Contents

Chapter 1. Getting started with G-scan

1.1 Read me first

Preface

- Thank you for purchasing G-Scan supplied by GiT(Global Information Technology Co., Ltd)
- This manual contains information needed for using G-Scan. We recommend you to read this manual and comprehend the provided functionality before start using G-Scan in order to get the maximum performance out of the product.

Notice on intellectual property

- GiT owns the intellectual property including but not limited to patents, trademarks and copyright contained in this user's manual.
- No part of this manual may be photocopied, reproduced, or translated to another language in any way without the prior written consent of GiT.
- Purchase of this user's manual shall not be assumed as granting or transferring the rights to utilize intellectual property of GiT contained in this manual.
- G-scan is the registered trademark of GiT (Global Information Technology Co., Ltd.).

Disclaimer

- GiT reserves the right to change, modify, replace or remove the content of this instruction manual including but not limited to description and graphical illustrations for product enhancement without notice.
- Whenever this user's manual is updated, it is reflected on G-Scan's on-screen user guide. Therefore we recommend you to keep the G-Scan software applications always up to date.

1.2. Introduction to G-Scan

Functionality

Improved user interface is the most outstanding feature of G-Scan, which was designed and constructed for easier and handy operation. G-Scan was developed to provides greater user experience of highly efficient repair service through quick and simple access to the advanced diagnostic functions for the cars of multiple brands

Operated by Touch Screen

Menu selection is done by simply touching the screen. Intuitive Touch Screen eliminates complicated button pressing procedure for making selections in the menu.

Big size 5.6″ Color TFT LCD

G-Scan is equipped with the 5.6” large scale Color TFT LCD, which provides greater readability and more convenient user interface.

USB Expandability

G-Scan provides multiple USB slots for functional expansion by connecting with the external devices that will become available in the future.

- Check and erase the self-diagnostic fault codes contained in the electronic control units that support communication with the external diagnostic devices.
- Provision of standard diagnostic functions for OBD-II and EOBD compliant cars.
- Display and record of actual driving condition data (Flight record)
- Provision of advanced diagnostic functions
- Provision of actuator test functions

1.3. Safety Warnings and Cautions

This section contains warnings and cautions for safe and proper use of this product, therefore it is recommended that every user should read this section carefully before using the product and make sure that such warnings and precautions are well observed and comprehended.

Warning

Dangerous consequences may arise, with the possibility of fire, death or serious injury to the user, if the product is not handled properly as instructed below.
The user shall be fully liable for any direct or consequential damage or loss caused by not following the instructions provided in this G-Scan user's manual.

- Place the G-Scan at a secured location and keep clearance with any moving part of the vehicle or hazardous environment when using G-Scan with the vehicle.
- Use the power adapter and cables supplied by GiT only when supplying power from then external source.
- Make secure connections of all cables and connectors. Be careful not to let the DLC cable or power cable gets disconnected while the G-Scan is operating.
- Do not disassemble or dismantle the G-Scan base unit in any case.
- Supply stable power from the external source (using AC/DC adapter) when updating G-scan software (Operating System, Firmware and Application updates).
- Use only the parts and accessories authorized by GiT.
- Keep G-Scan within the specified storage temperature when not in use (See spec sheet)
- Use G-Scan only for the original purposes as it was designed for.
- Beware that the user shall be fully liable for any direct or consequential damage or loss caused by not following the instructions provided in this G-Scan user's manual.
- Beware that only the service personnel authorized by GiT is entitled to provide aftersales service for G-Scan.
- Observe the instructions of this user's manual when replacing the rechargeable battery.
- Do not use the rechargeable battery other than GiT supplies.
- Do not disassemble the rechargeable battery in any case.
- Do not put the rechargeable battery in the water and keep away from moisture.

- Keep the rechargeable battery from the heat.
- Do not apply physical impact to the rechargeable battery or pierce with a sharp object.
- Do not put the rechargeable battery in the microwave oven or high-voltage container.
- In case any smell, heat, distortion or discoloration is observed with the rechargeable battery, stop using it. If such a symptom is witnessed when charging or operating, remove the battery from the base unit.
- Be careful not to put the rechargeable battery polarity reversed.
- Be careful not to short-circuit the rechargeable battery terminals.
- Do not connect the rechargeable battery terminals directly with the external power sources.
- Do not put the rechargeable battery in fire or expose it to direct sun light.
- GiT is not liable for any loss or damage cause from using parts or accessories that GiT has not supplied.

Caution

Dangerous consequences may arise, with the possibility of serious injury to the user and or damage to the product, if the equipment is not handheld correctly as instructed below.
The user shall be fully liable for any direct or consequential damage or loss caused by not following the instructions provided in this G-Scan user's manual.

- Put G-scan base unit on a secure place and avoid unstable, inclined or slippery place.
  Be careful not to drop the G-Scan base unit.
- Avoid humidity and dusts when storing and using G-scan in order to prevent electric shock or fire.
- Use the stylus pen supplied as the basic accessory of G-Scan when touching the screen. Use of sharp or pointed object may cause serious and irrecoverable damage to the touch screen film.
- Do not put heavy objects such as hand tools on G-Scan base unit.
- Be careful not to cause damages to the cables by heat from the engine or the moving parts in the engine compartment when G-Scan connection is made under the hood.
- Securely tighten the screw lockers when connecting the DLC main cable to the G-Scan base unit.
- When supplying power from the vehicle battery, check the connection for correct polarity.
- Stow the parts and accessories that are not in use in the G-Scan carry case.
- Do not use the cables connected to the G-scan base unit as the handle.
- Avoid following hazards for storing G-Scan.
  - Very high or low temperature (See Spec sheet)
  - Very high or low humidity (See Spec sheet)

- Exposure to direct sunlight

- Avoid physical impart and vibration when carrying G-Scan.
- Keep away from moisture when storing or using G-Scan.
- Keep away from flammable substances or static inducing environment when storing or using G-Scan.
- Keep away from chemical or acid material that may damage G-Scan base unit or accessories.
- Do not expose G-Scan to X-ray or microwave, otherwise it may cause serious damage
- Do not put the SD card upside down when inserting to the base unit.
- Use only the AC/DC adapter that is supplied with G-Scan when supplying power from AC source.
- Storing the rechargeable battery in a hot place may shorten its lifetime.
- Observe the storage conditions (Temp:23±5℃, Humid:65±20%RH, Battery Indicator :2 steps or more) when storing G-Scan with the battery loaded for a long period of more than 3 months.
- In case battery liquid gets in the eyes, do not rub and wash them with fresh running water. And see the doctor immediately.
- Keep LCD away from liquid or splash of water.
- Liquid Crystal may run from the broken LCD. Do not touch the LCD when it is broken, and be careful not to get liquid crystal in the eyes or mouth. If contaminated by liquid crystal on the skin, remove them immediately using soap and running water.
- Use soft fabric and alcohol to clean the surface of the LCD
- Do not use volatile solvents other than alcohol when cleaning the LCD.
- Do not put heavy object on the LCD
- Perform Touch Screen Calibration when the touched point is not coordinated correctly. The touch screen needs zeroing when used for an extensive period of time.

1.4. Warnings for environment protection

When the product has been used up to its lifetime and needs to be disposed, the rules and regulations that the government of each country has set forth for material recirculation, wasted electric/electronic product disposal or other related legal procedure shall be checked and followed. When disposing the wasted product, please observe the warning message below.

Warning

- When disposing G-Scan, do not dump it among the daily wastes. In many countries, it either shall be approved by local authorities or recollected by the local distributor.
- Disposal by burning or burying it underground without authorization is not generally allowed in most of the countries.
- Contact your local distributor to consult the proper procedure for G-scan disposal.

Chapter 2. G-scan Basic Functions

2.1. Specifications

G-scan Base Unit

General Specification

Category	Specifications		
Micro Controller	Dual CPU	Main control Board	ARM9 @400MHz
		Communication Board	ARM9 @208MHz
System Memory	NOR Flash 16MB NAND Flash 64MB SDRAM 32MB×2		
External Memory	2GB SD Card (Up to 4GB)		
LCD	5.6” TFT LCD (480×234 pixel)		
Input Devices	Touch Screen Power ON/OFF key, ENTER and ESC keys 4 way directional keys , 6 function keys		
Indication Lamps	2 Color LED × 3 (Power, DLC, Option)		
Sound	Single tone buzzer		
Rechargeable Battery	Li-Ion Polymer 2100mAh 1cell		
Operating voltage	7 ~ 35V DC		
Housing Material	PC + ABS resin with rubber shrouds		
Dimension	194×129×59mm		
Weight	Approx. 900g		

Connectivity

External COM port	1X USB master and 2 X USB slave (USB 1.1)

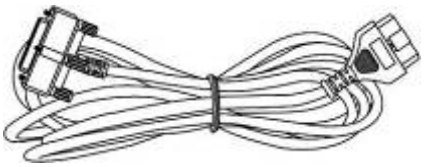
AC/DC Power Adapter

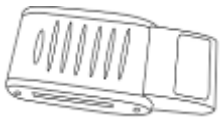
Input Power	100~240V AC
Frequency	50/60 Hz
Input Current	0.8 A
Output Voltage	12V DC
Output Current	3 A

2.2. Parts and Components

Basic Supplies

Parts included in the Basic Kit.

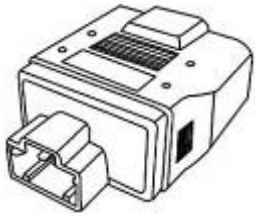
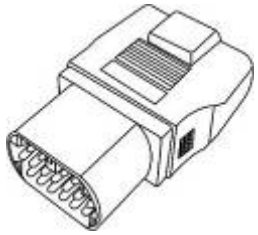
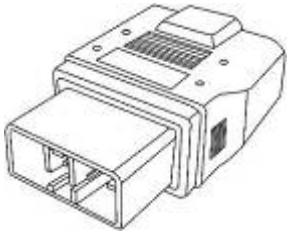
Part	Part Number	Description	Q'ty
	G1PZFMN001	**Part Name: G-Scan Base Unit** G-Scan base unit Includes the battery and charger circuit And SD Card	1
	A2MDT2SD102	**Part Name: SD Card** Provided included in the base unit. A memory card that contains software and data for diagnostic functions.	1
	G1PZKMN001	**Part Name: Battery Pack** Provided included in the base unit. Rechargeable / Detachable battery package that contains lithium-ion battery and the charger circuit.	1
	G1PDDMM006	**Part Name: Battery, Lithium-ion** Provided included in the battery pack. Supplies power to the base unit when external power is not supplied.	1
	G1PDDCA006	**Part Name: Cable – DLC Main Cable** The main cabled used for connecting the G-scan base unit and the car's OBD2 connector.	1

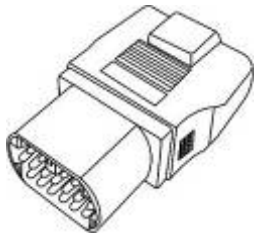
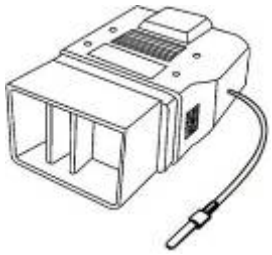
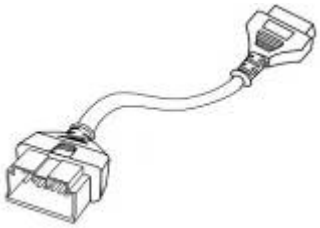
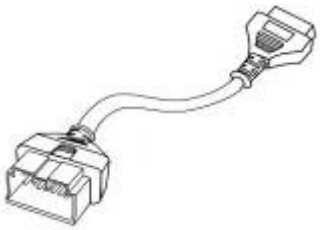
	A2MDK1NMSD1	**Part Name: SD Card Reader** A USB card reader used for connecting the SD Card to the PC. (Specs can be changed without notice)	1
	G1PDDMK020	**Part Name: Stylus Pen** Used for input through touch screen Always recommended to use this	1
	G1PDDMN005	**Part Name: Cleaner – LCD** A fabric used for cleaning the G-scan LCD screen.	1
	G1PDDMN003	**Part Name: String – Stylus** An elastic string used for binding Stylus Pen with the G-Scan base unit	1
	G1PDDMN002	**Part Name: Hand Strap** A safety device for tighter grip that prevents accidental fall off and consequent damage.	1
	G1CDDPA008	**Part Name: Cable – Self Test** A cable used for self test of G-Scan base unit and the cable connection. Do not use this cable for vehicle diagnostic functions	1
	G2SDDCA003	**Part Name: Cable – Battery** A power supply cable used together with the Cigarette Lighter Cable when supplying power from the car's battery.	1

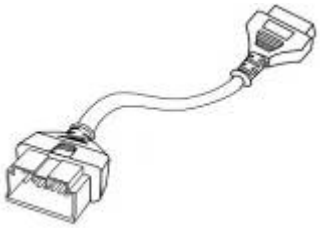
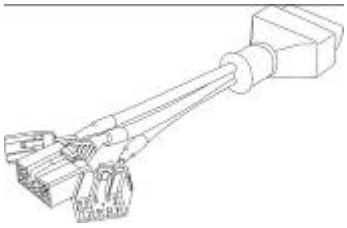
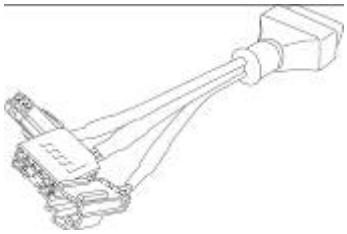
	G1PDDCA002	**Part Name: Cable-Cigarette Lighter** A power supply cable used when supplying power from the car's cigarette lighter socket.	1
	G1PZGZN101	**Part Name: G-Scan User's Manual** A guide to safe and proper use of G-Scan. Contains how to use information, features, functions, warranty certificates, etc.	1
	G1PZGDP001 (CD) G1PZGVA001 (CD Case)	Part Name: CD (S/W) A CD that contains the G-Scan PC utility installation program and soft copy of user's guide for each car make.	1
	G1PZGHA001	Part Name: Carrying Case A portable and heavy duty hard case that contains G-scan base unit and parts.	1
	G1CDDPA011	Part Name: AC/DC Adapter An AC to DC converter that is used for supply of AC power to the G-Scan base unit.	1
	G1CDECA001	Part Name: AC Power Cable An AC socket plug used together with the AC/DC adapter for supply of AC power to G-Scan base unit Spec: IEC 60320 C13	1

Asian Car OBD Adapters

Parts included in the Asian Kit (Not included in Basic Kit)

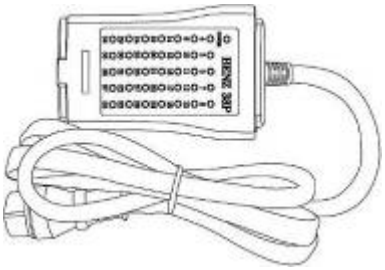
Part	Part Number	Description	Q'ty
HONDA/ACCURA 3P 	G1PZFPA003	Used for communication with old Honda and Acura cars with the 3-pin or 5-pin diagnostic connector.	1
MAZDA 17P 	G1PZFPA004	Used for communication with old Mazda cars with the 17-pin round (semi-circular) type diagnostic connector.	1
MITSUBISHI 12P+16P 	G1PZDPA002	Used for communication with old Mitsubishi or Hyundai cars with the 12-pin single or 12+16pin dual diagnostic connector.	1
NISSAN 14P 	G1PZFPA007	Used for communication with old Nissan or Infiniti cars with the 14-pin diagnostic connector.	1
SUBARU 9P 	G1PZFPA005	Used for communication with old Subaru cars with the 9-pin diagnostic connector.	1

TOYOTA 17P R 	G1PZFPA002	Used for communication with old Toyota and Lexus cars with the 17-pin “Round (Semi-circular)” type diagnostic connector.	1
TOYOTA 17+1PIN Square 	G1PZDPA001	Used for communication with old Toyota and Lexus cars with 17+1 pin “Square (rectangular)” type diagnostic connector in the engine compartment.	1
Kia 6P Connector 	G1CDDPA005	Used for communication with old Kia cars with 6 pin diagnostic connector in the engine compartment.	1
Kia 20P-A type Connector 	G1PZDPA003	Used for communication with old Kia cars with 20 pin diagnostic connector in the engine compartment. Generally used for ‘99 ~ ‘02 MY cars. A-type is colored blue	1
Kia 20P-B type Connector 	G1PZDPA004	Used for communication with old Kia cars with 20 pin diagnostic connector in the engine compartment. Generally used for ‘03 ~ ‘05 MY cars. B-Type is colored yellow	1

Part	Part Number	Description	Q'ty
Daewoo 12P Connector 	G2WDDCN008	Used for communication with old Daewoo cars with 12 pin diagnostic connector	1
Ssangyong 14P Connector 	G2WDDCN006	Used for communication with old Ssangyong cars with 14 pin circular diagnostic connector in the engine compartment	1
Ssangyong 20P Connector 	G2WDDCN007	Used for communication with old Ssangyong cars with 20 pin square diagnostic connector in the engine compartment	1
Hyundai Keyless Connector 	G2SDDCA024	Used for some old Hyundai models that require special connector for keyless entry remote control coding	1
Kia Keyless Connector 	G2SDDCA025	Used for some old Kia models that require special connector for keyless entry remote control coding	1

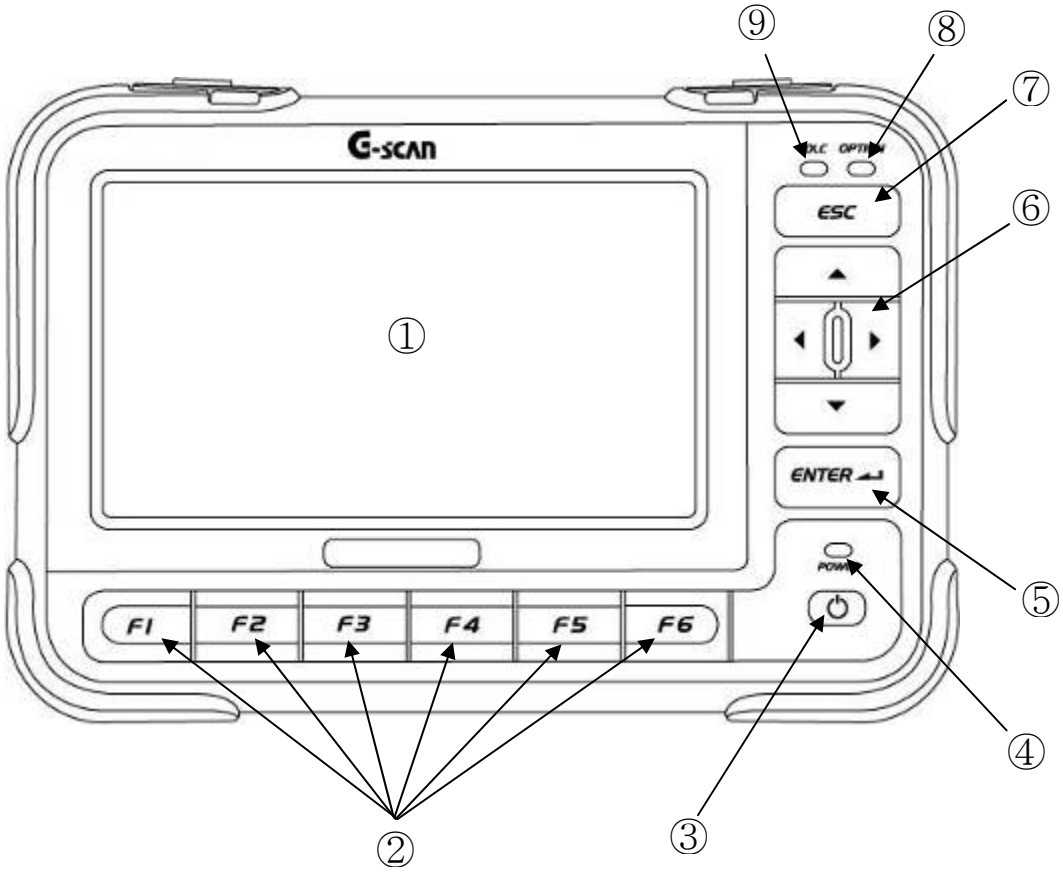
European Car OBD Adapters

Parts included in the Full Kit (Not included in Basic or Asian Kit)

BMW 20P 	G1PZEPA001	Used for communication with old BMW cars with the 20-pin circular diagnostic connector. .	1
AUDI/VW 4P 	G1PZEPA002	Used for communication with old Volkswagen, Audi, Seat or Skoda cars with the 2 X 2 pin diagnostic connector.	1
BENZ 38P 	G1PZEPA003	Used for communication with old Mercedes Benz cars with the 38-pin circular diagnostic connector in the engine compartment.	1

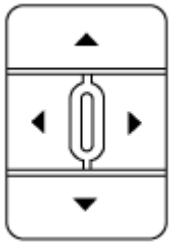
2.3. Details of the base unit

Touch screen and input buttons



[Figure 1] Front view of G-scan

①	**Touch Screen**	Touch with the specified stylus pen when selecting a icon or a menu button appears on the screen
②	F1 ~ F6	Press the corresponding button when selecting the function described in the bottom of the screen
③	⏻	Turns power on / off
④	POWER	An LED light that indicates the status of power supply

⑤		Confirms the selection that is currently highlighted on the menu or Proceeds to the next step at a query
⑥		Navigate up/down/left/right on the menu by moving the highlighted selection. Press the ENTER key to confirm. Press Up/Down to scroll the screen up and down in Live Data display function. Left/Right keys are used for Page up/down.
⑦		Returns to the previous menu. Aborts the currently running function.
⑧		Indicates the status of communication with the car
⑨		Indicates the status of communication with the optional devices connected to G-scan

Power LED Indications

Battery Pack	External Power	When charging	Fully charged
Installed	External Power Supplied	Red LED ON	Green LED ON
	External Power not supplied	LED OFF	
Not installed	External Power Supplied	Green LED ON	
	External Power not supplied	Device will not turn ON (LED OFF)	

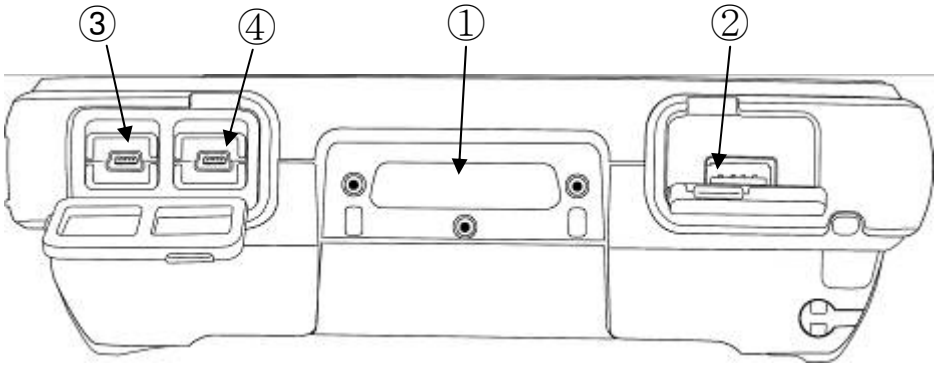
DLC LED Indications

Communication with the car	**LED indication**
Communicating with the car	Green LED flashes
Communication with the car ended	LED OFF

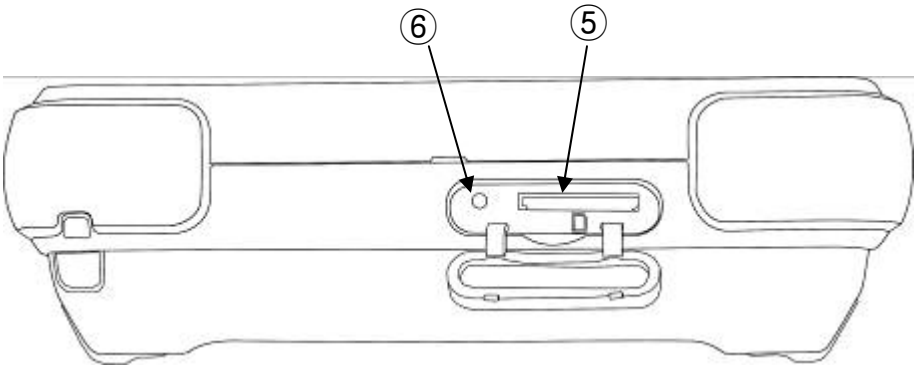
Option LED Indications

USB external device	**LED indication**
Communicating with the external device	Green LED Flashes
Otherwise	LED OFF

Communication Terminals, SD Memory slot and Reset button



[Fig 2] Top view of G-scan



[Fig. 3] Bottom view of G-scan

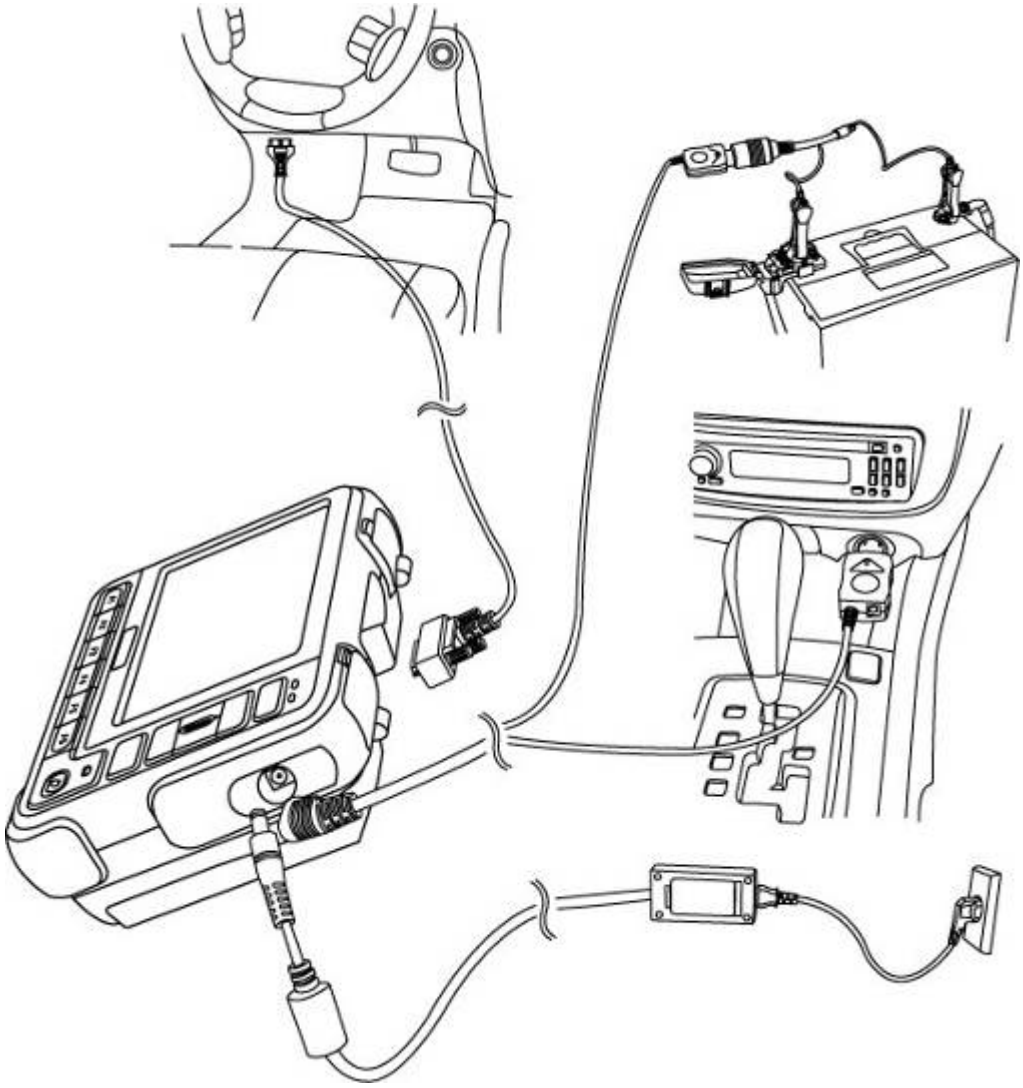
①	D-Sub for DLC	D-Sub connector for Main DLC cable
②	OPTION	USB master slot for optional device extension
③	DOWNLOAD	Reserved USB slave slot for G-scan maintenance and function extension (not used at the moment of this manual publication)
④	PASS-THRU	Reserved USB slave slot for wired PC interface through G-scan (not used at the moment of this manual publication)
⑤	SD Memory Card Slot	Insertion / ejection slot for the SD memory card
⑥	Reset Hole	In case of system failure, the system can be shut-down by force by pressing the button inside the hole. Then G-Scan may restart when POWER key is pressed.

- To remove the SD Card from the slot, press the SD card inward for ejection.
- Use of the stylus pen for pressing the Reset Button is recommended.

2.4. Power supply to G-scan

Power supply to G-scan is available from 4 different sources:

- From diagnostic connector
- From DC-12V cigarette lighter socket
- From vehicle battery
- From AC outlet (through AC/DC converter)



[Fig. 1] Delivery of power to G-scan

From the diagnostic adapter

1. Extend the G-Scan main cable to the vehicle side diagnostic adapter (DLC: Data Link Connector/Cable) using the paring connector.
2. Turn the ignition key to ACC or ON position, and power is supplied to G-Scan
3. All OBD-2 / EOMB compliant cars are designed to supply power through the diagnostic adapter.
4. The vehicle side DLC connector is recommended to be placed within 1 meter from the driver's seat. It is generally found under the dashboard. However, be reminded that there are exceptions.

From the cigarette lighter socket

1. Connect the cigarette lighter power cable to G-Scan by the DC jack.
2. Extend the cigarette lighter cable and insert the connector to the vehicle side DC-12V socket
3. Turn the ignition key to ACC or ON position, and power is supplied to G-Scan.
4. In case of drawing power from the DC-12V socket, the power is lost when cranking the engine causing G-Scan to turn off. It is recommended to use the other power source if rechargeable battery pack is not installed to G-Scan.

 Caution

- Beware of bad contact caused by dirt, debris, corrosion and different form of contamination inside the DC 12V socket.

From the vehicle battery

1. Connect the cigarette lighter power cable to G-Scan by the DC jack.
2. Attach the battery cable with the alligator clips to the end of the cigarette lighter power cable.
3. Beware of the battery polarity, and extend the red clip to the (+) terminal of the vehicle battery and the black one to the (-) terminal.
4. Turn the ignition key to ACC or ON position, and power is supplied to G-Scan.

Caution

- Never connect the battery cable clips to the reversed polarity terminals
  It may cause serious and fatal damage to G-scan.

From AC outlet

1. Connect the DC Jack of the AC/DC converter to G-scan
2. Extend the AC adapter plug of the AC/DC converter to the AC outlet.
3. Power is supplied to G-Scan

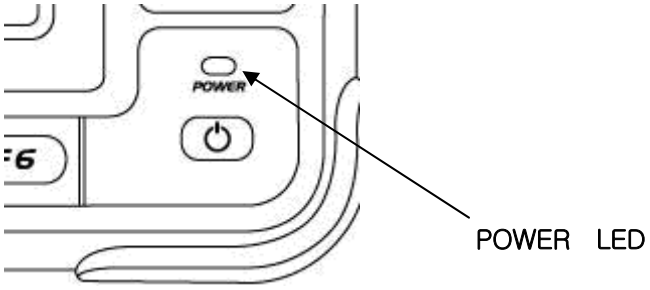
Caution

- Make sure to use the AC/DC converter that is supplied with G-Scan. Damage caused from use of unapproved AC/DC converter is not recognizable for warranty service.

2.5. Recharge Indications

G-Scan includes the Li-Ion Polymer rechargeable battery pack as the basic supply, and it enables the device operational when the external power supply is lost.
(However, make sure to draw power from the car for communication stability)

1. Connect DC Jack of the AC/DC Converter to G-Scan external power input socket.
2. Extend the adapter plug of the AC/DC Converter to the AC outlet.
3. Red POWER LED turns on when charging the battery. When fully charged, the POWER LED color turns to Green.



[Fig. 1] POWER LED

POWER LED Indication

Charging	Fully Charged
Red LED On	Green LED On

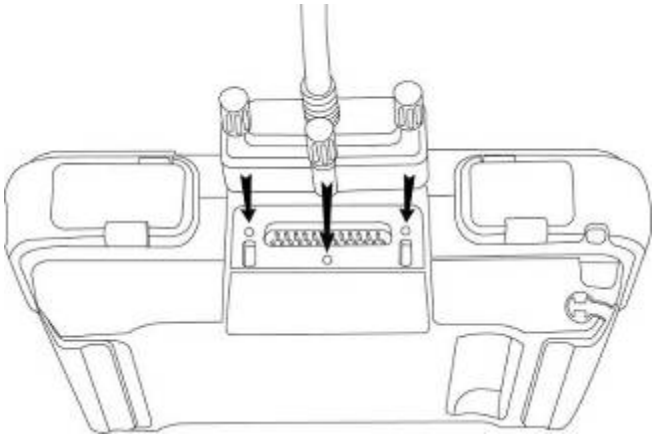
※It takes 3 hours for a full-charge from low-battery

[Fig. 2] Low Battery pop-up warning

The warning message as shown in Fig.2 indicates that the battery voltage is low. Recharge the battery immediately by supplying external power, otherwise G-Scan will turn off automatically.

2.6. Connecting with the car

1) Connect the DLC main cable to the G-Scan D-Sub connector, and secure the connection by fastening the 3 screws.



[Fig. 1] Connecting DLC main cable

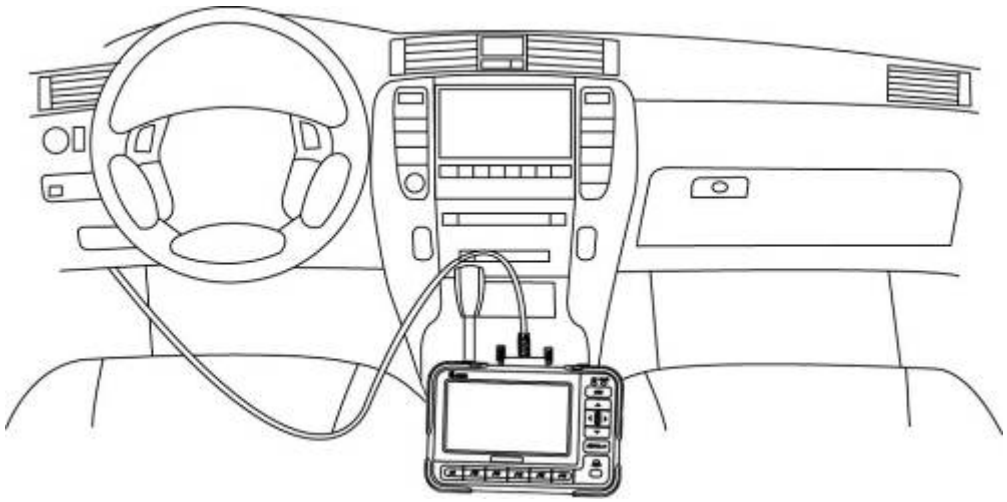
Warning

Do not hold the G-Scan base unit by the main cable when carrying the product.

Make sure to hold the base unit or the hand strap.

2) Extend the DLC main cable connected to the G-Scan to the vehicle side DLC connector.

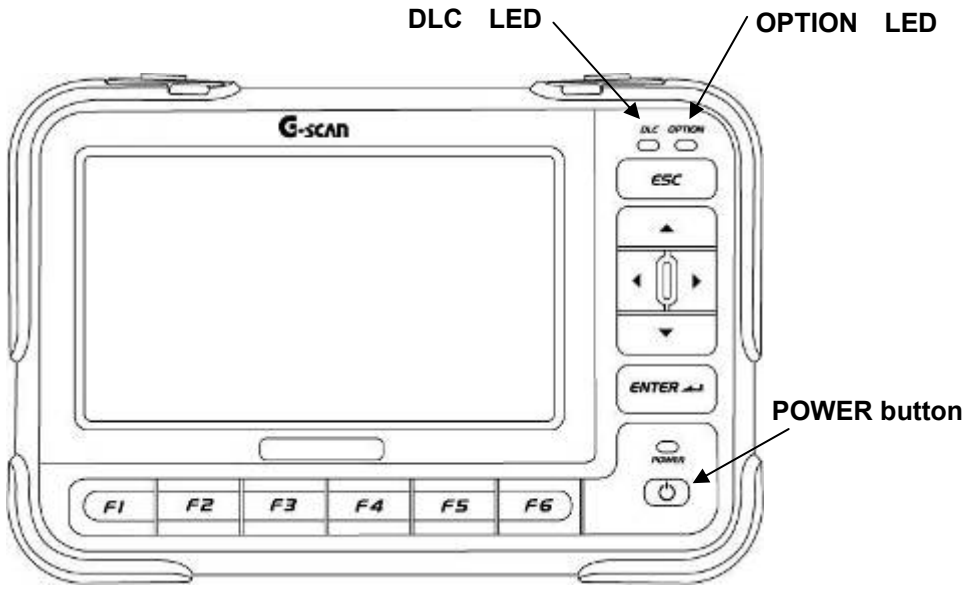
※ Different types of diagnostic adapter may be used for different models and makes. If the car is not OBD-2 / EOBD compliant cars, identify and attach the matching adapter, then connect it attached to the main cable.



[Fig. 2] Connecting with the car

2.7. Power ON/OFF

1) You can turn G-scan ON by pressing the POWER button for 0.5 seconds. The POWER LED turns from amber to green, and then G-Scan turns ON.
Refer to the『Power supply to G-Scan』part hereinbefore for the details of power supply.



[Fig. 1] G-scan POWER Button

2) The main menu follows when G-Scan turns on.

[Fig. 2] G-scan main menu

3) Hold down the POWER button for 2.5 seconds to turn G-scan OFF.

Chapter 3 G-scan Basic Operations

3.1. Main menu and basic tools

G-scan Basic Operations AA-3-1. Main menu and basic tools

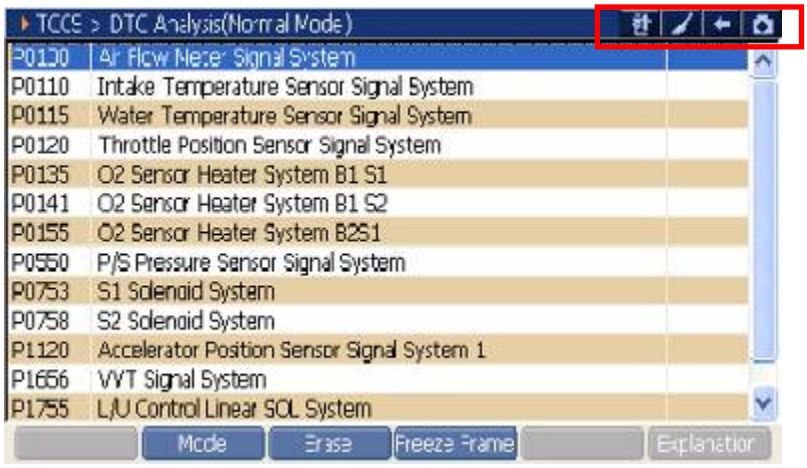
Main menu

[Fig. 1] G-scan main menu

Icon	Title	Description
	Flight Recoding	Review Captured Imageand saved flight record data
	CARB OBD-II	Perform basic diagnosis of Powertrain system for the OBD-II or EOBD compliant cars
	Diagnosis	Perform diagnosis of multiple systems by use of trouble code, Current Data, actuation test, system reset and other manufacturer specific functions available with the car.
	Configuration	Check and change the different setting for use of G-scan
	User Guide	View on-screen user guide for the basic functions and operations of G-scan
	Battery Meter	Charging (Red)
		Fully charged (Green)
		3-step indication meter of rechargeable battery
		Rechargeable battery is not installed

※ Refer to『Recharge Indications』part in the previous chapter for further details about charging.

Tool Set Buttons



[Fig 2] Tool Set Buttons

Icon	Title	Description
	Language mode	Texts listed on the screen opt between primary language and English. Supported languages are preset differently in the regional markets
	Memo Mode	Captures the current frame and begins “hand writing” memo mode Captured Imageand memo are saved to the SD card.
	Previous page	Moves to the previous menu Works the same as the esc key.
	Image Data	Captures the current screen and saves to the SD card as a BMP (bitmap picture) file

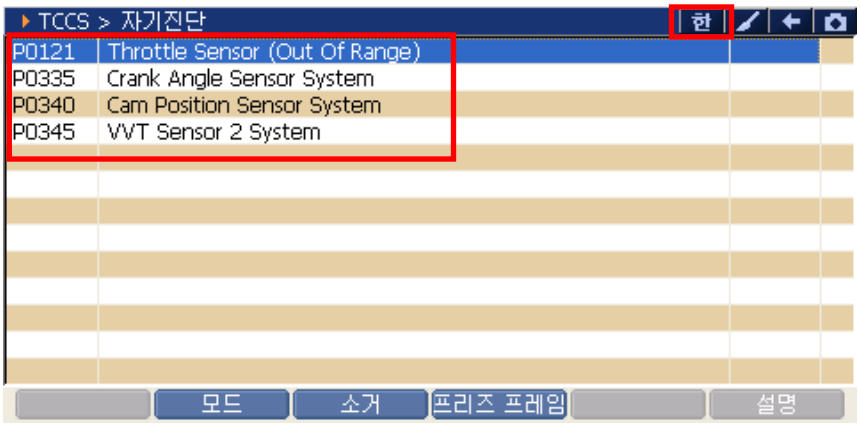
Language Mode

When the  icon is touched in the diagnostic display, the texts that are listed in primary language (Korean as an example in this chapter) are converted to English.

When the  icon is touched, vice versa: the English texts are replaced by the primary language.

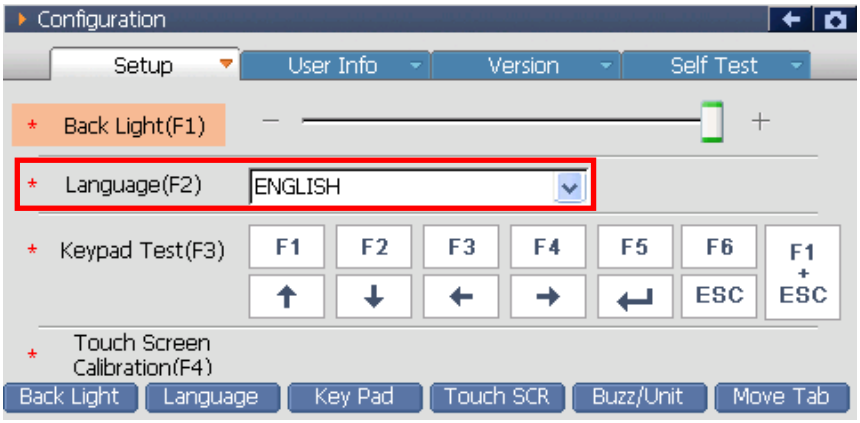
※ Graphical menus and icons are not converted to the other language.

[Fig. 3] Language Mode icon – convert to English



[Fig. 4] Language Mode icon – convert to Korean

※ If the primary language is set to English in the configuration, the Language Mode is deactivated and G-Scan supports only English.

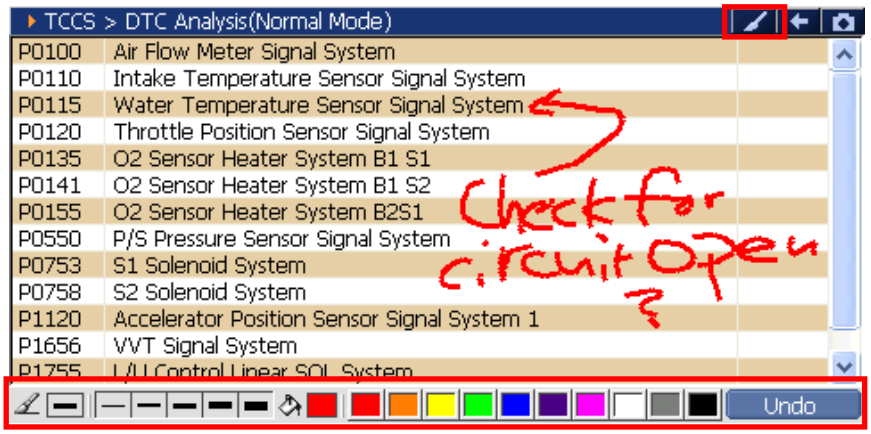


[Fig. 5] Setting language in the configuration menu

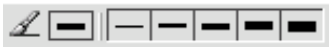
Pen Mode

When the  icon is touched in the diagnostic display, the current frame is captured and G-Scan switches to the Pen Mode.

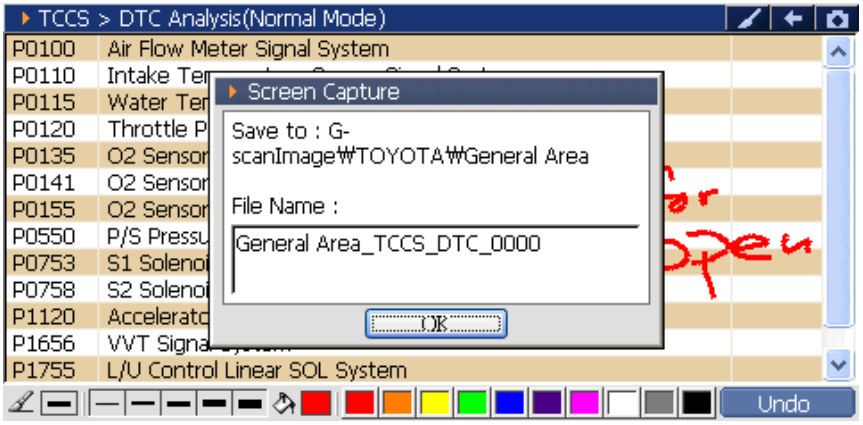
Adding the handwritten notes, memo and drawings on the Captured Imageare possible using the stylus pen.



[Fig. 5] Pen Mode

Icon	Description
	Select the thickness of pen
	Select the color of pen
	Clears and handwritten objects

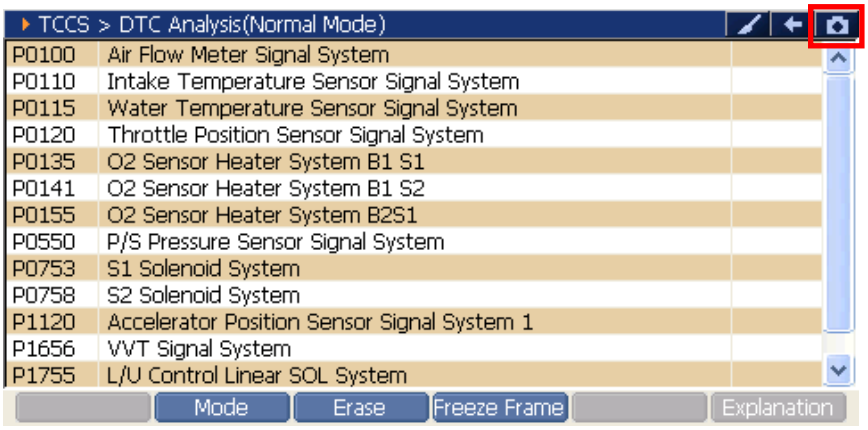
Touch the  icon when completed, the screen is captured and stored in the SD card for review.



[Fig. 6] Pen More Screen Save

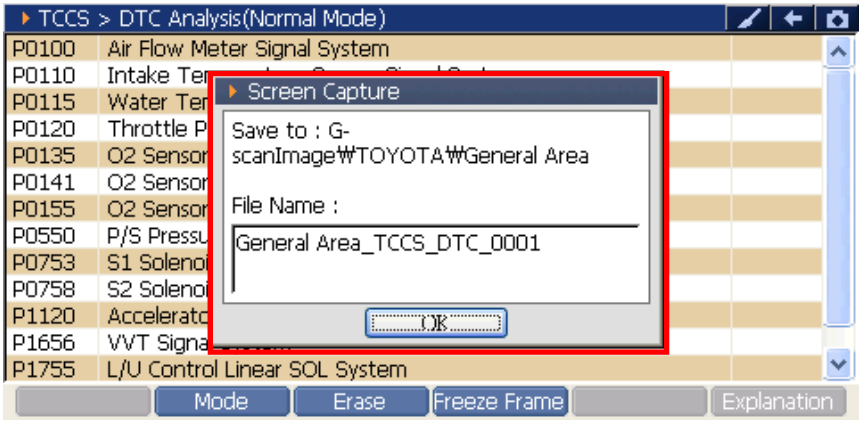
Image Data

Current screen is captured when  icon is touched , and it can be stored to the SD card.



[Fig. 7] Captured ImageIcon

At the query asking for confirmation, touch the “OK” button, then the Captured Imageis saved as a BMP file in the SD card to the [G-scanImage] folder.



[Fig. 8] Pop-up query for save Image Data

3.2. Flight Recording

Captured Imagepictures and recorded Current Data frames can be reloaded for review by selecting this Flight Recording function.

Select “Flight Recording” and press the ENTER key (or double touch) from the main menu.

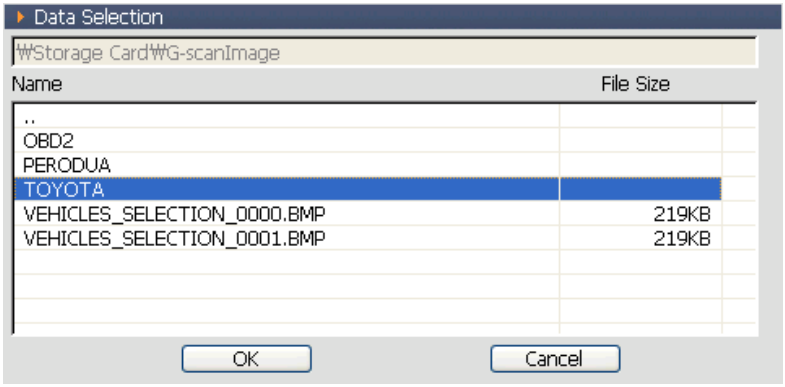
[Fig.1] Flight Recording function selected

Data type query follows. Select either “Image Data” or “Record Data”, and press the ENTER key to proceed.

[Fig. 2] Data type selection

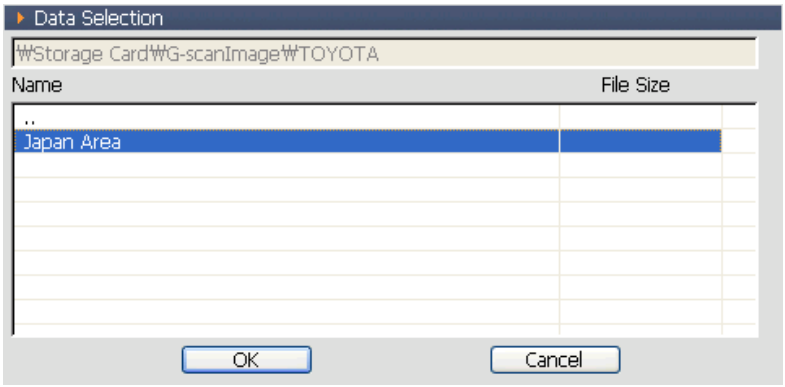
- Image Data : Reloads the Captured Imageincluding the handwritten notes made from Pen Mode.
- Record Data : Reloads the live data frames recorded during the diagnosis. The details on how to record live data is provided in the individual user’s manual for each car make (provided in the PC utility CD)

The list of car make folders that contain the selected type of flight record follows as shown below. Touch the folder name and touch the OK button.



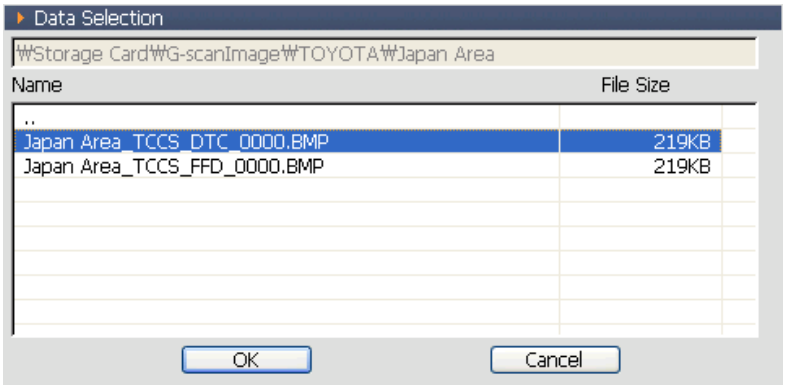
[Fig. 3] Car make folder selection

Regional version (Area) selection menu follows the car make selection. Touch the right version market (Area) and touch the OK button.



[Fig. 4] Regional version (area) selection

Then the names of the record file are listed. Select the file name, and touch the OK button.

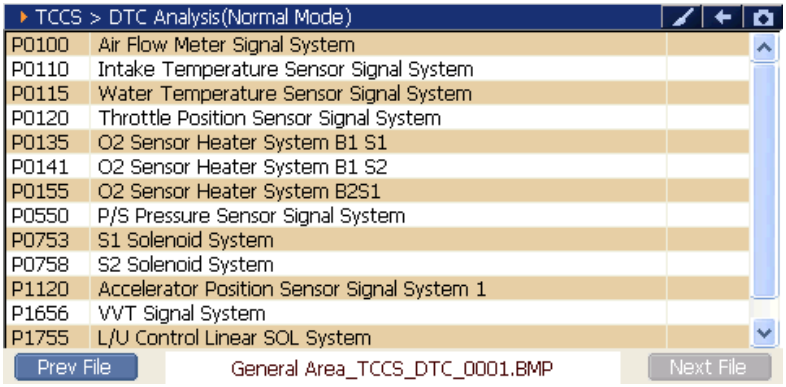


[Fig.5] File name selection

Selected file is loaded and the Record Data is displayed as shown in Fig. 6 and 7.

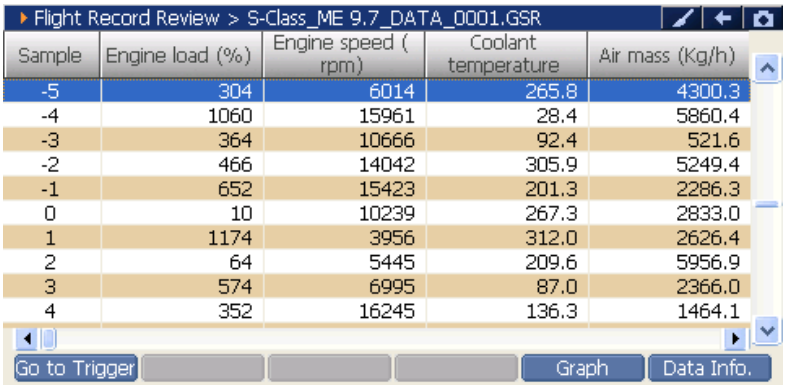
Fig. 6 illustrates the reloaded Image Data, and Fig. 7 is the example of the recorded Current Data.

Press the “ESC” key to return to the file name list.



[Fig. 6] Captured Imagereload

Icon	Description
Prev File	Shows the previous Captured Imagefile
Next File	Shows the next Captured Imagefile
General Area_TCCS_DTC_0001.BMP	The file name of the currently viewed Image Data



[Fig. 7] Record data reloaded

Icon	Description
Go to Trigger	Moves to the triggered frame - the moment when the trigger button was touched
Graph	Switches to the graphical display
Data Info.	File information of the Record Data

※ Details on how to record Current Data is provided in the individual user’s manual for each car make.

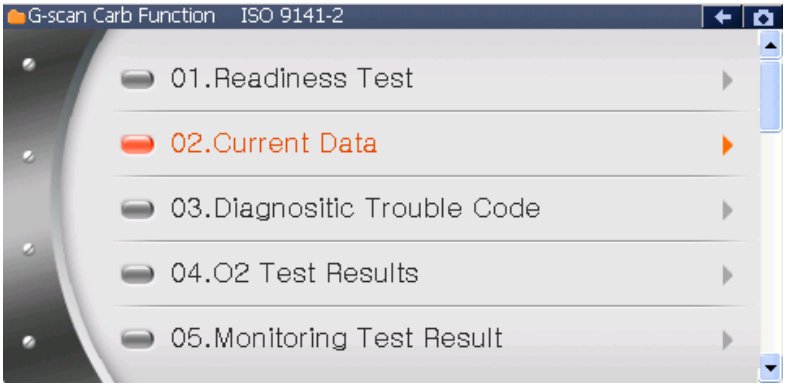
3.3. OBD-II and EOBD

CARB OBD-II function is used for diagnostics of OBD-II or EOBD complaint car's emission-related powertrain control system supporting the industrial standard protocols including ISO9141-2, ISO14230-4（KWP2000）,SAE J1850 VPW, SAE J1850 PWM and ISO15765-4（CAN）

Make the connection with the car using the main DLC cable, and select the "CARB OBD-II" icon and press the ENTER key (or double touch).

[Fig. 1] Selected CARB OBD-II

The diagnostic modes supported by CARB OBD-II function are listed as shown in Fig.2. Select the mode and press the ENTER key.



[Fig. 2] CARB OBD-II diagnostic modes

OBD-II

Originally, OBD and OBD-II are the titles of law that were legislated in the USA for the emission control.

On Board Diagnostics was designed and mandated in order to monitor malfunction or failure of the car's emission control system. By illuminating the warning lamp on the dashboard, the OBD system alerts the driver in case the emission control system is failing or inefficient, allows the ordinary mechanic may immediately comprehend what is the problem by use of a proper diagnostic device, consequently contributes to minimizing the chance of emitting excessive exhaust gas.

OBD-II was introduced as an update of OBD in a way of increasing the efficiency of OBD system by standardization. Thanks to the efforts made for standardization, a mechanic can get the fault code information and data from all the cars that support ISO and SAE industrial standards regardless of brand or car make.

The shortcoming of standardization is the narrowed scope of information: what you can get is the emission related minimum scope of information based on "commonly found in every car" concept.

OBD-II Fault Codes

SAE and ISO industrial standard documents define the OBD-II and EOBD codes are consisted of a three-digit numeric code preceded by an alpha-numeric designator.

The alpha-numeric designators are "P0~P3", "B0~B3", "C0~ C3" and "U0~ U3" corresponding to Powertrain, Body, Chassis, Network Communication systems.

Codes	system	Included sub-systems (examples)
P0*** ~ P3***	Powertrain	Engine, Transmission
C0*** ~ C3***	Chassis	ABS, Suspension, Traction
B0*** ~ B3***	Body	Airbag, Air conditioning, lighting
U0*** ~ U3***	Network	CAN, Inter-system communication

Manufacturer Specific Fault Codes

Not all the fault codes were standardized. The fault codes that can be commonly applied to any "exhaust gas emitting" car were defined as standard codes. This is also called as "Generic codes" or 'Core codes

The larger portion of the entire codes was not standardized due to fundamental differences of each car make's system design or diagnostic strategy. The codes that are reserved for each car manufacturer's own definition are called "Enhanced Codes" or "Non-standard codes"

C0*** and B0*** codes are also defined as the Generic Codes. However the actual list of the standard codes for these Body and Chassis control systems has not been released to public yet.
Therefore, it is assumed that there are no known Generic Codes for these systems.

The codes that [Generic OBD2 / EOBD] function can access are just the Generic Codes.
If any enhanced (or non-standard code) is detected, the scan tool shows it as an "Undefined" or "Unknown code" because these non-standard codes are defined differently by the car manufacturers.

Enhanced Codes can be properly read in accordance with the manufacturer's own definitions, please select the [Diagnosis] from the initial menu and follow the model selection procedure.

EOBD and OBD-II Revision

Version 1996

The generic (standard) codes were originally defined by the SAE (Society of Automotive Engineers) document J2012 published by in 1992.

At the time of publication of the document, P2*** and P3*** codes were reserved for future use and not included in the standard codes.

Revision in 2002, after EOBD implementation

When the EOBD was mandated in 2001, the EOBD generic codes were suggested in accordance with the ISO/DIS15031-6 document and the original American SAE J2012 document was also revised for uniformity to form the global standard.

The P2*** and the P3*** codes were included in the list of standard codes in the revised documents.

OBD-II / EOBD code break-down

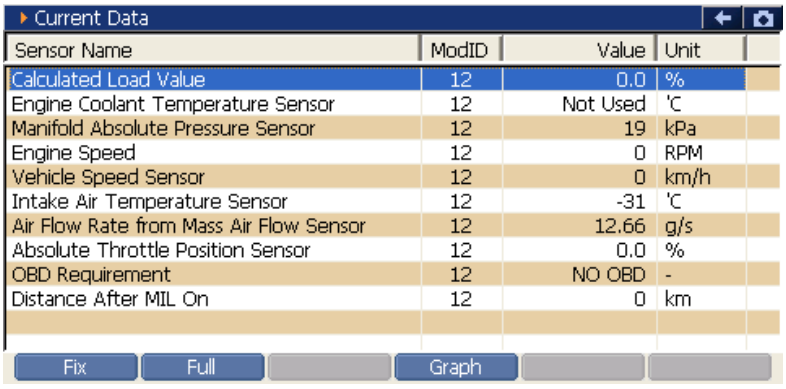
After the revision, the range of generic (standard) codes and enhanced (non-standard) codes now can be categorized as below:

Code No.	Defined Systems
P00XX	Fuel and Air metering and Auxiliary Emission Controls
P01XX ~ P02XX	Fuel and Air metering
P03XX	Ignition System or Misfire
P04XX	Auxiliary Emission Controls
P05XX	Vehicle Speed, Idle Control and Auxiliary Inputs
P06XX	Computer and Auxiliary Outputs

P07XX ~ P09XX	Transmission
P0AXX	Hybrid Propulsion
P0BXX ~ P0FXX	Reserved (for Standard Codes)
P1XXX	Manufacturer (Enhanced) Code
P20XX	Fuel and Air metering and Auxiliary Emission Controls
P21XX ~ P22XX	Fuel and Air metering
P23XX	Ignition System or Misfire
P24XX	Auxiliary Emission Controls
P25XX	Vehicle Speed, Idle Control and Auxiliary Inputs
P26XX	Computer and Auxiliary Outputs
P27XX ~ P29XX	Transmission
P30XX ~ P33XX	Manufacturer (Enhanced) Code
P34XX	Cylinder Deactivation
P35XX ~ P39XX	Reserved (for Standard Codes)
U00XX	Network Electrical
U01XX ~ U02XX	Network Communication
U03XX	Network Software
U04XX	Network Data

OBD-II / EOBD Current (Live) Data

When [2. Current Data] is selected from the OBD-II/EOBD menu, the live data of the sensors and parameters are listed as shown below:

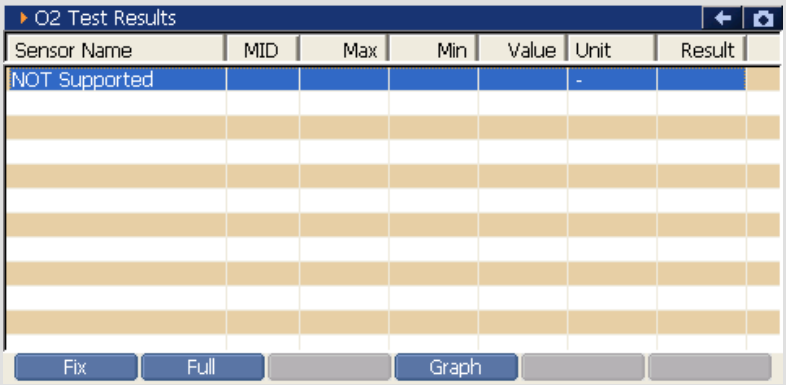


[Fig. 3] Current Data List

Incon	Description
Fix	Select the highlighted parameter for conversion to graphical display mode
Full	Split the screen left and right for more parameters readings on screen
Graph	Converts the selected parameters from numeric to graphical display mode

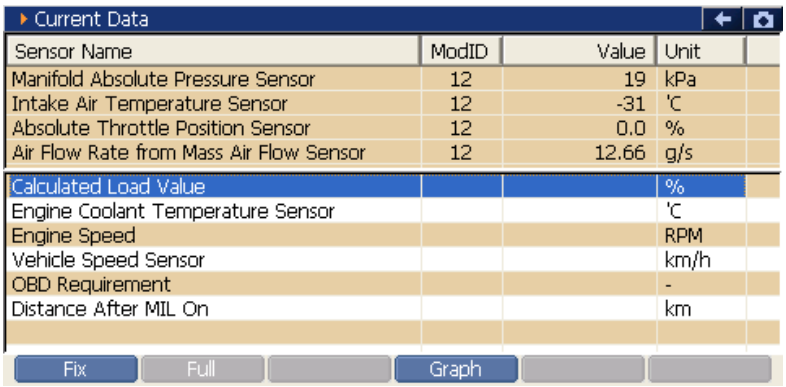
CAUTION

- When a function was selected from the CARB OBD-II menu, the result may come up with "NOT SUPPORTED" reading as illustrated in Fig. 4, which means the selected function is not supported by the car that is being tested.



[Fig. 4] Function is not supported by the car

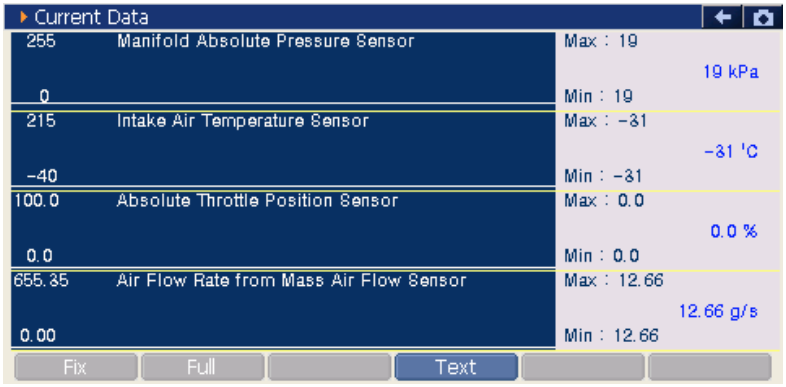
In order to view the Current Data in graphical form, select the parameters by locating the highlighted bar on the desired parameter and pressing the F1 button or touching the Fix icon. The selected parameters are lifted to the top of the screen as illustrated below:



[Fig. 5] Selecting Parameters

Press the F4 button or touch Graph icon, then the Current Data display is converted to the graphical mode as illustrated in Fig. 6.

Pressing the F4 button again or touching Text button will convert the display more to alpha-numerical display mode.



[Fig. 6] Graphical Display Mode

3.4. Vehicle Diagnosis

Non-standard manufacturer specific diagnostic functions such as Fault Code, Live Data, Actuation Test, Reset or Coding are provided when "Vehicle Diagnosis" is selected from the main menu.
Select "Vehicle Diagnosis" from the G-scan main menu, and press ENTER (or double touch).

※ Different diagnostic functions are provided in different ways peculiar to each car make. Refer to the individual user's manual for each car make supplied in a CD or DVD in the G-Scan kit for the details of diagnostic functions of each brand.

[Fig. 1] Diagnosis Selected

[Fig. 2] Car make (brand) Selection menu

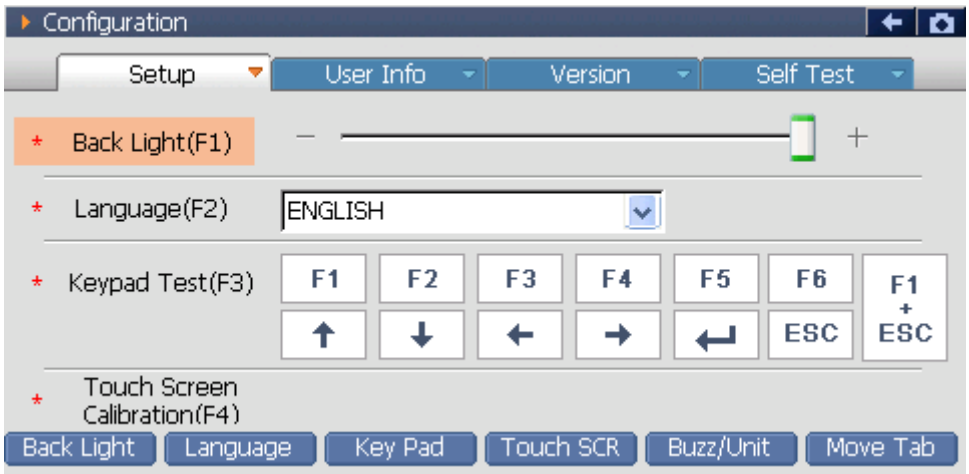
3.5. Configuration

G-Scan base unit settings and user information can be reviewed and modified by selecting Configuration from the main menu. Version number check and Self Test function are also provided.

Select “Configuration” from the main menu and press the ENTER button (or double touch).

[Fig. 1] Configuration selected

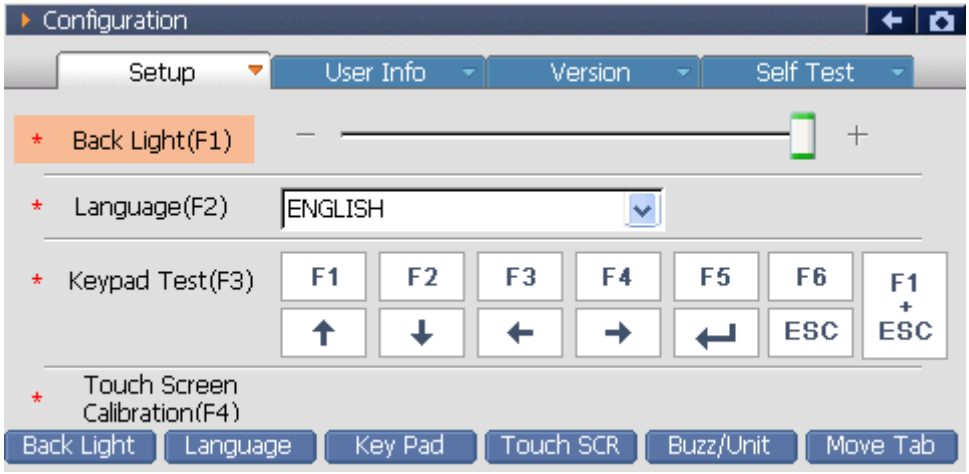
The basic display of configuration follows as illustrated below, which includes tabs for Setup, user info, version and self test in the top of the screen.



[Fig. 2] Configuration basic display

Setup

General G-Scan settings can be changed for LCD backlight brightness adjustment, Language selection, Keypad test, Touch screen calibration, Measuring unit conversion and buzzer on/off toggle.



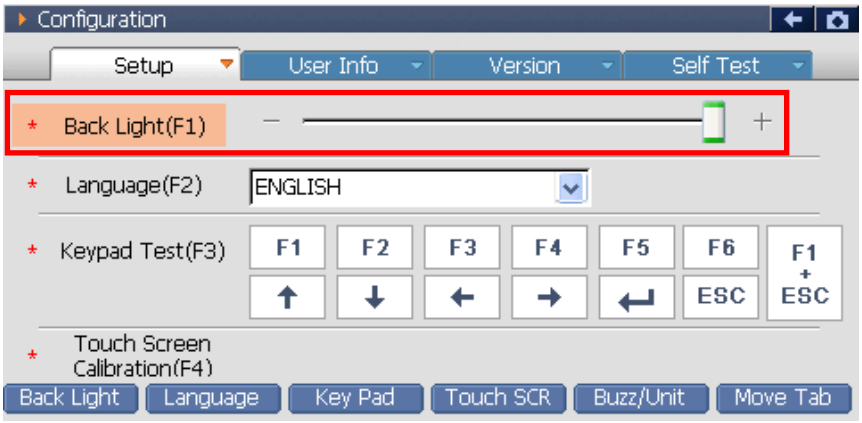
[Fig. 3] Setuop

Icon	Description
Back Light	Adjust the LCD brightness
Language	Select the language (Supported languages are different by regions)
Key Pad	Test the keypad
Touch SCR	Perform “Zero” calibration for touch screen
Buzz/Unit	Toggle On/Off the Current Data measuring unit and sound
Move Tab	Move to the next tab: Setting →User info → version → Self test

LCD Backlight brightness

The brightness of G-scan LCD backlight is adjustable in 5 steps

Touch Back Light button or press the F1 key from the Setting menu. When “Back Light (F1)” is highlighted amber, adjust the brightness of the LCD backlight by using the and buttons or by touching the slide bar with the stylus pen.

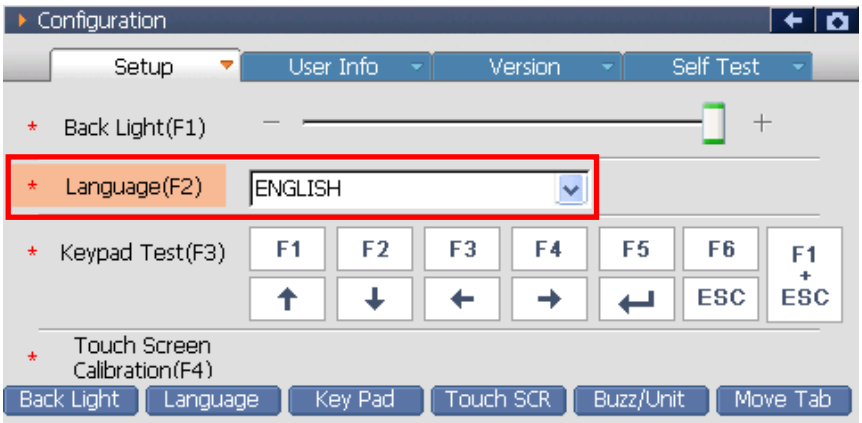


[Fig. 4] LCD Backlight brightness

Language

Select the preferred language among the supported language versions. The languages are supported in different set by regions. Generally English is the primary language with the local language supported as the secondary.

Touch Language icon or press the F2 button to change the language, and the “Language (F2)” is highlighted amber. Use the preferred one among the supported languages using the buttons or the stylus pen.

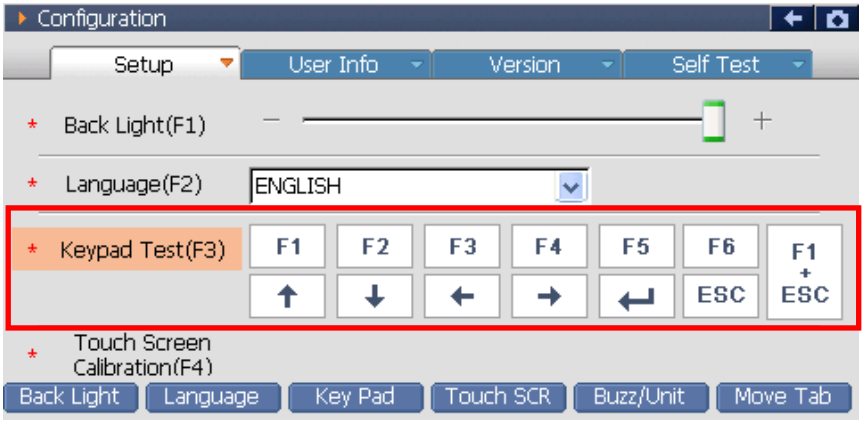


[Fig. 5] Language Selection

Keypad Test

Touch Key Pad icon or press the F3 button, then the “Keypad Test (F3)” is activated and highlighted in amber. Press F1 ~ F6 keys and esc buttons in turn and check the response to each key press on the screen.

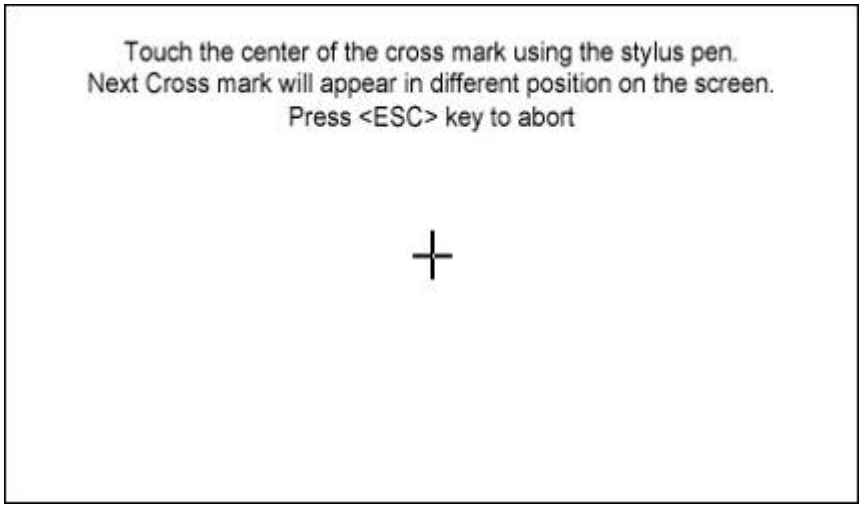
Press F1 and esc keys together to end keypad test.



[Fig. 5] Keypad Test

Touch Screen Calibration

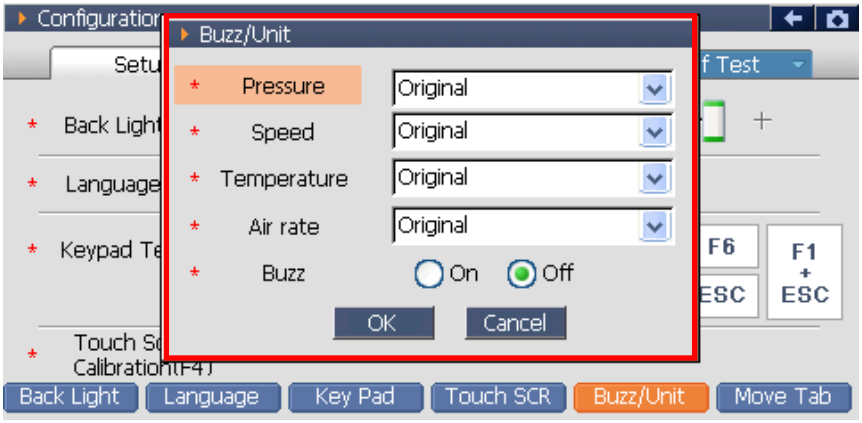
Touch the 터치스크린 icon or press the F4 button. Calibration screen follows, then touch the center points of crosshair one after another as instructed on the screen as shown in Fig. 6.



[Fig. 6] Touch Screen Calibration

Buzz / Unit

Touch Buzz/Unit icon or press the F5 button, then the pop-up window for measuring unit conversion and buzzer On/Off option appears as shown in Fig. 7.



[Fig. 7] Unit / Buzzer

Select the preferred unit (imperial or metric) using the keys or touching the screen.

Pressure	Speed	Temperature	Air mass
kPa	MPH	C (Celsius)	gm/s
mmHg	km/h	F (Fahrenheit)	lb/s
inHg			
Psi			
mbar			

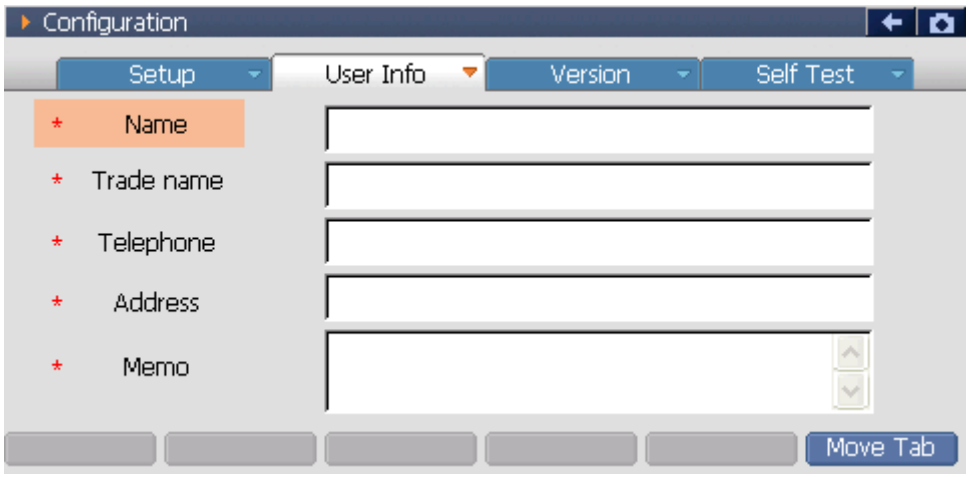
Also select sound On/Off in the same way.

When completed, touch the Move Tab icon or press the F6 button to move to “User Information” tab. Touching the other tab in the top of the screen also works.

Press the ESC key to move back to the main menu.

User Info

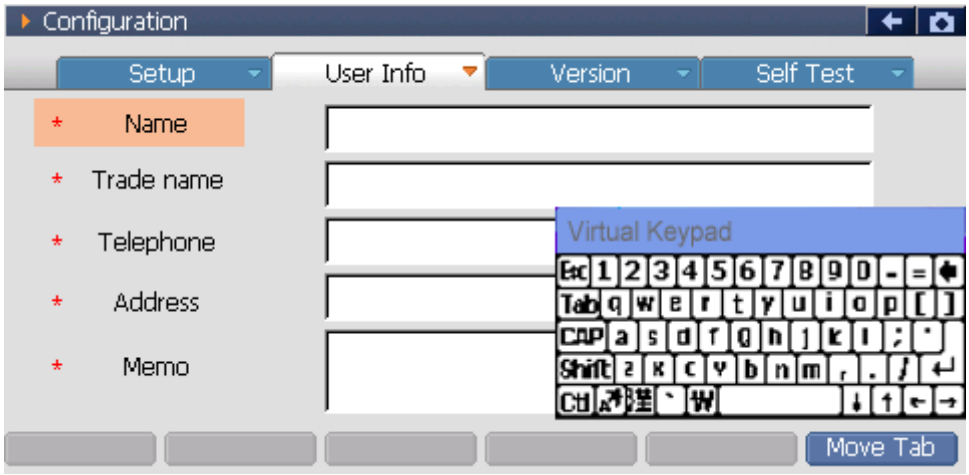
User information can be recorded or modified.



[Fig.8] User information input

Select the data field to input or modify by using the stylus pen or the keys.

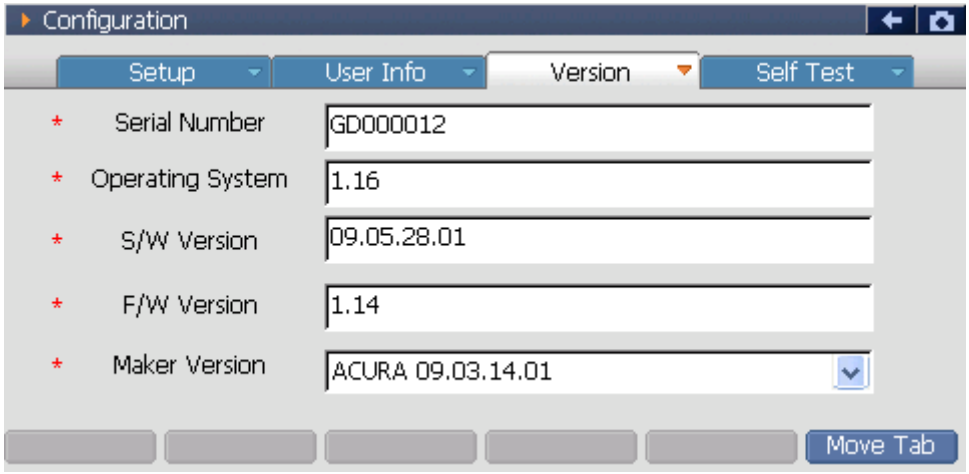
Touch the input column or press the button, then the virtual keyboard appears as illustrated in Fig. 9 for alpha numeric data input. Use the stylus pen to select the letter or number to type in.



[Fig. 9] User information virtual keyboard

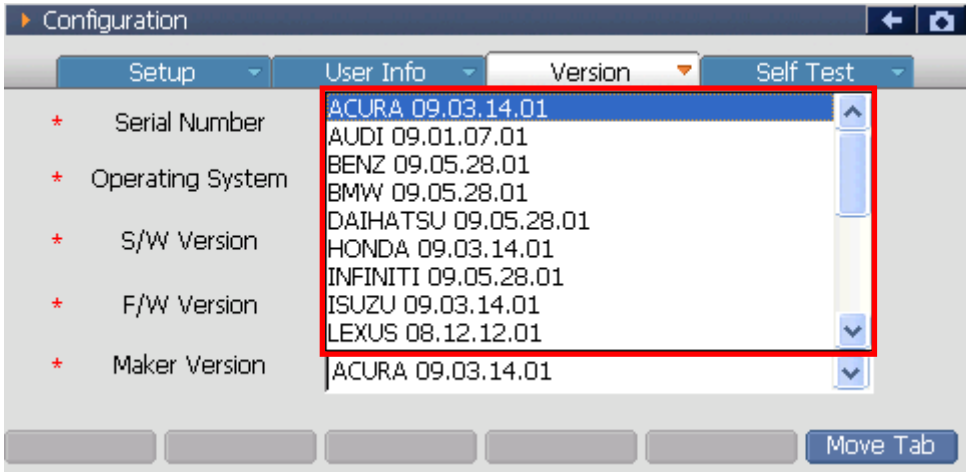
Version

G-Scan serial number and Operating System, Software, Firmware and individual application version numbers by selecting "Version" from the configuration menu.



[Fig. 10] Version Check

Touch the drop down menu button of the Maker Version field, then all applications for individual car make and the version number of which are listed as shown in Fig. 11.



[Fig.11] Individual application version number

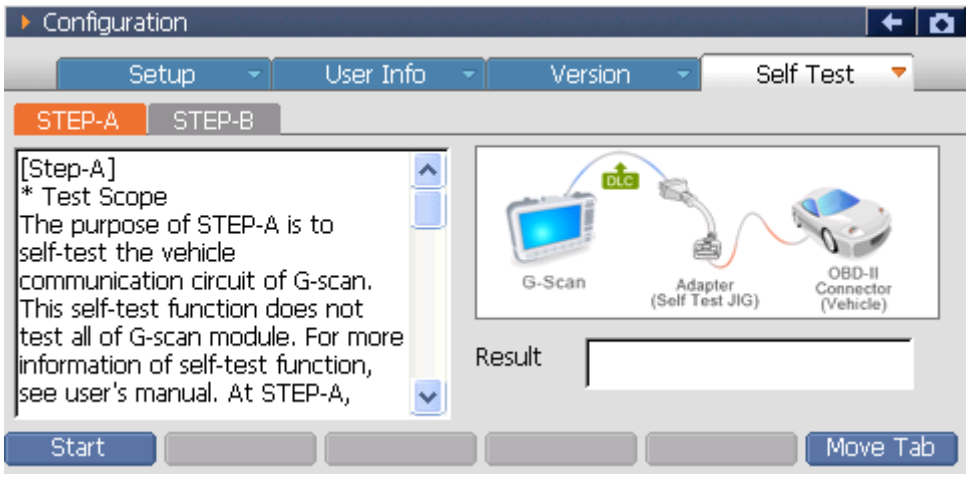
Self Test

Self Test function helps the user to identify whether the communication problem is caused by the defective DLC main cable or the malfunction of the G-Scan base unit. (This function does not tell which part of G-scan is defective)

Self test is designed on Loop Back system, with which G-Scan sends off signals from the base unit through the DLC cable, and the self-test adapter returns the signal back to the base unit. By sending signals from different channels and lines, and verifying the correctness of every signal echoed from this looped connection in each case, it becomes identifiable where the communication failure originated.

Cautions

- Loop back test is not supported in some cars with High Speed CAN, Low Speed CAN, SAE - J1708 communication system.
- Self-test can be used with OBD-II / EOBD compliant cars only. Cannot be used with OBD1 generation cars with non-standard adapters.



[Fig. 12] Self Test

Icon	Description
Step-A	Checks the internal communication control circuit of G-scan base unit
Step-B	Checks the signal delivery circuit of the DLC main cable
시작	Begins Self-test procedure
Result	Shows the Self-Test result

Self Test Procedure

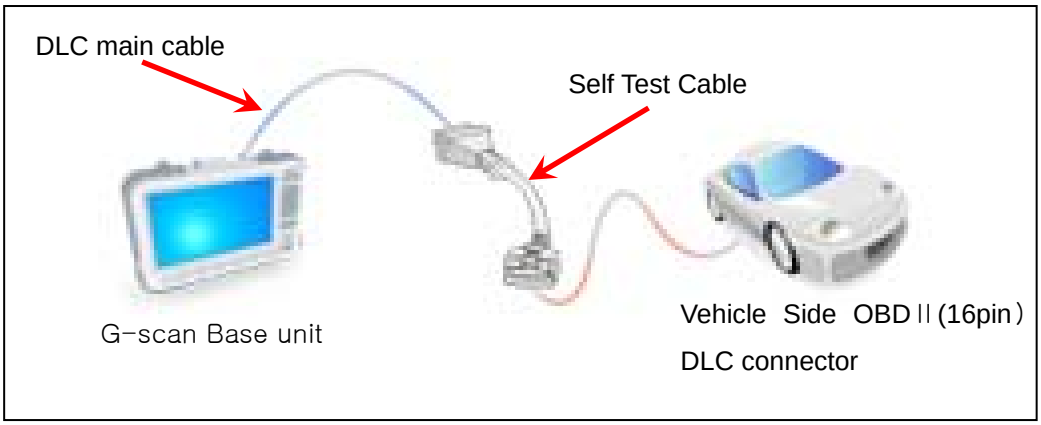
Self-test requires the completion of 2 step procedures to get the correct self-diagnosis result.

Select "Self-Test" from the Configuration menu.

- Step-A : Checks the internal communication control circuit of G-scan base unit
- Step-B : Checks the signal delivery circuit of the DLC main cable

Self-Test function is not used for finding which part or which circuit is defective in detail, but just for helping the user identify which part is wrong: Base Unit or the DLC cable. Also this function is just for testing. The function itself does not solve or cure the problem. If any problem is found using Self-Test function, please contact the local GIT distributor for support.

1. Connect the DLC cable with the G-scan base unit
2. Attach the Self-Test adapter to the OBD2 connector in the end of DLC cable
3. Extend the Self-Test adapter's OBD-II connector head to the vehicle side connector.



[Fig. 13] Cabling for Self Test

4. Turn the ignition key ON (engine running)
5. Check the Self-Test cable if the red LED is turned on

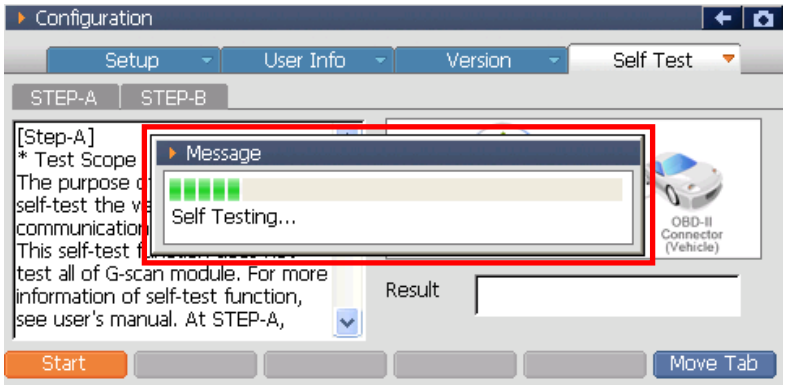
Caution

- Make sure to connect the Self-Test adapter to the car's OBD-II/EOBD 16-pin connector
- Make sure to use the Self-Test adapter only for self test function.
  Never use it for vehicle diagnostic functions.

Step-A

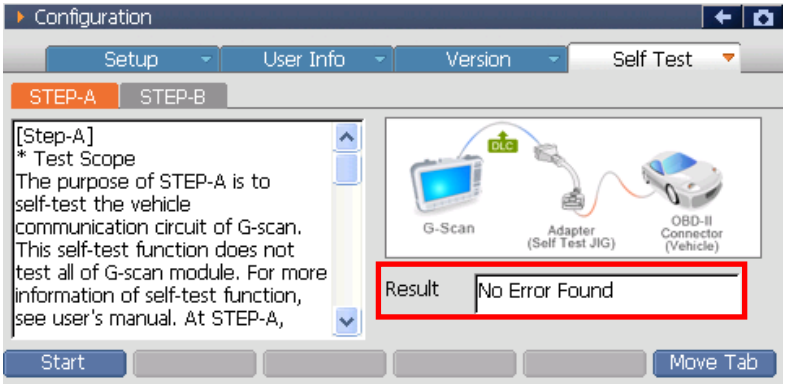
Step A is a process testing the G-Scan base unit's communication control circuit to check if the base unit is functioning properly. (Note that this is not testing all parts or all circuits of the base unit)

If ready for Self-Test function, touch Start icon or press the F1 button to start the test procedure. Then "Self Testing…" message appears as shown in [Fig. 14] and the test begins.



[Fig. 14] Step-A Self Test in progress

When Step-A Self-Test is completed, the result is indicated in the bottom-right of the screen as illustrated in Fig. 15.



[Fig. 15] Step-A Self Test result

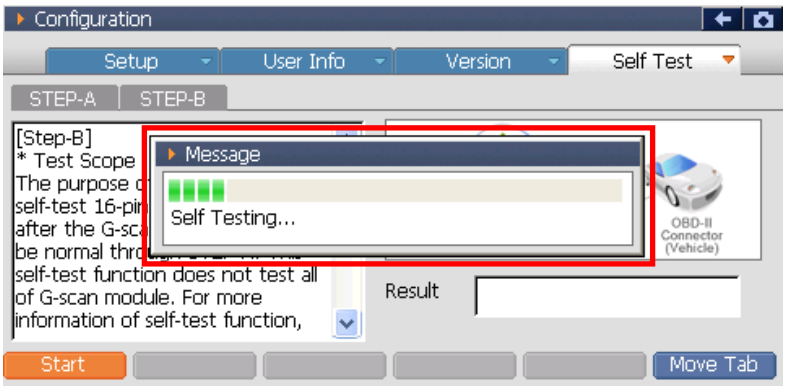
Step-A Test retult	Description
No error found	G-scan base unit is OK. Proceed to Step-B to test the main DLC cable.
Error found	G-scan base unit's communication control circuit is defective. Contact with GIT's local distributor for support

Step-B

Step-B is a process testing the continuity of cables and the signal delivery circuit of the main DLC cable, provided that the G-Scan base unit is not defective.

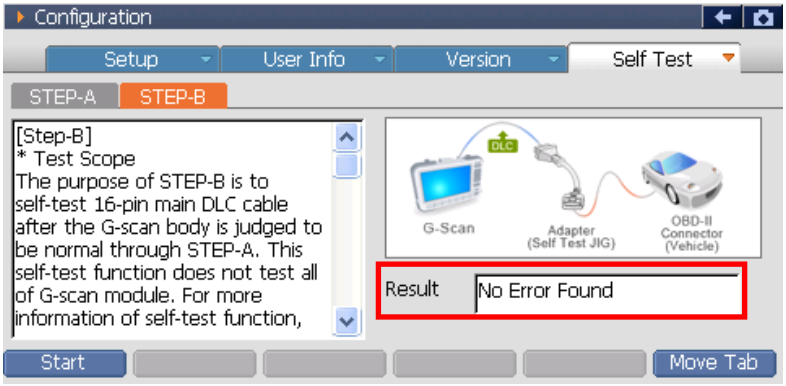
※ For more reliable test result, gently wag the DLC cable during the test.

Touch the Step-B icon, and touch the Start icon or press the F1 button to begin the test Then “Self Testing…” message appears as shown in [Fig. 14] and the test begins.



[Fig. 16] Step-B Self-Test in progress

When Step-B Self-Test is completed, the result is indicated in the bottom-right of the screen as illustrated in Fig. 17.



[Fig. 17] Step-B Self-Test result

Step-B Test retult	Description
No error found	DLC main cable is OK. It is recommended to wag and move the cable gently while testing in order to regenerate the intermittent problems.
Error found	If Step-A test result was OK, then it can be concluded that the main DLC cable is defective. Contact GIT local distributor for support.

3.6. On-screen User's Guide

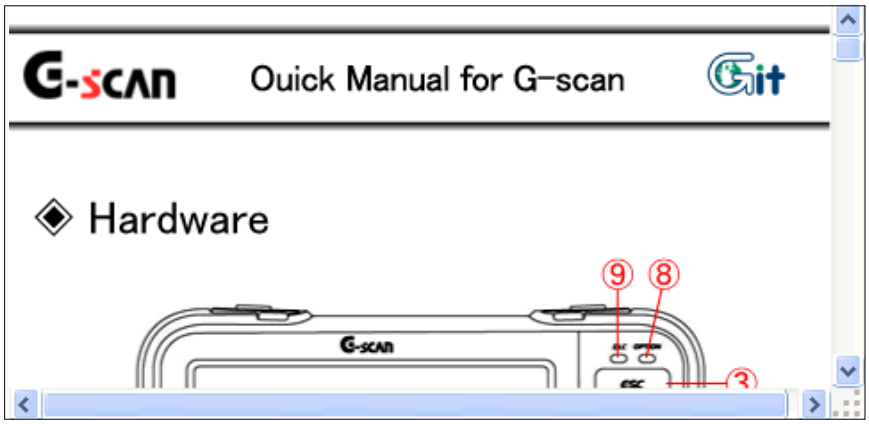
G-Scan user's manual is supported on screen, and the instructions for use of each function are provided.

G-scan user's manual is provided in the form of PDF, and it may take more than 10 seconds when loaded for the first time. (The details of this function can be changed for better performance)

Select "User's Guide" from the G-scan Main Menu and press the ENTER button (or double touch)

[Fig. 1] User's Guide selected

The user's manual follows on the screen as shown in the Fig. 2.

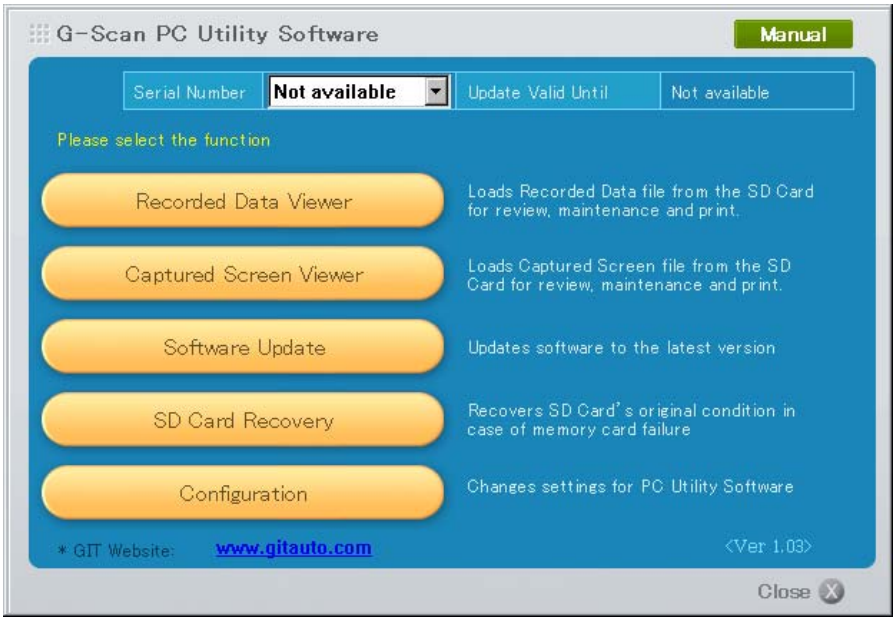


[Fig. 2] User's manual

Chapter 4. G-scan PC Utility Software

4.1. Installation and Removal

G-Scan PC Utility program provides Record Data and Captured Imagereview, G-scan software update and SD card recovery services..



[Fig. 1] G-scan PC Utility Software

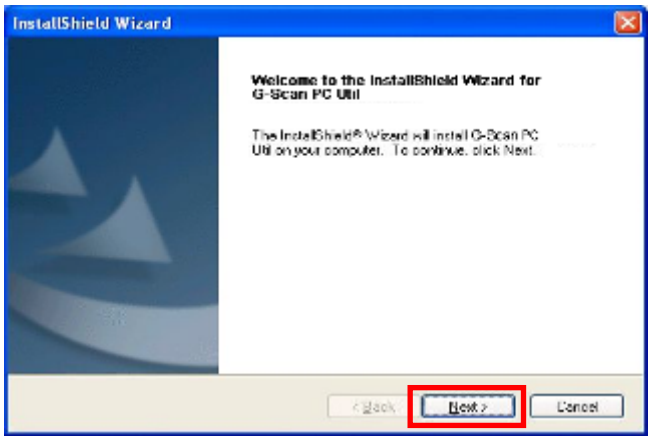
PC Utility Software Installation

Insert the G-Scan Utility Software CD provided in the kit to the PC's CD/DVD drive, and the installation wizard is automatically executed.

Compatible PC Operating System

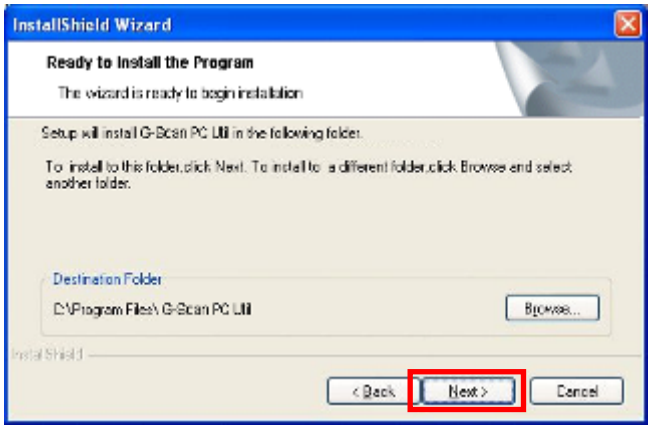
- Windows 2000 Service Pack 4 or newer
- Windows XP Professional (or Home Edition)
- Windows Vista 32bit (64bit system is not supported)

Click “Next (N)” button to initiate the installation procedure.



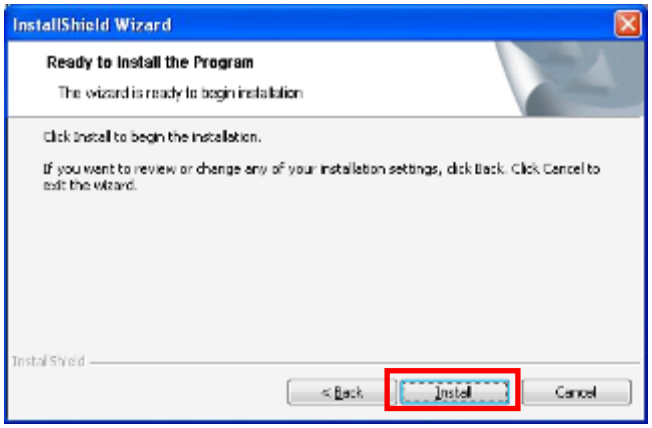
[Fig. 1] Installation Initiated

Select the folder to which PC Utility Software is installed, and click “Next (N)” to confirm.

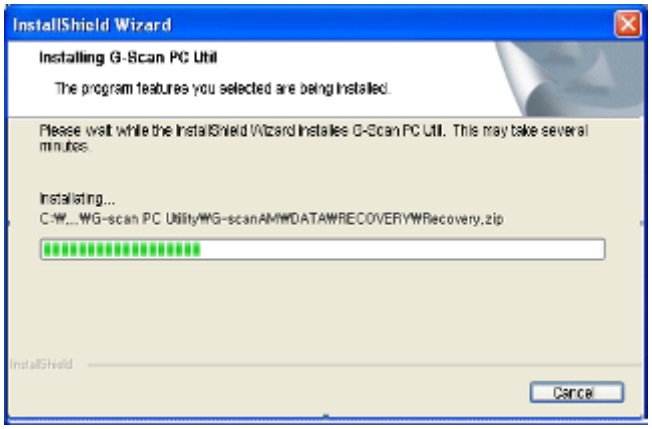


[Fig. 2] Installation Folder Selection

Click “Install (I)” to begin copying files.

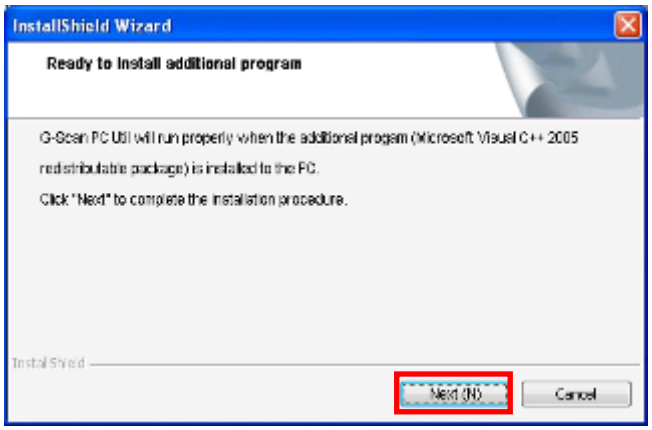


[Fig. 3] Installation begins



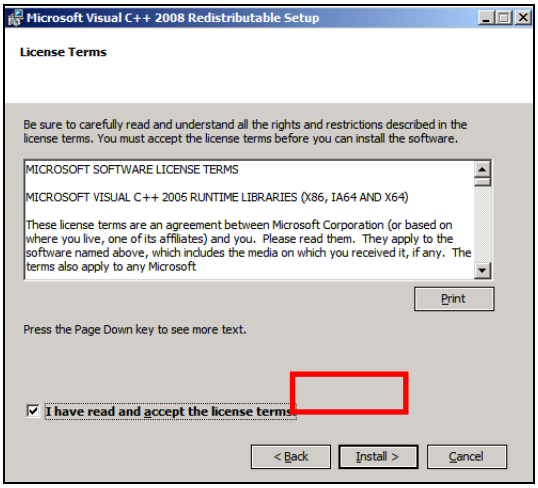
[Fig. 4] G-scan PC Utility Software being installed.

"Microsoft Visual C++ 2005" installation guide follows the installation. Click "Next (N)" to continue.



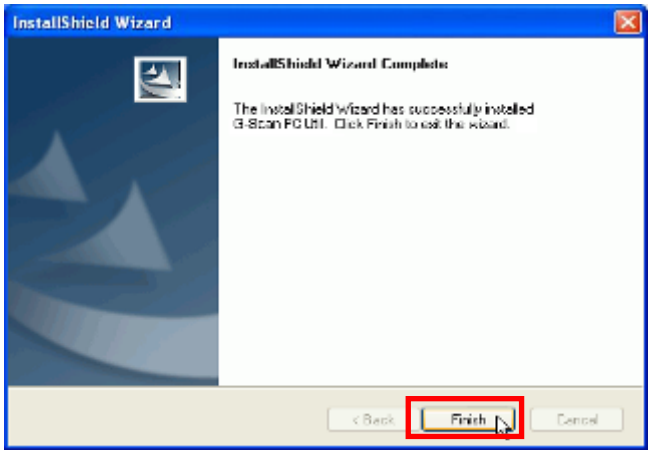
[Fig. 5] Microsoft Visual C++ Installation guide

PC Utility may not function properly if "Microsoft Visual C++ 2005" is not installed. Click "Yes(Y)" to accept and proceed with installation.



[Fig. 6] Microsoft Visual C++ Installation Confirmation

Click “Finish” to complete PC Utility Software installation.



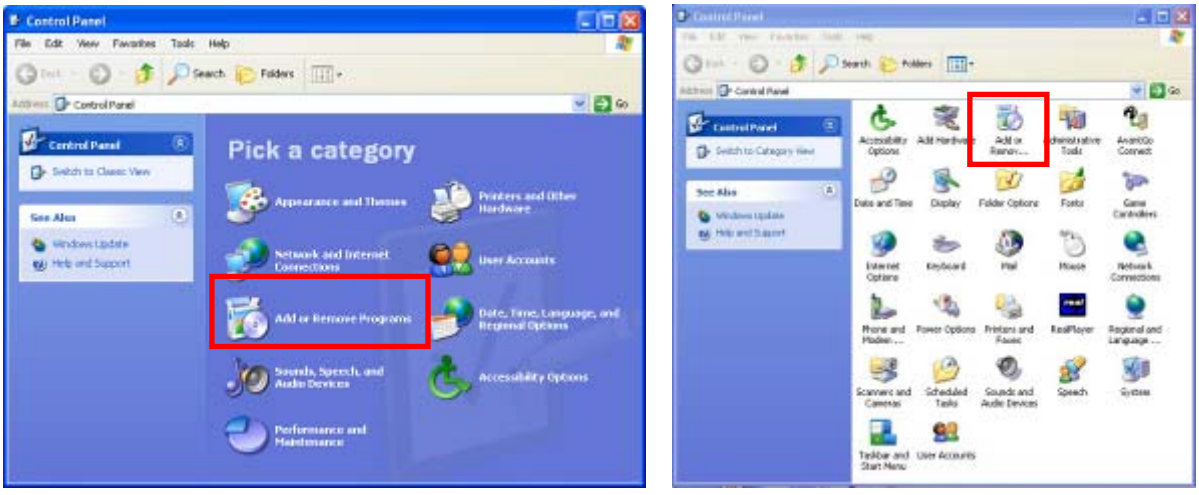
[Fig. 7] G-scan PC Utility Software Installation Completed

Check if the PC Utility Software shortcut icon is created on the desktop PC

[Fig. 8] PC Utility Software Shortcut Icon

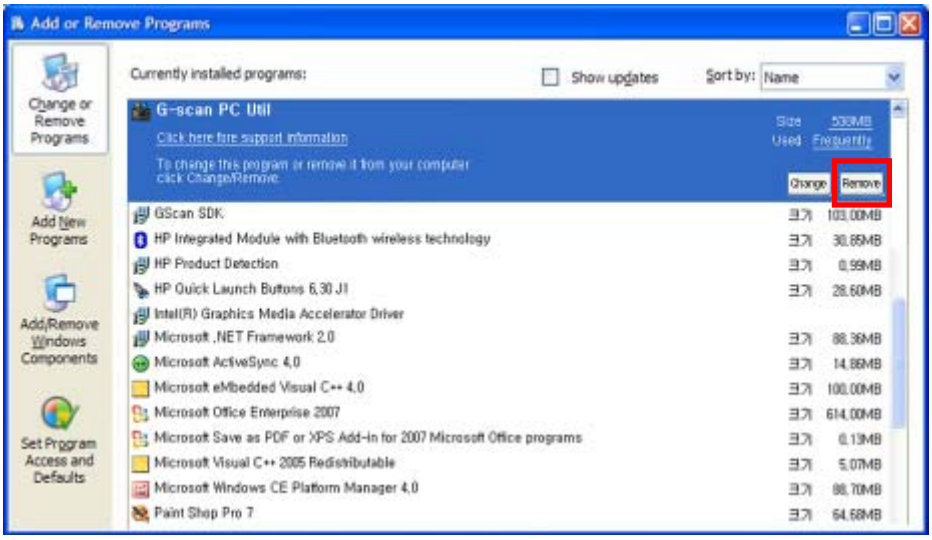
PC Utility Software Removal

Click “Program Add/Remove” from the Control Panel to remove PC Utility Software from the PC.



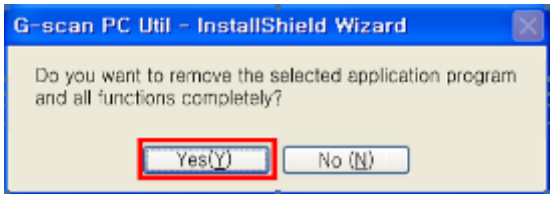
[Fig. 9] Control Panel - Add or Remove Program

The programs installed on the PC are listed as shown in Fig.10, select “G-scan PC Utility” and click “Remove” button to uninstall the program.



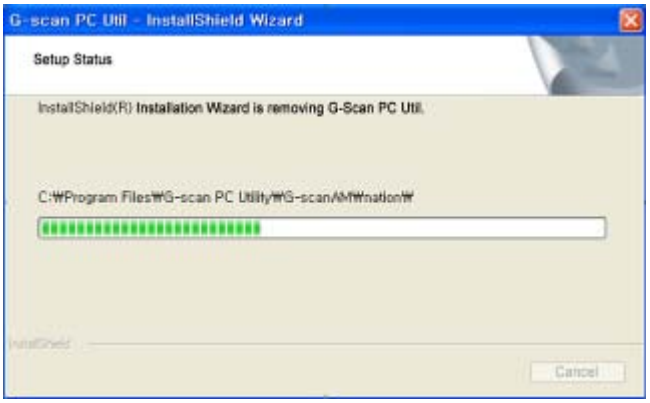
[Fig. 10] Select G-scan PC Utility to Remove

Click “Yes(Y)” to confirm PC Utility Software removal at the pop-up query as shown in Fig.11.



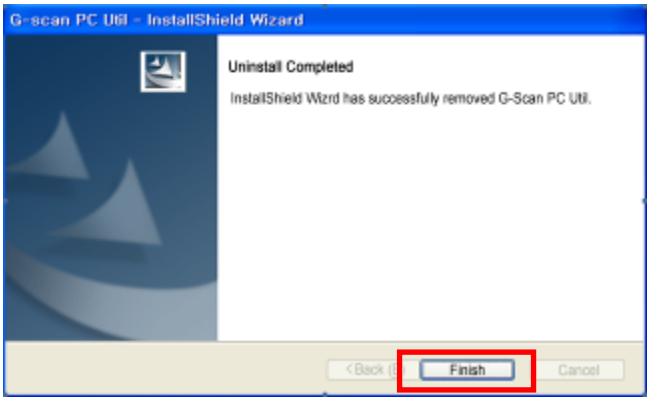
[Fig. 11] Confirm to remove G-scan PC Utility

Progress bar of uninstall process follows the confirmation



[Fig. 12] G-scan PC Utility is being removed

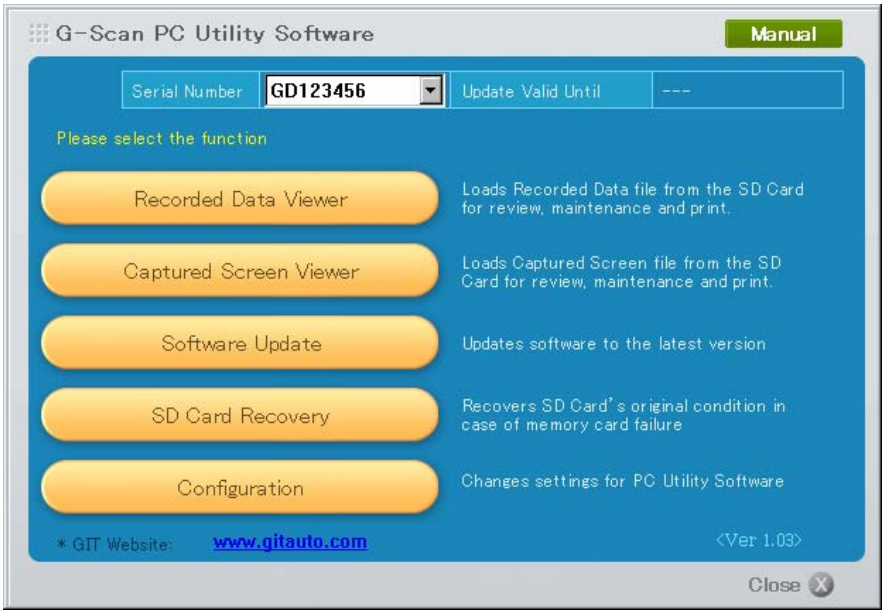
Click “Finish” to finalize the PC Utility Software removing process as shown in Fig. 13.



[Fig. 13] G-scan PC Utility - Removed

4.2. Main Menu

Run the “G-scan PC Utility” by a double click on the shortcut icon on the PC desktop, then the program is loaded and the main menu as shown in Fig. 1 follows.



[Fig. 1] G-scan PC Utility Software Main Menu

Icon	Description
Manual	Loads on-screen user manual for each brand for reference
Serial Number	Serial number of G-Scan is indicated as saved in the configuration menu
Update Valid Until	Expiry date of update subscription is indicated
Recorded Data Viewer	Loads Record Data frames from the SD Card for review and print.
Captured Screen Viewer	Loads Captured Imagefrom the SD Card for review and print.
Software Update	Updates the software applications in the SD Card
SD Card Recovery	Recovers SD Card’s original condition in case of memory card failure
Configuration	Changes user settings for G-scan PC Utility Software

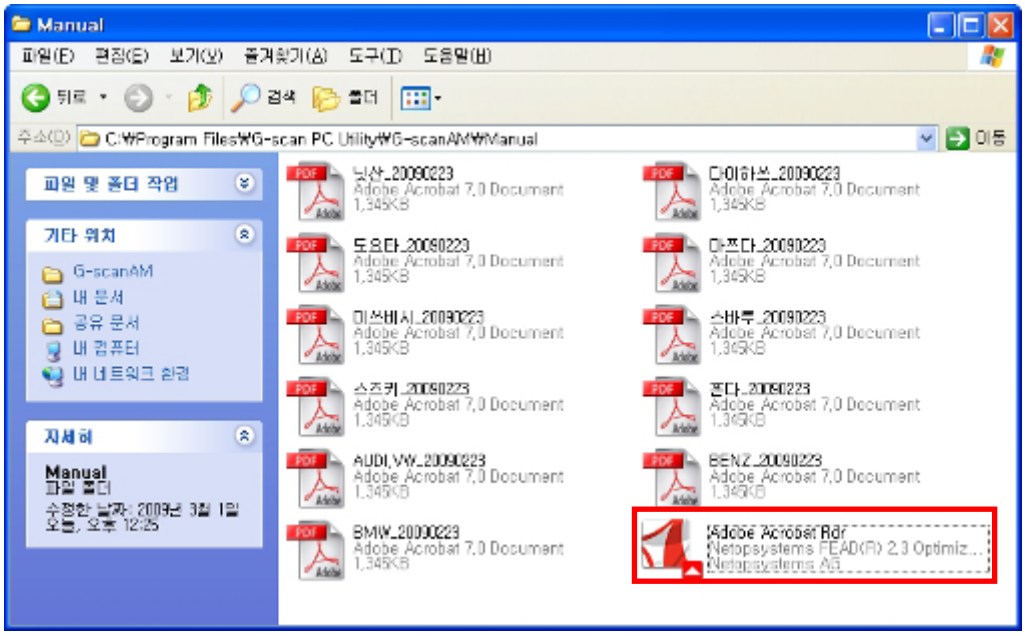
GIT Website:	Redirects to the website of GIT: <www.gitauto.com>
<Ver 1.03>	Version number of PC Utility Software is indicated
Close (X)	Quits PC Utility Software

Manual

A new window opens and the user manual files are listed when the “Manual” button is clicked as shown in Fig. 2. Select the car make from the file names, and open the file.

The manual files are provided in the form of PDF which can be opened by “Acrobat Reader®” program. If the program is not installed on the PC, note that the installation program “Adobe Acrobat Rdr” is included in the provided CD.

The PDF version user manual for each brand may take more than 10 seconds to open when loaded the first time.



[Fig. 2] User’s manual for each car make

4.3. Recorded Data Viewer

Current Data frames recorded in the SD Card memory while using G-scan's diagnostic function can be loaded to the PC for review, file format conversion and print.

1. Turn G-Scan power OFF and remove the SD Card from the base unit
2. Insert the SD Card to the provided Card Reader
3. Insert the Card Reader to a USB slot of the PC

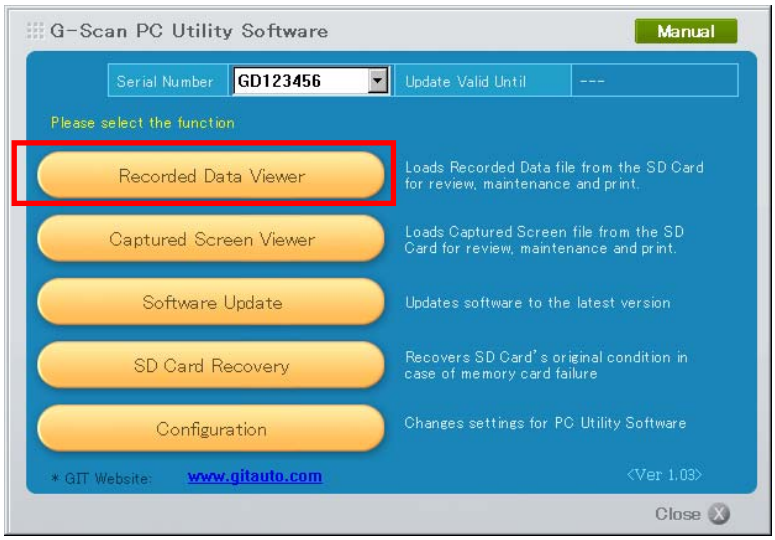
[Fig. 1] SD Card inserted to PC

Caution

- Make sure to move the SD Card Write Protection Tab to the UNLOCK position before inserting to the PC as illustrated in Fig. 2.
- PC Utility may not function properly if the write protection tab is at the LOCKED position

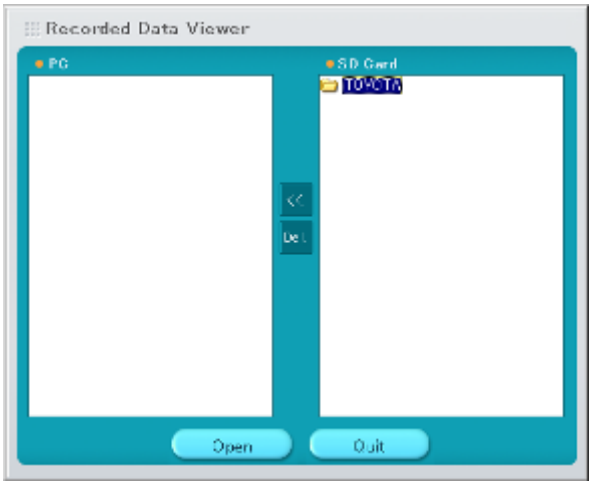
[Fig. 2] SD Card Write Protection Tab

When the SD Card is inserted to the PC using the Card Reader, select the “Recorded Data Viewer” from the main menu as shown in Fig. 3.



[Fig. 3] Recorded Data Viewer Selected

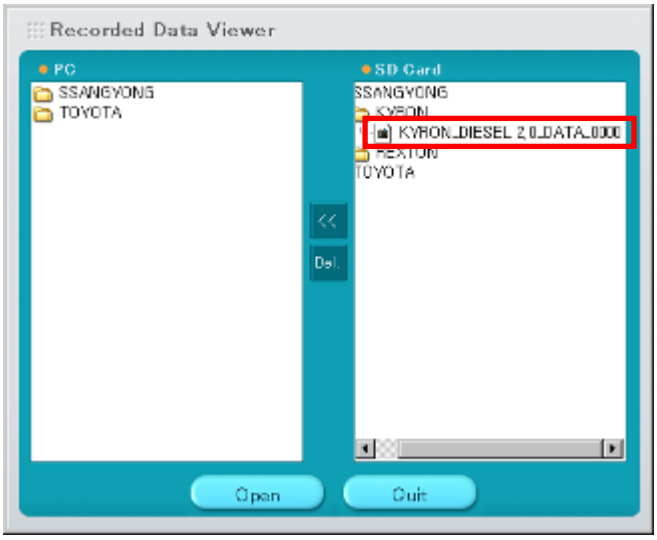
When loaded, Recorded Data Viewer comes up with the file selection menu as shown in Fig. 4



[Fig. 4] Recorded Data Viewer – File selection

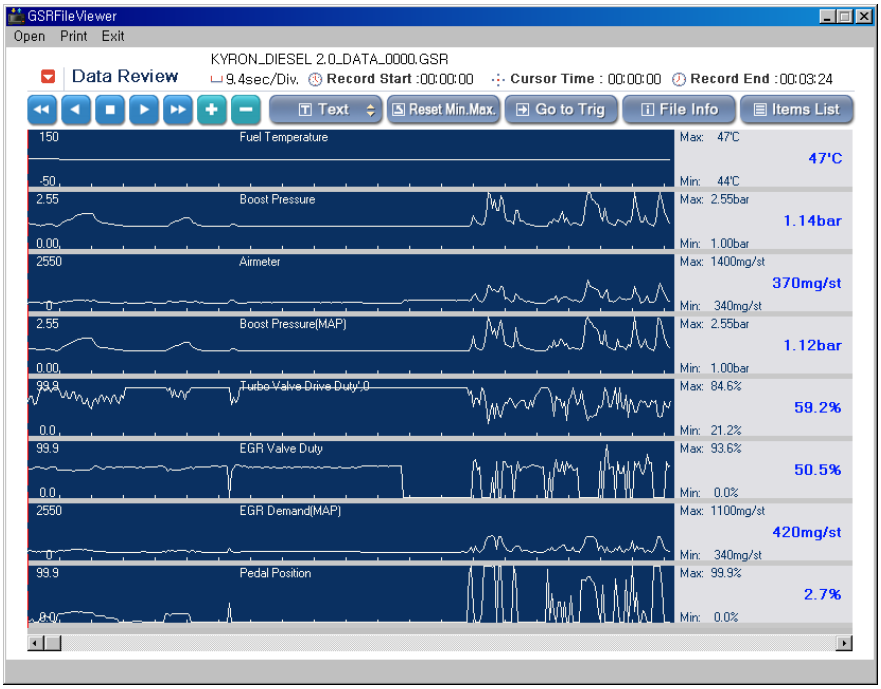
Icon	Description
PC	The Record Data files contained in the PC are listed
<<	Copies the Record Data files contained in the SD card to the PC
Del	Deletes the Record Data folder or the file
SD Card	The Record Data files contained in the SD Card are listed
Open	Opens the selected Record Data file
Quit	Quits the Record Data Viewer program

Select the file to open among the list of folders and files contained in either PC or SD card, and click “Open” to load the file. For easier recognition, the Files are saved in the folders of the same names as the user has made selections for the communication with the test vehicle.



[Fig. 5] Recorded Data File selection

When the file is loaded, the live data parameters and values come up in the graphical form as shown in the Fig. 6

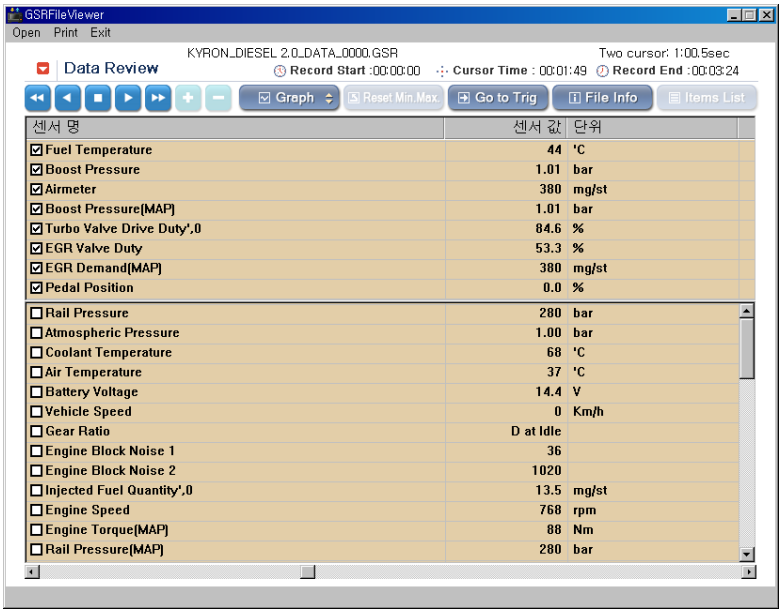


[Fig. 6] Recorded Data loaded in graphic mode

Icon	Description
General Area_TCCS_DATA_0001.GSR	File name of the selected Recorded Data
35.1sec/Div	Time in seconds per grid on the graphs (graphic mode only)
Cursor Time : 00:01:45	Time elapsed until the triggered point
Record End :00:06:49	Length of the Recorded Data
Two cursor: 1:00.5sec	Length of time elapsed from Cursor A till Cursor B
	Replay controls: Rewind | Rev. Play | Stop | Play | Fast Forward
	Horizontally Zoom in / out of the graphs (graphic mode only)
	Coverts to Alpha-numerical text display mode.
	Coverts to graphical display mode.
	Resets the minimum / Maximum readings (graphic mode only)
	Moves the cursor to the triggered point
	Shows the information of the opened Recorded Data file
	Switches between parameter list and data reading

Display mode

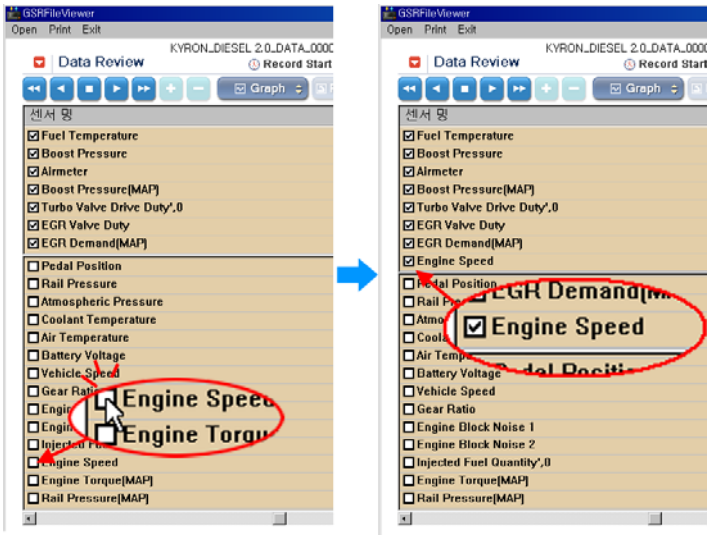
Select  among the upper control buttons, then the Recoded Data is converted to a Text based display mode in the similar way as G-Scan's normal data reading function as illustrated in Fig.7.



[Fig. 7] Recorded Data loaded in text mode

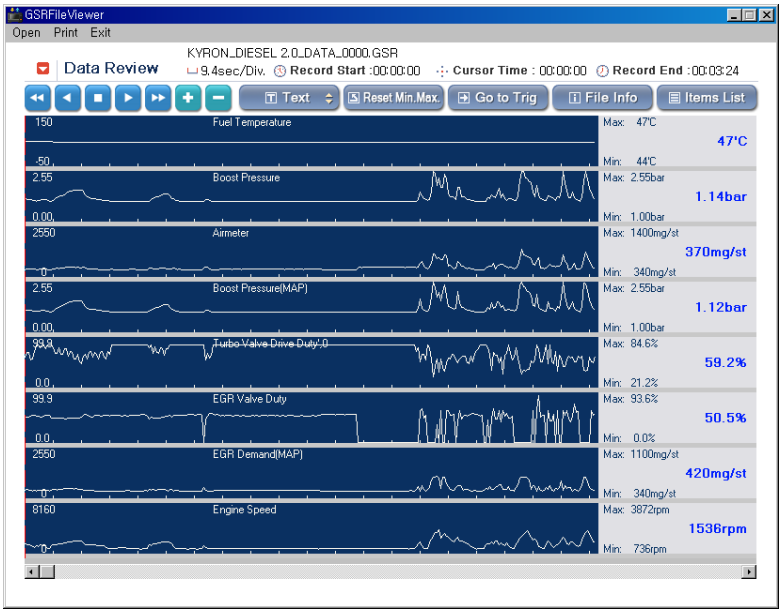
Display mode is converted to a graphical mode when the  button is selected.

In order to select particular data parameters among the data list and view them in graphic mode, mark the check box in the head of each line as illustrated in Fig. 8. The selected parameters are moved to the top of the screen and vice versa.



[Fig. 8] Data parameter moved to top screen

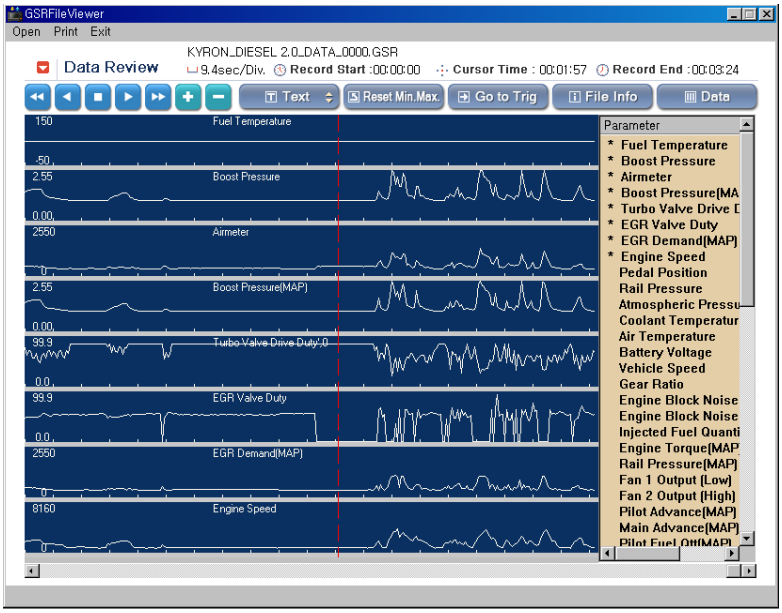
The selected parameters come up in graphs when the display mode is changed to the graphical mode. Note that up to 8 parameters at a time can be displayed in the graphical mode.



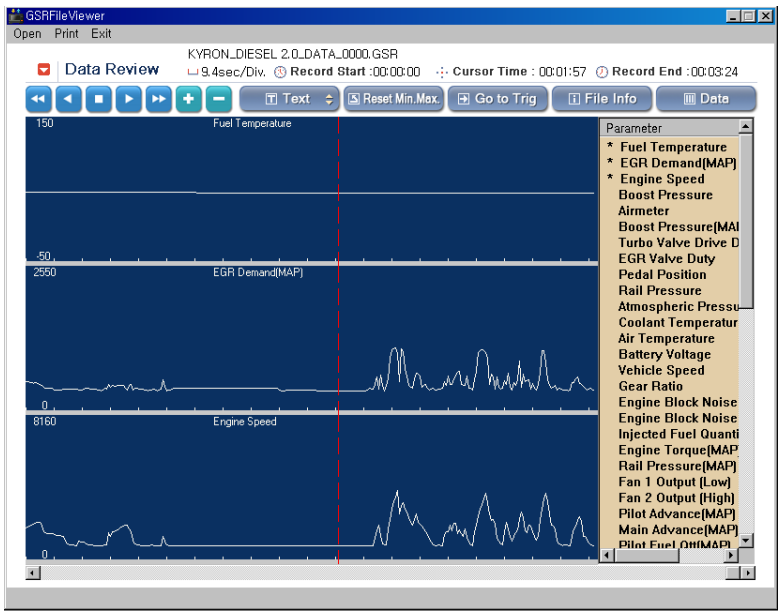
[Fig. 9] Selected parameters come up in graphs

Adding, removing or replacing the parameter is possible in the graphical display mode by selecting the Items List button in the top right of the screen.

The parameters that are currently shown in graphs are indicated with the star (*) mark in the head of the name as shown in Fig. 10. Click on a parameter name with the star mark will exclude the parameter from the list, and the number of graphs that appear on the screen is decreased as much, and vice versa.



[Fig. 10] Graphing parameters listed

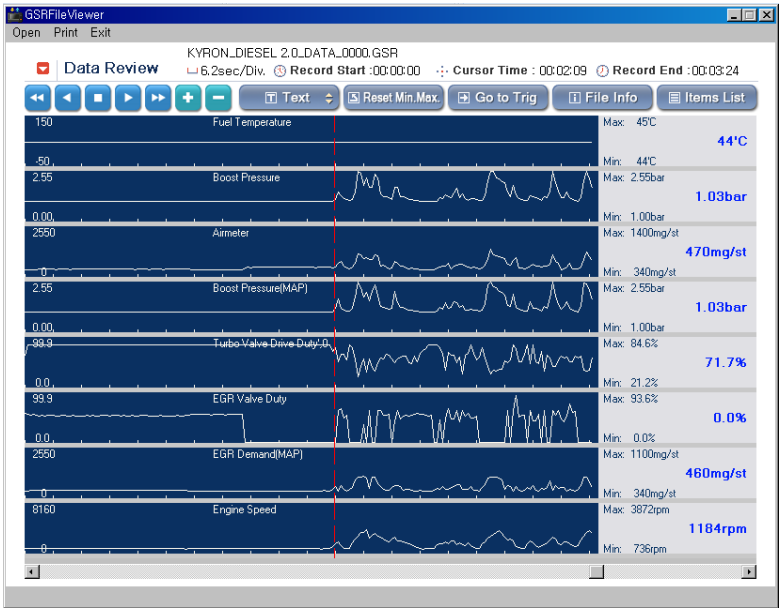


[Fig. 11] A few parameters deselected for graphing

Cursors

Cursors are available in graphical display mode only.
Cursor in this function refers to the parameter reading on a particular moment on the time(x) axis of the graphs.

Pressing the left mouse button after placing the mouse pointer on any particular coordinate on the graphs turns the Cursor A on, which appears are a dotted vertical red line.
Time elapsed until the Cursor A point is indicated in the top of the screen as " Cursor Time : 00:01:45 "
Also the data readings of each parameter at the Cursor A point are displayed on the right side of the screen as illustrated in Fig. 12.



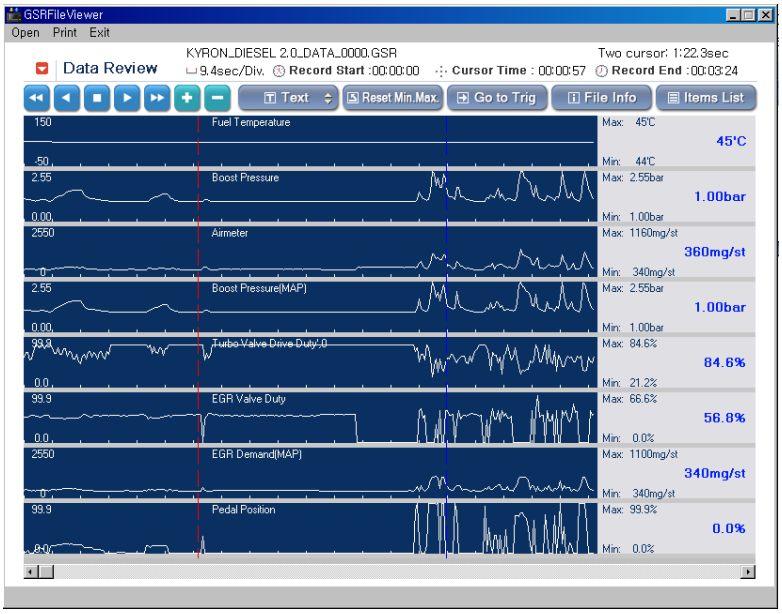
[Fig. 12] Cursor A appeared

The readings of each parameter at the moment cursor A is pointing are displayed on the right side of screen in blue bold letters.

Max and Min values are indicating:
With cursor A only: The lowest and the highest points that appear on the current screen.
With cursor A and B: The minimum and the maximum values between the Cursor A and Cursor B points.
* Selecting the Reset Min.Max. button resets the min/Max values to the reading of the first frame.

The Cursor B appears as the dotted blue vertical line when the right mouse button is pressed, and disappears when the button pressed again as shown in Fig. 13.

The time difference between the cursors is indicated in the top of the screen - Two cursor: 1:22.3sec

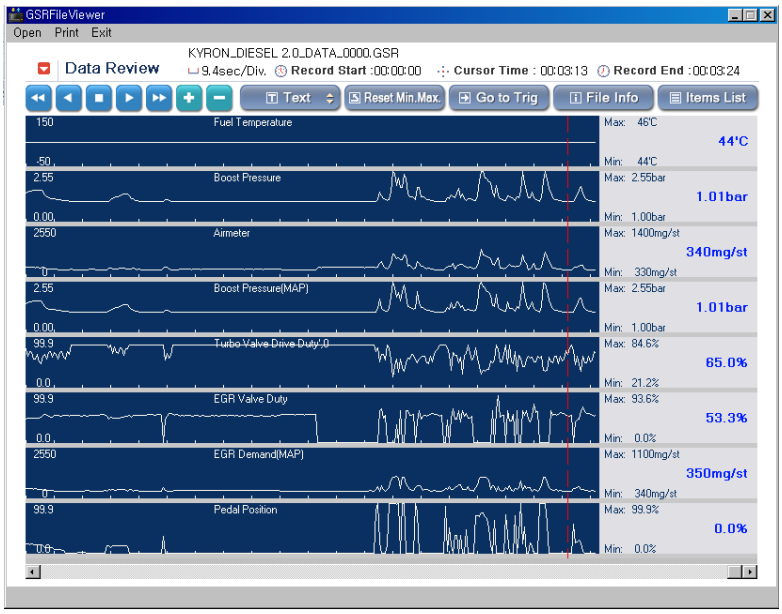


[Fig. 13] Cursor A and B

Go to Trigger

A trigger refers to the particular moment when the user pressed the Trigger button while recording live data, and selecting 

button instantly moves the cursor to the Triggered point.



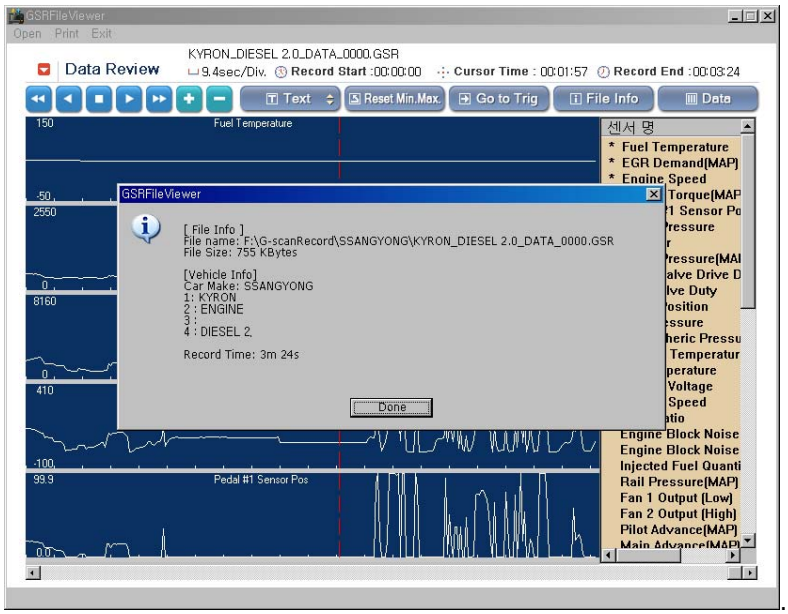
[Fig. 14] Cursor A moved to the triggered point

In the text display mode, the parameters and data reading of the frame (page) at the trigger point will be displayed.

File Info

A window with the details of the Recorded Data file pops-up when the File Info is selected as shown in the Fig. 15.

The location of the file in the SD card, file size, data run time as well as the tested vehicle information such as car make, model name and engine type are provided.



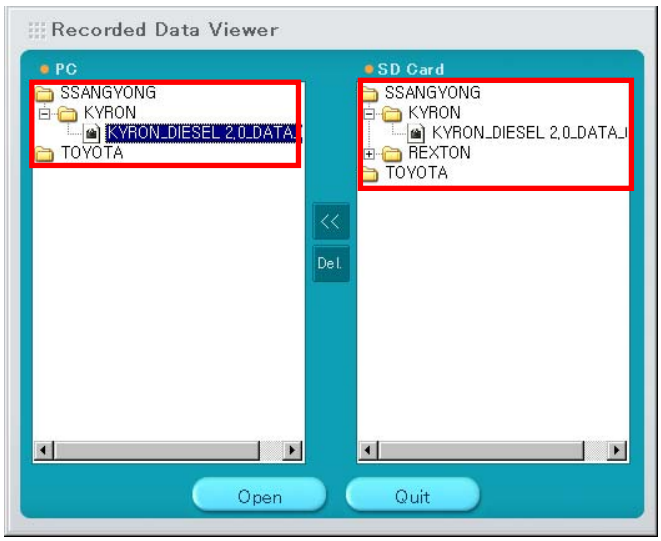
[Fig. 15] Recorded Data File Info

Recorded Data file copy to PC and delete

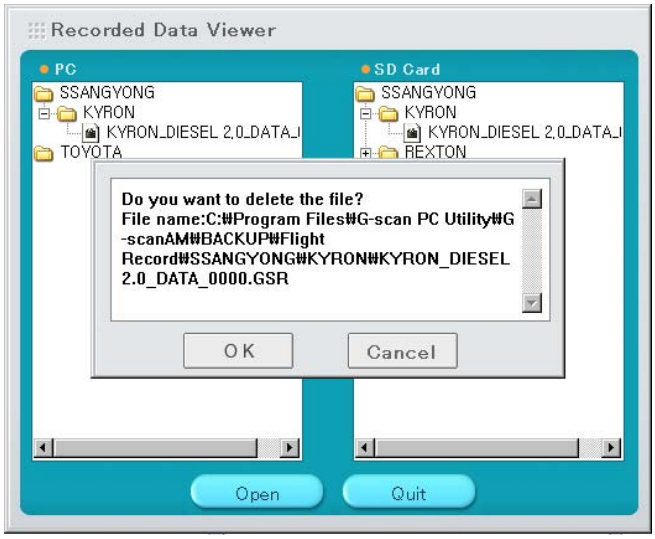
Recorded Data files contained in the SD card can be copied to the PC.

Select the Recorded Data folder or files on the SD card file list (right half of the screen) and click « button. Fig. 16 illustrates the Record Data files copied to PC.

Record Data files contained in the PC or the SD card can be removed when Del. button is selected. It is followed by the confirmation query for deleting the selected file - click “OK” to confirm and delete the selected files.



[Fig. 16] Recorded Data copied from SD card to PC



[Fig. 17] Confirm to delete the selected files

4.4. Captured Screen Viewer

G-scan PC Utility Software AA-4-4. Captured Screen Viewer

Screen shots captured and saved in the SD Card memory while using G-scan's diagnostic function can be loaded to the PC for review, file format conversion and print.

1. Turn G-Scan power OFF and remove the SD Card from the base unit
2. Insert the SD Card to the provided Card Reader
3. Insert the Card Reader to a USB slot of the PC

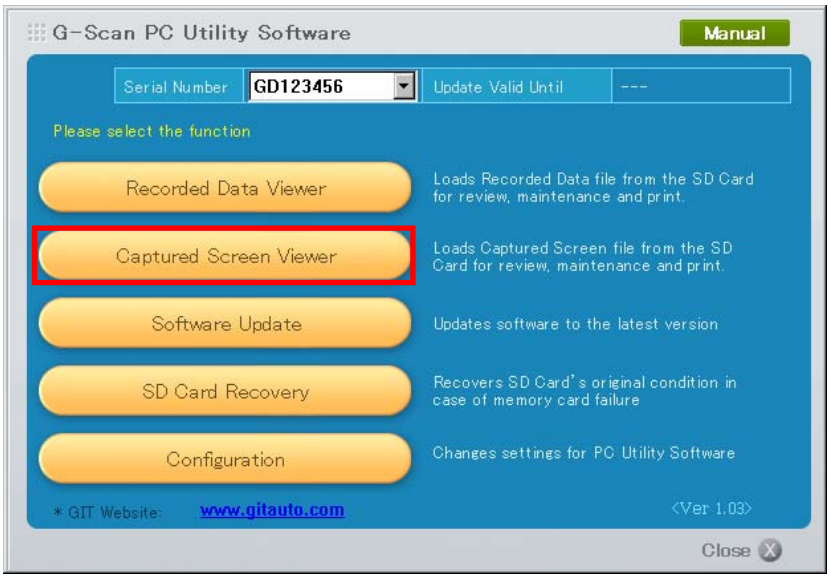
[Fig. 1] SD Card inserted to PC

Caution

- Make sure to move the SD Card Write Protection Tab to the UNLOCK position before inserting to the PC as illustrated in Fig. 2.
- PC Utility may not function properly if the write protection tab is at the LOCKED position

[Fig. 2] SD Card Write Protection Tab

When the SD Card is inserted to the PC using the Card Reader, select the “Captured Screen Viewer” from the main menu as shown in Fig. 3.



[Fig. 3] Captured Image Viewer selected

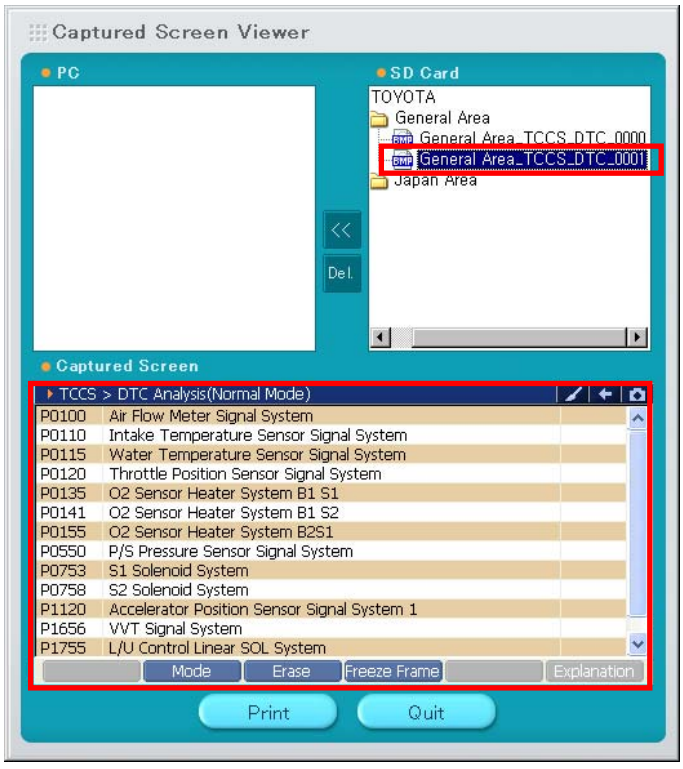
When the program loaded, the initial display of Captured Screen Viewer appears as shown in Fig. 4

[Fig. 4] Captured Screen Viewer initiated

Icon	Description
PC	The Captured Screen files contained in the PC are listed
<<	Copies the Captured Screen files contained in the SD card to the PC
Del.	Deletes the Captured Screen folder or the file
SD Card	The Captured Screen files contained in the SD Card are listed
Captured Screen	Shows the selected Captured Screen file
Print	Prints the selected Captured Screen file
Quit	Quits Captured Screen Viewer

Select the Captured Screen file contained either in the PC or the SD card.

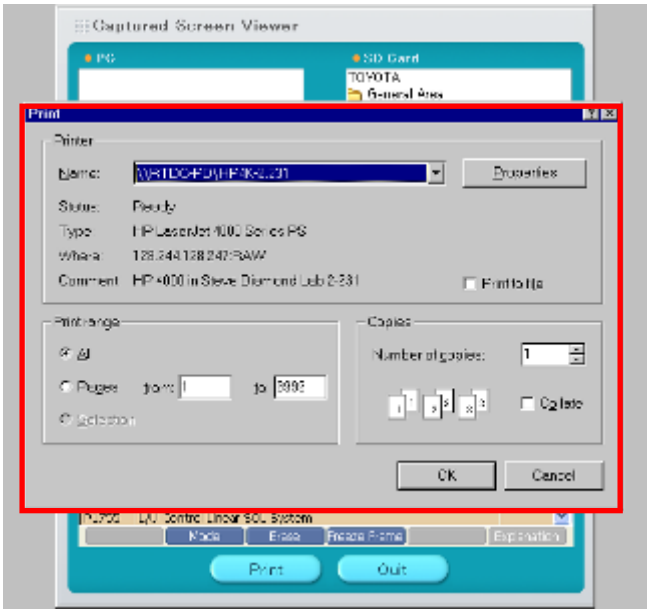
The selected Captured Screen file is viewed in the preview window as shown in Fig. 5



[Fig. 5] Captured Screen Preview

Print

Click “Print” button to print the Captured Screen that is selected as appears in the preview window. When the printer selection and setup dialog appears for confirmation, check the selected printer and its properties, and click “OK” to print.



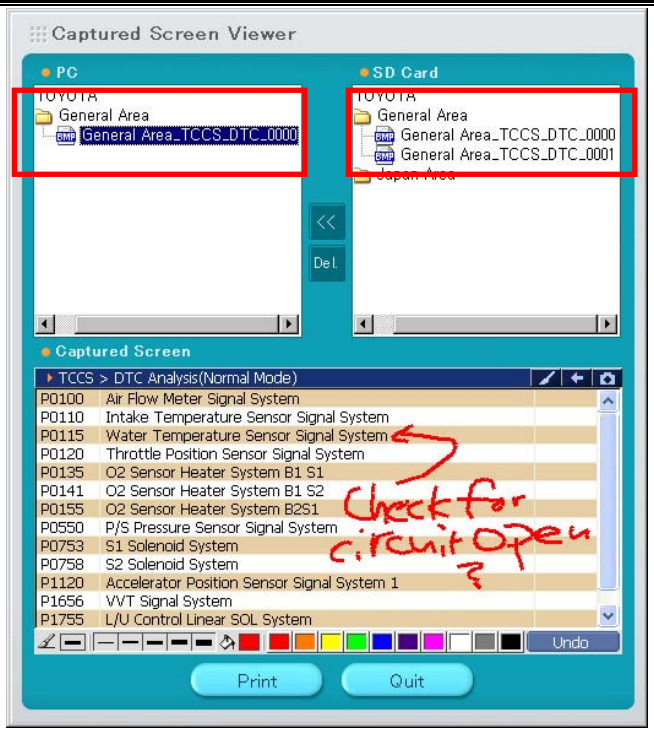
[Fig. 6] Captured Screen print

Captured Screen file copy to PC and delete

Captured Screen files contained in the SD card can be copied to the PC.

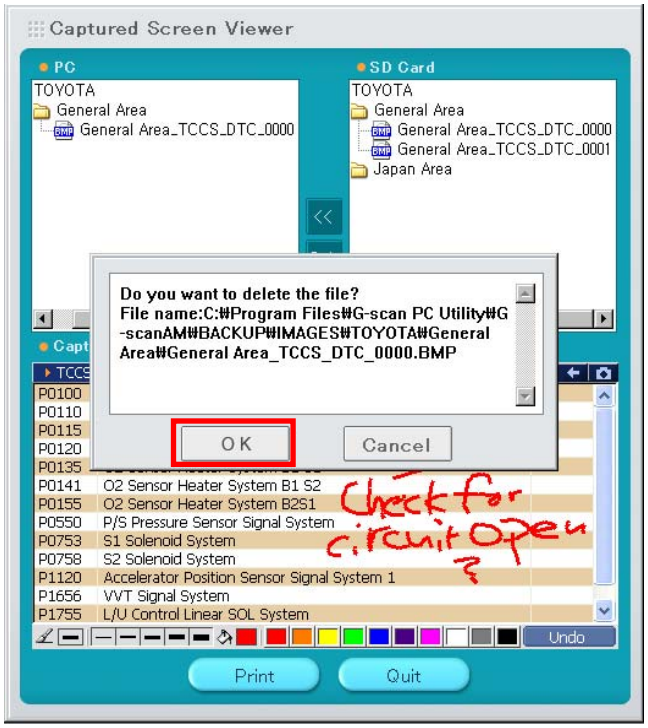
Select the Captured Screen folder or files on the SD card file list (right half of the screen) and click  button. Fig. 7 illustrates the Captured Image files copied to PC.

Captured Screen files copied to the PC can be viewed in the “preview” window when selected.



[Fig. 7] Captured Screen copied from SD card to PC

Captured Screen files contained in the PC or the SD card can be removed when Del. button is selected, followed by the confirmation dialog for deleting the files, then select “OK” to delete the files.

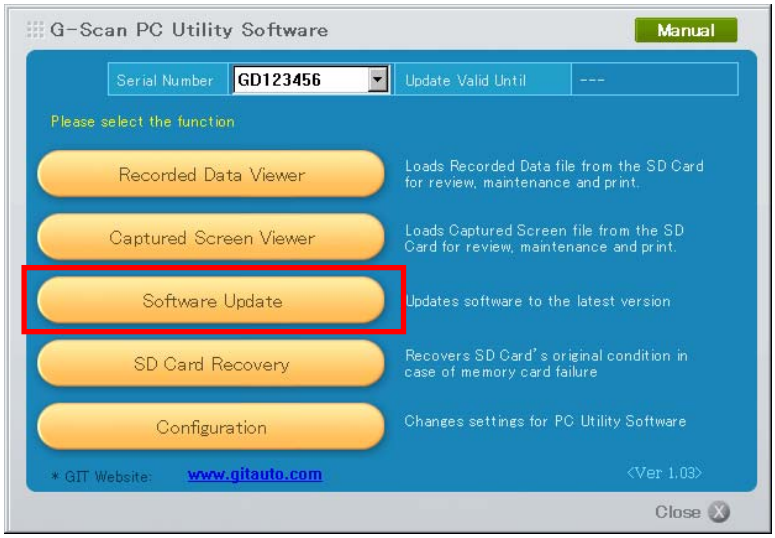


[Fig. 8] Delete Captured Screen file

4.5. Software Update

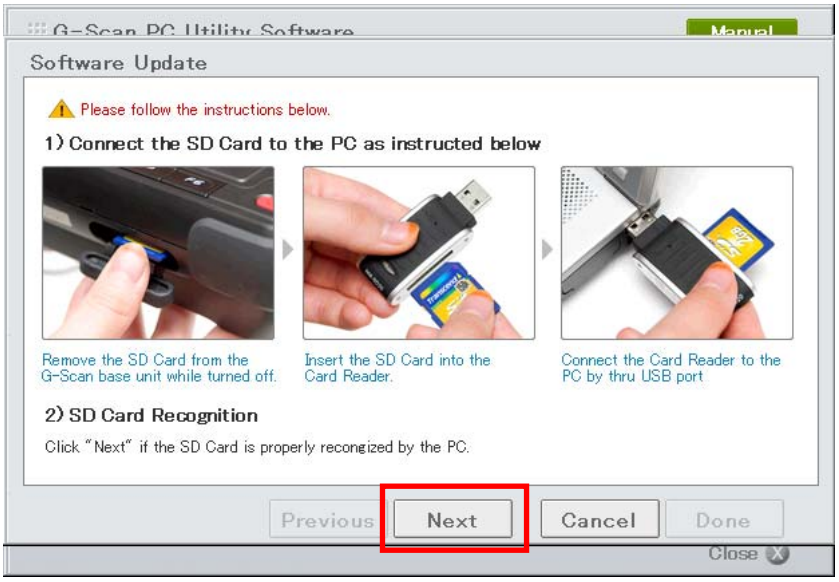
G-scan software contained in SD Card can be updated to the latest versions to include the newly added models, systems and functions as well as the recent patches and revisions.

Select “Software Update” from the G-Scan PC Utility Software main menu as shown in Fig. 1 below.



[Fig. 1] Software Update selected

How to connect the SD card to the PC is illustrated on the PC screen as shown in Fig. 2.



[Fig. 2] SD Card inserted to PC

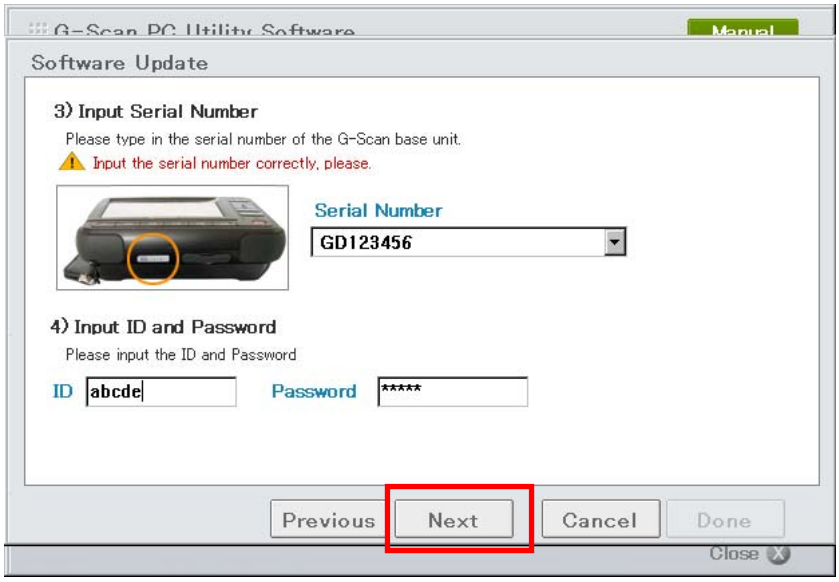
1. Turn G-scan base unit power OFF and remove the SD Card
2. Insert the SD Card to the provided Card Reader
3. Insert the Card Reader to a USB port of the PC
4. Click “Next” button to proceed

Caution

- Make sure to move the SD Card Write Protection Tab to the UNLOCK position before inserting to the PC as illustrated in Fig. 2.
- PC Utility may not function properly if the write protection tab is at the LOCKED position

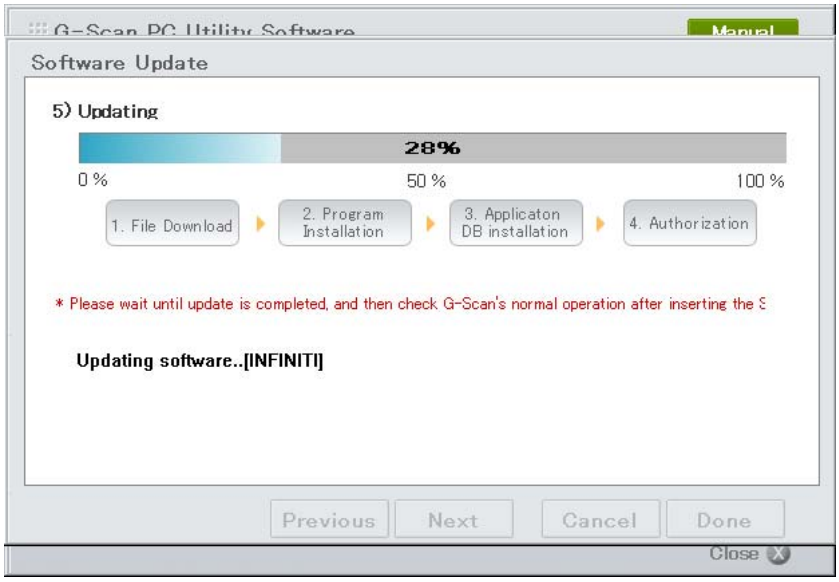
[Fig. 3] SD Card Write Protection Tab

Type in the G-scan base unit serial number correctly, and feed in the correct ID and password as registered when purchased G-Scan as shown in Fig. 4. Click “Next” button when ready.



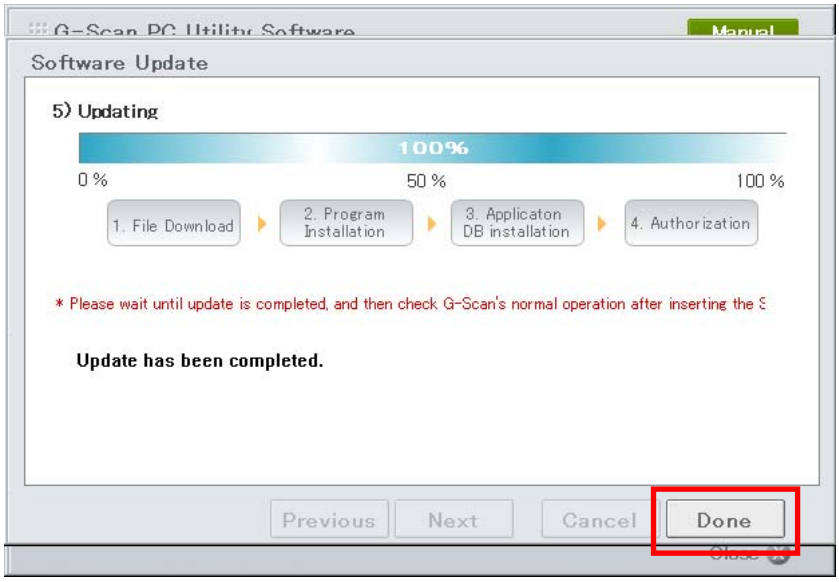
[Fig. 4] Serial number, ID and Password input

Software Update begins automatically if serial number, ID and password information provided are all correct.



[Fig. 5] Software Update in progress

Click “Done” when the progress bar reaches 100% and the “Update Completed” message appears in the window,

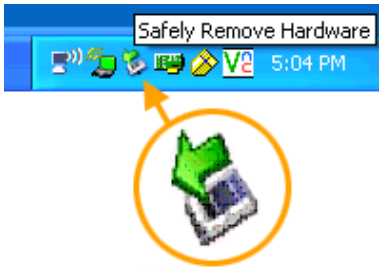


[Fig. 6] Software Update Completed

Caution

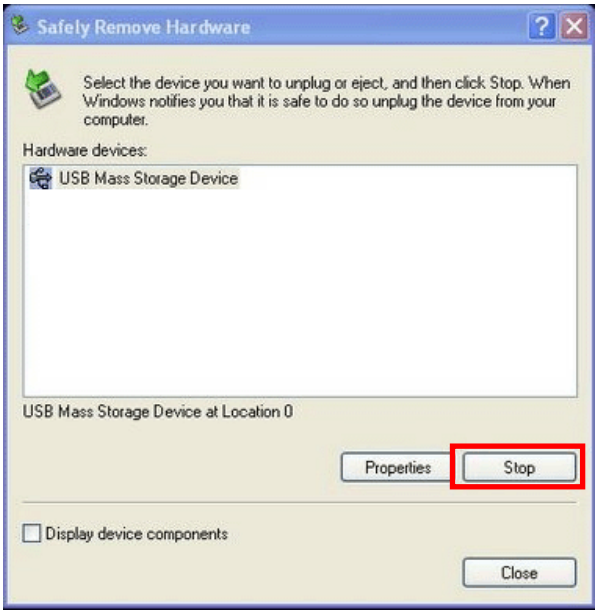
- DO NOT remove SD Card or Card Reader from the PC while updating
- Removing SD Card or Card Reader while updating or before the process is completed may seriously damage the SD Card and its contents.

When the update is completed, make sure to remove the Card Reader safely by double clicking the "Safely Remove Hardware" icon in the Windows tray in the bottom as illustrated in Fig. 7.



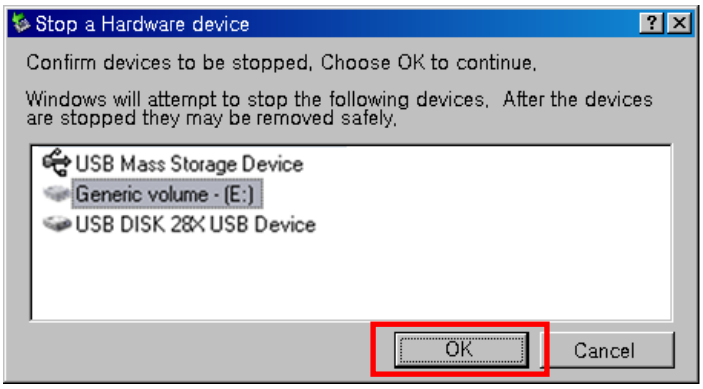
[Fig. 7] Safely-Remove-Hardware icon

The USB devices connected to the PC are listed for safe removal. Select "USB Mass Storage Device" among the list, and click "Stop(S)" to stop the operation and get ready for safe removal.



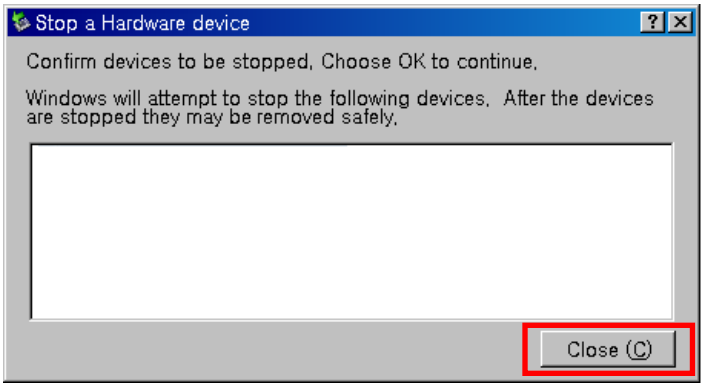
[Fig. 8] Stop use of USB Mass Storage Device

The procedure is followed by the “Stop a hardware device” query for confirmation. Click “OK” to remove the Card Reader.



[Fig. 9] Stop Hardware Device

Check if the device has been stopped and there is no “USB Mass Storage Device” in the “Safely Remove Hardware” list as shown in Fig. 10, then remove the Card Reader from the USB port..



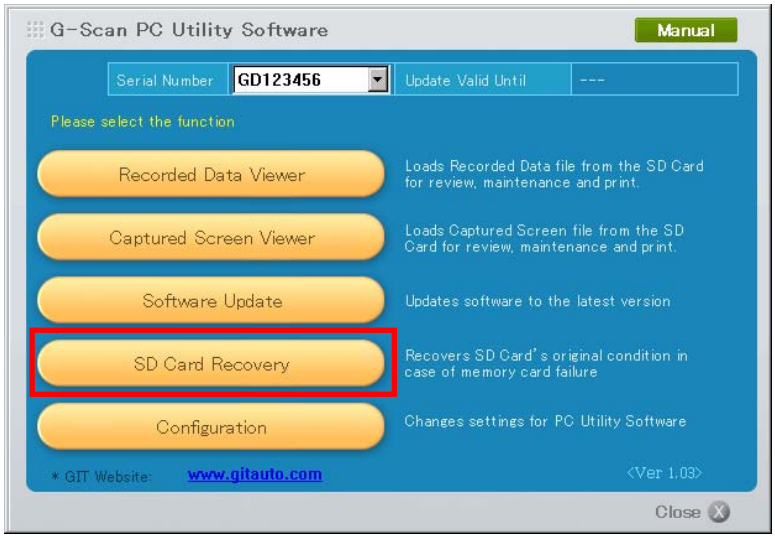
[Fig. 10] Check “Remove Hardware Safely” list

Insert the SD Card into the G-Scan base unit and check if the G-Scan operations normally after update.

4.6. SD Card Recovery

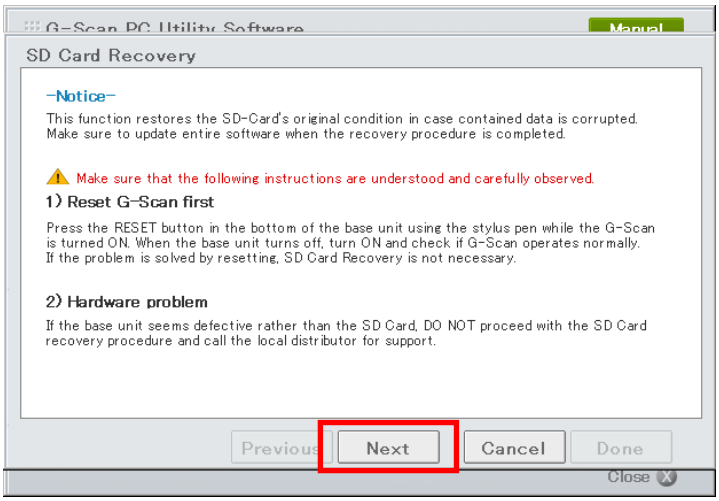
In case G-Scan software contained in the SD card gets corrupted or any memory card read failure is experienced, SD card can be restored to the original condition.

Select “SD Card Recovery” from the G-scan PC Utility Software main menu as shown in Fig. 1.



[Fig. 1] SD Card Recovery selected

Read the SD Card recovery instruction carefully and click “Next” button to proceed.



[Fig. 2] SD Card Recovery Instruction

Caution

- Make sure that the following instructions are understood and carefully observed.

1. G-scan Base Unit Reset

Press the RESET button in the bottom of the G-Scan base unit using the stylus pen while the G-Scan is turned ON.

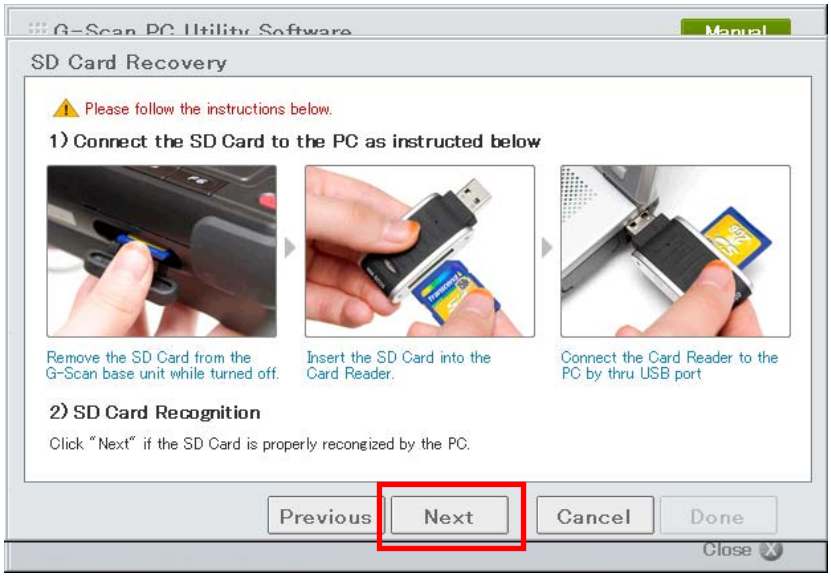
When the base unit turns off, turn it ON and check if G-Scan operates normally.

If the problem is solved by resetting, SD Card Recovery is not necessary.

2. Base unit problem

If the base unit seems defective rather than the SD Card, DO NOT proceed with the SD Card recovery procedure and call the local distributor for support.

How to connect the SD card to the PC is illustrated on the PC screen as shown in Fig. 3.



[Fig. 3] SD Card inserted to PC

1. Turn G-scan base unit power OFF and remove the SD Card
2. Insert the SD Card to the provided Card Reader
3. Insert the Card Reader to a USB port of the PC
4. Click “Next” button to proceed

Caution

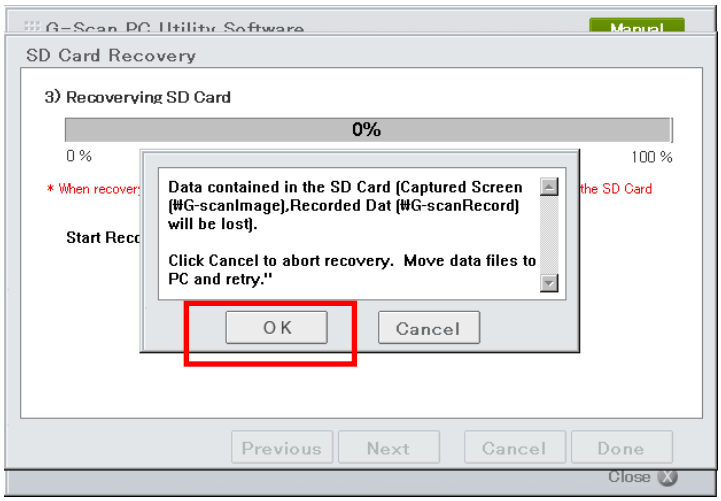
- Make sure to move the SD Card Write Protection Tab to the UNLOCK position before inserting to the PC as illustrated in Fig. 2.
- PC Utility may not function properly if the write protection tab is at the LOCKED position

[Fig. 4] SD Card Write Protection Tab

All information contained in the SD Card is lost after the recovery.

If important Record Data and Captured Imagefiles are not copied to the PC, abort the procedure by clicking “Cancel” button. If possible, copy the files to the PC using the “Record Data Review” or “Captured ImageReview” functions of the PC Utility Software, and then resume recovery procedure.

Click “OK” to being SD Card Recovery.

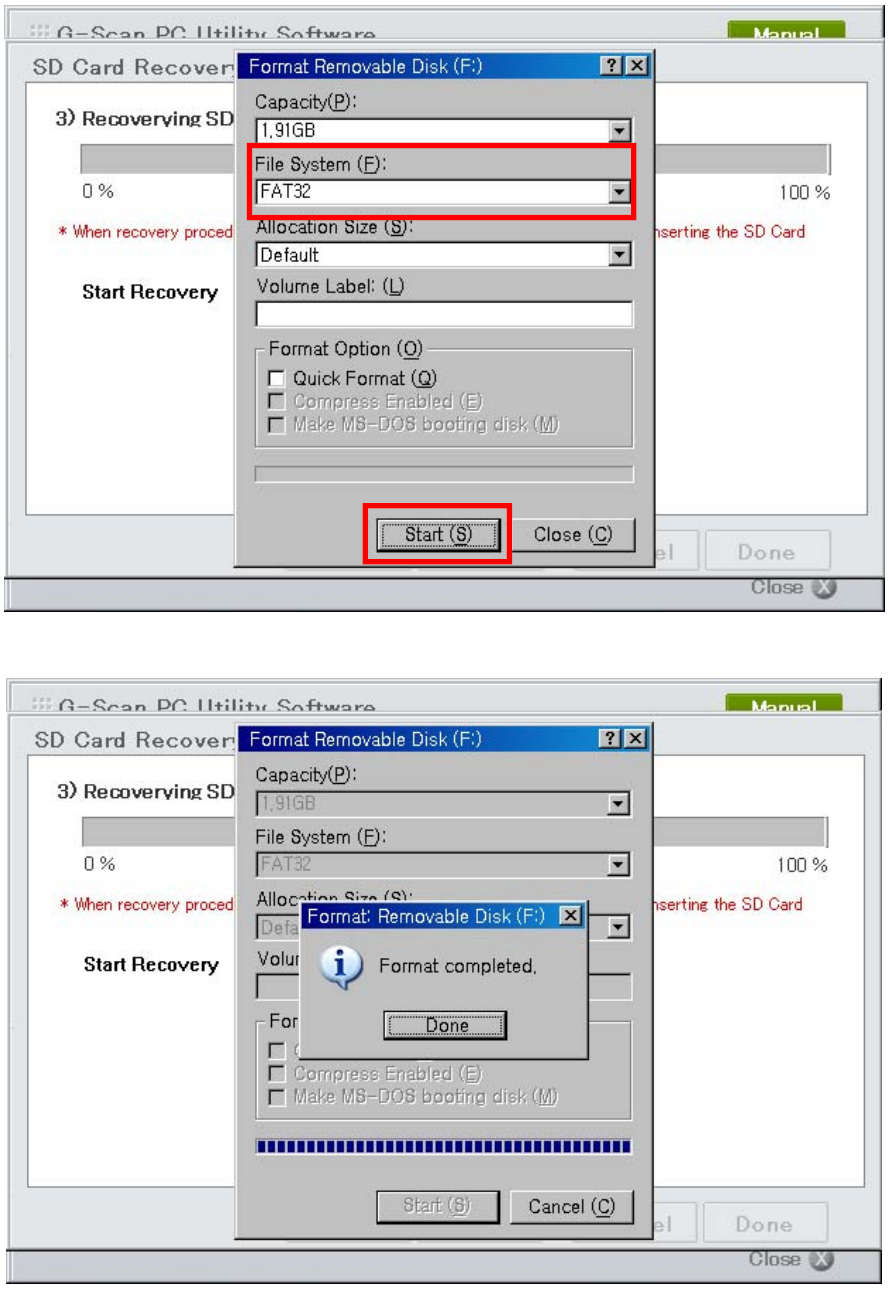


[Fig. 5] Warning message

File Type	Folder Location
Image Data	SD Card\G-scanImage
Recoded Data	SD Card\G-scanRecord

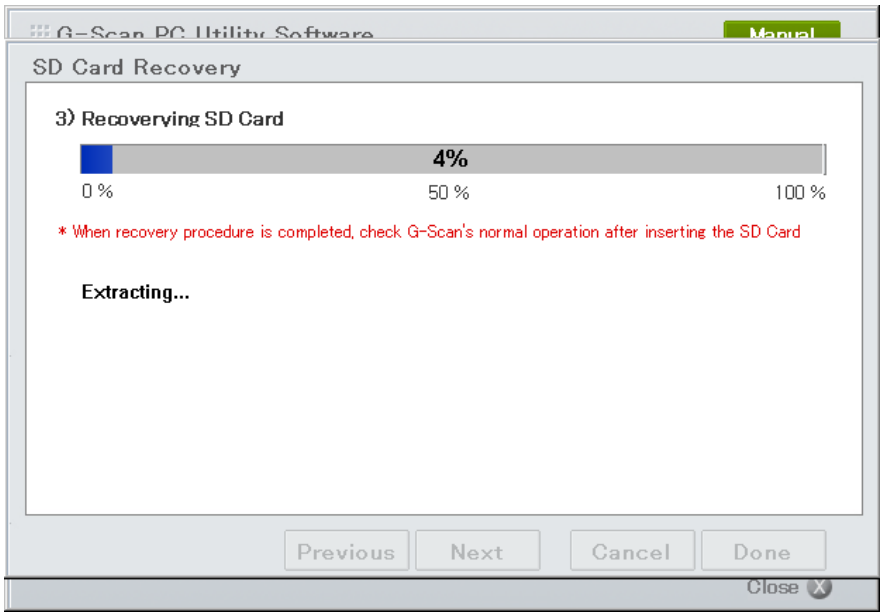
The warning message is followed by the window for SD Card Format setting. Select “FAT32” as the file system as shown in Fig. 6. Click “Start(S)” to format the card.

SD Card may not be recognized by G-Scan if the file system other than FAT32 is selected for formatting.



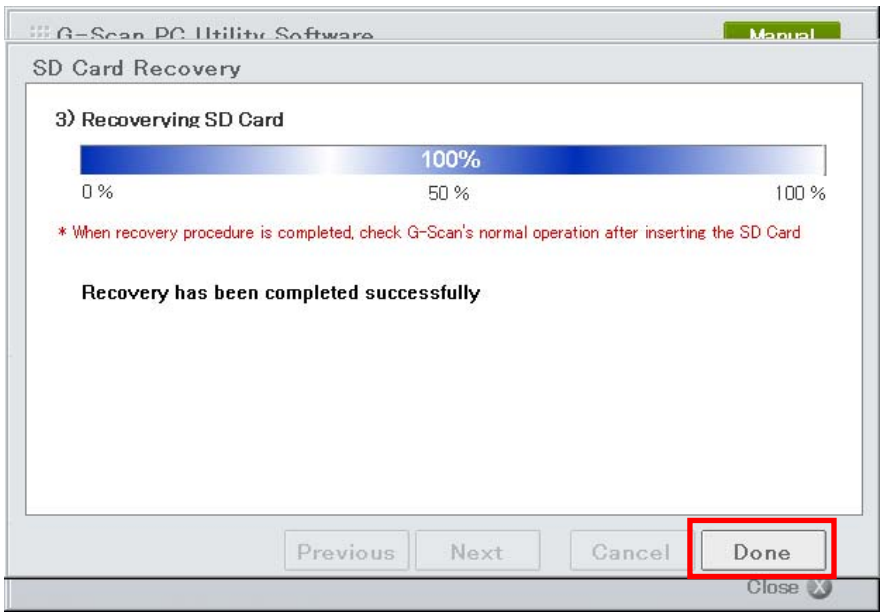
[Fig. 6] SD Card FAT32 Format

The recovery process initiates as shown in Fig. 7 when the SD card is formatted.



[Fig. 7] SD Card being recovered

The progress bar reaches 100% and “Recovery has been completed” message appears when the SD Card is successfully recovered. Click “Done” to end the recovery program.

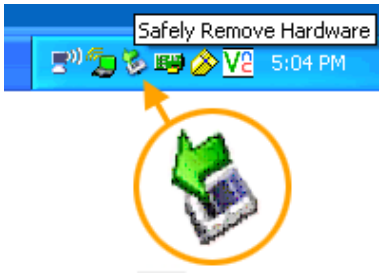


[Fig. 8] SD Card Recovery Completed

Caution

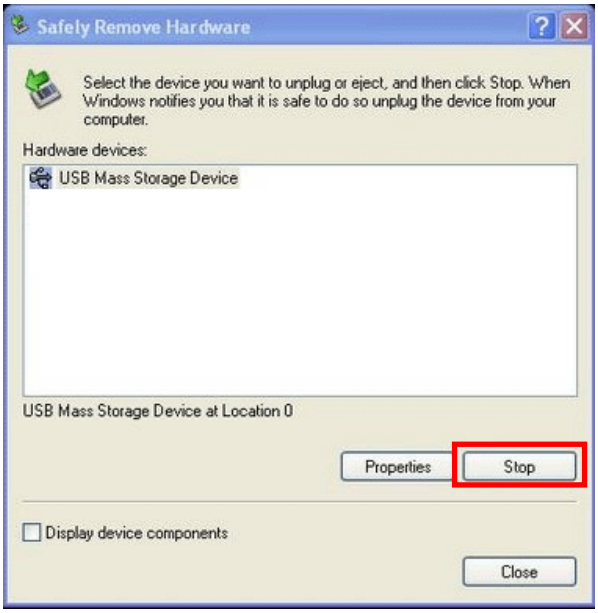
- Do not remove the SD Card from the card reader, or the card reader from the PC.
- It may take a few more seconds for the internal process running in the background after the completion of the recovery process.
- Do not remove the SD Card or the Card Reader immediately without going through “Remove Hardware Safely” procedure.

When SD Card recovery is completed, double-click the “Safely Remove Hardware” icon on the Windows tray in the bottom right of the PC screen.



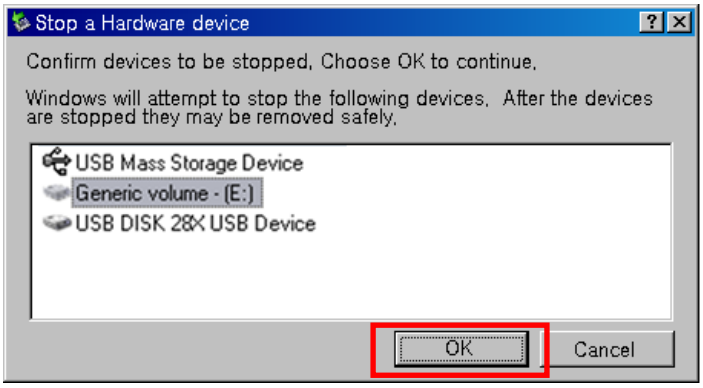
[Fig. 9] Safely Remove Hardware Icon

Select the “USB Massive Storage Device” among the USB device list as shown in Fig. 10, and click “Stop(S)”.



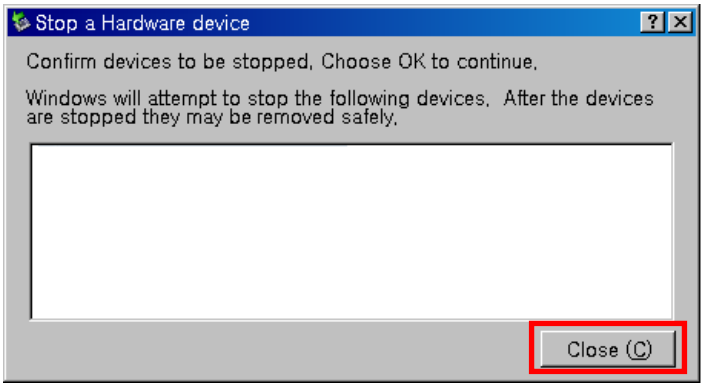
[Fig. 10] Stop USB Massive Storage Device

"Hardware Device Stop" window shows the details of the selected USB Mass Storage Device. Check that the correct USB device has been selected in case multiple USB devices are connected to the PC. Then click "OK" to proceed.



[Fig. 11] Confirm Hardware Device to be Stopped

If there is no "USB Massive Storage Device" in the "Remove Hardware Safely" list as shown in Fig. 12, close the window by clicking "Close (C)", then the SD Card can be removed safely.



[Fig. 12] Close "Safely Remove Hardware" window

Check that the SD Card recovery has been completed without problem by inserting it to G-Scan and observing normal operation of the base unit.

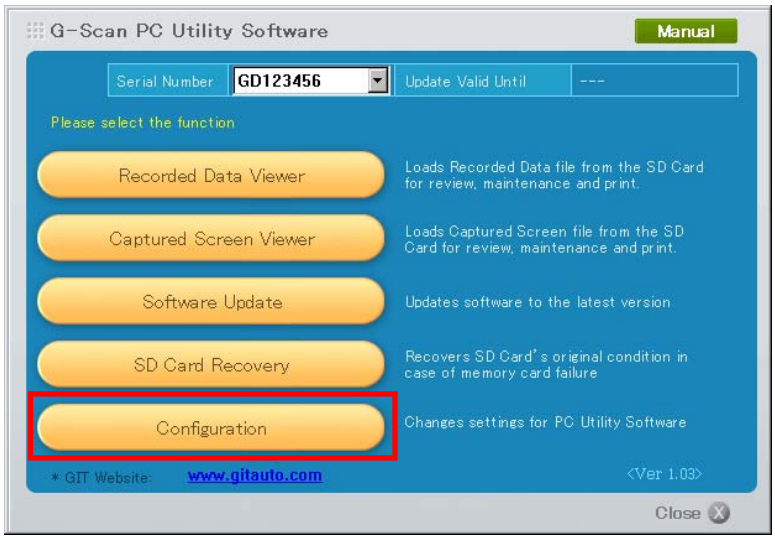
If the main menu of G-Scan comes up normally, the SD Card is considered recovered properly.

Note that the recovered SD Card contains outdated applications of the versions when it was purchased. Make sure to update the recovered SD card using "Software Update" function of PC Utility.

4.7. PC Utility Configuration

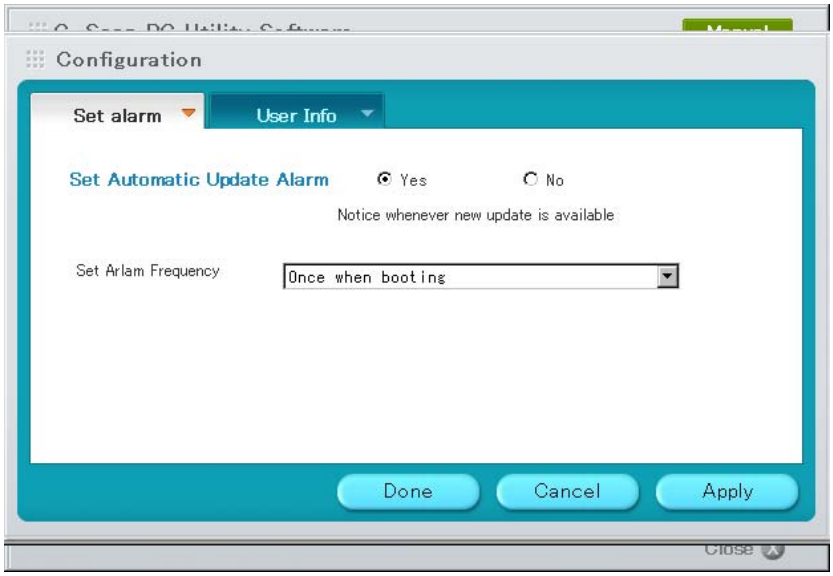
G-scan PC Utility Software AA-4-7. PC Utility Configuration

In the configuration menu, software update alarm setting and user information (serial number) registration is supported. Run G-scan PC Utility Program and click “Configuration” as shown in Fig. 1.



[Fig. 1] Selected configuration

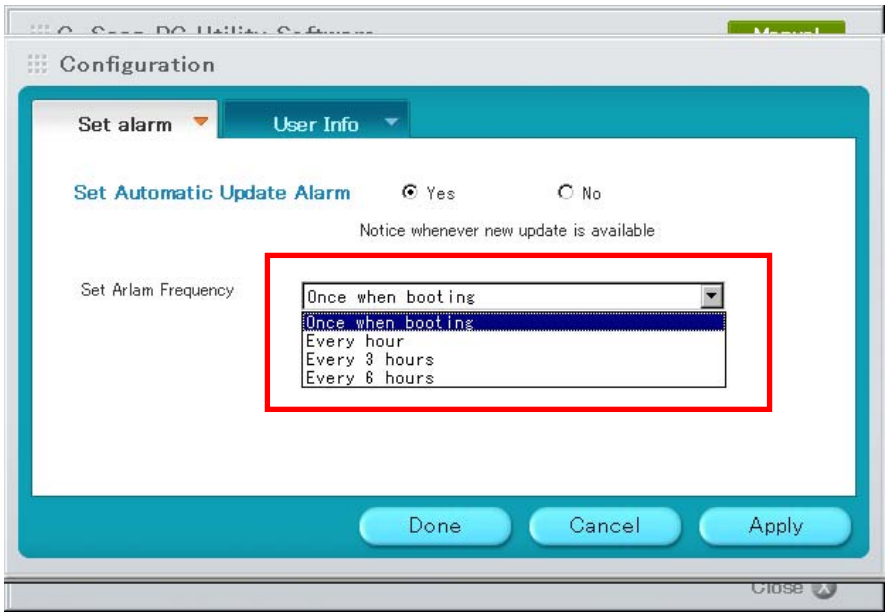
Set Alarm



[Fig. 2] Update Alarm Setup

Alarm refers to the function that informs the user when there is an update available for G-Scan. Automatic Update Alarm can be toggled On or Off by selecting “Yes” or “No” in the menu as shown in Fig. 2.

Setting Automatic Update Alarm ON by selecting “Yes” is followed by a further selection menu for the Alarm Frequency as illustrated in Fig. 3: “Once when booting”, “Every 1 hour”, “every 3 hours” and “every 6 hours”



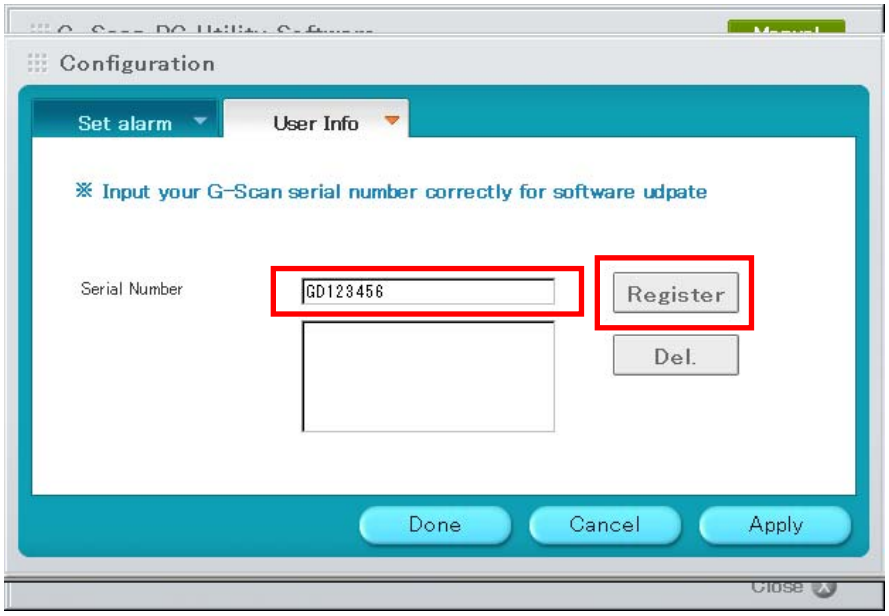
[Fig. 3] Update Notice Frequency Setting

Icon	Description
Done	Close the Configuration menu after saving the changed setting
Cancel	Close the Configuration menu without saving the changed setting
Apply	Save the changed settings and the Configuration menu remains open

User information

User information refers to the function that registers the G-Scan serial number for software update and support. Software update is not provided if the correct serial number is not registered.

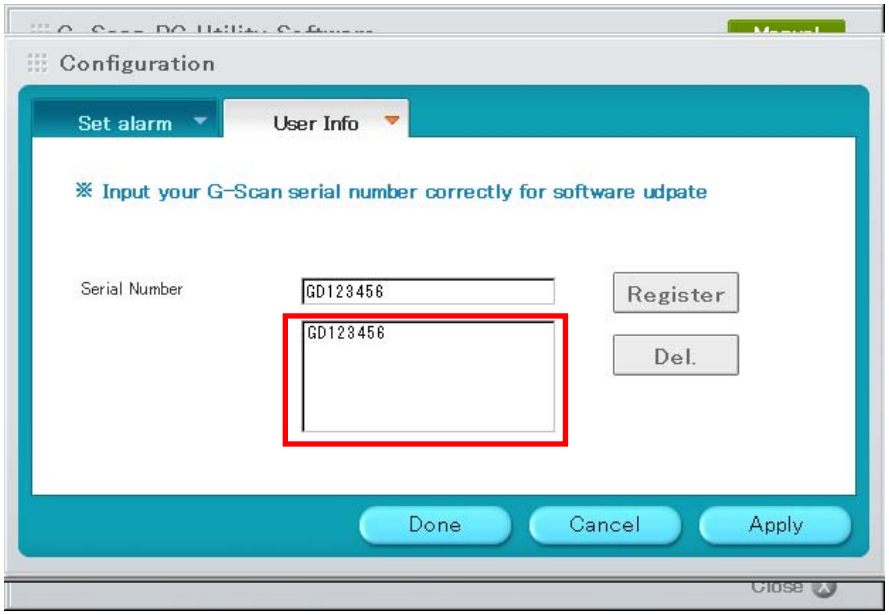
Type in the G-scan serial number correctly as shown in Fig.4, and click “Register” button.



[Fig. 4] User info (serial number) registration

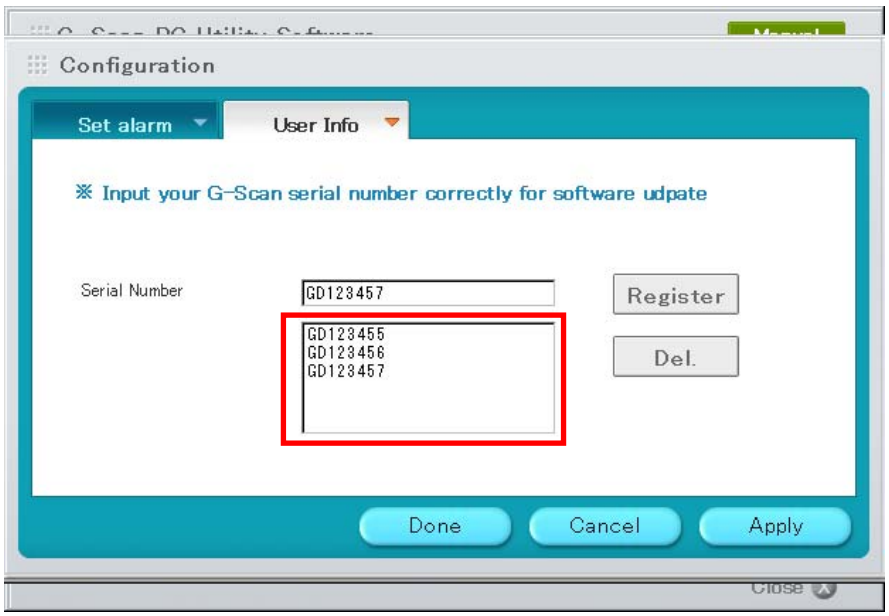
Icon	Description
Register	Registers the new serial number
Del.	Deletes the registered serial number

The registered serial numbers are listed in the box as shown in the Fig. 5.



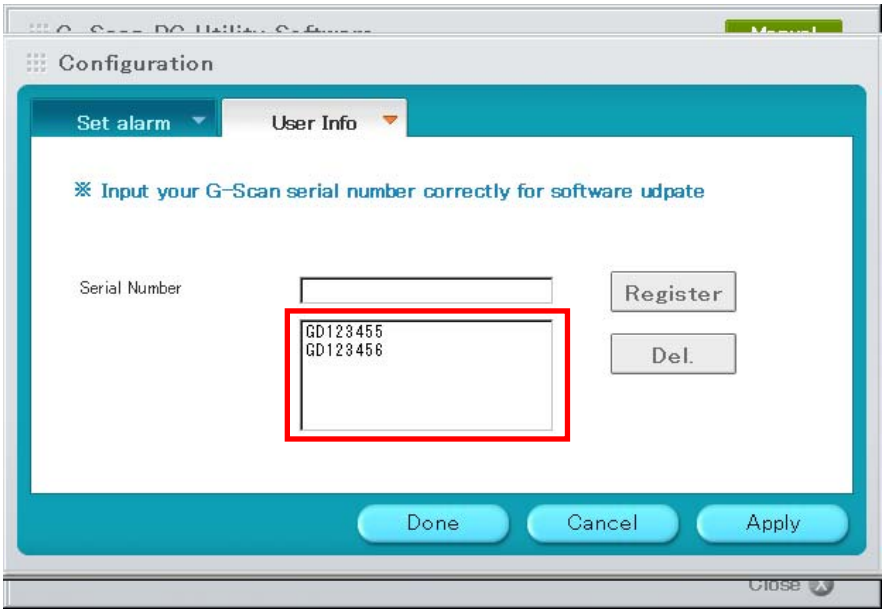
[Fig. 5] Registered one serial number

Registering multiple serial numbers is also possible as shown in Fig. 6 which illustrates an example when 3 serial numbers are registered



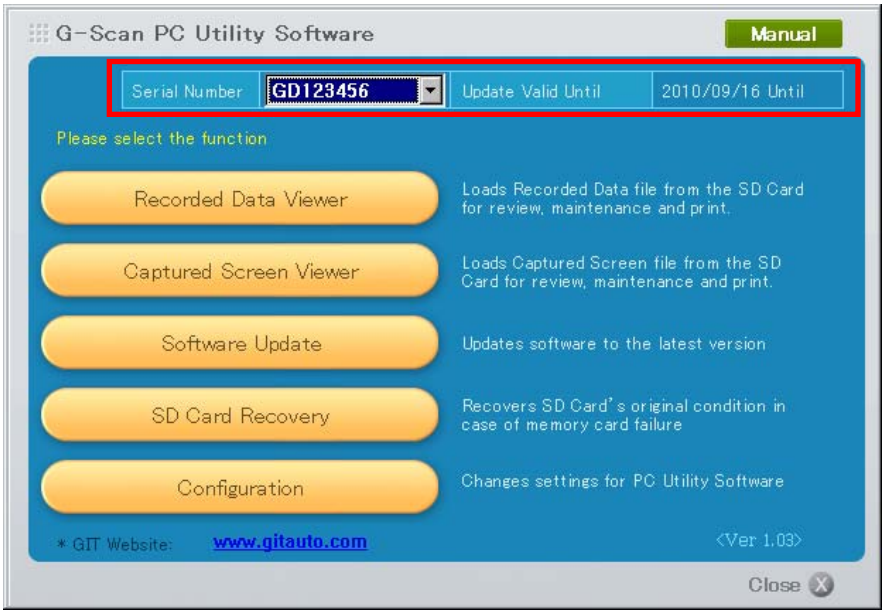
[Fig. 6] Multiple Serial Numbers registered

In order to delete a registered serial number, select the serial number from the list and click “Delete” button. The selected serial number is deleted instantly as shown in Fig. 7.



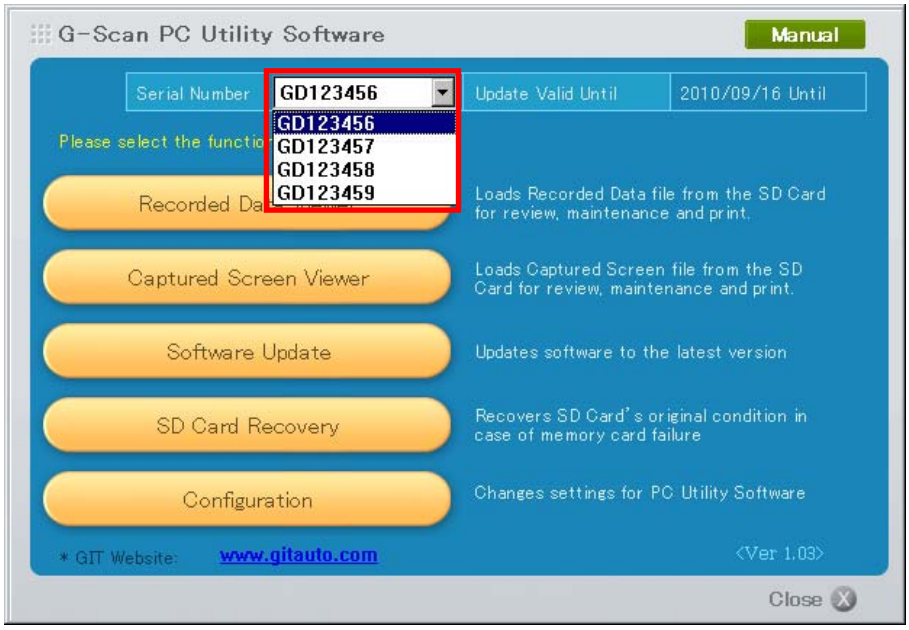
[Fig. 7] Delete serial number

If the registered serial number is valid for software updates, the serial number and the expiry date of the software update subscription are indicated in the top of the main menu as illustrated in Fig. 8.



[Fig. 8] Registered serial number and update expiry Date

In case multiple G-Scan serial numbers are registered, the expiry date of the each serial number is indicated when a serial number is selected from the drop down list as shown in Fig. 9.

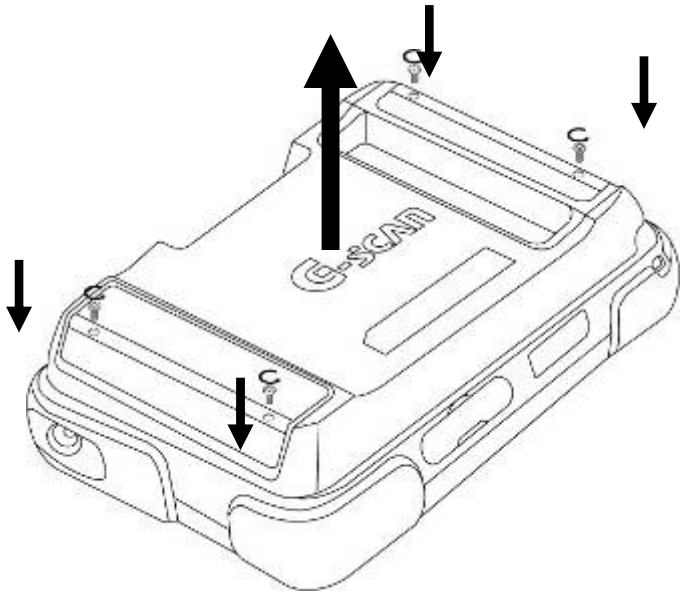


[Fig. 9] Select Serial Number

Chapter 5 Appendix

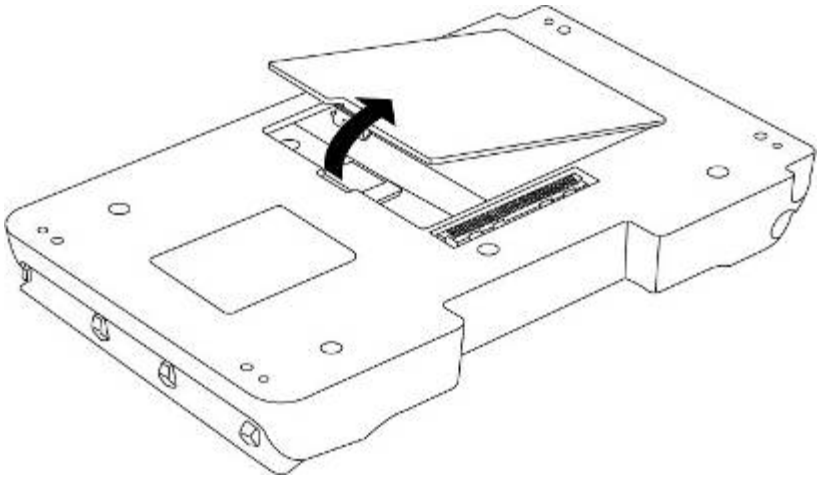
5.1. Lithium Ion Battery Replacement

1) Unscrew 4 bolts from the battery pack as shown in Fig.1 and remove the battery pack from the base unit.



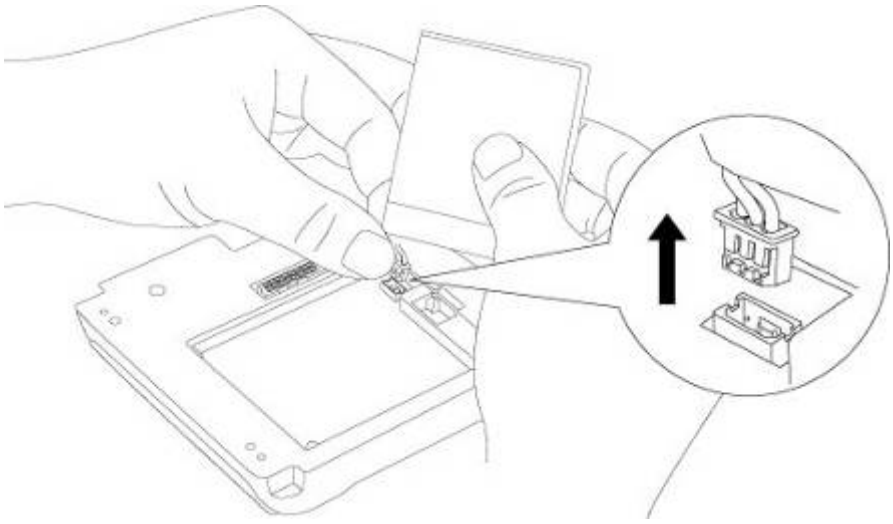
[Fig. 1] Remove battery pack

2) Open the flat cover from the battery pack as shown in the Fig. 2, and take out the battery cell.



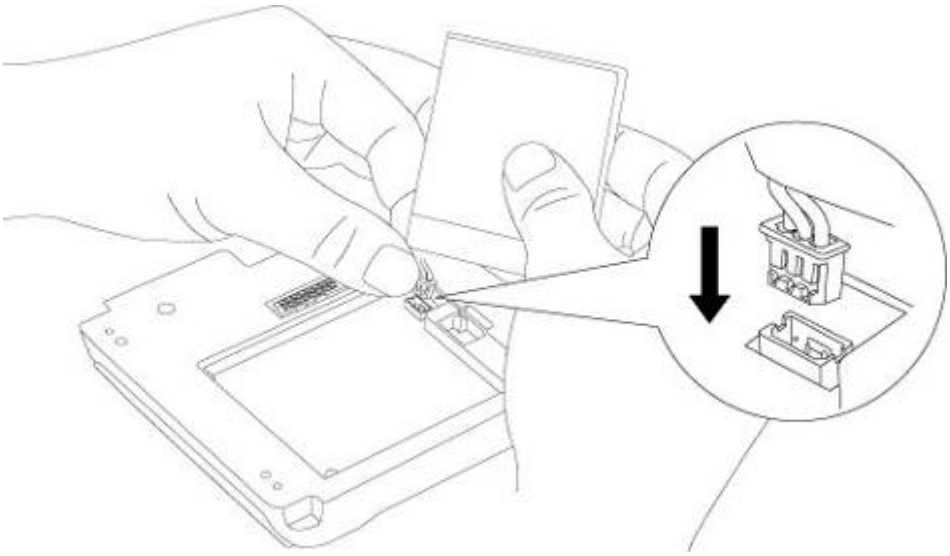
[Fig. 2] Open battery lid

3) Hold the battery and unplug the wire harness from the battery pack housing as illustrated in Fig. 3.



[Fig. 3] Unplug the battery

4) Observe the shape of the connecting part carefully and plug the wired harness of the replacement battery into the housing.



[Fig. 4] Connect the replacement battery

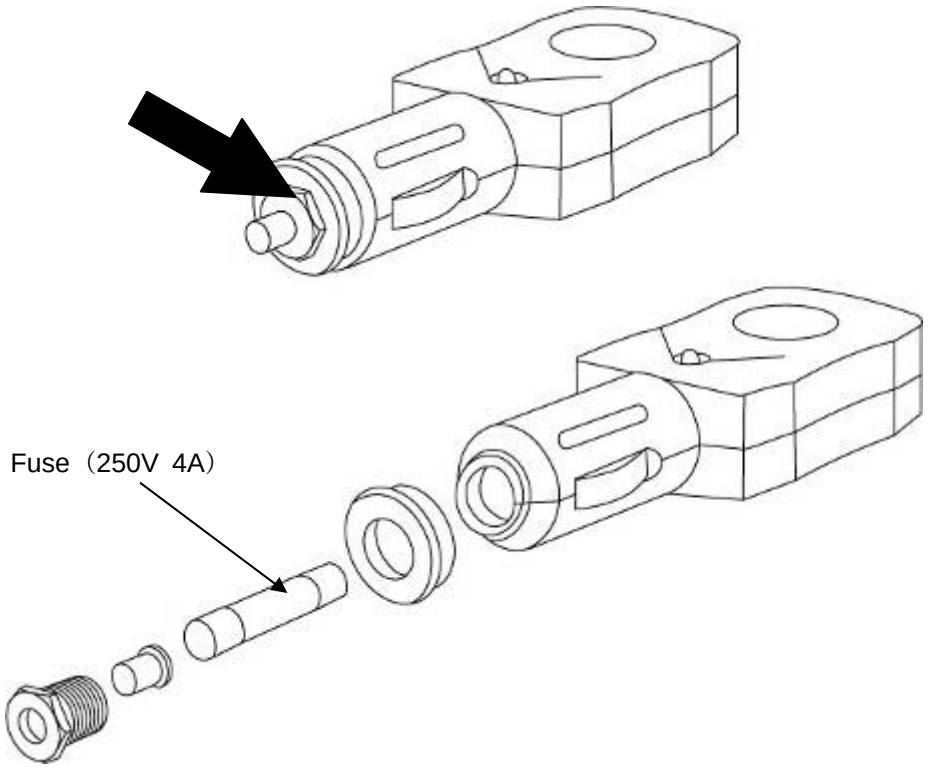
5) Follow the procedure 1 and 2 in reversed sequence
Place the replacement battery into right position and put the battery pack flat lid back in place.
Put the battery pack in to place in the rear of the base unit and tighten the 4 screws.

Caution

- Beware of the connecting direction of the wired harness when inserting into the battery pack. Do not apply excessive force to make connection wrong side up.
- When closing the battery lid, be careful not to get the battery wire caught in and damaged.

5.2. Cigarette Lighter Fuse Replacement

1) Use the 10mm spanner to turn the metal stopper counterclockwise.
   Remove the stopper, the fuse cap and the metal contact, then the fuse is taken out of the case.
2) Put the replacement fuse (250V 4A) into place and assemble the metal parts in reversed sequence.



[Fig. 1] Dismantling the cigarette lighter

5.3. G-scan O/S Update

Appendix AA-5-3. G-Scan OS Update

G-scan is built on Windows CE operating system, and this part of manual explains the details on conditions and procedure for the operating system update.

OS update becomes possible when all of the following conditions are met.

- Power shall be supplied through the provided AC/DC converter.
- OS update data shall be loaded on the SD Card
- The OS update loaded on the SD Card shall be of different version from the currently running G-Scan OS version.
- All external devices connected to the Option Ports shall be removed.

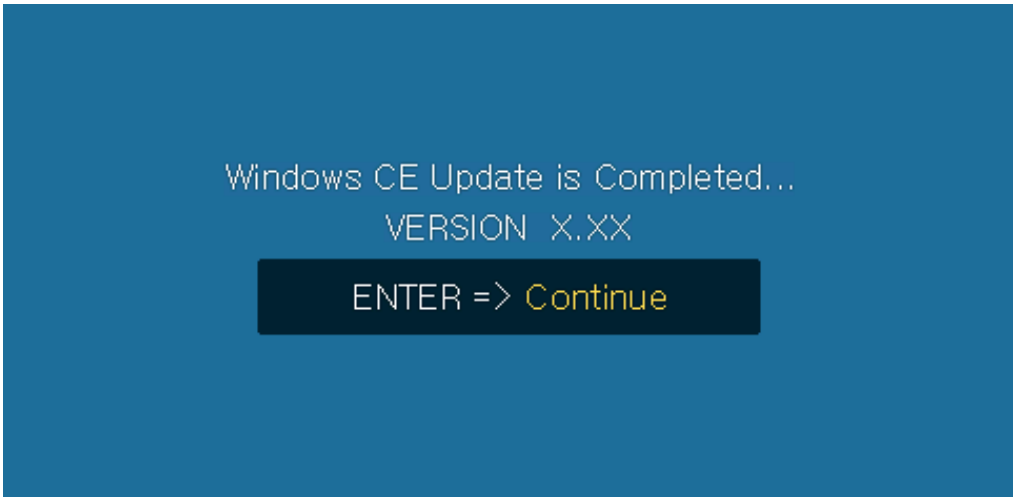
※ G-Scan automatically turns off in case update is attempted without inserting SD Card.

STEP 1 Insert the SD Card into G-Scan base unit while turned Off.
Turn On the base unit while pressing the F3 and F4 keys pressed together.

STEP 2 On-screen instruction for OS update comes up as shown in Fig. 1, then press the ENTER key to continue and the O/S update process initiates.
Otherwise, press the ESC key to cancel OS update, then G-Scan gets turned off.

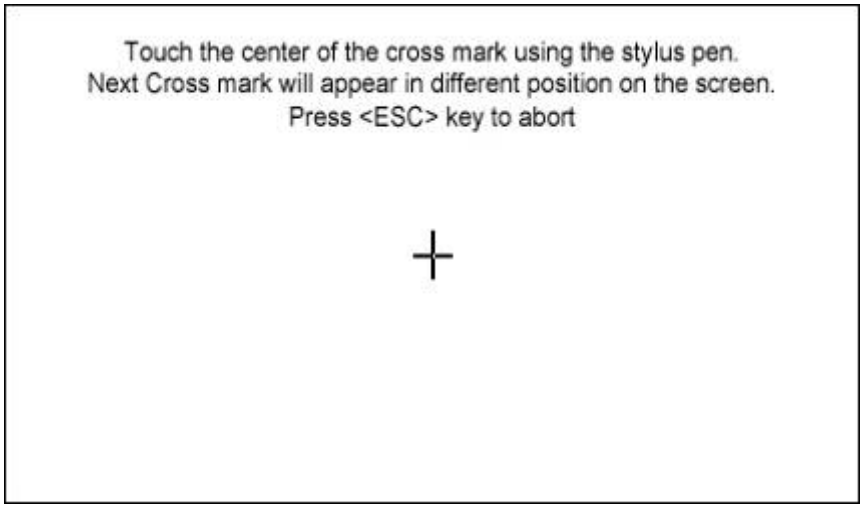
[Fig. 1] O/S update instruction

STEP 3 The message informing that the OS update has been completed appears as shown in Fig. 2. Press the ENTER key to acknowledge.



[Fig. 2] O/S update completed message

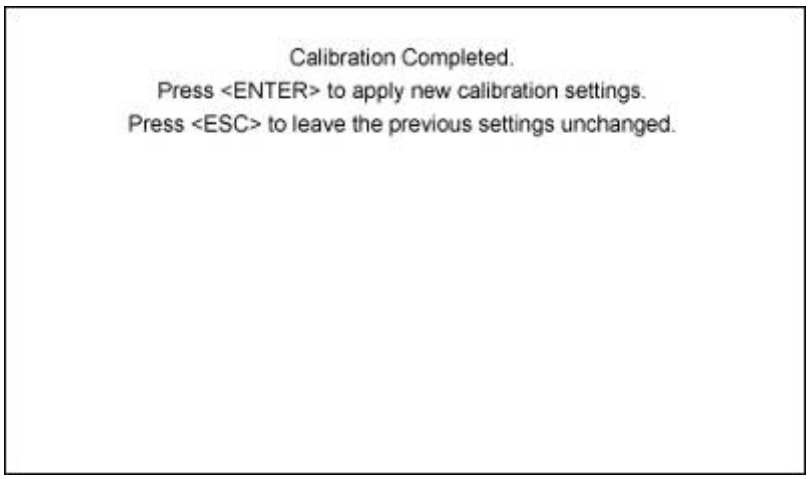
STEP 4 OS update process is followed by the Touch Screen Calibration automatically. Touch the center of the crosshair mark in sequence as instructed on the screen as shown in Fig. 3.



[Fig. 3] Touch Screen Calibration

STEP 5 When the touch signals for all 5 crosshair marks are recognized, the process is prompted by the query for applying the new calibration data.

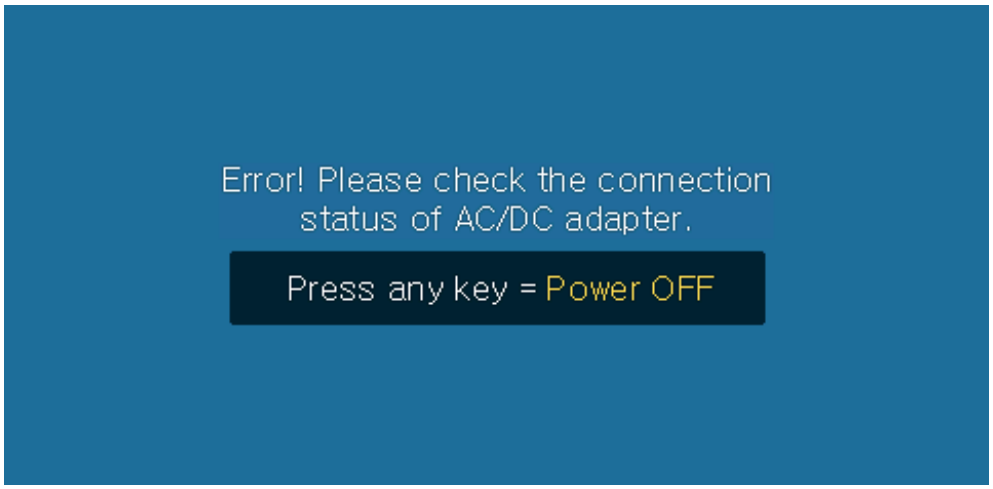
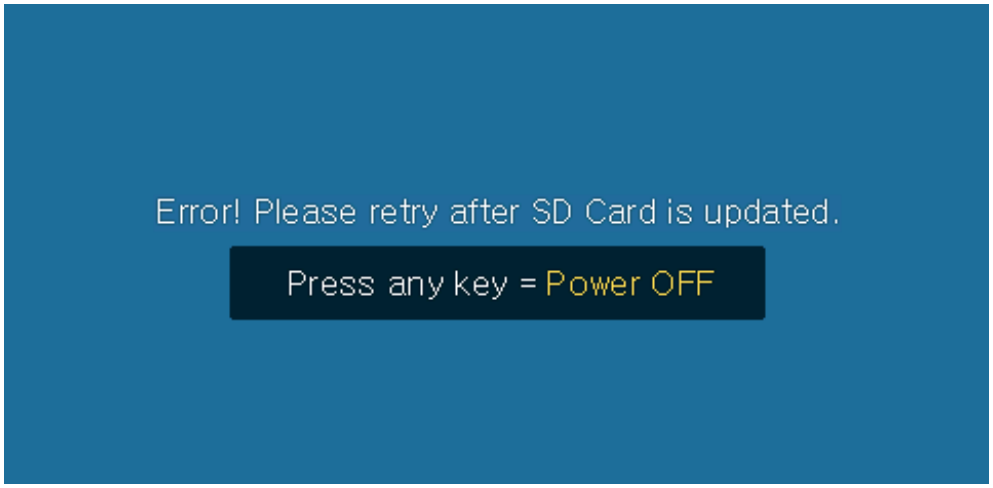
Press the ENTER key to apply the new calibration, otherwise press the ESC key cancel.

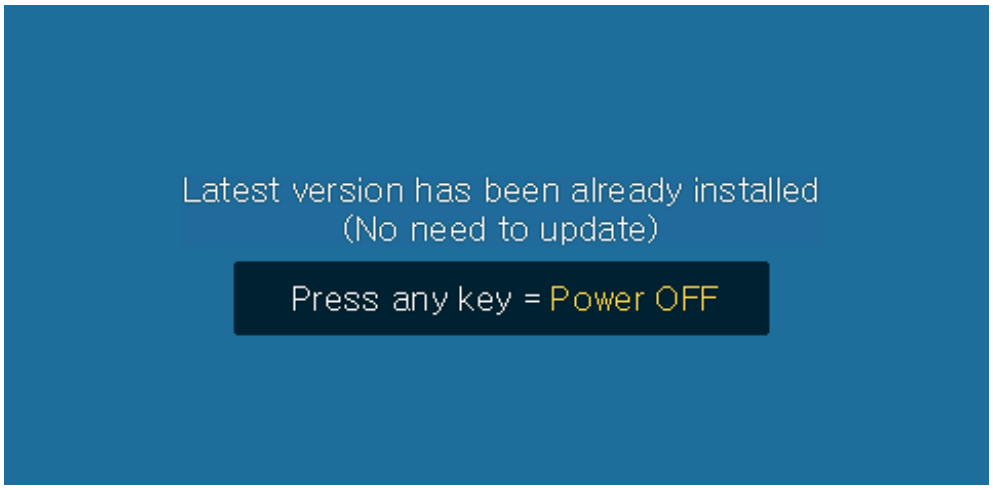


[Fig. 4] Touch screen calibration completed

STEP 6 When the O/S update is completed, the system reinitiates.

[Fig. 5] G-scan main menu

Error Message for OS update	
1	**Power is not supplied from AC/DC converter**
	
	The base unit turns off when any key is pressed in case this error message appears. Supply power to the base unit using the AC/DC converter and retry.
2	**OS update file contained on the SD Card is defective / corrupted.**
	
	The base unit turns off when any key is pressed in case this error message appears. Correct the SD Card problem by going through the SD Card Recovery procedure using the PC Utility Software. Update software applications after recovering the SD Card, then retry OS update procedure.

3	**OS update file contained in SD Card is the same as the current OS**
	
	The base unit turns off when any key is pressed in case this error message appears. The latest OS version is already installed. No update is necessary.
4	**External device is connected to the USB port**
	 **Unknown USB device**
	Remove all external devices connected to USB ports and reboot G-scan Retry OS update procedure.

5.5. G-Scan Limited Warranty

Providing that this product has been installed and used as instructed in this operating manual, GIT will repair G-Scan module (base unit other than software, which is subject to a different warranty program) with new or reconditioned parts, free of charge for two (2) years from the date of original purchase in the event of defect in materials or workmanship. During the first 1 year of this 2-year period, GIT will cover the freight cost for return trip of the G-Scan module for repair service, and for the remaining second 1 year period, the customer shall pay the return trip freight cost while the labor and part costs are still covered by GIT.

Functioning accessories including cables and connectors are warranted for 1 year from the data of original purchase.

Non-functioning parts and consumable accessories including but not limited to base unit plastic case, carry case and parts thereof, plastic bags, printed material and CD or DVD.

Lithium-ion battery module is warranted for 6 months only by the manufacturer.

The warranty is extended solely to the original purchaser. A purchase receipt or other proof of evidencing the date of original purchase will be required to be presented before providing necessary warranty service.

YOU ARE REQUIRED TO REGISTER G-SCAN AND USER INFORMATION TO GIT WEBSITE IMMEDIATELY. GIT HOLDS THE RIGHT TO REFUSE PROVISION OF ANY SERVICE FOR THE PRODUCT THAT HAS NOT BEEN REGISTERED.

This warranty only covers failures caused by defects in materials or workmanship, which may occur during normal use. It does not cover damage occurs during shipment or failures which may be caused by products, non-genuine parts or accessories not supplied by GIT, or failures resulting from act of god, alteration, accident, misuse, introduction of liquid material or any other foreign matter into the product, abuse, neglect, improper installation, maladjustment of consumer controls, improper maintenance, modification or service conducted by any one unauthorized by GIT.

GIT SHALL NOT BE LIABLE FOR LOSS OF DATA OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGE RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH

OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE.

GIT's entire liability and your exclusive remedy under this warranty shall be limited to the replacement, or any defective parts or functions in the products, which is returned to GIT or its authorized local distributor, together with a copy of the purchasing receipt, during the aforementioned warranty period. Anything in the foregoing to the contrary notwithstanding, GIT shall have no obligation for any defects in the product resulting from your storage thereof, or for defects that have been caused by operation of the product other than on the operation manual or in environmental conditions other than those specified by GIT or by alteration, accident, misuse, abuse, neglect, mishandling, misapplication, installation, maladjustment of consumer controls, improper maintenance, modification or damage that is attributed to acts of God.

This limited warranty gives you specified legal rights, and you may also have other rights, which vary from country to country. The laws of Republic of Korea, without regard to its conflict-of-laws rules, will govern this Limited Warranty.

To obtain help or technical Assistance, please contact your local distributor.

5.6. Discard of used equipment

Appendix AA-5-6. Discard of used equipment

WEEE (Waste Electrical and Electronic Equipment) symbol as shown in Fig. 1 is indicated on the back of G-Scan base unit. Please note that G-Scan is subject to this regulation for disposal of Waste Electrical and Electronic Equipment, therefore you are kindly requested to follow the suggested rules.

WEEE is applied to EU member nations as well as Non-EU member European countries with separate waste collection systems.

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help conserve natural resources. For more information on recycling of this product , please contact your community authority, your household waste disposal service or your local distributor.