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Chapter 1.Cautions and Warnings

1.1 End User License Agreement

Cautions and Warnings 1-1. EULA

This product is licensed to use within a designated region or country where the product was originally shipped to.
If you use this product outside of designated region or country, it may incur a disadvantage such as restrictions on the use of the product.
Please check the End User License Agreement below and proceed product registration only when you agree to all of the contents. If you disagree or do not understand any of the content in this agreement, please do not proceed product registration.

End User License Agreement

A person who wishes to purchase and use G-scan 3 (hereinafter referred to as "end user"), agrees to the following clauses and upon completion of the product registration, end user agrees to the agreement and authorizes its validity.

Chapter A. Regional License

1. This product can only be registered and used within the country or region designated by the supplier at the time of shipment. Therefore, end user must confirm that the country or region in which product is to be used matches the designated country or region designated by the supplier at the time of shipment. Selling or using this product outside the designated country or region is strictly prohibited. .

2. In order to protect the intellectual property embodied in this product and fulfill the conditions of this license agreement, end user agrees that the supplier has the right to monitor the country or region where the product is used when the product is connected to its online server facility for software update or product registration purposes.

3. The supplier has the right to restrict the use of the product if it is found registered or used outside the designated country or region.

4. Restriction of the product takes place in various levels and methods such as increased

inconvenience of usage, prohibition of additional updates restriction of specific diagnostic functions, and complete lock of the product. Such restrictions cannot be withdrawn until following conditions are fulfilled:

A)Restriction of the product is applied inappropriate manner due to the supplier's system error.

B) Requested by the authorized distributor in the designated region/country with the written consent to provide full service and support for the G-scan 3.

5. The period of warranty service and free software update subscription shall not be suspended even when functional restriction to the G-scan 3 is enforced and the expiry dates shall remain the same.

6. End user shall be liable for all expenses such as transportation, labor costs, customs, and any additional fees that may arise in the process of normalization or lifting the restrictions imposed to the product.

Chapter B. Liability and Indemnification

1. End user understands this product is a multi-brand diagnostic tool designed for aftermarket and is not developed based on the original data and information provided directly from each car manufacturer, but is developed and designed to provide functionality similar to each car manufacturer’s original equipment.

2. Therefore, end user acknowledges that the product is provided "as is" and "with possible faults, defects and errors" and that all use of the product is at end user's own risk and the supplier shall not be liable for any damages and losses to vehicles and bodily injuries resulting from such faults, defects and errors of the product.

3. The supplier cannot guarantee that the product will work correctly as intended with every system in every vehicle, but will do the best to fix any bug in the software and bring enhancement to the product.

1.2 Copyright Notice and Disclaimer

Thank you for purchasing G-scan 3 supplied by GIT (Global Information Technology) Co., Ltd.
This manual contains information needed for using G-scan 3.
We recommend you to read this manual and comprehend the provided functionality before start using G-scan 3 in order to get the maximum performance out of the product.

Copyright Notice

Disclaimer

- By use of this product, you acknowledge that the product is provided "as is" and "with possible faults, defects and errors" and that all use of the Product is at your own risk.
  Even though the product has been extensively tested and evaluated, GIT Co., Ltd. cannot guarantee it will work correctly as intended with every system in every vehicle. GIT Co., Ltd. will do the best to fix any bugs and to bring enhancement to the product, but specifically disclaim any liability for damage to the car and yourself.
- GIT Co., Ltd. reserves the right to change or modify G-scan 3 for technical and non-technical product enhancement without notice. This may include scan tool graphic displays, vehicle coverage, supported functions and operating procedures. Hardware may also be modified, altered or redesigned or may differ from the descriptions and illustrations displayed in this manual.

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 3 user's manual.

General issues:

- Use G-scan 3 only for the original purposes as it was designed for.
- Keep G-scan 3 within the specified storage temperature when not in use (See the spec sheet)
- Place the G-scan 3 at a secured location and keep clearance with any moving part of the vehicle or hazardous environment when using G-scan3 with the vehicle.
- Use only the parts and accessories authorized by GIT.
- 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 3 is operating.

External Power issues:

- Supply stable power from the external source (using AC/DC adapter) when updating G-scan 3 software (Operating System, Firmware and Application updates).
- Use the AC/DC power adapter and cables supplied by GIT only when supplying power from the external source.

Battery issues:

- 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 circumstance.

- 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 in reversed polarity.
- Do not 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.

Service authority:

- Do not disassemble or dismantle the G-scan 3 base unit in any case.
- Beware that only the service personnel of EZDS's authorized local distributor is entitled to provide after-sales service for G-scan 3.

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 3 user's manual.

- Put G-scan 3 base unit on a secure place and avoid unstable, inclined or slippery place.
  Be careful not to drop the G-scan 3 base unit.
- Avoid humidity and dusts when storing and using G-scan 3 in order to prevent electric shock or fire.
- Do not put heavy objects such as hand tools on the G-scan 3 base unit.
- Stow the parts and accessories that are not in use in the G-scan 3 carry case.
- Avoid following hazards for storing G-scan 3.
  - Too high or low temperature (See Spec sheet)
  - Too high or low humidity (See Spec sheet)
  - Exposure to direct sunlight

- 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 3cable connection is configured under the hood.
- Securely tighten the screw lockers when connecting the DLC main cable to the G-scan 3 base unit.
- When supplying power from the vehicle battery, check the connection for correct polarity.
- Do not carry the G-scan 3 by holding the cables connected to the base unit.
- Avoid physical impart and vibration when carrying G-scan 3.

- Storing the rechargeable battery in a hot place may shorten its lifetime
- In case battery liquid gets in the eyes, do not rub and wash them with fresh running water. And see the doctor immediately

- Use of sharp or pointed object may cause serious and irrecoverable damage to the touch screen and the LCD
- 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

1.4. Warnings for Environment protection

When the product has been used up to its life-time 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 3, 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-scan2 disposal.

Chapter 2.Getting started with G-scan 3

2.1. Specification

G-scan 3 Base Unit specification

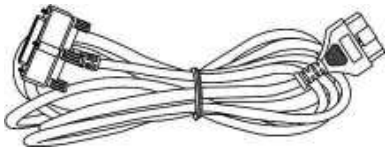
General Specification	
Category	Specifications
CPU	Exynos 7420 Octa core @2.1GHz
Operating System	Android 6.0
System Memory	Internal Flash 64GB RAM 3GB
External Memory	Micro SD Card(max. 128GB)
LCD	10.1” TFT / 1280 x 800 pixel
Input Devices	Capacitive Touch Screen 3 hard keys (Power / Function1 / Function2)
Camera	Rear 13M Pixel / AF / Flash Light
Sound	Speaker (mono) / Microphone and Earphone jack
Rechargeable Battery	Li-ion Polymer / 6,300mAh(3.7V) / Hard Pack
Operating voltage	DC 9 ~ 30V
Sensors	Gyro-sensor, Acceleration Sensor
Dimension	304 x 208 x 35.5mm
Weight	1.5Kg

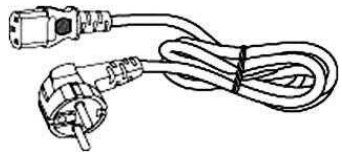
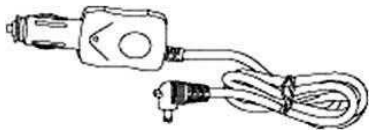
Connectivity	
External port	USB 2.0 Host 1ea / Host & Slave 1ea,
Video out	HDMI
Network	RJ45 Ethernet, Wi-Fi802.11 a/b/g/n , Bluetooth 4.0

Supported Vehicle Communication Protocols
CAN (High speed, Low speed, Single), ISO-9141, ISO-9141-CARB, KWP-2000, SAE-J1708, SAE-J1587, J1850(PWM/VPW), Melco Pull-Down

2.2. Parts and Components

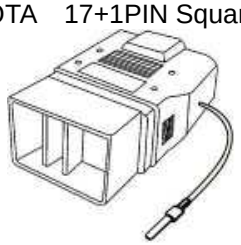
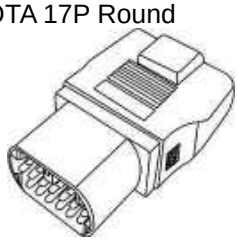
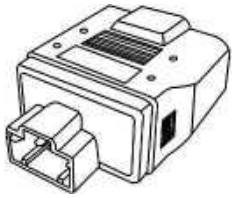
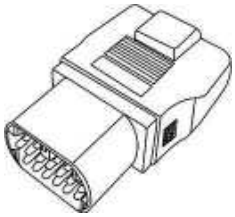
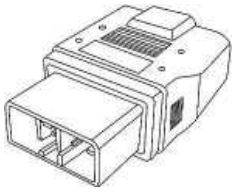
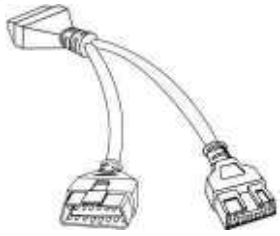
Basic Supplies

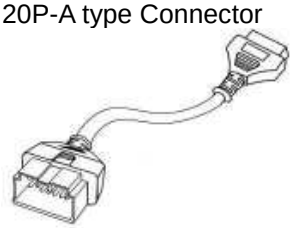
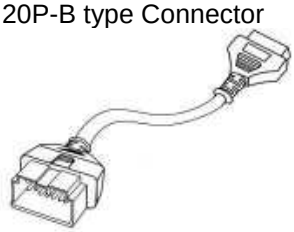
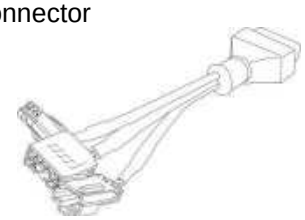
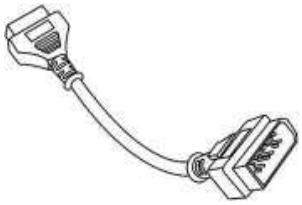
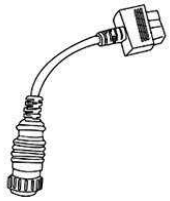
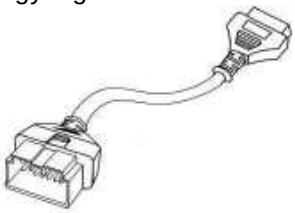
Part	Part Number	Description	Q'ty
	G1NDDMN002	**Part Name: G-scan 3 Base Unit** G-scan 3 base unit	1
	G1NZDCA001	**Part Name: Cable – DLC Main Cable** The main cabled used for connecting the G-scan 3 base unit and the car's OBD2 connector.	1
	G1CDDPA008	**Part Name: Self Test Adapter** A cable used for self test of G-scan 3 base unit and the cable connection. Do not use this cable for vehicle diagnostic functions	1
	G1NDDHA002	**Part Name: Carrying Hard Case** A portable and heavy duty hard case that contains G-scan 3 base unit and parts.	1
	G1CDDPA013	**Part Name: AC/DC Adapter** AC to DC converter used for supply of AC power to the G-scan 3 base unit.	1

	G1CDECA001 (Europe, Korea) G0PDDCN001 (Oceania) G1CDNCA001(North America)	**Part Name: AC Power Cord** AC power cord used with the AC/DC adapter for supply of AC power to G-scan 3 base unit Different type AC plugs may apply for different countries i.e. Korea, USA. Oceania and UK. Spec: IEC 60320 C13	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
	--	**English Quick Manual** A single piece laminated paper manual for quick guidance for G-scan 3 usage.	1

Non-standard OBD Adapters for Asian Vehicles

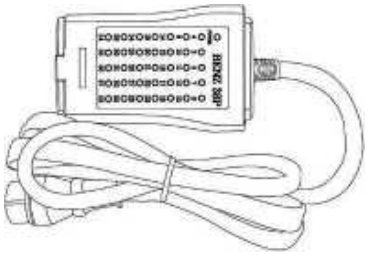
Parts included in the Asian and Full Kit (Not included in Standard Kit)

Part	Part Number	Description	Q'ty
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
TOYOTA 17P Round 	G1PZFPA002	Used for communication with old Toyota and Lexus cars with the 17-pin "Round (Semi-circular)" type diagnostic connector. Same appearance as the Mazda 17P adapter, make sure to check the name engraved on the surface.	1
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 models. Same appearance as the Toyota 17P R adapter, make sure to check the name engraved on the surface.	1
SUBARU 9P 	G1PZFPA005	Used for communication with old Subaru cars with the 9-pin diagnostic connector. (Can be excluded from the Asian kit due to regional preferences)	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

Kia 20P-A type Connector 	G1FDDPA001	Used for communication with old Kia cars with 20 pin diagnostic connector in the engine compartment. Generally used for '99 ~ '02 MY cars.	1
Kia 20P-B type Connector 	G1FDDPA002	Used for communication with old Kia cars with 20 pin diagnostic connector in the engine compartment. Generally used for '03 ~ '05 MY cars.	1
Hyundai & Kia Keyless Connector 	G1CDDPA007	Used for some old Hyundai and Kia models that require special connector for keyless entry remote control coding	1
NISSAN 14P 	G1PZFPA007	Used for communication with old Nissan or Infiniti cars with the 14-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 (Can be excluded from the Asian kit due to regional preferences)	1
Ssangyong 20P Connector 	G2WDDCN007	Used for communication with old Ssangyong cars with 20 pin square diagnostic connector in the engine compartment (Can be excluded from the Asian kit due to regional preferences)	1
Daewoo 12P Connector 	G2WDDCN008	Used for communication with old Daewoo cars with 12 pin diagnostic connector (Can be excluded from the Asian kit due to regional preferences)	1

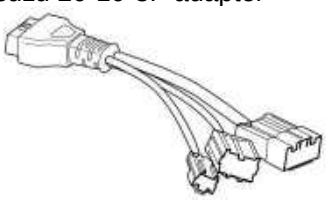
OptionalEuropean Car OBD Adapters

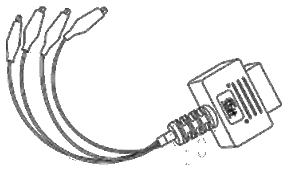
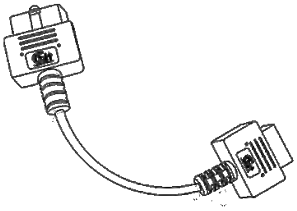
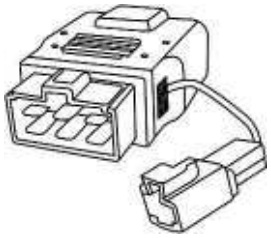
Parts included in the Full Kit (Not included in Standard and Asian Kit)

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 	G1PZEPA012	Used for communication with old Mercedes Benz cars with the 38-pin circular diagnostic connector in the engine compartment. (Can be excluded from the full kit and replaced with the other optional adapters due to regional preferences)	1

OptionalDiagnostic Adapters for Commercial Vehicles and Rare Models

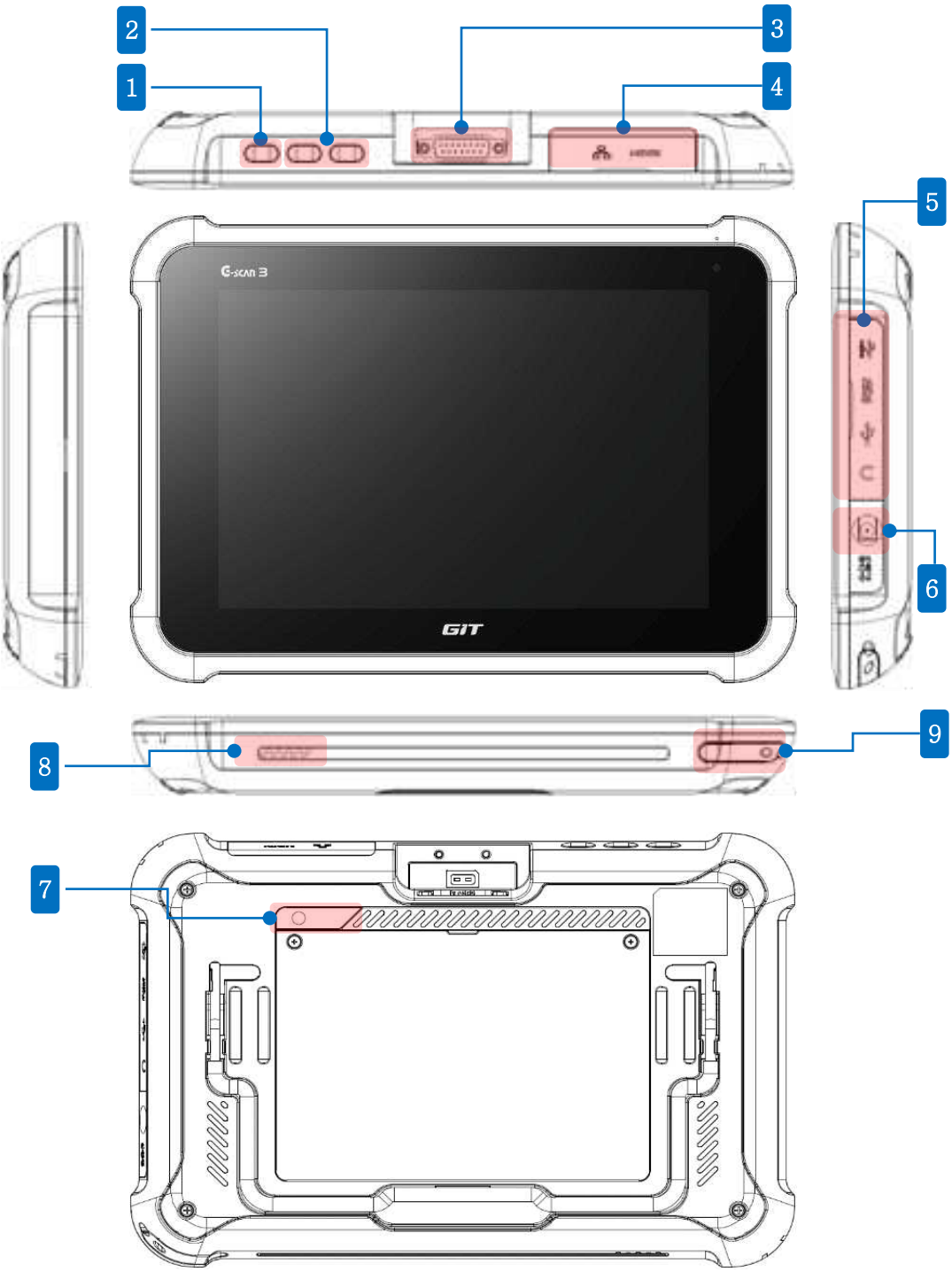
Parts available as optional supply

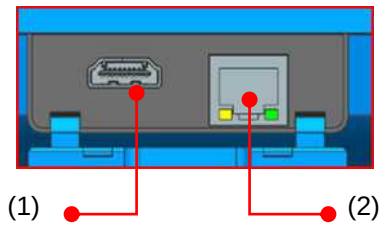
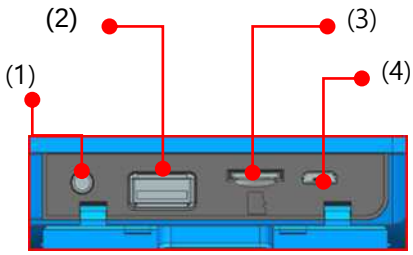
J1939 9-P adapter 	G1PZDPA005	Used for generic communication with SAE J1939 compatible commercial vehicles	1
Isuzu 20-10-3P adapter 	G1PZDPA006	Used for communication with old type Isuzu commercial vehicles	1

Universal Adapter 	G2WDDCN010	Used for communication with the vehicles that are fitted with non-standard OBD adapters that G-scan 3's standard kit adapters are not compatible	1
Hyundai Commercial 16-pin 	G2SDDCA029	Used for most Hyundai and Kia commercial vehicles. Similar to standard OBD2 connector, but the internal wirings are different. Colored light grey for recognition	1
Hyundai Commercial 4-P CNG 	G1GDDPA001	4-pin circular connector used specifically for Hyundai CNG (Compressed Natural Gas) buses	1
Kia 6P Connector 	G1CDDPA005	Used for communication with old Kia cars with 6 pin diagnostic connector in the engine compartment. (Can be excluded from the Asian kit due to regional preferences)	1

2.3. Details of Base Unit

G-scan 3 Base Unit



No.		Description
1	Power button	Long press on the button : G-scan 3 Power On/Off Short press on the button : G-scan 3 Sleep/Wake
2	Volume control button	F1: Speaker volume up F2: Speaker volume down
3	DLC connection terminal	Terminal for connection of the DLC cable for communications with a vehicle
4	External device connection terminal 1 	(1) HDMI cable connection port for monitor/TV set connection
		(2) RJ45 Ethernet port for network connection
5	External device connection terminal 2 	(1) Headphone connection jack
		(2) USB standard port
		(3) Micro-SD card
		(4) Mini USB port
6	Power connection terminal	Power connection with a car battery or an AC/DC adapter
7	Rear camera	
8	Speaker	
9	Stylus Pen	

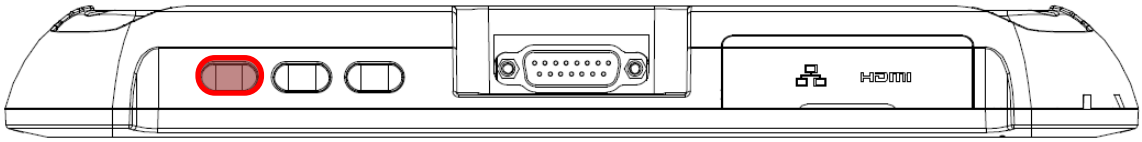
Some micro SD cards may not be fully compatible with this product, and use of an incompatible memory card may lead to damages of this product, SD cards, or SD card data.

Use of G-scan 3 Buttons

G-scan 3 has just 3 buttons and most of the operation is carried out by touching the screen. [POWER] button is one of them, and the other 2 buttons are [Function1] and [Function 2] which serve also as sound volume [UP] and [DOWN].

Power button

You can turn on/off the power of G-scan3 by using the power button placed at the top of the main module.



Power on

When G-scan3 is turned off, a long press of the power button will turn on its power.

Power off/ Restarting

When G-scan3 is turned on, and the window is on, a long press of the power button will display the popup window for selecting “Shutoff” or “Restart.”

Clicking of the "Shutoff" or the "Restart" button will change to the selected status of the power.

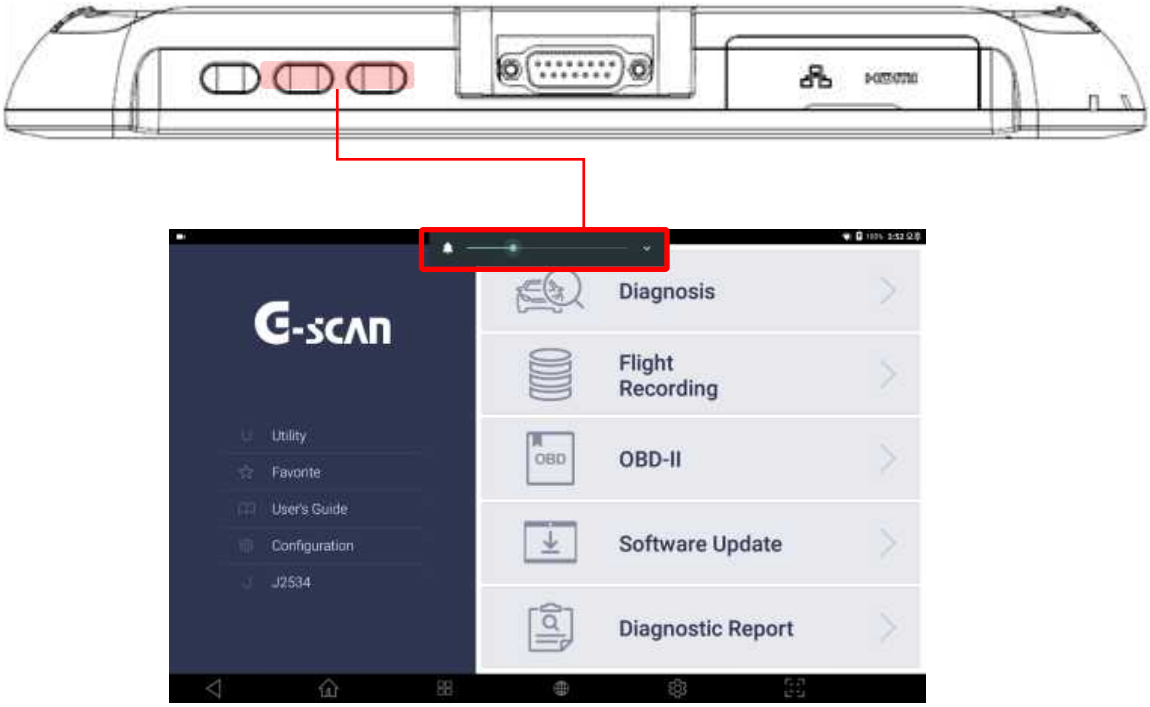
Power-saving mode

While G-scan3 is turned on and the window is off, a short press of the power button will change the power mode to power-saving mode, and will shut off the window. To resume the use of G-scan3, a short press of the power button is needed to release the product from the power-saving mode.

Volume control buttons

You can change the volume level with the volume control buttons.

The volume level is displayed on the window as follows:



2.4. Android Operating System

G-scan 3 is NOT a multimedia tablet or a smart phone

Unlike many other devices operating on Android system, G-scan 3 hardware is designed and developed specifically for conducting diagnostic functions on the automobile, and it runs on Android operating system that is exclusively customized for itself.

Never try to use G-scan 3 for playing 3rd party contents or attempt to alter or modify the operating system's settings and security features, which may cause serious consequences including system failure or malfunction of the device

No Google Play Store Available

For the reasons explained above, G-scan 3 does not provide access to Google Play Store, and installation of the additional applications other than those pre-installed when delivered or provided by GIT is restricted. Any attempt to install the 3rd party application to G-scan 3 will void warranty.

CAUTION

- Do not try to install the additional applications if not provided by GIT.
- **Any attempt to install the 3rd party application will void warranty service**

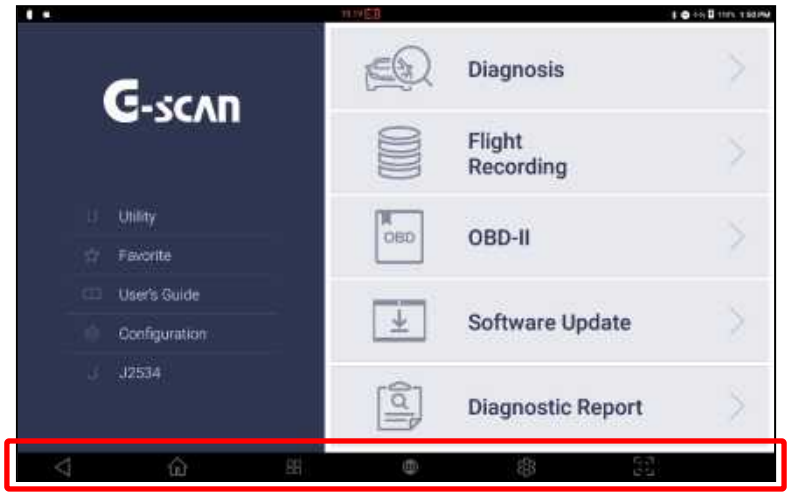
Application added by GIT

In case GIT decides that adding a new application for keeping G-scan 3 up to date, adding a new feature to the product, or improving the device performance, GIT announces the release of such newly added application through the local distributors.

Also, the [INSTALL APP] button appears activated when such as new application is ready for downloading for installation. [App List] that shows the new applications that can be downloaded and installed appears when [INSTALL APP] button is selected, where you can choose specific ones or all applications and proceed.

Basic Buttons for Android system

A set of basic operating buttons appears fixed on the left of the screen all the time while operating G-scan 3.

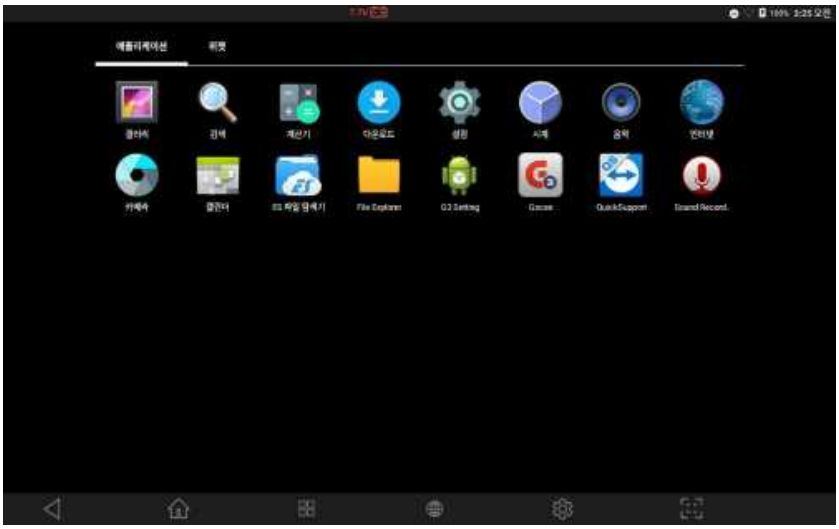


“Back” button

Closes the current screen and returns to the previous level.

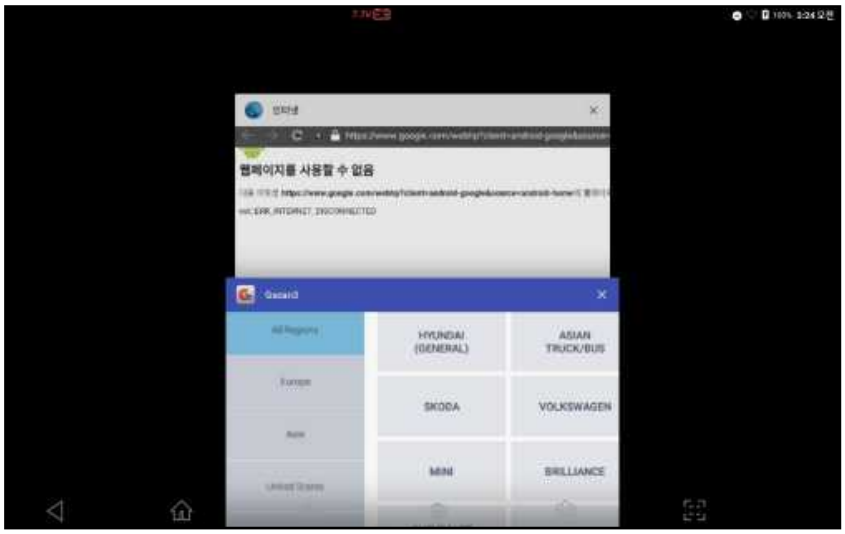
“Home” button

Returns to Home screen. If the G-scan 3 program is shut down, G-scan software can be selected and executed again by selecting the G-scan icon.



"App Running" button

Displays the applications that are running in the background or recently have executed. G-scan 3 can be selected and executed again by selecting G-scan application while scrolling up and down.



"Web Browser" button

Runs the default Internet browser.

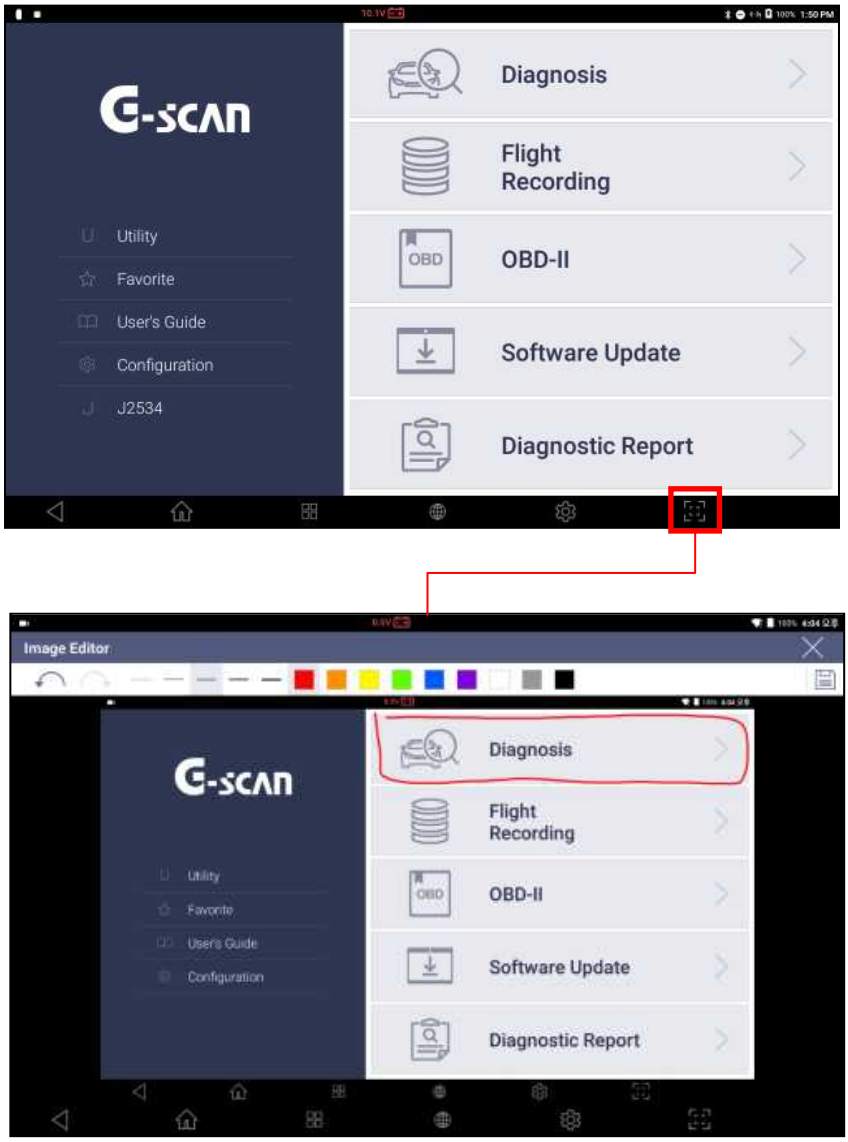
"Setting" button

Enables hardware configuration and preference setting for operating G-scan3.

"Screen Capture" button

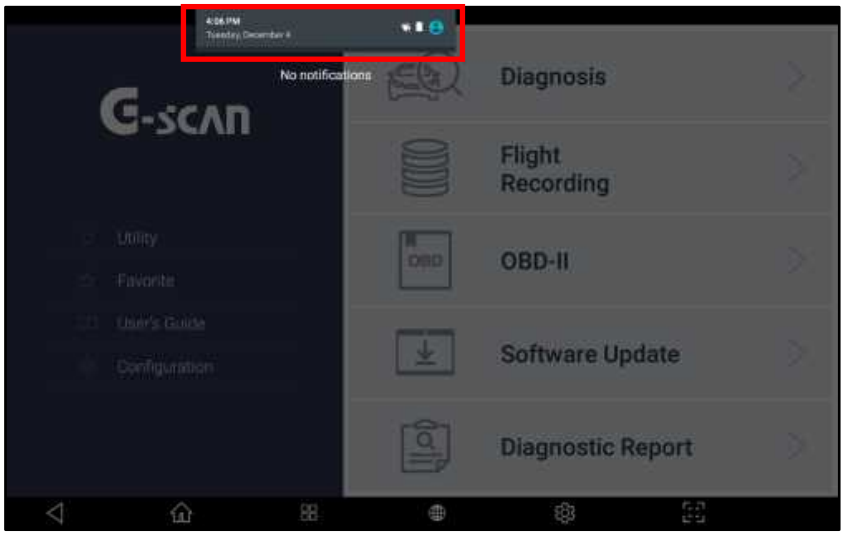
This enables screen capture and image editing.

This enables an instant screen capture while operating G-scan3, and a simple memo or drawing on captured images with the stylus pen. Captured images can be saved in files, or printed out.



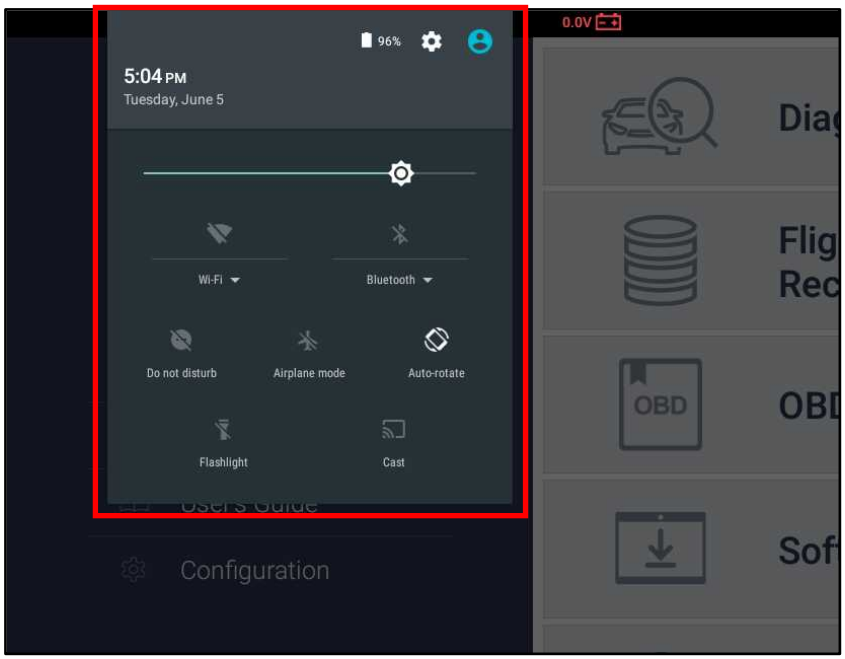
Quick Setting menu

A quick setting menu appears when you touch the top left corner of the screen.



Touch the area then drop-down menu extends and a quick setting menu appears like below.

You can quickly change the basic Android configuration setting such as Wi-Fi, Bluetooth, Auto-rotation or Airplane Mode without having to select the “Setting” menu.

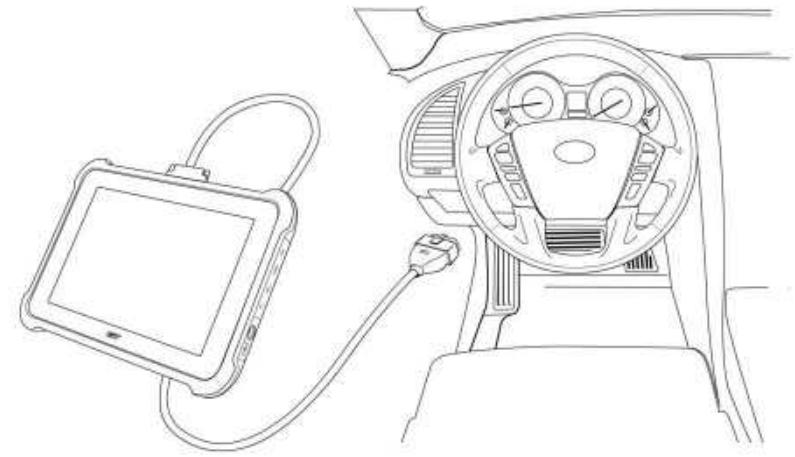


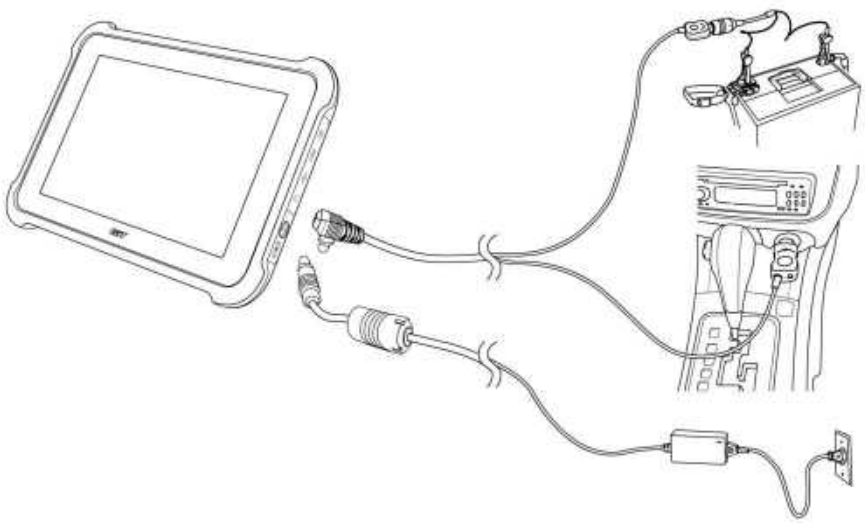
2.5. Power Supply to G-scan 3

Power supply to G-scan 3 is available from 4 different sources.

- Diagnostic connector
- Cigarette lighter socket
- Vehicle battery
- AC outlet (through AC/DC adapter)

[Power delivery to G-scan 3]





From the diagnostic adapter

1. Extend the G-scan 3 main cable to the vehicle side diagnostic socket. Attach the paring OBD non-standard connector if necessary.
2. Turn the ignition key to ACC or ON position, and power is supplied to G-scan 3.
   The power is supplied through the diagnostic socket even when the IG key is turned OFF. However, please note that the IG key must be turned ON for diagnostic communication.
3. By the industrial standard, all OBD-2 / EOMB compliant vehicles are designed to supply power through the diagnostic adapter.
4. The vehicle side DLC socket 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

1. Connect the cigarette lighter power cable to G-scan 3's DC input jack.
2. Extend the cable and insert the connector to the vehicle side cigarette lighter socket
3. Turn the ignition key to ACC or ON position, and power is supplied to G-scan 3.

From the vehicle battery

1. Connect the cigarette lighter power cable to G-scan 3's DC input 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.

Caution

Never connect the battery cable clips to the reversed polarity terminals.
It may cause serious damage to G-scan 3.

From AC outlet

1. Connect the DC jack of the AC/DC converter to G-scan 3's DC input jack.
2. Extend the AC plug of the AC/DC converter to the AC outlet.

Caution

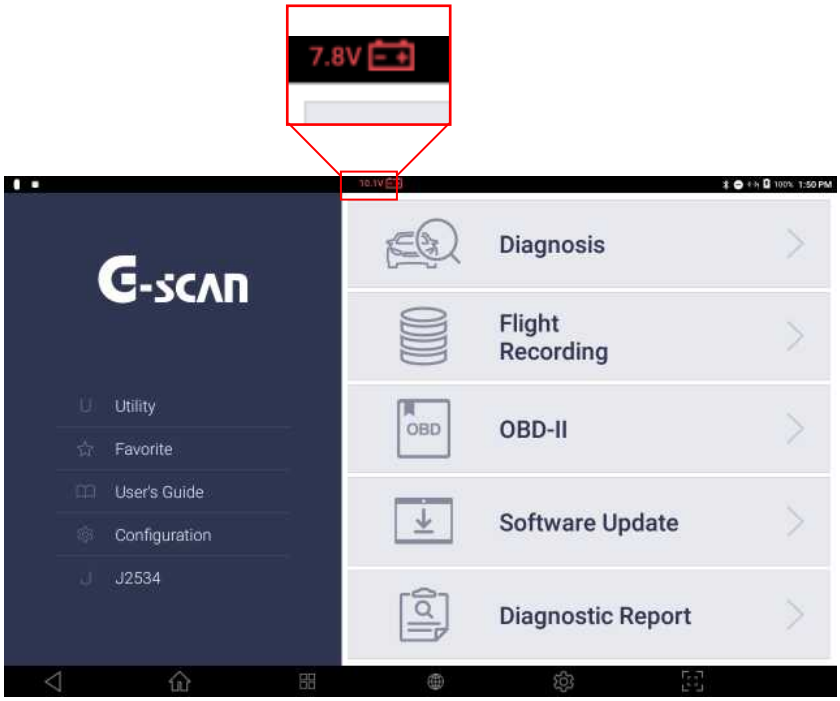
Make sure to use the AC/DC adapter that is supplied with G-scan 3.
Damage caused from use of unapproved AC/DC adapter is not subject to warranty.

2.6. Rechargeable Battery

G-scan 3is fitted with the Li-polymer rechargeable battery pack as the basic supply, and it enables the device to run normally when the external power supply is lost. However, the device is not designed to be run on battery without external power supply for an extended time, and drawing power from the car through the diagnostic adapter or from the vehicle battery is always recommended for diagnostic communication stability.

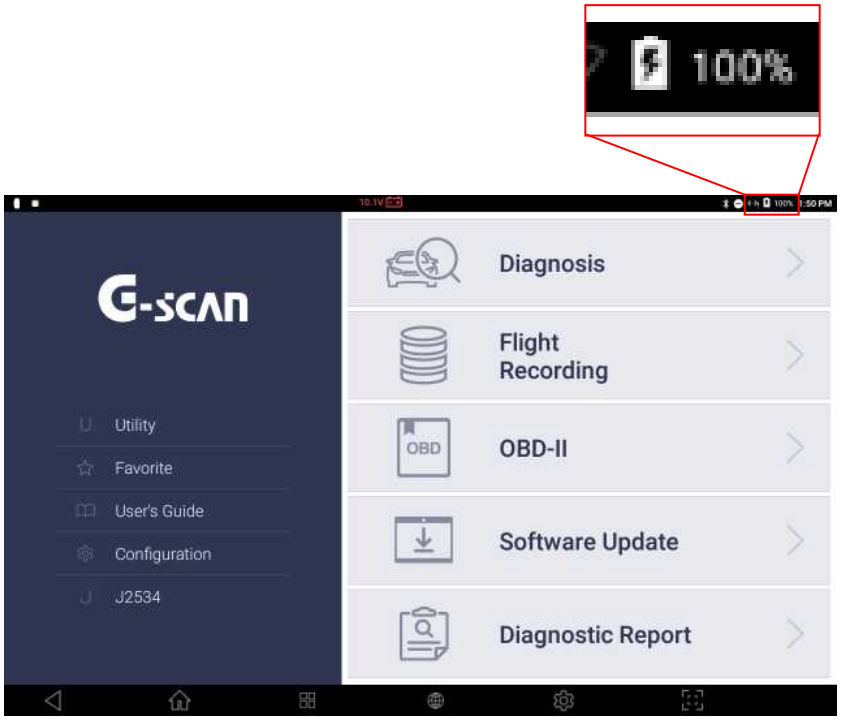
Vehicle Battery Voltage Indication

Please observe the vehicle battery voltage indicated in the top center of the LCD screen and make sure that the voltage level supplied from the vehicle is within the operational range of the device, which is DC 9V ~ 30V.



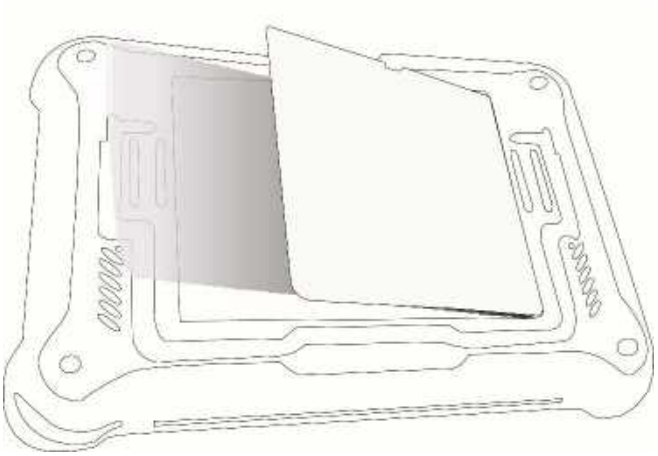
Rechargeable Battery Level Indication

Please make sure that the rechargeable battery is charged enough and the battery level does not drop below 20% level when operating the device without external power supply. The battery level is indicated in the top right corner of the screen.



Rechargeable Battery Replacement

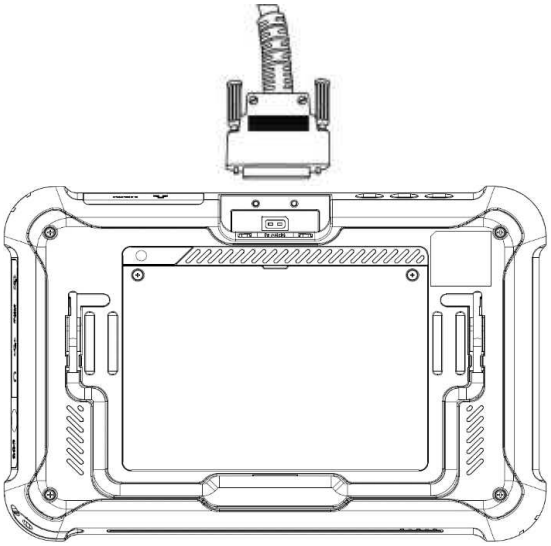
A rechargeable battery is an expendable supply of which performance deteriorates over the repeated recharging cycles, and the replacement of the battery is recommended when the lowered charging performance is experienced. Unfasten the 2 screws to open the rear battery cover and lift the battery to remove. Insert the new battery in place, close the cover and fasten the screws.



2.7. Connecting to Vehicle

Connecting the main DLC cable to the base unit

Connect the DLC main cable to the G-scan 3 D-sub connector, and secure the connection by fastening the 2main screws as well as the 2 vertical screws. Do not apply excessive force when fastening the screws.



Connecting to the Vehicle

Extend the DLC main cable connected to the G-scan 3 to the vehicle side DLC socket. Different types of non-standard diagnostic adapter may be used for the old models or the commercial vehicles. If the vehicle is not OBD2 / EOBD compliant, identify and attach the matching adapter, then connect it to the vehicle side socket.

The diagnostic adapters are designed to fit in the vehicle side diagnostic ports, therefore the diagnostic adapters supplied with the different scan tools may look alike or similar. However, internal wiring and circuits can be different, therefore not compatible each other. Please do not use the diagnostic adapters that are not supplied by GIT and EZDS specifically for use with G-scan 3, and never attempt to connect the adapters supplied by a third party.

Use of wrong adapters may result in communication failure, damage to the device as well as the vehicle control system, and GIT and EZDS are not liable for any damage and loss caused.

Chapter 3.How to activate G-scan 3

3.1. Inactivated when delivered

Needs to be registered as soon as delivered

G-scan 3 is delivered with its diagnostic software fully loaded in the device when it is shipped: however, when the device turns on, diagnostic softwarefor all automakers except Demo appearsinactivated and locked if not registered properly. The device needs to be activated to utilize its full functionality, and the process requires the device registered to the G-scan website.

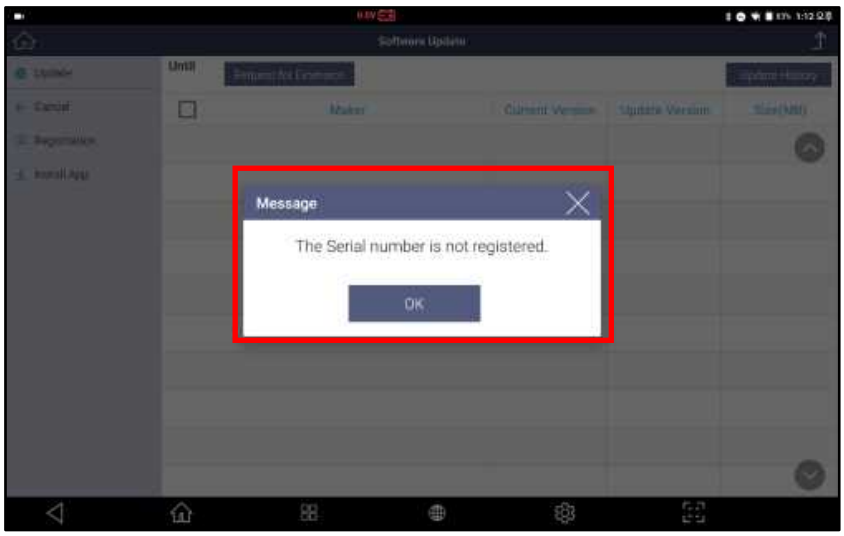
Unless G-scan 3 is registered, following functions will be restricted:

A. Diagnsotic Software

When [Diagnosis] is selected, instead of showing the automaker's brand names in the menu, only [DEMO] appears for selection.

B. Software Update

When [Software Update] is selected, an error message stating that the serial number of the device is not registered comes up and no software downloading is allowed.

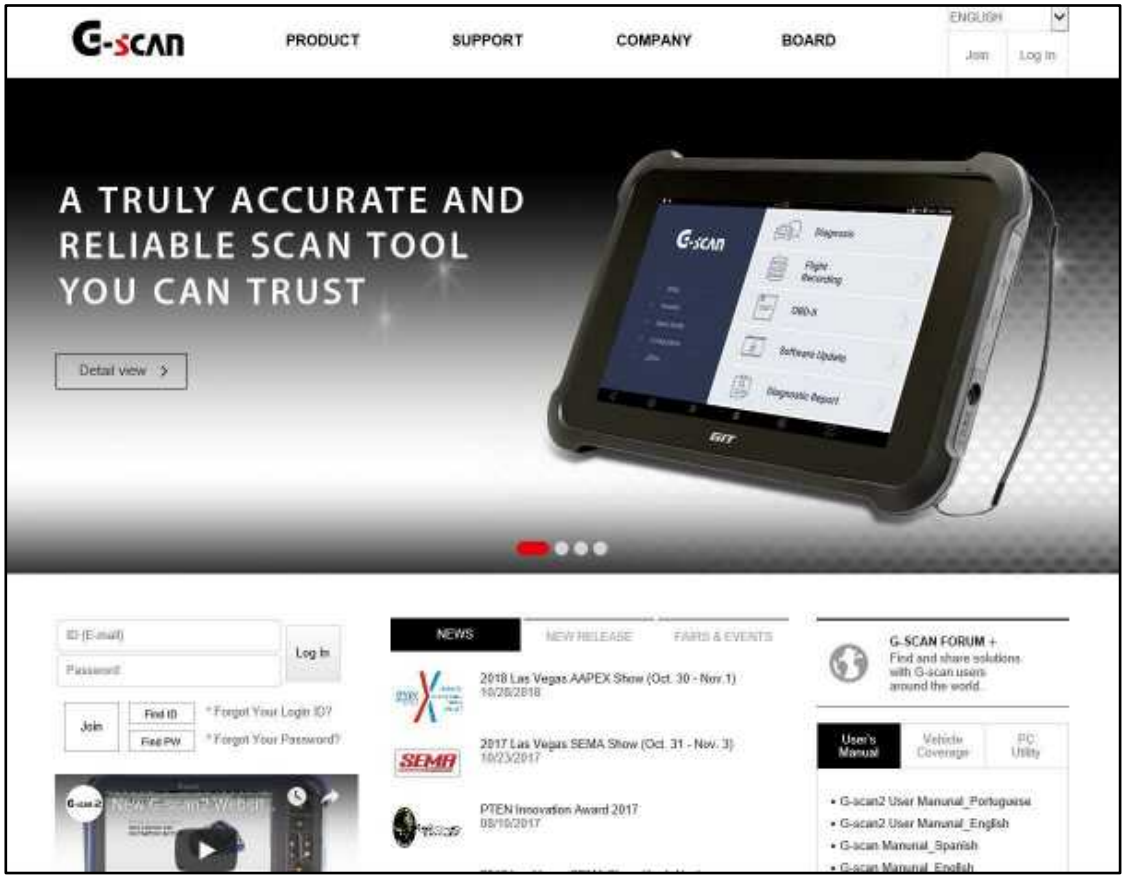


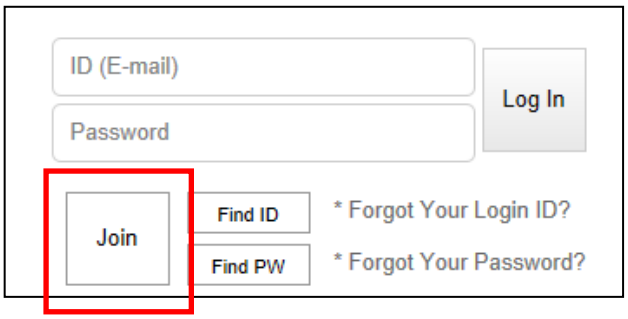
3.2. Device Registration

Step 1. Membership Enrollment at g-scan.gitauto.com

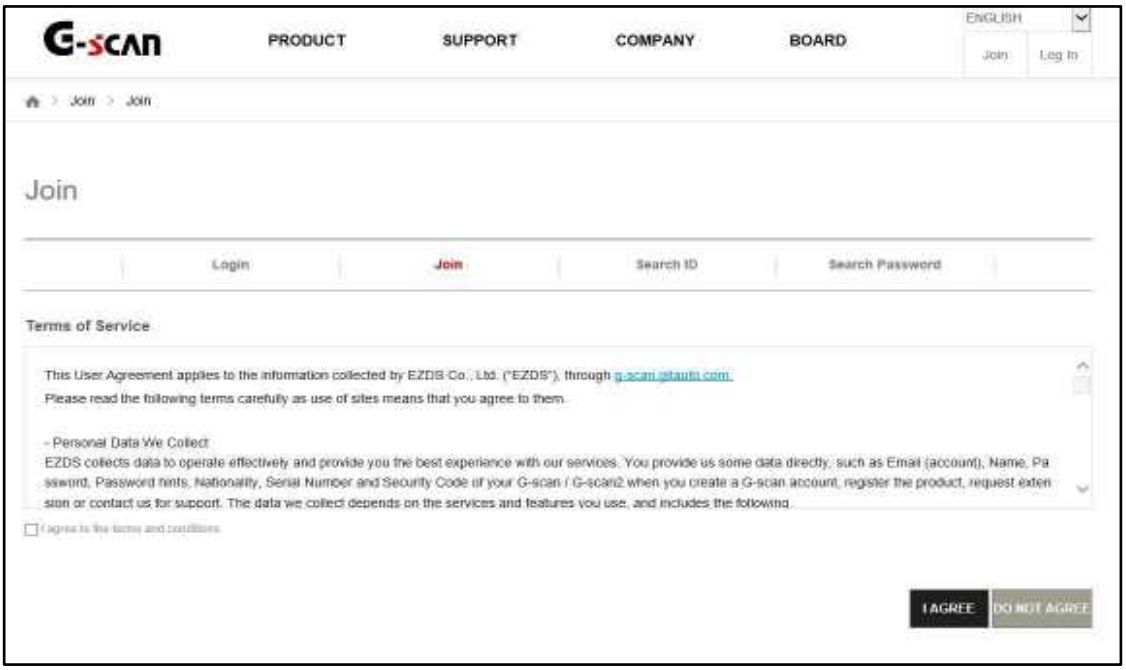
First step of registration is becoming a member at the G-scan website g-scan.gitauto.com.

A. Visit http://g-scan.gitauto.com and join the membership by selecting [Join] button.

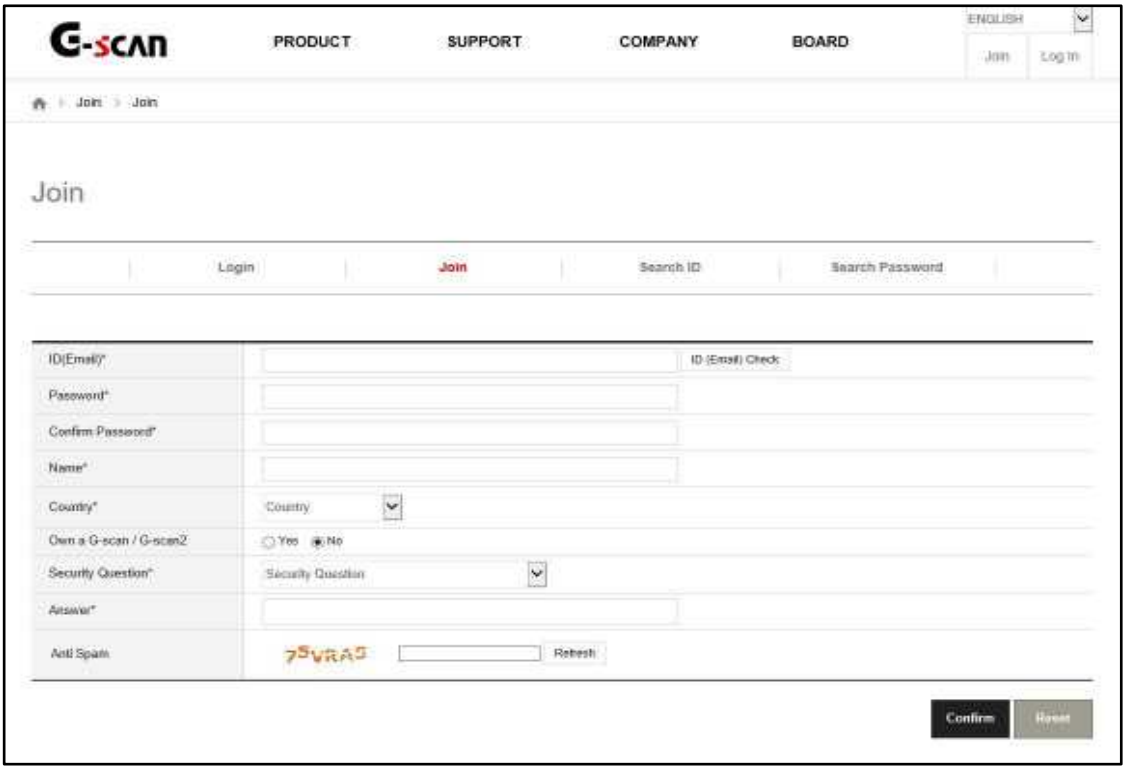




B. Agree on the terms of service for becoming the member to proceed by ticking on the "I Agree to the Terms and Conditions" and selecting [I Agree] button.



C. Then you are required to enter your desired ID and password together with the minimum personal information including just name and nationality.



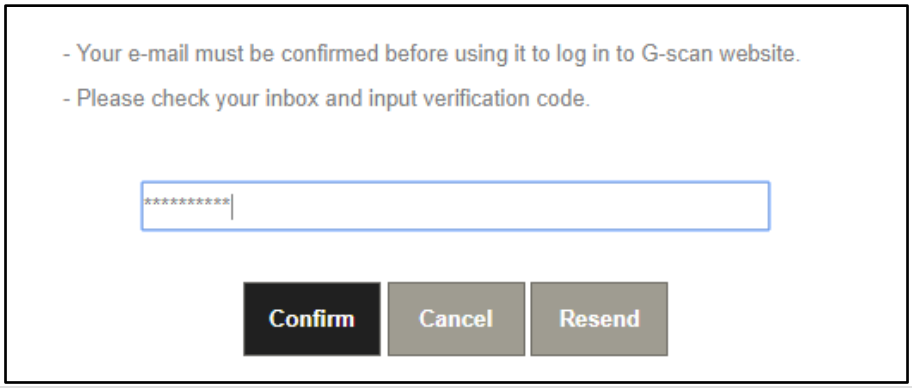
Step 2. E-Mail Verification

A. The email address that you enter when joining the membership is very important because it is the only channel for bi-directional communication between the customer and the supplier, therefore it needs to be verified to make sure that it is valid and working email.
A verification email will be sent to the address that you entered when you select [Confirm] button on the left right corner of the screen, and you will receive it in the mail box in a few minutes.
   - Please note that the delivery can be delayed due to technical reasons, server overload or traffic.
   - In case you do not receive the verification email in your inbox, please check the spam or junk mail box as well because there is a possibility that your email server or email program may put the verification email there according to the security settings.
   - Please use an alternative email address preferrably on a public domain if the verification email is not found even in the spam or junk mail box. An email can be filtered or blocked by the server and not delivered to the recipient at all in case of using corporate email account due to email security policy that are stricter than public or personal email services.

B. The verification email contains the verification code.
Copy the verification code to the clip board or take note of the code, then go back to the G-scan website.

C. Type in the ID and password to log on, and there you will find the button [Email Verification] that needs to be selected to proceed and input the verification code.

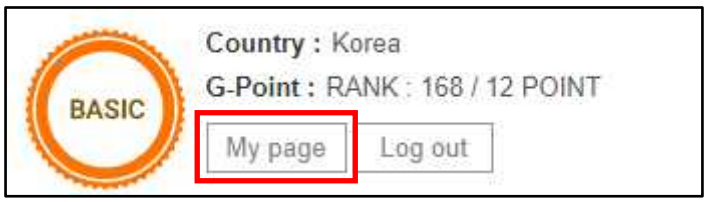
Type in the verification code in the box and select [Confirm] to compelte the procedure.



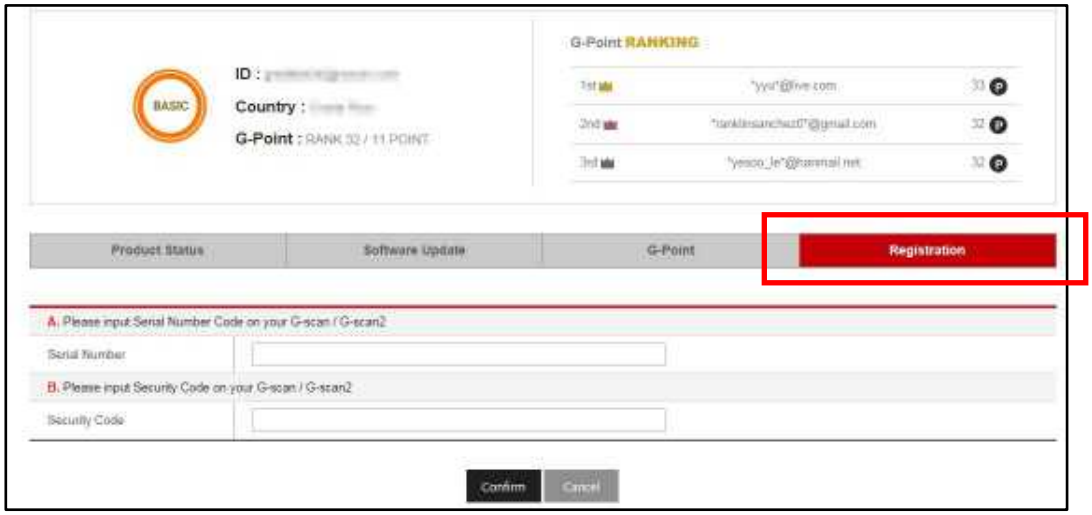
Step 3. G-scan 3 Device Registration

Device Registration is a process of assigning a G-scan 3 serial number with individual website member. When registration is completed, the G-scan 3 will be matched with a specific website member ID on GIT's database and the device will be finally activated for using full functionality of the device.

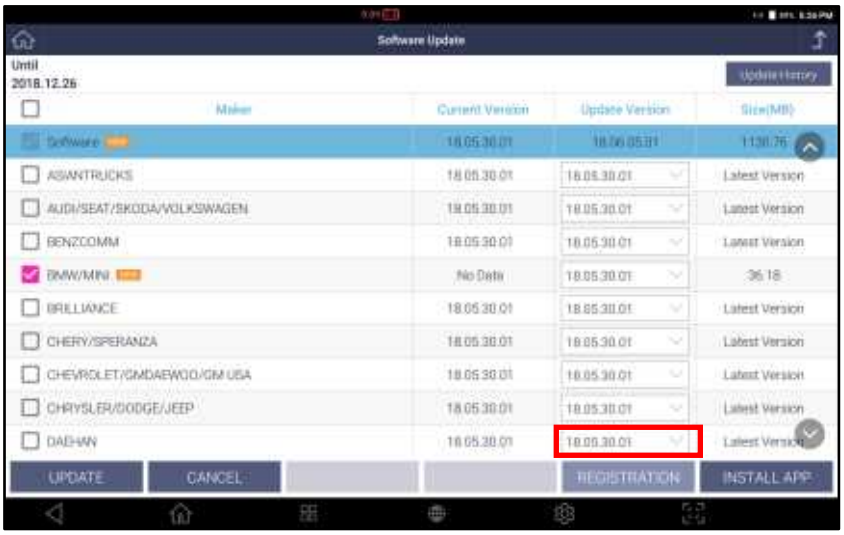
A. When the email verification is completed, the badge that represents your membership level appears in the log-in area. The membership begins with BASIC level, and your website membership level is decided by whether or not you have a G-scan 3 registered to the website, and the device holds the valid update subscription.
Select [My Page] button to start registering your G-scan 3

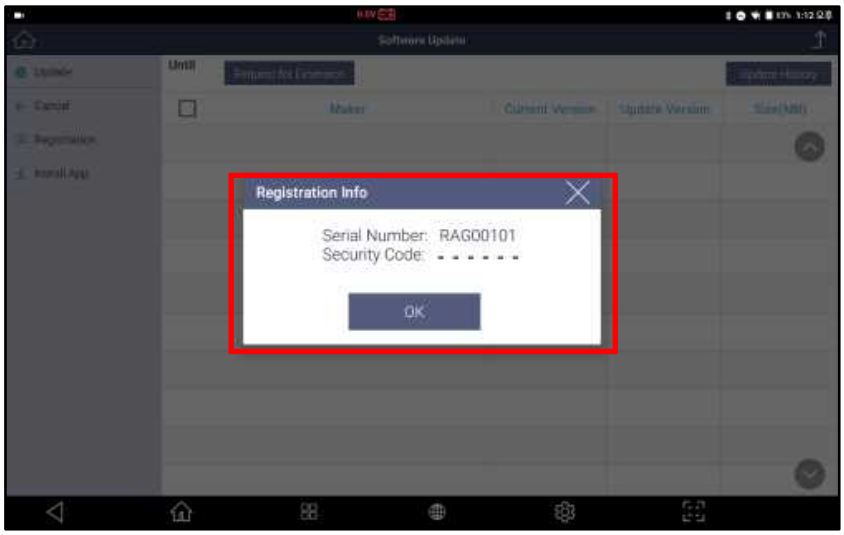


B. Select “Registration” tab in the right.

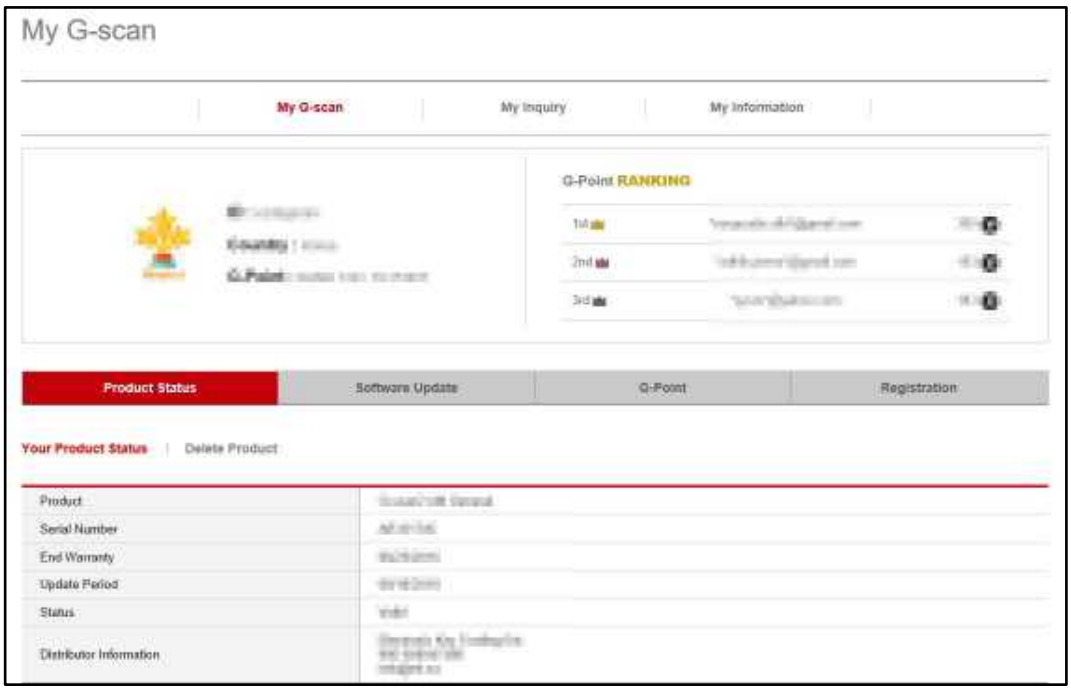


C. Registration process requires you to enter the serial number of the G-scan 3 and the security code. Select [Update Software] button from G-scan 3 main menu, then select [REGISTRATION] tab in the right-bottom of the screen in order to check the serial number and the security code.





D. Type the serial number and security code (case sensitive) at the website registration page, and select [Confirm] button to finalize the process.
When registration is completed without problem, the details of the registered G-scan 3 including the serial number, warranty period validity, software update subscription expiry date and distributor contact information appears in [My Page].



E. Server Update

When registration at the website is completed, the result is conveyed to the download server, and you can download the latest updates from the server.

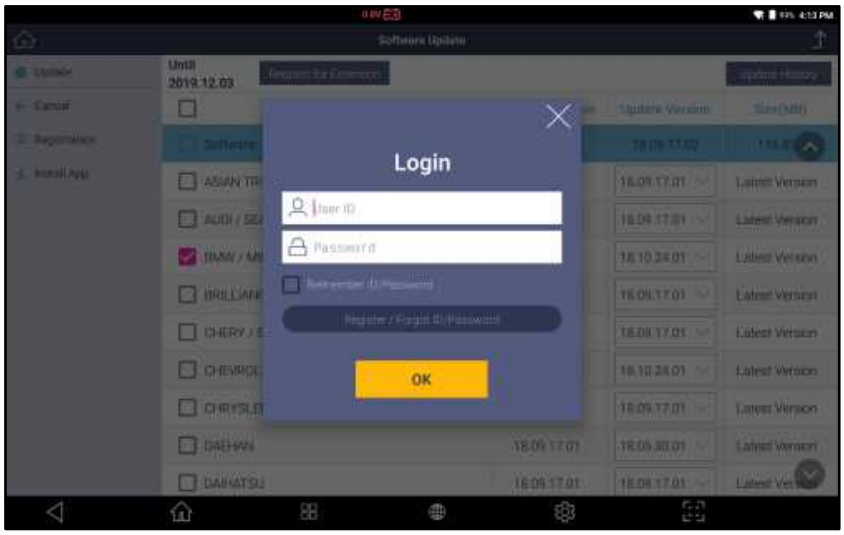
The the entire diagnostic software loaded to the G-scan 3 is activated when you select and download any application from the Software Download screen.

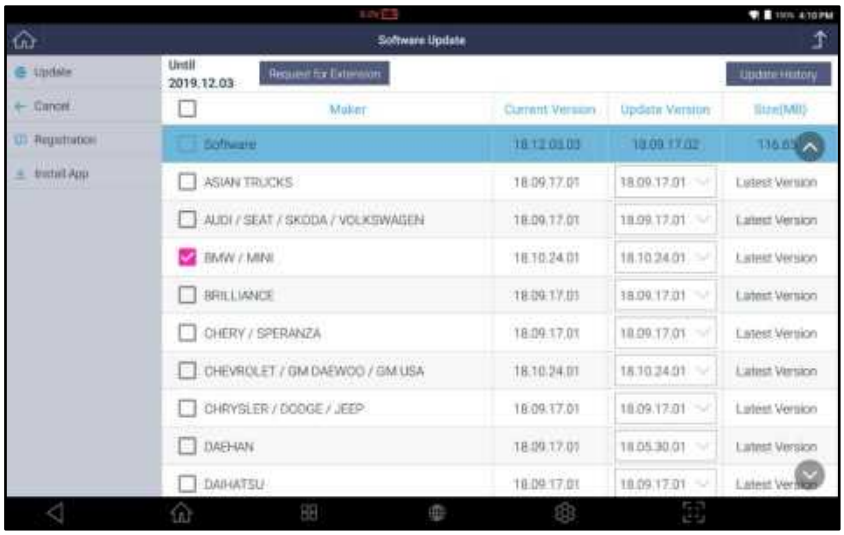
The process of transferring the G-scan 3 registration information to the download server takes a while after the completion of website registration, so please wait up to 10 minutes before software downloading gets unlocked when [Software Update] is selected from the G-scan 3 main menu.

F. Log-in for Update Software

When you select [Software Update] from the G-scan 3 main menu, You are required to enter the ID and Password to proceed to the software dowload list. The log-in ID and password that have been used for your website memebership enrollement should be used.

Please note that no personal information is stored in G-scan 3 for log-in process. Only your ID is stored in G-scan 3 memory when you select [Remember ID] option, but the device does not save your password for your privacy.


Software Update
Until
2019.12.03
Request for Extension
Update History
Update Version
Size(MB)
Login
User ID
Password
Remember ID/Password
Register / Forgot ID/Password
OK
ASIAN TR
AUDI / SE
BMW / MI
BRILLIAN
CHERY / S
CHEVROL
CHRYSLE
DAEHAN
DAIHATSU
18.09.17.01
18.10.24.01
18.05.30.01
Latest Version


Software Update
Update
Cancel
Registration
Install App
Until
2019.12.03
Request for Extension
Update History
Maker
Current Version
Update Version
Size(MB)
Software
ASIAN TRUCKS
AUDI / SEAT / SKODA / VOLKSWAGEN
BMW / MINI
BRILLIANCE
CHERY / SPERANZA
CHEVROLET / GM DAEWOO / GM USA
CHRYSLER / DODGE / JEEP
DAEHAN
DAIHATSU
18.09.17.01
18.10.24.01
18.05.30.01
Latest Version

Chapter 4.G-scan 3 Basic Operation

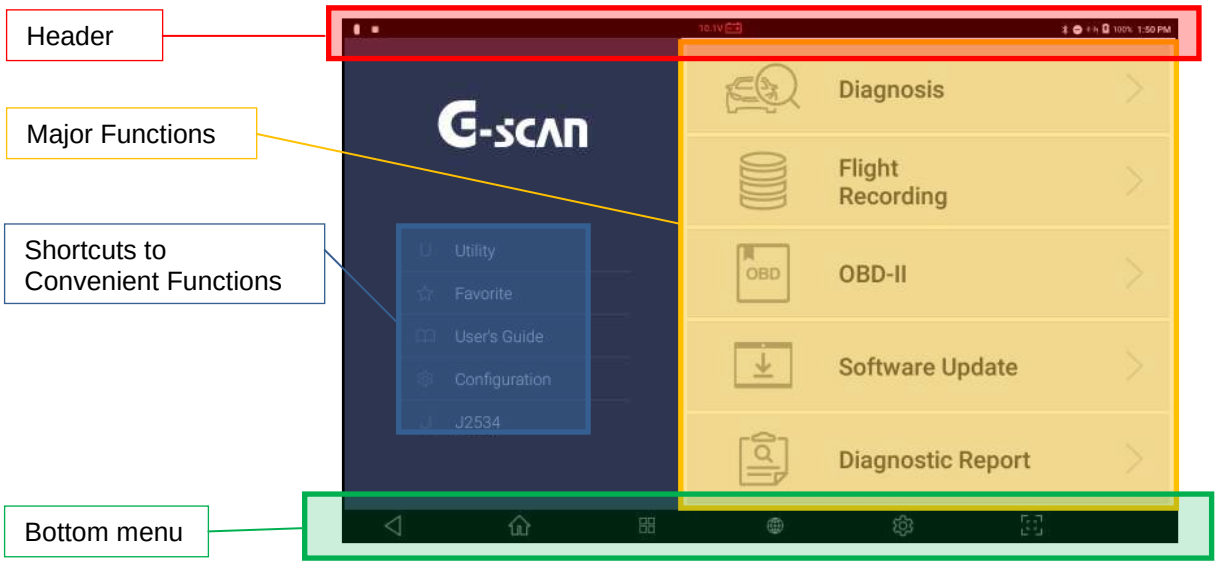
4.1. Main Menu and System Tools

Please be advised that the user interface including graphical output and menu structure can be changed and updated without notice for the improvement of product performance and usability.

The main menu as shown below appears when G-scan 3 is turned on or when G-scan App. is selected among the applications list.

Main menu

The main menu of G-scan 3 is consisted of 4 sections (header, shortcuts to convenient functions, major functions andbottom menu).

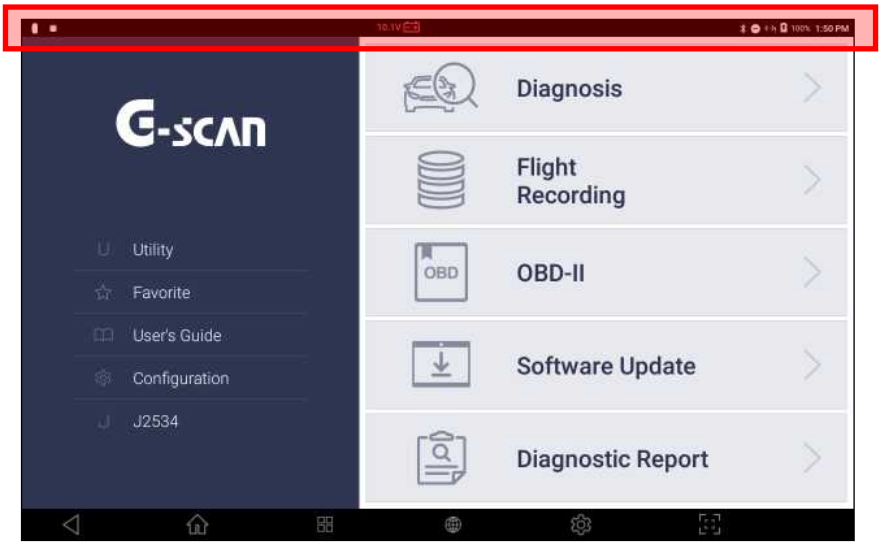


Header

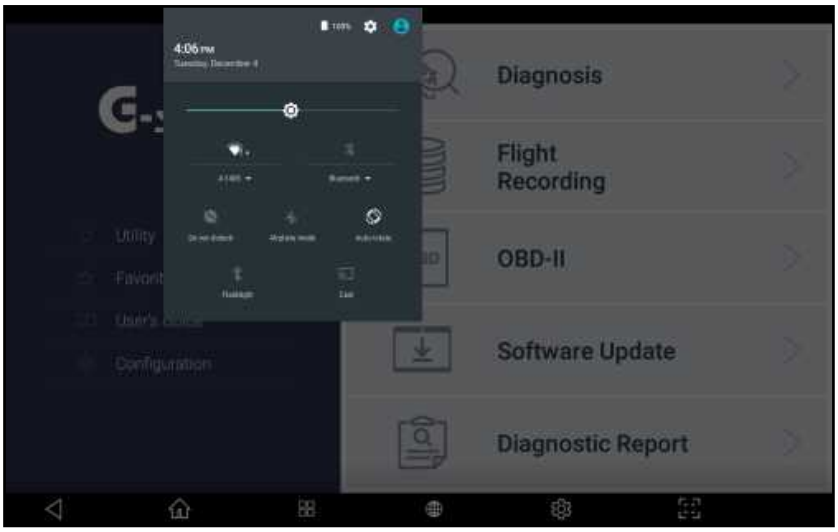
The header shows different G-scan 3 system status indicators.

	System Notifications	In the left corner of the header, indicator symbols appear when G-scan 3 system detects any changes or new development in the system status that need to be notified to the user.
	Vehicle Battery Status	In the center of the header, vehicle battery voltage is indicated when the power is supplied from the vehicle.
	System Status	In the right corner of the header, G-scan 3 system status including Wi-Fi or Bluetooth connection, battery charging status and system clock is indicated.

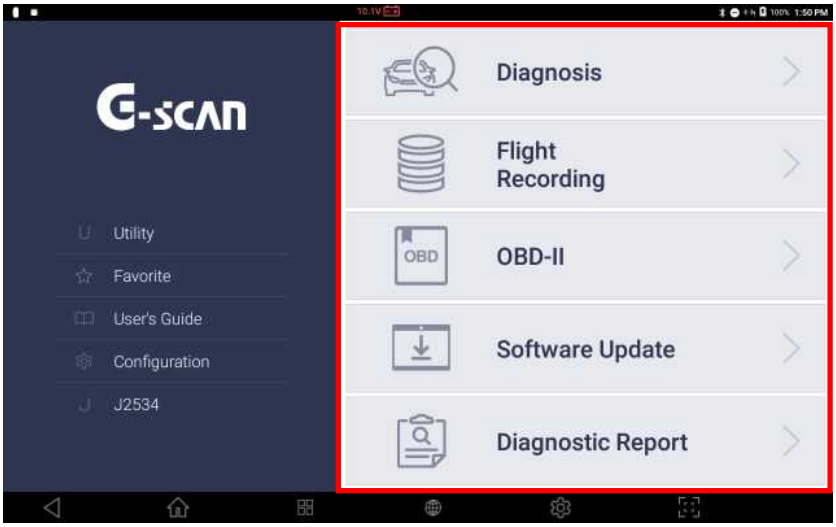
Double tab on the [Header] area in the top of the screen with a finger or tab on the area and swipe down, then the details of the system notifications are displayed.



Tab on the top of the pop-up notifications with a finger, then a system configuration menu appears where you can check and make quick and simple changes to the basic system settings.



Main Functions

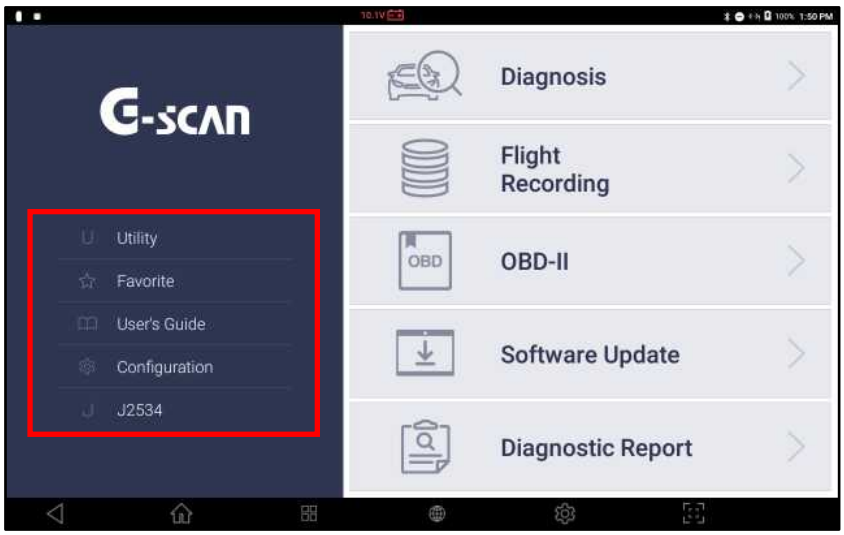


At the time of publishing this user manual, G-scan 3 main function menu includes following 5 selections: Diagnosis, Flight Recording, OBD-II, Software Update and Diagnostic Report.

Each of these main functions is explained more in detail in the separate chapters in this manual hereinafter.

Title	Description
Diagnosis	Runs manufacturer specific diagnostic functions including DTC Analysis, Data Analysis, Actuation Test, ECU Info and various Special Functions for each car manufacturer.
Flight Recording	Retrieves data files recorded in the G-scan 3 internal memory, including flight record data and saved screen captures
OBD-II	Performs Generic OBD2/EOBD diagnostic functions for the ISO9141-2, ISO14230 (KWP2000) and ISO15765-4 (CAN-Bus)compliant vehicles
Software Update	Connects to the G-scan download server to check the availability of new diagnostic software and downloads the latest version software to G-scan 3.
Diagnostic Report	Retrieves the previously saved Pre and Post Repair Diagnostic Report that can be added to G-scan 3 memory while performing Diagnosis function.

Shortcuts to Convenient Functions

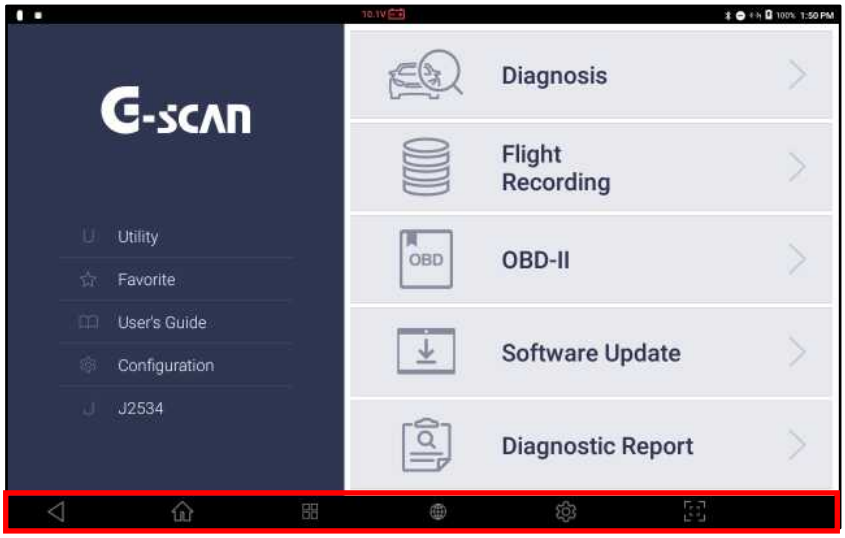


Convenient functions are listed in left side of the screen that can be directly selected from the main menu: Utility, Favorite, User's Guide, and Configuration. The details of these convenience functions are explained in the following chapters.

Title	Description
Utility	Calls the G-scan 3's various utility programs such as "Vehicle Communication Line Check", "Unit Converter", "Calculator", "Special Function Calculator", etc.
Favorite	Jumps to the Favorite functions menu where the user can list the specific "special function" of a specific vehicle model for quick execution.
User's Guide	Opens the Quick User Guide, where the simplified user's manual and diagnostic tips can be viewed. Refer to this user's manual for more details.
Configuration	Opens the configuration menu where software version information check, language selection and various user settings can be reviewed and changed.

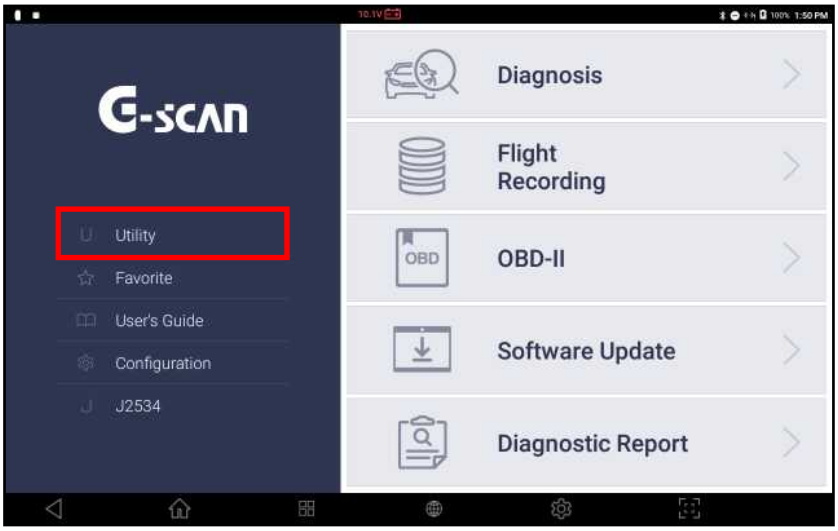
Bottom Menu

The menu on the left of the screen is a set of standard Android system functions, and the details are explained in the [Chapter 2.4. Android Operating System]. Please refer to the [Basic Buttons for Android system] section.



4.2. Utility

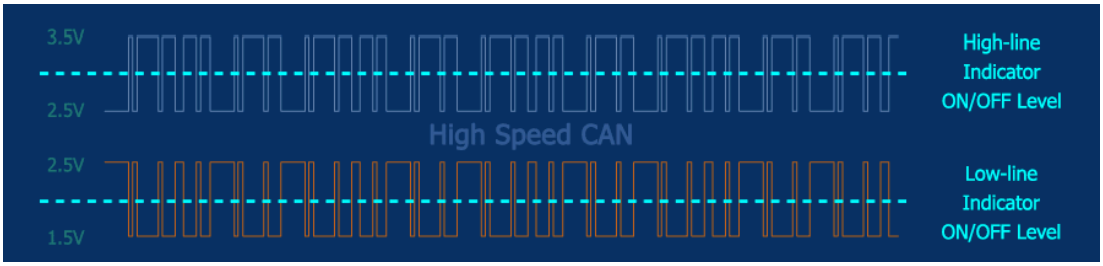
On the Main Menu of G-scan3, selecting "Utility" will open the utility functions.



Communication Line Inspection

Checks and indicates the voltage changes in the communication lines of the main DLC cable, and displays whether signals are received or not by flashing the indicator lamps on the screen.

Flashing indicator lamp represents voltage fluctuation in communication line. Through the inspection of communication line, vehicle's communication line can be tested; however, this function does not measure communication line directly. It is indirectly measured through the G-scan3's main data link cable, therefore, difference in measurement should be considered.

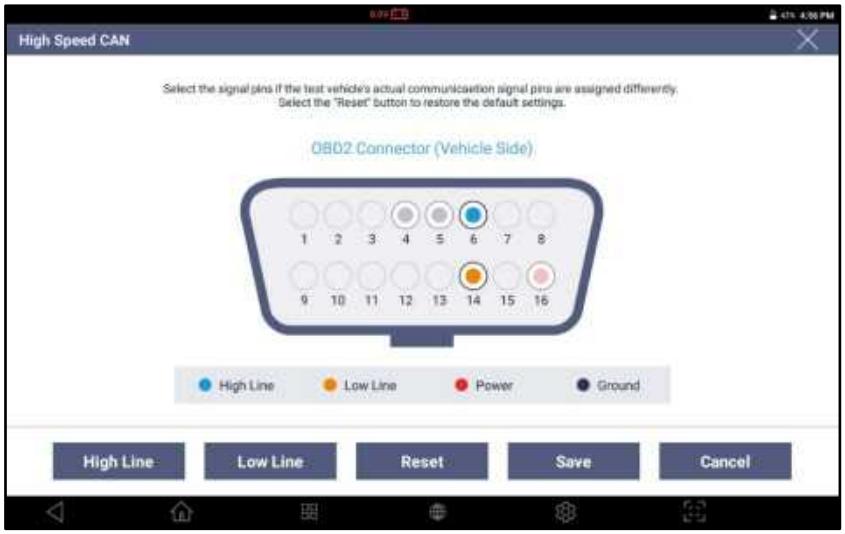


Test condition

The start key of the vehicle should be in the "ON" position.

Set up for communication line inspection function

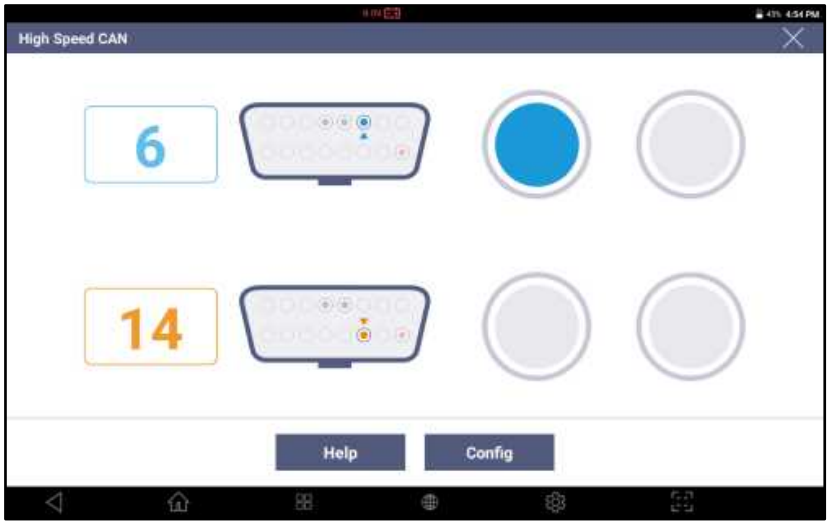
The preset of communication pin assignment for the function is configured to comply with the most common standard type vehicles of each communication protocols. However, actual pins assigned for communication may vary depending on the vehicles. Therefore, refer to the maintenance guide of the vehicle, and set the communication line accordingly after selecting [Config] if found different.



Selection	Description
High line	You can select the pin number of the OBD2 adapter and assign it as the communication line for High or Low bus signal line.
Low line	
Reset	This resets the communication line setting.
Save	This saves changed communication line setting.
Cancel	This cancels changed communication line setting.

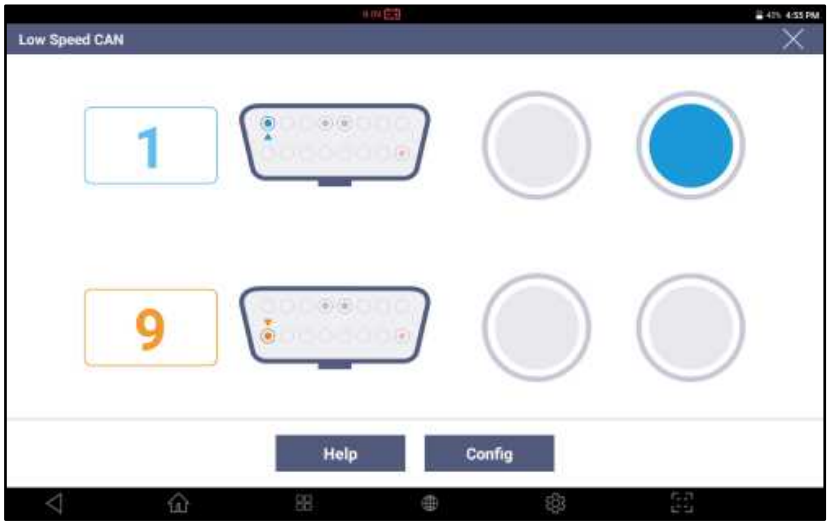
High Speed CAN Communication

This enables an inspection of the communication lines of the vehicle's High-speed CAN Bus system. If the lights on the screen are not flashing, check the test condition (IG key in the "ON" position) and the pin assignment of the OBD-2adapter in the [Config] menu, and conduct a close check of the circuit.



Low-speed CAN Communication

Runs an inspection on the communication lines of the vehicle's Low speed CAN Bus system.
If the lights on the screen are not flashing, check the test condition (IG key in the "ON" position) and the pin assignment of the OBD-2adapter in the [Config] menu, and conduct a close check of the circuit.

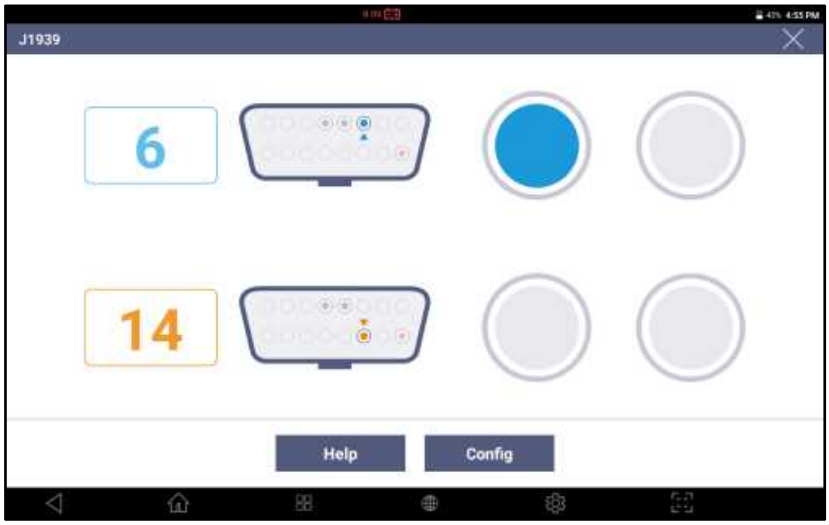


Single CAN

This enables an inspection of the communication line of the vehicle with Single Line CAN Bus system. If the light on the screen is not flashing, check the test condition (IG key in the "ON" position) and the pin assignment of the OBD-2adapter in the [Config] menu, and conduct a close check of the circuit.

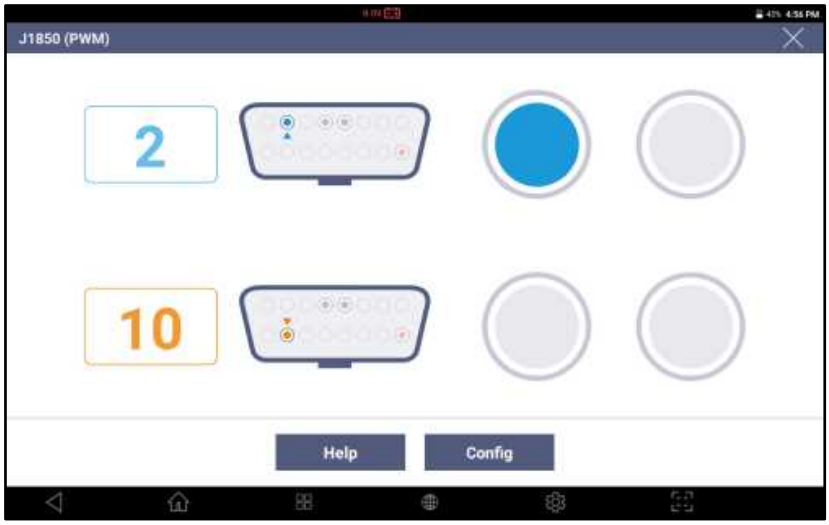
J1939

Runs an inspection on the communication lines of the SAE J1939 compliant commercial vehicles. If the lights on the screen are not flashing, check the test condition (IG key in the "ON" position) and the pin assignment of the OBD-2adapter in the [Config] menu, and conduct a close check of the circuit.



J1850 (PWM)

This enables an inspection on the SAE J1850 PWM communication lines of the relatively old US vehicles. If the lights on the screen are not flashing, check the test conditions (IG key in the "ON" position) and the pin assignment of the OBD-2adapter in the [Config] menu, and conduct a close check of the circuit.

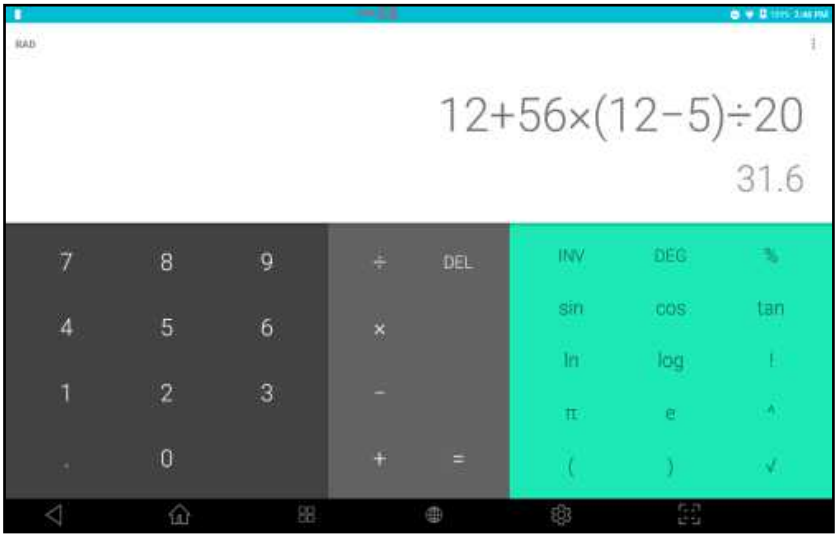


Unit Converter

Converts the length, weight, volume, pressure, speed, temperature, and fuel efficiency readings to the different measuring units.

Calculator

A utility function that works like a technical calculator.



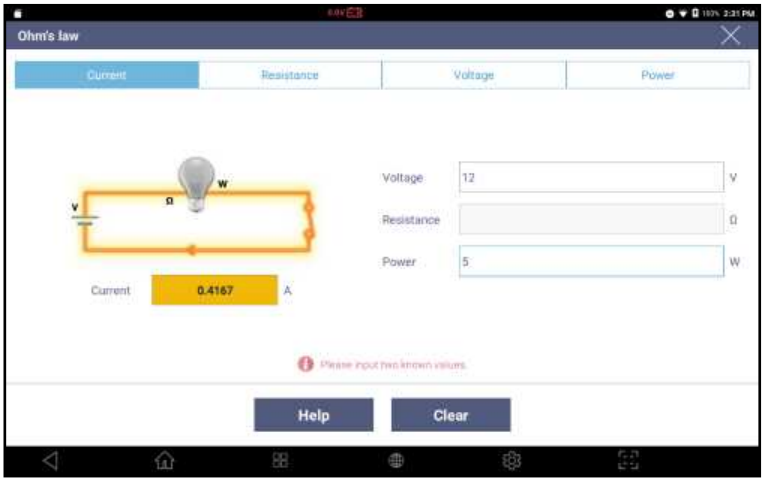
Special Functions Calculator

Offers a set of functions that are used frequently at the workshops, which include Ohm's law, parallel resistance, frequency/duty cycle, distance per tire rotation and percentage calculation.

Ohm's Law

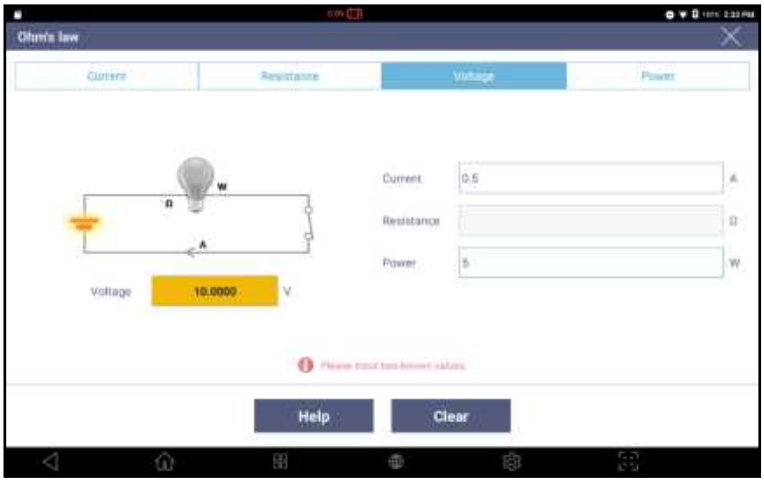
Calculates the Amperage, Voltage, Resistance and Wattage you want out of the other 2 known values according to the Ohm's law.

- Ampere calculation

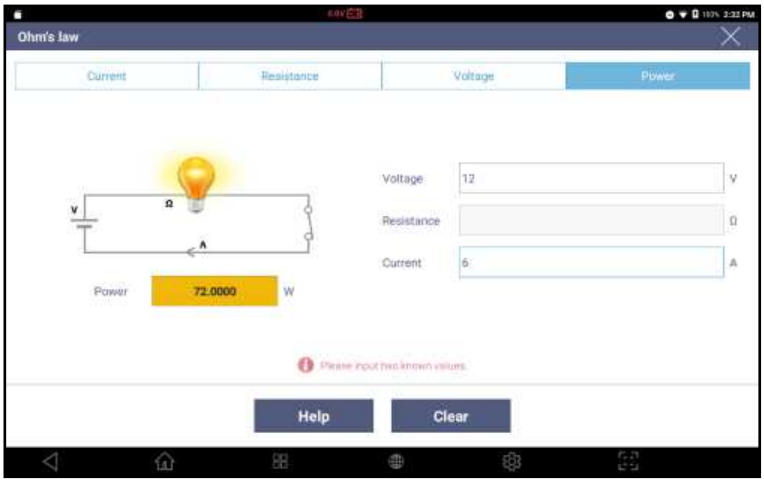


- Resistance Calculation

- Voltage Calculation



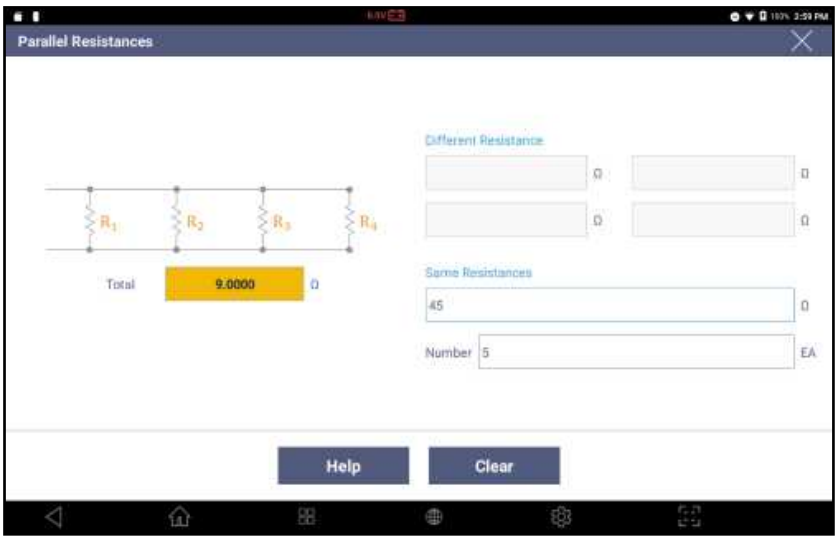
- Wattage Calculation



Parallel Resistances

The parallel resistance is calculated by typing in the resistance values of up to 4 resistors put in parallel if the resistors have different resistance values. For more than 5 resistors, please get the parallel resistance for the first 4, and then input the result and the more resistance values to get the final result. This calculates the overall resistance value when you enter the values of parallel resistors.

If the resistors are of the same resistance values, type in the value and the number of resistances to calculate the total parallel resistance.



Frequency and Period

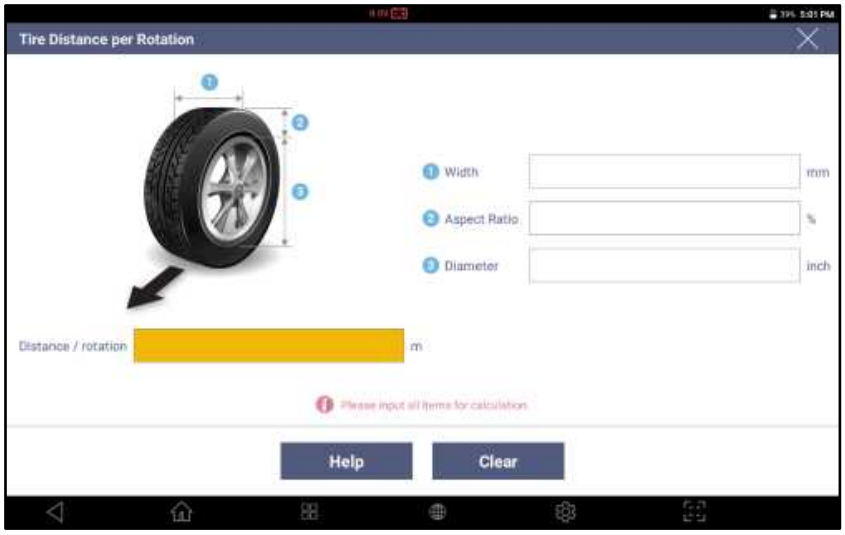
This function helps the user calculate the duration of one cycle according to the frequency and duty. While frequency means “working numbers per second”, this function converts it to “duration of each work”.

Tire Distance per Rotation

This function is used for calculating the distance traveled when a tire revolves one time based on the width, aspect ratio and diameter that can be checked on the surface of any tires.

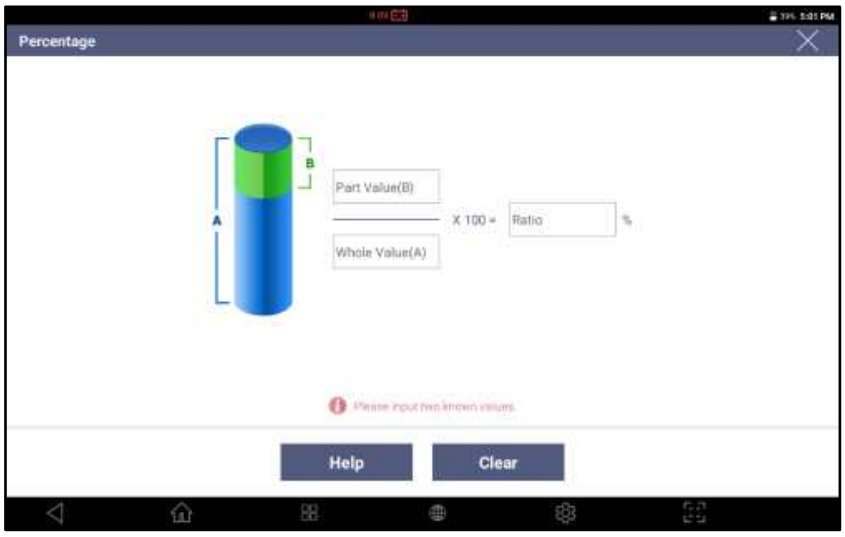
205 / 60 R 15

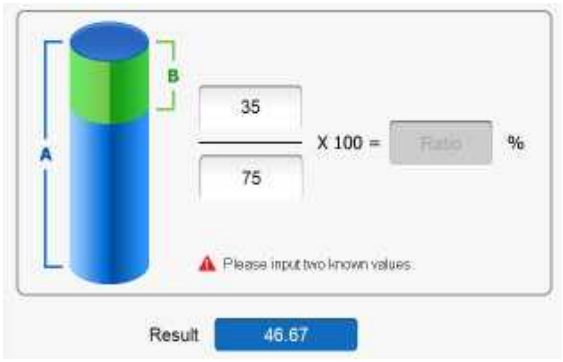
Width **Aspect Ratio** **Diameter**

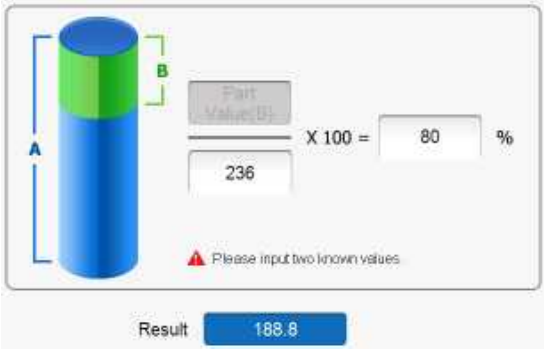


Percentage

Calculates the one out of the other two input variables among Total Value, Percentage and Partial Value.

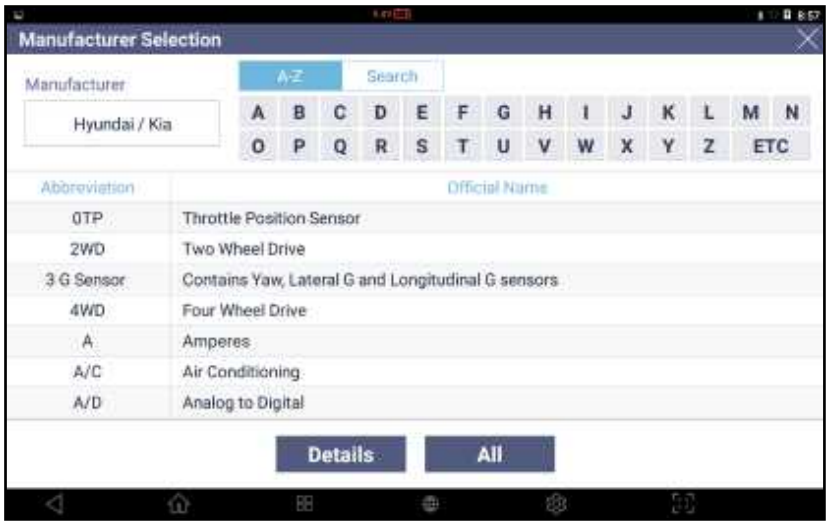






Abbreviation Dictionary

Enables search of the full description of the abbreviations or acronyms used by the different auto manufacturers.



OBD-II DTC Description Search

Enables search of OBD-II generic fault codes for code definition.

Voice Recorder

Enables voice recording through the G-scan3 embedded microphone.

Button shape	Description
	Starts voice recording from standby mode.
	Stops voice recording while voice recording is in progress.
	Replays the recorded voice.
	Returns to the standby mode for voice recording
SAVE	Saves recorded voice data in a file.

Camera

This enables taking the photographs using the embedded camera of G-scan 3.

Video

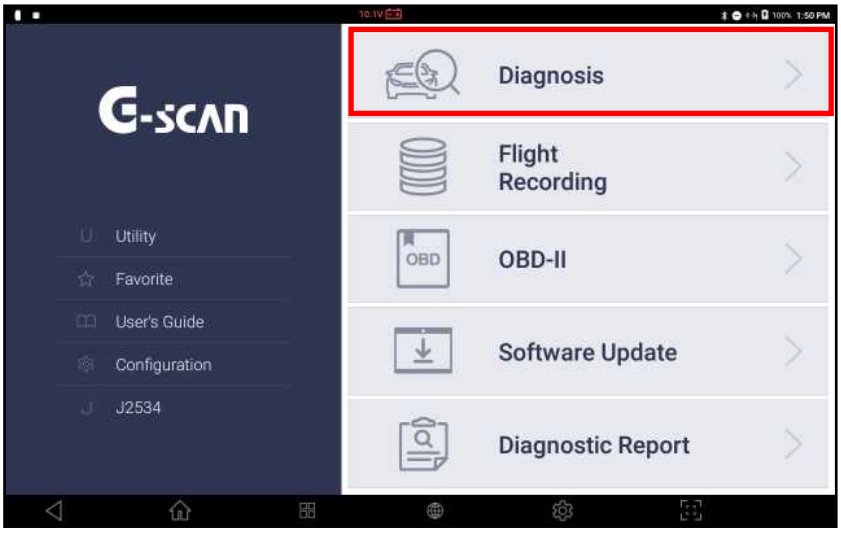
This enables saving of videos in video (MP4) files through G-scan 3'sembedded camera and the microphone.

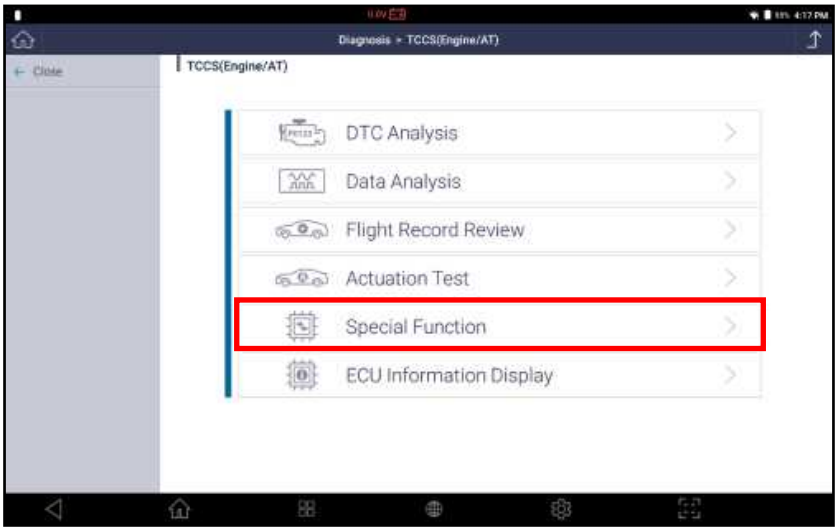
4.3. Favorite

A special function of a specific vehicle model that is frequently used can be added to the [Favorite] functions list where the listed functions can be simply executed without having to go through the whole lot of vehicle details selecting procedure.

Adding a special function to the list

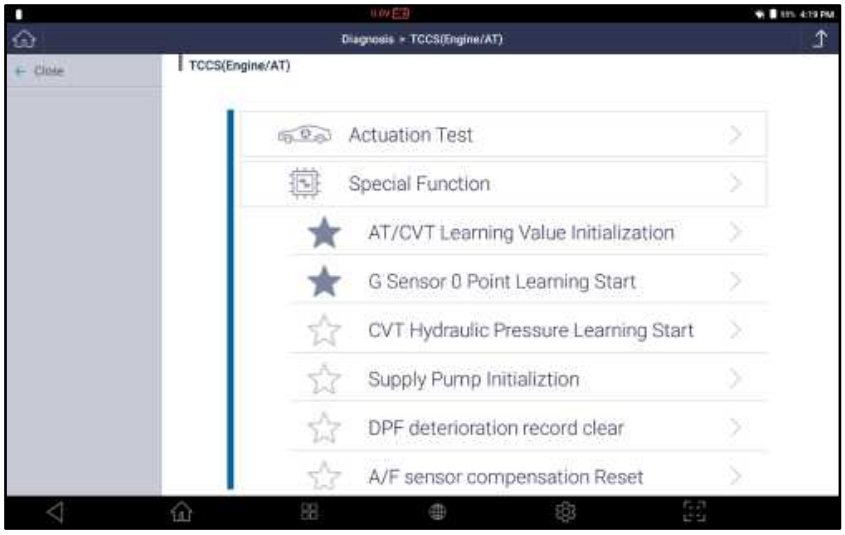
Select [Diagnosis] from the main menu and make necessary selections to reach the Special Functions menu. Please refer to [Chapter 5.9. S/W Management] and [Chapter 6.7. Special Function] for the detailed instruction for running diagnostic function with G-scan 3.





Add a special function to the favorite list by touching the [STAR] mark in the head of each of the special function in the menu.

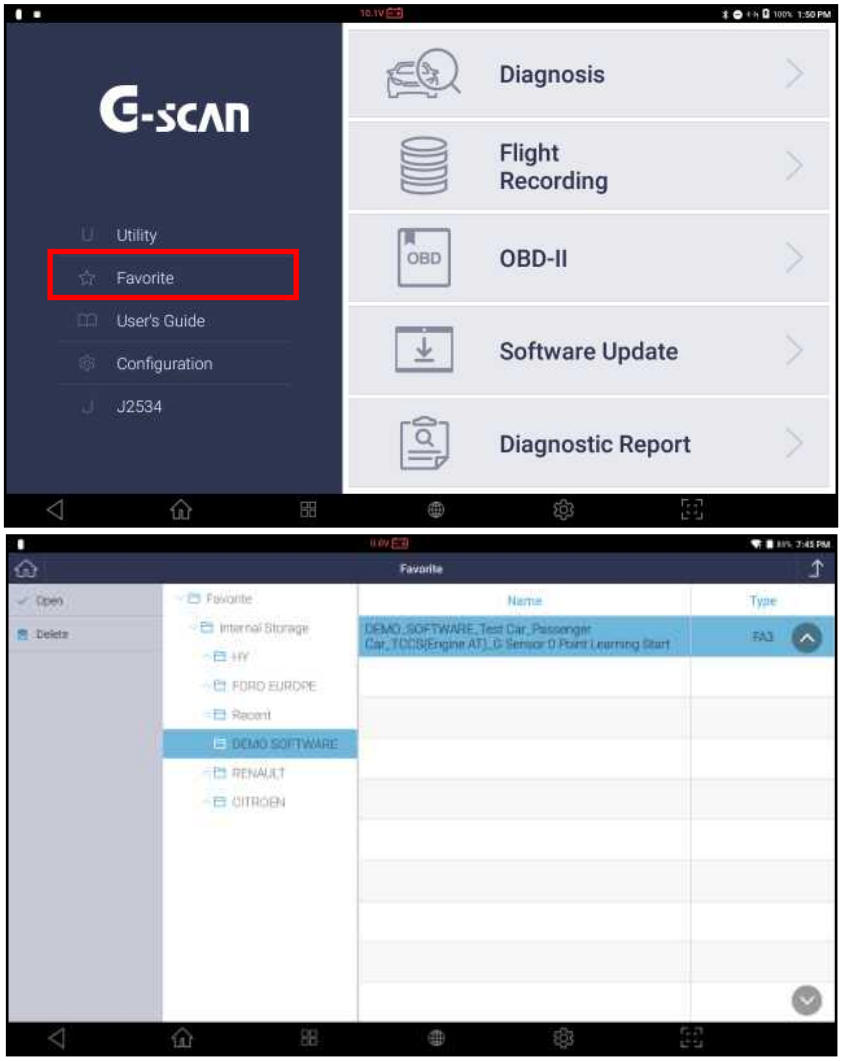
When you tab on the [Star] mark, the color of the star changes darker to indicate that the function has been added to the [Favorite] list. You can remove the special function from the list by touching the start mark again.



Star Marks	Description
★	The special function has been added to the favorite list.
☆	The special function is not listed, and can be added to the favorite list.

Loading the favorite list

Select [Favorite] from the [Shortcuts to the Convenient Functions] in the right side of main menu, then the folders are listed as shown below.



Folder	Description
"Automake's name"	The special functions that the user has manually added to [Favorite] list are found under the folders with corresponding car manufacturer's name.
Recent	The special functions that have been recently used are listed under this folder automatically.

Tab on the folder that is named by the automaker, and select one among the listed functions and touch [OPEN] button to start the function.

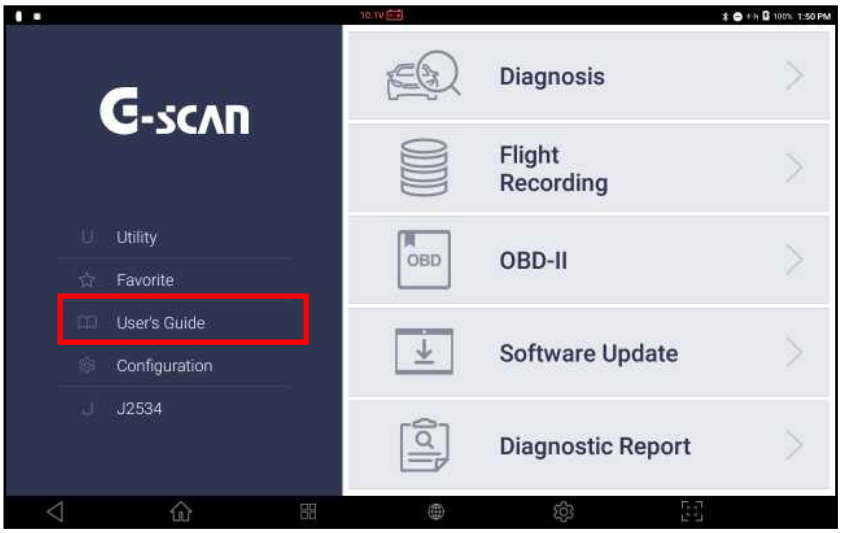
Selected function will be executed directly from this list without having to make any further selections.


TCCS(Engine/AT) > DPF Rejuvenate(PM)
Welcome to DPF rejuvenation(PM) function.
This function activates the DPF forced PM Oxidation control.
Condition : Engine warmed up and idling
Note : This function takes 20 minutes or more to complete.
Press [OK] to Start
OK
CANCEL

4.4. User's Guide

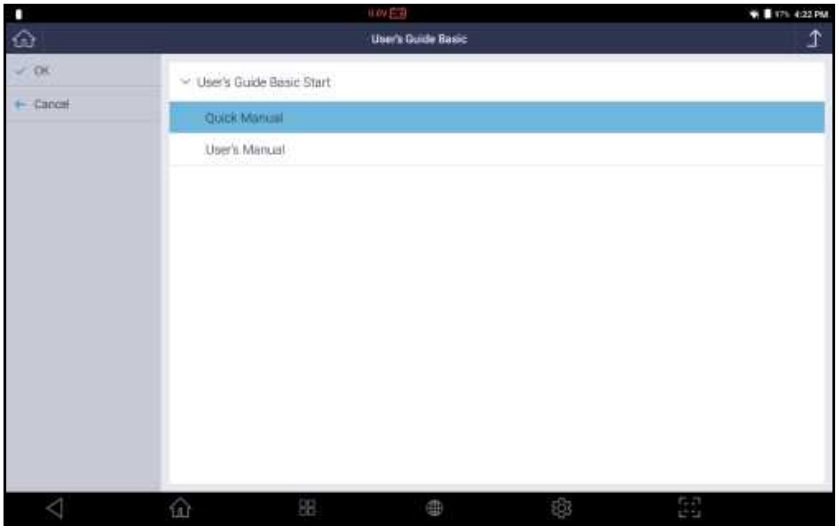
User's Guide

Select [User's Guide] from the right side list of the main menu, then 2 options of User's Guide are offered.



User's Guide "Basic"

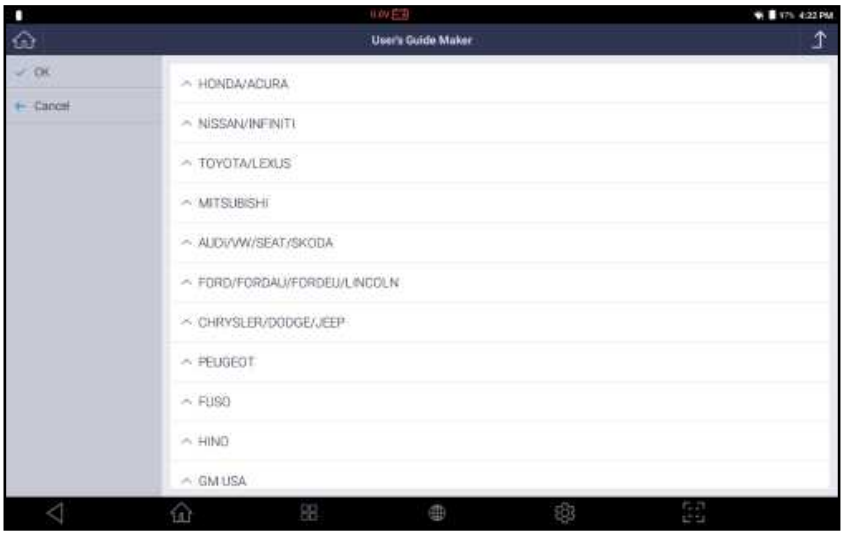
Select [User's Guide BASIC] to view the Quick Manual or this G-scan 3 User Manual on the screen.

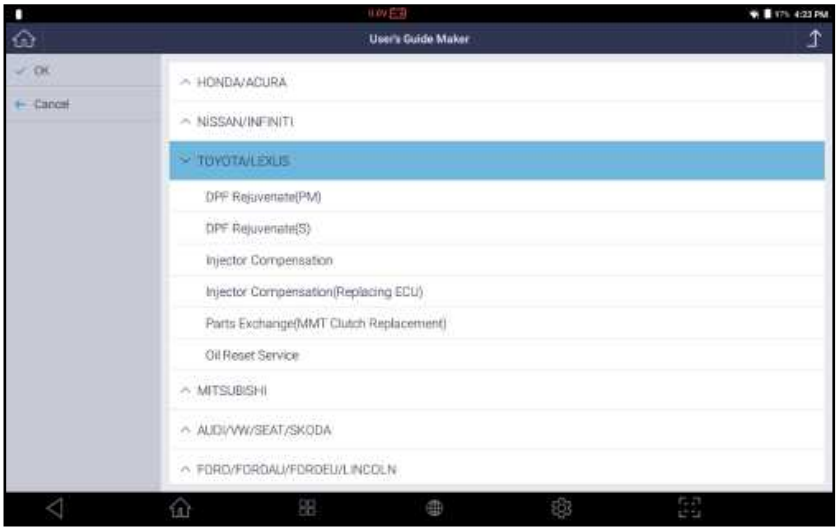


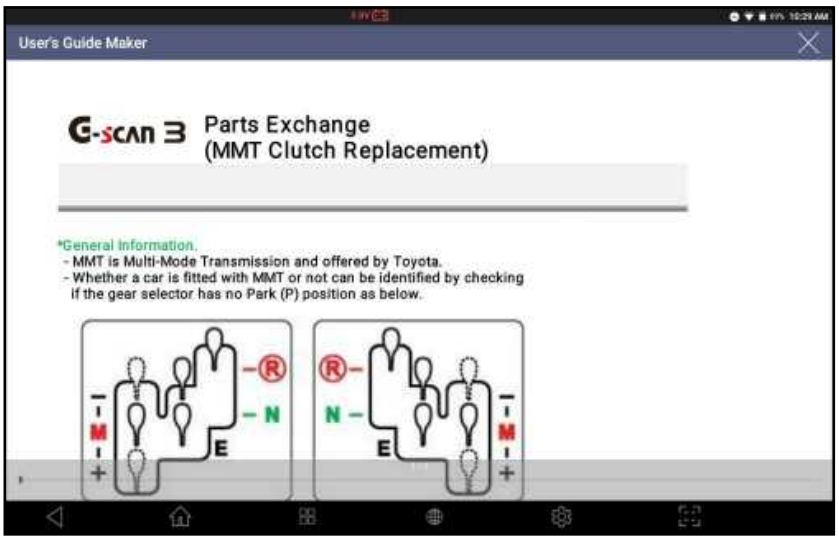
User's Guide "Maker"

[User's Guide MAKER] is a function that provides detailed instruction for the specific repair/service function to help the G-scan 3 user provide proper repair service to the customers. Please note that the [User's Guide MAKER] instructions are available just for the selected

automakers as listed in the menu, and the more instructions can be added without notice as needed.



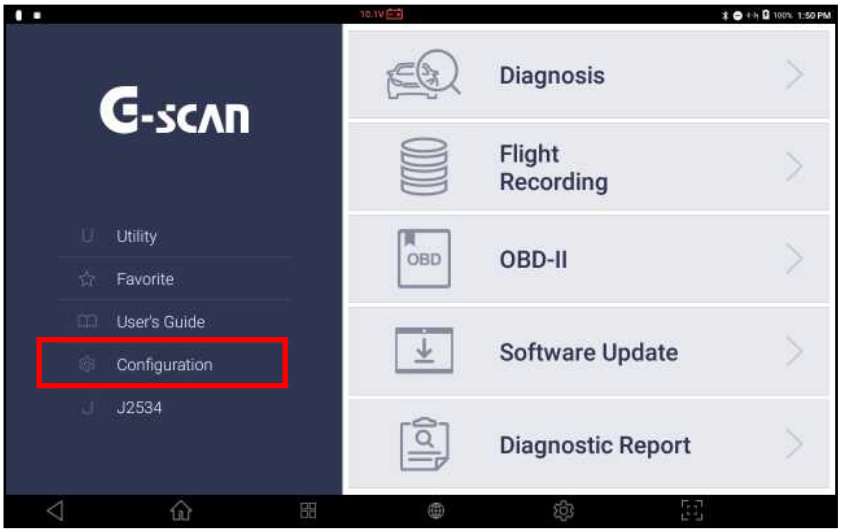




4.5. Configuration

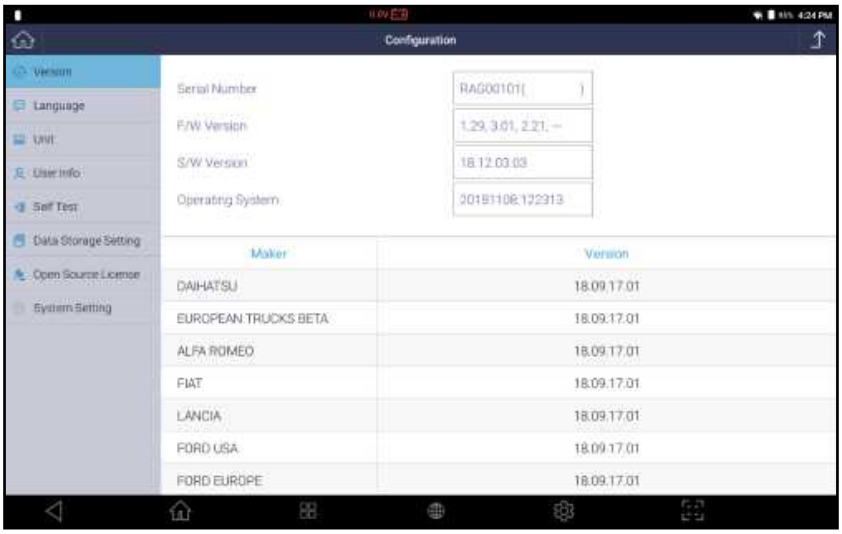
[Configuration]

Select the “Configuration” to check the software versions, set up Wi-Fi connection, perform Self-test, or change the various user settings such as language, measuring units and user info.



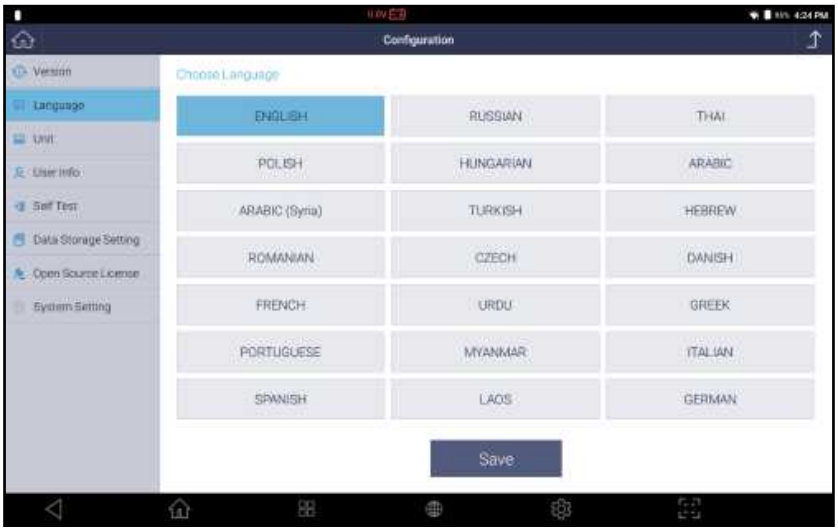
Software version

The G-scan 3 serial number and the version numbers of operating system and the individual diagnostic programs can be checked.



Language

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

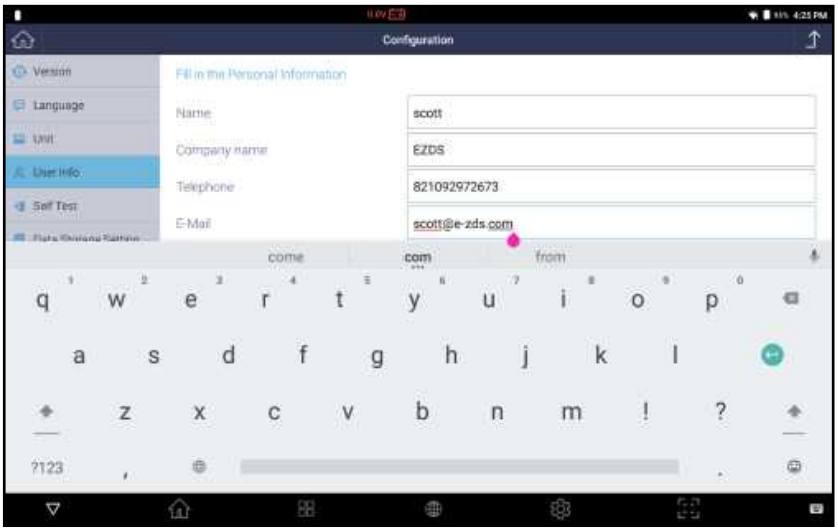


Unit

G-scan 3 shows the parameter values and the measuring units just as the vehicle's Electronic Control Unit is programmed. However, if the different measuring units are preferred, the units can be selected among the given variations as preferred.

User Info

Type in your personal and workshop information and it will be used when printing the Pre-Post diagnostic report and other forms. Be advised that User Info is stored and used within the G-scan 3 device only, and no personal information is transferred to the server.

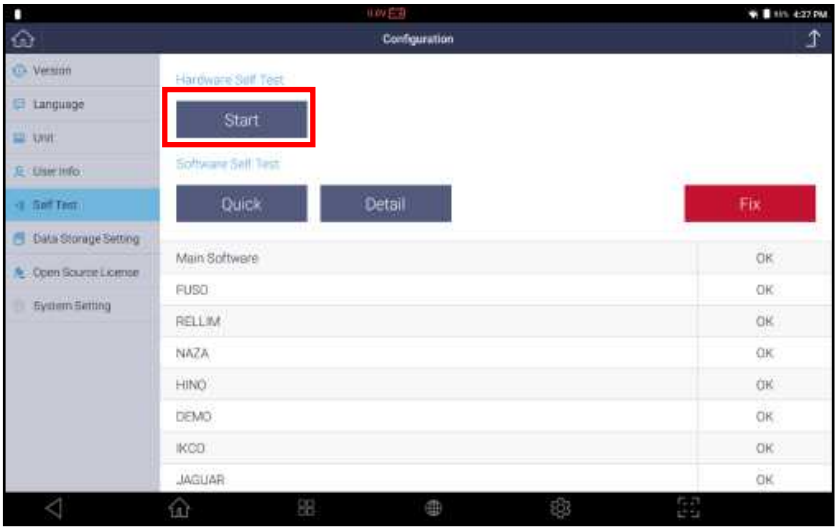


Self Test

In case the G-scan 3 fails in performing the diagnostic functions properly, Self Test function helps the user identify whether the problem is caused by the abnormalities of hardware or software.

Hardware Test

Hardware self-test is designed based on a loop back system, where G-scan 3 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 echoed signal, it becomes identifiable where the communication failure originated.

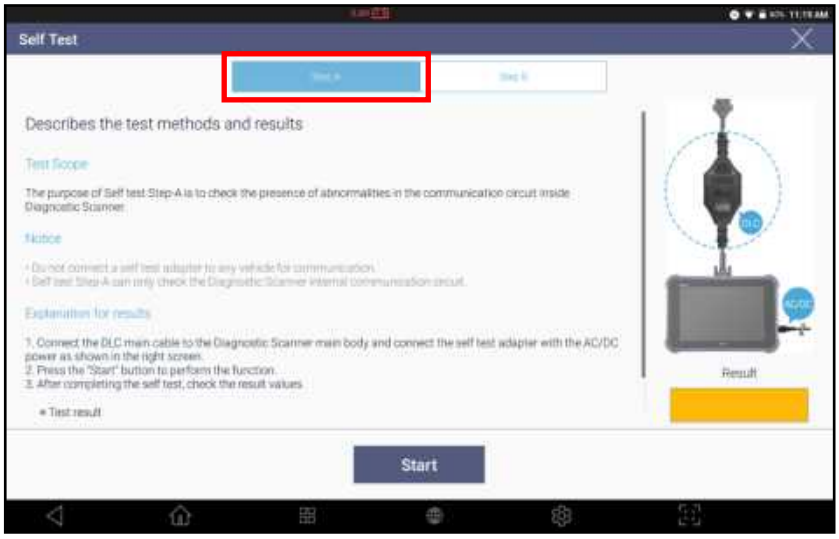


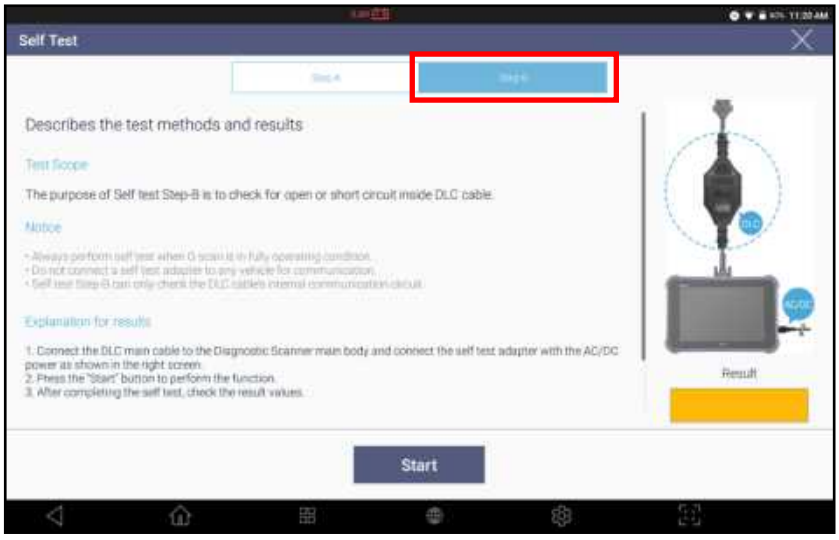
Hardware Self-Test is consisted of 2 steps: Step A and B

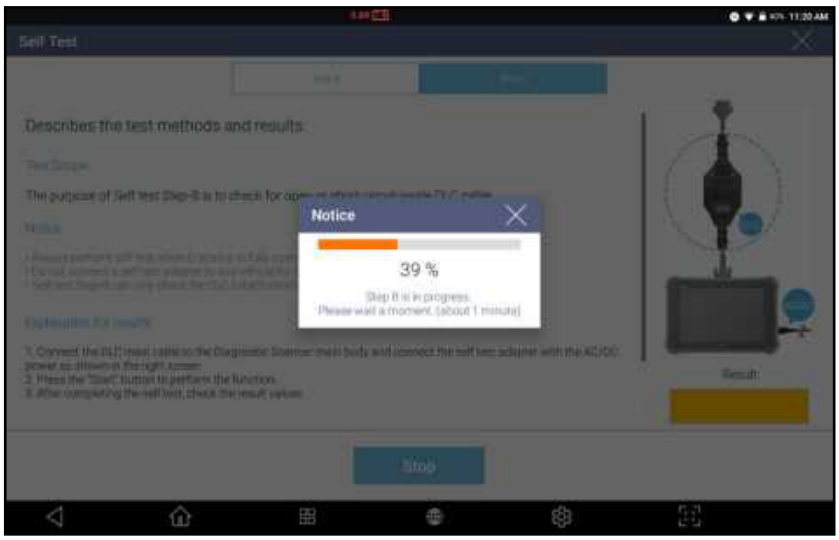
- **Step-A :** Checks the internal communication control circuit of G-scan3 base unit
- **Step-B :** Checks the signal delivery circuit of the DLC main cable

Select Step A or Step B, and select [START] on the left.

Make sure to attach the Self-Test cable to the end of main DLC cable for self-testing, and <u>never</u> connect the main DLC cable or Self-Test Cable to the vehicle.







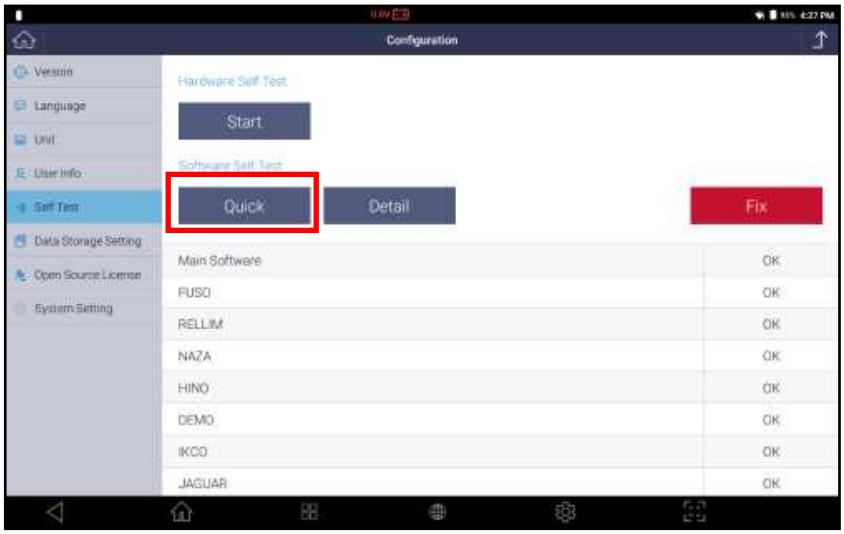
In case no abnormalities are found in G-scan 3 hardware while performing hardware Self-Test, the test result will be indicated as [PASS] on the left right corner of the screen, otherwise [Inspection required] will come up.

Conduct both of Test A and B, and contact your local distributor in case any result turns out [Inspection Required].

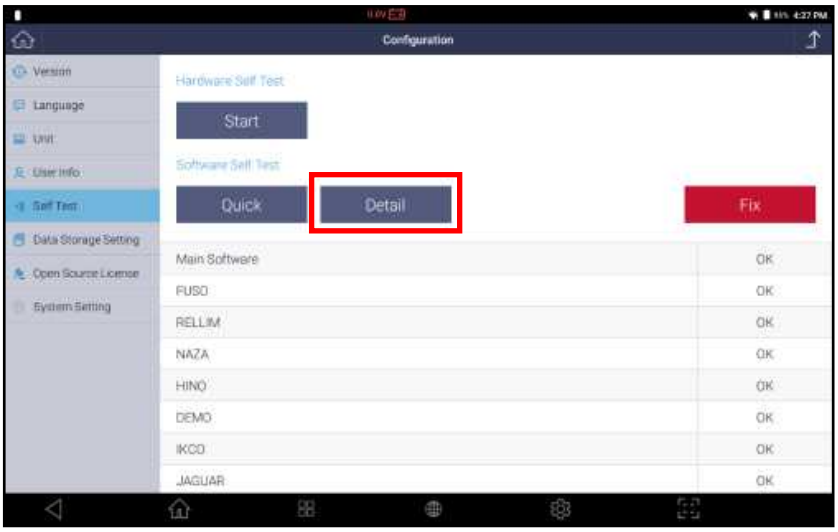
Software Test

Software self-test verifies software integrity to make sure that there are no corrupted data in G-scan 3 diagnostic applications.

- **Quick:** Checks the G-scan 3 main program



- **Detailed:** Checks software and database of G-scan 3 for the individual automakers.



Data Storage Setting

The default data storage for saving the data created by the user, such as flight record data or screen captures, is [Internal Memory].

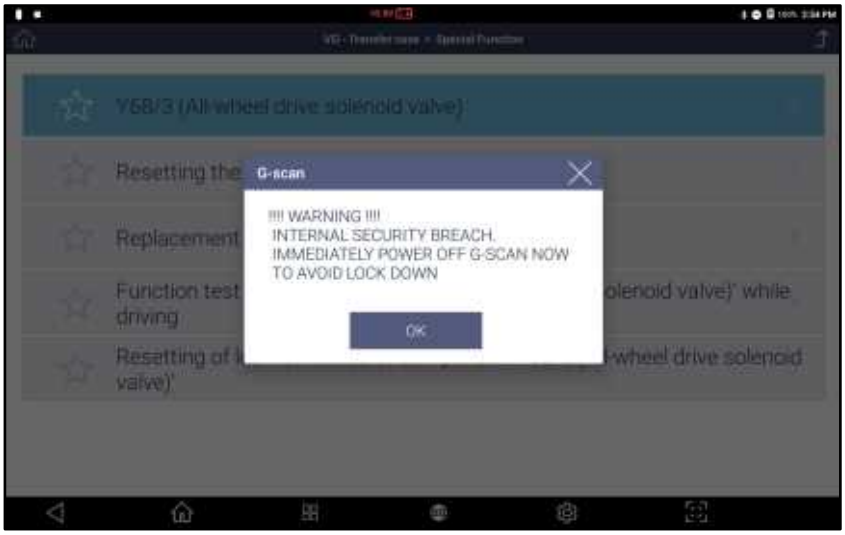
If you want to use a micro SD card for saving such data, select [External Memory].

Please note that, even in case [External Memory] is selected for Data Storage, G-scan 3 will automatically save the data in the [Internal memory] If no external memory is detected.

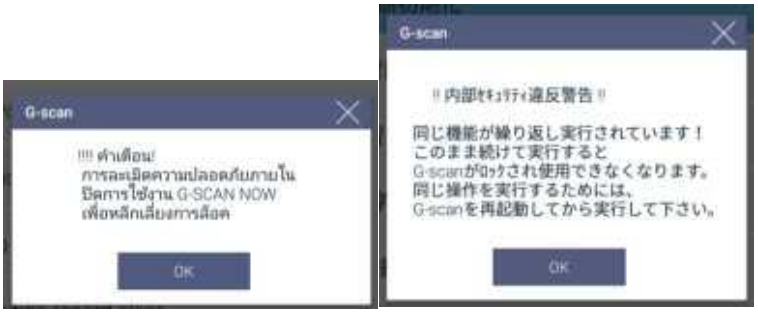
4.6. System Lock

"Special Function Counter Lock"

For the protection of proprietary right and intellectual property of GIT and EZDS that are embodied to G-scan 3, the product contains the "Special Function Counter Lock" function.
Executing a particular special function repeatedly for more than 20 times without resetting communication with the vehicle's control module by returning to the upper level menu, which is not supposed to take place under the normal operating conditions, will be considered as an attempt to breach security of G-scan 3. A warning message pops up as shown below in such a case.

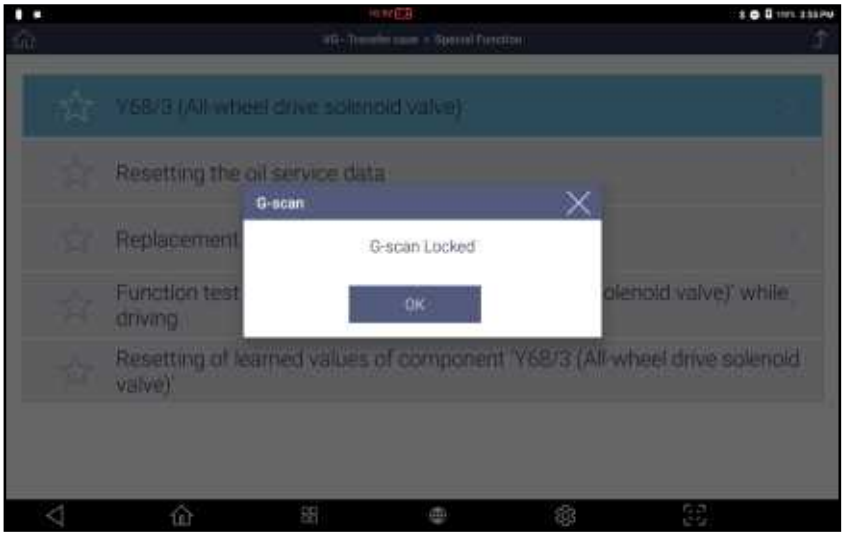


The warning message comes up in different languages according to the language setup in configuration menu like the examples of Thai and Japanese below.

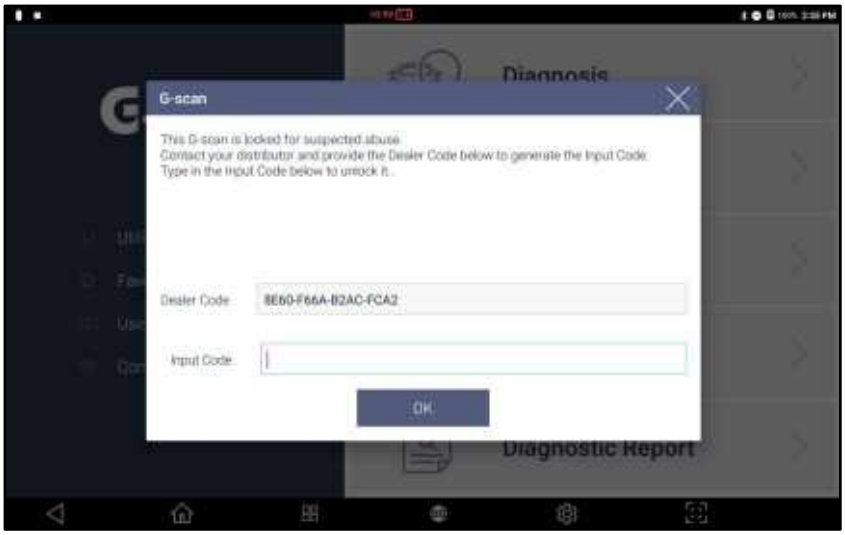


Once prompted by this warning message, please stop using the same function with the G-scan 3, move back to the upper level menu to end the session or, to make sure that the counter is reset, turn the device off completely and then restart. The internal counter will be reset and the warning message will disappear unless the condition is fulfilled again.

Despite of such repeated warnings, if it is ignored and the function is executed continually without closing the diagnostic session, G-scan 3 finally gets locked down and ceases to operate normally as shown below.



Once G-scan 3 is locked for this reason, it is not recoverable unless the G-scan 3 base unit is returned to the authorized local distributor. The locked G-scan 3 needs to be examined and then unlocked by inputting the unlock code which is provided by EZDS in Korea.



Unlocking process is not subject to warranty and cost may be charged. If you have purchased G-scan 3 from overseas or directly from Korea for not having an authorized distributor in your region, you are required to return the base unit back to Korea at your own expenses for the whole round trip freight cost and others including import duty and tax if incur.

"Security Breach" Lock

For the protection of proprietary right and intellectual property of GIT and EZDS that are embodied in G-scan 3, the product contains the "Security Breach Lock" function.
In the event of executing any diagnostic functions of G-scan 3 in a way that is not logically possible in the real world, and when such abuse is detected evidently, it is considered as a serious security breach and G-scan 3 is programmed to lock down its system immediately for self-protection.

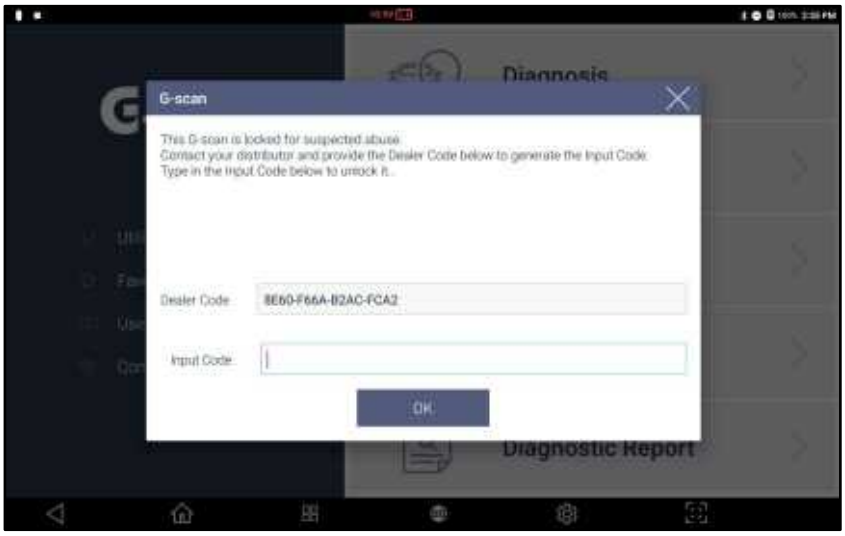
In case the G-scan 3 is locked down for this reason, no unlock code input is possible and the only way to unlock the device is returning the device to the EZDS in Korea for inspection. It will be unlocked only when the device turns out to have been locked for no proper reasons. If the internal memory is altered or manipulated by the user from the state when the G-scan 3 was locked, any request for unlocking the device will be refused.

Violcation of end user license agreement for regional restriction

As written in the first page of this manual, and as it appears on the screen in the process of registering G-scan 3, the product is licensed for use in the designated country only.
G-scan 3 found being used outside the designated country can be locked down as it constitutes a direct violation of end user license agreement.

Once G-scan 3 is locked for this reason, it is not recoverable unless the G-scan 3 base unit is returned to the authorized local distributor in the region where the G-scan 3 is actually being used.

The G-scan 3can be unlocked only by inputting the unlock code which is provided with the consent of the authorized local distributor in the regional of actual use. And this unlocking process itself is not subject to warranty and cost may be charged because it will involve the transfer of responsibility of service and support to the new local distributor and change of software license.



Also, for this purpose, G-scan 3 needs to be validated by logging onto the server and checking the proper usage in compliance with the end user license agreement, and the device is required to connect to internet via Wi-Fi or Ethernet LAN cable periodically.
If G-scan 3 fails to log on to the EZDS server for a certain period of time, a warning message pops up to remind that the device needs to connect the device to internet for validation.
If G-scan 3 still does not connect to internet despite of repeated warning message, G-scan 3 does not respond to user input and pauses to operate for one or a few minutes after closing the warning message, and the irresponsive time will increase if the message is ignored and no internet connection is made for validation.

If the device is not validated despite of such inconvenience increased overtime, G-scan 3 finally becomes non-operational as it constitutes breach of end user license agreement. G-scan 3 software will not run and just the reminder asking you to connect the device to internet will appear on the screen without any button to close the message.
The only way to remove the message and restore G-scan 3's normal operation is connecting the device to internet and getting it access to the server for validation.

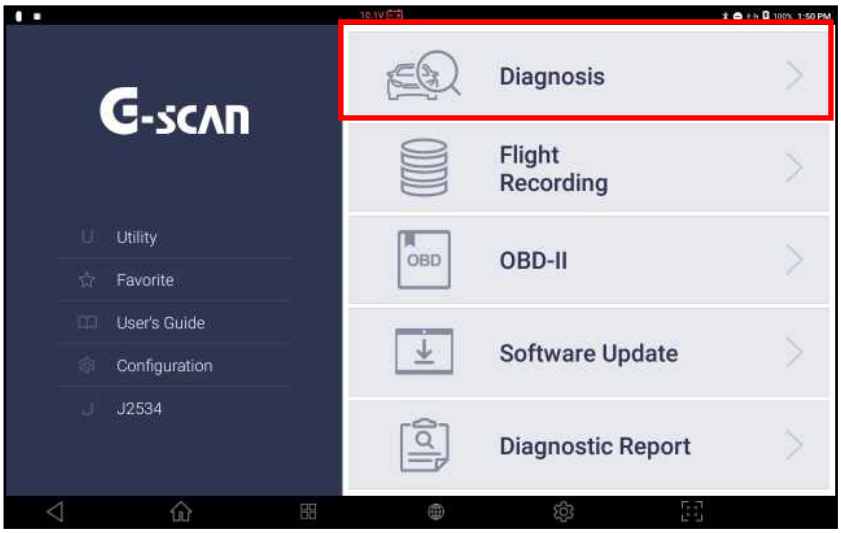
If the device is validated, you can use G-scan 3 normally until the request for validation comes up next time. However, if the device is found being used outside the designated country, which constitutes a direct violation of end user license agreement, G-scan 3 will be locked down as explained above in the section.

Chapter 5.Diagnosis – Hyundai and Kia

5.1. Getting Started

Selecting [Diagnosis]

In order to conduct diagnostic functions on Hyundai and Kia vehicles with G-scan3, select [Diagnosis] from the main menu.



Selecting [Hyundai] or [Kia]

Select one among the Hyundai and Kia applications of different segment and regional versions. There are several Hyundai and Kia software versions available and they are:

- **Hyundai General**: Hyundai passenger cars sold worldwide except North America.
- **Hyundai KOREA**: Hyundai passenger cars sold in Korea
- **Hyundai USA**: Hyundai passenger cars sold in North America
- **Hyundai Truck Bus General:** Hyundai commercial vehicles sold rest of the world
- **Hyundai Truck Bus Korea:** Hyundai commercial vehicles sold in Korea
- **Kia KOREA**: Kia passenger cars sold in Korea
- **Kia General**: Kia passenger cars sold worldwide except North America.
- **Kia USA**: Kia passenger cars sold in North America
- **Kia Truck Bus Korea:** Kia commercial vehicles sold in Korea

You may select Asia to list just the Asian automakers in the menu, or sort the automakers in the alphabetic order to locate these applications faster.

Some of these versions may or may not be included in your G-scan 3 according to the regional demand

[Hyundai] and [Kia] Main Menu

The structure of Hyundai and Kia diagnostic functions available on the main window of G-scan 3 is as follows.

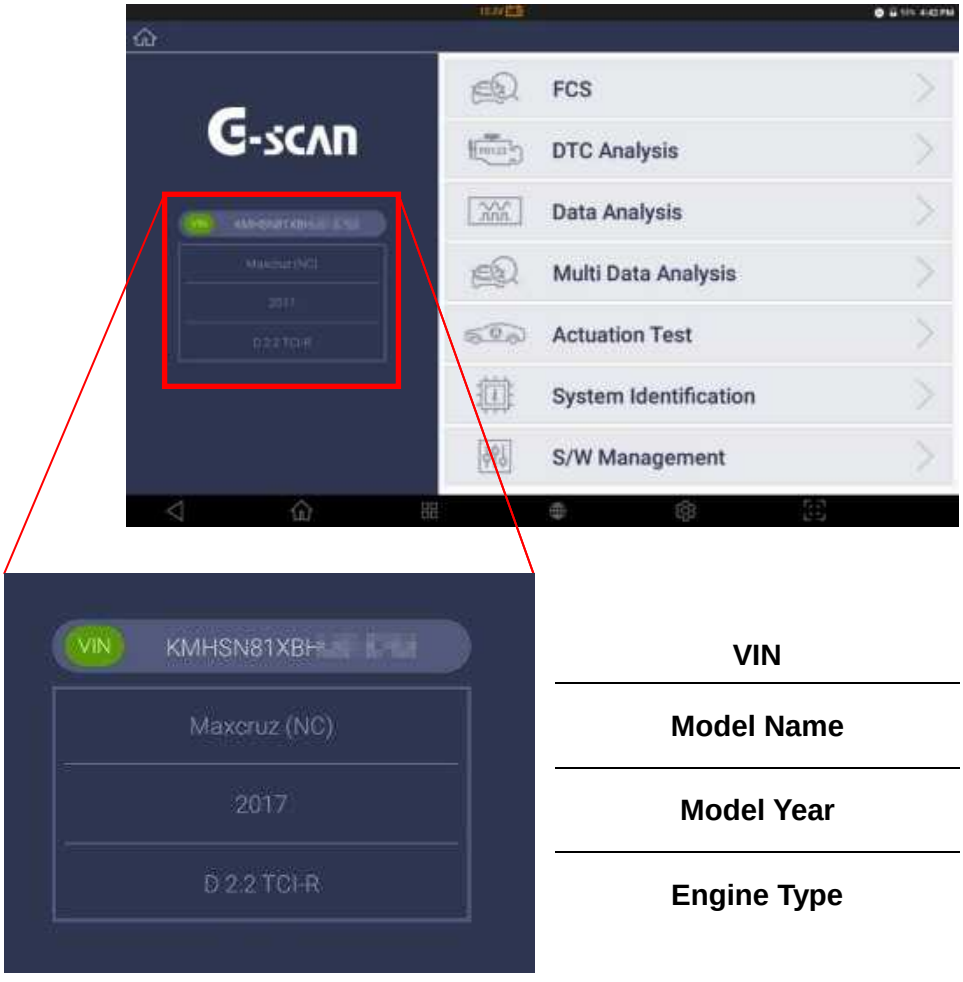
Function Name	Description
 FCS	Scans the diagnostic trouble codes (DTCs) for all the systems of the vehicle that support diagnostic communications.
 DTC Analysis	Scans the DTCs for a single selected system, and displays the trouble information of a vehicle.
 Data Analysis	Shows the values and status of sensors and actuators for a single control system.
 Multi Data Analysis	Only available with CAN Bus systems. Shows the values and status of sensors and actuators for multiple control systems.
 Actuation Test	Activates the actuators of the control system and examines the operation of the active parts and the related circuits
 System Identification	Displays system ID and related information of the control system
 S/W Management	Conducts parameter setting, coding and system initialization, etc., after maintenance of a vehicle.

5.2. Vehicle Model Selection

Automatic VIN reading

When Hyundai or Kia is selected from the automaker menu, G-scan 3 tries to read the vehicle identification number (VIN) from the ECU, and determine vehicle specification automatically.

If successful, the VIN read from the vehicle and the vehicle type details are displayed in the left side of the screen.



VIN

Model Name

Model Year

Engine Type

Manual selection

Accurate Vehicle Details Selection

Please note that GIT is the original scan tool supplier for Hyundai and Kia, and this aftermarket G-scan 3 product is also made precisely based on the original database. It requires accurate selection of vehicle specification to provide the accurate and reliable diagnostic result.

Model Year

Model year selection is the most delicate part for Hyundai and Kia cars – wrong model year selection may result in communication error or diagnostic function failure.

The vehicles that have been produced close to the model changing period often cause confusions. Therefore, if the communication fails with the selected model year, please retry by selecting the different model years of the same model.

Please mind that the model year is decided not by the registration or importation year, but by the production year as indicated on the metal tag or VIN.
The project names and model year information are also provided in the end of each model name, please make sure to make the correct selection.

Touch on the VIN area in the left side of the screen to start manual selection.

Select the model name from the list. Use the alphabet index in the right end of the screen for to locate the model name without scrolling up and down the list.

Select the model year of the vehicle to be diagnosed. The model year is defined by the VIN, and it may not be in accordance with the owner's knowledge.

Select the engine type of the vehicle.

Select the system to run the diagnostic function.

If you have selected one of the following functions from the main window, you can select multiple systems:

- FCS
- Multi Data Analysis
- System Identification
- S/W Management

5.3. FCS – Fault Code Search

FCS is a quick diagnostic function where G-scan 3 establishes communication with all systems fitted in the vehicle and checks the DTCs.

This is equivalent to “System Search” that G-scan 3 provides for the automakers other than Hyundai and Kia.

FCS Result

The result of the FCS is indicated by listing the scanned systems and showing the number and the status of the DTCs found from each system on the right side of the screen.

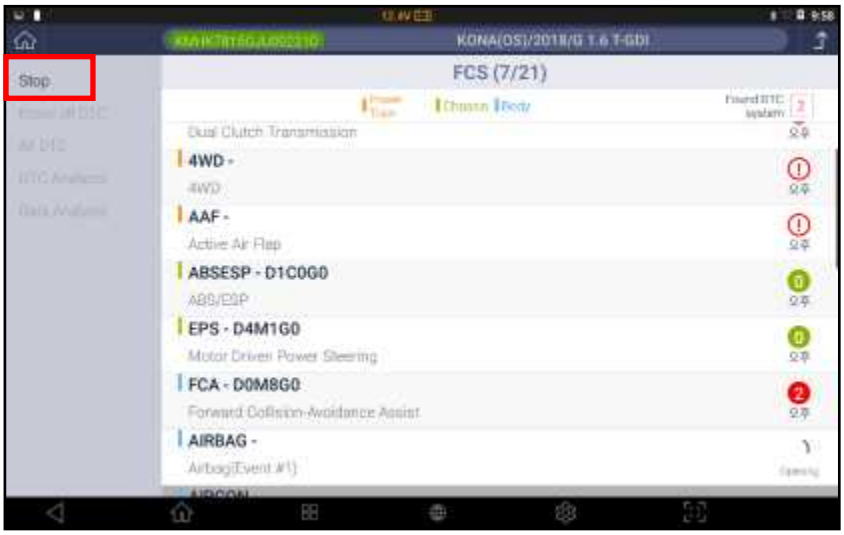
1	Found DTC system 4	Number of control systems that DTCs were found is indicated in the top of the list to summarize the FCS result.
2	1	If any DTCs are found, the number of DTCs found in the system is indicated in red circle. Touch the red circle to view the DTC details on the left of the screen.
3	!	When the system does not respond, a red error mark will be displayed. Touch the error mark and the reason why G-scan 3 could not read DTC from the system displayed on the left of the screen.
4	0	“Zero” in the green circle indicates that no DTC was found in the system

FCS additional commands

There are additional commands that can be selected while FCS is being carried out or when FCS is completed.

Stop

Aborts the FCS function any time while G-scan 3 is still conducting Fault Code Searching for all systems. This selection is replaced by [Rescan] once the FCS function is aborted or completed.



Rescan

Repeats the FCS function again for all systems, and number and the status of the DTCs are refreshed

Erase all DTC

Erases all DTCs of all systems that have been found by the FCS function.

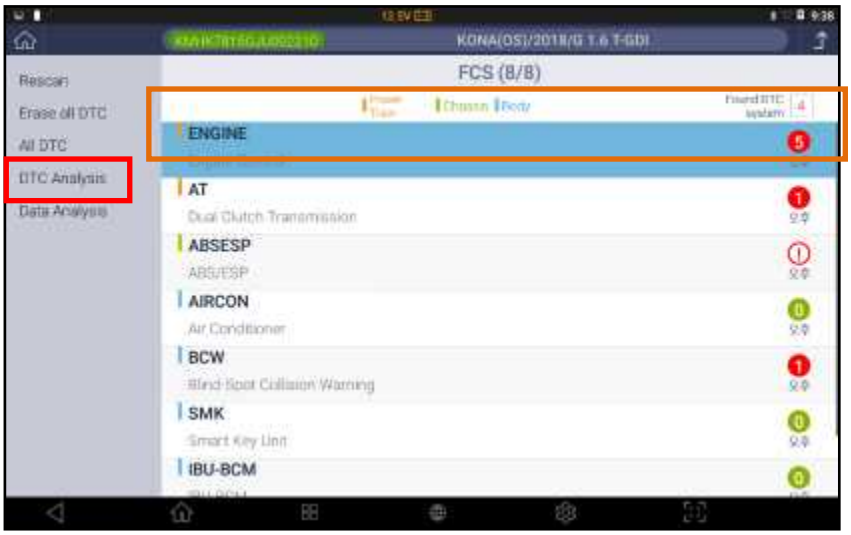
All DTC

Shows the details of all DTC found by the FCS function.

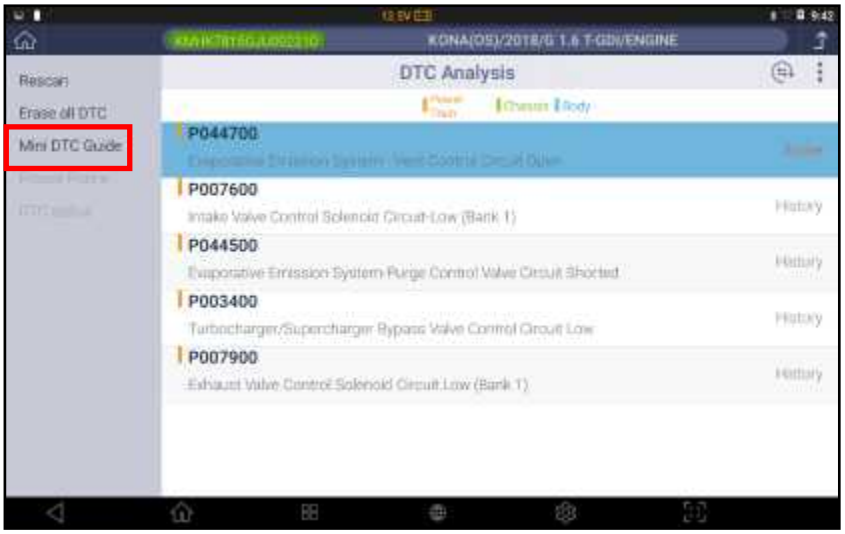
Fault code number, name of the control system that the DTC was found, the description and the type of the code (History/Pending/Active) are presented in the list.

DTC Analysis

You can switch from FCS to DTC Analysis by selecting a control system and [DTC Analysis] button in the left of the screen. Difference is that FCS function shows the DTCs found from all systems collectively while DTC Analysis shows the DTC information found from a single control system at a time.



Also, in DTC Analysis mode, Mini DTC Guide that shows more detailed repair information about the DTC including description, possible causes and check points (available only for Hyundai and Kia).



* Please refer to the next chapter to see the more details about [DTC Analysis].

Data Analysis

FCS result screen can be converted to Data Analysis display when a control system and [Data Analysis] button in the left side of the screen are selected. Data Analysis shows the data values of input and output side parameters of a control system.

* Please refer to the following chapter to see the more details about [Data Analysis].

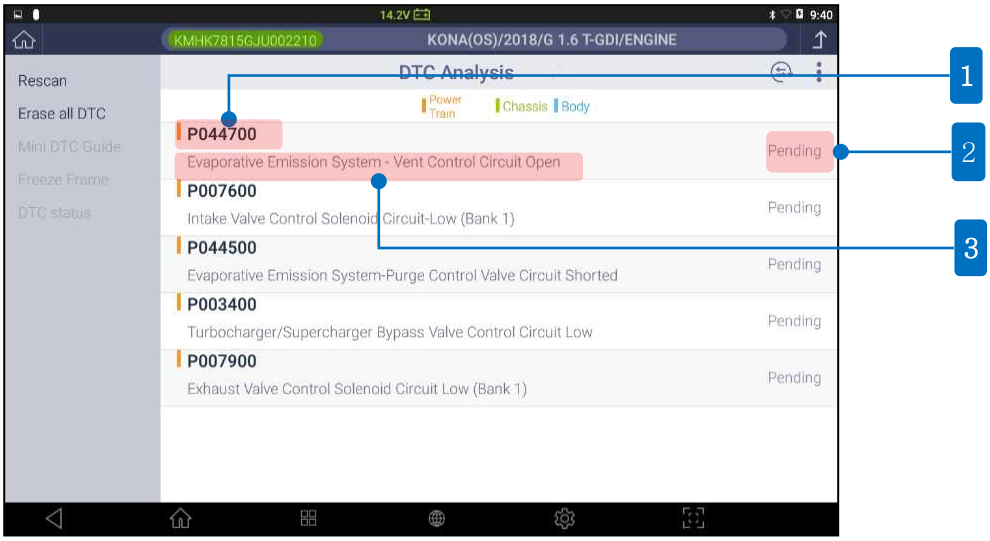
5.4. DTC Analysis

Reads and erases the Diagnostic Trouble Codes from the selected vehicle control system.

DTC Reading and Erasure

Select DTC Analysis to select a control system and read the DTC.

DTCs found in the control system are listed like below showing the code, definition and status.



1	DTC code	Diagnostic Trouble Codes found in the control system.
2	DTC status	**Active** An actual DTC currently affecting the control system's error or failure that needs further diagnosis for repair and erasure.
		History A DTC that was active in the past as the related parameter readings went out of range but dismissed after several drive cycles without reoccurring.
		Pending A DTC that has not fulfilled the code setting conditions at the moment, and is going to be set if the related data reading goes out of range again.
3	DTC definition	DTC description defined by the manufacturer

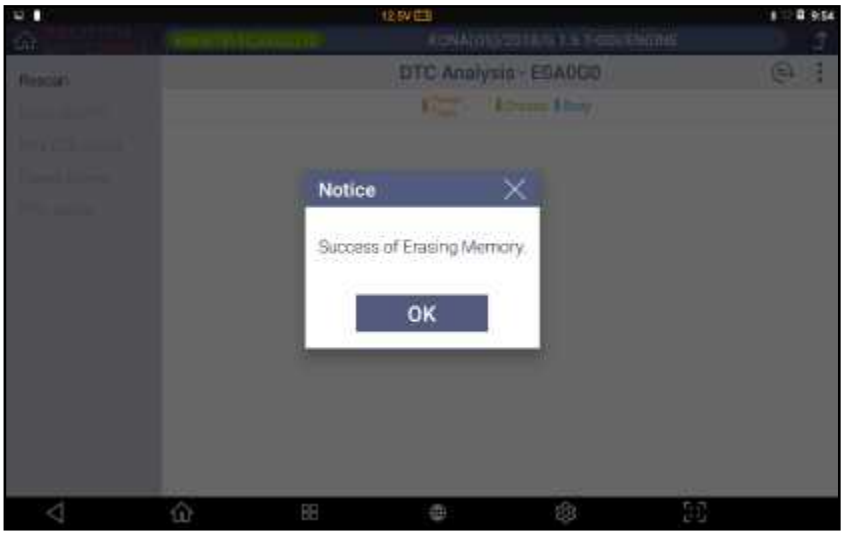
DTC Analysis – additional commands

Rescan

Reads the DTCs again from the selected system, and number and the status of the DTCs are refreshed

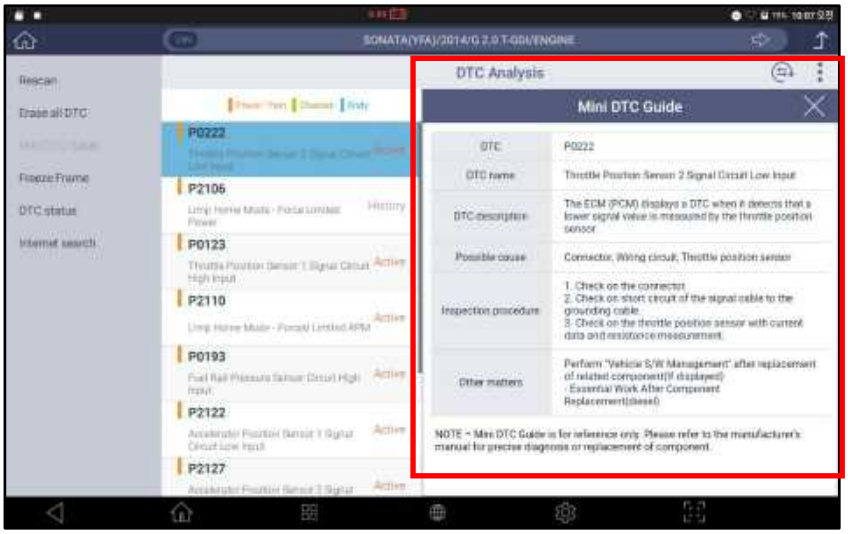
Erase all DTC

Erases all the DTCs saved in the control system. The vehicle must be under IG key ON Engine OFF conditions.



Mini DTC Guide

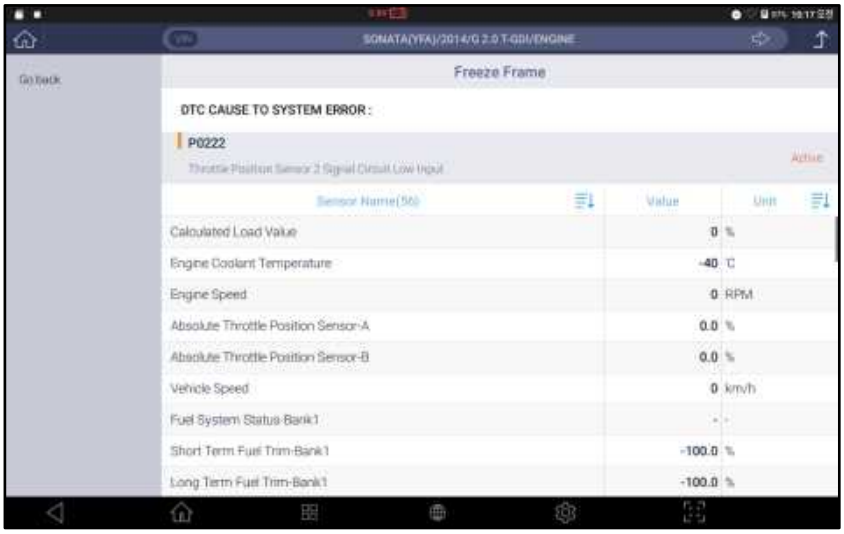
In case any DTC in found from the control system, “mini DTC Guide” function provides more detailed repair information about the DTC including definition, description, possible causes and check points (available only for Hyundai and Kia).



Freeze Frame data

For better understanding on what had happened to the vehicle’s control system before and after the DTC was logged, data parameters are recorded when the critical diagnostic trouble code was triggered and set to the control unit’s memory. [Freeze Frame Data] button gets activated when the control unit has the Freeze Frame Data for retrieval, in such as case select the [Freeze Frame Data] button to list the freeze frame data recorded

in the control unit's memory.



DTC status

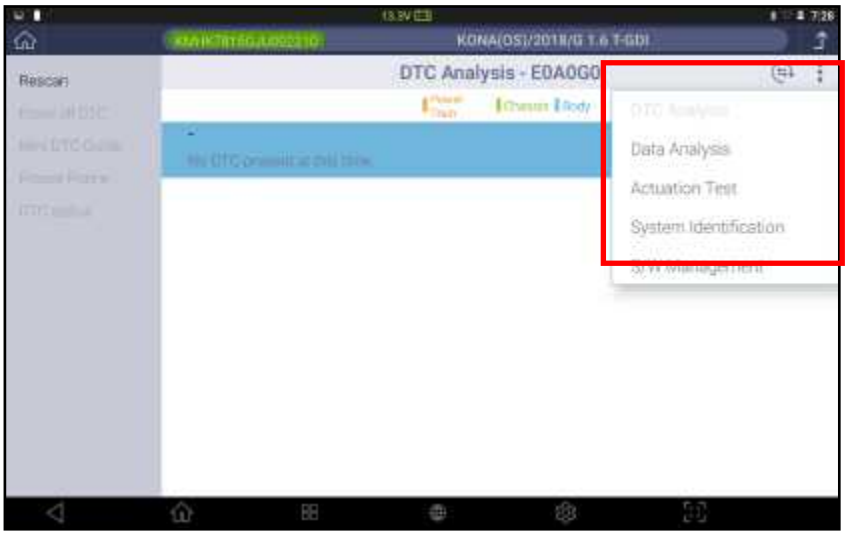
Shows a short description of the DTC, and its current status.

Short cut to the other diagnostic functions

While conducting DTC Analysis function, you can jump to the other diagnostic functions by touching the additional options in the top right corner and selecting the function without having to move back to the upper level menu.

- Data Analysis
- Actuation Test

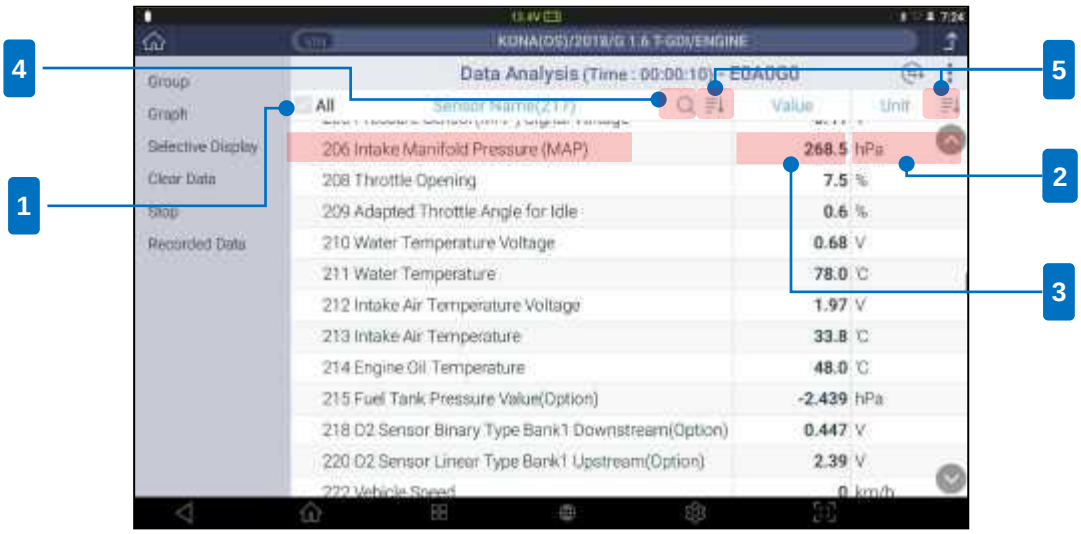
- System Identification
- S/W Management



5.5. Data Analysis

Displays the data readings and status of the sensors and the actuators on both input and output side of the control system

Data Analysis - Text Mode



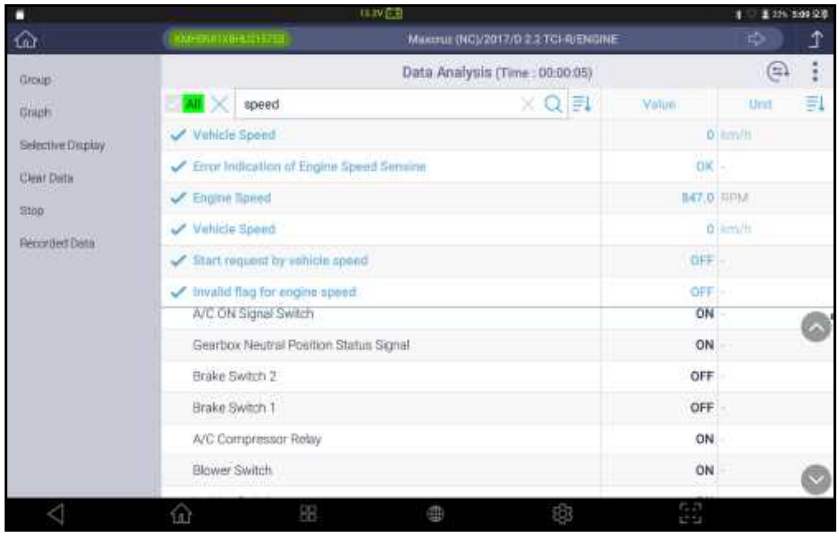
1	**All**	Selects or deselects all the parameters for conversion to graph mode or data recording. You can select or deselect individual parameter by touching the parameter name.
2	**Measuring Unit**	Default measuring units are set to metric, and it can be converted to the other units from the Configuration menu.
3	**Data Reading**	Actual data being received from the control unit.
4	**Sensor (parameter) Name Search**	Search and locate the parameter(s) among the hundreds of lines by using the parameter name as the keyword (see below for more details)
5	**Parameter Sorting**	Sort the Parameters either by Sensor Name in alphabetic order or by the type of Measuring Unit (see below for more details)

Parameter [SEARCH]

Type in a part or the full name of a sensor or an actuator in the blank as the keyword, and

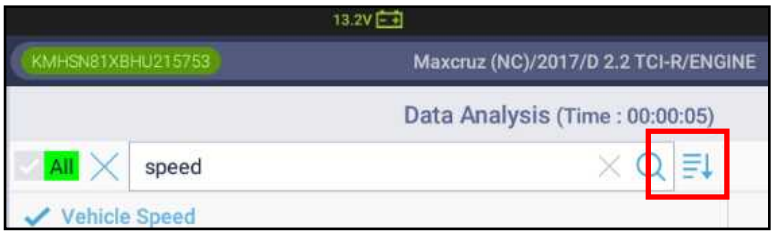
touch the [Search] icon, then the parameters that include the keyword are displayed in the screen.

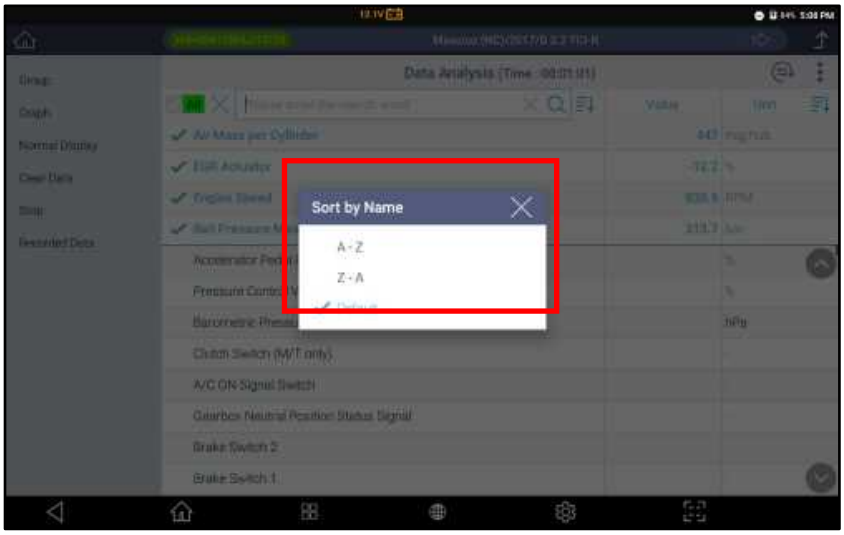
Below is an example when “speed” is entered as the keyword.



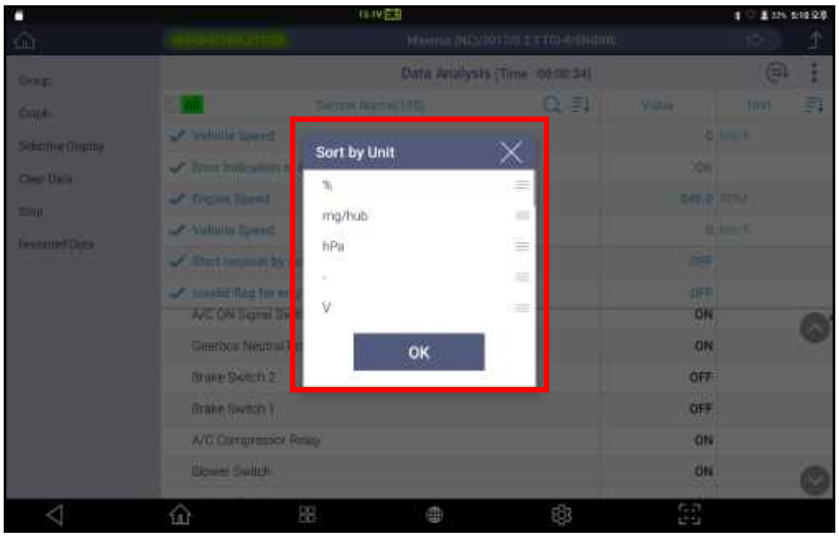
Parameter [SORT]

Select the [SORT] button next to the Search Keyword input area and the data reading are listed in the alphabetic order by the parameter name or reversely.





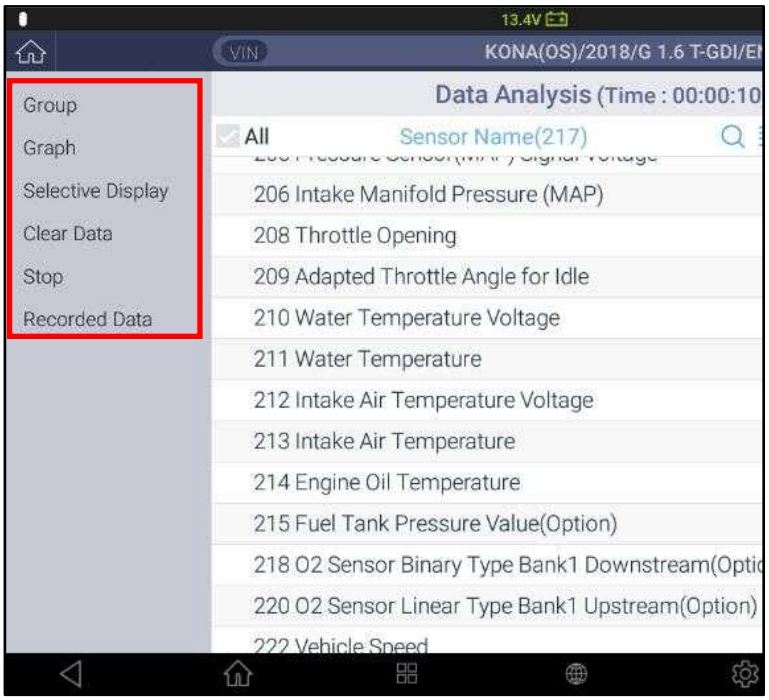
Likewise, hit the [SORT] button in the right end of the list, data readings are listed according to the type of measuring units by which you can group the parameters by the attributes - pressure, speed, volume, voltage, ratio, etc.



Additional Commands

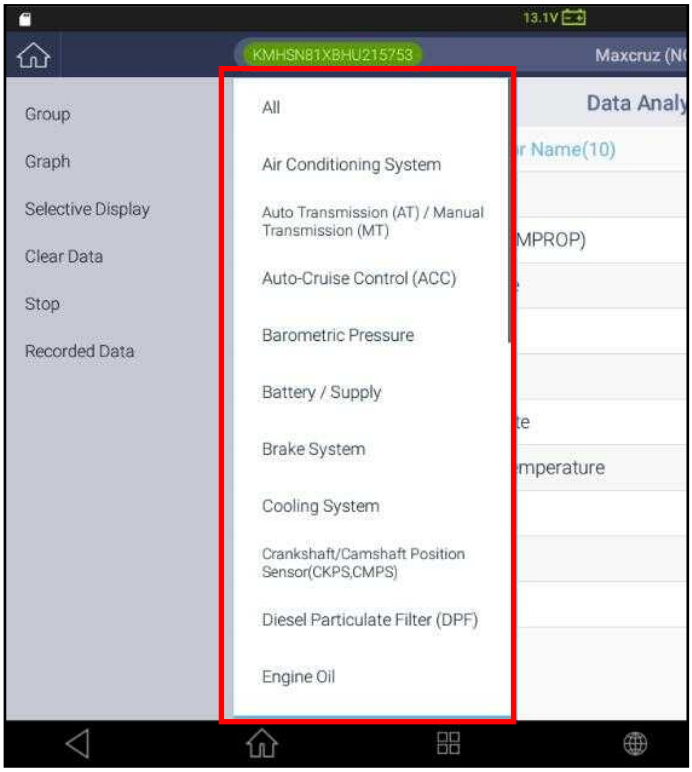
Additional commands for operating Data Analysis function are listed in the left side of the screen.

Group	Select a group name then only the parameters that belong to the selected group are displayed on the screen.
Graph	Switches to the graph mode that displays the alpha-numerical data readouts of the selected parameters into graphs.
Selective Display	Only the selected parameter readouts are displayed on the screen. The less parameters are selected, the faster the data refresh rate gets.
Clear Data	Clears the internal memory where the data readings are recorded, and begins new data recording.
Recorded Data	Opens the data viewer for analyzing the data recorded in G-scan 3 memory

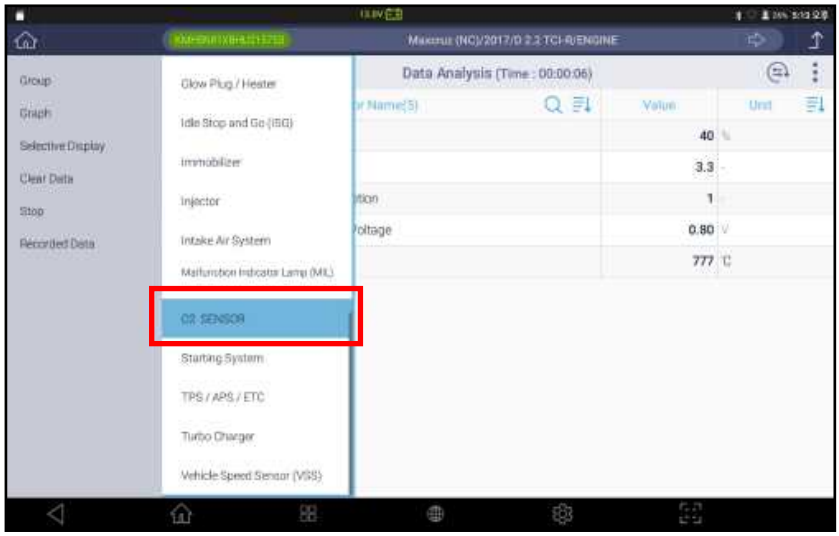


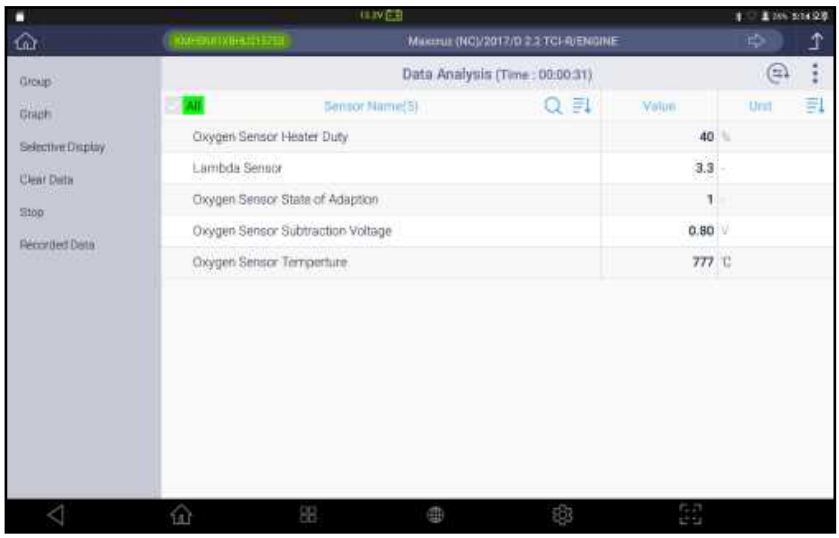
GROUP

Parameters are categorized into several groups by the attribute and function of each sensor or actuator. You can select a group among the different group names, then the parameters that are included in the selected group are listed in the top of the data readings.



Below is an example when “O2 Sensor” is selected to view only the oxygen sensor related parameters on the screen.





GRAPH

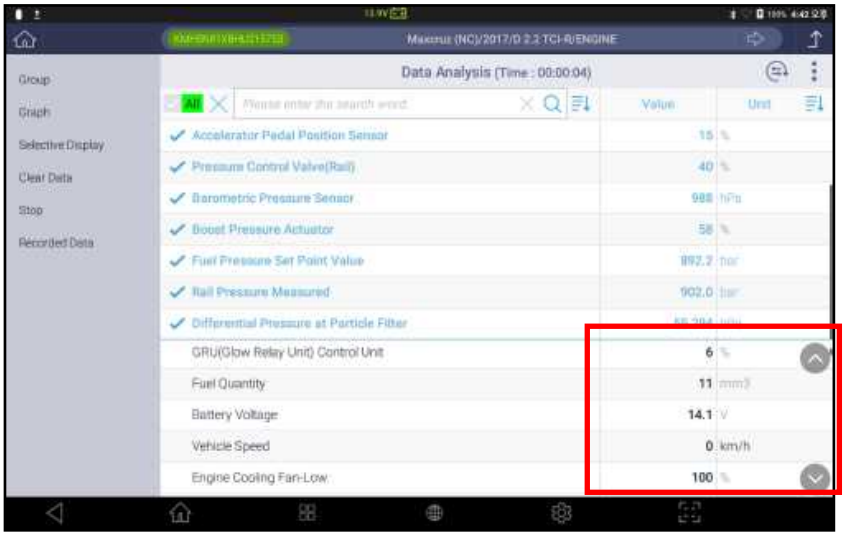
Switches to the graph mode that displays the alpha-numerical data readouts of the selected parameters into graphs. Please refer to the next section [Data Analysis – Graph Mode] in this chapter for more details.

SELECTIVE DISPLAY

As the more parameters are selected, it takes more time to receive data of the increased number of parameters from the control module, and inevitably it results in slower data refreshing rate. And vice versa: the fewer parameters you select, the faster data frame refreshing rate you get.

Selective Display is a function that restricts the data refresh of the parameters that are not selected, so that G-scan 3 can display just the data of the selected ones at faster refreshing rate.

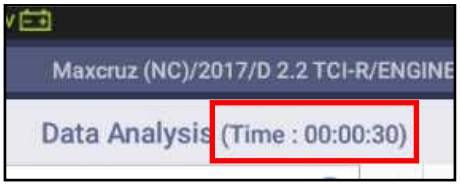
When [Selective Display] is not selected, entire data of all parameters, selected or not, are displayed. As shown below, the selected items are placed in the top of the list, but the data of the rest of the parameters that are not selected are also refreshed and displayed together.



However, when [Selective Display] is selected, the data readings of the parameters that are not selected are no longer displayed, and just the data of the selected items are refreshed at a faster repetition.

Clear Data

G-scan 3 automatically begins to record all parameter values in its temporary internal memory when Data Analysis starts running. You can check that the timer in the top of the screen begins to lapse as soon as



you see the data readings are displayed in the screen.

[Clear Data] is a function that resets the internal memory to erase the data that has been recorded and to make a fresh start of data recording.

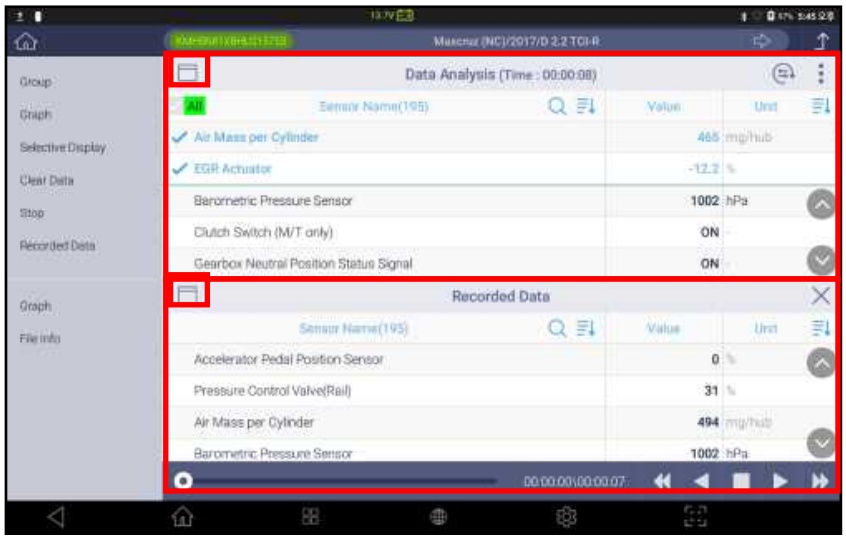
Stop

You can stop recording data and save the recorded data into a file, which you can replay or share. The file is saved under the vehicle's model name and brand name folders (HY for Hyundai and Kia for Kia), and it is named by the time it is saved. You can type in the file name if you want to save the file differently.

Recorded Data

When the recorded data is saved as a file, it can be loaded and replayed.

When replaying the recorded data, actual live data of the same parameters as the recorded data are displayed in the upper half of the screen which enables the direct comparison between recorded and current data.



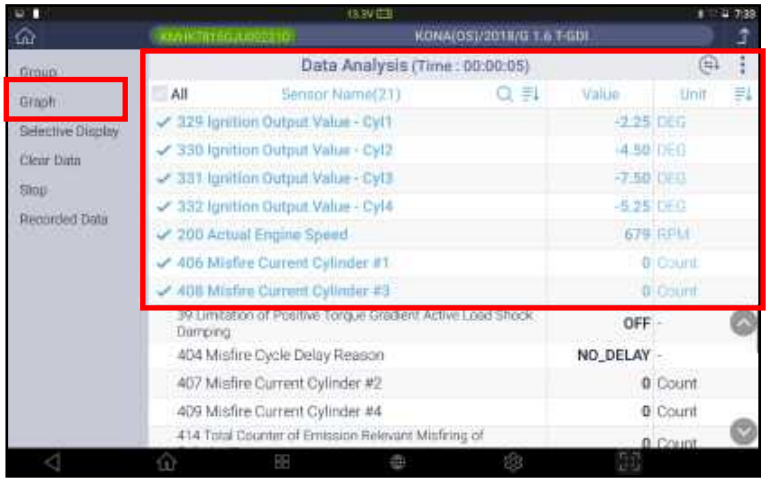
If selecting the parameters is not convenient due to limited space, you can expand the upper or lower section by selecting the full screen buttons in the upper left corner of each section.

Data Analysis – Graph Mode

Graph is a function that visualizes the alpha-numerical data readouts of the selected parameters into the dynamic graphs.

You can locate and select a number of parameters to view in graphs by using the [Search], [Sort] and [Group] functions as explained hereinbefore, then the selected parameters are brought to the top of the data list as shown below.
You can also deselect a parameter individually by touching the parameter name in the selected parameter list.

Locate and select parameters that need to be converted to graphs.



When all the parameters are selected and listed in the top of the screen, select [Graph] to switch to graph mode.

Then the selected parameters are viewed in graph modes showing the fluctuation of the data readings dynamically.

You can return to the Text mode and view the data readings in alpha-numerical values by selecting [Text].

Basic layout of graph mode

When switched to Graph mode, G-scan 3 shows the graphs of up to 7 parameters on the screen, and if you have selected more than 7 parameters, you can view the additional graphs by scrolling up and down.

Data Reference

In Graph mode, actual data reading of each parameter and Min-Max values are presented in the right side of each graph for reference, together with the graph control buttons.

1326 RPM	Actual data being received from the control unit

	Removes the parameter from the graph display
MAX: 3292	Peak value of the parameter in the current graph display window
MIN: 804	Minimum value of the parameter in the current graph display window
	Enlarges the graph of the parameter to the maximum size.

Zoom in and Zoom out

Use 2 fingers to control the vertical size of the graph of each parameter by vertically widening or narrowing the gap between the fingers.

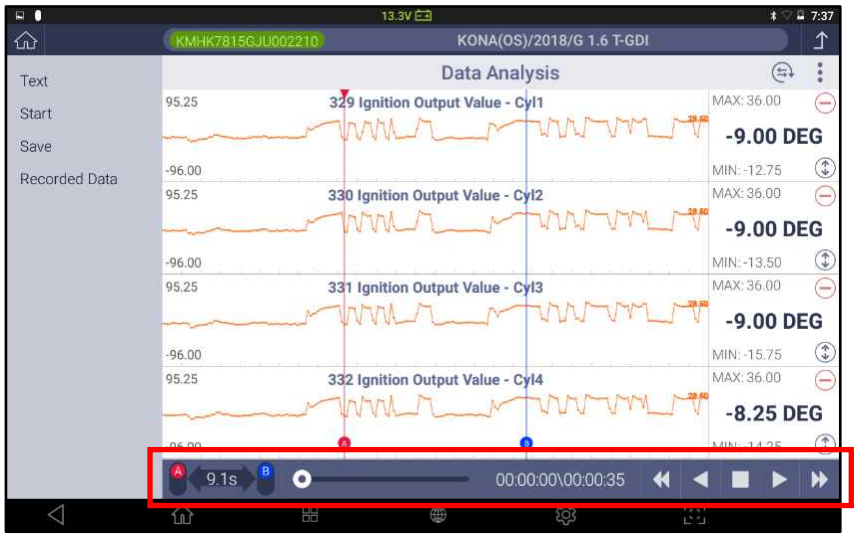
Enlarged graph results in less parameters that can be viewed on the screen at a time, and vice versa.

Text

Switches data graph mode to text mode that shows the alpha-numerical data readouts of the parameters.

Stop

Stopping the graph mode offers extra capability to make more visual analysis on the data that has been temporarily recorded in G-scan 3's memory – you can scroll back and forth to view the entire data and measure the actual data reading at a specific point or the time difference between the certain points by using the cursors.

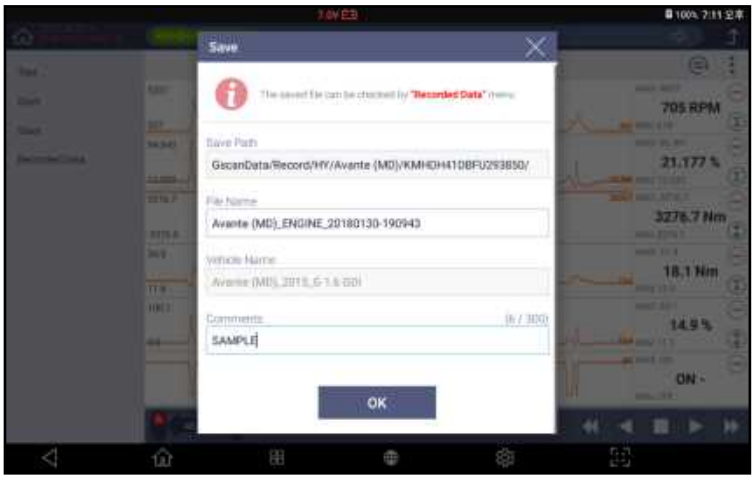


Underneath the graphs display, the additional control panel appears for analysis.

	Activates the cursors A and B, and displays the difference of time between Cursor A and Cursor B.
	Replay position of the current frame. Used as a handle for scrolling the data back and forth.
	Replay position of the current frame in time out of the length of entire recorded data
	Record player buttons for play forward and reverse /stop / jump to the 1st and the last frames.

Save data

[Stop] command changes to [Save] when you stop the graph display mode, which is used for saving the recorded data into a file, which you can replay or share. The file is saved under the vehicle's model name and brand name folders (HY for Hyundai and Kia for Kia), and it is named by the time it is saved. You can type in the file name if you want to save the file differently.



The Data Analysis record is save as a file in *.GSR format, which can be retrieved using [Flight Record] function in the main menu or [Recorded Data] while running “Data Analysis” function.

Recorded Data

Retrieving saved data

By selecting [Recorded Data] from the menu in the left, you can open and retrieve the saved data file, and compare the data readings of the same parameters between the recorded data and the current one.

The actual data readings are displayed in the upper half of the screen and the retrieved data readings are listed in the lower half.

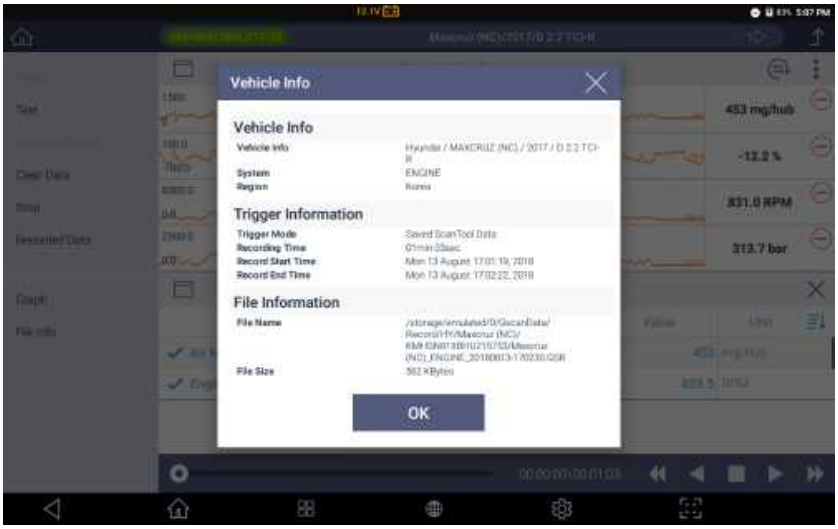
Display Control of upper and lower screen

Upper section of the screen still works the same as the normal Data Analysis function, and all the control menu serve the same functions.

Saved data replayed in the lower section also can be switched to Graph or Text mode.

File Info.

The details of the retrieved data file can be checked by selecting [File Info] in the left side menu of the lower section, including the test vehicle specification and system, length and time marks of the data and the size and location of the saved file.



5.6. Multi-Data Analysis

This is an advanced diagnostic function that supports Hyundai and Kia vehicles exclusively where G-scan 3 establishes communication with multiple ECMs simultaneously, and displays live data received from the control systems on the screen for multi-dimensional analysis. This function is available only with the control systems linked by CAN-Bus network.

Multiple Systems Selection

Select [Multi-Data Analysis] from diagnostic functions menu after selecting Hyundai or Kia

Select the control systems for [Multi-Data Analysis] among the systems list in the right side of the screen, then select [OK].

Select a control system among the list in the left side of the screen

>> Pick the selected control system's parameters that are going to be used for the function in the middle of the screen

>>The selected parameters are moved to the parameter list in the right side of the screen.

Select the next control system and repeat the process of adding the parameters to the list.

>> When done, select [OK] on the left of the screen.

Menu and Additional Functions

Basically the structure and additional functions work in the same manner as for single system [Data Analysis] function as explained in the previous chapter.

The difference is, because the live data of the parameters from the multiple control systems are received and displayed together, the system names are indicated in the head of each parameter for reference.

Please refer to the "Data Analysis" part in this chapter for more details about menu structure and additional functions.


KONA(OS)/2018/G 1.6 T-GDI
Graph
Selective Display
Actuation Test
Clear Data
Stop
Recorded Data
Multi Data Analysis (Time : 00:00:02)
System
Sensor Name(10)
Value
Unit
ENGINE 51 Fan PWM Output Built-in ON -
ENGINE 73 Lambda Control Active ON -
ENGINE 200 Actual Engine Speed 677 RPM
ENGINE 228 Injection Time - Inj.1 0.82 mS
ENGINE 230 Injection Time - Inj.3 0.82 mS
AT 11 Engine Torque 4.3 %
AT 7 Gear Ratio 1.000 -
AT 9 Clutch2 Slip (Even Gear Shaft) 678.00 RPM
AT 6 Input Speed 2 (Even Gear Shaft) 0.0 RPM
AT 5 Input Speed 1 (Odd Gear Shaft) 0.0 RPM

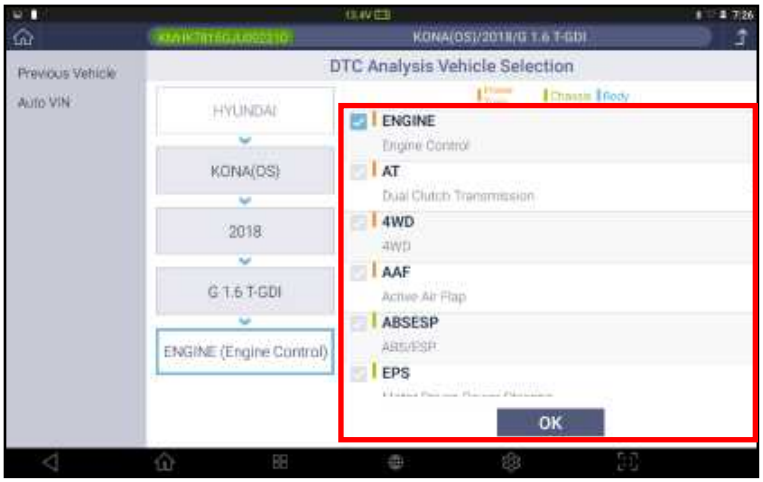
5.7. Actuation Test

This is a function that runs or stops the active parts on the output side of the control module such as injector, fans and valves, and examines the operation of the active parts and the related circuits.

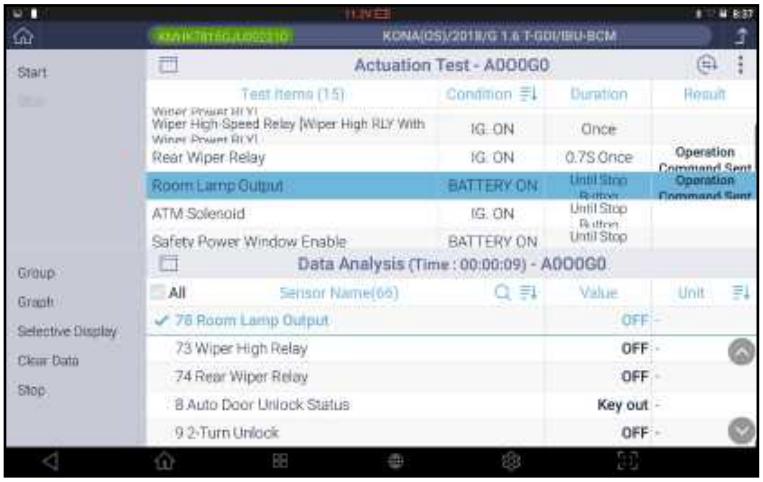
* Supported actuation test items vary depending on the control systems of vehicles.

Actuation Test Item Selection

Select [Actuation Test] from diagnostic functions menu after selecting Hyundai or Kia

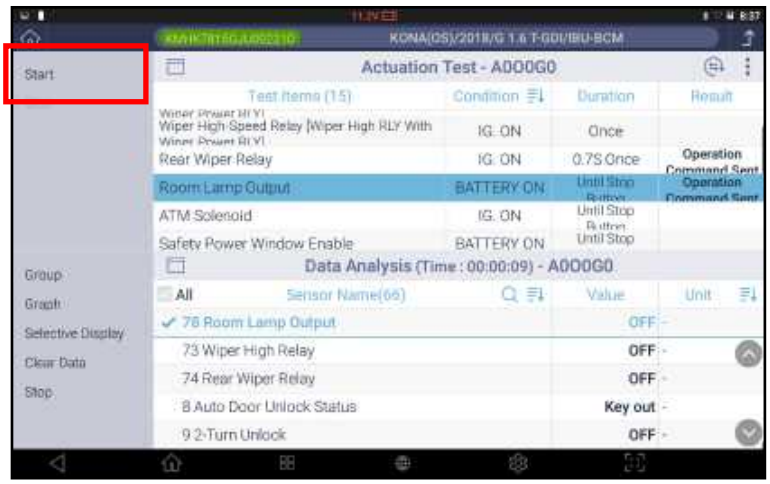


Select the control systems to conduct Actuation Test.

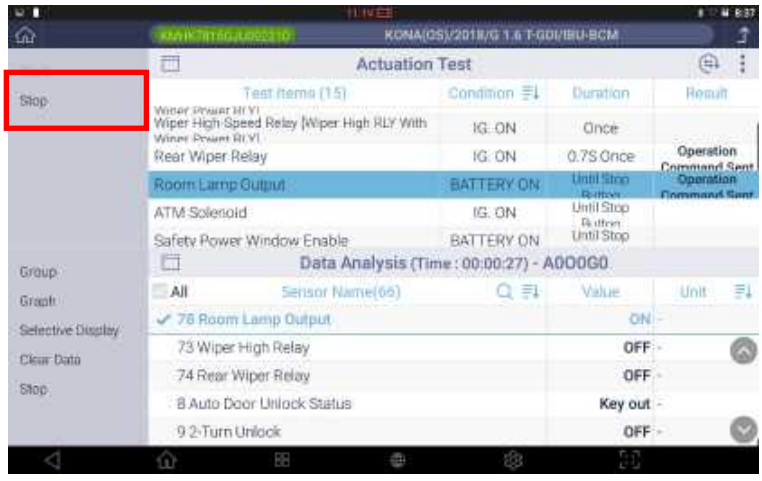


Select the actuator to test among the list in the upper section of the screen.

>> Search and select the related data parameters in the lower section of the screen for reference and switch to graph mode if necessary.



>> When done, select [START] in the top of the left side menu to start the actuator test.



>> Observe the response of the selected actuator and the reference data for analysis.

>> Stop operation of the actuator by selecting [STOP] button if necessary.

Actuation Test screen

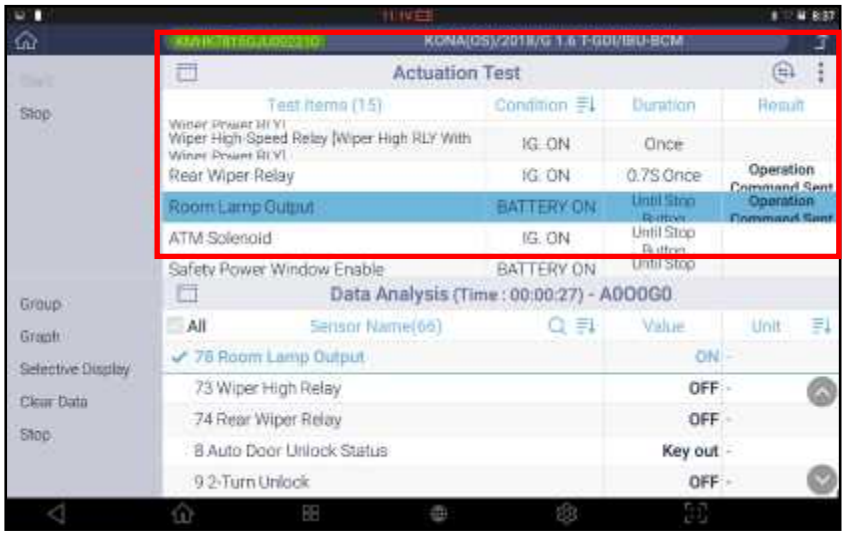
Upper Section

In the upper section of the screen, actuation test items available for the selected control system are listed for selection.

Observe the condition for test with which the actual vehicle condition must comply.

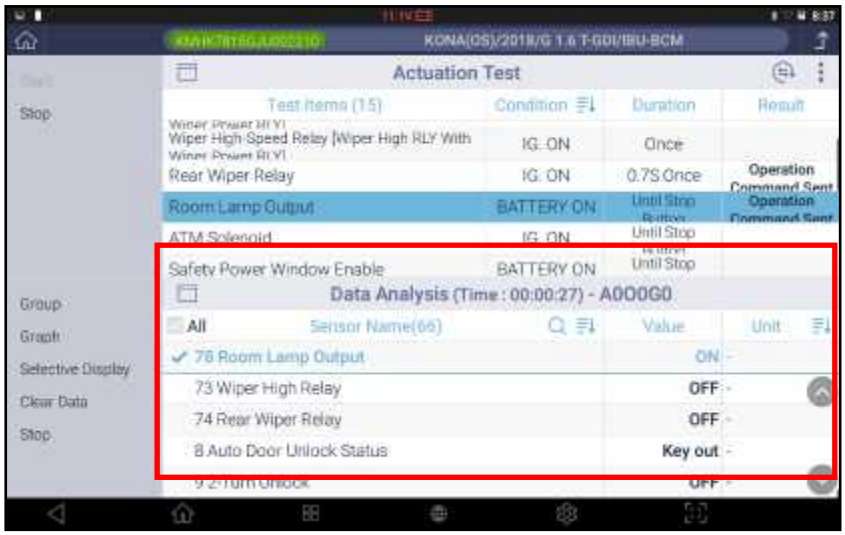
Check “Duration” to understand how long and how many times the test continues or repeats.

You need to stop the actuator test manually if the Duration is defined as [Until Stop Button].



Lower Section

In the lower section of the screen runs the [Data Analysis] function.



Lower section works the same as [Data Analysis]. Select the parameters using Group, Search and Sort functions then the selected parameters are brought to the top of the list.

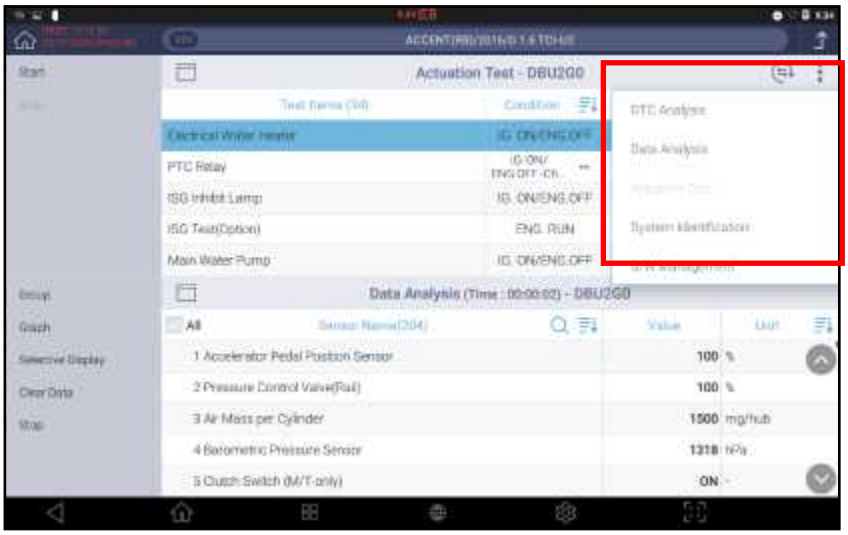
Switching to graph mode and other additional commands such as Selective Display, Clear Data, Stop and Save Data are supported in the same way as for [Data Analysis].

Short cut to the other diagnostic functions

While conducting Actuation Test function, you can jump to the other diagnostic functions by touching the additional options in the top right corner.

- DTC Analysis
- Data Analysis

- System Identification
- S/W Management

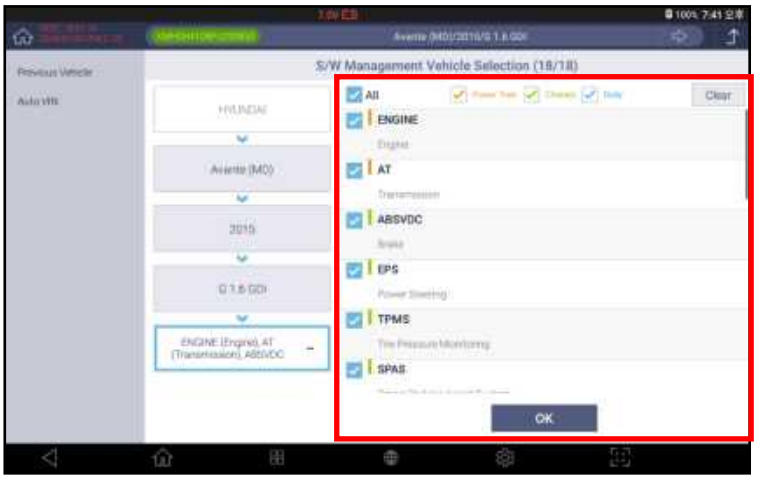


5.8. System Identification

This function reads and displays the detailed information of the control systems fitted in the vehicle.

System Selection

Select [System Identification] from diagnostic functions menu after selecting Hyundai or Kia



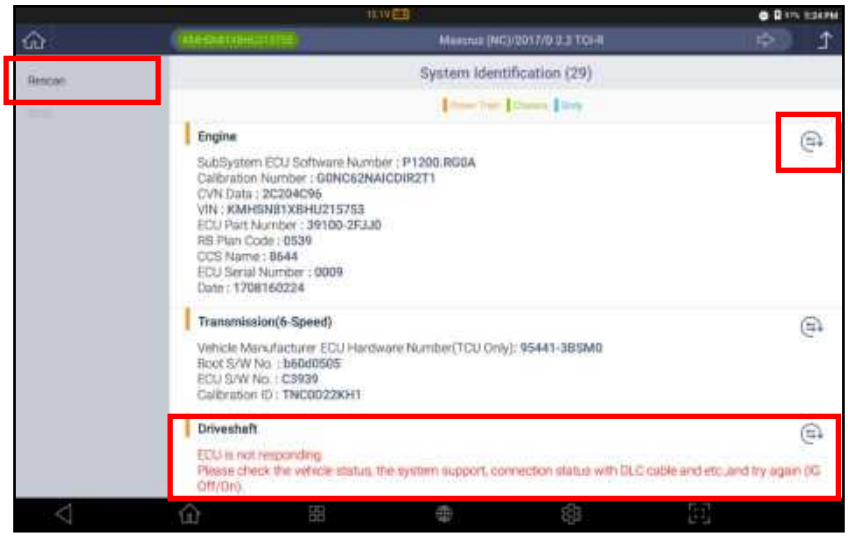
Select the control systems to scan the system identification info.

System Identification

G-scan 3 tries to communicate with each selected control systems and displays the received system ID information.

If the control system does not respond because the system is not fitted in the vehicle or defective for any reasons, G-scan 3 is unable to show the system ID information.

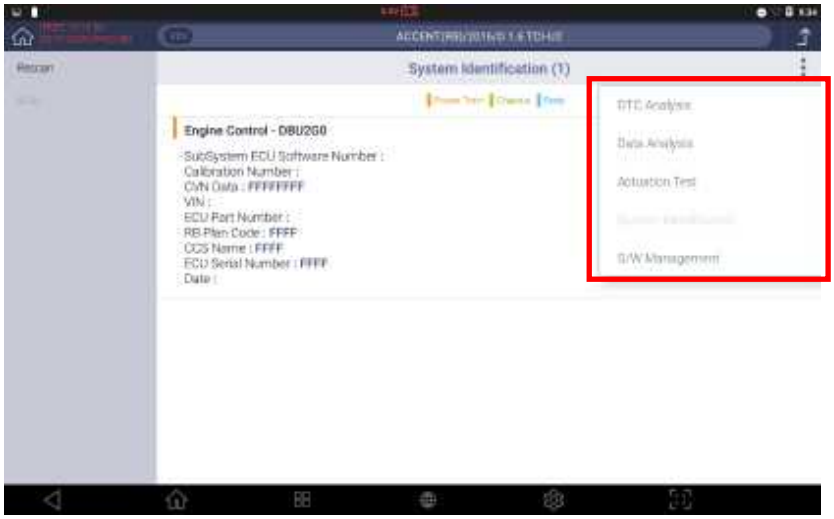
You can retry and request ID information to all the systems by selecting [RESCAN] from the menu in the left side of the screen or to a specific system individually by touching the [Retry] icon in the right end of each system name.



Short cut to the other diagnostic functions

While conducting Actuation Test function, you can jump to the other diagnostic functions by touching the additional options in the top right corner.

- DTC Analysis
- Data Analysis
- Actuation Test
- S/W Management

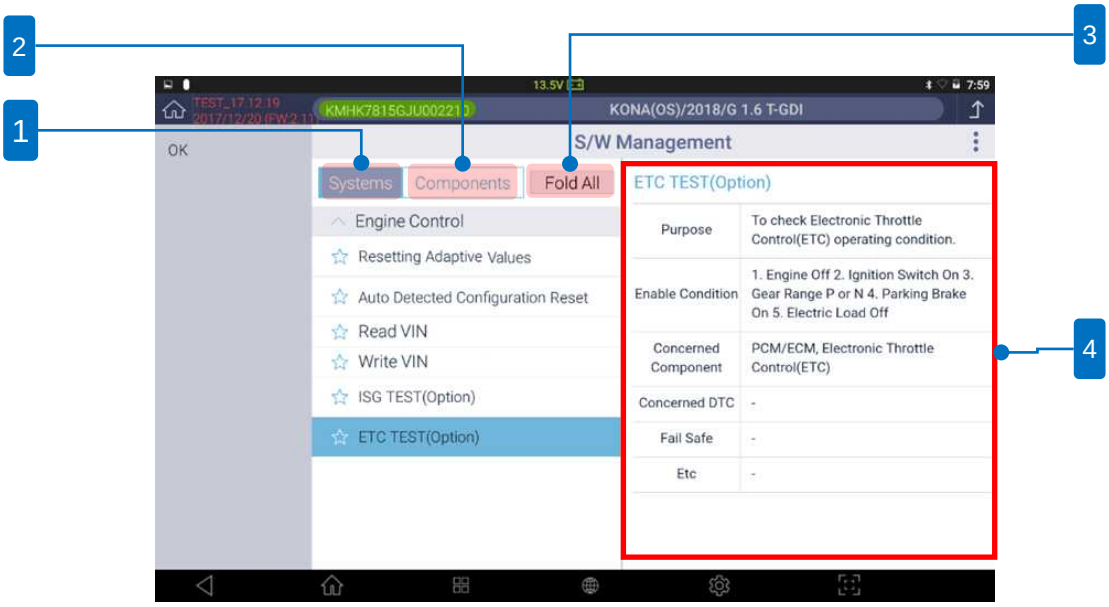


Switching among the diagnostic functions is possible only when a single system is selected. If multiple systems are selected, the function switching buttons will not appear.

Performs advanced functions that are required for service and maintenance purposes such as coding, reset, calibration, initialization, adaptation or programming, equivalent to [Special Functions] of the other automakers.

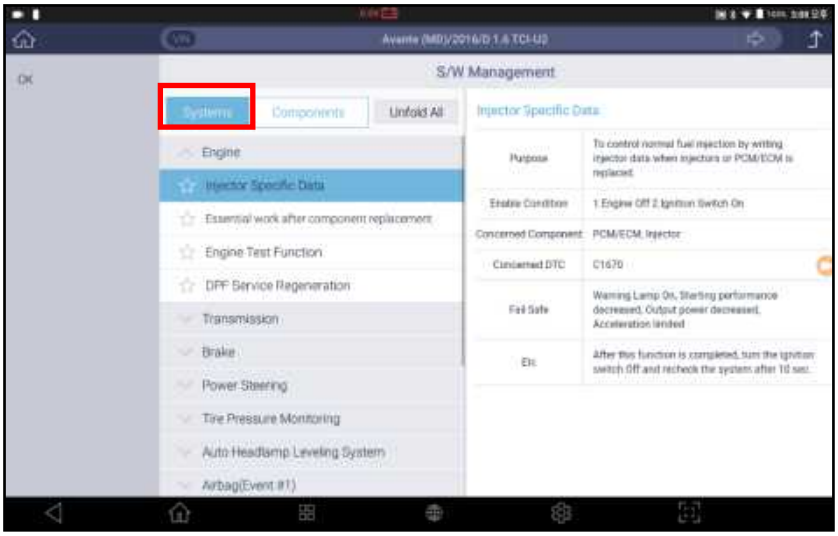
While DTC Analysis, Data Analysis, Actuation Test and System Identification functions are considered basic diagnostic functions, there are more advanced functions that are needed for the completion of the service and maintenance for the late model vehicles such as adaptive value reset, immobilizer offered by Hyundai and Kia, which are collectively called [S/W Management].registration, control module coding, sensor calibration, as well as various test functions that are designed and

S/W Management screen



1. Systems

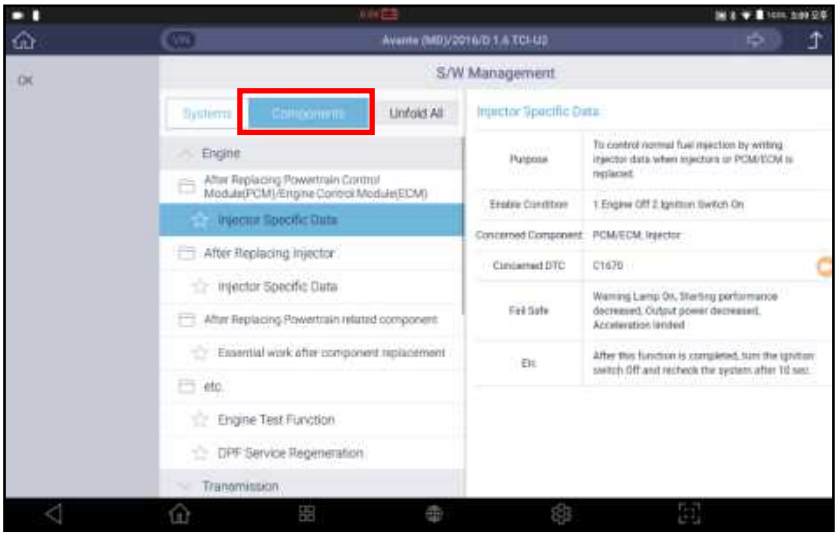
   This is the traditional menu structure that shows the list of control systems and the advanced functions list unfolds under each system when selected.



2. Components

This is a more “event-oriented” menu structure that unfolds the list of the advanced functions under the control system with the additional information about the condition that the function needs to run, specifically in case which component is repaired/replaced.

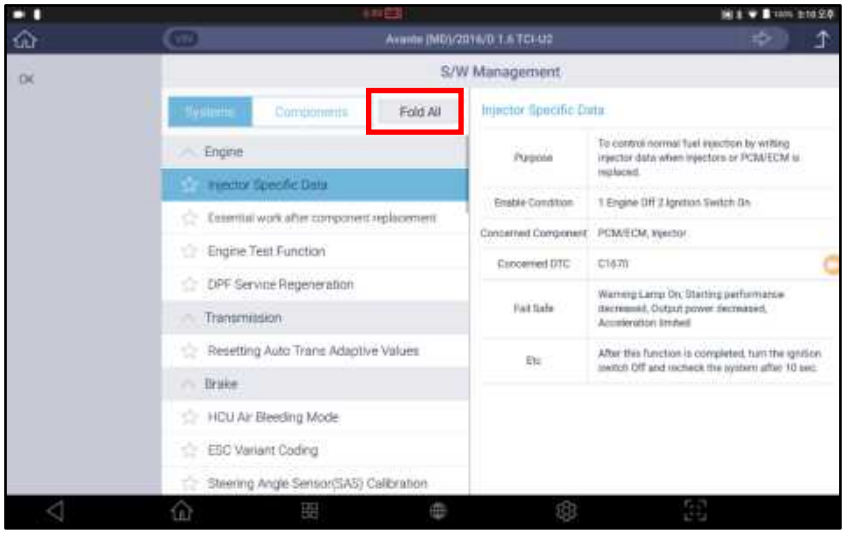
In the example below, the [Injector Specific Data] function is suggested to run [After Replacing Power Control Module (PCM) or Engine Control Module (ECM)].



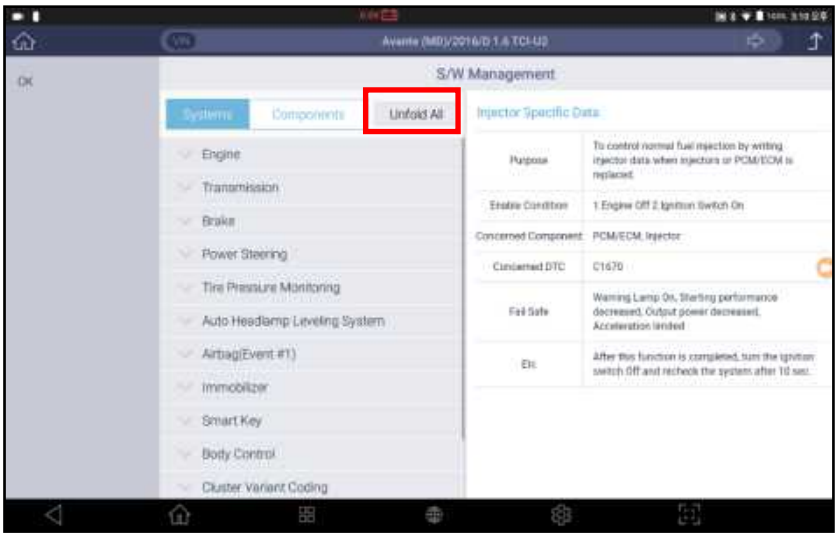
3. Unfold / Fold All

Unfold All: Unfolds the list of all the systems and advanced functions in full.

Fold All: Hides all the advanced functions leaving the systems list only.



[Advanced Function List Unfolded]

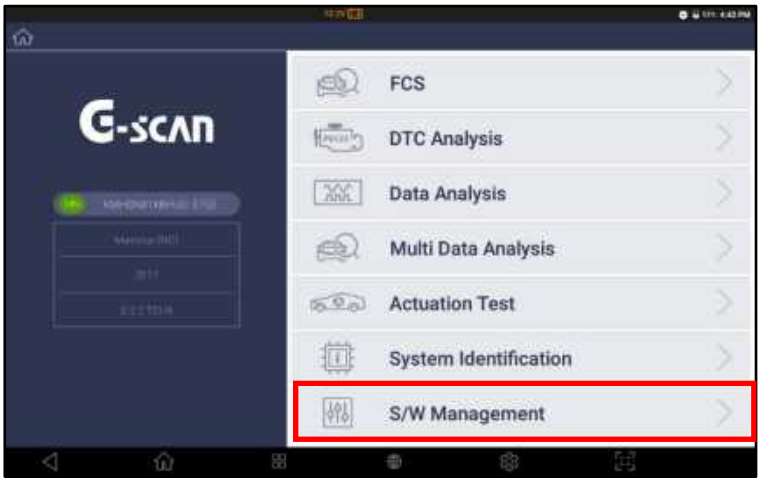


[Advanced Function List Folded]

4. Function Details

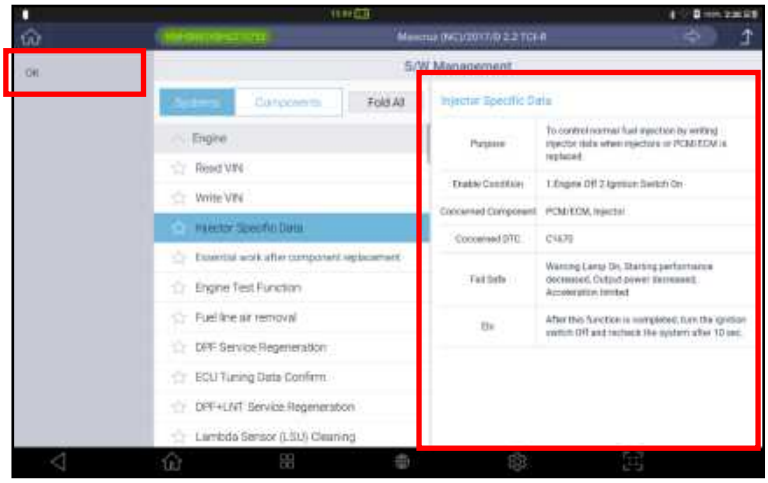
   Displays the additional information about the function including the name of the function in full, purpose, vehicle conditions for conducting the function, related parts and DTCs, Failsafe and etc.

Steps to run S/W Management



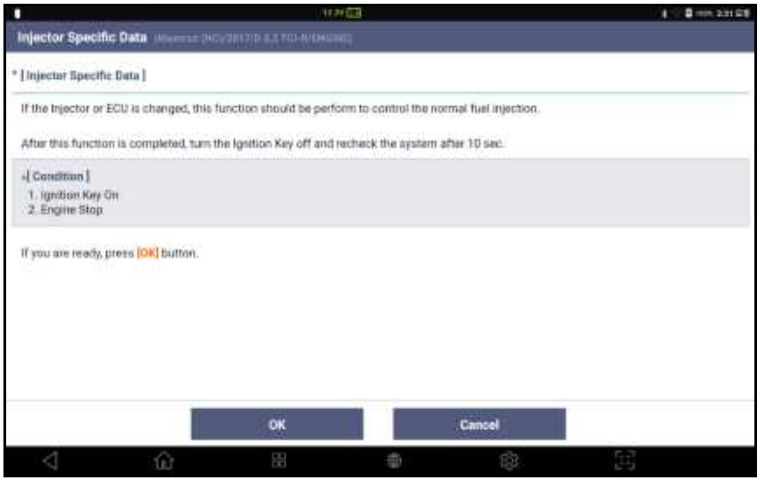
Select [S/W Management] from diagnostic functions menu after selecting Hyundai or Kia

Select the control system(s) to conduct S/W Management function.



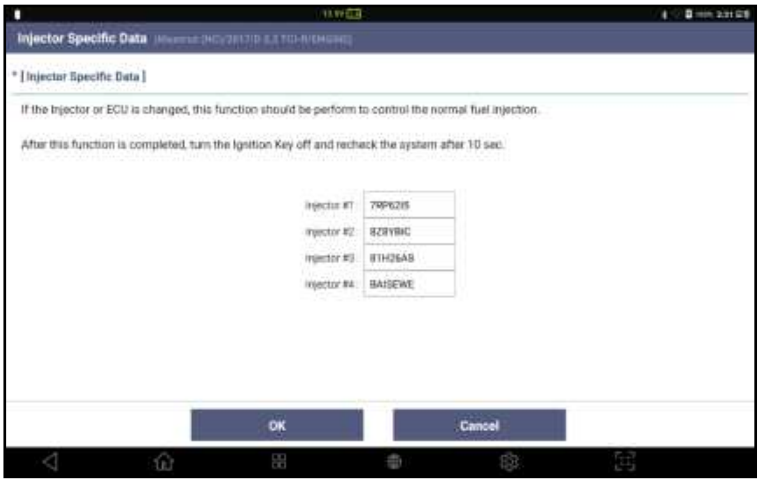
Select the advanced function among the list.

>>Check the function details in the right section of the screen and select OK in the top left of the screen.



Read the explanation about the function thoroughly before starting the function.

>> Observe the test conditions and make sure that the vehicle conditions are fulfilled, then select [OK] button on the left of the screen when ready.



Follow the instruction on the screen and complete the function.

When the function is completed, select [OK] to return to the previous menu.

>> The button structure and input queries may vary depending on items of advanced functions.

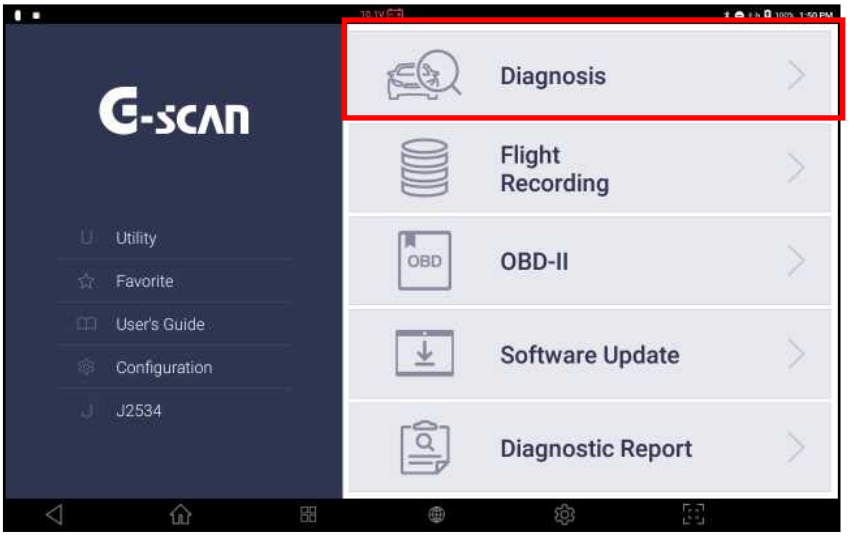
Chapter 6.Diagnosis – General

6.1. Vehicle Selection

Manufacturer Specific Diagnosis

Non-standard manufacturer specific diagnostic functions such as DTC Analysis, Data Analysis, Actuation Test, Special Functions including Reset or Coding are provided when "Diagnosis" is selected from the main menu.

Select "Diagnosis" icon from the G-scan 3main menu.



Automaker Selection

Automaker selection menu follows when Diagnosis is selected from the main menu. Select the vehicle manufacturer's name from the menu to begin the manufacturer specific diagnosis.

All Regions

When "Diagnosis" is selected from the main menu, all the automakers that G-scan 3 supports are listed as the first step for automaker selection.

Regional Categories

Understanding the difficulty of finding the desired automaker among many dozens of the brand name made of the plain text based buttons, G-scan 3 offers the automakers categorized under 4 regional groups to aid the quicker and easier selection.

Select the regional category of the vehicle brand, then list of the car manufacturers of the selected region follows.

Please note that these automaker categories are not defined by the location of the actual production plant of the vehicle, but by the commonly known origin of the automaker's brand name.

<All Region>

<European Automakers List>

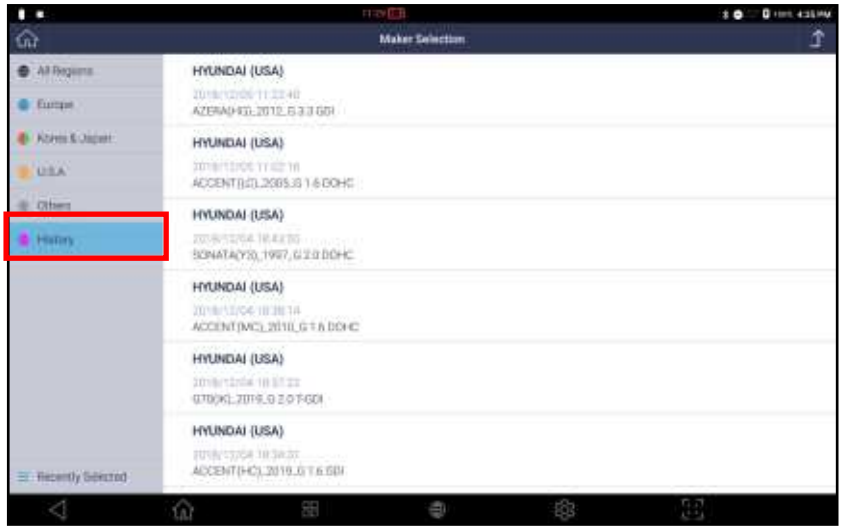
<Korea & Japan Automakers List >

<U.S Automakers List >

History

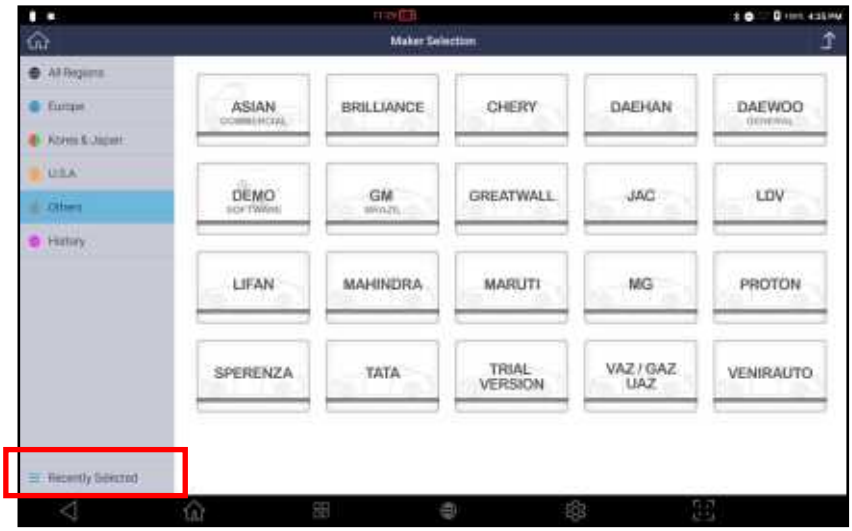
Recently selected vehicles and systems are listed up to 30 events.

Selecting one from the history list will skip the vehicle selecting procedure and jump to the final diagnostic function selection menu of the same vehicle and system as done previously.



Recently Selected / Alphabet

When [Recently Selected] is selected, the automaker that has been recently selected is placed in the top of the list. By applying this so called "Recent-First" rule, the more frequently serviced vehicle brands are placed in the first 1 or 2 pages of the list, and the rarely used brands are listed on the left of the list.

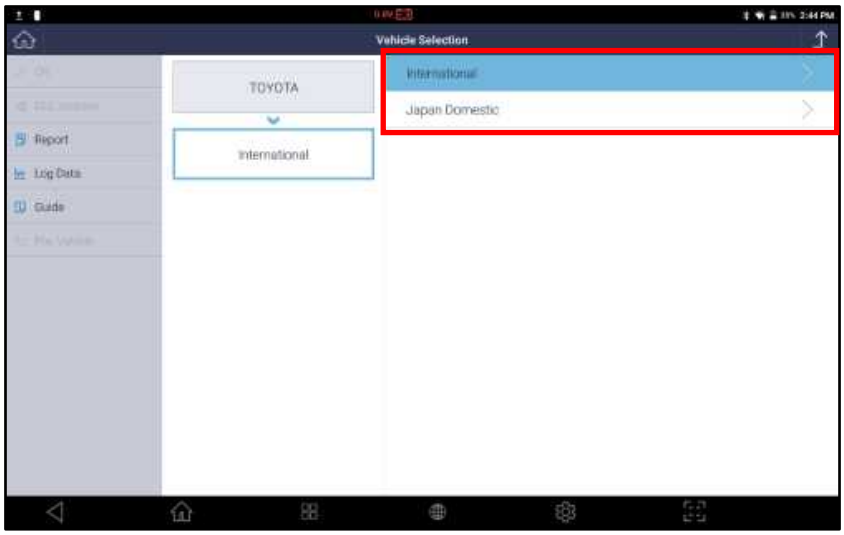


You can switch to Alphabetic order by selecting [Alphabet] on the bottom left menu.

Japanese Cars Menu Selection

Japan Domestic vs. International

Select any Japanese brand “Toyota”, “Nissan”, “Honda”, “Mitsubishi”, “Mazda”, “Daihatsu” and “Suzuki” from the car maker selection menu, then it is followed by the G-scan’s unique Japanese car menu structure as shown below.



Japan Domestic

G-scan's Japanese car software was developed and engineered in Japan, and the database was built as demanded by the Japanese mechanics who prefer pinpointing the vehicle details to get the most specific diagnostic information from the vehicle.
G-scan 3 is offering the model names and the detailed model selection procedure to the Japanese users in the conventional way for the cars sold in Japanese domestic market.

Therefore, Japan Domestic is not recommended to the international users.
Select Japan Domestic only when testing the Japanese cars originally sold in Japan and imported as secondhand cars from Japan.

The model names and further details provided under Japan Domestic menu include only the Japanese domestic specs, therefore the export models or foreign local assembly models may not be supported if the compatible models are not sold in Japan.

International

In the overseas, the Japanese cars are named differently, and there is a huge variety of cars of different versions that are not found in Japan.
International menu was added to include ALL regional versions of each Japanese automaker.

Therefore, selecting [International] is always recommended to the international users.

When [International] is selected, a simple Diagnostic Connector Type selection follows and then you can select the control system or conduct System Search without having to follow multiple steps of model name, model code, type or model year selections.
It is so simple but it does not mean that the diagnostic results are also simplified. It provides complete function and diagnostic result of the same level as selecting all the details of the test car in Japan Domestic.

6.2. System Search

System Search Function

For many automakers with some exceptions, selecting “System Search” from the system selection menu activates the automatic “All Systems Check” procedure, where G-scan 3 tries to establish communication with all possible systems fitted in the car one after one, and then provides the summarized report of the diagnostic result on the screen.

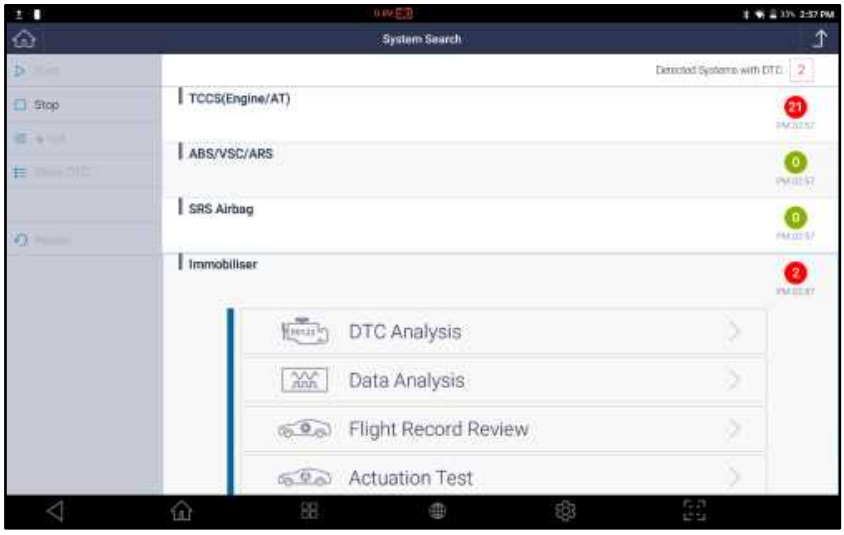
Selected [Mitsubishi] from automaker selection menu as an example

Select [System Search] option placed in the top of the control system list.

>> Select OK on the left to continue.

G-scan 3 checks the availability of individual control system one after one and counts the number of DTCs logged to each system.

System Search Result



Systems found in the vehicle

The control systems with which G-scan 3 could communicate and check the DTCs are listed on the screen.

Number of DTCs

G-scan 3 reads the DTCs from the vehicle's control systems while conducting the system search function, and indicates the number of trouble codes found in each system.

However, some of the control systems such as SRS, IMM or BCM may not support DTC Read and Erase functions. Some control modules may require G-scan 3 to communicate with

the system individually to read the DTC.

In both cases, G-scan 3 is unable to show the number of DTCs in the System Search report, not because of its fault but because the system is designed in that way.
To avoid misunderstanding, G-scan 3 indicates such exceptional cases with the marks below:

Symbol	Description
	The system does not support DTC reading function.
	The system needs to communicate individually. Please select the system from the menu and check the DTC individually.

In case of Mercedes Benz, System Search result shows [!] mark to indicate that DTCs are found in the control system instead of showing the number of DTCs.

Additional Commands

START

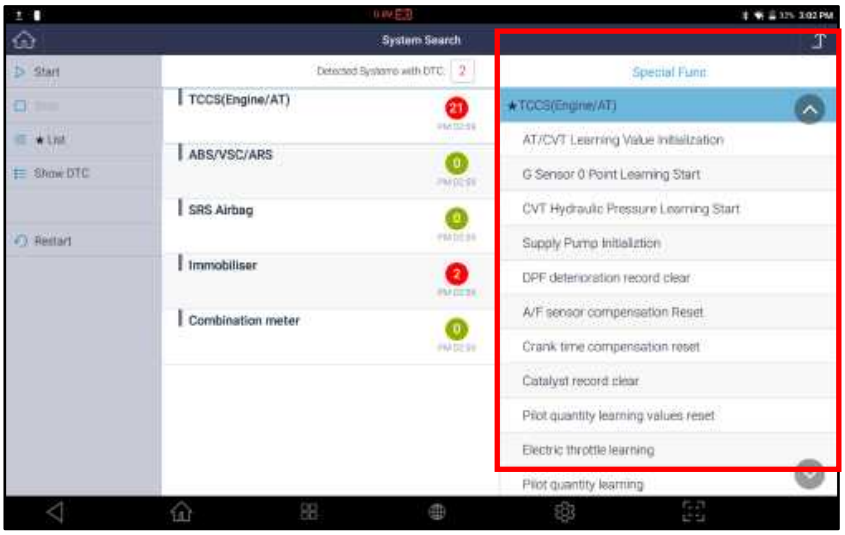
Select a system to conduct more diagnostic functions from the systems list in the left half of the screen, and touch [START] to enter the system.

STOP

Select [STOP] to abort System Search function. This option is activated only when System Search is running.

★LIST

Select [★LIST], and the G-scan 3 shows the details of the special functions available with the detected systems in the right half of the screen.



SHOW DTC

Displays the DTCs found in each control system with the code and description.

REPORT

[REPORT] option appears when [SHOW DTC] is selected. Select this option in order to use the System Search result for the creating Pre & Post Repair Report. Please refer [Chapter 10. Diagnostic Report] for more details about the Pre & Post Repair Report function.

RESTART

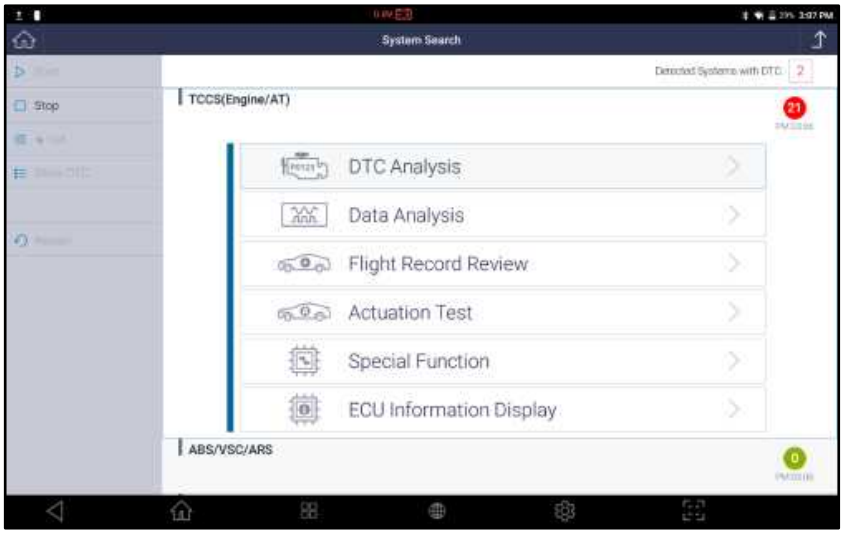
Select [RESTART] to begin System Search again.

6.3. DTC Analysis

Reads the Diagnostic Trouble Codes set in the control module and erases them after repairing the vehicle.

Diagnostic Function Menu

When the automaker and the control system is selected, either by selecting the control system directly from the menu or by selecting [START] after picking up a control system from the System Search result, following diagnostic functions are provided for the majority of the brands that G-scan 3 supports.



- DTC Analysis
- Data Analysis
- Flight Record Review
- Actuation Test
- Special Function
- ECU Information Display

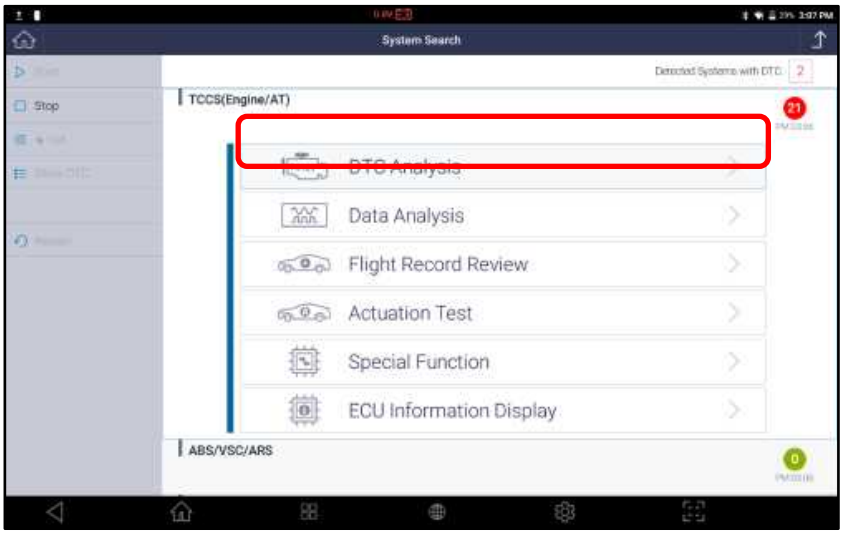
The details of the diagnostic functions are explained in the following chapters individually.

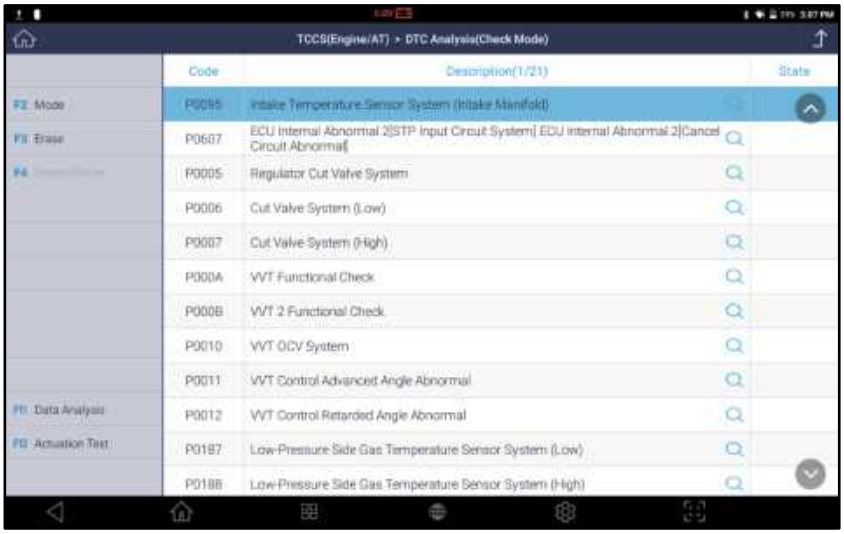
DTC Reading & Erasing

Standard Some Automakers may provide different DTC Analysis functions in their own ways, therefore make sure to be acquainted with the different procedures and conditions before executing the manufacturer specific DTC Analysis functions.

DTC Reading

Select [DTC Analysis] then G-scan 3 checks the DTCs set in the selected control system, and shows the list of the DTCs.





Present / History / Pending DTC

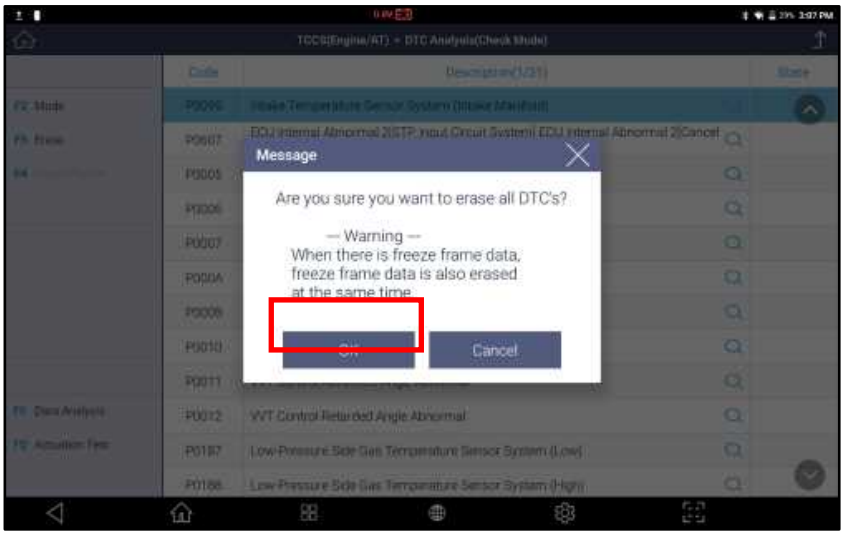
In general, Diagnostic Trouble Codes are categorized into 3 types according to the status of the

code.

Present DTC An actual DTC currently affecting the control system's error or failure and needs further diagnosis for repair and erasure.
History DTC A DTC that was active in the past as the related parameter readings went out of range but dismissed after several drive cycles without reoccurring.
Pending DTC A temporary DTC that has not fulfilled the code setting conditions at the moment, and is going to be set if the related data reading goes out of range again.

DTC Erasing

Select the [ERASE] button to remove the DTC from the control system, then select [OK].

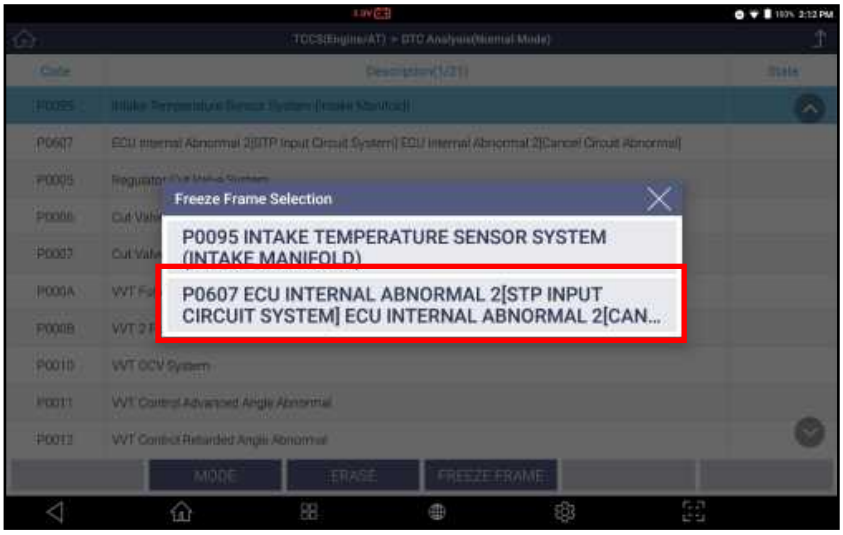

Message
Are you sure you want to erase all DTC's?
— Warning —
When there is freeze frame data,
freeze frame data is also erased
at the same time.
OK
Cancel

Freeze Frame Data

To aid the mechanic's better understanding on what had happened to the vehicle's control system before and after the DTC was set, live Data parameters are recorded when the critical diagnostic trouble code was detected and logged to the control unit's memory.

[FREEZE FRAME] button is activated on the left of the screen when the Freeze Frame Data is available. Select the button to list the freeze frame data recorded in the control unit's memory.

Select the freeze frame data among the list, then the selected freeze frame data is retrieved from the control unit's memory.



Manual DTC Reading

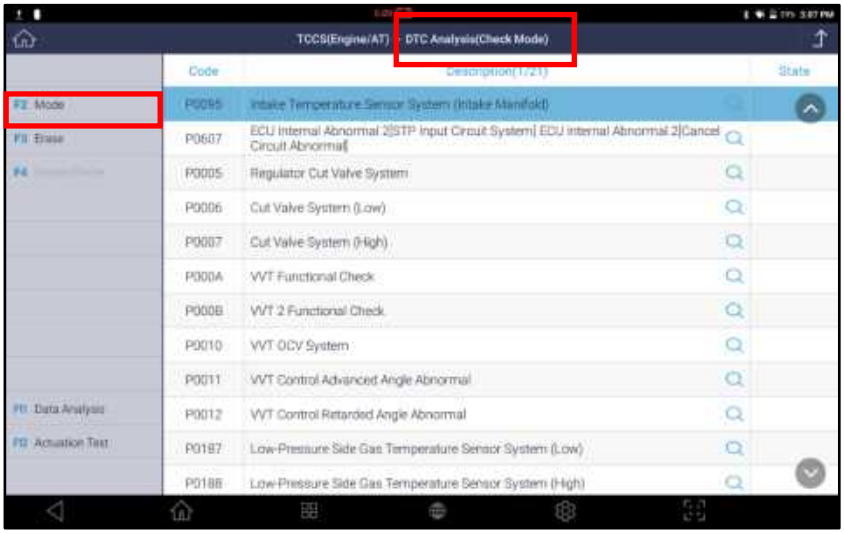
Reading and erasing the codes from the old vehicles of 1980's and early 1990's using G-scan 3 or any other diagnostic tools may not be possible as the old control systems do not support bi-directional communication. Only manual reading and erasing are possible for those vehicles, so please follow the instructions that are provided on the G-scan 3 screen.

Mode (just for Toyota and Daihatsu)

[MODE] button is activated only when reading the DTCs from Toyota or Daihatsu models.
Unlike the other automakers, Toyota and Daihatsu have an additional option for DTC reading function, and it is switching the diagnostic mode to Check Mode or Normal Mode.

Reading DTC in [Normal Mode] is the standard DTC reading function that is not much different from the other automakers.
When switched to [Check Mode], the control unit applies narrower allowance for fault code setting, making the DTC setting conditions more sensitive than normal, in order to check the potential trouble codes with the defects of marginal level of which values are not out of the normal range yet.

Toyota and Daihatsu ABS systems support [Test Mode] that shows the list of all DTC's set in the ABS control system and conducts the related calibration functions at the same time.



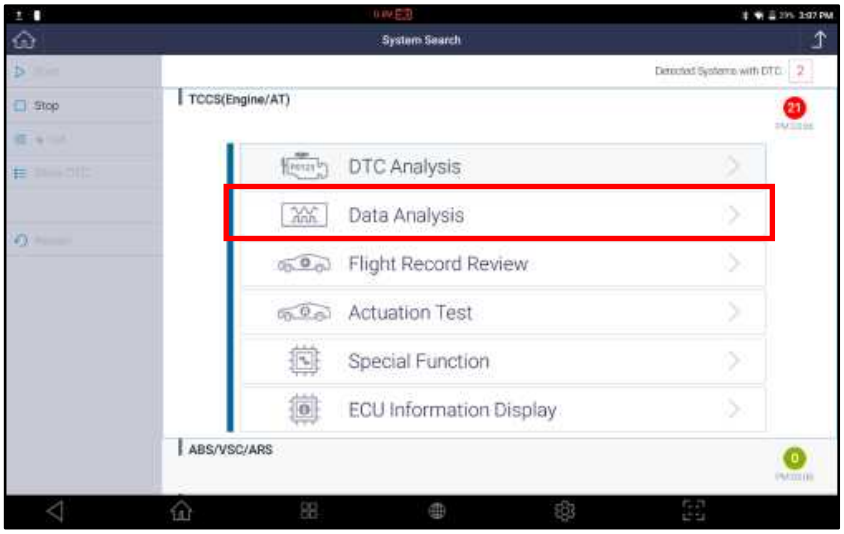
6.4. Data Analysis

Diagnosis – General 6-4.Data Analysis

Also called Live Data, Data List, Data Stream or Current Data by the automakers, it is one of the basic diagnostic functions that shows the sensor input value readings and the actuator status of a control system to monitor the control system's operation of both input and output sides.

Data Reading

Select [Data Analysis] from the menu then the data parameters are listed as shown below.



Full Screen

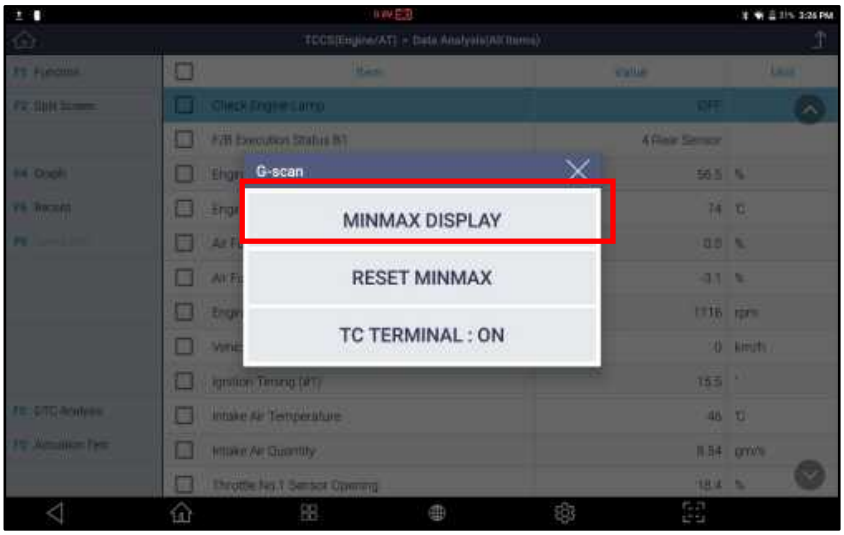
Select [Full Screen] button on the left to switch the data display to a full page "Detail" mode, where up to 10 parameters are listed with more space to accommodate the longer parameter names.

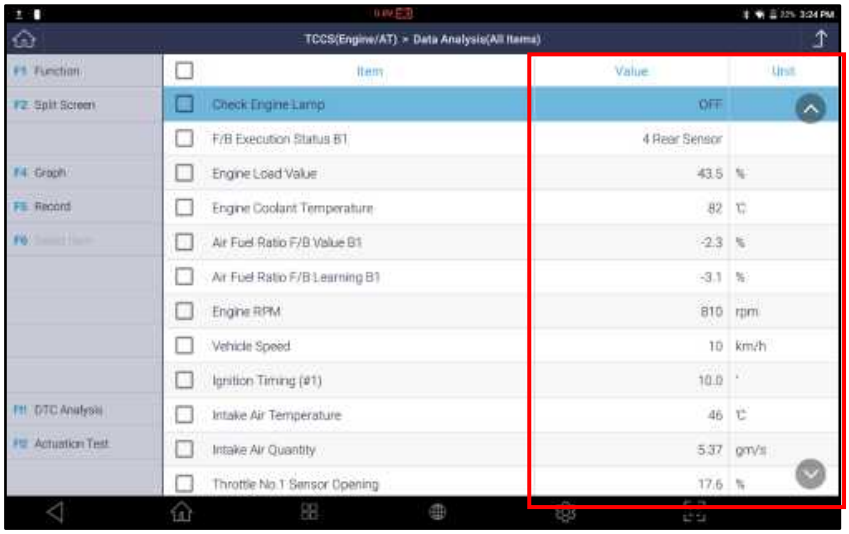
Select [Split Screen] button to return to the mode that shows up to 20 parameters in the split screen.

Function

Select "Function" button to add, remove or reset min/max information.

MINMAX DISPLAY	Removes the Min & Max value columns from the data list. Results in wider parameter name column.
RESET MINMAX	Resets the Min & Max values
TC TERMINAL	ON / OFF the Old engine type (only applies for Toyota)





Graph

Graph Mode

Text based data parameters are switched to the dynamic graphs when the [GRAPH] button on the left is selected. [GRAPH] option is not available when the data list is displayed in Normal Mode with split screen.

Switching to Graphs

Select [GRAPH] button to switch the display mode to graphs.

At first, the graph mode runs with 4 lines for all parameters in the data list.

BACK

Returns to the text based numeric data display mode.

RECORD

Refer to next section [Data Recording] for more details.

Selected Items / All Items

Too many parameters

Late model vehicles provide the more parameters, sometimes hundreds of them are listed for a single system. Parameters are scattered here and there in the data list, and the increased parameters makes it more difficult to check and monitor the related parameters efficiently moving page to page for finding the desired parameters one after another.

Less the parameters, faster the data refreshing rate

As the more parameters are selected, it takes more time to receive data of the increased number of parameters from the control module, and inevitably it results in slower data refreshing rate. And vice versa: the fewer parameters you select, the faster data frame refreshing rate you get.

Selected Items

Switch to the [Full Screen] Mode, and select the desired parameters from the data list by ticking

on the check box in the head of the parameter names. Select [Select Item] on the left, then just the selected parameters are listed in the screen as shown below.

All Items

Select [ALL ITEMS] to return to the full list mode.

Custom Graph Mode

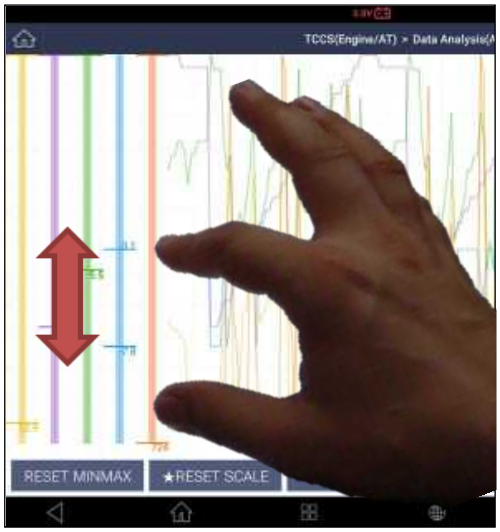
Custom mode runs when [Overlap] is selected.

In custom mode you have freedom to move the graph of each parameter horizontally and resize the vertical scale of each graph individually. Capability to customize the scale and the position of

each graph offers more intuitive approach to make efficient analysis of the parameters.

Resize

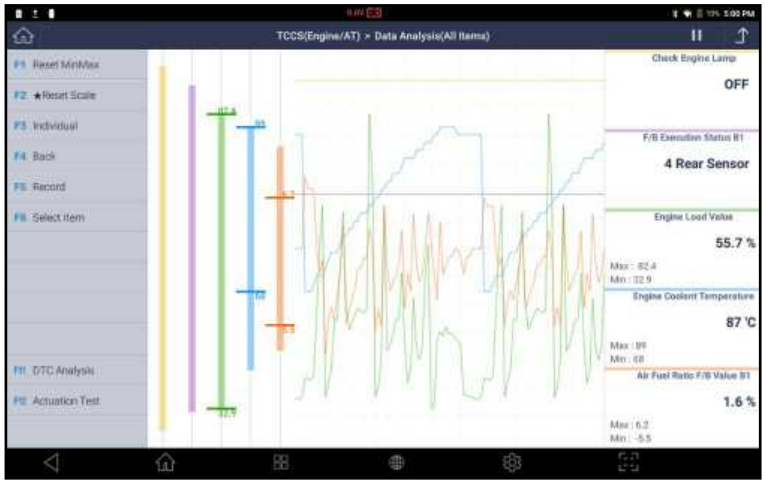
Use your 2 fingers and place them on the vertical line of the corresponding color of the parameter you want to resize. Widen or narrow the gap between the 2 fingers to make the graph larger or smaller.



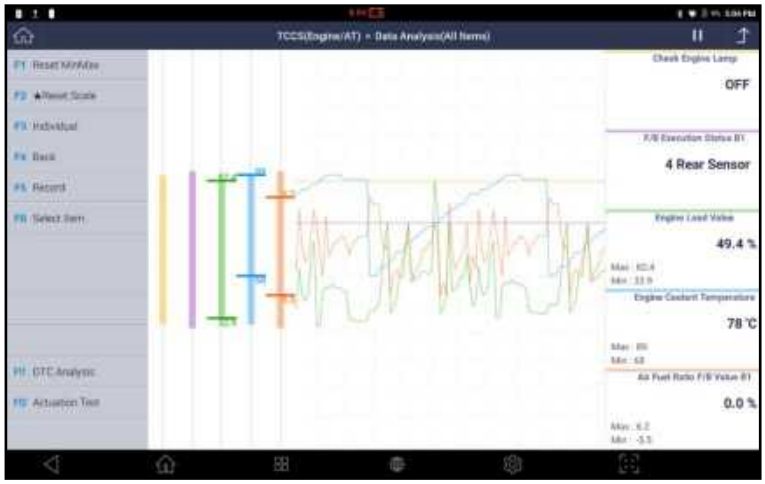
Move

Touch the vertical line of the corresponding color with a finger or the stylus pen and drag it up and down to place the graph in the desired vertical location.

<Custom mode graph with no adjustment>



<Custom mode graphs resized and separated>

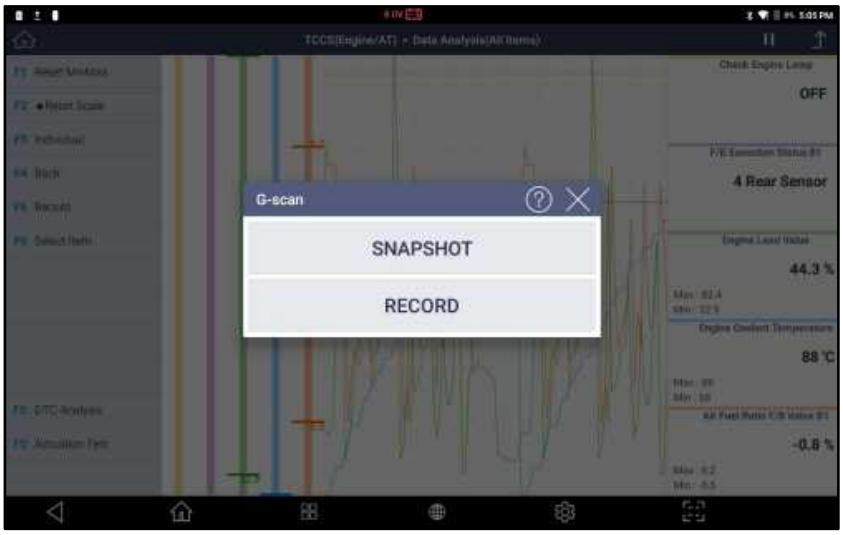


<Custom mode graphs resized and overlapped in the center of the screen>

Data Recording

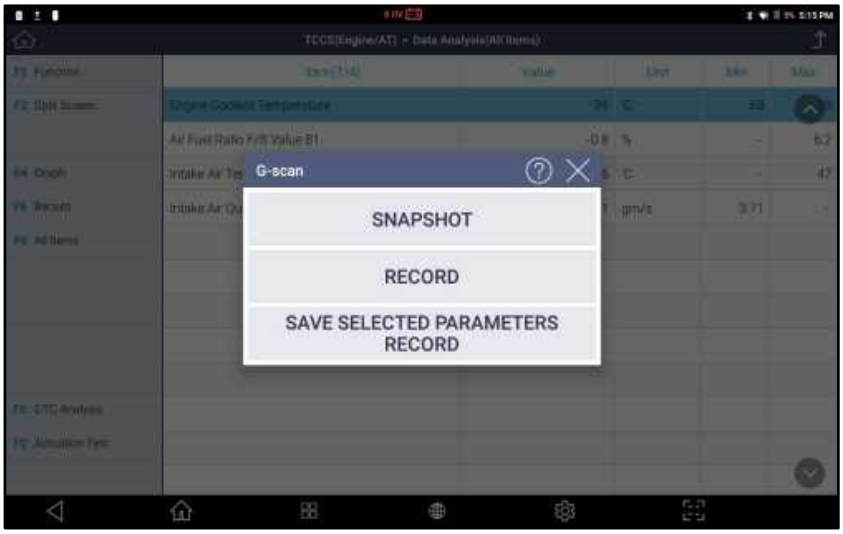
Record Data Options

Select [Snapshot] button to start saving a screen capture of one frame containing all parameters.



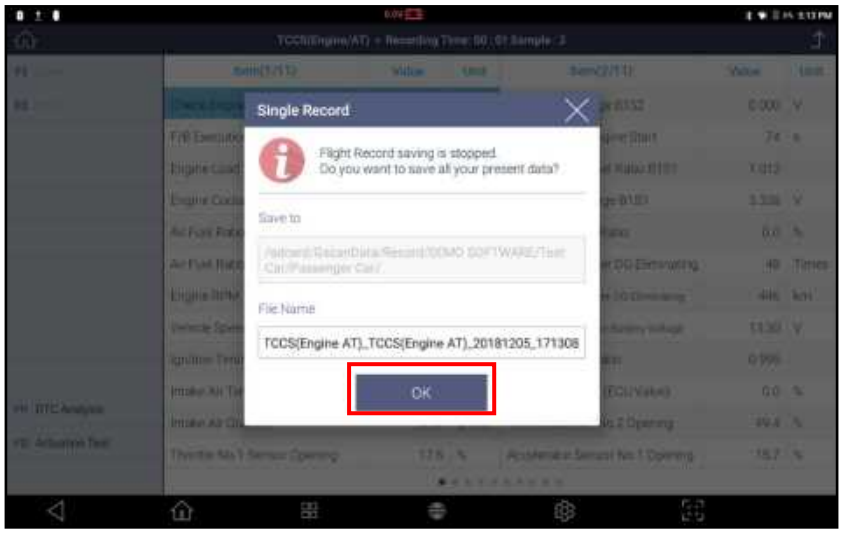
Select [Record] to save consecutive multiple frames containing all parameters.

Selecting [Save Selected Parameters Record] button will allow the users to save the consecutive multiple frames of selected parameters that are being recorded internally since selection.



SINGLE RECORD

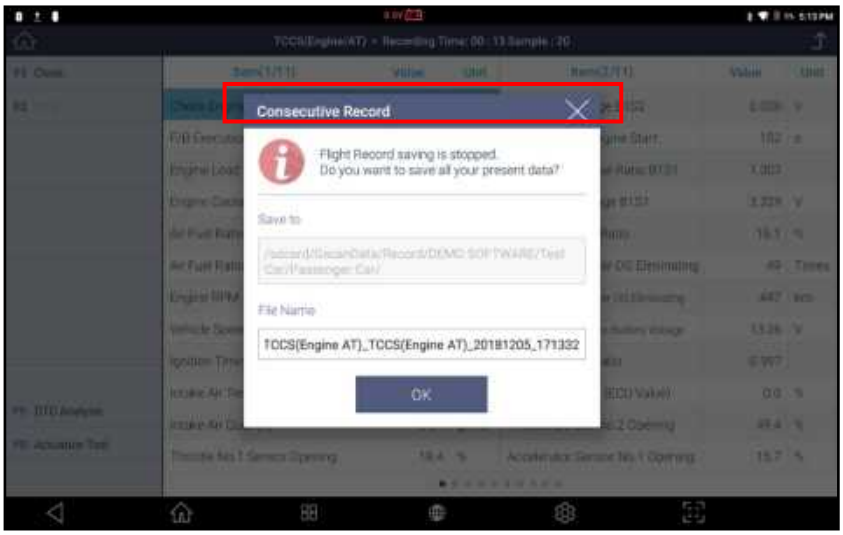
Just like a snap shot, only a single frame at the time of touching the button is sampled and recorded.



Check the record saving path and file name, modify if necessary then select [OK] to save the record to a file.

CONSECUTIVE RECORD

Starts recording multiple frames and continues until stopped by the user. The record time and number of samples (frames) are indicated in the top of the screen.



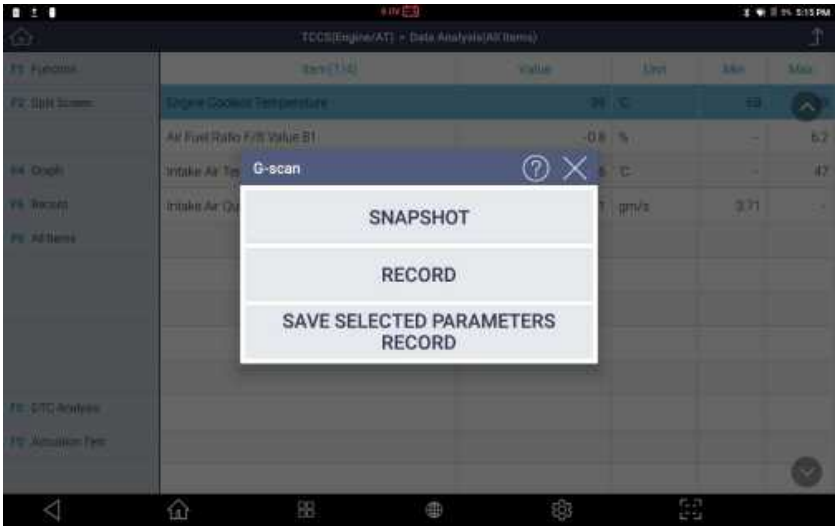
- Select "Trigger" to mark the important or critical moment, which is going to be indicated when reviewing the data.

- Select "Close" to stop recording the data and select "OK" to end, then the data is saved as the Flight Record Data in the G-scan 3internal memory.

SELECTED ITEMS RECORD

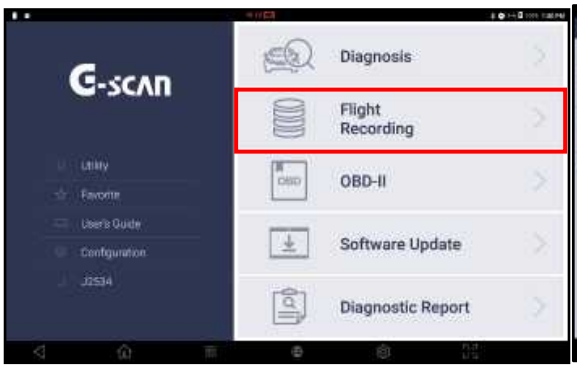
This option is available only when data list or graphs are being displayed in [SELECT ITEM] mode that shows just the data readings of the selected parameters.

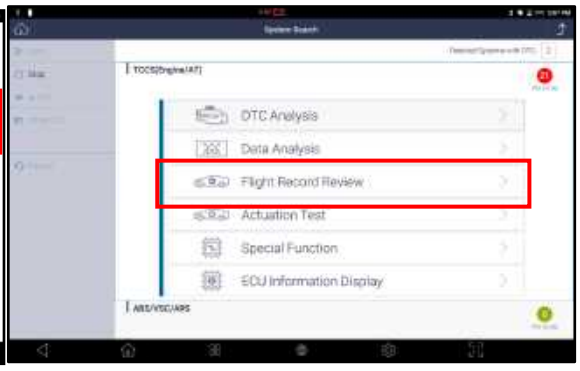
Unlike Consecutive Record that starts recoding when selected, G-scan 3 stops recording immediately and saves the data that has been previously recorded in its temporary memory to a file when you choose [SAVE SELECTED PARAMETERS RECORD].



Recorded Data Replay

Recorded data can be reviewed and replayed by selecting "Flight Recoding" function from the G-scan 3 main menu, or "Flight Record Review" from the diagnostic functions menu.

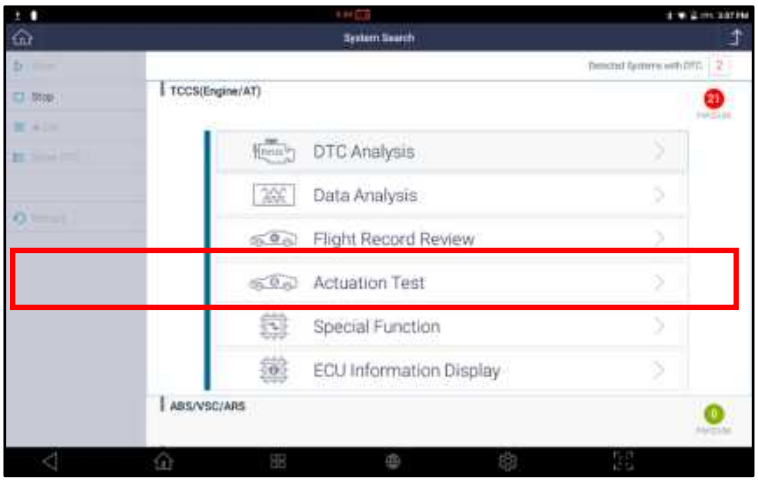




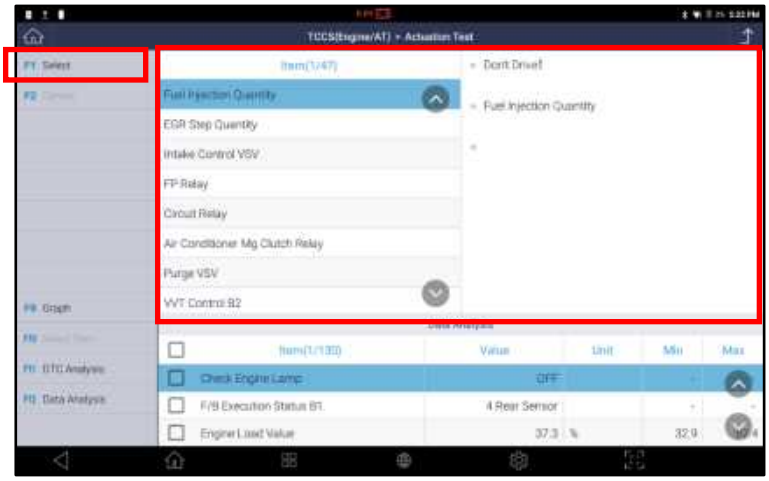
6.5. Actuation Test

This is a function that runs or stops the active parts on the output side of the control module such as injector, fans and valves, and examines the operation of the active parts and the related circuits. * Supported actuation test items vary depending on the control systems of vehicles.

Actuation Test Item Selection



Select [Actuation Test] from diagnostic functions menu after selecting a control system for diagnosis



Select an auction test item from the list in the upper section of the screen.

>> Observe the vehicle condition for each test on the right side screen.

>> Select [SELECT] button on the left of the screen.

Search and select the related data parameters in the lower section of the screen for reference.

>> When done, select the option for ◄ ► control on the left and check the response of the selected active parts and the vehicle control system's reactions by monitoring the live data provided in the lower half of the screen

Actuator Run / Stop control

Please note that the options for Run / Stop control of the actuators are offered differently according to the type of the active part and its attribute, i.e. Switches: ON/OFF, Volume control: Increase / Decrease, Function: Execute / Unexecuted. Please check the buttons on the left of the screen to comprehend how the test function runs and how to stop it before starting the actuation test.

Example A: [Injection Quantity] is selected where injection time control applies.

Example B: [VVT Control] is selected where the function execution control applies

Different Items Supported

Not all active parts of a control system are supported for this function.

The list of the active parts available for the actuation test is predefined by the automakers, therefore different items are supported according to the brands and models.

6.6. Flight Record Review

Diagnosis – General 6-6.Flight Record Review

Reviews the recorded data and the function works the same as selecting the [Flight Recoding] from the G-scan 3 main menu. Please refer to [Chapter 7. Flight Recording] in this manual for further details.

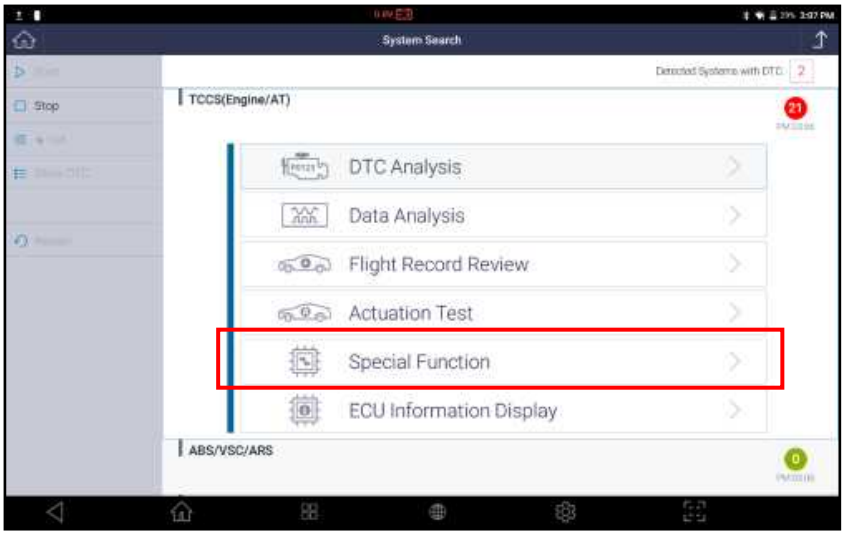
6.7. Special Function

Performs advanced functions that are required for service and maintenance purposes such as coding, reset, calibration, initialization, adaptation or programming, equivalent to [S/W Management] of Hyundai and Kia.

While DTC Analysis, Data Analysis, Actuation Test and System Identification functions are considered basic diagnostic functions, there are more advanced functions that are needed for the completion of the service and maintenance for the late model vehicles such as adaptive value reset, immobilizer registration, control module coding, sensor calibration, as well as various test functions are collectively called [Special Function].

Selecting Special Function

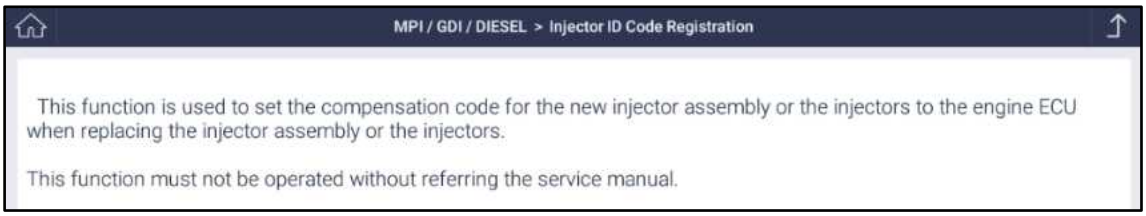
Select [Special Function] from the diagnostic functions menu, then the list of the special functions available for the selected control system follows.



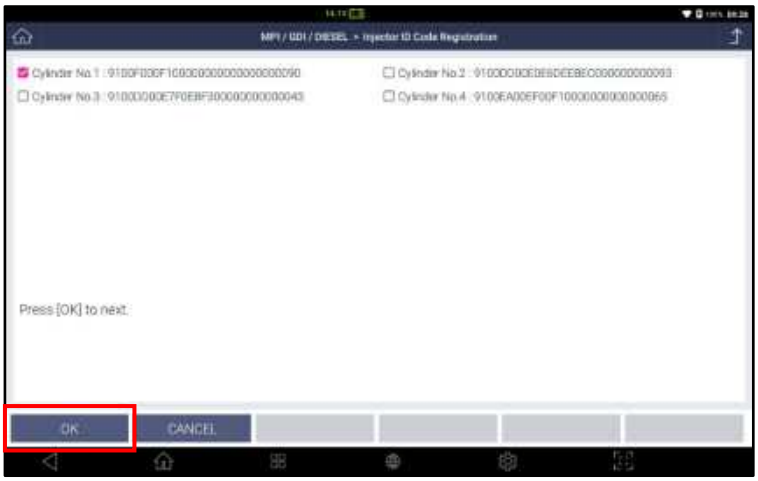
Following screen captures are taken while conducting [Injector ID Code Registration] function on a MITSUBISHI

Find and select the desired special function from the list

Read the introduction and instruction provided on the screen carefully and select [START] or [OK] button on the left of the screen.



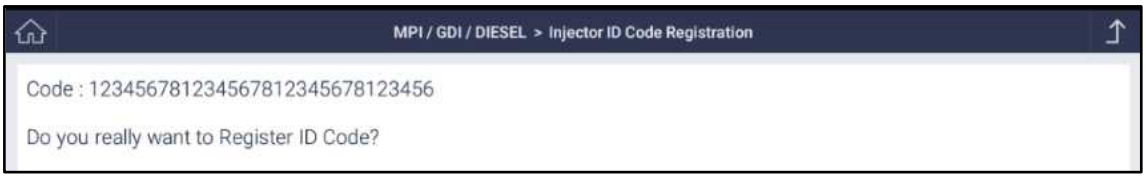
Select one of the injectors to code and select [OK].



Type in the injector code for the selected one using the keypad on the screen.

Select OK when done.

Check if the code has been inputted correctly, then select OK to code the injector.



Function Completed message is displayed when the code value is entered without error.

Select [OK] to end the Special Function.

Favorite List

A special function of a specific vehicle model that is frequently used can be added to the [Favorite] functions list where the listed functions can be simply executed without having to go through the whole lot of vehicle details selecting procedure.

Favorite is a Please refer to [Chapter 4.3 Favorite] in this manual for more information.

Notice

Different functions supported

The list of the Special Functions available for the selected vehicle is predefined by the car manufacturers, therefore please mind that different special functions are supported according to the brands and models.

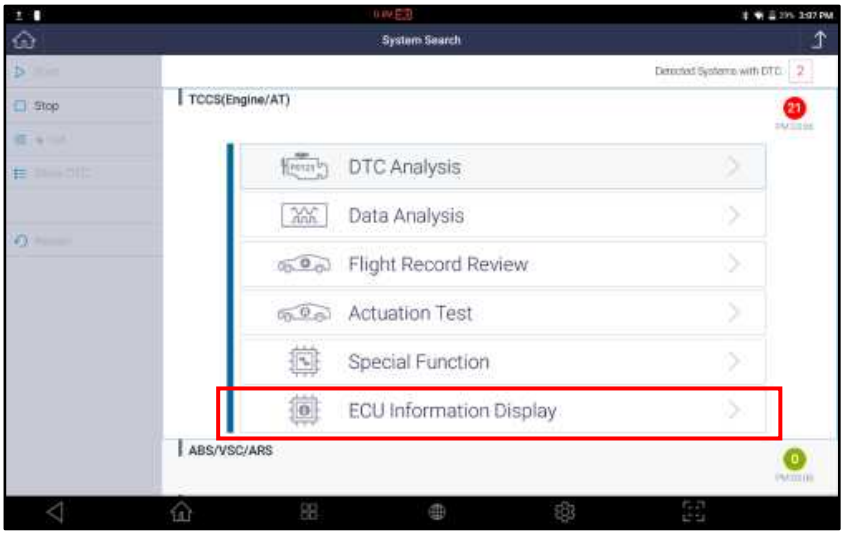
Test Conditions

An unfulfilled condition such as slightly misaligned steering wheel, engine not fully warmed up or released parking brake may lead to the failure of the function, so please make sure to observe the test conditions and get the vehicle ready as instructed on screen before commencing, otherwise the function will fail.

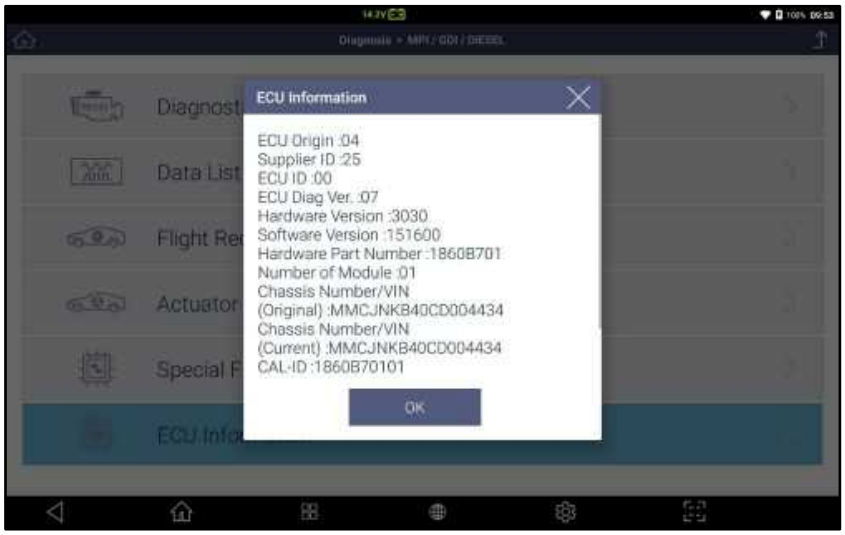
6.8. ECU Information Display

ECU Part Number and other information needed for identifying the control unit is provided as one of the basic diagnostic functions

Select ECU Information Display from the diagnostic functions menu.



Then the ECU information of the selected system is displayed.



Chapter 7.Flight Recording

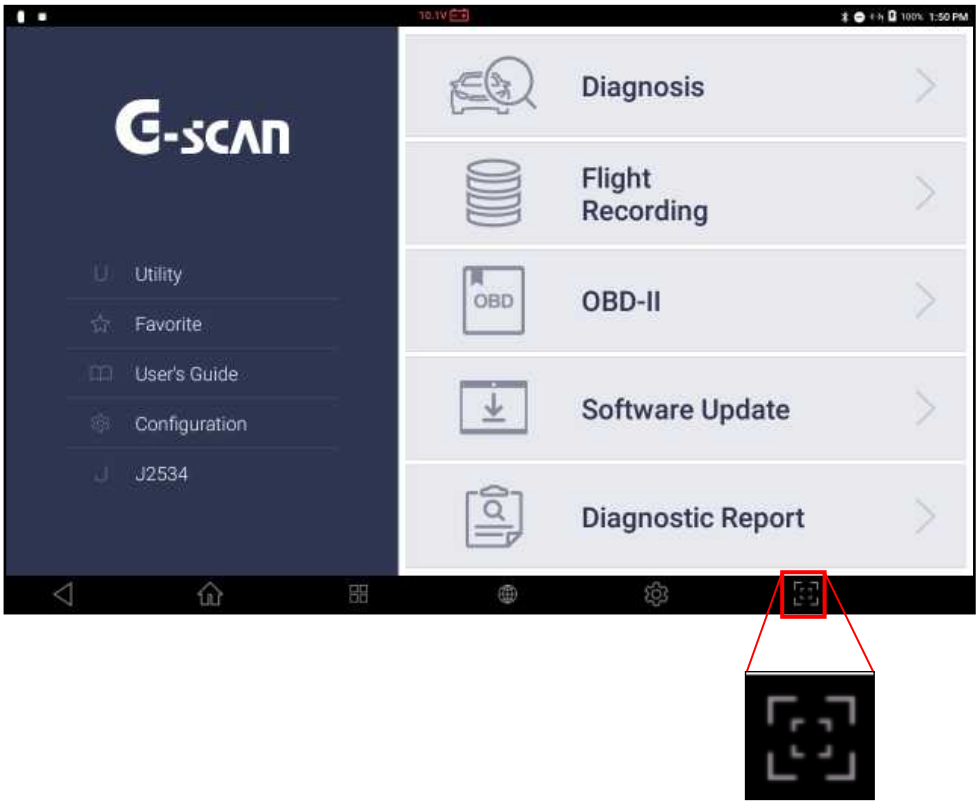
7.1. Data Recording

Flight Recording

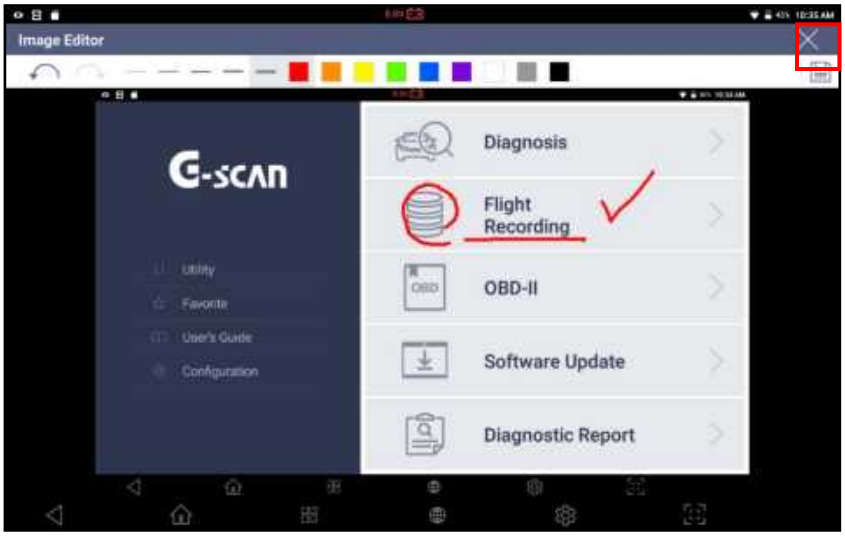
Named after flight recorder or blackbox of an aircraft, the function is used for saving screen capture images, live data and graphs in G-scan 3 memory and reloading them later for review and analysis.

Screen Capture saving

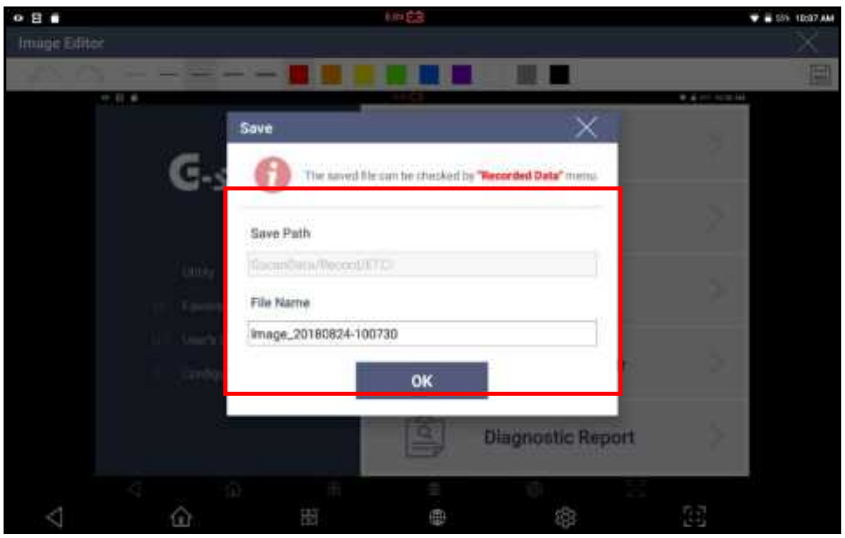
Any time you need to capture the current screen display, just touch the [Screen Capture] button on the left right corner of the screen, which is a part of basic Android system function.



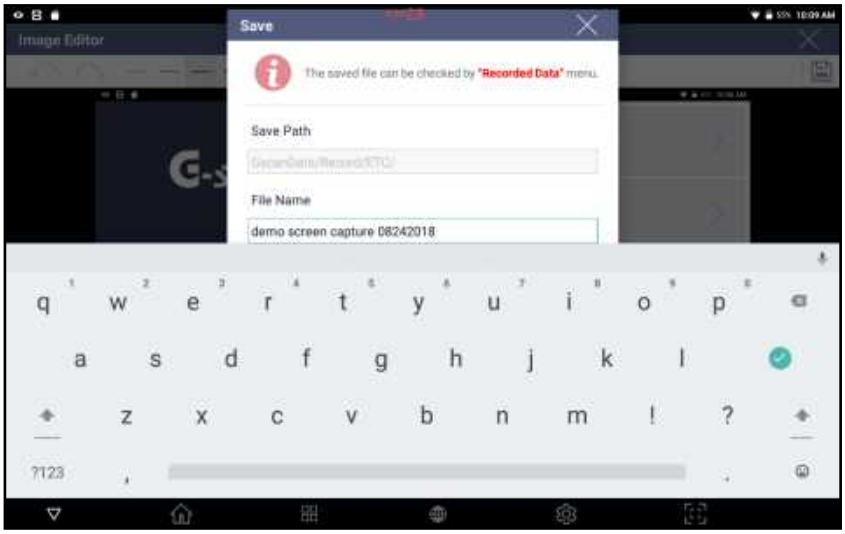
When the screen is captured as an image, the [Imaged Editor] application is automatically runs and you can add your handwritten notes by touching the screen with the finger or the stylus pen.



When done, select the [SAVE] button in the upper right corner of the screen.



Check the file saving path and type in the file name if you want to change the file name from the default one that is named based on the system date and time, then select [OK] to save the file. The screen capture is saved as an image file in the pre-defined folder of G-scan 3 memory.



Data saving

You can save the data readings of all or selected parameters while conducting Data Analysis function.

Please refer to Chapter 5.5. Data Analysis for data recording of Hyundai and Kia models, and Chapter 6.4. Data Analysis for data recording of the other vehicle models in general.

Saved File Format

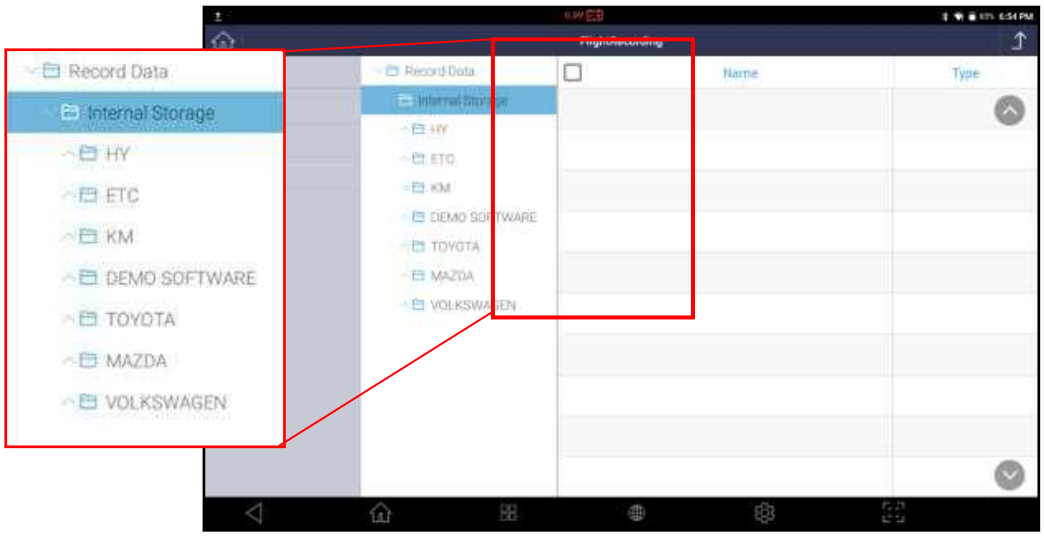
Screen captures are saved as image files of PNG format while live data readings are saved as spreadsheet files of either GSR or GTR format. Live data readings of Hyundai and Kia are saved as *.GSR files and the rest of automaker files are saved as *.GTR.

- Screen Capture: *.PNG image files
- Live Data: *. GSR (Hyundai and Kia) or *.GTR (other automakers) spreadsheet files.

7.2. Data Reloading

Saved Data Path

When you select [Flight Recording] from the G-scan 3 main menu or [Flight Record Review] from the diagnostic functions menu of each automaker software, folder structure of the G-scan 3 internal data storage is displayed on the screen as below.



When you save data while running diagnostic functions on a specific vehicle, the files are saved in the folders of multiple levels that are created in the same structure as the vehicle selection menu.

Examples.

Internal Storage >> Toyota >>International >> 16PIN Connector

Internal Storage >> Mazda >> International >> CX6

Internal Storage >> HY (Hyundai) >> Maxcruze (NC)

This folder structure is intended to help locate and identify the files of a specific vehicle among the tons of files in the vast memory of G-scan 3 when reloading.

Following example is when you are looking for the data files that have been saved while working on a Toyota.

You can select Toyota under Internal Storage folder and the next level folders that are named just like you had selected in the menu before saving the data files.

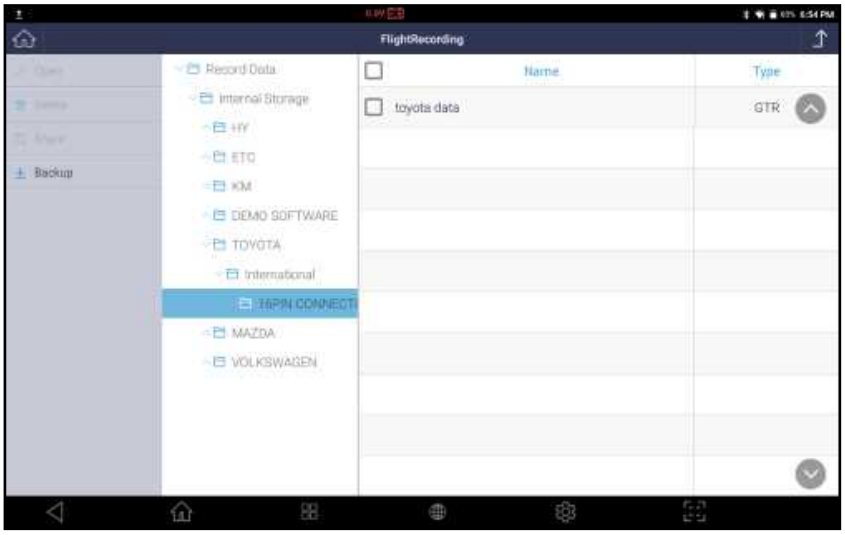


Image File

Select a PNG file among the saved file list and select [OPEN] button on the left of the screen. Then the Gallery application runs to open and show the selected PNG file on the screen.

You can print or share the file by selecting the additional function buttons in the top right corner of the screen. Please refer to the next chapter for printing function details.

Recorded Data Review – Text Mode

Hyundai and Kia

Please refer to “Recorded Data” section of both Text mode and Graph mode in [Chapter 5.5. Data Analysis] for Hyundai and Kia models

Recorded Data Loading

Select the GTR file in the selected storage folder and select the “OPEN” button.

Then the Flight Record function is activated and you can replay the recorded live data parameters in text mode as shown below.

Replay Control

If the data readings of multiple frames have been saved by selecting Consecutive Record or Selected Items Record when saving the data, you can replay the frames of saved data forward or backward using the buttons on the left of the screen.

Control button	Description
◄ ►	Replay the recorded data forward and backward
GRAPH	Switch to the graphical mode.

Current Frame Indication

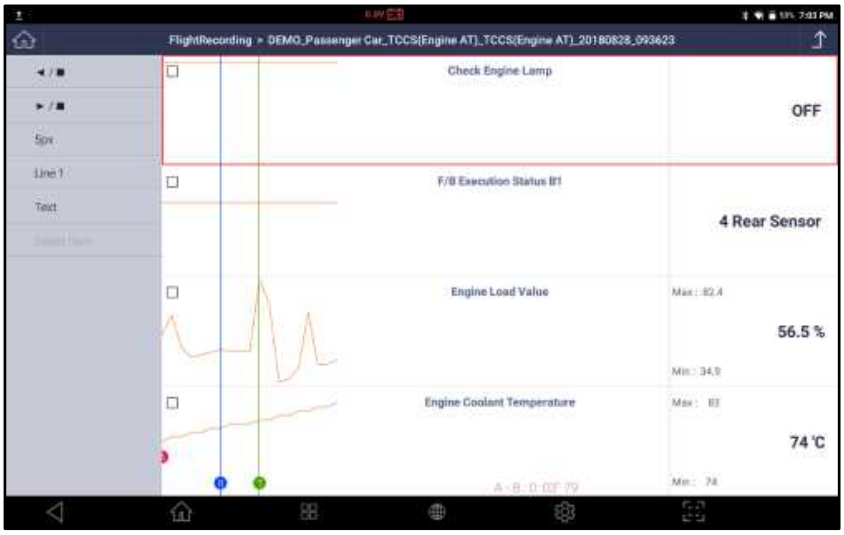
When replaying forward and reverse, the horizontal location of the current frame is indicated on the map that appears on the left right corner of the screen for quick reference.

Recorded Data Review – Graph Mode

Graph Mode

Basic operation of Flight Recording function in Graph mode works the same as Data Analysis function except that it is not live but you are reloading the data saved in the past.

When [GRAPH] button is selected in Text mode, the data readings are converted to dynamic graphs and up to 4 parameters are displayed on the screen.



Replay Control

You can replay the frames of saved data forward or backward using the buttons on the left of the screen

◄ ►	Replay the recorded data forward and backward

Graph Horizontal Scale Control

You can change the horizontal scale of the graphs or number.

15px	Graph scale can be controlled by selecting the pixel per frame (1px -> 5px -> 15px). The more pixels per frame, the bigger the graphs, and vice versa.

Horizontally Smallest scale when 5 pixels represent 1 frame of data readings.

>> You can change the scale to 10 pixels per frame, which is 2x bigger in width.

10 pixels represent 1 frame of data readings.

>> You can change the scale to 15 pixels per frame, which is 1.5x bigger in width.

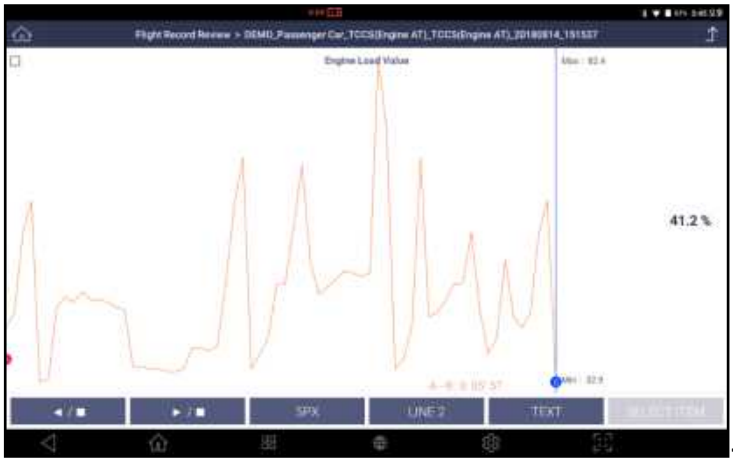
Largest scale graphs with 15 pixels per 1 frame.

>>You can go back to the smallest scale of 5 pixels per frame, which is 3x narrower in width

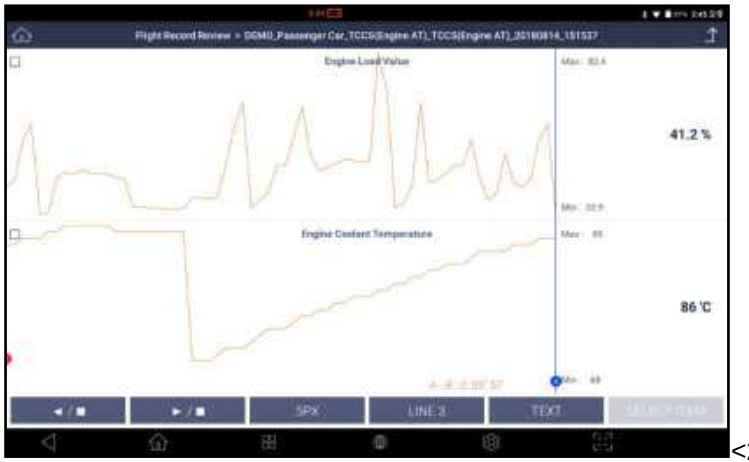
Number of Graphs Control

You can change the number of graphs displayed on the screen at a time.

Line 4	Number of graphs that appear on the screen can be selected among 1, 2, 3 or 4 line(s).



<1 Graph>



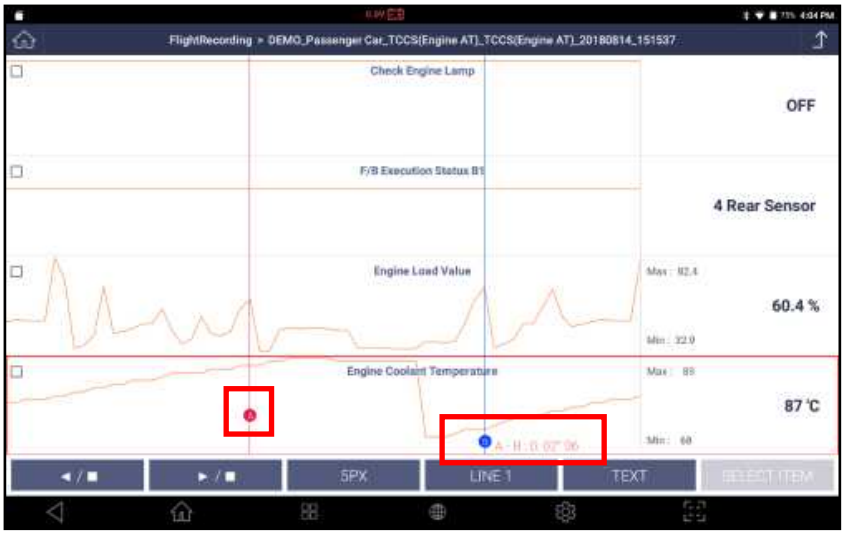
<2 Graphs>

<3 Graphs>

<4 Graphs>

Cursor

Cursors are available when replaying the recorded data in graph mode. Touch the red dot and drag it to change the horizontal position of Cursor A, and do the same on a blue dot for Cursor B. Then the time difference between Cursor A and B is indicated on the left of the screen.



Current Frame Indication

When replaying forward and reverse, the horizontal location of the current frame is indicated on the map that appears on the left right corner of the screen for quick reference.

Recorded Data Review - Spreadsheet mode

Select [TEXT] among the graph control buttons in Graph mode, then the display mode changes to Text mode, but initially the data readings will be displayed in the form of spreadsheet.

Spreadsheet format

In spreadsheet format, the parameter names are listed horizontally and the data readings are stacked down vertically frame by frame. You can scroll left and right to find the parameter names, and scroll up and down to navigate the data along the elapsed time, frame to frame.

When navigating the spreadsheet, vertical location of the current row is indicated on the map that appears on the left right corner of the screen for quick reference while scrolling.

GO TO TRIGGER

If the trigger was marked before the data readings were saved, then you can jump to the frame when the trigger was set by selecting [GO TO TRIGGER] button.

PRINT

Print the spreadsheet using the printers connected to G-scan 3 or into the PDF files.

You can select SPECIFY SAMPLE PRINT or ALL SAMPLE PRINT.

Select [SPECIFY SAMPLE PRINT] if you want to print a single sample (frame) of data readings or a part of entire recorded data. You can get the range of sample(s) to be printed by specifying the numbers of “Start” and “End” samples for printing.

Just select [ALL SAMPLE PRINT] to print the whole recorded data from the first sample to the end.

Please refer to the next chapter to learn more about printer set up and printing function.

TEXT

Change to normal Data Analysis text mode.

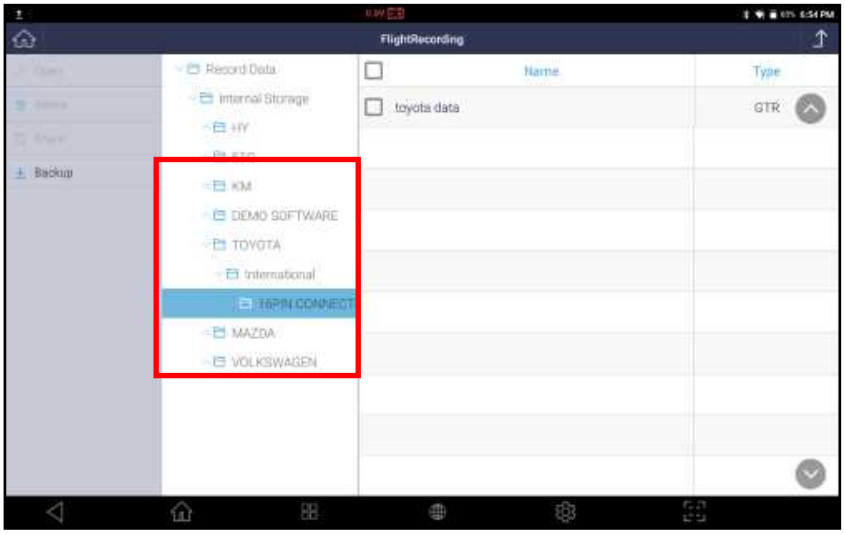
7.3. Data Backup

You can transfer the image and data files saved in G-scan 3's internal storage to an external storage device by selecting [BACKUP] from the menu on the left of the Flight Recoding function menu.

External Storage Device

A micro SD Card can be inserted to G-scan 3 directly, or you can use external storage device through the USB port. Make sure that the external storage device file system is in FAT32 format.

When you insert the micro SD Card or connect the USB storage device, it is recognized as an external storage device by G-scan 3 and indicated in the Flight Recording menu's folder structure like below

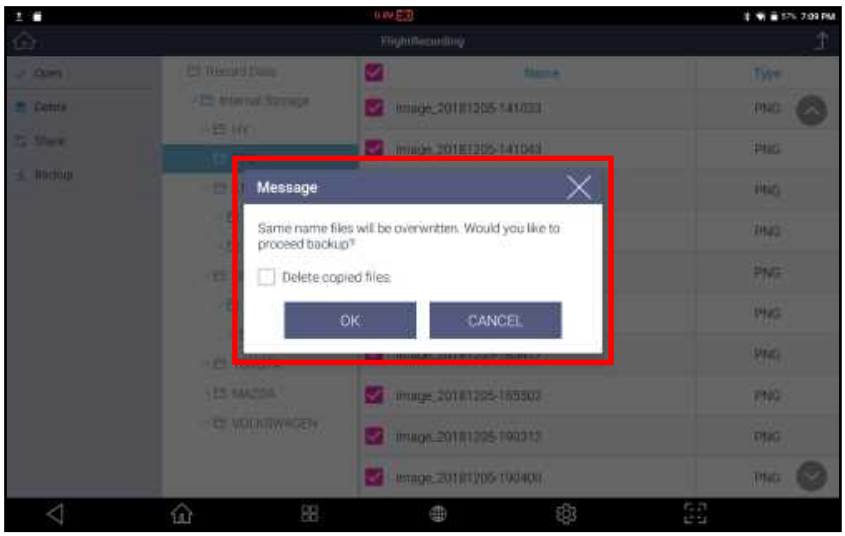


Backup

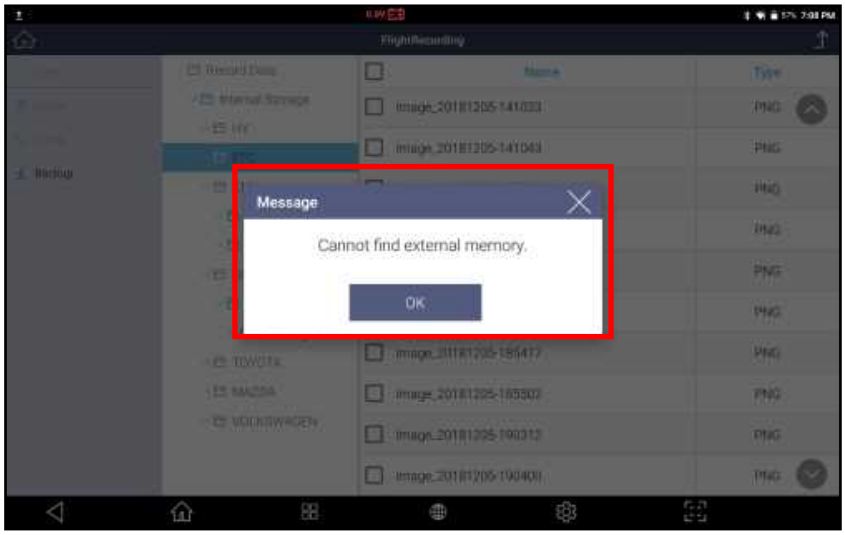
Select [BACKUP] to transfer the folders and files contained in the Internal Storage to External Storage.

You can opt either overwriting or skipping the transfer of the same name files at the pop-up message that follows. If you select [OK], then please note that entire folders and files are

transferred, and the existing files with the same names in the external storage are overwritten by the new files.



If you happen to remove the external storage device before transferring the files or select [BACKUP] when the external storage device has not been recognized by G-scan 3 properly, an error message will come up and file transfer will fail.

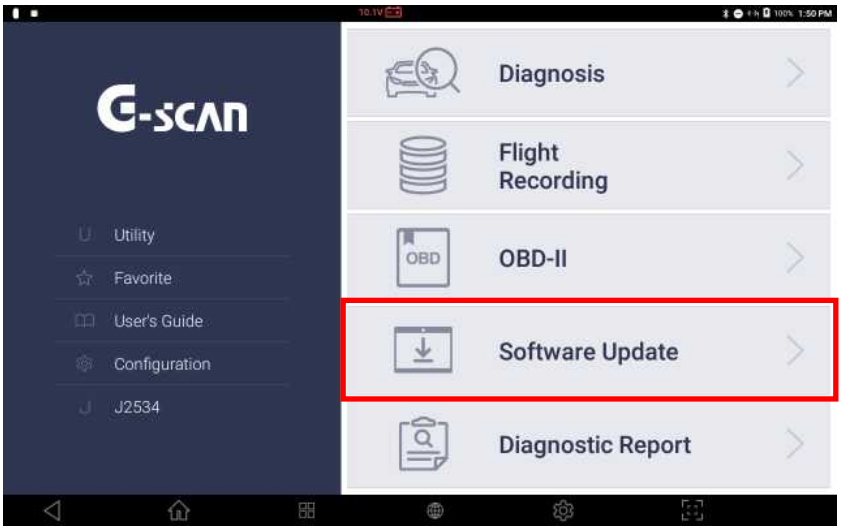


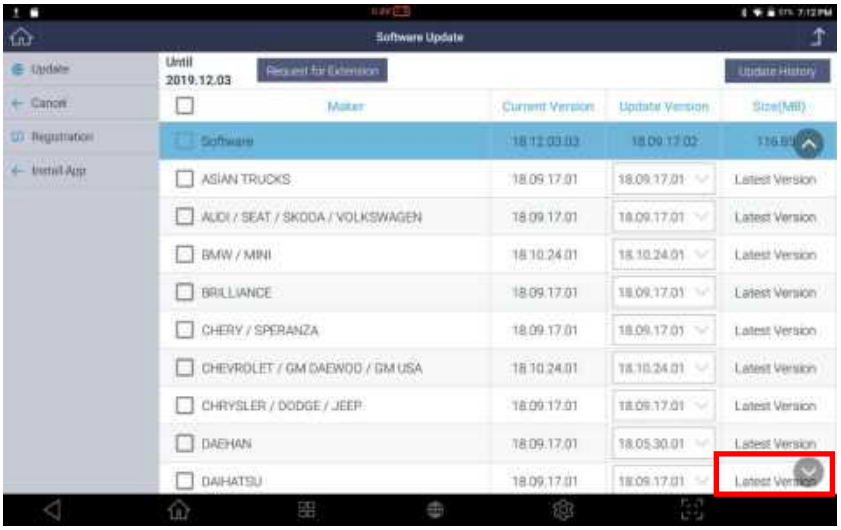
7.4. Data Printing

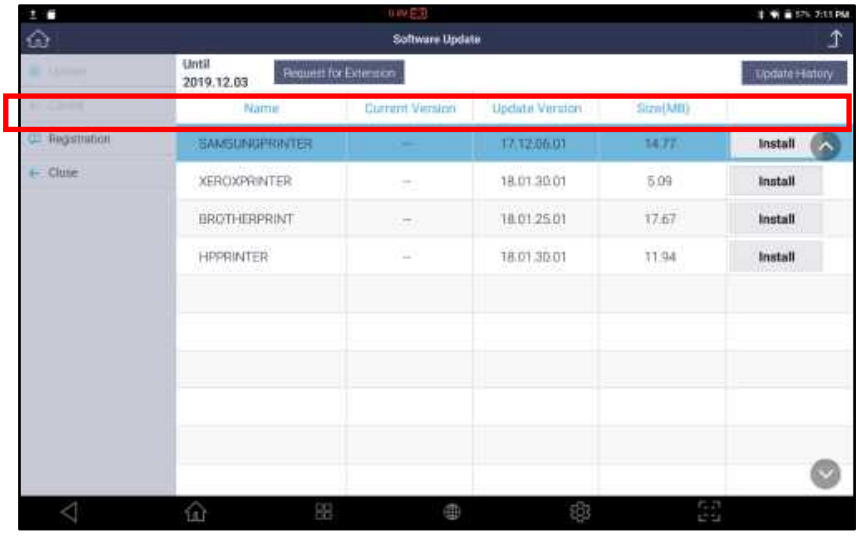
You can print the image, recorded data and diagnostic report saved in G-scan 3's internal storage via wireless printer. A specific driver application for printer must be installed prior to use print function.

Connecting to Wireless Printer

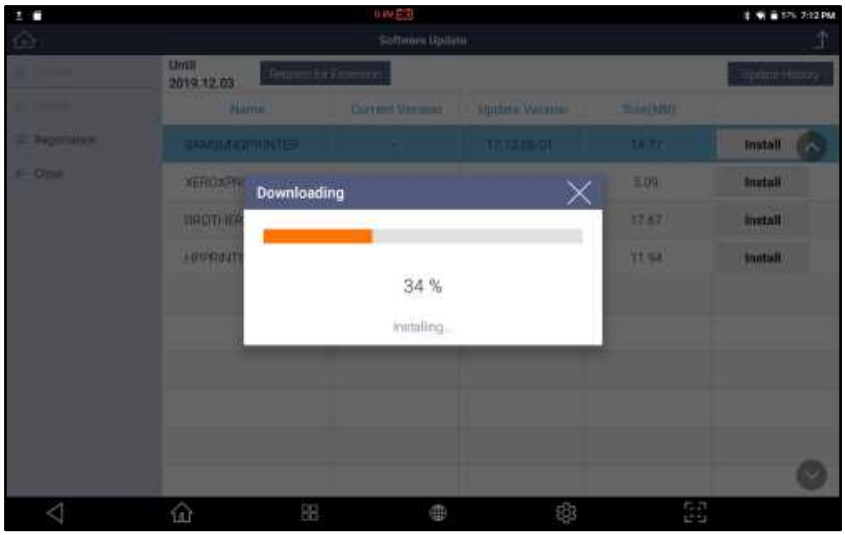
In order to connect G-scan 3 to your wireless printer, you need to install a print driver application that is matching with your printer. G-scan 3 may not support all wireless printers in the market; however, as soon as certain brand is available for G-scan 3, corresponding driver will be updated and available for download. You can download the driver in [Software Update] and [INSTALL APP].

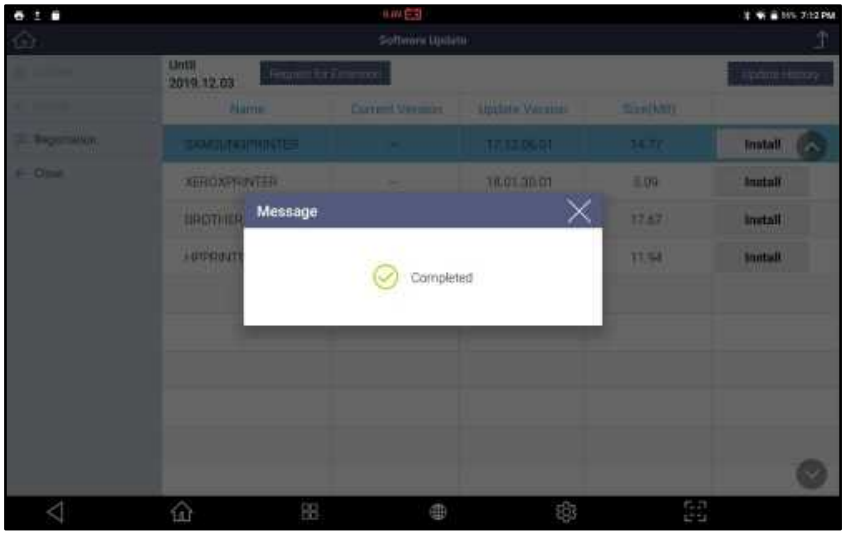




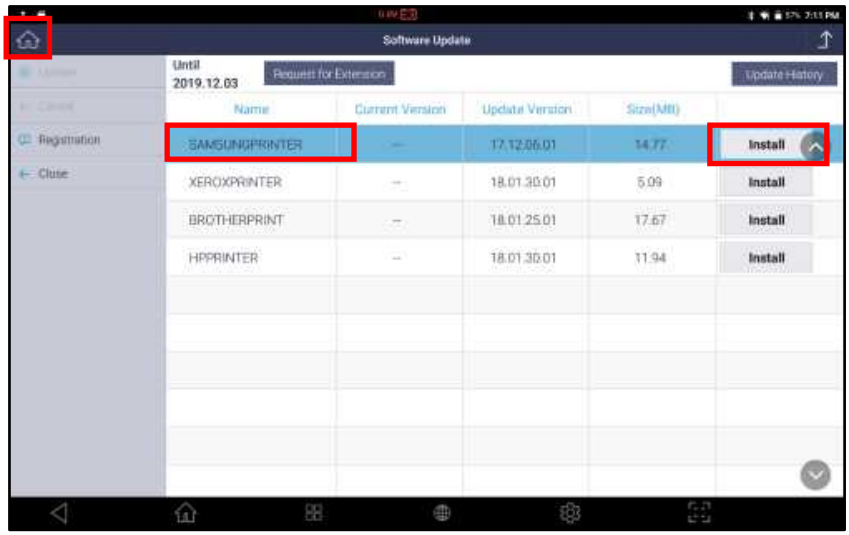


You can check current version of your driver along with the latest version available for update and its size (MB). To begin installation, select [Install] on correct driver for your printer.

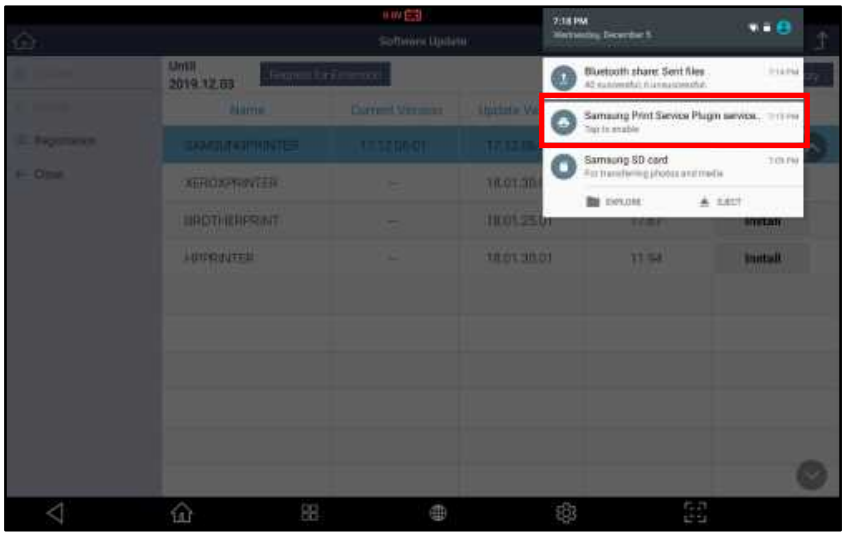


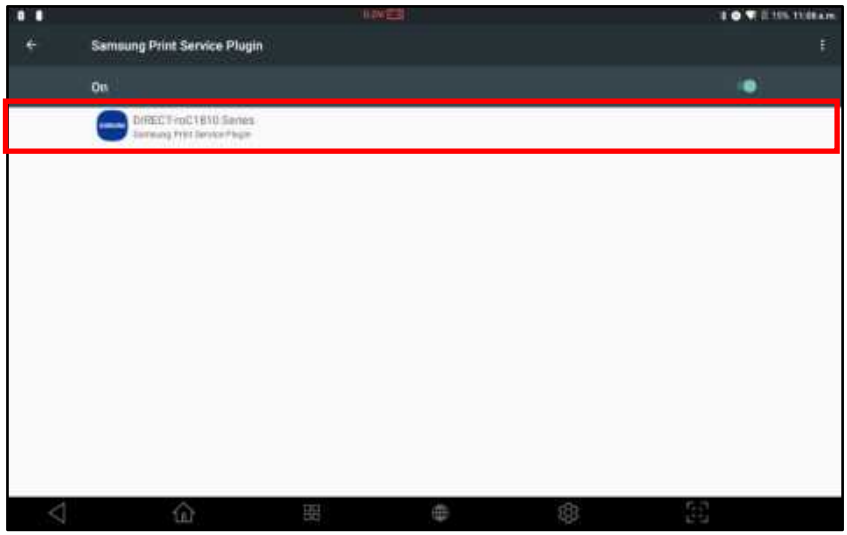


Once installation is completed, [Install] button will be deactivated and the driver's current version will be displayed as shown below. Also, the print driver icon will be displayed at the top status bar.



Slide down the status bar and tap the driver to enable it. Default setting for the driver may be in OFF position. Therefore, turn the driver position to ON.

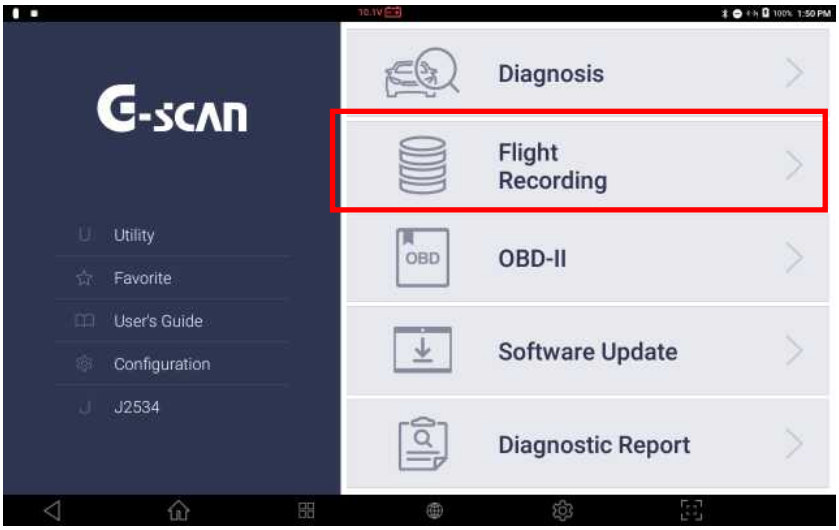




Printing Image

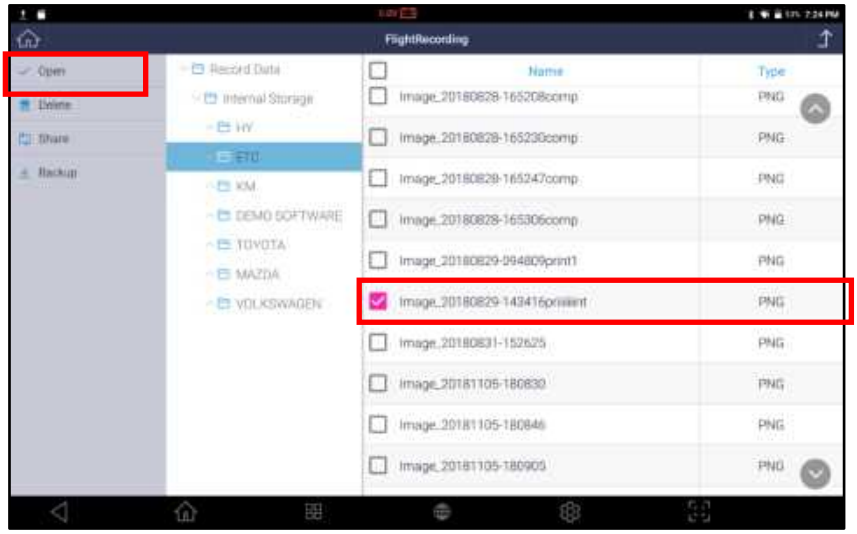
Saved images can be printed from either Gallery folder located at home screen or inside G-scan application in [Flight Recording]. For the purpose of this manual, only G-scan application will be explained.

Select [Flight Recording] to search for an image that is going to be printed.



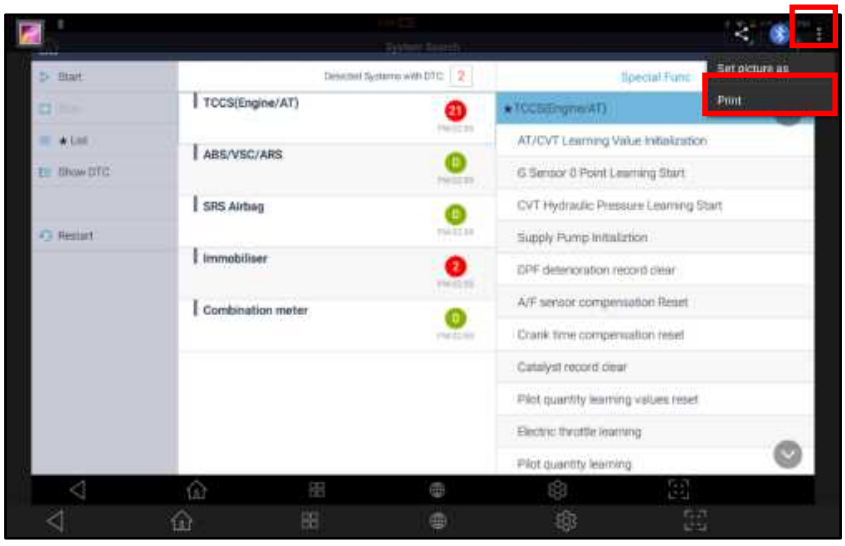
Whenever you capture an image or record data during diagnosis, specific make folder is created under 'Record Data' and 'Internal Storage' folder. Screenshot image is saved as PNG format in G-scan 3.

Once you find desired image, select [OPEN] to view the image.

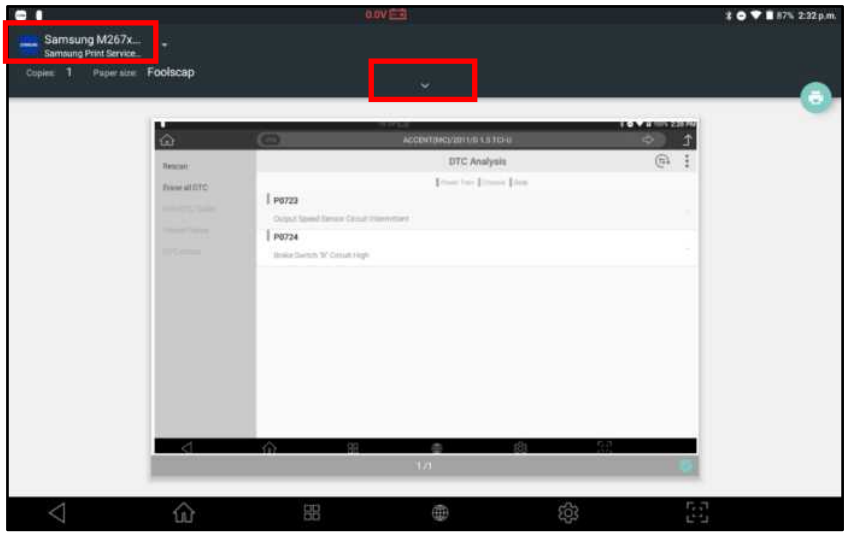


If you select option icon at the top right corner, drop down menu will appear and you will see print option as shown below.

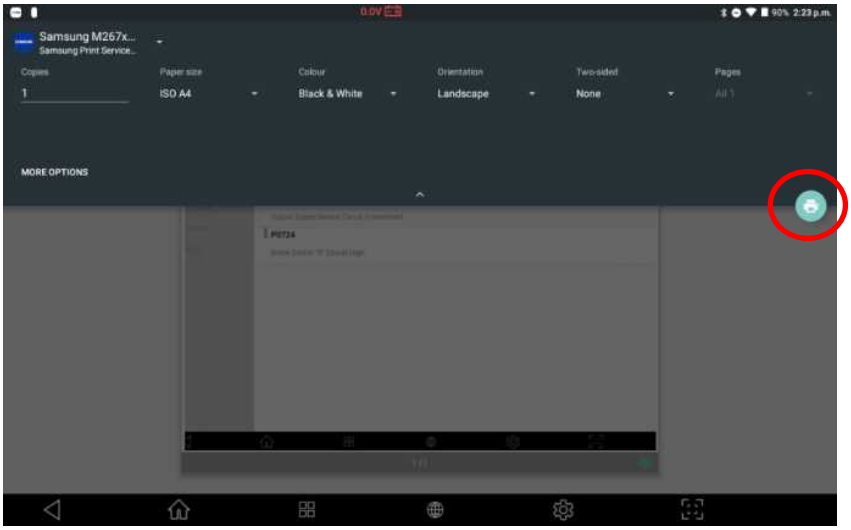
Select [Print] to begin printing the image.



If your wireless printer is properly connected to G-scan 3, you will see the printer name displayed at left top corner as shown below.

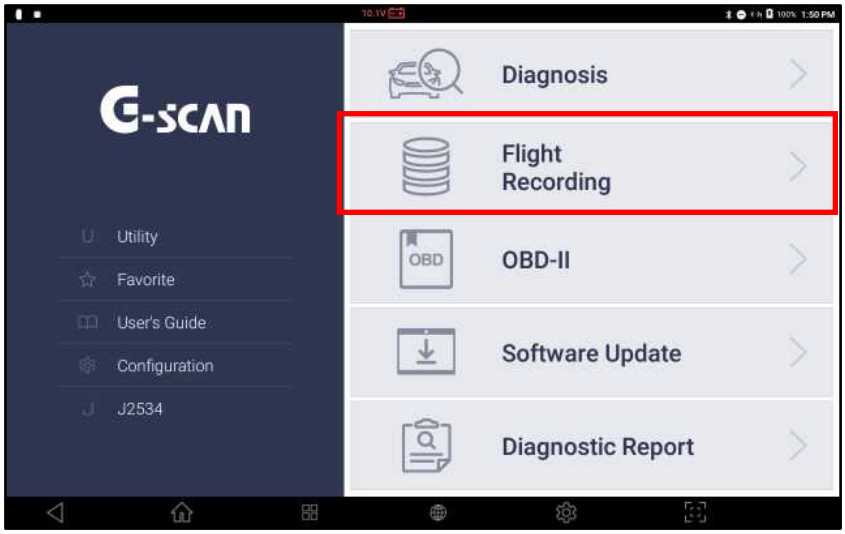


If you slide down the top bar or select pointing down arrow button, you can edit print setting such as paper size, color, and orientation. Selecting print icon as shown below will print the image with desired setting.

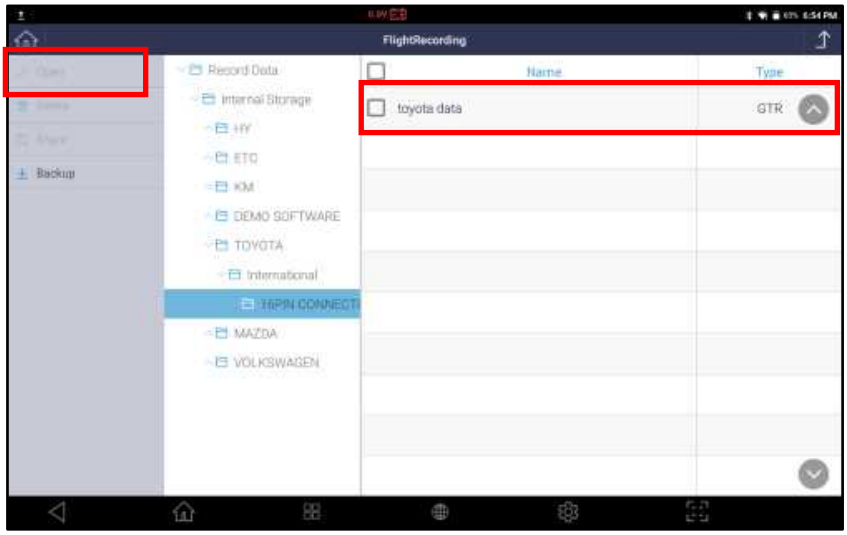


Printing Recorded Data

After recording live data in [Data Analysis], you can print those parameters captured at each frame. Please refer to [Flight Recording] to search for recorded data



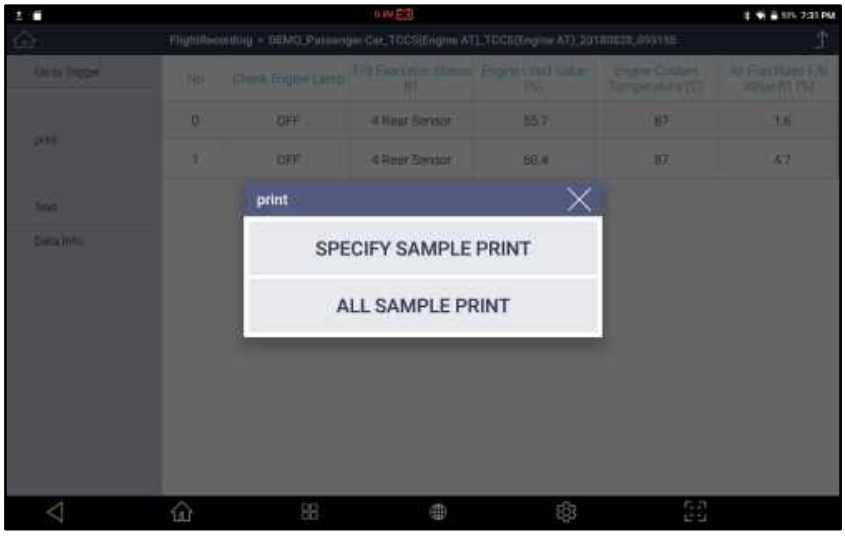
Under 'Recorded Data' and 'Internal Storage' folder located in left side of the screen, you will find specific make folder that is created whenever you captured an image or recorded data during diagnosis. Data recorded during [Data Analysis] is saved as 'GTR' format. (*Hyundai/Kia is in 'GSR' format) Select the file and select [OPEN] to view the data.



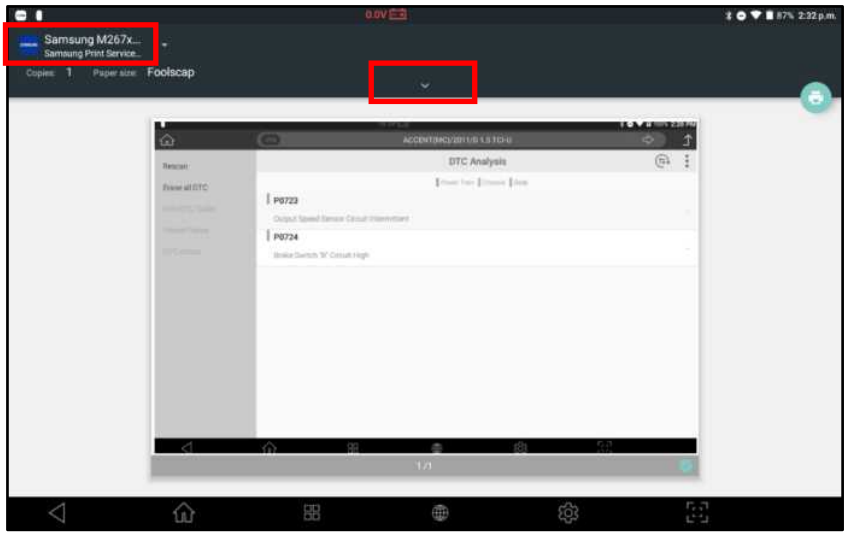
In order to print recorded data, you must switch to Spreadsheet format text mode by selecting [GRAPH] firstly and then select [TEXT] as shown below images.

All recorded samples are displayed in sequence in Spreadsheet format. First column [No.] represents number of frame and they are all displayed in the order of elapsed time from start recording.

Select [PRINT] to proceed to the next step and you can choose printing option as shown below.

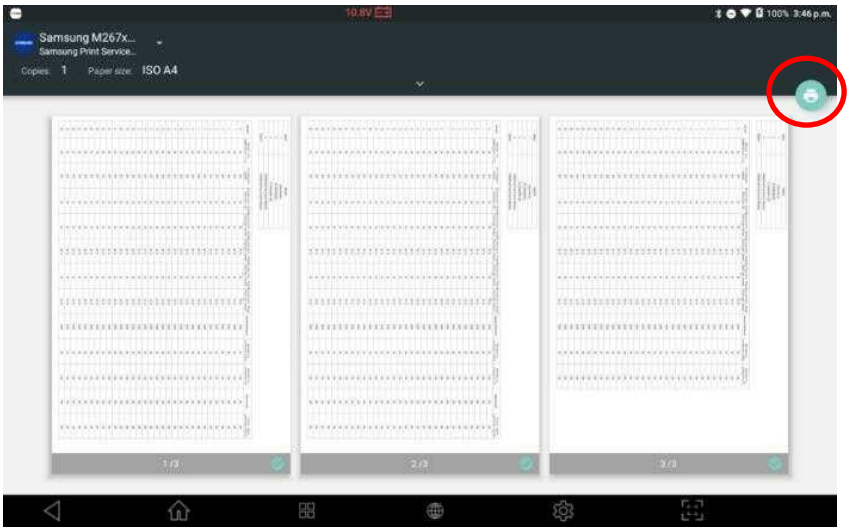


Select [ALL Sample Print] to print all the pages or select [SPECIFY SAMPLE PRINT] to enter the range of sample to be printed.



Then slide down the top bar or select pointing down arrow button, you can edit print setting such as paper size, color, and orientation. Selecting print icon as shown below will print the image with desired setting.

Selecting [ALL SAMPLE PRINT] will print the recorded samples in order.



Recorded data printing is available in all makes excluding Hyundai & Kia.

Chapter 8.OBD-II

8.1. Generic OBD-II Codes

OBD-II

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, and they 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 Power train, Body, Chassis, Network Communication systems.

Codes	system	Included sub-systems (examples)
P0*** ~ P3***	Power train	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 "internal combustion" vehicles 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 automaker's system design or diagnostic strategy. The codes that are reserved for each car manufacturer's own definition are called "Enhanced Codes" or "Manufacturer Specific Codes"

Being no emission-related systems, Chassis C0*** and Body 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 OBD-II/EOBD] function can access are just the Generic Codes.
If any enhanced (or manufacturer specific code) is detected, the generic OBD-II/EOBD scan tool is supposed to show 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, therefore, please select the [Diagnosis] from the main menu instead of [OBD-II] and follow the model selection procedure in such as case.

OBD-II / EOBD code break-down

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

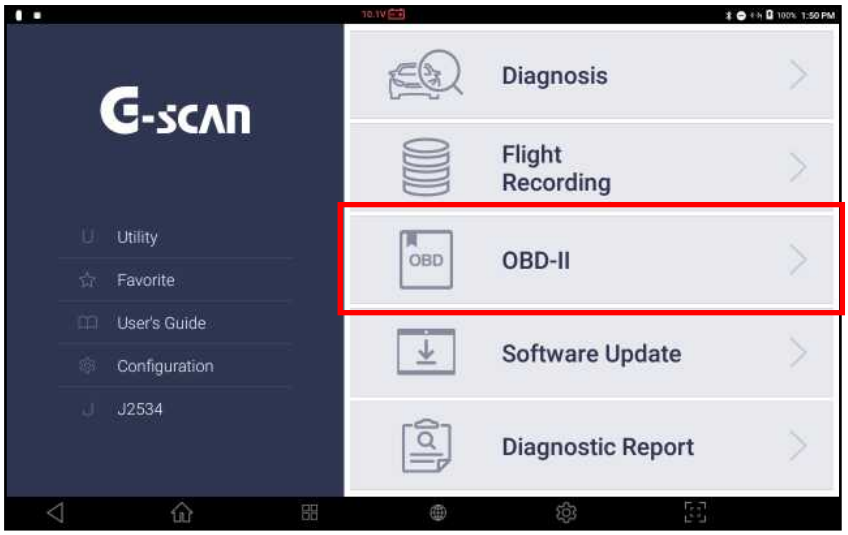
Code No.	Defined Systems
P00XX	Fuel and Air metering and Auxiliary Emission Controls
P01XX ~ P02XX	Fuel and Air metering
P03XX	Ignition System or Misfire
P04XX	Auxiliary Emission Controls
P05XX	Vehicle Speed, Idle Control and Auxiliary Inputs
P06XX	Computer and Auxiliary Outputs
P07XX ~ P09XX	Transmission
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

8.2. OBD-II Mode (Service)

OBD-II Function

OBD-II function is used for diagnosis of OBD-II or EOBD complaint vehicle's emission-related powertrain control system and inter-system network that support the industrial standard protocols. Please extend the main DLC cable to the vehicle side diagnostic socket, and select [OBD-II].



Typical OBD2 menu for a CAN-Bus type vehicle

OBD-II Test Mode (Diagnostic Service)

There are 9 diagnostic services described in the latest OBD-II standard SAE J1979.
Before 2002, J1979 referred to these services as "modes" and they are as follows:

Service	Description
01	Show current data
02	Show freeze frame data
03	Show stored Diagnostic Trouble Codes
04	Clear Diagnostic Trouble Codes and stored values
05	Test results, oxygen sensor monitoring (non CAN only)
06	Test results, other component/system monitoring (Test results, oxygen sensor monitoring for CAN only)
07	Show pending Diagnostic Trouble Codes (detected during current or last driving cycle)
08	Control operation of on-board component/system
09	Request vehicle information

Test Modes supported by G-scan 3

Vehicle manufacturers are not required to support all services, and G-scan 3 does not support all these generic test modes (diagnostic services) under the standard service names because the product is built to conduct manufacturer specific diagnostic functions.

- Service 01 is supported by G-scan 3 in 2 functions, 01. Readiness Test and 02. Current Data. You can check the readiness of on-board diagnostic system by selecting [01. Readiness test], and monitor the data readings of powertrain control system parameters by selecting [02. Current Data].

- Service 02, 03, 04 and 07 are supported by G-scan 3 when selecting [03. Diagnostic Trouble Code] from the menu.

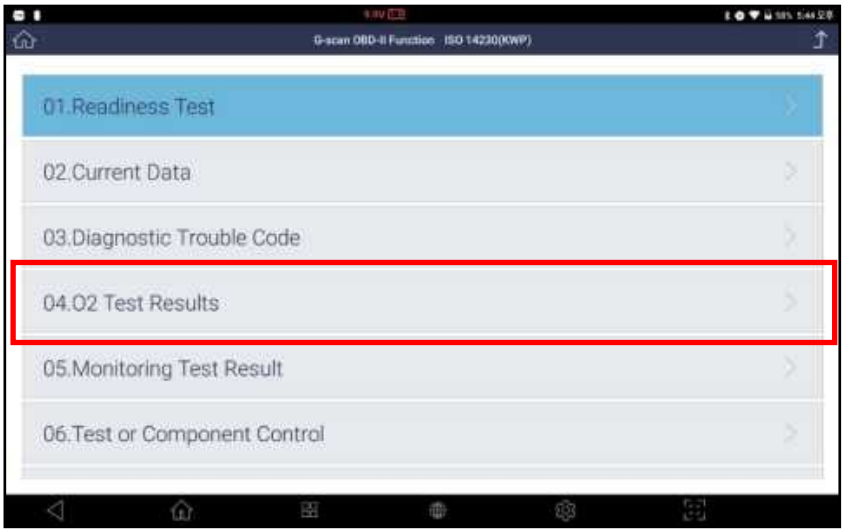
- Service 05 is supported just for non-CAN vehicles, and G-scan 3 shows [04. O2 Test Results] in the menu for this service in case the vehicle is a non-CAN type that supports the function.

- Service 06 is supported just for CAN vehicles, and G-scan 3 shows [04. Monitoring Test Result] instead of [04. O2 Test Results] automatically if the vehicle communicates in CAN-Bus

protocols.

- Service 08 is supported when [05. Test or Component Control] is selected.

- Service 09 is available under [06. Vehicle Information] menu and PID 08 of Service 09 that is reading “In-use performance tracking of spark ignition vehicles” data is supported under [07. In-use Performance Tracking] menu separately.



Typical OBD2 menu for a non-CAN type vehicle

OBD-II / EOBD Current Data

As explained above, when [1. Readiness Test] and [2. Current Data] are selected from the OBD-II menu, Current data that is equivalent to OBD2 Service 01 is displayed as shown below:

Readiness Test

Current Data in Text Mode

Current Data in Graph Mode

The control menus on the left of the screen [FULL / DETAIL], [GRAPH / TEXT], [RECORD] and [SELECT ITEM] basically work in the same manner as Data Analysis function for non-Hyundai or Kia vehicles.

Please refer to [Chapter 6.4. Data Analysis] in this manual for more details.

When a function is selected from the OBD-II menu, the result may come up with “NOT SUPPORTED” reading, and it means the selected function is not supported by the vehicle.

OBD-II / EOBD Diagnostic Trouble Codes

OBD-II Service 02, 03, 04 and 07 that are used for reading ‘freeze frame data’, ‘pending’ and ‘current’ DTCs and erasing them from the control system memory are collectively supported under [03. Diagnostic Trouble Code] menu.

OBD-II DTC Reading

OBD-II DTC Erasing

Please refer to the generic OBD-II related standard documents for use of the other OBD-II services.

Chapter 9.Software Update

9.1. Registration and Internet connection

Device Activation

In order to activate G-scan 3 diagnostic functions and update individual software, the device must be registered in the first place.

Please refer to [Chapter 3. How to activate G-scan 3] for more details.

Recommendation

G-scan 3 must be connected to internet to download software from the server. Even when not for downloading update files, it is recommended to keep it connected to internet for the following purposes:

A. Update Patch

According to the EZDS' update policy as of August 2018, G-scan 3 software is updated 3 times in a year and most of the applications are update together in January, May and September.

However, if any bugs or mistakes are found in the updated software that need to be fixed without delay, update patches can be released as needed.

B. Data log

In case any diagnostic function fails or does not work properly as intended, data logging function allows the individual users to actively interact with the software developers in Korea by capturing the data transmission between G-scan 3 and the vehicle and sharing it with them.

Data Logging function has been available for all G-scans including G-scan 1 and G-scan 2, and contributed to improving the diagnostic tool's reliability and customer satisfaction. Aforementioned Update Patch is a good example of the outcome of such active interaction.

C. Validation

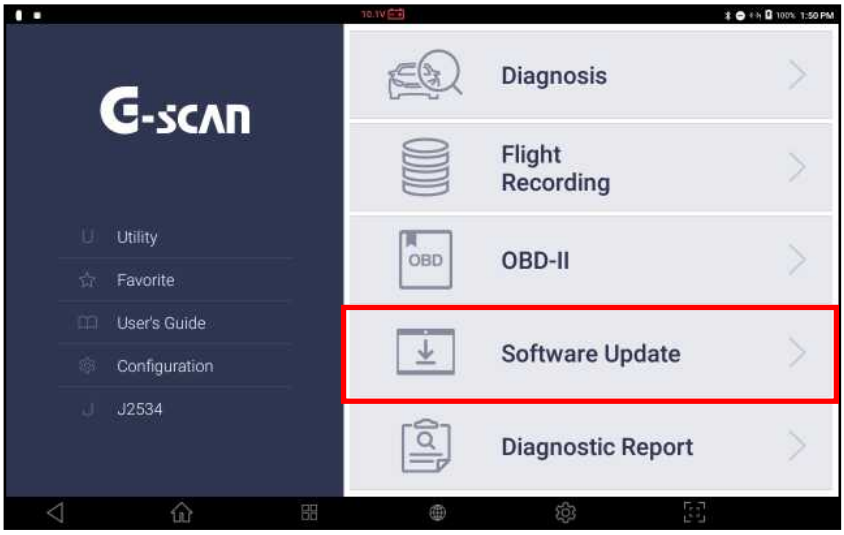
As explained in [Chapter 4.6. System Lock], G-scan 3 needs to be validated periodically to ensure proper and lawful use of the device in compliance with the End User License

Agreement. Internet connection and access to the server is required for validation without which the device can be locked down.

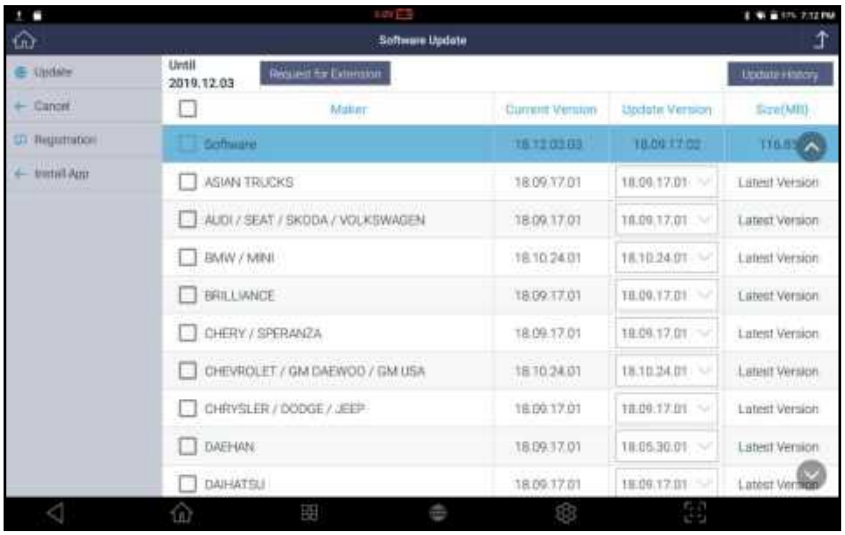
9.2. G-scan 3 Software List

Software Update List

Select [Software Update] from the main menu to go to the software update list.



If G-scan 3 is properly registered and activated, the software list will be displayed like below and you can scroll up and down to navigate the list.



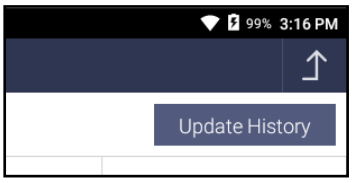
Until: Date

Date indicated in top left corner of the screen with the prefix “Until” indicates the expiry date of software update subscription.

In case the update subscription has been expired or approaching the expiry date, send a request for update extension by clicking on the “Request for Extension” button. When the request is submitted, the download server automatically relays the provided contact Information to the authorized local distributor in the G-scan 3’s designated country / region so that they can take care of the request.

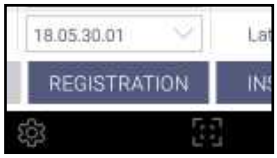
Update History

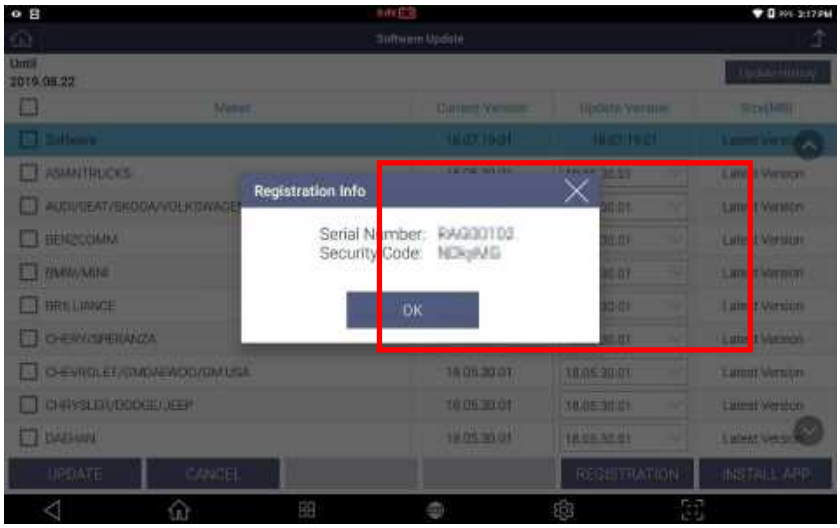
Select the [Update History] button in the upper right corner to view the details of the latest and the previous updates.



Registration

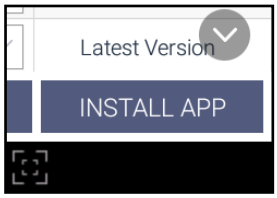
Select the [REGISTRATION] button on the left to view the serial number and the security code needed for website membership enrollment.





INSTALL APP.

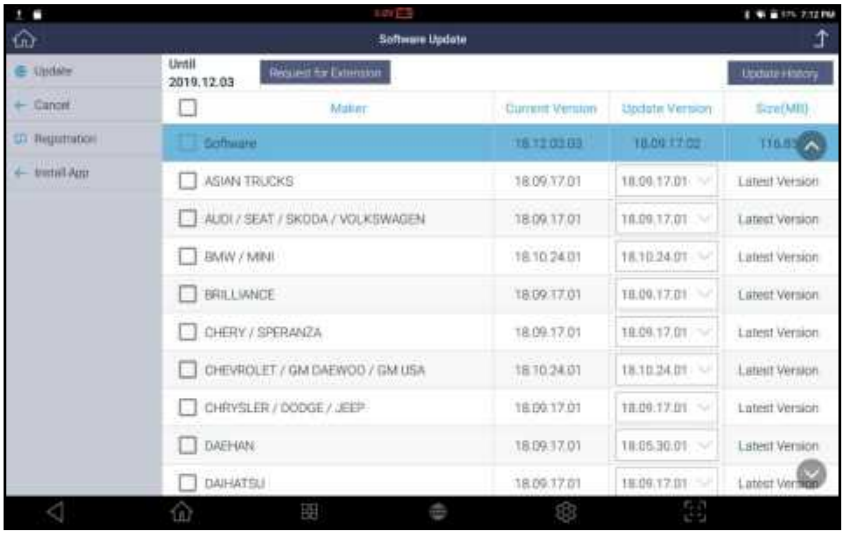
In case the supplier decides to add a new application to G-scan 3 for the purpose of providing new features that are not diagnostic function related, or improving the performance of the device itself, the [INSTALL APP] button appears activated when such new application is ready for



downloading for installation.

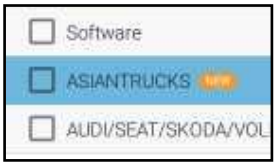
As of August 2018, the applications for adding the drivers for different brand printers are available for downloading, and new applications can be added as needed.

Software Downloading



A. [NEW] mark

When a new version software or a patch is released for an automaker, it is indicated by putting [NEW] mark right after the name of each car manufacturer's brand name.



B. Downloadable Versions List

You can check the version numbers of the software currently loaded on the G-scan 3, and the other versions that can be downloaded from the server. It allows you to restore the older version if you are not satisfied with the new update.

The software versions are listed in the order of released date. The version numbers are indicating the release date in [YY.MM.DD.**] format.

If you want to remove the automakers that are not necessary, you can also delete the application from the list by selecting [DELETE] on the left of the software version list.

C. Select and Start Download

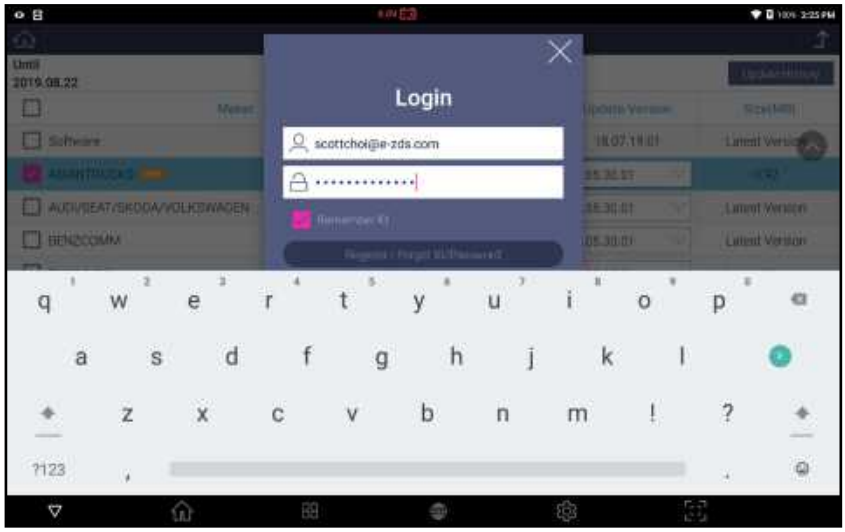
Select the automakers to download software either by selecting the checkbox in the head of each line, or Tick on the checkbox in the table header, and it will select or deselect all the brands at a time.

When done, select [UPDATE] on the left corner to start downloading.

D. Log in

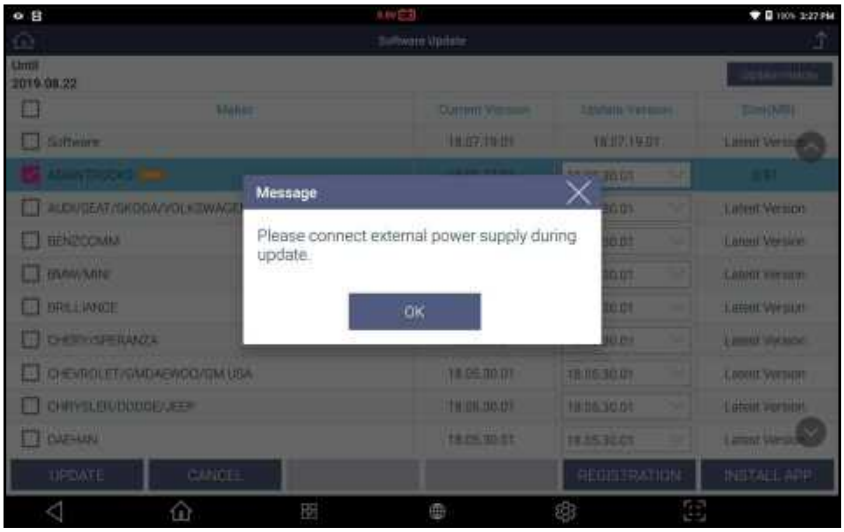
You need to log on to the download server using the ID and Password that have been used for website membership enrollment in the process of activating the device.

You can save your ID to avoid inconvenience of entering the email address every time by selecting the [Remember ID] checkbox, however, for protection of private information, G-scan 3 is not allowed to save the password in the device, therefore you are required to enter the password each time.



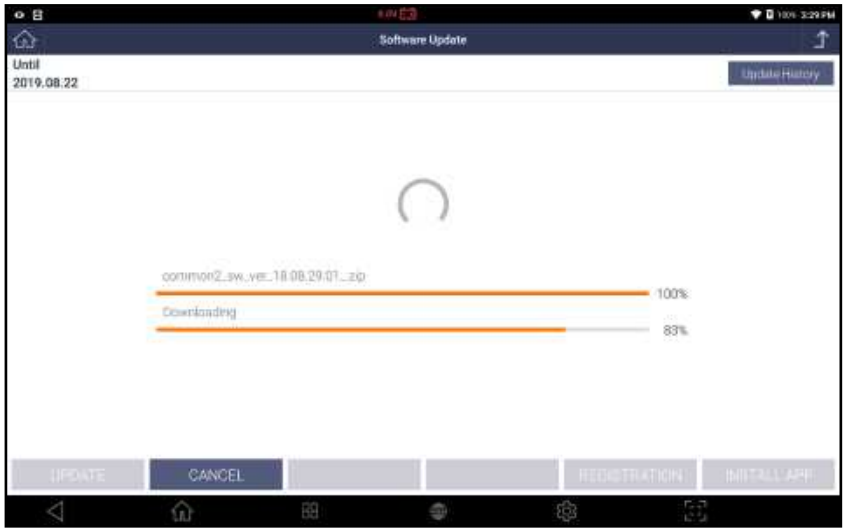
E. External Power supply

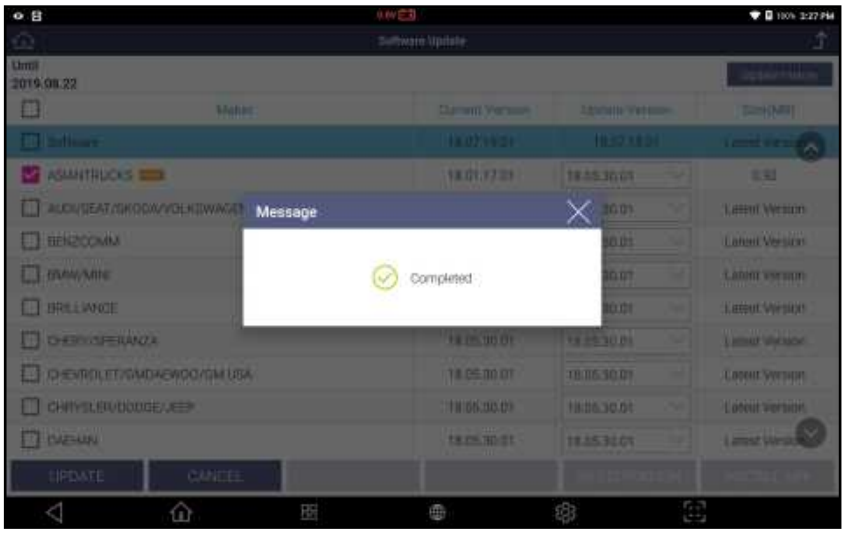
If the log-in ID and password are correctly entered, a message pops-up to remind to use of the external power while downloading and updating software. It is always recommended to use stable external power source such as AC power from the wall outlet through the AC/DC adapter.



F. Software Downloading

When you select [OK] then software download begins. It take more time as the more automakers are selected and the time required for downloading varies considerably according to the internet download speed.


Software Update
Until
2019.08.22
Update History
common2_sw_ver_18.08.29.01_.zip
100%
Downloading
83%
UPDATE
CANCEL
REGISTRATION
INSTALL APP


Software Update
Until
2019.08.22
Message
Completed
UPDATE
CANCEL

Purpose of Data Log

Data Log function was designed as a to utilize G-scans as a terminal for interacting with the individual G-scan users by allowing them to provide accurate and sufficient feedback information to Korea in case of function failure or error, with which the software developers could pinpoint the cause of the problem and find out the solution precisely.

How to log data

In case any diagnostic function fails or does not work properly as intended, you can log the data transmission between G-scan 3 and the vehicle control unit by 1) starting Data Log mode, 2) repeating the same function until it finally fails like experienced previously, 3) stopping Data Log mode.

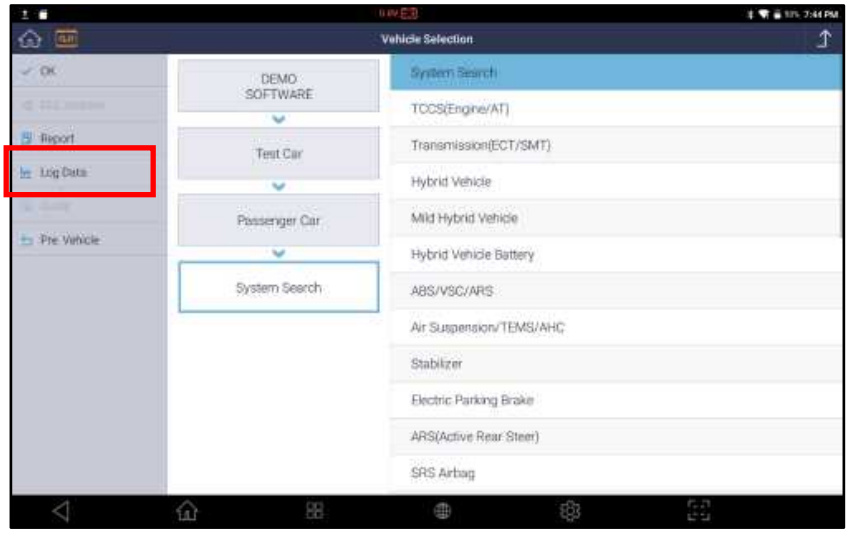
A. Start Data Log Mode

You can start Data Log mode by selecting [Log Data] button on the left of the screen.

[Log Data] button is available on various levels of menu selection – the button appears when

you select a car manufacturer from the menu and remains there at every step you make selections to specify the vehicle. It becomes no longer available when you select a system and the diagnostic functions menu is displayed.

So, if you experience function failure or an error, move back to upper level menu and select [Log Data] button on the left of the screen, then the Data Log mode begins.



When [Log Data] is selected, you can select either [LOG START] or [LOG STORAGE] from the pop-up menu.

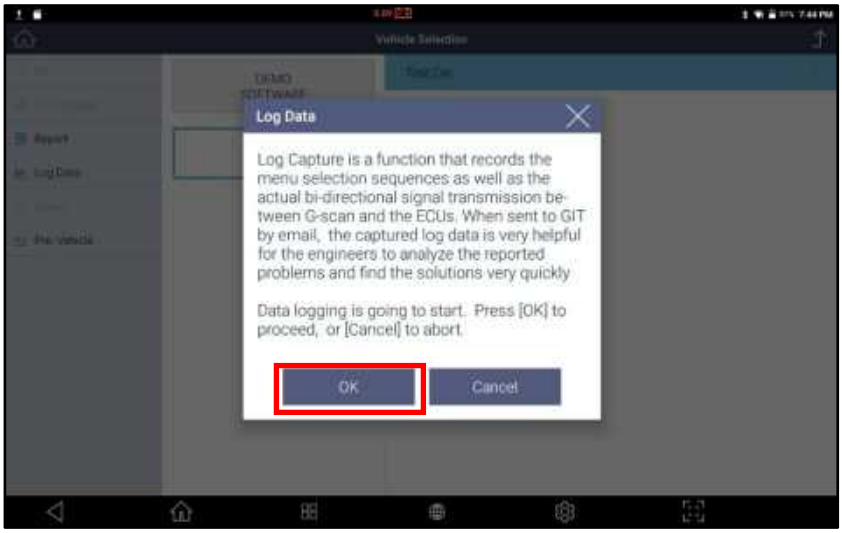
LOG START

Start Data Logging. When G-scan 3 is logging data, this menu will change to [LOG STOP]

LOG STORAGE

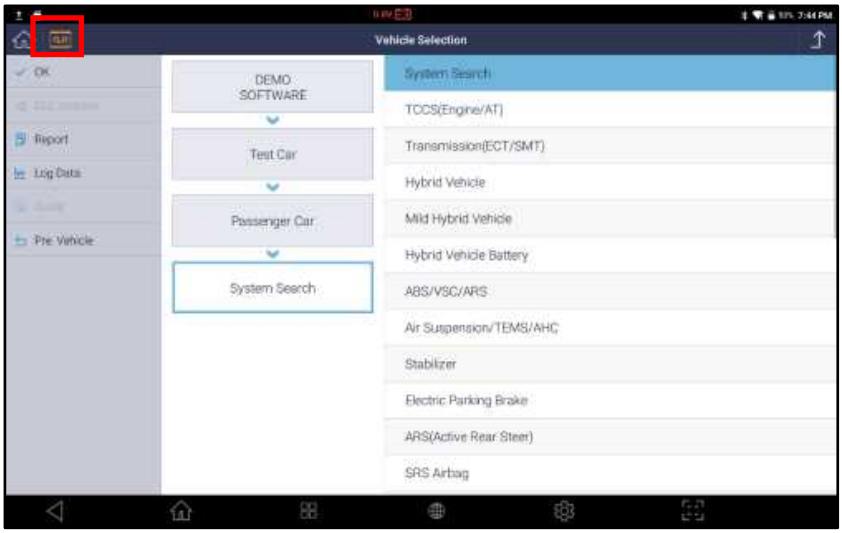
Go to the Log Data Storage where you can select a log data and send it to the software developers.

A short introduction to Data Log function pops up, and you can read and select [OK] to proceed.



B. Repeat the function

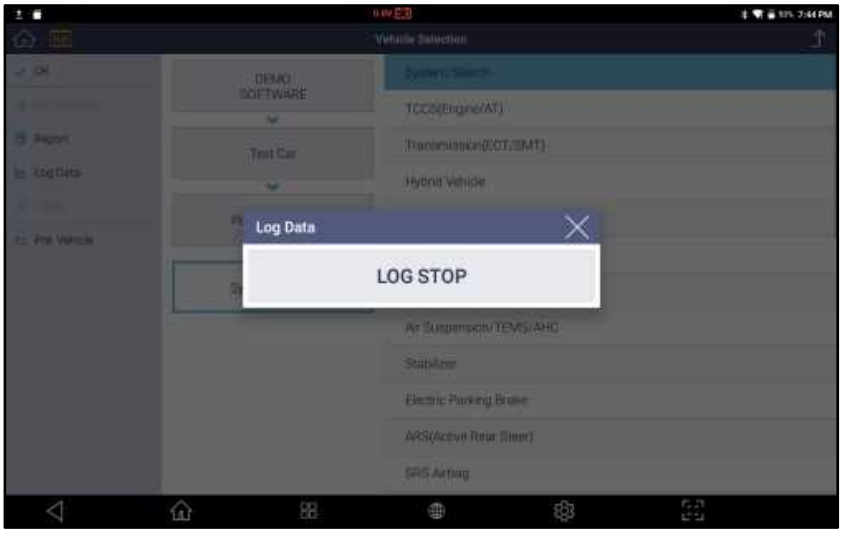
When the Log Data Mode has started, the tape recorder sign in the top left corner of the screen indicates that the data transmission between G-scan 3 and the vehicle control system is being logged.



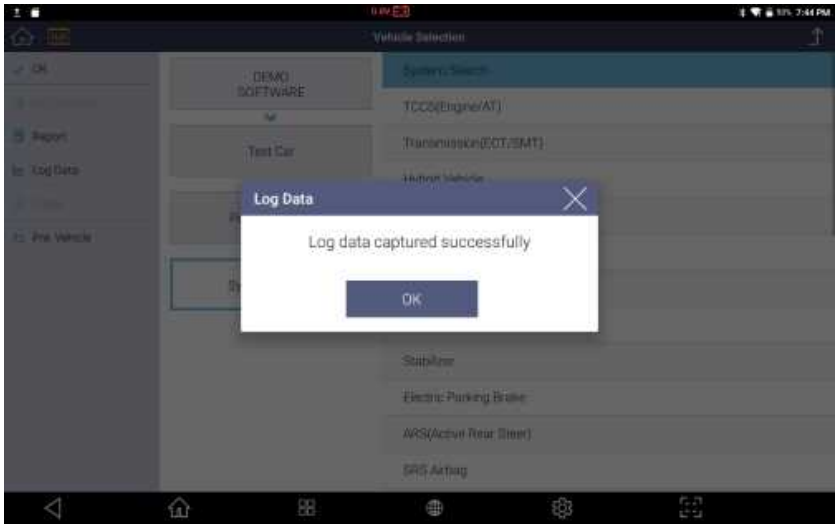
Please repeat the same function until you encounter the same symptom or function failure you experienced previously.

C. Stop Data Log Mode

Select the [LOG DATA] button again in order to stop data logging and it will be followed by a pop-up menu with a single entry [LOG STOP].



Select [LOG STOP] and the captured log data is stored in the G-scan 3 internal memory.

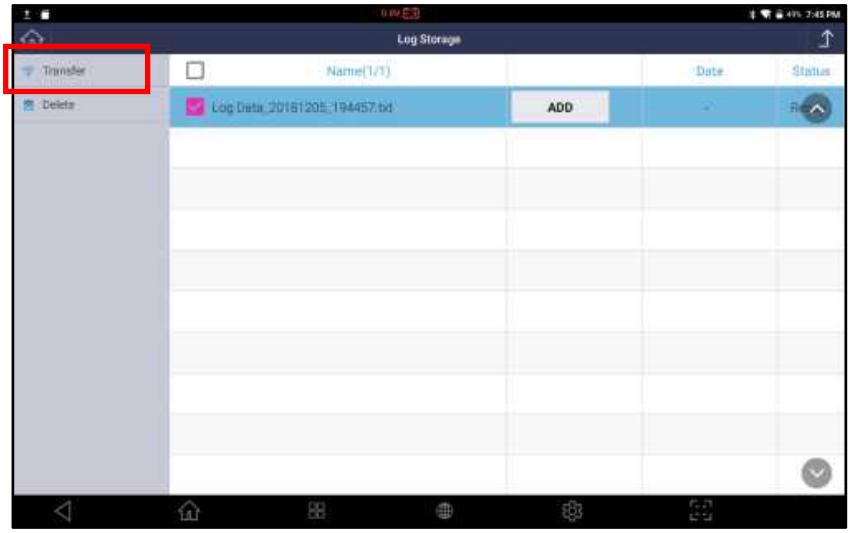


Select the type of error or failure that best describes your problem from the drop down menu. The vehicle model and system information is automatically entered according to the menu selection you made. You can change this by typing in the new description if you want, but we recommend to leave it as default.

Select OK then the log data is saved as a log file that can be transferred to the developers by email.

Transfer Log Data to Developers

Select [Log Data] button on the left of the screen, and select [LOG STORAGE] to select the log file to send to the developers.



Select the checkbox of the log data to transfer, and select ADD button if you want to add the other files from the G-scan 3 internal memory.

When ready, select [TRANSFER] to send the log data file to the developer.

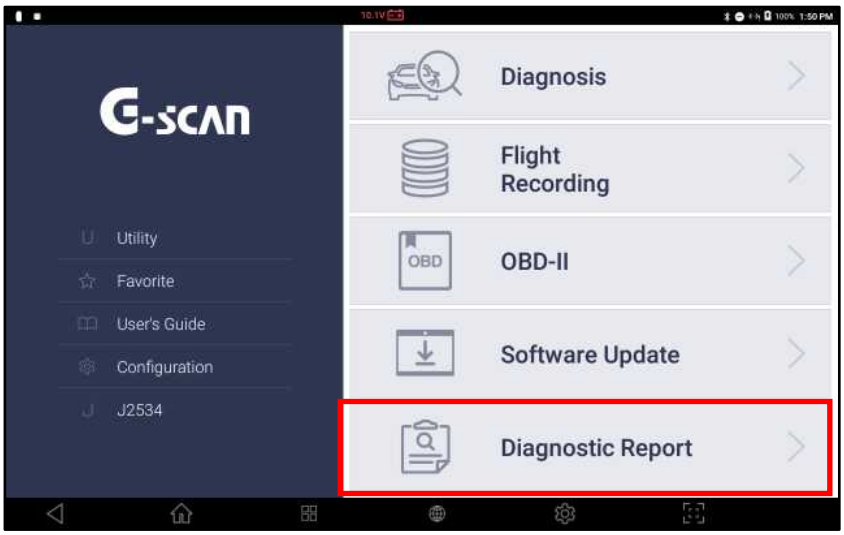
User information including valid email address must be saved in Configuration menu to transfer Log Data.

Chapter 10.Diagnostic Report

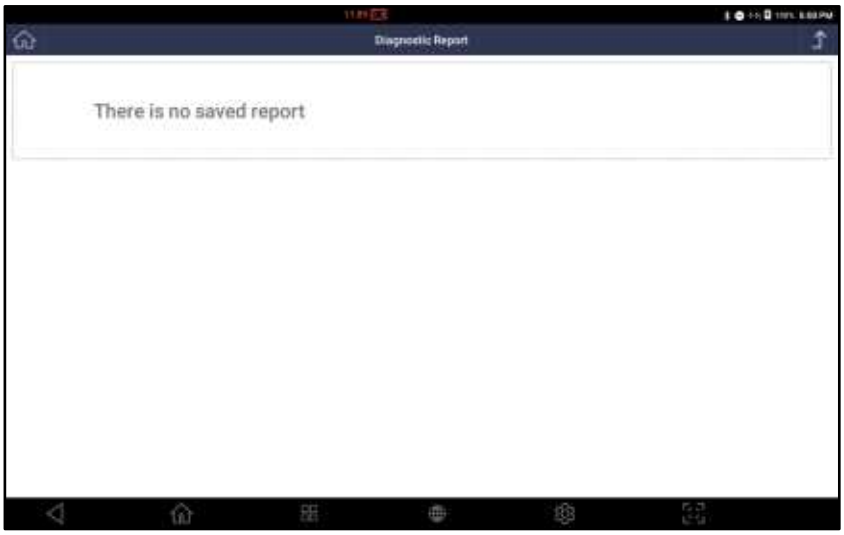
10.1. Diagnostic Report Function

Diagnostic Report Function

Diagnostic report function allows you to create a report with Pre-scan and Post-scan result. Not only can you save the reports as a PDF file in G-scan3's memory, also, with the help of Bluetooth and Wi-Fi technology, you can print or send them to desired E-mail address.



Selecting [Diagnostic Report] in main screen, as shown above, allows you to view the list of previously saved reports.



10.2. Creating a report

Diagnostic Report 10-2. Creating a report

Creating a new report

Anew report is created in the following sequence:

Pre-repair Scan

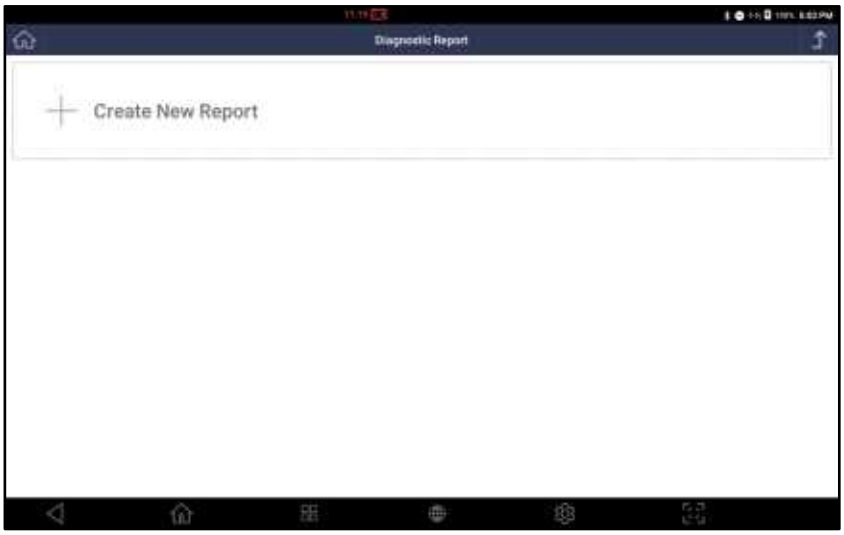
In order to create a diagnostic report, you must start from selecting [DIAGNOSIS] from G-scan 3 main menu to perform [System Search] on the vehicle.
Please refer to [6.2. System Search] of [Chapter 6. Diagnosis -General] in this manual for more details.

[System Search] scans all available control systems equipped in the vehicle and displays the number of DTC slogged in each control system.

After [System Search] is completed, selecting [Show DTC] will show the detailed list of detected system and DTCs, and activate the [REPORT] button at the bottom left corner.

Once [REPORT] button is selected, previously saved reports are displayed if available.

And at the same time, you can create a new diagnostic report by selecting [+ Create New Report]



You are required to enter the vehicle, workshop and customer information that are going to be used in the header of the report.

Vehicle Name

Automaker and vehicle model are automatically inputted according to the menu that you have selected before performing System Search. You can edit the vehicle name if necessary.

Workshop information

Shop name, Address, Mechanic Name, Telephone number, Fax number and Email address are automatically loaded from user information saved in Configuration.

You can edit each entry if necessary.

Date

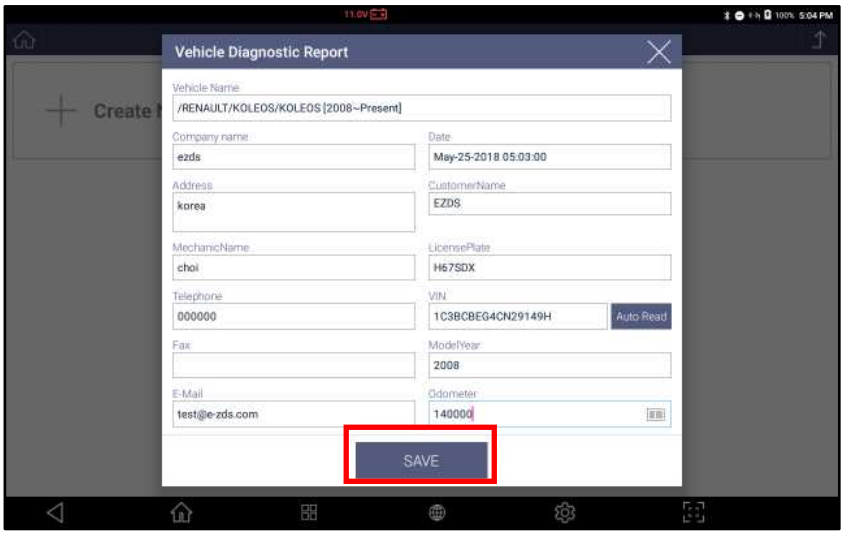
Automatically loaded from the system clock

Customer information

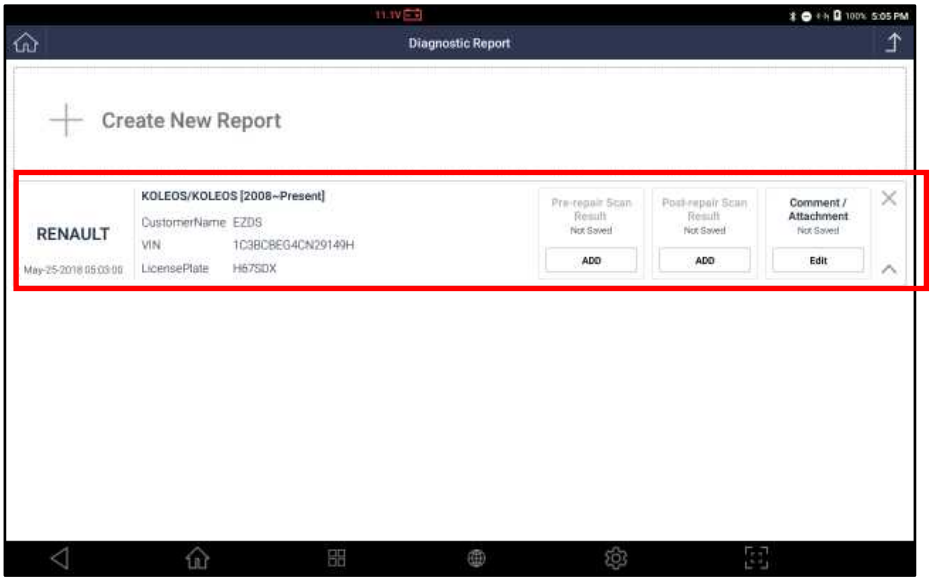
You need to enter manually if necessary.

VIN Auto Read

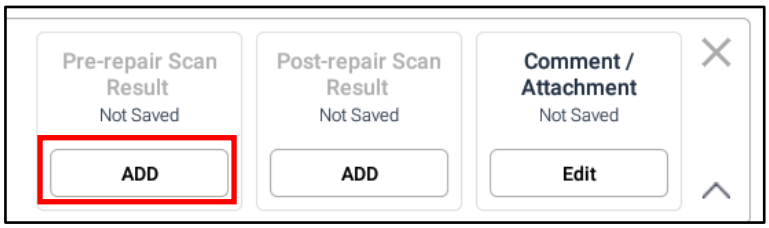
Select Auto Read button if you want to let G-scan 3 read the VIN from the vehicle automatically.



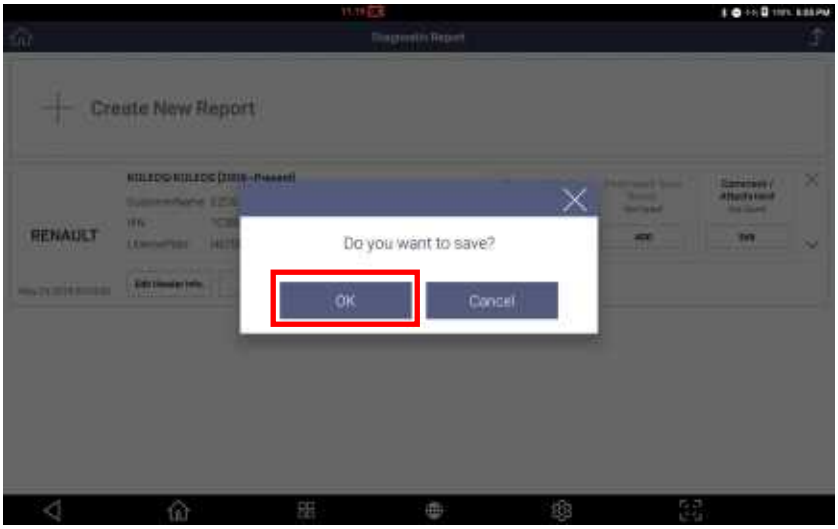
A new report is created when you select [SAVE] button on the left.



You can add the System Search result of the current diagnostic session to the report as [Pre-repair Scan Result] by selecting [ADD] button.



Once [Add] button is selected, G-scan3 will ask for confirmation.



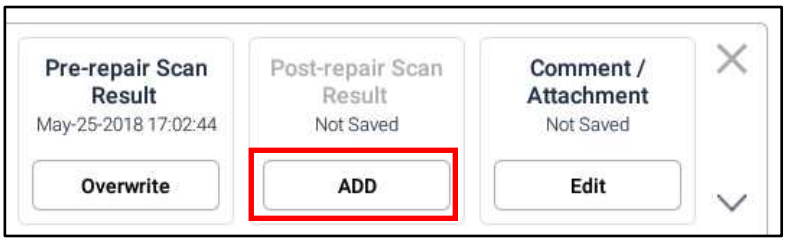
It will be noticeable that the status of the Pre-repair Scan Result is changed from “Not Saved” to data and time when the Result was saved. Also [ADD] button has been changed to [Overwrite].

If you want to delete the previously saved Pre-repair Scan Result and replace it with a new result, you can do so by repeating the System Search as explained above and selecting [Overwrite] button.

Post-repair Scan

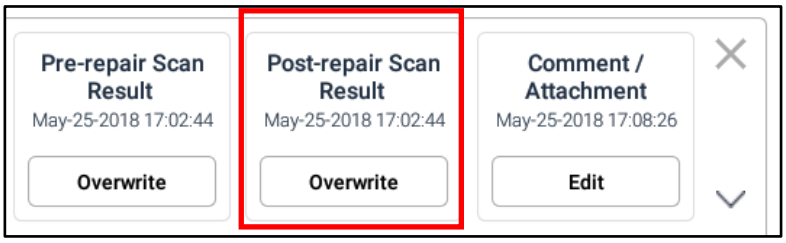
Repair the vehicle as necessary and repeat System Search procedure as explained above when repair and service are completed.

Select the report to which you want to add the Post-scan result among the list of the diagnostic reports. Then select [ADD] button in the Post-Repair Result slot.



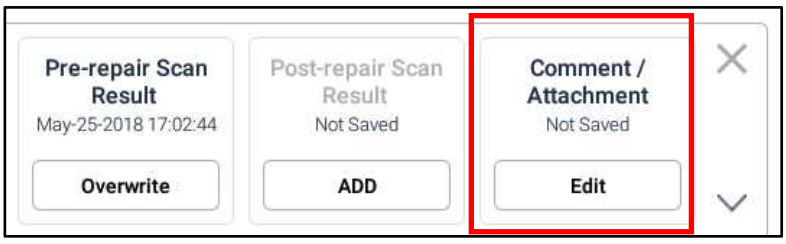
The status of the Pre-repair Scan Result changes from “Not Saved” to data and time when the Result was saved. Also [ADD] button changes to [Overwrite].

You can delete the previously saved Post-repair Scan Result and replace it with a new result by selecting [Overwrite] button.



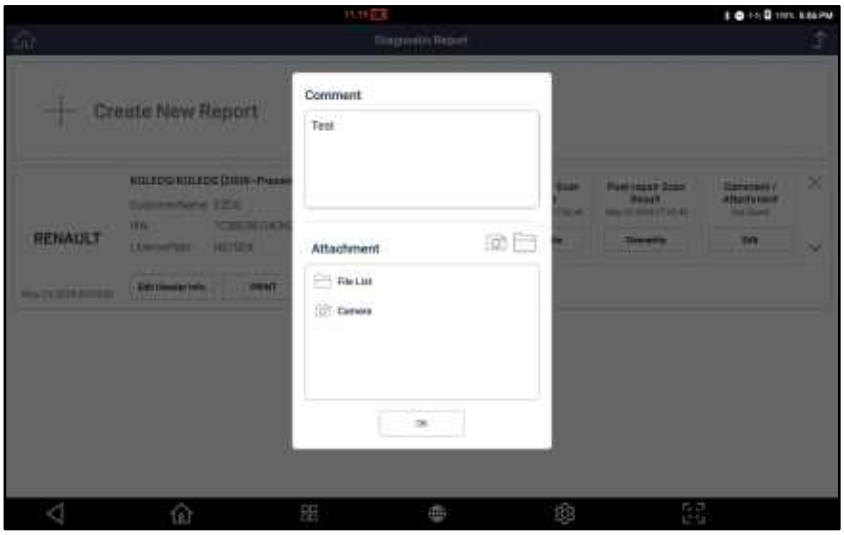
Comment / Attachment

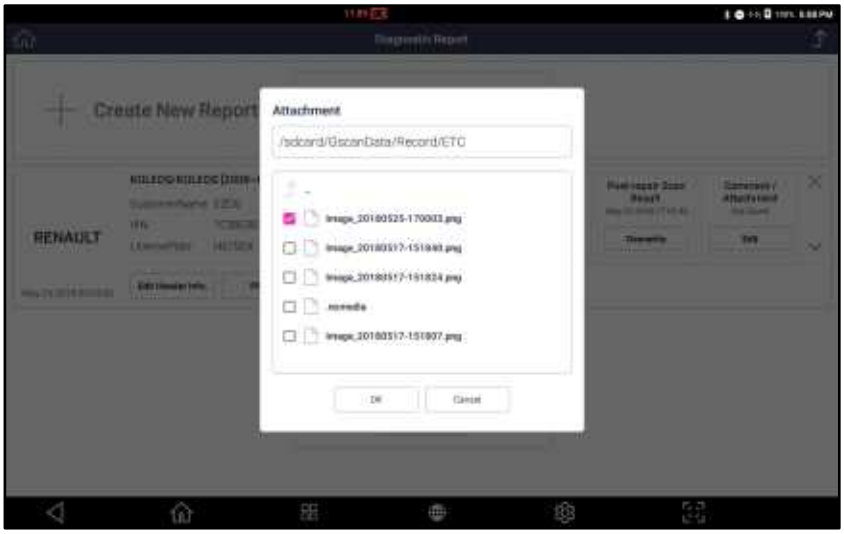
Leave a note or comment in the report by selecting [Edit] button in [Comment / Attachment] box.



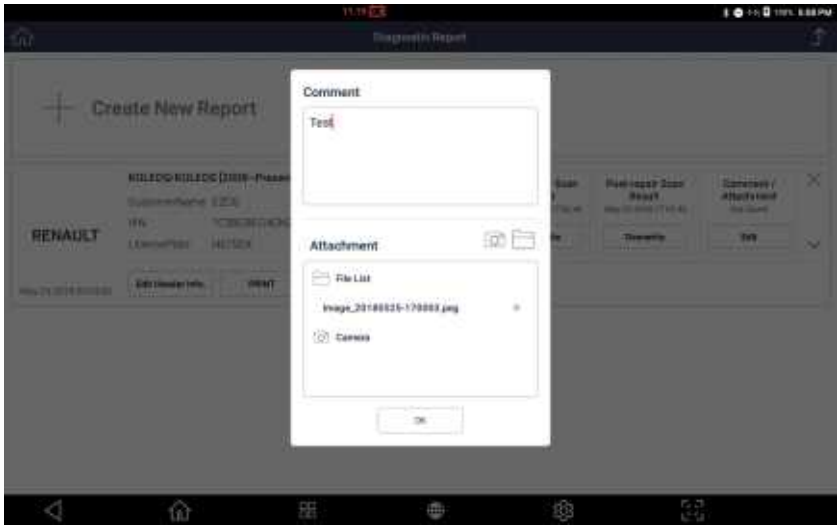
Once [Edit] button is selected, you can freely enter a note in the comment box. On the same screen, you can search for an image file saved in G-scan 3 memory.

Navigate the folders in the G-scan 3 memory to find the image file, and selecting checkbox next to the image and pressing [OK] button will attach image to the report.

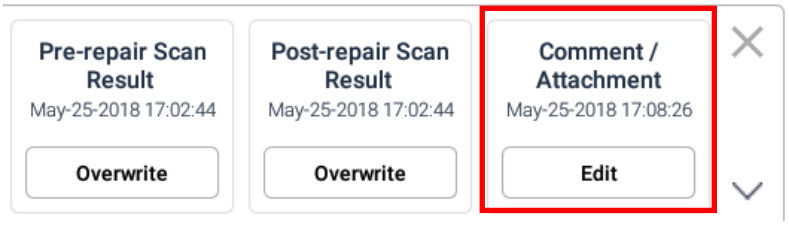




When comment and attachment are ready, pressing [OK] button will complete the task.

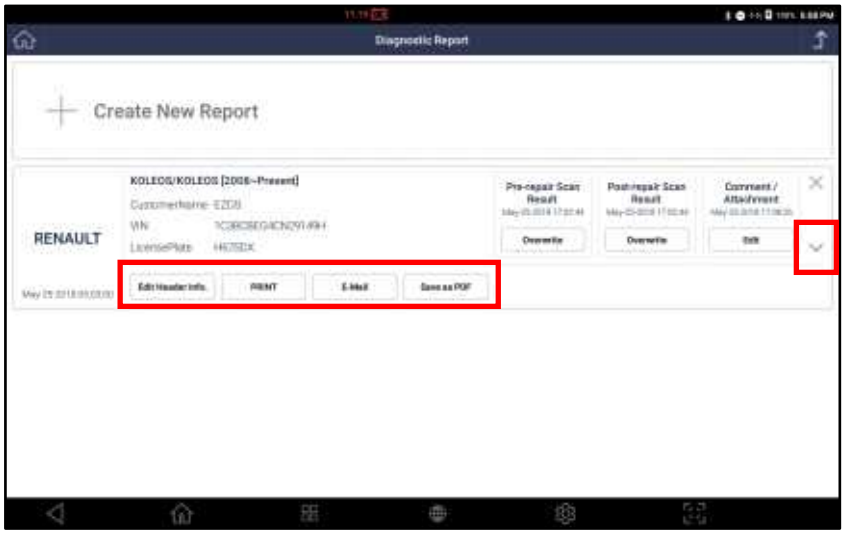


Added date and time will be displayed below Comment/Attachment title as shown below.



10.3. Report Processing

Additional Functions

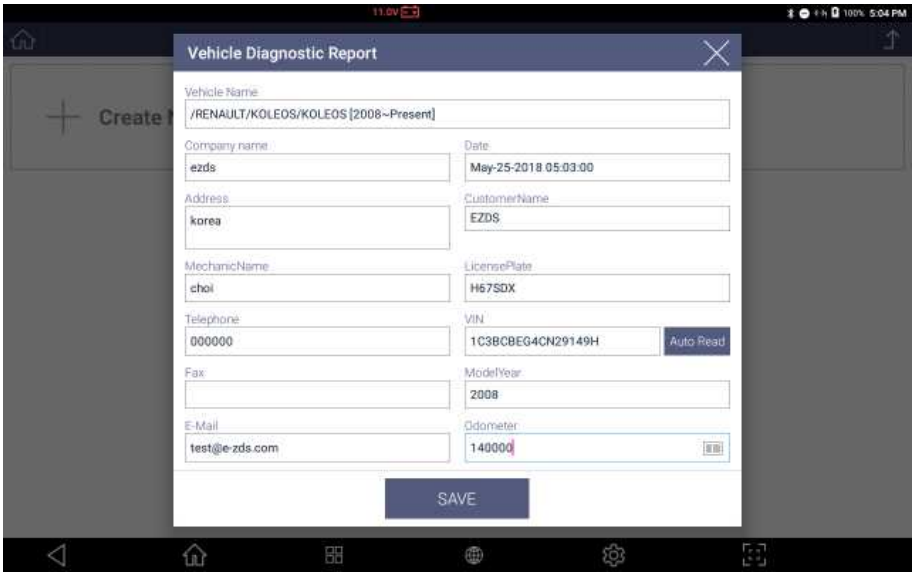


Selecting upper arrow, as shown above in the red box, or touching any space in the slot will display additional functions such as [Edit Header info], [Print], [E-Mail], and [Save as PDF].

You can freely edit header information in the report, print, send as an email or save the report as PDF format.

Edit Header Information

You can edit or enter header information that will be displayed at the top of the report.
Unless entered by the user, workshop information including Company name, Address, Mechanic Name, Telephone number and E-Mail address will be retrieved from [User info] saved in configuration menu.



Header information will appear at the top of the report when printed.

Print

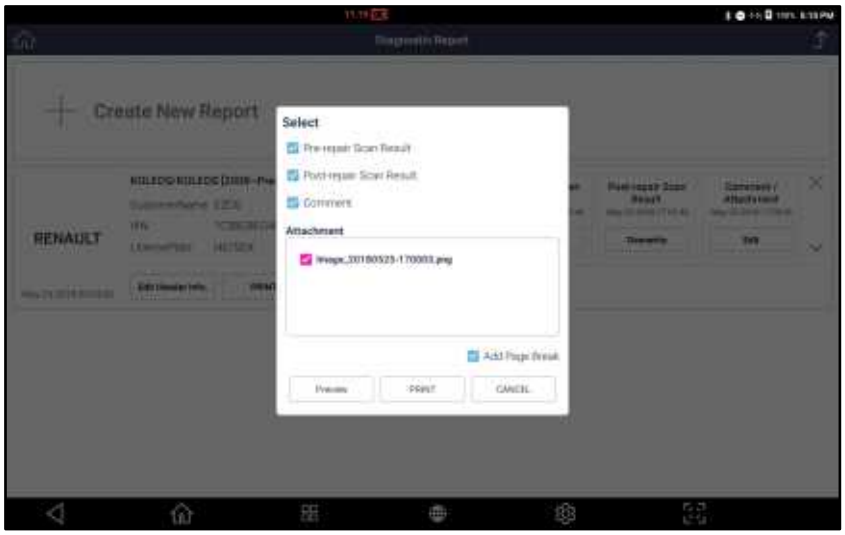
With connection to the printer, you can print the diagnostic report by selecting [PRINT] among the additional functions. Please refer to [7.4. Data Printing] for more information about printer set up and installation of printer drivers to G-scan 3.

Once [PRINT] button is selected, a pop-up menu where you can select desirable items that will be included in the printed report.

Items for Printing

Checked box items will be included in the report.

- Pre-repair Scan Result
- Post-repair Scan Result
- Comment (and attachment)



Add Page Break

If checked, G-scan 3 will print the separate report for each of the selected item and put the header information at the head of each report. If not checked, all the selected items will be printed without break as a single report and the header information is printed in the first page only.

Preview

Allows you to view the end result before printing.

Preview: Header Information

Preview: Pre-repair scan result

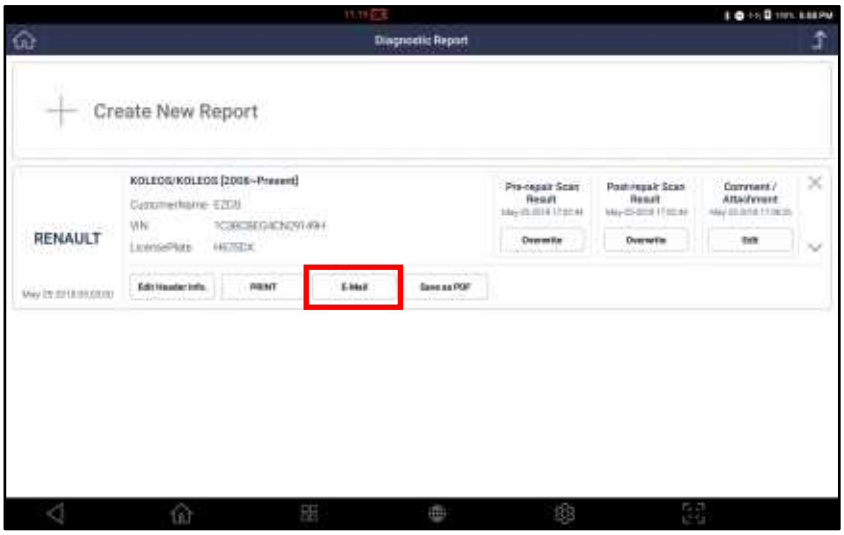
Preview: Post-repair Scan Report

Preview: comment

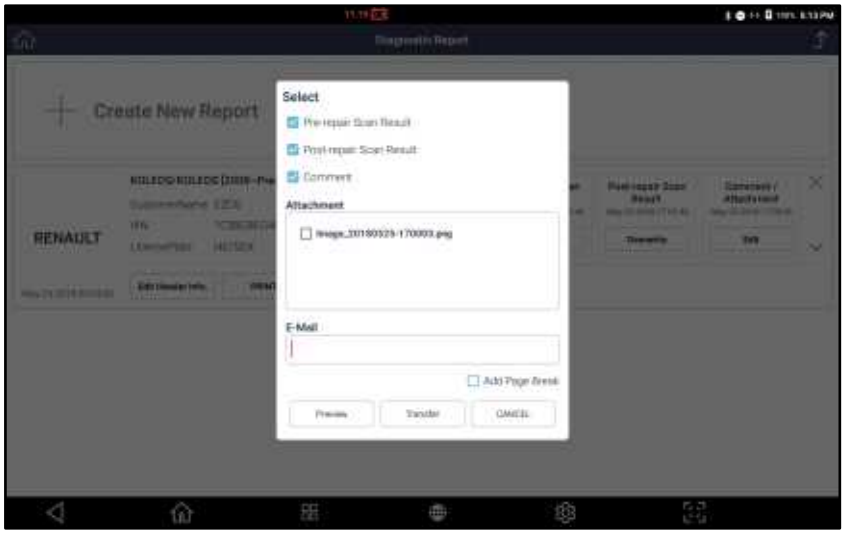
Preview: Attachment

Email

With connection to the internet, you can send the report as an E-mail to the entered address.

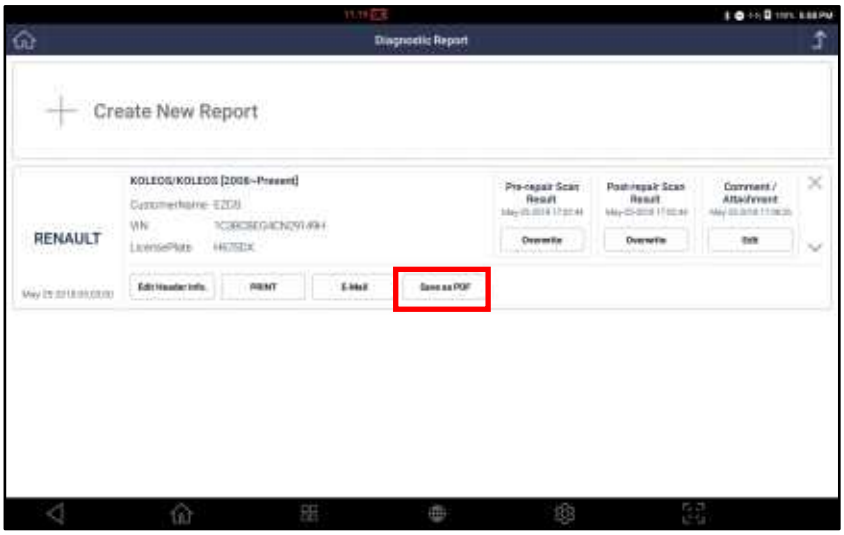


Once [E-Mail] button is selected, you can select desirable items in the report by selecting the checkbox next to the items. If [Add Page Break] is checked, the report will be saved separately for each item with identical header information on top of the report. After E-mail address is entered, selecting [Transfer] button will complete the task.

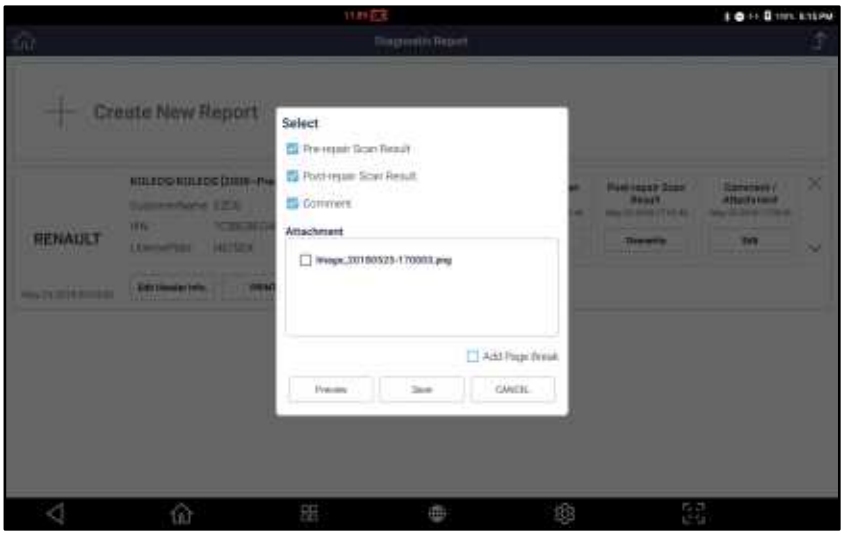


Save as PDF

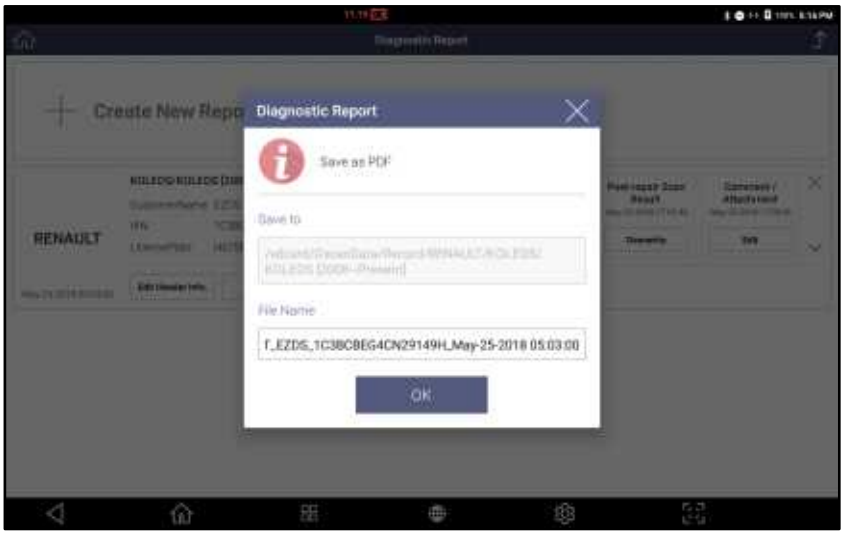
You can save the report as PDF file in the memory. Select [Save as PDF] button as shown below:



Once [Save as PDF] button is selected, in the same manner as for report printing, you can select desirable items in the report by selecting the checkbox next to the items. If [Add Page Break] is checked, the report will be saved separately for each item with identical header information on top of the report. When everything is ready, selecting [Save] button will complete the task.



You can type in the desired file name and select [OK] to save the report as a PDF file.


Diagnostic Report
Save as PDF
Save to
File Name
OK
RENAULT

Appendix

A.1.G-scan 3 Limited Warranty

Warranty Period

Provided that this product has been installed and used as instructed in this operating manual without violating the End User License Agreement, as the manufacturer, GIT will repair G-scan 3 (base unit other than software)with new or reconditioned parts, free of charge for two (2) years from the date of registration.

Warranty service is provided by the local distributor in the country where the product was originally shipped to, however, in a situation that the G-scan 3 base unit needs to be returned to Korea for warranty service, during the first 1 year of this 2-year warranty period, GIT will cover the freight cost for return trip of the G-scan 3base unit 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.

Scope of Warranty

Functioning accessories including cables and connectors are warranted for 1 year from the data product registration.
Non-functioning parts and consumable accessories including but not limited to base unit plastic case, cartons, paper box, carry case and parts thereof, plastic bags, printed material and CD or DVD.
Lithium-ion battery module is warranted by the manufacturer for 6 months only as the standard policy of the industry.

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

Warranty Void

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 acts 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.

YOU ARE REQUIRED TO REGISTER G-SCAN 3 AND USER INFORMATION TO G-SCAN WEBSITEWHEN THE PRODUCT IS DELIEVERED TO YOU WITHOUT DELAY. GIT HOLDS THE RIGHT TO REFUSE PROVISION OF ANY SERVICE FOR THE PRODUCT THAT HAS NOT BEEN REGISTERED.

Limited Liability and Disclaimer

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.

A.2. Discard of used equipment

WEEE (Waste Electrical and Electronic Equipment) symbol as shown in Fig. 1 is indicated on the back of G-scan 3 base unit. Please note that G-scan 3 is subject to this regulation for disposal of Waste Electrical and Electronic Equipment, therefore you are kindly requested to follow the suggested rules.

Use caution disposing of the product; it contains a lithium battery. Users must follow the regulations when replacing or discarding this battery.

(Fig. 1 WEEE)

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.

A.3. CE compliance

As the manufacturer, G.I.T Co., Ltd.. hereby declares that this product in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU

CE

The product definition operating temperature is from 0 ℃ to 40 ℃, once over this temperature range, the product might affect the function. We suggest the product should store under environment temperature from -10 ℃ to 60 ℃ once over this temperature range, the product might affect the function. We suggest the product should use accessories which pack together with product in the same gift box, if this product use with other non inbox accessories, it might issue some interference signal to make other electronic device which around the product could be impact and also might work abnormally.

The product's wireless conducted power all follow related RF standard, once the product's voltage and temperature too low or high or any abnormal operating method, it might let product's wireless conducted power become unstable, then impact the performance. We suggest the product should use accessories which pack together with product in the same gift box and the product's wireless conducted power all follow related RF standard, if this product use with other non inbox accessories or once the product's voltage and temperature too low or high or any abnormal operating method, it might let product's wireless conducted power become unstable, then impact the performance. This product's wireless communication antenna, do not requirement the SAR testing, because operating distance more than 20 cm and conforms to EN62311.

This product’s safety / RF / EMC already test by qualify labtory and get the pass report, but any abnormal operating method or condition might also make the product stop working or function error.

Manufacturer	**Company**	GIT Co., Ltd	**TEL**	82-2-1588-3665

	Address	05655, GIT Bldg, 87, Macheon-ro, Songpa-gu, Seoul, Korea

Frequency Band	**WLAN**	2 412 ~ 2 472 MHz 5 180 ~ 5 240 MHz / 5 190 ~ 5 230 MHz
	Bluetooth	2 402 ~ 2 480 MHz
Output Power	**WLAN**	**2.4 GHz** 802.11b : 18 dBm ± 2 dB 802.11g : 15 dBm ± 2 dB 802.11n_HT20 : 15 dBm ± 2 dB 802.11n_HT40 : 15 dBm ± 2 dB **5 GHz** 802.11a : 17 dBm ± 2 dB 802.11n_HT20 : 16 dBm ± 2 dB 802.11n_HT40 : 16 dBm ± 2 dB
	Bluetooth	7.5 dBm ± 2 dB
	Bluetooth LE	7 dBm ± 2 dB

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

Any Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. And consult the dealer or an experienced radio/TV technician for help.

A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.