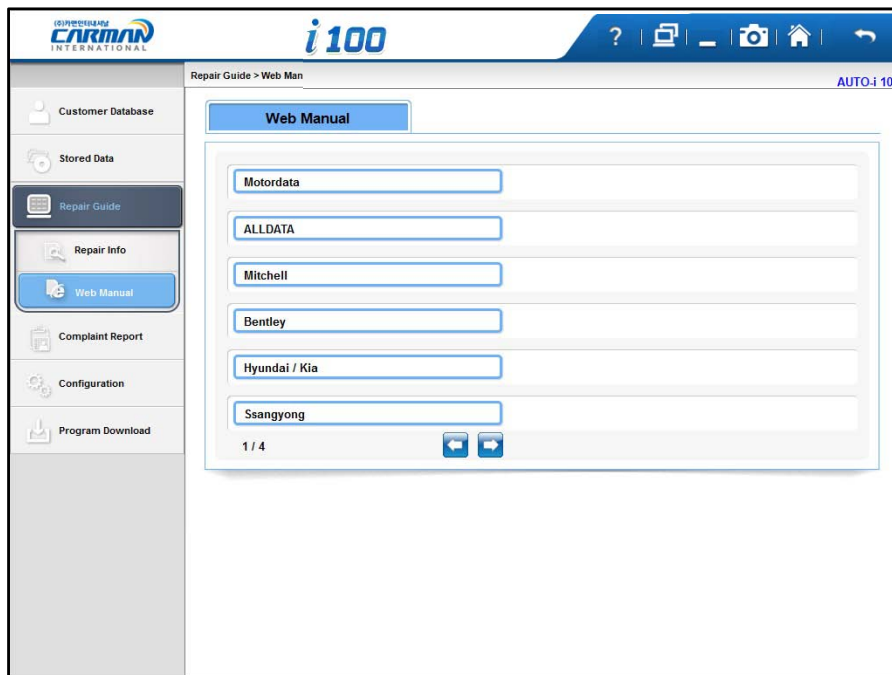


– Part Description –

Chapter 6: Repair Information

8. Web Manual

-Provides link to each maker's service information site.



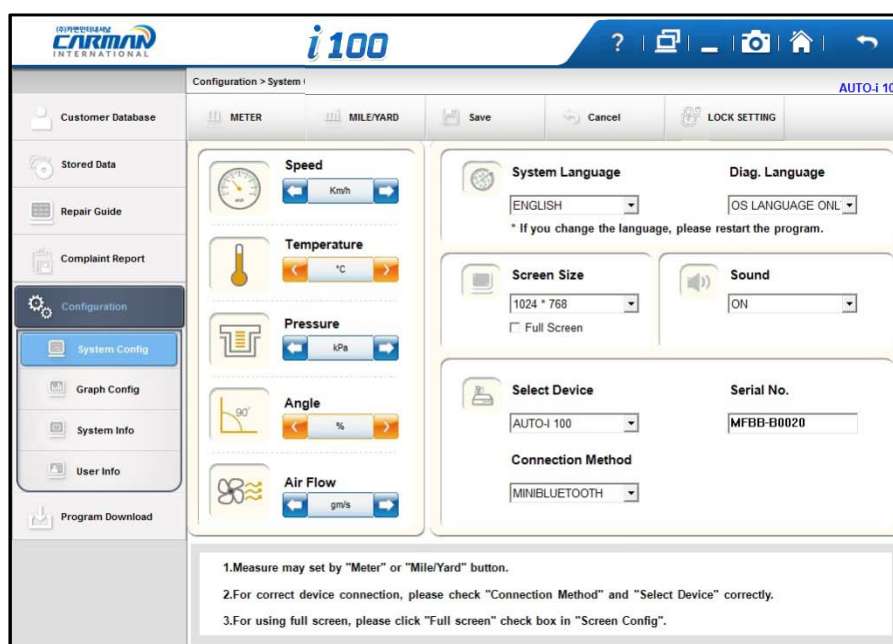
Motordata: Please refer to “MOTORDATA INSTALLATION MANUAL” file in your DVD.

Chapter 7: Configuration

1. System Configuration

In this menu, you can change the display unit of data which are sent from a vehicle.

- The units of various information, such as speed, temperature, pressure, angle, air flow can be checked and modified.



1) It is possible to change the display units all at once according to the region that uses “Metric” or “Yard-Pound” system.

2) After changing the display unit, click the Save button to save your modification.

- SPEED : You can change between Km/h and MPH.
- TEMPERATURE : You can change between °C and °F.
- PRESSURE : You can change among mbar, kPa, inHg and psi.
- ANGLE : You can change between ° and %.
- AIR FLOW : You can change between gm/s and lb/m.

Chapter 7: Configuration

3) After setup of Language or Screen Size, please click to Save button.

-System Language: sets operating system language of PC program. 21 languages are available.

-Diag. Language: sets diagnostic language.

Diagnostic languages can be selected up to the installed diagnostic languages in internal memory.

-Screen Size: sets screen size of program.

-Sound: selects Sound ON or OFF

-Select Device: selects diagnostic device.

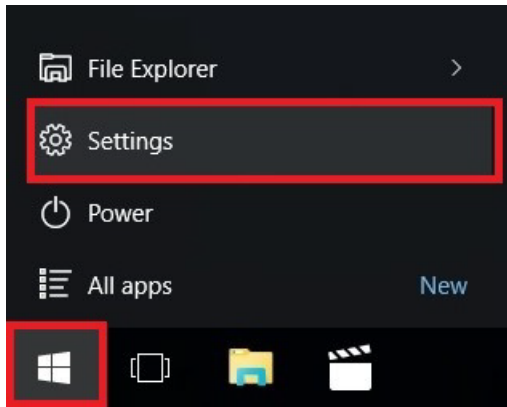
-Communication Method: selects communication method of diagnostic module.

It selects Bluetooth or Mini Bluetooth or USB communication. It does not support simultaneous use of Bluetooth and Mini Bluetooth and USB communication.

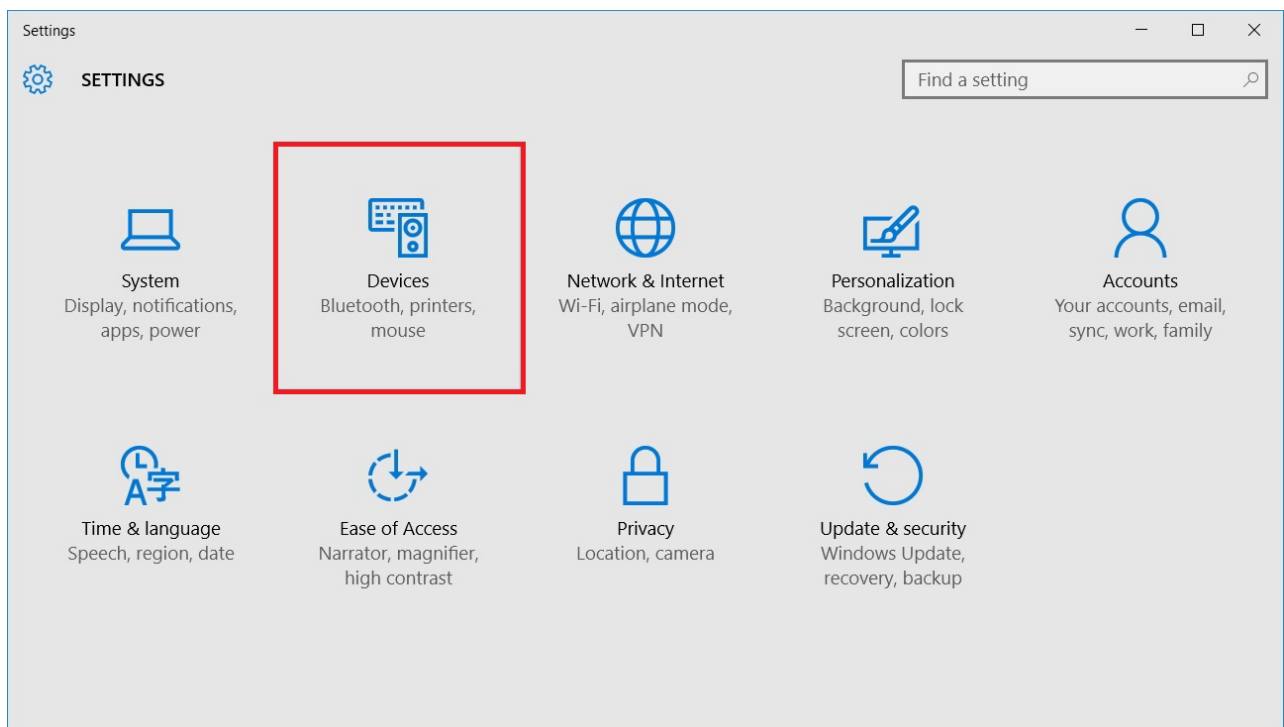
* AUTO i-Series Mini Bluetooth Setting

Pairing setting in Windows

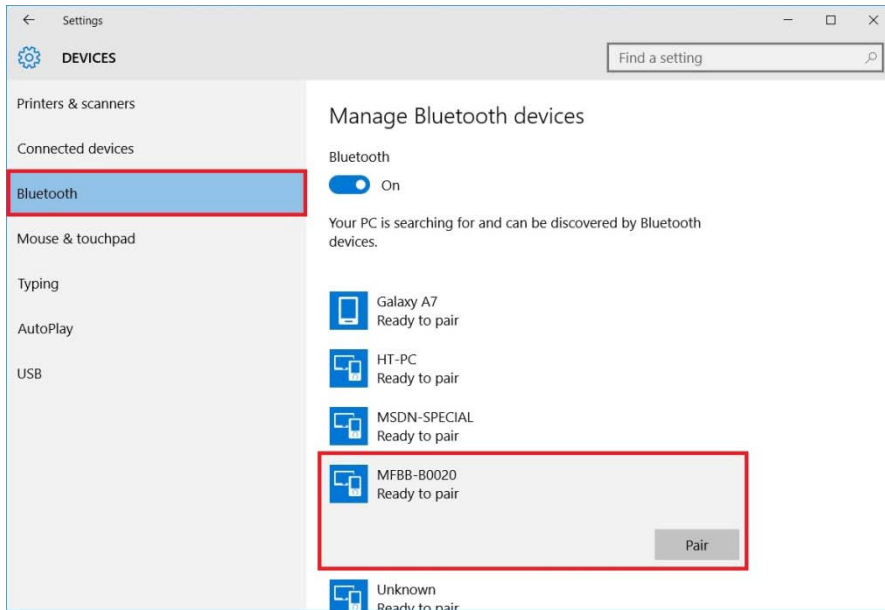
1. Start ->Settings



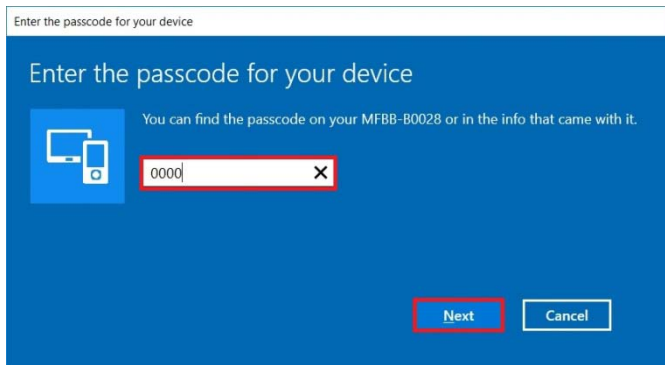
2. Devices



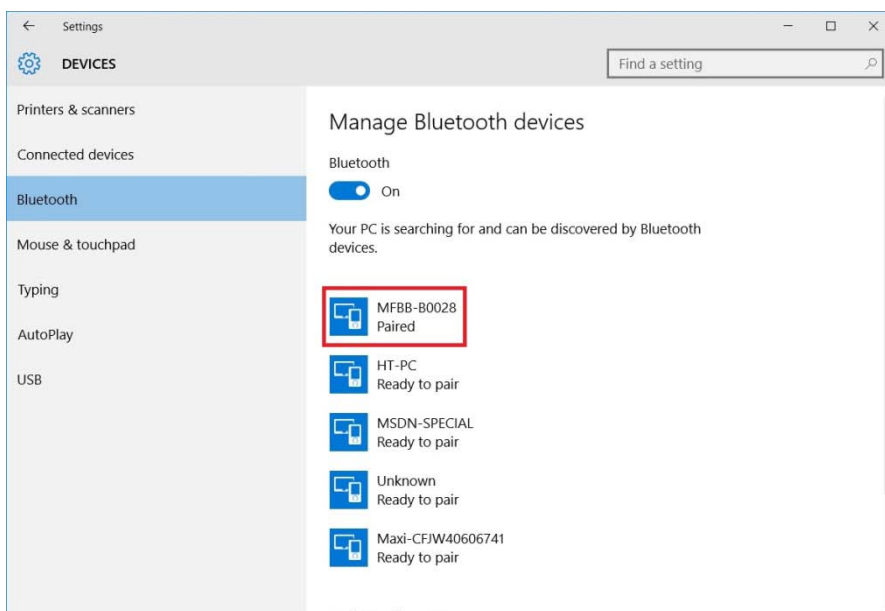
3. Select Bluetooth->Select AUTO i-Device Serial Number ->Pair



4. Input Passcode (0000) ->Next



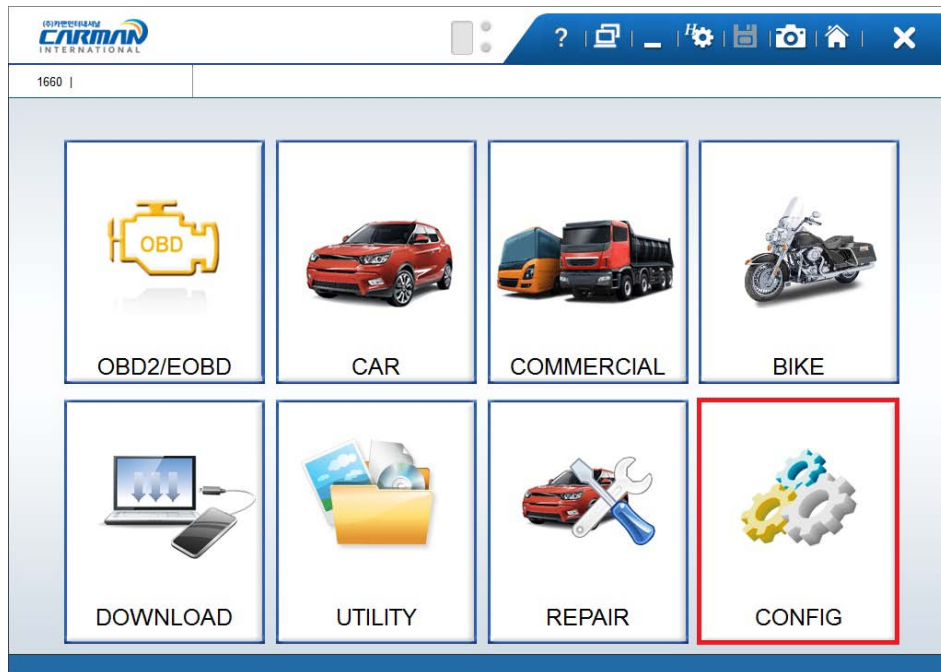
5. Completed Pairing



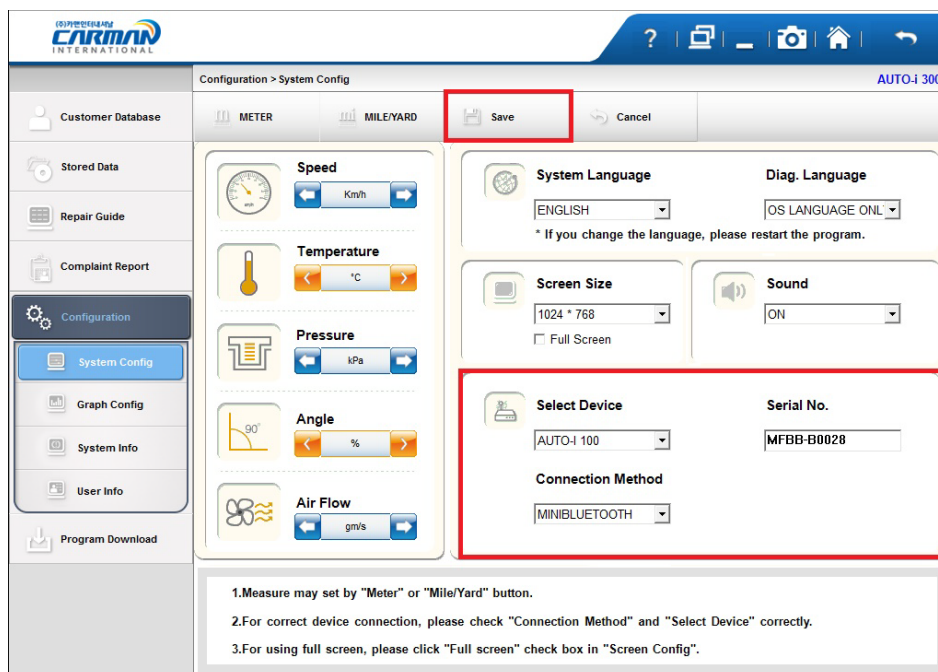
Pairing setting in AUTO -i Diag Program



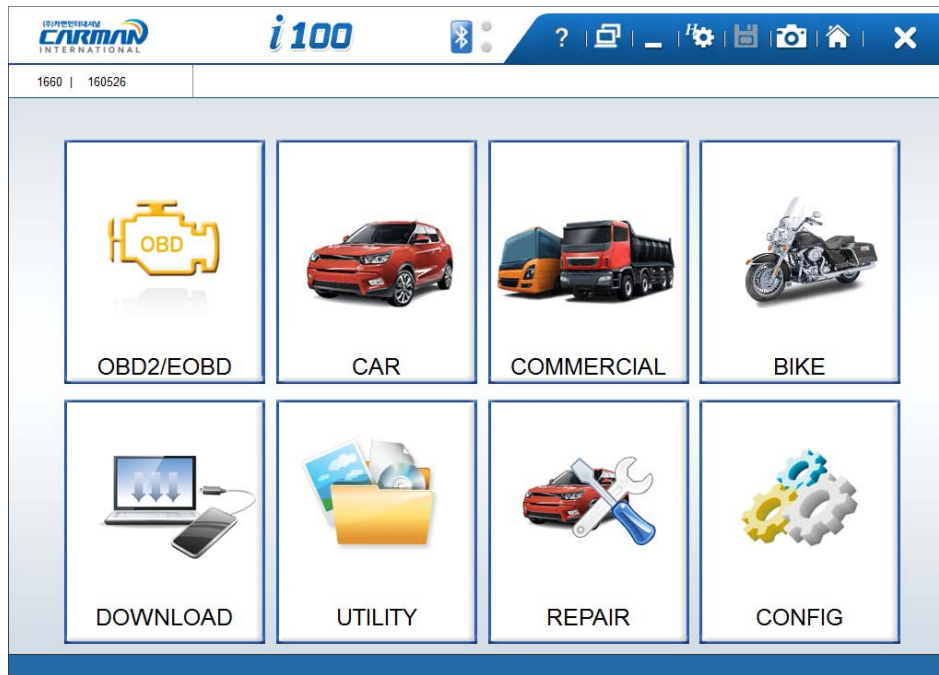
1. Run the AUTO-i Diagprogram
2. Click on “CONFIG”



3. Select the type of the device (AUTO-i100) and connection method (MINIBLUETOOTH) and input the serial number. Then, click on “Save”.



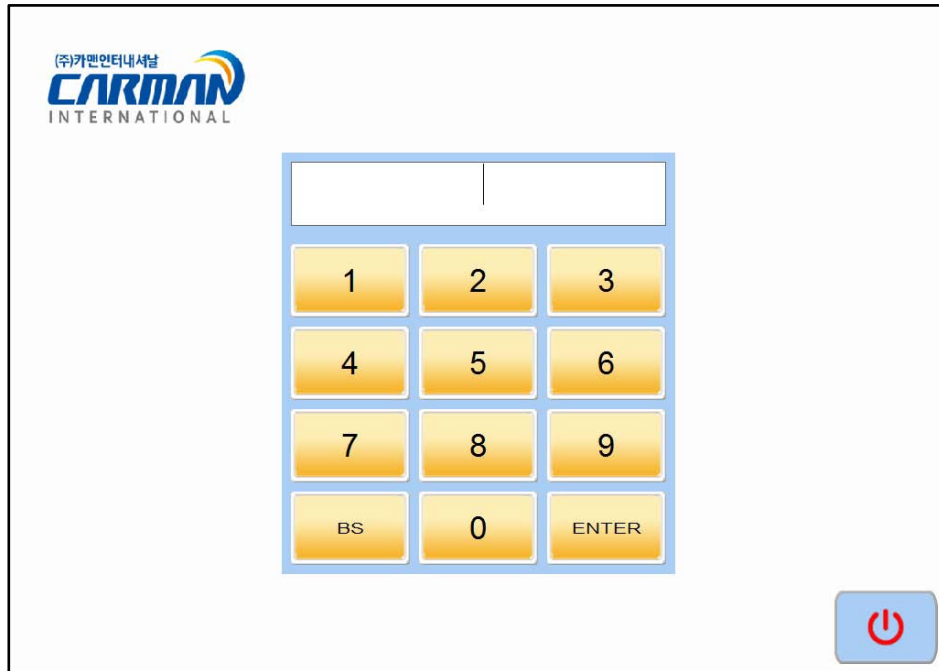
4. Rerun AUTO-i Diag→Completed Pairing



Chapter 7: Configuration

2.Lock

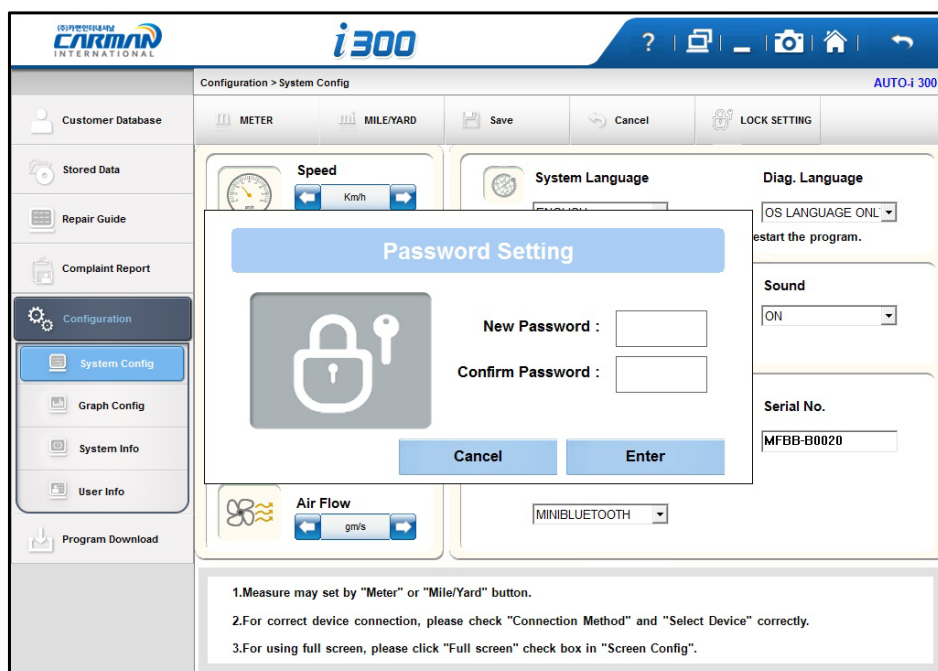
You can set the password.



-Enter Password-

2-1 Setting a password

The password can be set to a 4-digit number.

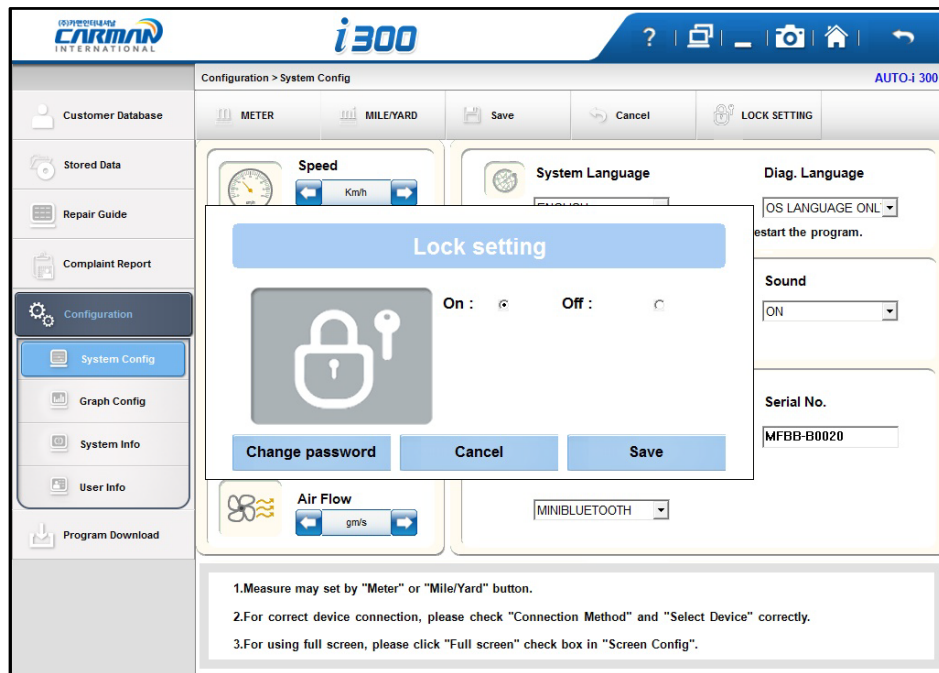


-Enter Password-

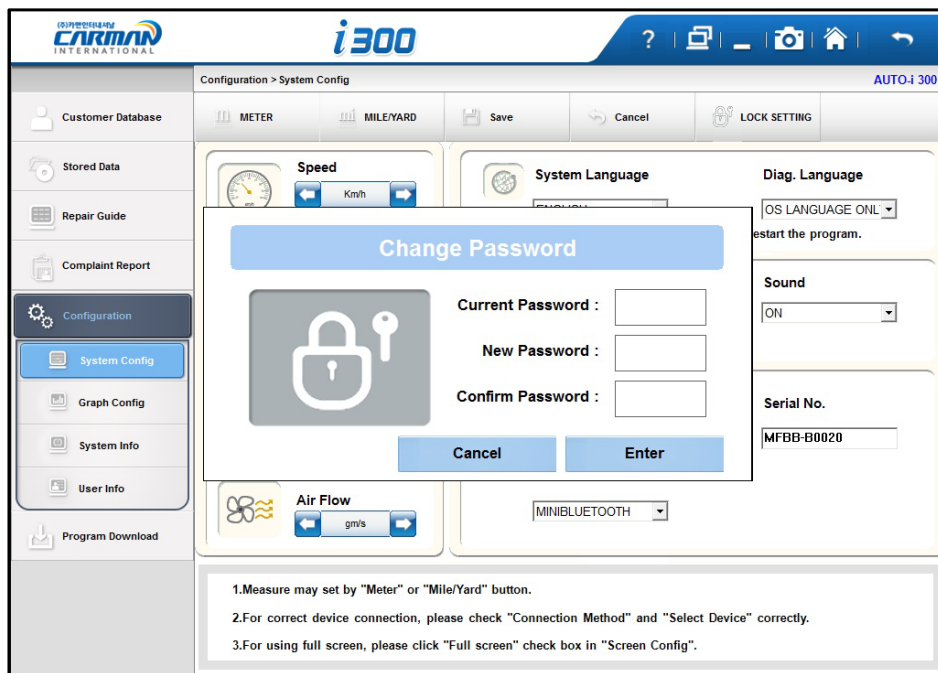
Chapter 7: Configuration

2-2 LOCK setting

- LockOn : You can activate the lock function.
- Lock Off : A password is deleted.



-LOCK screen-



-Change the password-

***Caution : When you forget your password, please contact to Carman IT.**

Chapter 7: Configuration

3. Graph Configuration

You can set the display environment when confirming current data values with graph.

- Graph line, color or thickness of background screen



CH1~8: The colors of each channel can be changed.

Default 1: Standard default setup.

Default 2: Background color in Default 1 is white.

Save: After changing settings, save with [save] icon on the bottom of the screen so that changed setting values can be displayed.

Cancel: Cancel setup.

Background: Background color can be changed to desired color.

Grid X: The color of the vertical axis of checkerboard pattern on the screen can be changed.

Grid Y: The color of the horizontal axis of checkerboard pattern on the screen can be changed.

Cursor: The color of the cursor appearing when the screen is touched can be changed to confirm values at the specific point.

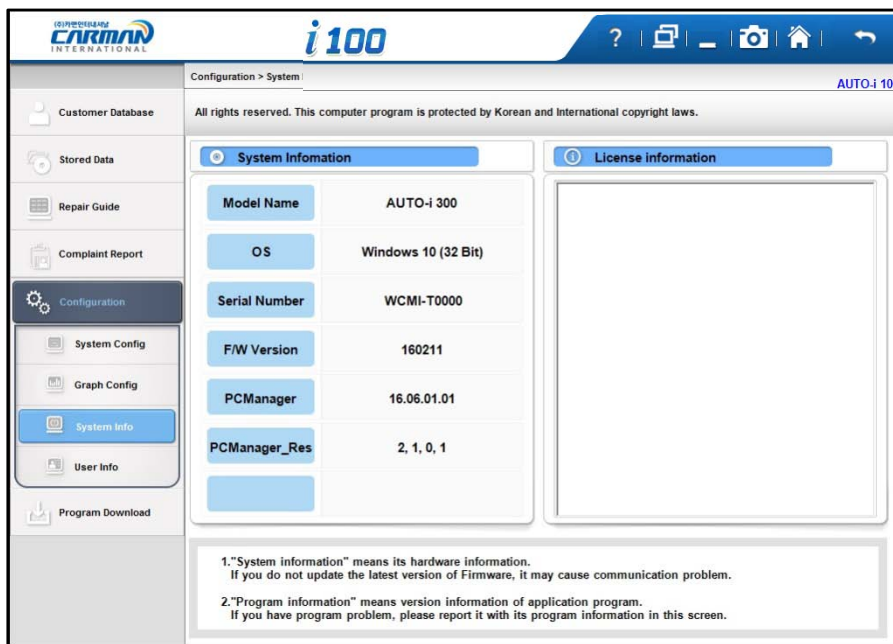
Line Width: Thickness of graph line can be adjusted.

Chapter 7: Configuration

4. System Info.

Displays System and License Information.

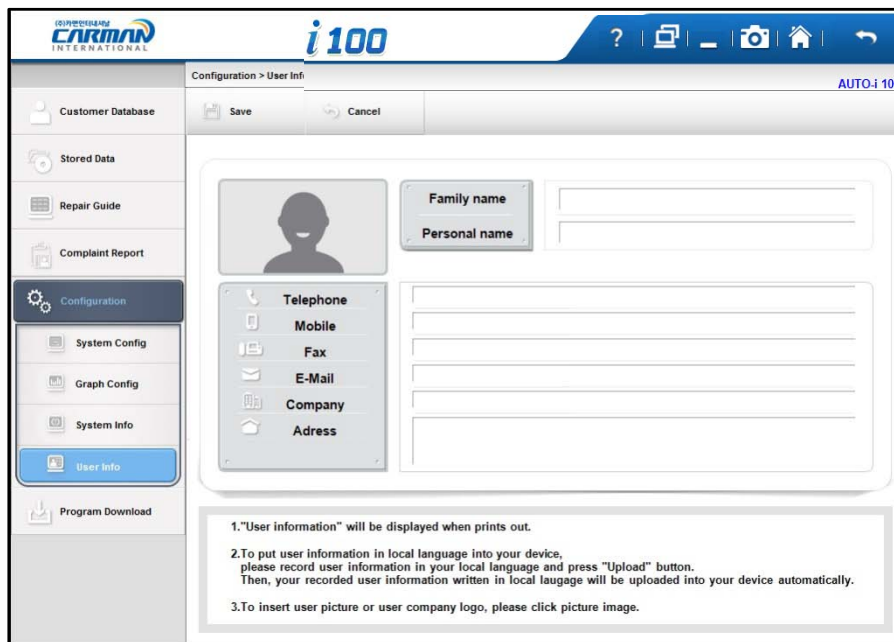
Before your upgrade, be sure to check your current application/diagnostic program information.



Chapter 7: Configuration

5. User Info.

You can input your information or check system information.

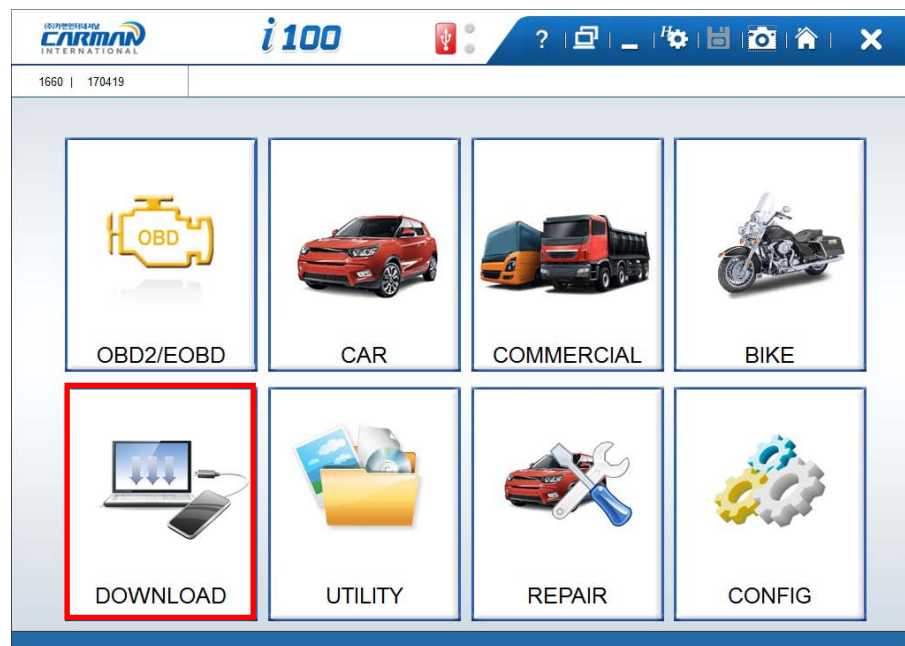


5-1. User information is shown and you can edit and save information.

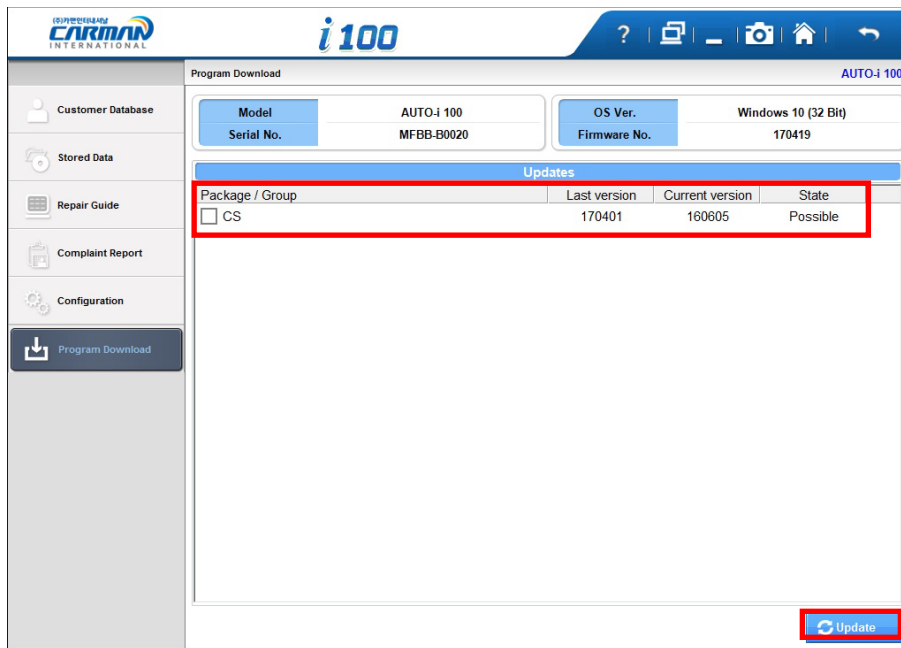
5-2. In order to change information, please select an item to edit, click the edit button on below bar and input information.

Chapter 8: Update

This is the function for updating software and firmware of Auto-i100.

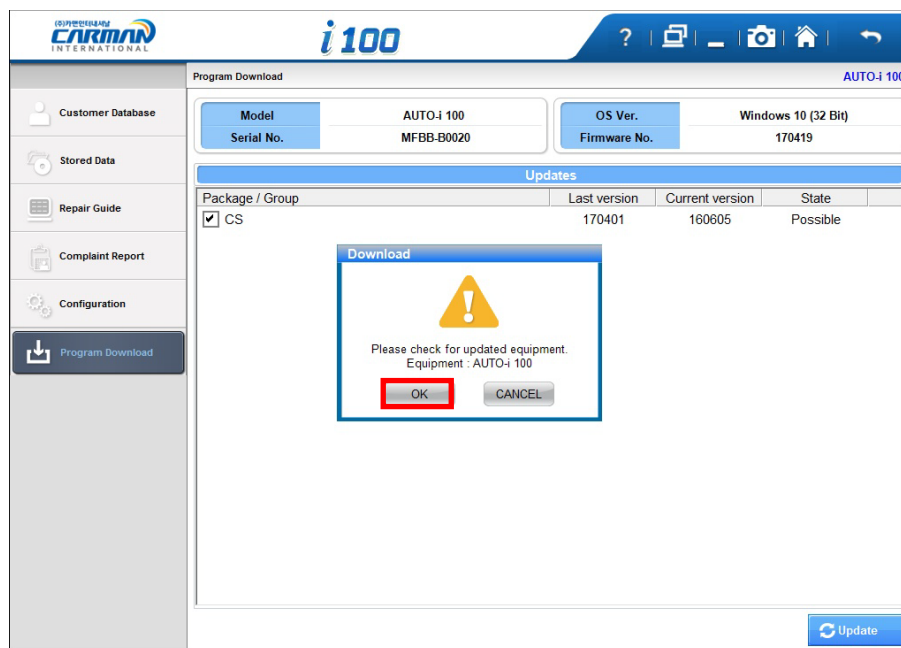


1. Connect Auto-i100 to PC by using a USB cable.
2. Select the update menu after running the diagnostic program.

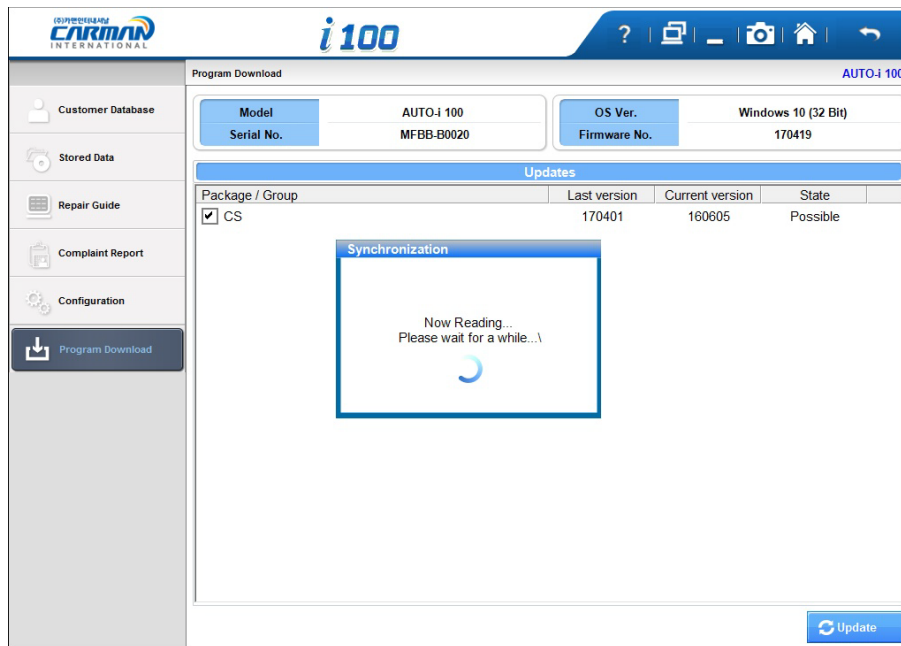


3. Select the checkbox after checking the version and state.
4. Click on “Update”.

5. Chapter 8: Update

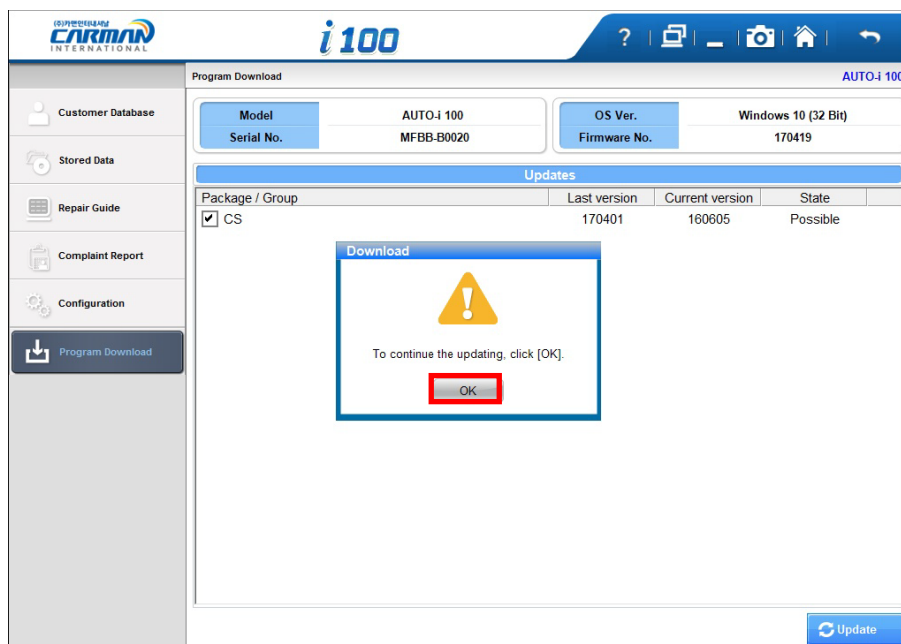


6. Click on “OK” after checking the updated equipment.



7. The update file is being downloaded.

Chapter 8: Update



8. Click on "OK" to process after finishing downloading.

FCC and CE Certificate



DECLARATION OF CONFORMITY
According to FCC Part 15

Applicant Name : Carman International Co., Ltd.

Address : #209, Second Floor, Hanshin IT Tower, 272, Digital-ro, Guro-gu, Seoul, 08389, Korea

Telephone : +82-2-2627-4592

Declares that Product : Vehicle Diagnostic

Model Name : AUTO-i 100

Report Number : CTK-2016-00650

This device complies with Part 15 of the FCC rules. Operations 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.

Test Laboratory:

CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea

Designation Number : 805871

Tel : +82-31-339-9970

Fax : +82-31-624-9501

Responsible Party:

Company Name : Carman International Co., Ltd.

Company Address : #209, Second Floor, Hanshin IT Tower, 272, Digital-ro, Guro-gu, Seoul, 08389, Korea

Phone : +82-2-2627-4592

Fax : +82-2-852-4952

Name : Ahn Tae Min

Signature :



Declaration of Conformity



Type of equipment: Vehicle Diagnostic
Brand Name /Trade Mark: CARMAN
Type designation /model: AUTO-i 100
Manufacturer: Carman International Co., Ltd.

In accordance with the following Directives:

Directive 1999/5/EC Radio Equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity

The following harmonized European standards and technical specifications have been applied:

Art.3.1.a) EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013
 EN 62311: 2008

Art.3.1.b) ETSI EN 301 489-1 V1.9.2 (2011-09)
 ETSI EN 301 489-17 V2.2.1 (2012-09)

Art.3.2) ETSI EN 300 328 V1.9.1 (2015-02)

Test report issued by:

RF: CTK Co., Ltd.
 LVD: CTK Co., Ltd.
 EMC: CTK Co., Ltd.

The CE Marking on the products and/or their packaging signifies Carman International Co., Ltd. holds the reference technical file available to the European Union authorities.

Place of issue: #209, Second Floor, Hanshin IT Tower, 272, Digital-ro, Guro-gu, Seoul, 08389, Korea

Authorized Signatory: Name: Ahn Tae Min
 Title: Associate Research Engineer

Signature:



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Carman IT Co., Ltd

2F, 144, Hyeonchung-ro, Dongjak-gu, Seoul, 06983, Korea

Email: sales@carmanit.com

Website: www.carmanit.com

Tel: 82)2-2627-4530