

USER MANUAL

ZENITH Z7 LITE

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Chapter 1. End User License Agreement

1.1 End User License Agreement

Note

The ZENITH Z7 LITE is licensed to use within a designated geographical region or country where the product was originally shipped to. If you use this ZENITH Z7 LITE outside the designated region or country, it may trigger the various restrictions on the use of the ZENITH Z7 LITE.

Please check the End User License Agreement below and proceed the ZENITH Z7 LITE registration only when you agree to all the terms and conditions therein. In case you have any doubt or if you disagree or do not understand any of the terms and conditions in this agreement, please abort the registration procedure immediately and contact your local distributor.

A person who wishes to use the ZENITH Z7 LITE (here in after referred to as "end user") agrees to the following terms and conditions by completing the product registration.

A. Regional License

- This ZENITH Z7 LITE can only be registered and used within the country or geographical region designated by the supplier at the time of shipment. Selling or using it outside the designated country or region is strictly prohibited.

- To protect the intellectual property embodied in this ZENITH Z7 LITE and fulfill the conditions of this license agreement, “end user” agrees that the supplier has the right to monitor the country or the region where it is being used when it is connected to its online server facility for software update or product registration purposes.

- The supplier has the right to restrict the use of the ZENITH Z7 LITE if it is found violating this end user license agreement by registering or using it outside the designated country or region.

- Restriction of use can be enforced in various forms and levels including but not limited to the incremental inconvenience of usage, prohibition of additional software updates, disabling specific diagnostic functions, and even complete lock

down of the product making it not operational. Such restrictions cannot be withdrawn unless either of the following conditions is met:

A) Restriction on the ZENITH Z7 LITE is applied in inappropriate manner due to the supplier's system error or mistake.

B) Requested by the authorized distributor in the designated region/country with the written consent to provide full service and support for the ZENITH Z7 LITE.

- The period of warranty service and free software update subscription are not suspended even when the functional restriction to the ZENITH Z7 LITE is enforced, and the expiry dates will remain unchanged.

- 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 reactivating the ZENITH Z7 LITE or lifting the restrictions imposed to it.

B. Liability Indemnification and Disclaimer

- “End user” understands that the ZENITH Z7 LITE is a multi-brand diagnostic tool developed to provide diagnostic functionality similar to each car manufacturer’s original equipment for the aftermarket users, and not all the diagnostic functions have been developed based on the original data and information provided by each car manufacturer.

- Therefore, “end user” acknowledges that the ZENITH Z7 LITE 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.

- Even though the ZENITH Z7 LITE has been extensively tested and evaluated, EZDS Co., Ltd. cannot guarantee that it will work correctly as intended on every system in every vehicle. EZDS Co., Ltd. will do the best to fix any bugs and errors for enhancement of the product reliability and functionality when they are found or reported, but EZDS Co., Ltd. will not be held liable for any direct, special, incidental, indirect damages or any economic consequential damages (including lost profits).

C. User Diagnostic Data Transferred to EZDS

- Upon software update, end user agrees that previously stored diagnostic data is being transferred to EZDS server for software development / enhancement purpose.

1.2 Copyright Notice and Disclaimer

A. Copyright Notice

- ZENITH Z7 LITE is copyrighted 2023 by EZDS Co., Ltd. All rights are reserved.
  File manipulation, de-compilation, disassembly, reverse-engineering, alteration, use as a reference tool for the purpose of developing a product with similar functionality, and re-distribution in any form without the prior written consent of EZDS Co., Ltd. is prohibited.

- EZDS Co., Ltd. owns the intellectual property including but not limited to the patents, trademarks and copyright contained in this user's manual. No part of this manual may be photocopied, reproduced, or translated to another language in any way without the prior written consent of EZDS Co., Ltd. Purchase of ZENITH Z7 LITE shall not be assumed as granting or transferring the rights to utilize intellectual property of EZDS Co., Ltd.

B. Disclaimer

- All information, specifications and illustrations in this manual are based on the latest information available at the time of publishing. EZDS Co., Ltd. reserves the right to change or modify the ZENITH Z7 LITE software for technical and non-technical product enhancement without notice. This may include scan tool user interface, graphical displays, vehicle coverage, supported functions and operating procedures. Hardware may also be modified, altered or redesigned, therefore, even though the information contained in this manual has been carefully checked for accuracy, no guarantee is given for the completeness and correctness of the contents, including but not limited to the product specifications, functions, and illustrations embodied in the ZENITH Z7 LITE and contained in this manual.

1.3 Safety Warnings and Cautions

This section contains warnings and cautions for safe and proper use of this product; therefore, for your own safety and the safety of others, and to prevent damage to the ZENITH Z7 LITE and the vehicles upon which it is used, it is recommended that every user should read this section carefully before using ZENITH Z7 LITE and make sure that such warnings and safety messages and instructions are well observed and comprehended.

There are various procedures, techniques, tools, and parts for servicing vehicles, as well as huge difference in the level of skill and experience of the technician doing the work, and we are unable to anticipate all possible situations or provide advice or safety messages to cover every circumstance.

Basically, as the automotive technician, the user of the ZENITH Z7 LITE should be knowledgeable of the vehicle system being worked on. It is very important to use proper service methods following approved test procedures and perform testing in an appropriate and acceptable manner to not endanger the user's own safety, safety of the others in the work area, the device or the vehicle being worked on.

Before using the ZENITH Z7 LITE, make sure to refer to and follow the safety messages and applicable test procedures provided by the vehicle manufacturer being tested.

Note

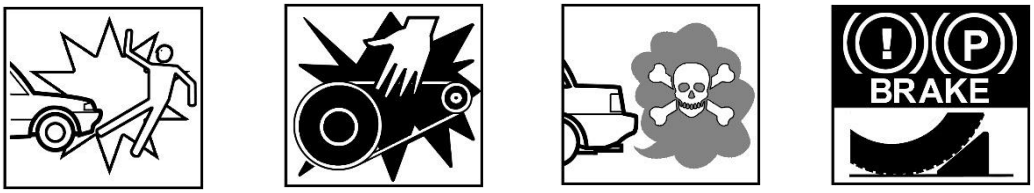
Dangerous consequences may arise, with the possibility of fire, death, or serious injury to the user, if the product is not handled properly as instructed below. The user shall be fully liable for any direct or consequential damage or loss caused by not following the instructions provided in this ZENITH Z7 LITE user's manual.

The safety messages herein cover situations EZDS is aware of.
EZDS cannot know, evaluate or advise you all possible hazards. You must make sure that any condition or procedure encountered does not jeopardize your safety.

A. General Operation on the Vehicles

- Use the ZENITH Z7 LITE only for automotive testing purposes in a safe environment.
- Operate the ZENITH Z7 LITE within the specified operating voltage and temperature ranges.
- Place the ZENITH Z7 LITE at a secured location inside the vehicle when in use, and keep clothing, hair, hands, tools, test equipment, etc., away from all moving or hot engine parts of the vehicle and hazardous environment.
- Operate the vehicle in a well-ventilated work area.

- Park the car on a level ground with the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) position and make sure the parking brake is engaged. Put the blocks in front of the drive wheels and never leave the vehicle unattended while testing.
- Keep a fire extinguisher suitable for gasoline, chemical, and electrical fires nearby.
- Be careful not to cause damages to the cables by heat from the engine or not to get caught by the moving parts in the engine compartment when Z7 cable connection is configured under the hood.



- Do not use the ZENITH Z7 LITE rear stand to hang the main unit on the vehicle's steering wheel even when the vehicle is not moving. It may cause serious injury or fatal consequences to the user if the airbag deploys while using the device.



- Refer to the official service manual for the vehicle being worked on to observe and follow all the provided diagnostic procedures and precautions. Failure to do so may result in personal injury or damage to the ZENITH Z7 LITE.
- Use only the parts and accessories authorized by EZDS.

- Securely tighten the screw lockers when connecting the main DLC cable to ZENITH Z7 LITE ZVCI.
- Connect or disconnect ZENITH Z7 LITE while the ignition is OFF or the engine is not running.
- Be careful not to let the main DLC cable or power cable get disconnected while ZENITH Z7 LITE is operating.
- To avoid damaging the ZENITH Z7 LITE or generating false data, make sure the vehicle battery is fully charged and the DLC cable and diagnostic adapter connection to the vehicle is clean and secure.
- Do not operate ZENITH Z7 LITE and drive the vehicle at the same time. Any distraction may cause an accident. When performing dynamic calibration or drive test, make sure to park the vehicle at a safe location to operate ZENITH Z7 LITE.
- When supplying power from the vehicle battery, check the connection for correct polarity.

B. Use of External Power

- Supply stable power from the external source when operating ZENITH Z7 LITE away from the vehicle for software update (Operating System, Firmware and Application updates) or charging.
- Use the AC/DC power adapter or cradle(Optional purchasing item) supplied by EZDS only when supplying power from the external source.

C. Internal Rechargeable Battery

- Observe the instructions of this user's manual when replacing the rechargeable battery.
- Do not use the rechargeable battery other than EZDS 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 away from the heat.
- Do not apply physical impact to the rechargeable battery or pierce it with a sharp object.
- Do not put the rechargeable battery in the microwave oven or high-voltage container.
- In case of any smell, heat, distortion, or discoloration is observed with the rechargeable battery, stop using it immediately. If such a symptom is observed while charging or operating, remove the battery from the ZENITH Z7 LITE Main unit and contact your local distributor.
- 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.
- In case battery liquid gets in the eyes, do not rub, and wash them with fresh running water. And see the doctor immediately

D. Storage and Carriage

- Keep ZENITH Z7 LITE within the specified storage temperature when not in use (See the spec sheet) and avoid exposure to direct sunlight.
- Keep ZENITH Z7 LITE dry, clean, and free from oil, water, and grease. Use a mild detergent on a clean cloth to clean the outside of the equipment as necessary.
- Put ZENITH Z7 LITE main unit on a secure place and avoid unstable, inclined, or slippery place.
- Be careful not to drop the ZENITH Z7 LITE main unit.
- Avoid humidity and dusts when storing and using ZENITH Z7 LITE in order to prevent electric shock or fire.
- Do not put heavy objects such as hand tools on ZENITH Z7 LITE main unit.
- Stow the parts and accessories that are not in use in the original ZENITH Z7 LITE carry case.
- Do not carry ZENITH Z7 LITE by holding the cables connected to the main unit.

E. LCD display

- Use of a sharp or pointed object against the LCD screen may cause serious and irrecoverable damage to the touch screen and the LCD display itself.
- 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

Chapter 2. General Introduction

The ZENITH Z7 LITE Diagnostic Platform is a standalone diagnostic solution that is powered by the Octa-core 2.2 GHz processor running on Android 9 operating system, a 10.1" LCD display with a capacitive touchscreen, combined with powerful diagnostic database and applications that provides coverage of OE-level manufacturer specific diagnostic functions, it helps the professional automotive technicians have every job from basic vehicle diagnostics and analysis to advanced ECU coding and calibration done quickly and efficiently.

2.1 Specification

ZENITH Z7 LITE Main Unit Specification

Category	Specifications
CPU	Octa Core Processor 2.2 GHz
Operating System	Android 11
System Memory	4G / Internal 64G **
External Memory	Micro SD Card
LCD	10.1 inch FHD (1920 x 1200)
Input Devices	Capacitive Touch Screen, 3 Hard Keys (Power, Volume +, Volume -)
Camera	8 megapixel auto-focus with LED flash
Sound	Loud Speaker 1 microphone
Rechargeable Battery	Li-ion 3.85V, 5800mAh
Operating voltage	Main Unit(DC5V)
Operating Temperature	-10~50°C
Battery Internal Temp.	0~45°C(Normal Charging Mode), 45~60°C(Warm Charging Mode, Low-speed charging and battery SOC is limited)
Storage Temperature	-30~70°C
Sensors	Ambient Light, Gyroscope, Accelerometer
Dimension	About 275 x 187 x 36mm(Main Unit)
Weight	About 1.2kg

Connectivity	
External port	1 x USB Type A 1 x USB Type C
Network	RJ45 Ethernet, Wi-Fi 802.11 a/b/g/n, Bluetooth 5.0, NFC

ZENITH Z7 LITE ZVCI Specification

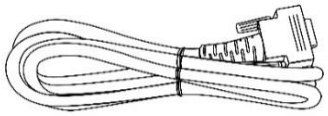
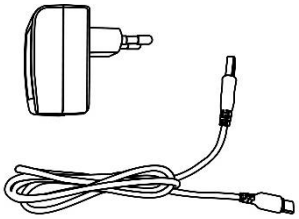
Category	Specifications
CPU	Cortex-M4,180MHz
System Memory	Flash 2MB / SRAM 512kB
External Memory	EEPROM 512Byte
LED	4EA (POWER, PC COMM, DIAG DATA, STATUS)
Operating voltage	8-32V
Power Input	DC Jack and DLC
Dimension	About 130 X 89 X 32mm
Weight	About 180g

Connectivity	
External port	USB-B Type(Normal Type)

Supported Vehicle Communication Protocols
CAN (High speed, Low speed, Single), ISO-13400, ISO-11898, ISO-9141, ISO-9141-CARB, KWP-2000, SAE-J1708, SAE-J1587, J1850(PWM/VPW), Melco Pull-Down

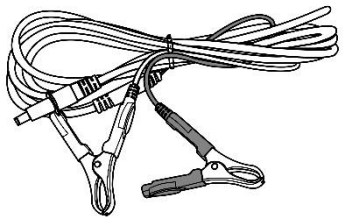
2.2 Parts and Components

Basic Supplies

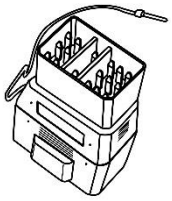
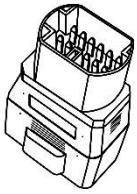
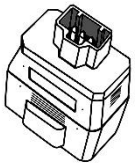
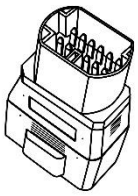
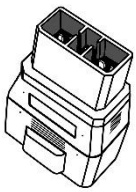
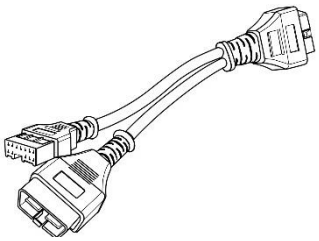
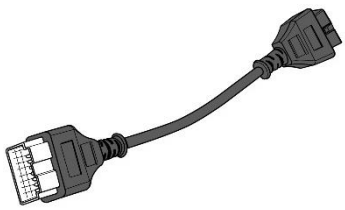
Part	Parts Number	Description	Q'ty
	EZ7MU001	ZENITH Z7 Main Unit	1
	EZ3MU021	ZENITH Z7 ZCVI	1
	EZ3CB001	DLC Main Cable	1
	EZ7CB011	AC/DC Adapter Set (General)	1
	EZ7BA001	Battery Pack	1
	EZ7AC001	Rear-Hand Strap	1

	EZ7AC011	Stylus Pen	1

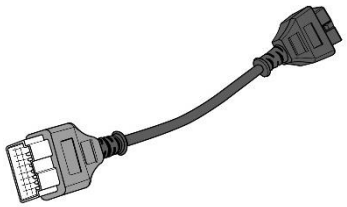
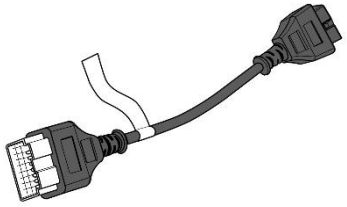
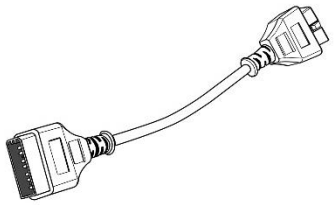
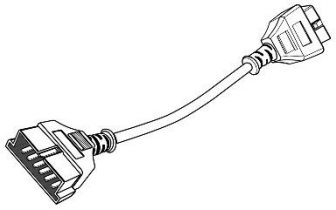
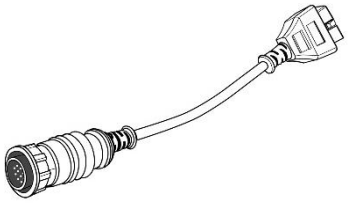
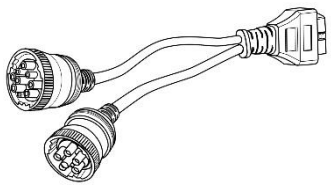
Optional Supplies

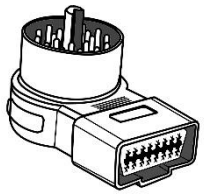
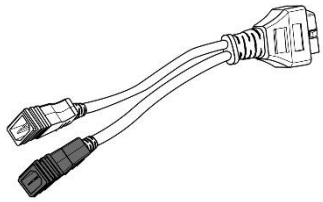
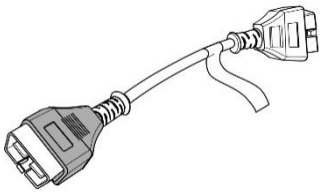
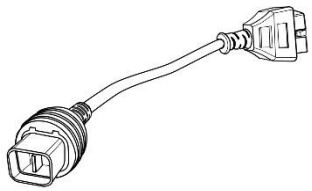
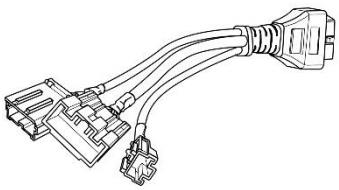
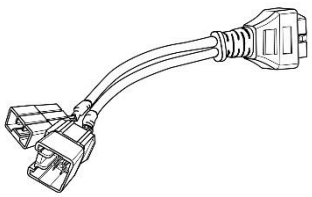
Part	Parts Number	Description	Q'ty
	EZ7CC001	Charing Cradle	**1**
	EZ7BX001	Carrying Case	**1**
	EZ0CB003	Battery to DC Cable	1

Optional OBD Adapters

	EZ0CB004	TOYOTA 17+1P SQUARE	1
	EZ0CB005	TOYOTA 17P ROUND	1
	EZ0CB006	HONDA/ACCURA 3P	1
	EZ0CB007	MAZDA 17P	1
	EZ0CB008	SUBARU 9P	1
	EZ0CB009	MITSUBISHI/HYUNDAI 12+16P	1
	EZ0CB010	KIA 20P A-Type (Black body w/ white tip) This adapter shares the same connector housing with Ssangyong 20P and Kia 20P B type adapters. Carefully check the color and the engraved adapter name.	1

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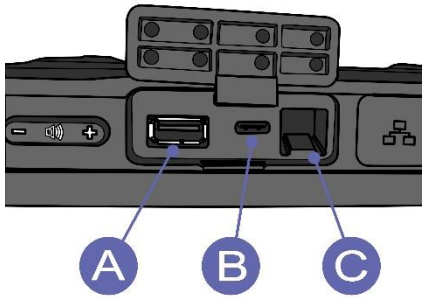
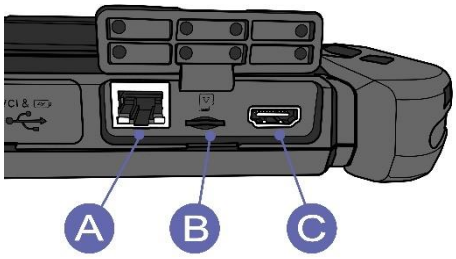
	EZ0CB011	KIA 20P B-Type (Red body w/ white tip) This adapter shares the same connector housing with Ssangyong 20P and Kia 20P A type adapters. Carefully check the color and the engraved adapter name.	1
	EZ0CB014	SSANGYONG 20P (Black body w/ white tip) This adapter shares the same connector housing with Kia 20P A and B type adapters. Carefully check the color and the engraved adapter name.	1
	EZ0CB013	NISSAN 14P	1
	EZ0CB015	DAEWOO 12P	1
	EZ0CB016	SSANGYONG 14P	1
	EZ0CB022	J1939 9P + J1708 6P	1

	EZ0CB019	BMW 20P	1
	EZ0CB020	AUDI/VW 4P	1
	EZ0CB025	HYUNDAI KIA COMMERCIAL 16P	1
	EZ0CB026	HYUNDAI CNG BUS	1
	EZ0CB023	ISUZU 20P-10P-3P	1
	EZ0CB024	HINO 12P-5P	1

Chapter 3. Getting Started with ZENITH Z7 LITE

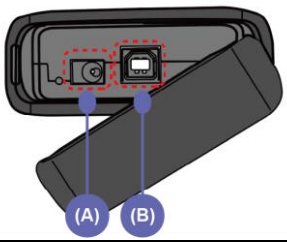
3.1 Exterior of ZENITH Z7 LITE Main Unit



No.	Item	Description
1	Power button	Long press on the button: Z7 LITE Power On/Off Short press on the button: Z7 LITE Sleep/Wake
2	Volume control button	Controls volume on media or alarm
3	Peripherals connection terminals 1 	(A) USB Type-A (B) USB Type-C
4	Peripherals connection terminals 2 	(A) RJ45 (B) Micro-SD card slot (C) HDMI Port
5	LED Battery Charging Indicator	
6	Stylus Pen	
7	Rear camera	
8	Speaker	
9	Cradle charging contact	

3.2 Exterior of ZENITH Z7 LITE ZVCI



No.	Item	Description
1	D-SUB Port	D-SUB Port for connecting DLC Main Cable
2	Peripherals connection terminals 	(A) DC Jack for connecting Battery to DC Cable (Optional)
		(B) General USB B port (Optional)

3.3 Battery Installation

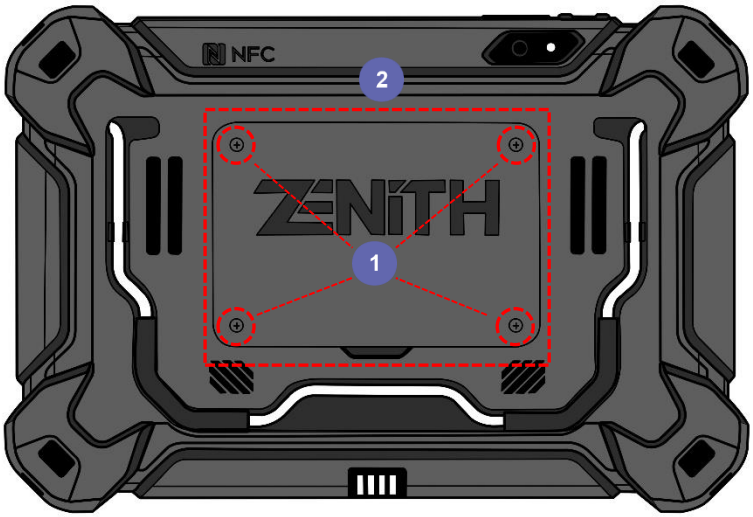
A brand-new ZENITH Z7 LITE will be delivered with its rechargeable battery detached. To power on and properly charge the ZENITH Z7 LITE, install the provided rechargeable battery and connect the AC/DC adapter. Follow the steps described in this section to properly install the rechargeable battery to the ZENITH Z7 LITE.

⚠ Caution

- Improper battery use may cause fire, explosion, or other hazards.
- If the battery is removed due to impact, heat, submersion, or other damage, there is a risk of explosion. Keep away from children and animals.
- Do not allow the battery's contacts to touch things like necklaces, coins, or electric conductors. Do not give any impact with sharp objects. There is a risk of explosion.
- Use only the approved battery and charger. Using an incompatible battery or charger may cause device malfunction or other damage, such as fire.
- When you are not using the device for a long period, take out the battery and keep the device and the battery in a dry and cool place. Also, charge the battery at least once a year. If kept without charging for a long time, it may cause the device to malfunction or the battery may fail to recharge.

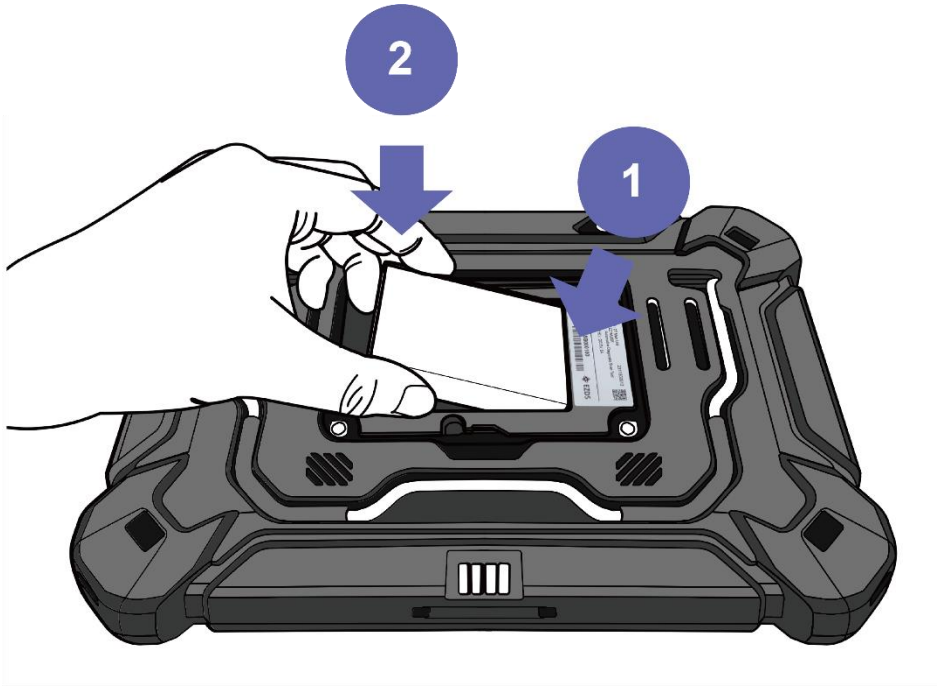
A. Lift Battery Cover

Untighten 4 x screws (1) in the lower corners of the battery cover (2) for removal.



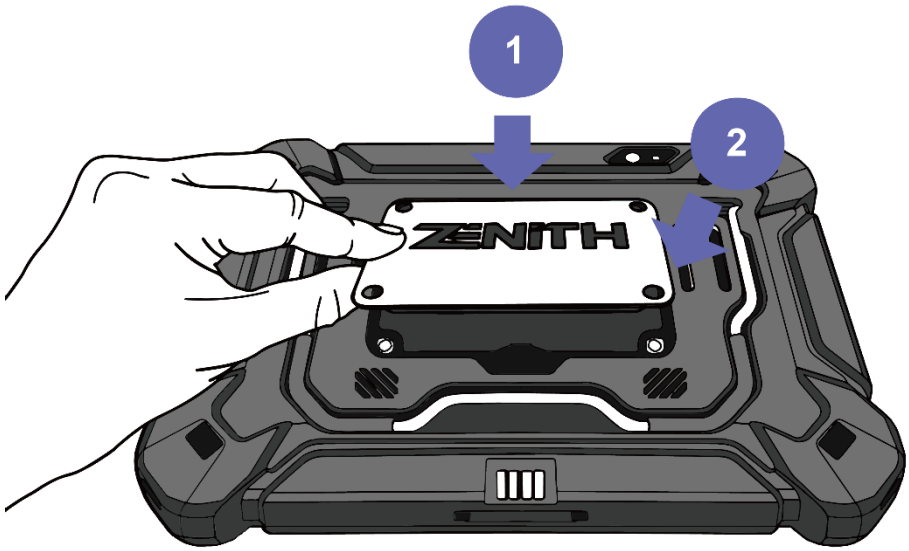
B. Sit Battery in place

Insert the battery in place with its contacts aligned with those on ZENITH Z7 LITE side (1). Hold the battery by the handling tape (2) with the barcode printed side facing upward.



C. Battery Cover Reinstallation

Reinstall the battery cover by tightening the 4 x screws.



3.4 Customized Android Operating System

Note

ZENITH Z7 LITE is NOT a multimedia main unit or a smart phone

Unlike the smart phone and pad products operating on Android system, ZENITH Z7 LITE 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 ZENITH Z7 LITE for installing or playing 3rd party applications and 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



Caution

Downloading any other applications that are not authorized by EZDS through Google® Playstore® or any other sources is strictly prohibited due to security issue. Only the printer drivers and a few assorted apps will be listed as downloadable.
Any suspicious downloading attempt may void your warranty.

3.5 Physical Button Functions

A. Battery Charging mode

The ZENITH Z7 LITE switches to Battery Charging mode when the external power is supplied to the Main Unit by connecting the AC/DC adapter or placing on the charging cradle(Optional purchasing item).

- **Ready to Turn On**

  When the ZENITH Z7 LITE has been switched to the Battery Charging mode, the system becomes ready to turn on. The battery charge level is indicated in the center of the screen.



[ZENITH Z7 LITE has been switched to Battery Charging mode and ready to power on]

B. Power Button

You can turn on/off the power of ZENITH Z7 LITE by using the power button placed at the top of the main module.



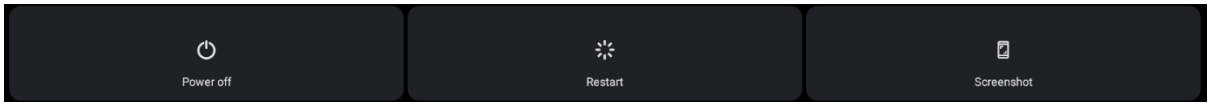
- **Power on**
  To turn the ZENITH Z7 LITE, press and hold down on the [Power] button for more than 3 seconds.





- **Power saving mode (Sleep mode)**
  With the device powered on, tapping the power button will turn the device to Power saving mode. By tapping the power button again, the device will come back to its normal mode.

- **Restart/Screenshot**
  Keep pressing the power button for longer than 2 seconds then a popup menu for Power off, Restart, and Screenshot appears on the screen as shown below.



[Power off]
Closes all the running applications and turns the device off.

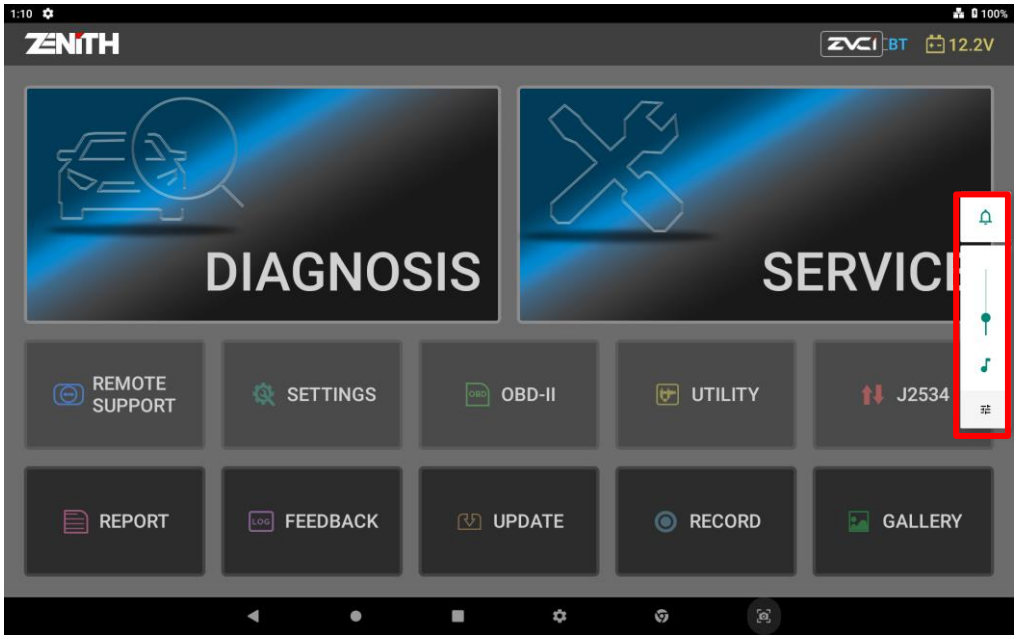
[Restart]
Closes all the running applications and reboots the device.

[Screenshot]
Captures a screenshot of the current screen and saves it in the image folder.

C. Volume Control Button

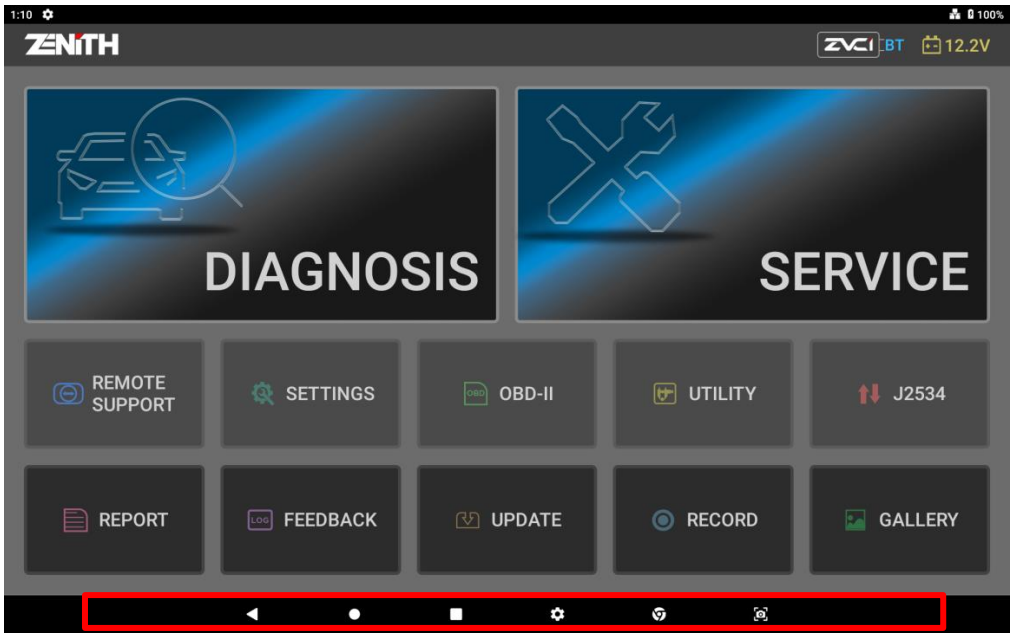
You can change the volume level with the volume control buttons. When the volume key is pressed, the volume level is displayed on the pop-up slide on the screen as shown below.

You can also control the volume for Media, Alarm and Notification by pressing the setting icon at the bottom of the pop-up slide menu.



3.6 Screen Button Functions

Android system's basic screen buttons are found in the bottom of the screen.



A. [Back] Button



Closes the current screen and returns to the previous level.

B. [Home] Button



Returns to Home screen. If the ZENITH Z7 LITE program is shut down, Zenith software can be selected and executed again by selecting the Zenith icon.



C. [App Running] button



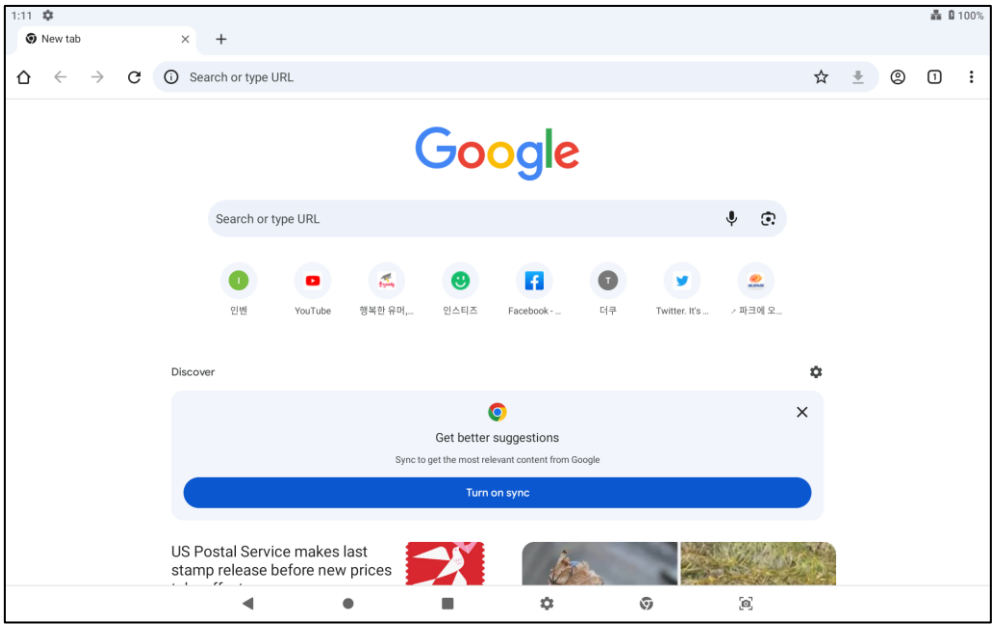
Displays the applications that are running in the background or recently executed. Z7 LITE can be selected and executed again by selecting Zenith application while sliding sideway.



D. [Web Browser] Button



Runs the default Internet browser.



E. [Setting] Button



Enables hardware configuration and preference setting for operating ZENITH Z7 LITE.



F. Screen Capture Button



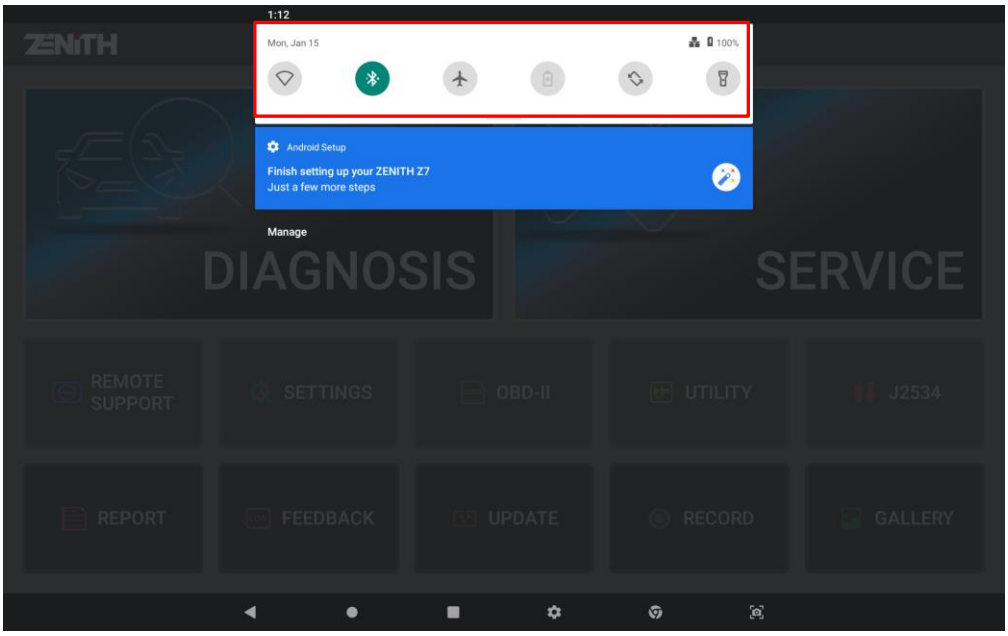
Captures current screen display.

Further options are given for editing or printing the captured screenshot.



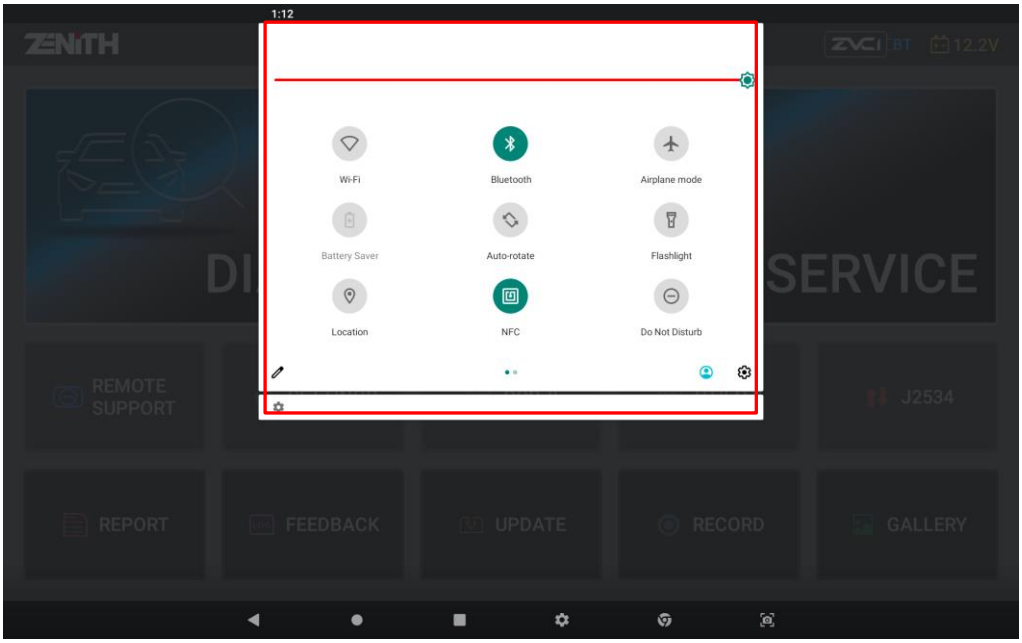
3.7 [Quick Setting] menu

[Quick setting] menu appears when you touch the top area of the screen.



Touching the top area again will extend drop-down menu like below.

You can quickly change the basic Android configuration setting such as WiFi, Bluetooth, Airplane mode, Battery Saver, Auto-rotate, Flashlight, Location, NFC, Do Not Disturb, Night Light, Screen Record, Nearby Share without having to select the “Setting” menu.

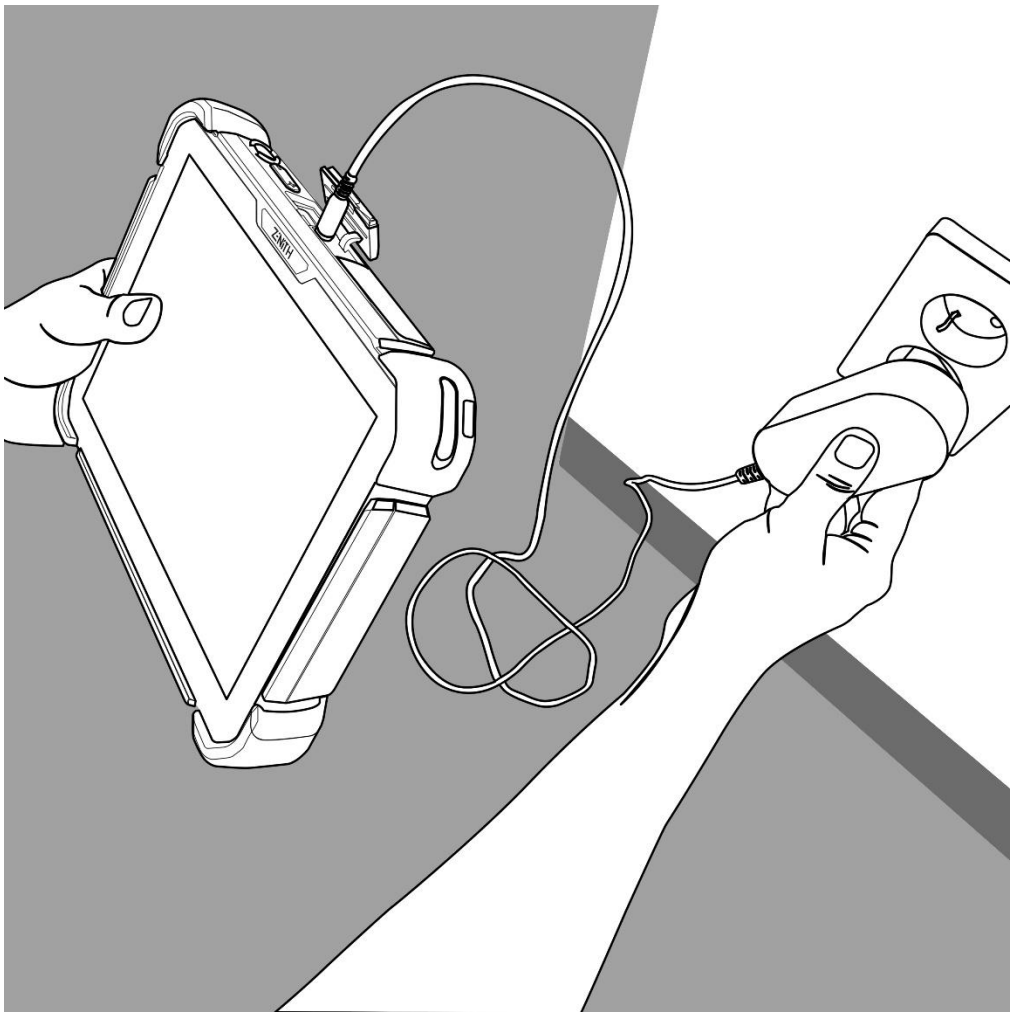


3.8 Power Supply to ZENITH Z7 LITE

Power supply to ZENITH Z7 LITE is available from 2 different sources. EZDS recommends to use either the USB Type-C or the charging cradle for charging. (The charging cradle is not included in the basic supplies of ZENITH Z7 LITE, optional item)

1 USB Type-C (through AC/DC adapter)

1. Connect the USB C type jack of the AC/DC adapter to ZENITH Z7 LITE's USB C type port.
2. Extend the AC plug of the AC/DC adapter to the AC outlet.

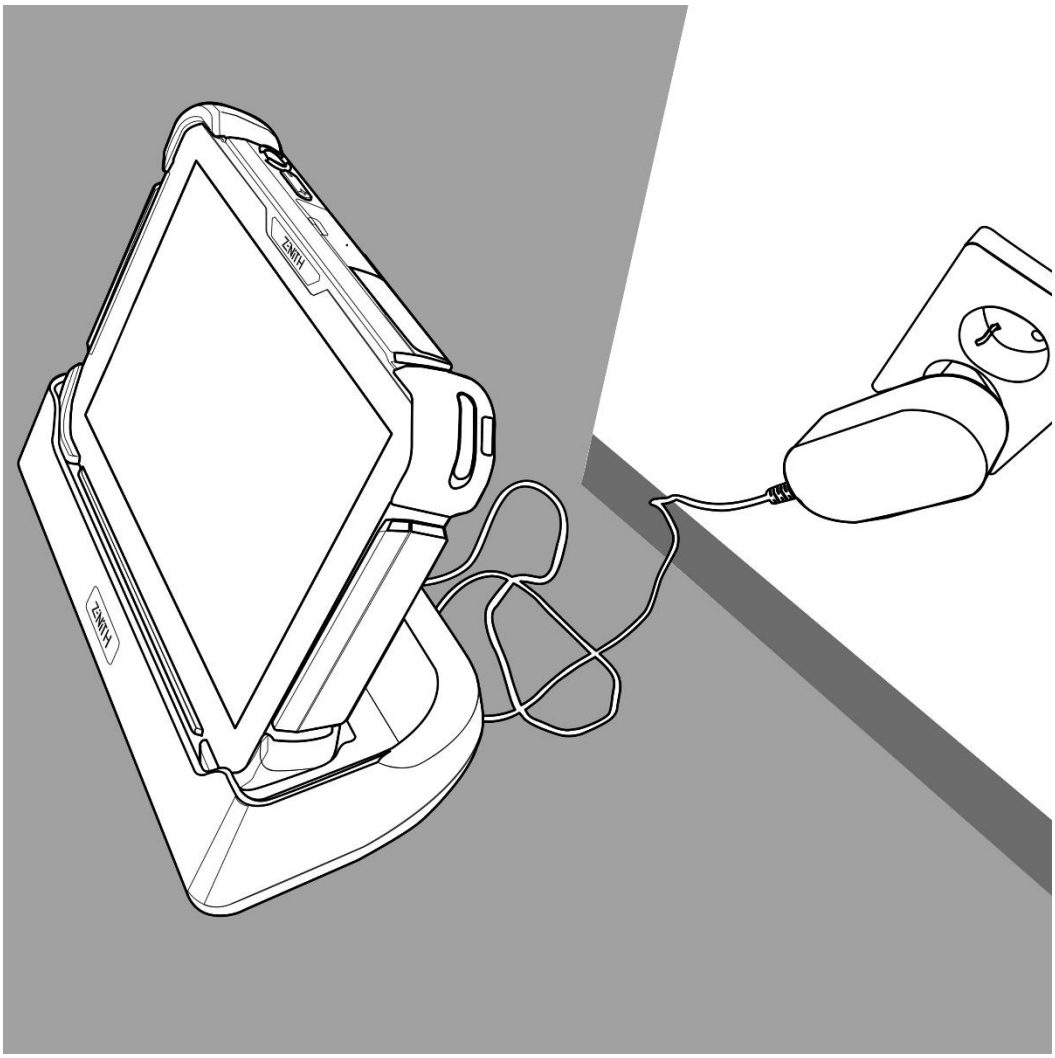


Cautions

Make sure to use the AC/DC adapter that is supplied with ZENITH Z7 LITE. Damage caused from use of unapproved AC/DC adapter is not subject to warranty.

2 Charing Cradle (Optional purchasing item)

1. Connect the USB C type jack of the AC/DC adapter to Zenith Z7 Cradle's C type input port.
2. Extend the AC plug of the AC/DC adapter to the AC outlet.
3. Place Zenith Z7 Main Unit on the Z7 Cradle

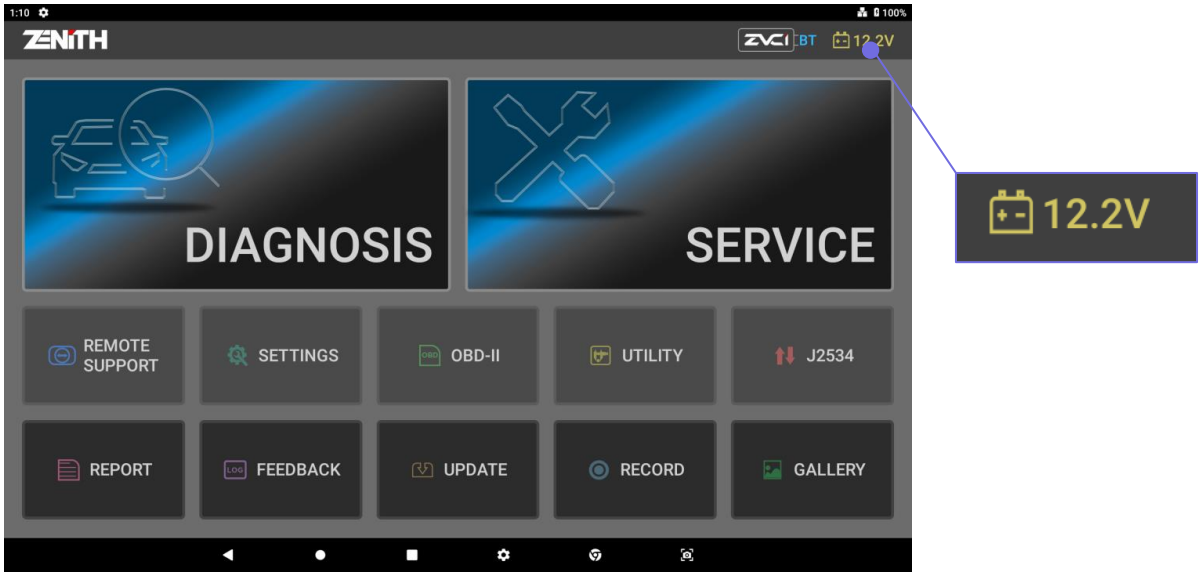


3.9 Battery Indication

Zenith Z7 is includes the Li-ion rechargeable battery pack as the basic supply, and it enables the device to run normally when the external power supply is lost.

A. Vehicle Battery Voltage Indication

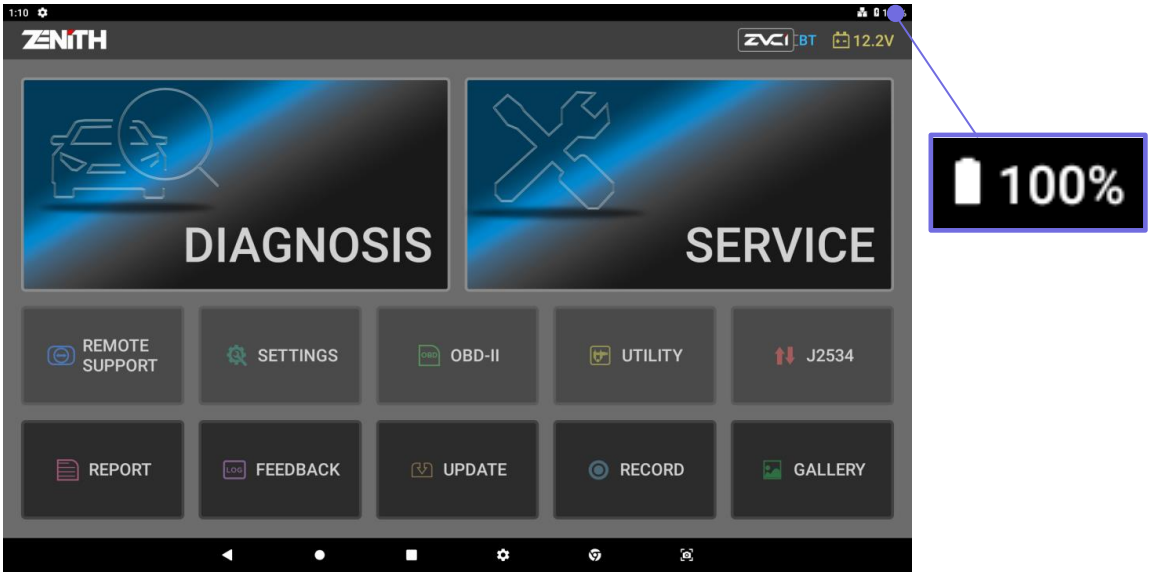
The vehicle battery voltage indication displays the level of voltage of battery equipped in the cars. Please make sure the battery voltage level is within normal range, Insufficient level of vehicle battery may cause incorrect diagnosis result.



B. Rechargeable Battery Level Indication

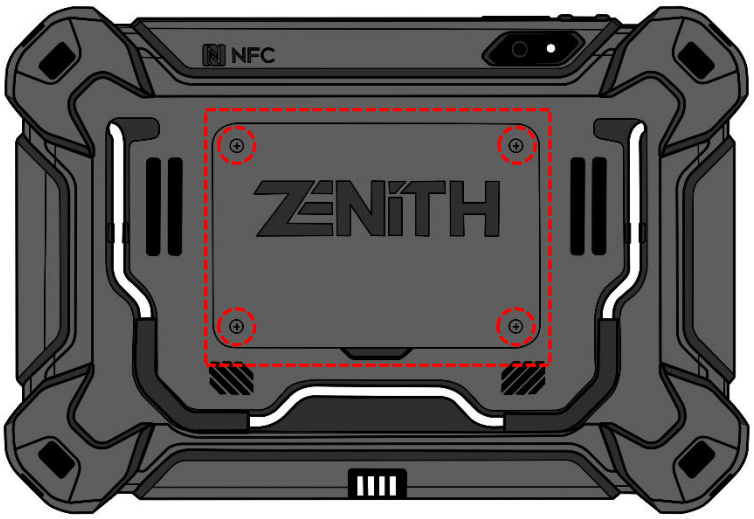
Please make sure that the rechargeable battery is charged to a sufficient level, and the battery level does not drop below 20% when operating the device without external power supply. The battery level is indicated in the top right corner of the screen.

- When the battery level is low, ZENITH Z7 LITE will notice user by blinking LED.
- When the battery is charging, the charging LED will illuminate in red.
- When the battery is not charging properly, the charging LED will flash.
- When the battery is fully charged, the charging LED will turn to green



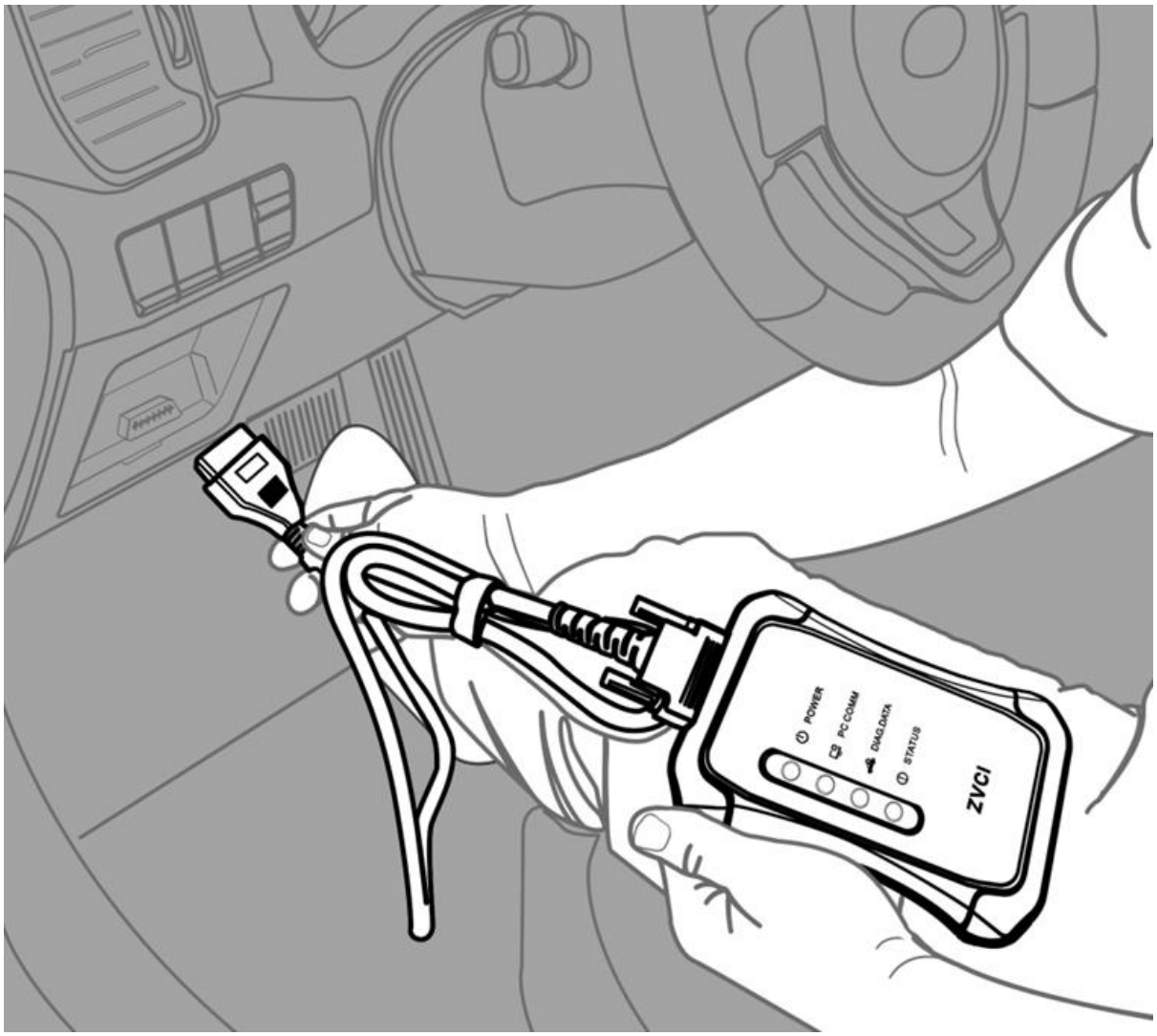
- **Rechargeable Battery Replacement**

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 or any distortion such as swelling is witnessed. Unfasten the 4 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.



3.10 Connecting to Vehicle

A. Connecting the main DLC cable to the ZVCI



Connect the main DLC cable to the Zenith ZVCI D-sub connector and secure the connection by fastening the 2 D-Sub connector screws. Do not apply excessive force when fastening the screws.

B. Connecting to the Vehicle

Different types of non-standard diagnostic adapter may be used for the pre-OBD2 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 EZDS specifically for use with ZENITH Z7 LITE and never attempt to connect the adapters supplied by a third party.

C. Pairing Zenith ZVCI with ZENITH Z7 LITE Main Unit

Please refer 5.3 Setting for details.

Caution

Use of wrong diagnostic adapters may result in communication failure, damage to the device as well as the vehicle control system, and EZDS is not liable for any damage and loss caused. Also, it constitutes warranty void conditions for ZENITH Z7 LITE.

Chapter 4. How to activate ZENITH Z7 LITE

4.1 Inactive when delivered

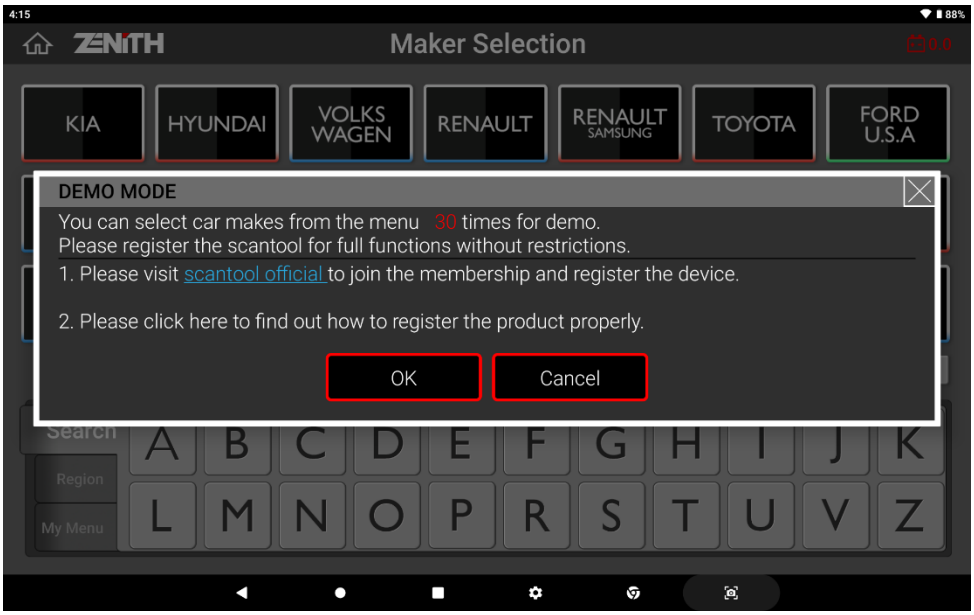
A. Product Registration

A brand new ZENITH Z7 LITE is delivered with the Zenith diagnostic software installed. However, it remains inactive until the product is registered to the EZDS server as sold to the end user.

To activate the software properly, you need to create an account at EZDS website and complete the product registration.

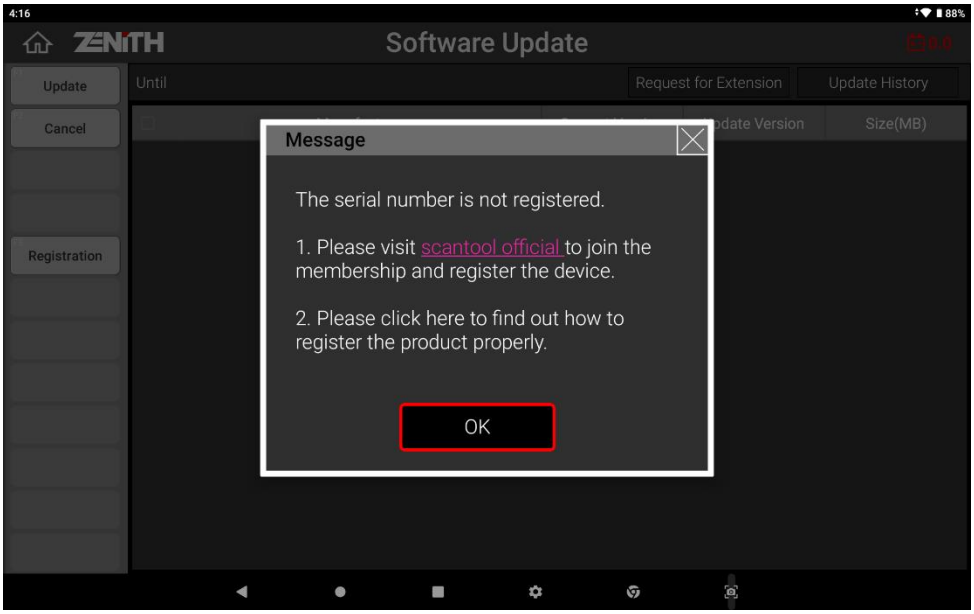
- Demo Mode Only

  If your ZENITH Z7 LITE is not registered, it will operate in Demo mode that allows you to choose the carline in the [Diagnosis] menu and conduct the diagnostic functions for demostration for 30 times only. Each attempt to communicate with the vehicle is counted, and the remaining attempts will be displayed in the popup message as shown below.



- Software Update Restricted

  If your ZENITH Z7 LITE is not registered, software update is also restricted because the tool is not authorized for access to the download server . You will be guided to visit EZDS website.



4.2 **Registration Step 1.** Membership Enrollment at EZDS.com

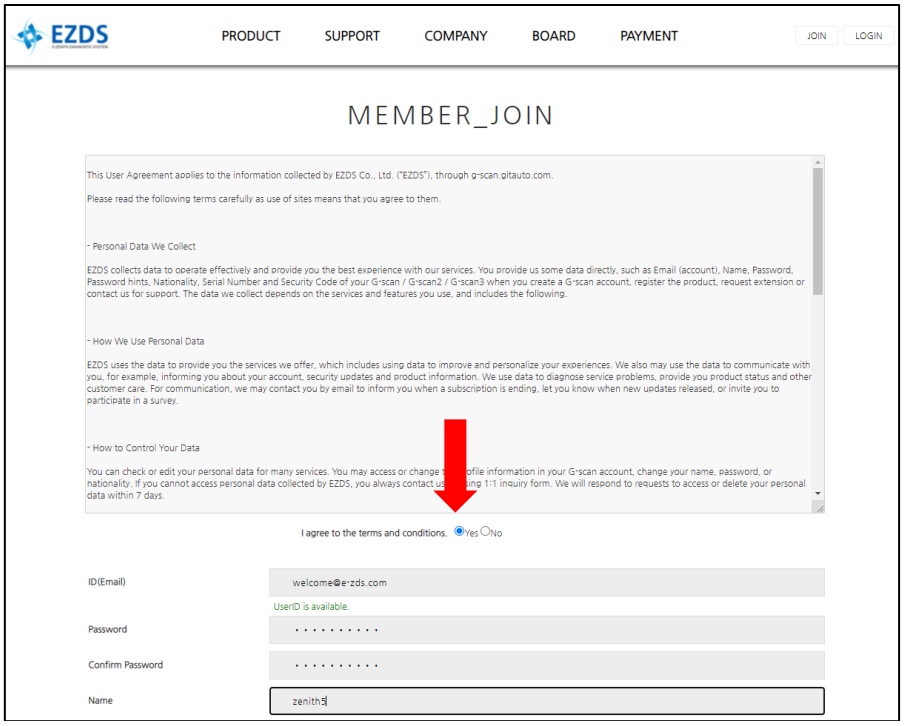
A. EZDS Website

Visit EZDS website www.zenithdiag.com. Create your user account and press the Join button to enroll your membership.

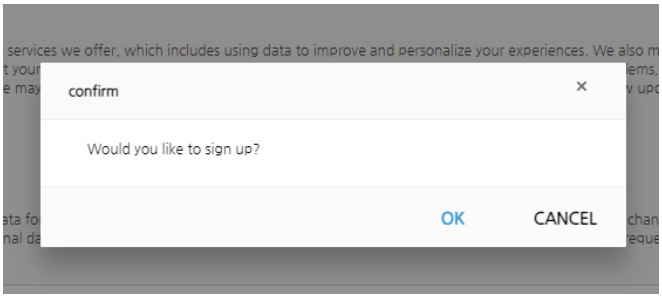


B. Terms of Service

Read the Terms of service carefully and if agreed, click on the check box and fill in the blanks

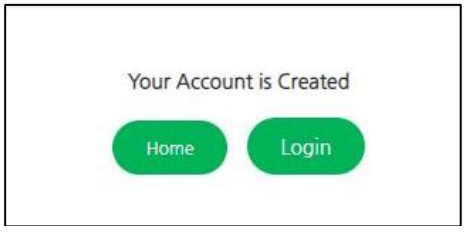


Press the [Confirm] button and [OK] button.



C. Account Created

Your account is created. Verification email will be sent to your email address. Please follow the next verification procedure.

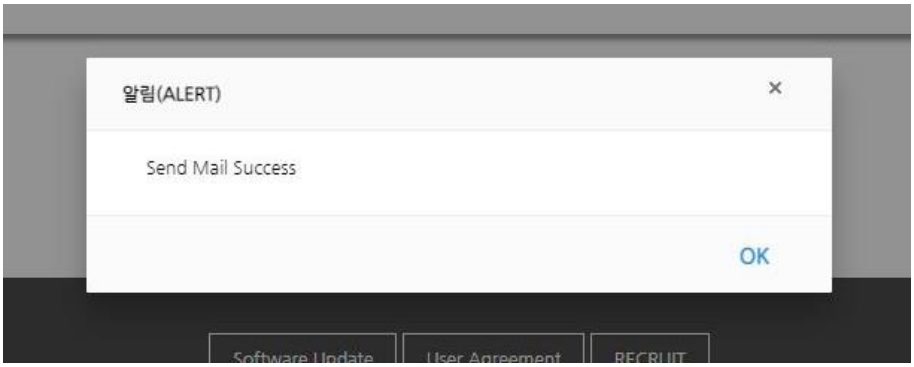


4.3 Registration Step 2. E-Mail Verification

A. Valid email address required

The email address that you provided while joining the membership is **very important** because it is the **only channel** for communication and feedback between the ZENITH Z7 LITE end user and the supplier. Therefore it needs to be verified to make sure that it is valid and working email.

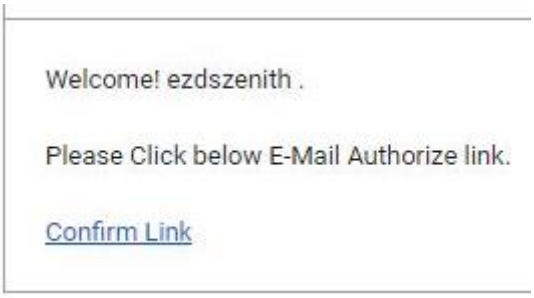
A verification email will be sent automatically to the address that you entered.



- 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.

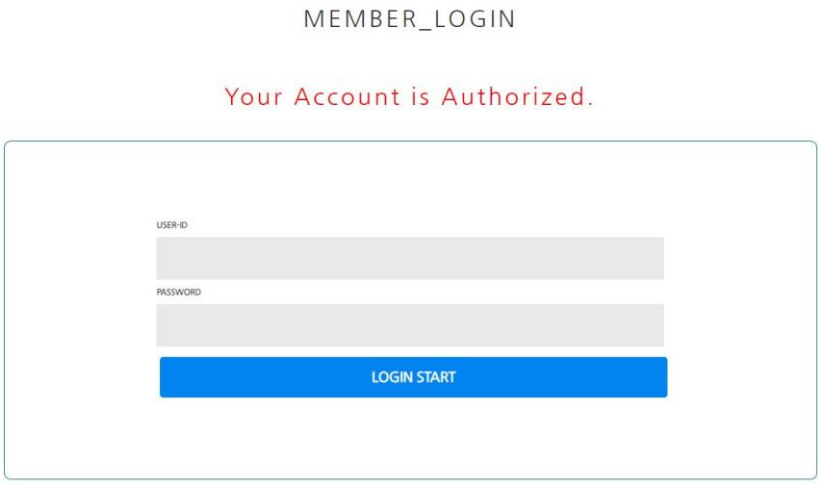
B. Check your email inbox

Go to your email in-box and check for the email titled ‘Welcome to join E-ZDS!’.
Open the email and click the Confirm Link.



C. Confirm Link

Verification process is completed when you click on the [Confrim Link] included in the email body, and you can find that your account is authorized when you go to member login page of the EZDS website.



4.4 Registration Step 3. ZENITH Z7 LITE Device Registration

Device Registration is a process of matching the ZENITH Z7 LITE serial number with individual website membership. When registration is completed, the ZENITH Z7 LITE will be paired with a specific website member ID on EZDS's website and the device will be finally activated for using its full functionality..

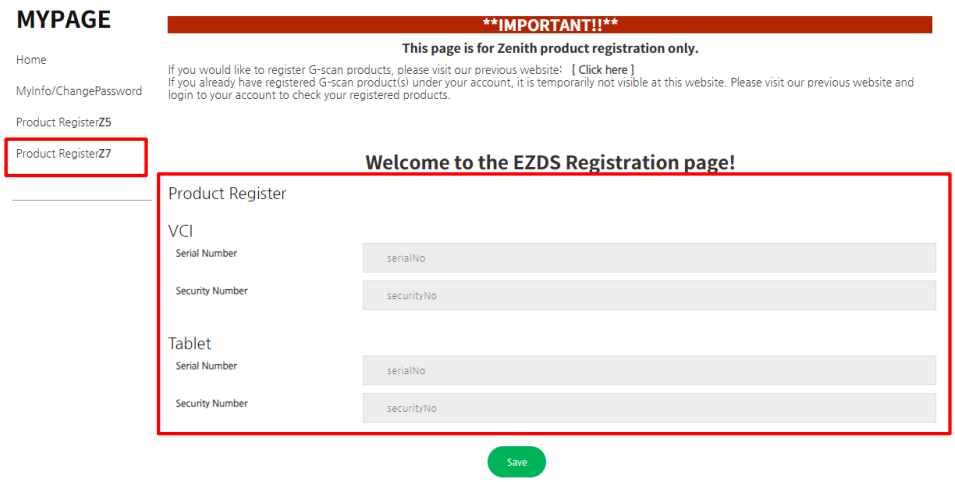
A. Account Login

Login to your account and click your ID at the top menu to go to [My Page].



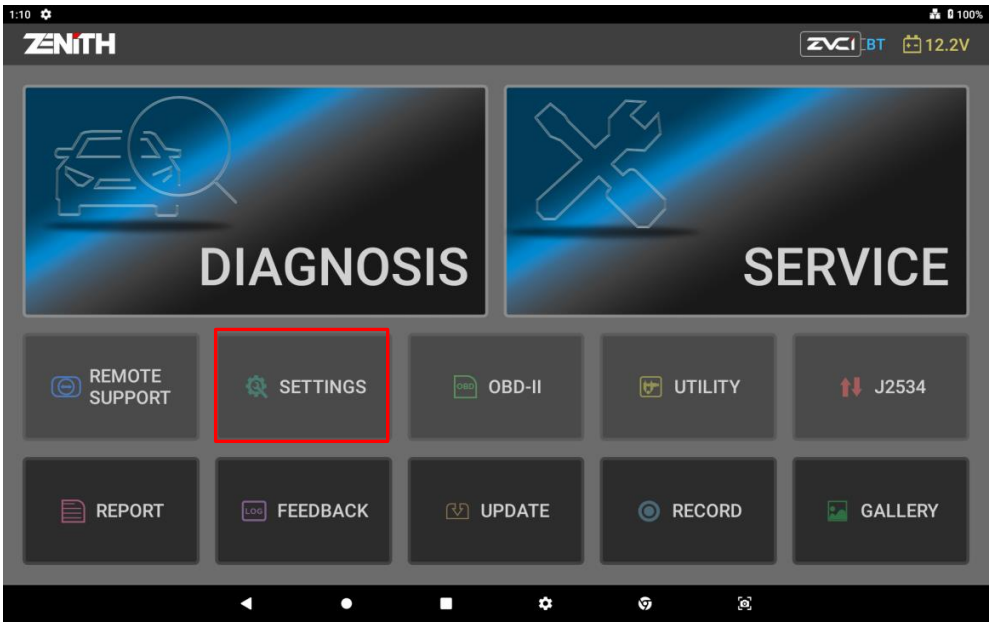
B. Product Register

Click [Product Register Z7] in [My Page], where you will be asked to enter the Serial number and the security check code of your ZENITH Z7 LITE for registration.

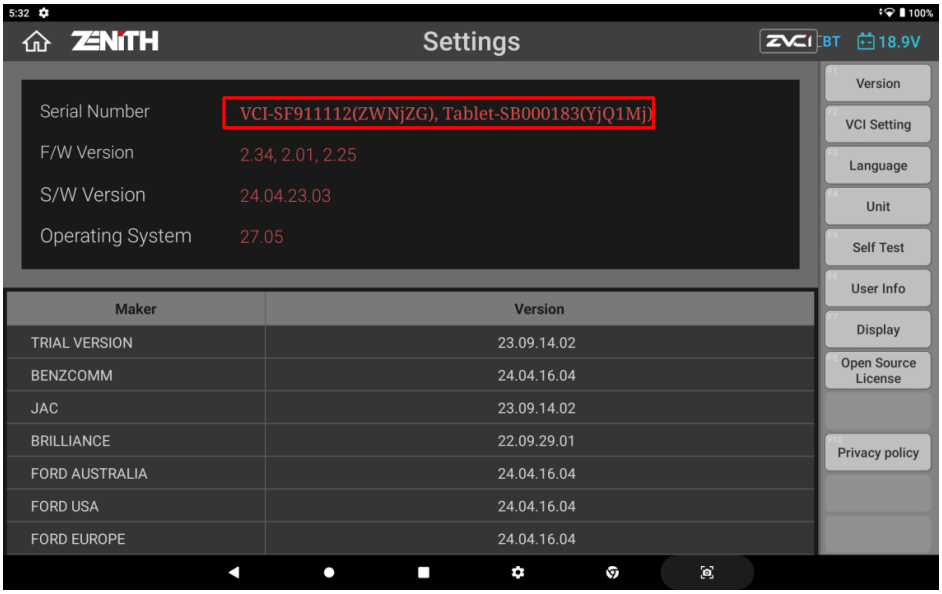


C. Security Check Code

You can find the Security Check Code in the [Setting] screen of the tool.
Grab your Z7 and hit [Setting] button on the Zenith main screen.



➢ Take note of the Serial number and the Security code that appear on the main screen of [Setting] menu.



D. Enter Serial number and Security Code

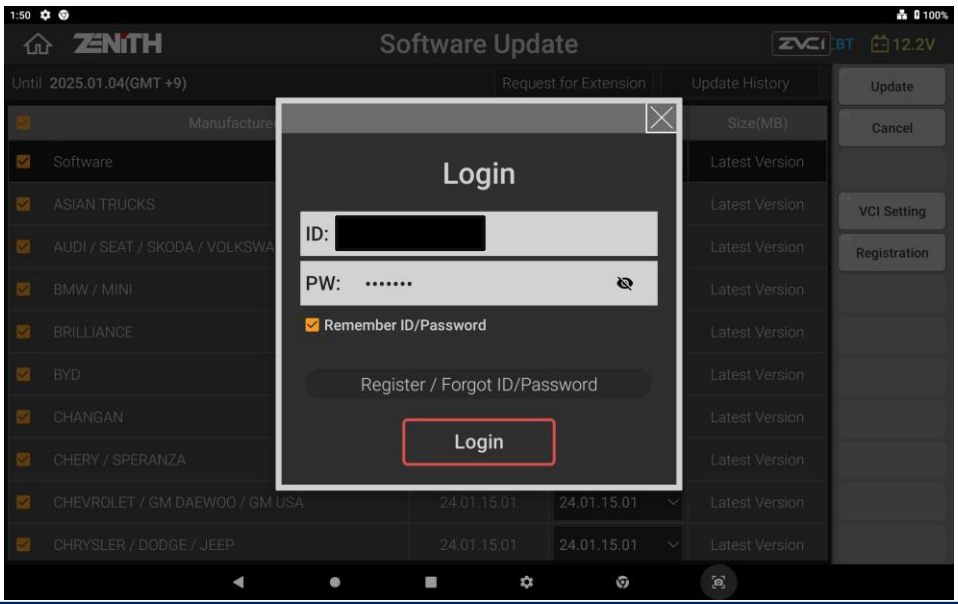
Go back to the EZDS website registration page and enter the Serial Number and the Security Code. Make sure to enter them correctly as they are case sensitive. When you are ready, hit the [Save] button.

E. Membership Database Refreshment

When registration at the website is completed, the membership database needs to be refreshed. It generally takes 10 ~ 20 minutes, then you can download the latest version software from the server.

F. Log-in for Software Update

From then on, you can also login to the download server with your account and download the latest updates. Please be sure to save the ID&PW for future use.



Chapter 5. Z7 Basic Operation

5.1 Main Menu and System Tools

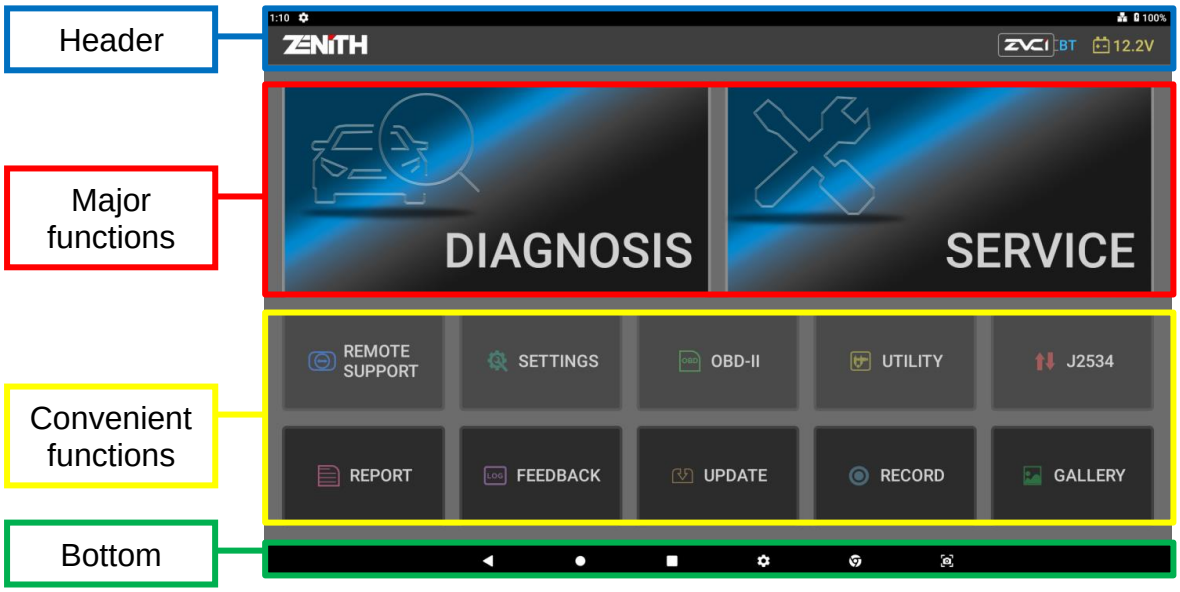
Note

The user interface including graphical display 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 ZENITH Z7 LITE is turned on or when Zenith Application is selected among the applications list.

A. Main menu

The main menu of ZENITH Z7 LITE is consisted of 4 sections (header, major functions ,convenient functions, bottom menu).

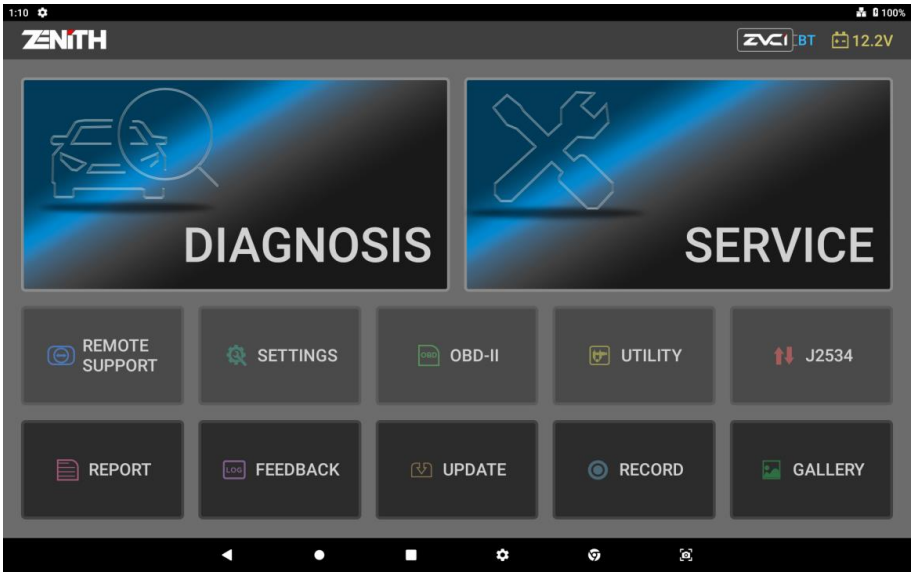


B. Header

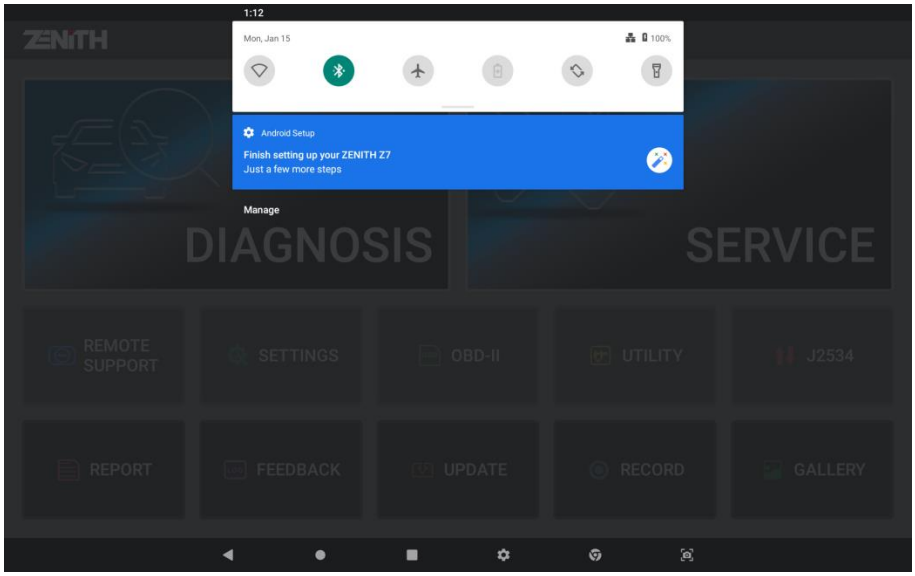
The header shows different ZENITH Z7 LITE system status indicators.

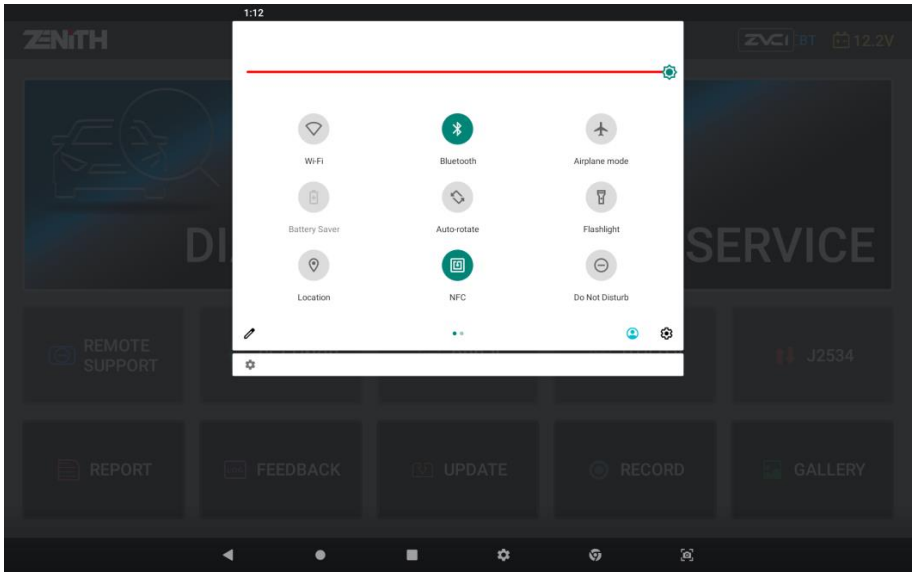
	System Notifications	Indicator symbols appear in the upper left corner of the header when ZENITH Z7 LITE system detects any changes or new development in the system status that need to be notified to the user.
	Vehicle Battery Status	In the right side of the header, vehicle battery voltage is indicated when the power is supplied from the vehicle.
	System Status	In the upper right corner of the header, ZENITH Z7 LITE system status including Wi-Fi or Bluetooth connection, battery charging status.
	Bluetooth Status	Indicator symbol appears the current status of Bluetooth connection.

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

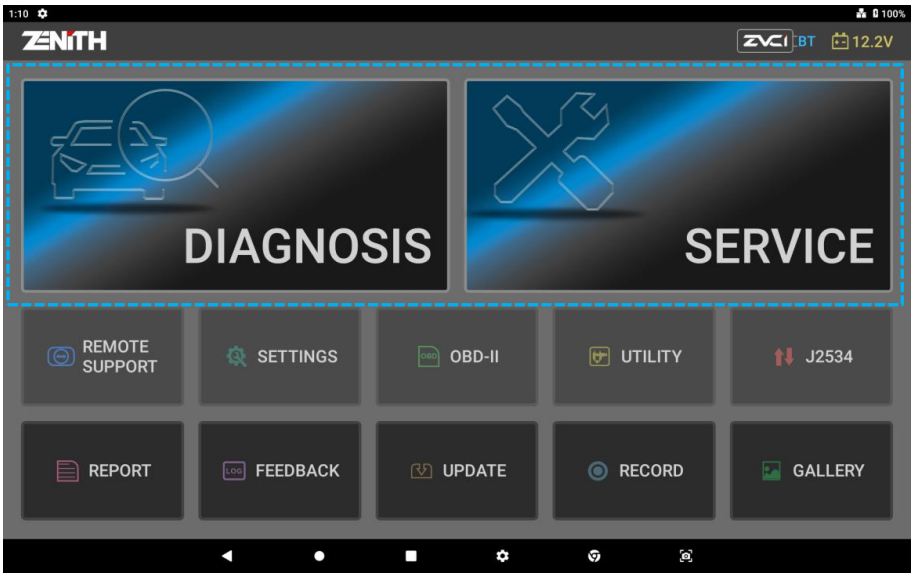


Tab on the top of the pop-up notifications with a finger, then a system configuration menu appears where you can check and make quick and simple changes to the basic system settings.





C. Major Functions

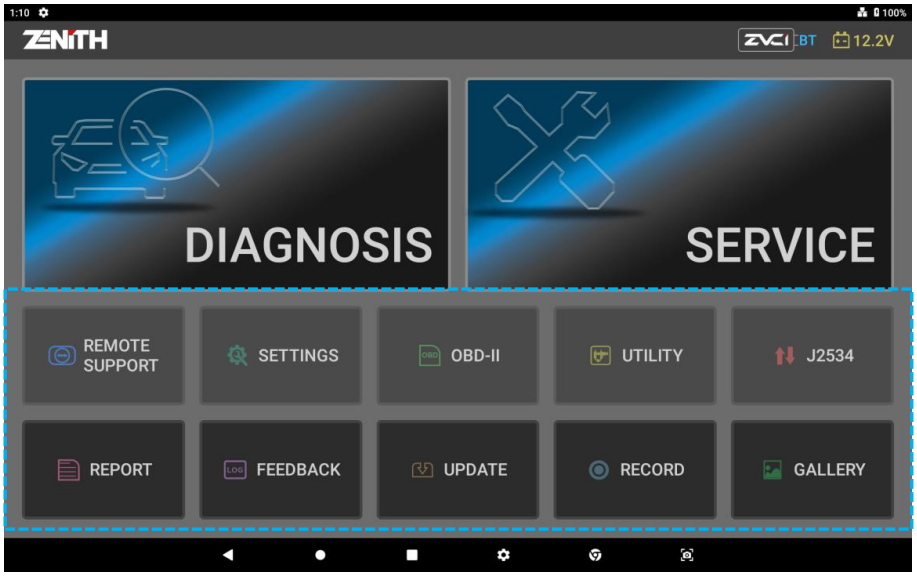


At the time of publishing this user manual, ZENITH Z7 LITE main function menu includes following 2 entries: [Diagnosis] and [Service].

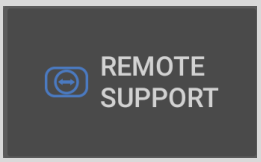
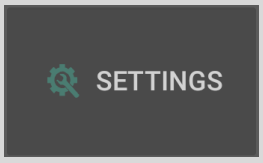
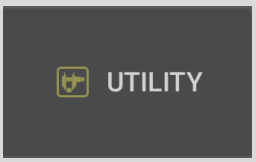
Each of these major functions are explained more in detail in the separate chapters in this manual hereinafter.

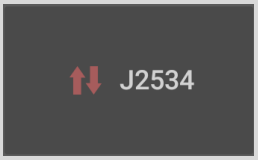
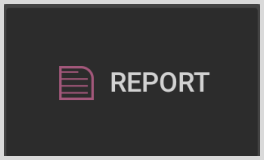
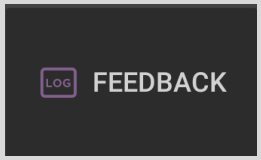
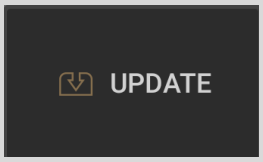
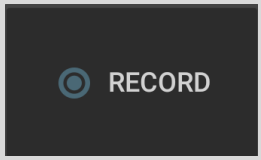
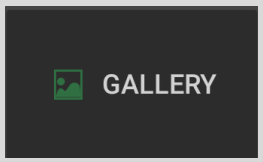
Title	Description
	Runs manufacturer specific diagnostic functions including DTC Analysis, Data Analysis, Actuation Test, ECU Info and various Special Functions for each carline. - Diagnosis Function -
	Shortcuts to the frequently used service functions in the workshops such as ADAS calibration, Brake Pad Replacement, Engine Oil Reset, Brake Air Bleeding, Battery Reset, Steering Angle Sensor Calibration, etc. Service Function

D. Convenient Function



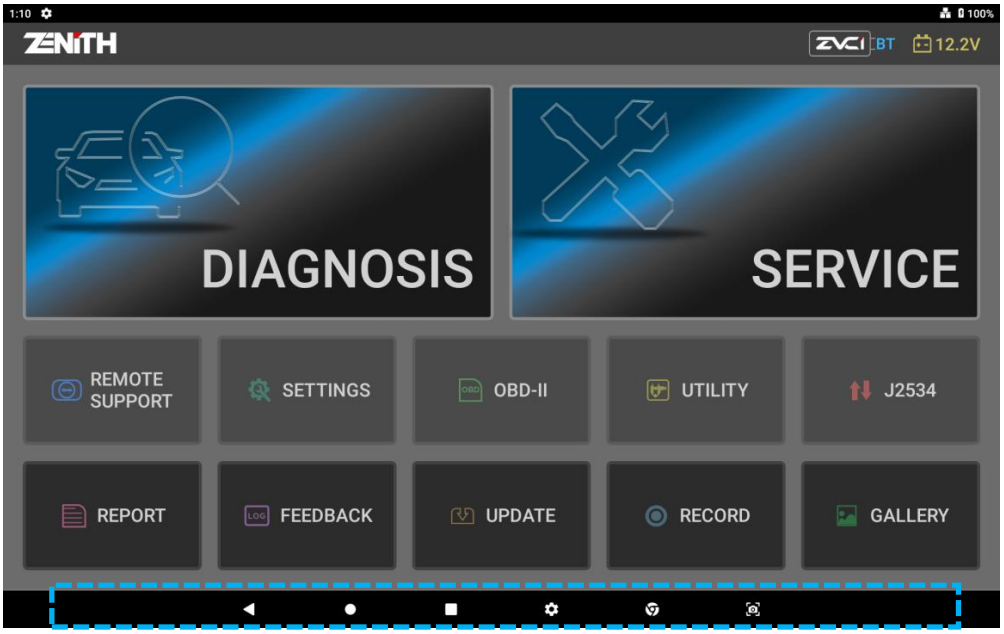
Convenient functions are listed in left side and bottom of the screen that can be directly selected from the main menu: Update, Feedback, Report, J2534, Record, Remote Support, Settings, Utility, Gallery. The details of these convenience functions are explained in the following chapters.

Title	Description
	Links to TeamViewer application allowing remote support for Z7 – Remote Support -
	Opens the Settings menu where software version information check, language selection, Self-test and various user settings can be reviewed and changed
	Performs Generic OBD2/EOBD diagnostic functions for the ISO9141-2, ISO14230 (KWP2000) and ISO15765-4 (CAN-Bus) compliant vehicles - Generic OBD-II -
	Calls the ZENITH Z7 LITE's various utility programs such as "Vehicle Communication Line Check", "Unit Converter", "Calculator", "Special Function Calculator", etc. -Utility-

	Turns Z7 into a J2534 Pass-thru device ****J2534 is not supported in ZENITH Z7 LITE** - J2534 Passthru -
	Retrieves the previously saved Pre and Post Repair Diagnostic Report that can be added to Z7 memory while performing Diagnosis function. - Diagnostic Report -
	Retrieves data files recorded in the ZENITH Z7 LITE internal memory, including flight record data. - Record Data -
	Connects to the ZENITH Z7 LITE download server to check the availability of new diagnostic software and downloads the latest version software to Z7 - Software Update -
	Allows user to send or delete saved log data - Feedback -
	Opens saved screenshots, photos, and videos - Screen Capture -

E. Bottom Menu

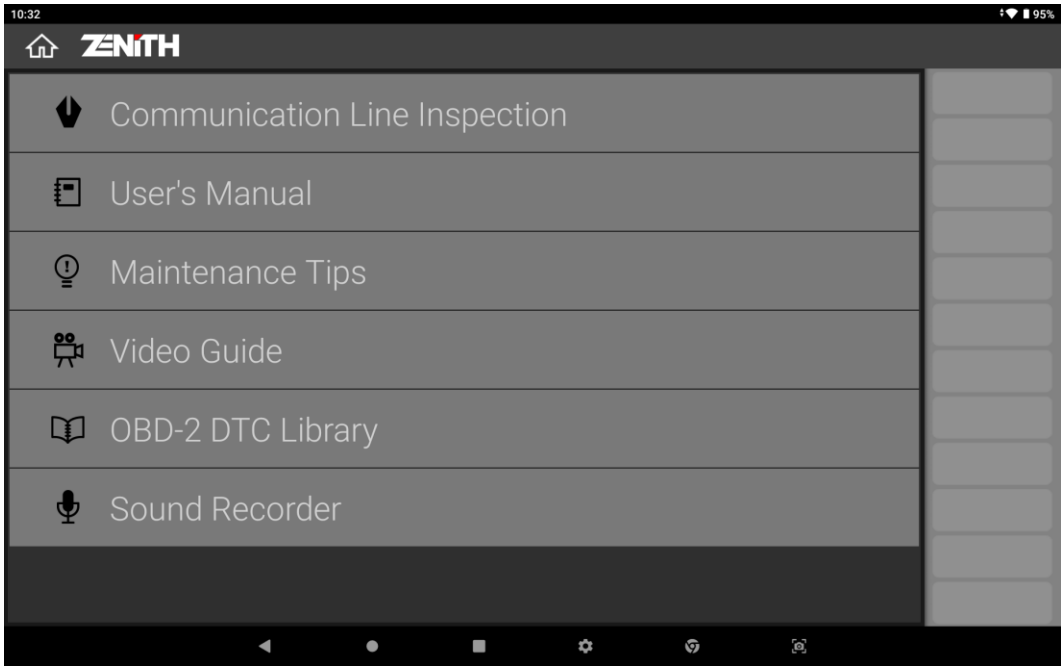
The menu in the bottom of the screen is a set of standard Android system functions, and the details are explained in the [3.5. Screen Button Functions] section on this manual.



5.2 Utility

User's manual, OBD-2 DTC Library, Maintenance tip, Sound Recorder, Calculator, Camera features are available in the Utility menu.





A. User's Manual

Zenith Z5's complete user's manual and quick manual is available in PDF format.

B. OBD-II DTC library

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

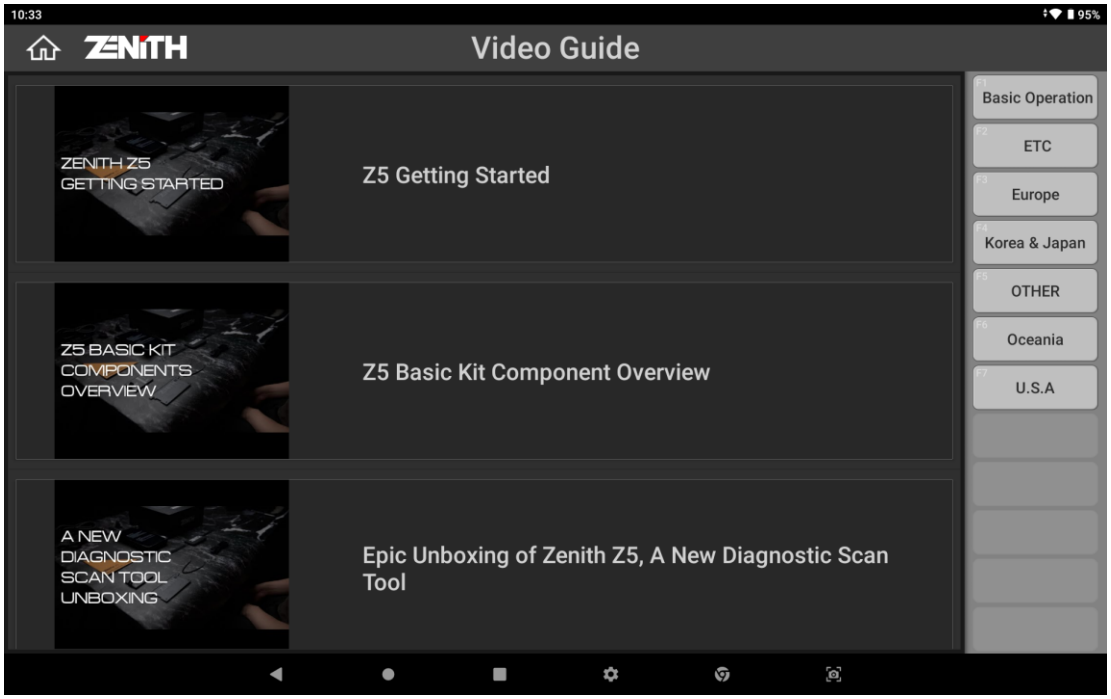


C. MAINTENANCE TIPS

It provides Tips such as connector location, service information and etc.



D. Video Guide



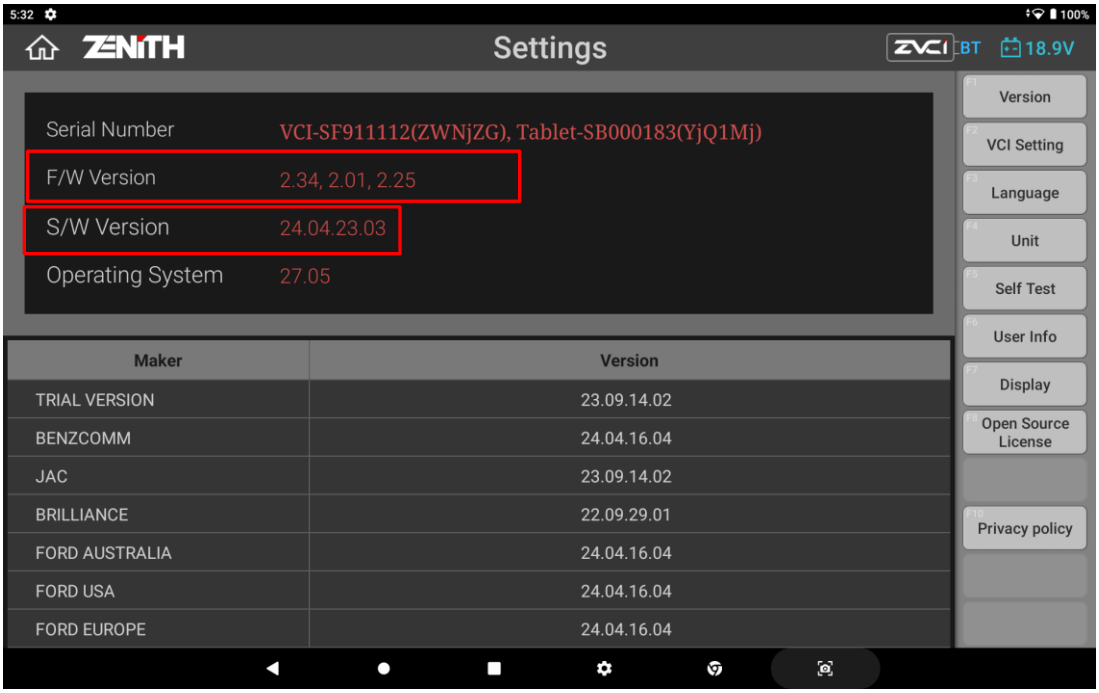
5.3 Settings

In the [SETTINGS] menu, you can check the Software Version and Open Source License, choose the Language of the ZENITH Z7 LITE software, and change the settings in measurement unit, and display mode.

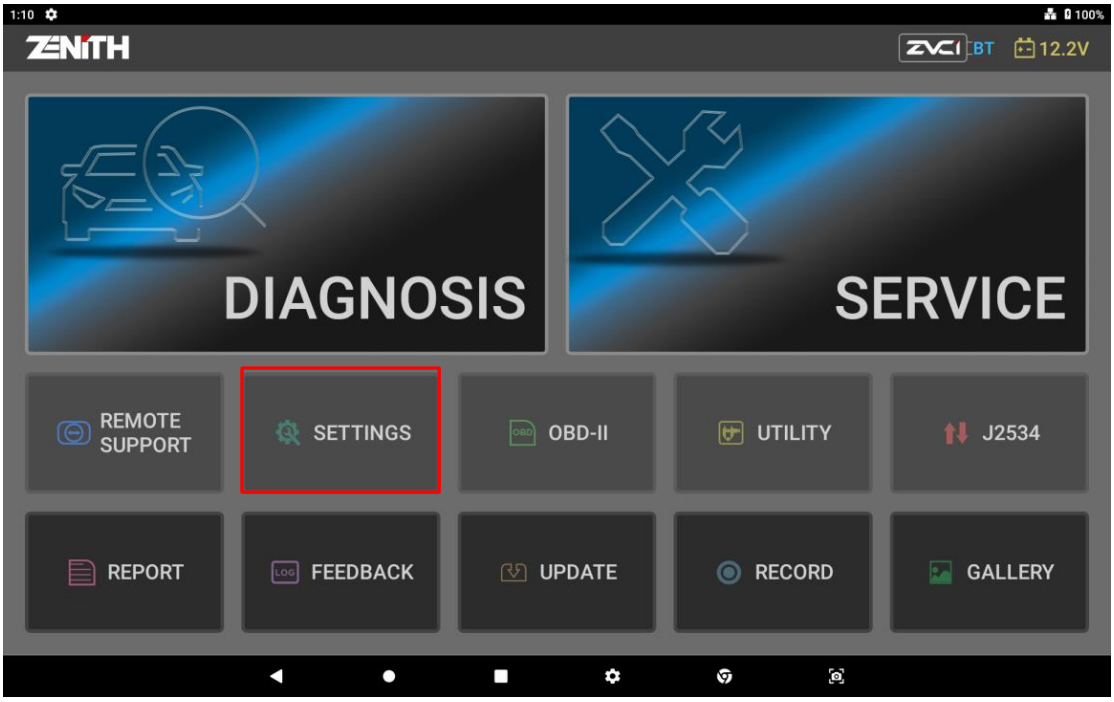


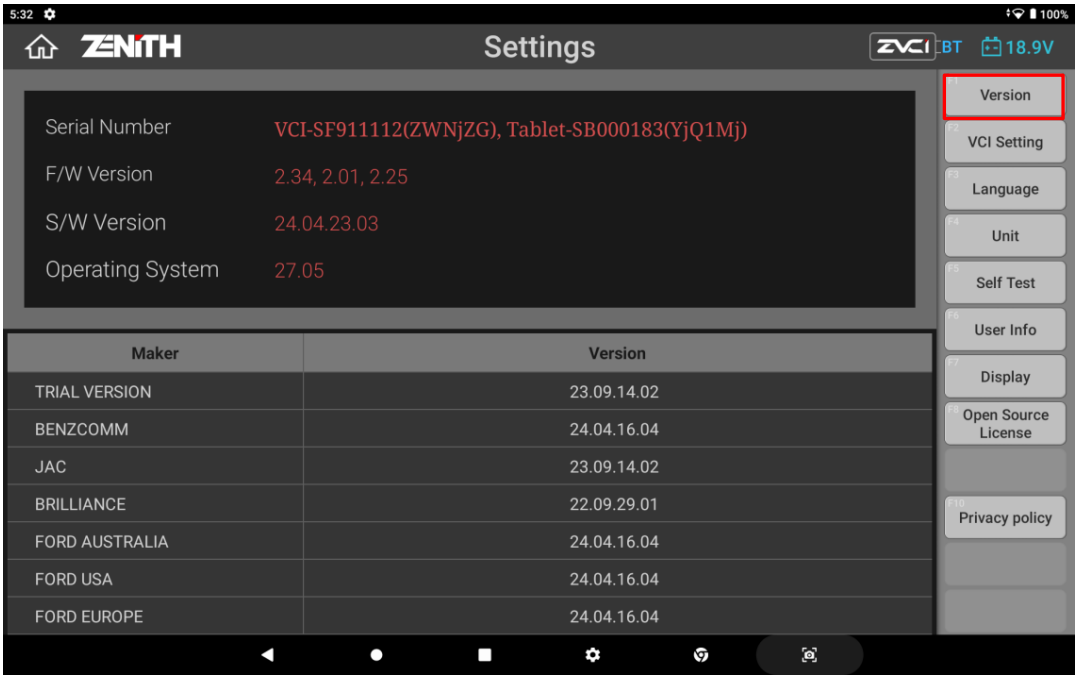
A. Software version

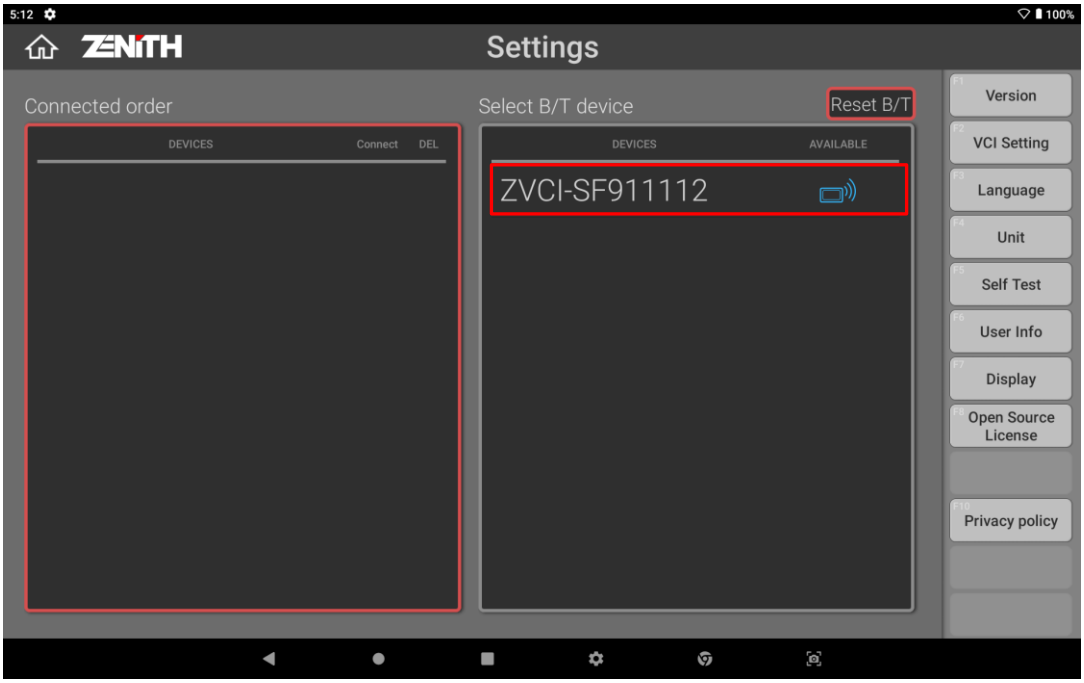
Check the serial number (security code), firmware & software version, operating system version, and each carline's diagnostic software version installed in Z7.



B. ZVCI Setting

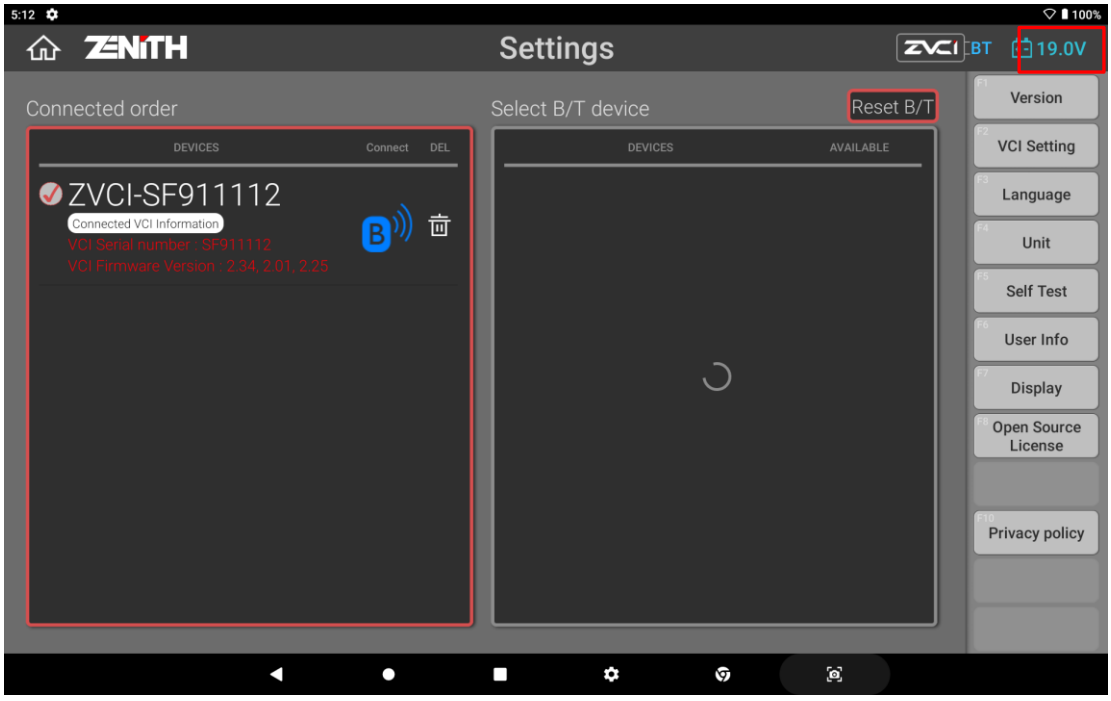






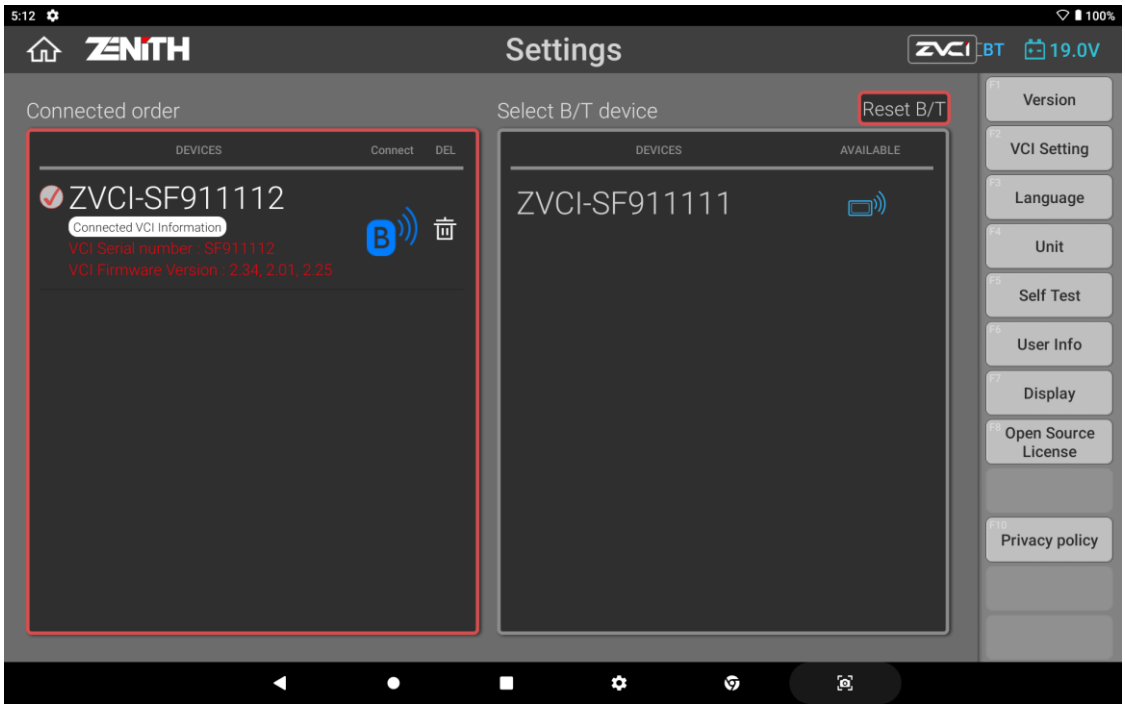
You can pair Z7 ZVCI with ZENITH Z7 LITE Main Unit in the [VCI Setting] menu. Grab your Z7 and hit [Setting] button on the Zenith main screen.

In [Select Bluetooth] menu, you may find ZVCI ready to pair with the Z7 Main unit. Please hit the correct ZVCI has the same S/N with Z7 Main Unit.



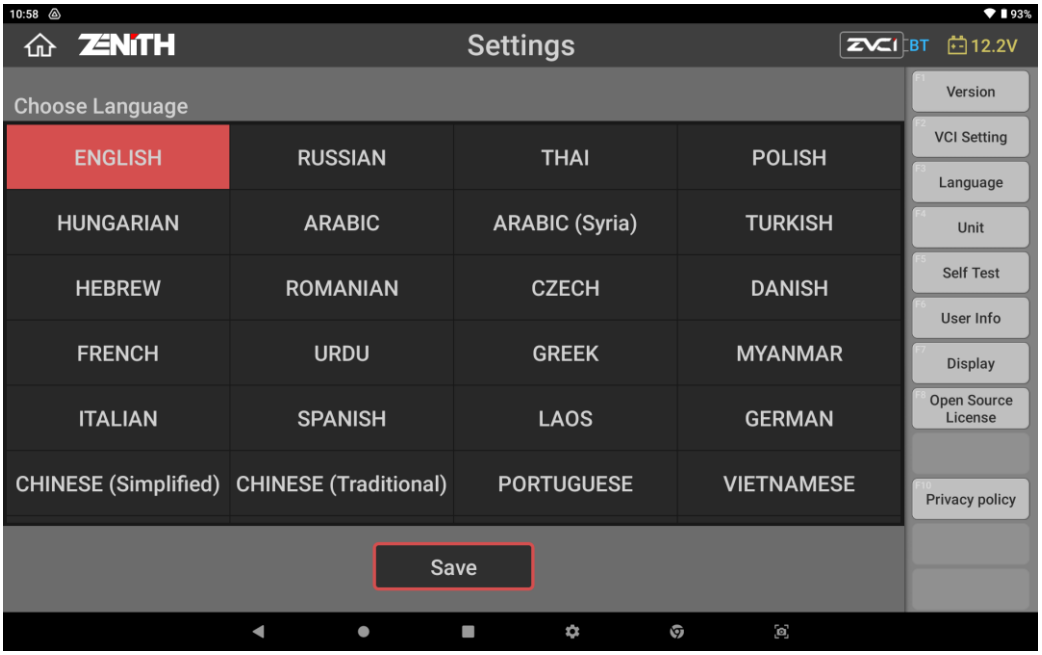
Once ZVCI is paired with Z7 Main Unit, the S/N of ZVCI will be displayed on [Connected order] and on the upper right side of screen, vehicle voltage will be shown.

In order to communicate with the ECU, you are required to set Bluetooth fundamentally. Select one of available ZVCI devices on the right side. When it is connected to Z7 completely, the connected ZVCI device is transferred from right Bluetooth box to left box. If you want to disconnect the current Bluetooth, select wastebasket mark.



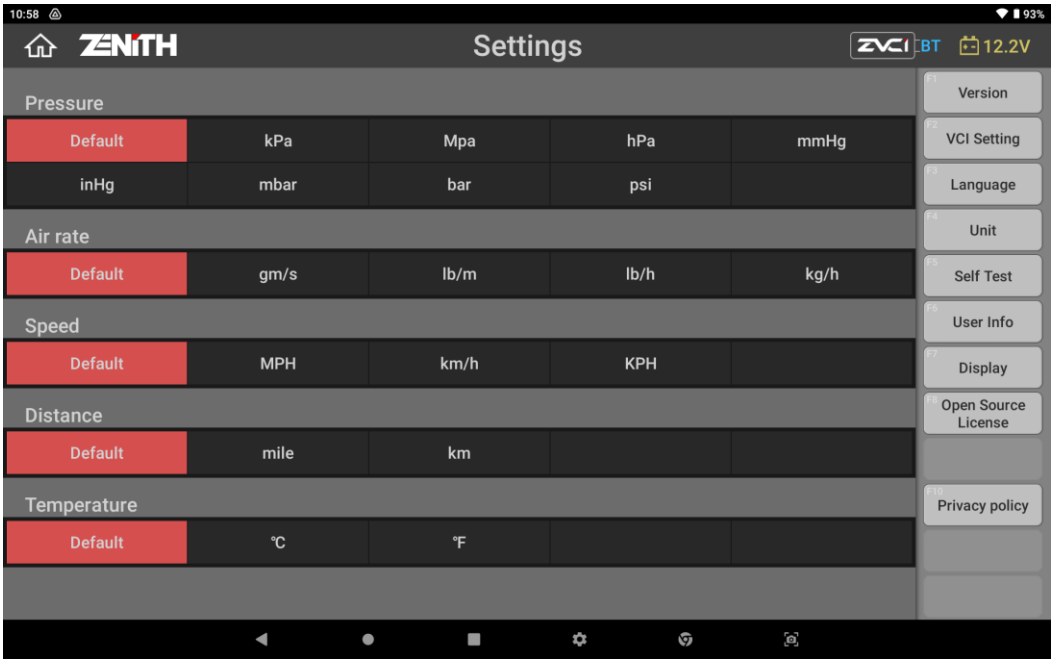
C. Language

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.



D. Unit

Zenith Z7 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.



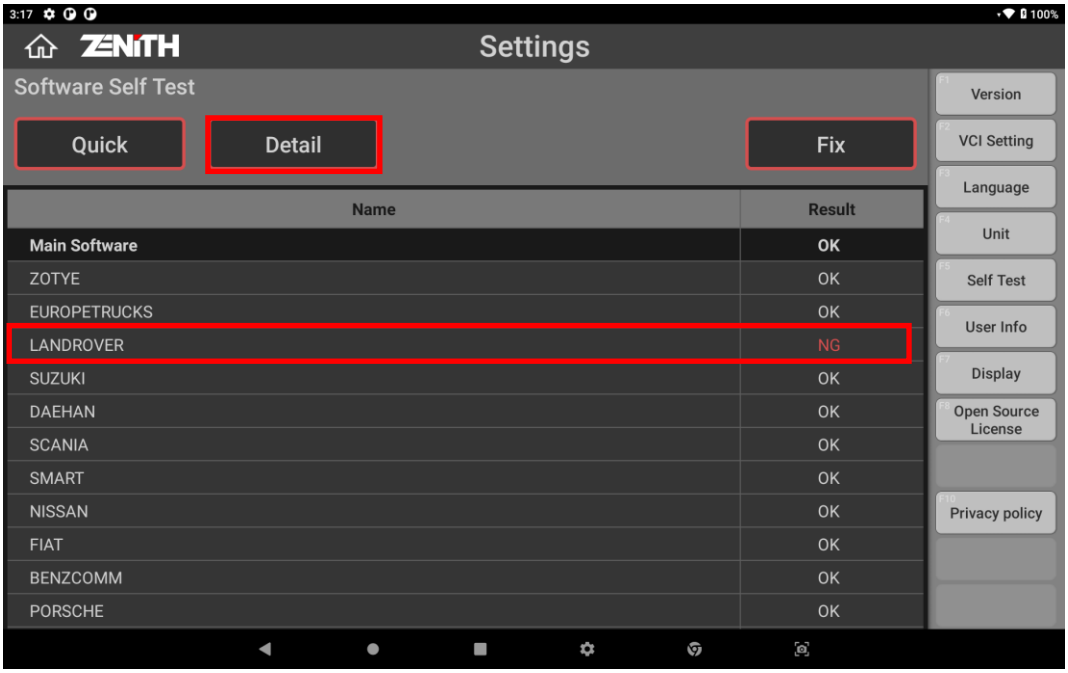
E. Self-test (Software Self-test)

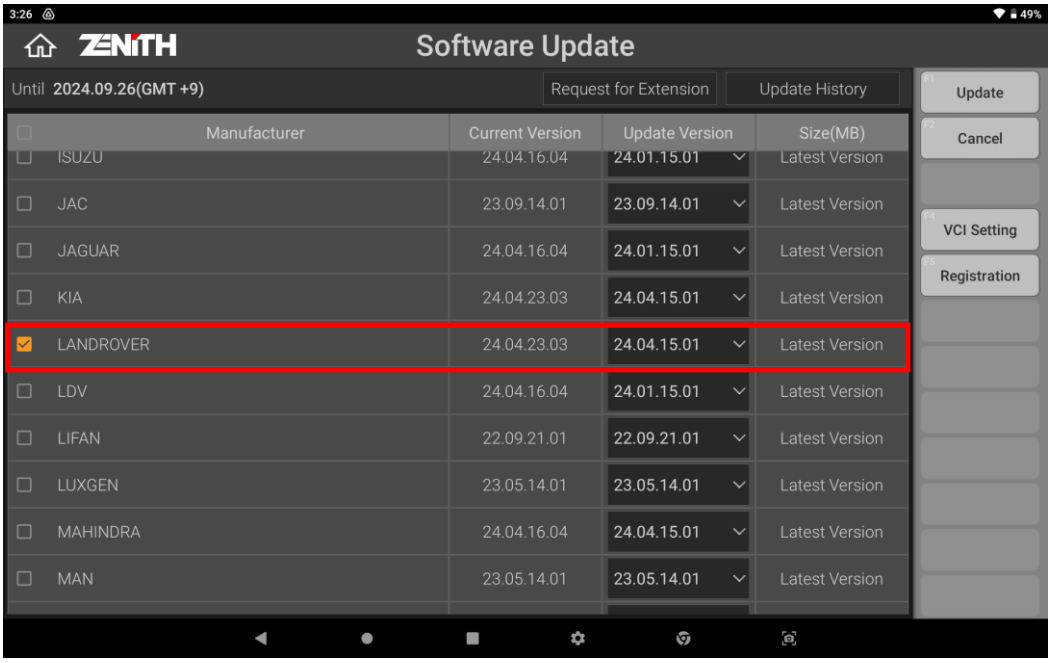
In case the ZENITH Z7 LITE fails in performing the diagnostic functions properly, Software self-test verifies software integrity to make sure that there are no corrupted data in ZENITH Z7 LITE diagnostic applications.

- **Quick:** Checks the ZENITH Z7 LITE main program



- **Detail:** Checks software and database of ZENITH Z7 LITE for the individual carline.

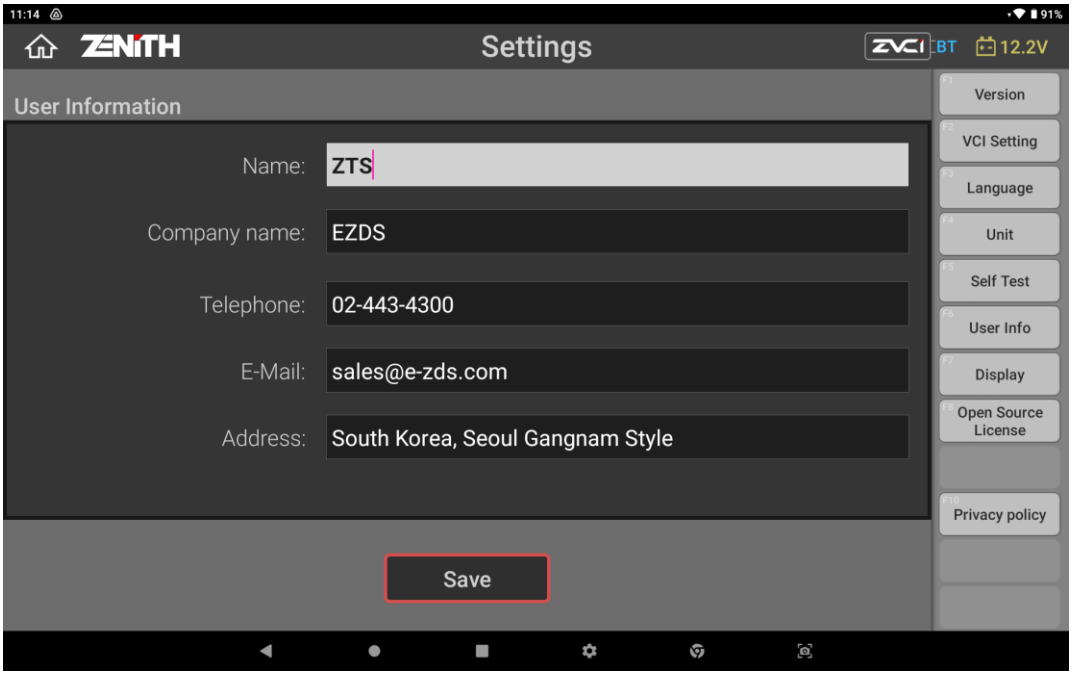




If the test result shows NG (No Good), [Fix] button will be activated. Pressing the [Fix] button will redirect to the software update screen for downloading the latest software.

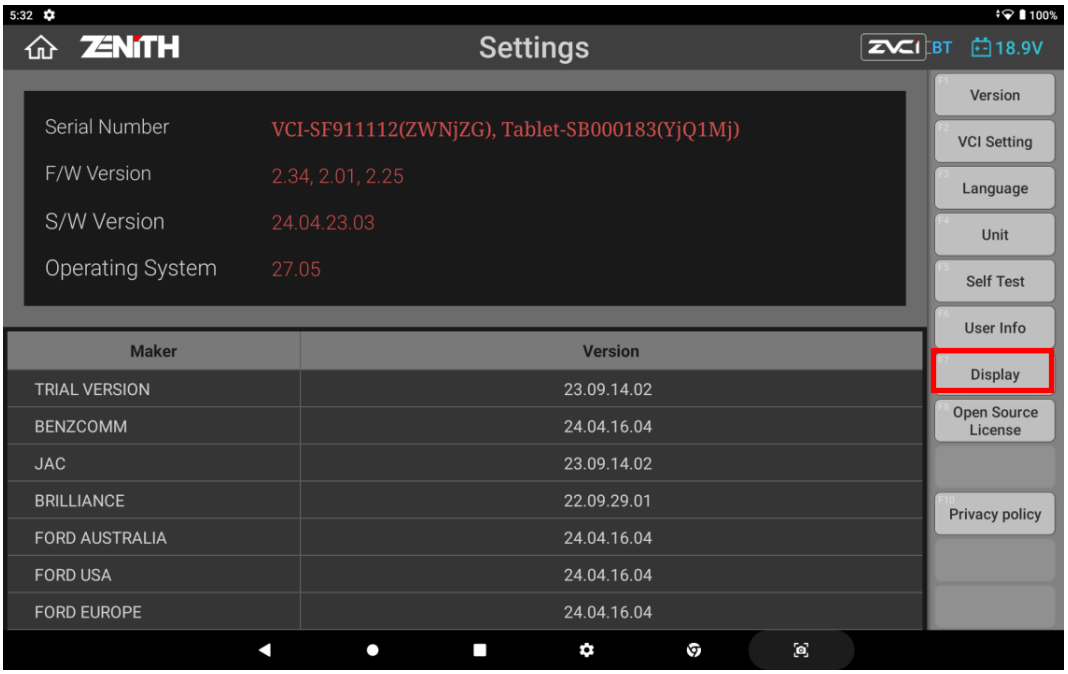
F. User Info

Type in your personal and workshop information and they will be used when printing the Diagnostic Reports and other forms. Be advised that User Info is stored and used within the ZENITH Z7 LITE device only, and no personal information is transferred to the server.



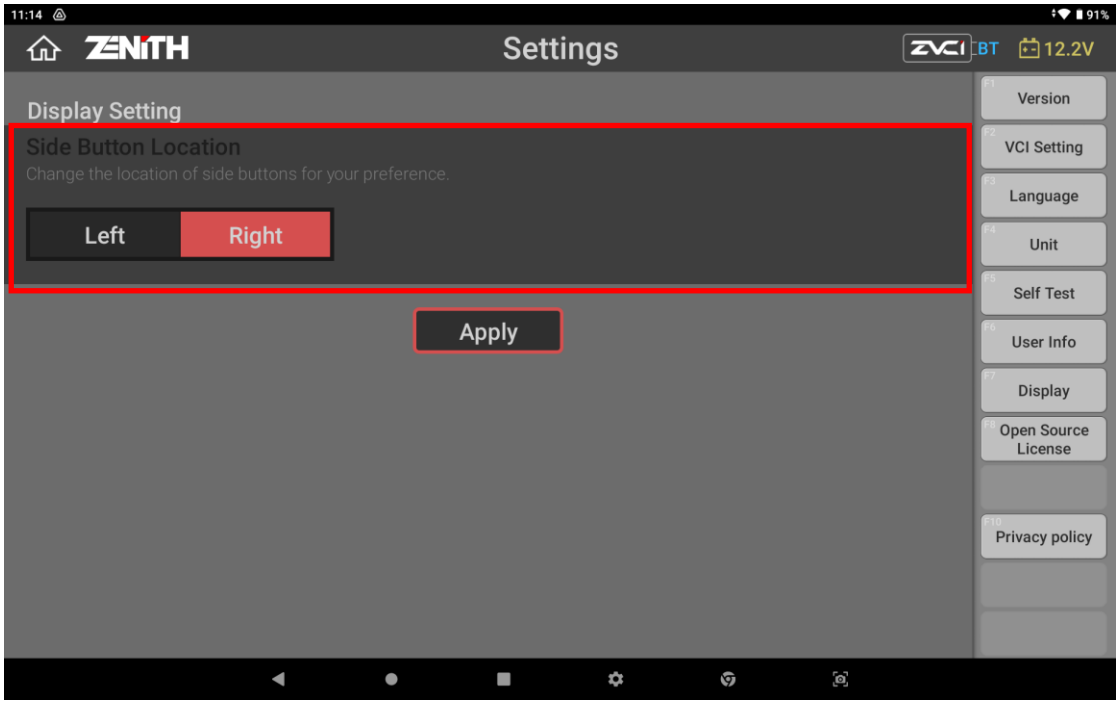
G. Display

You can change the location of the side buttons.

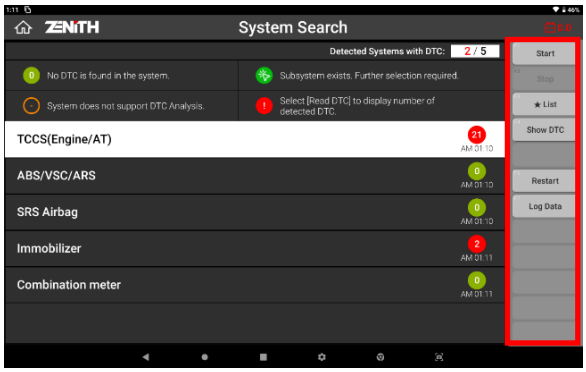


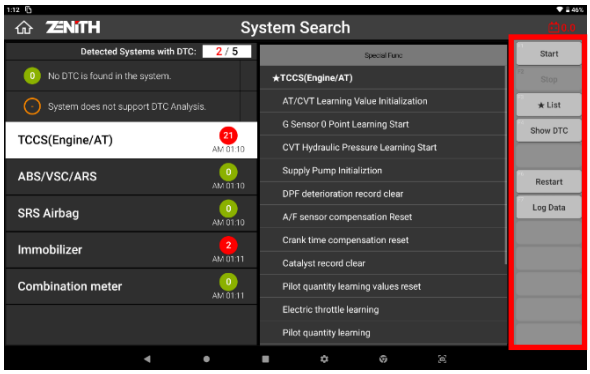
➢ Side Button Location

Location of the side buttons can be changed per user preference.

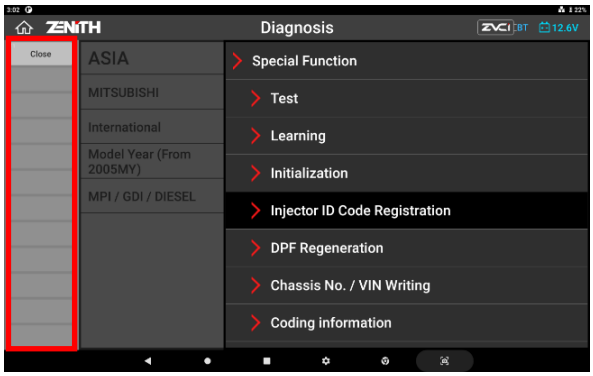


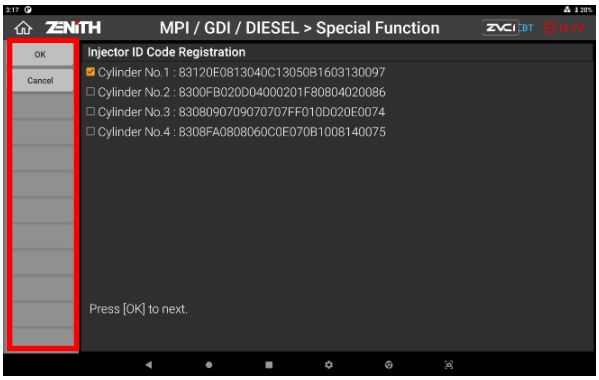
Side Button – Right





Side Button – Left





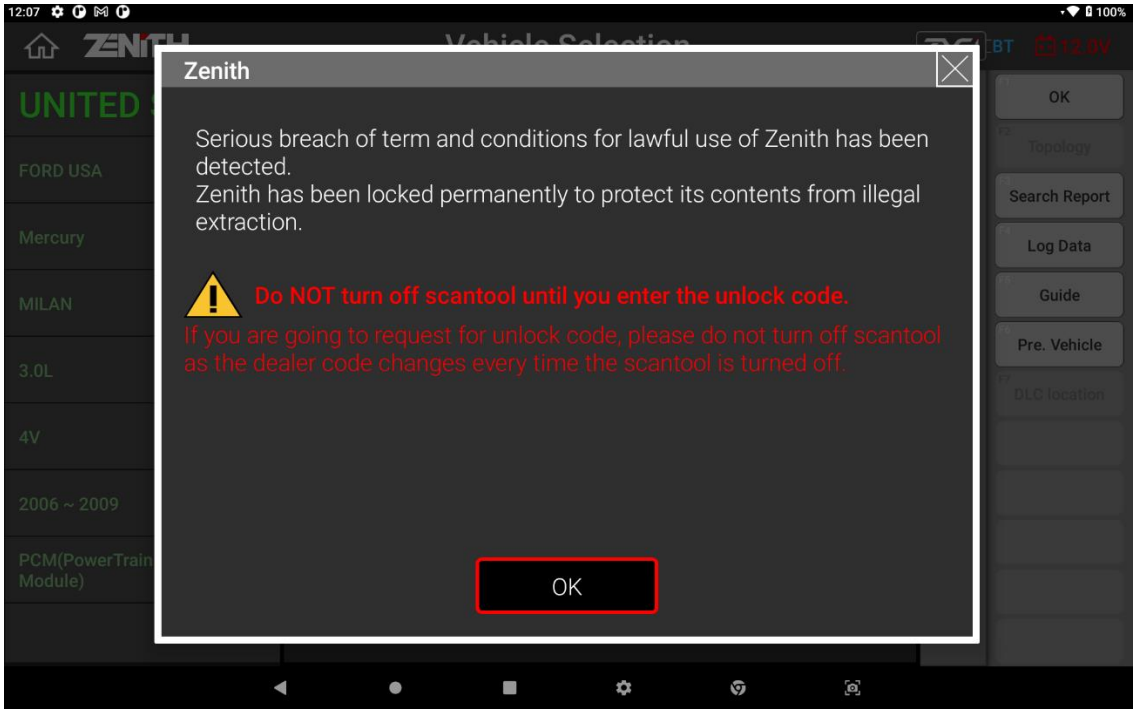
5.4 System Lock

A.“Security Breach” Lock

For the protection of proprietary right and intellectual property of EZDS that are embodied in ZENITH Z7 LITE, the product contains the “Security Breach Lock” function.

In the event of executing any diagnostic functions of ZENITH Z7 LITE 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 ZENITH Z7 LITE is programmed to lock down its system immediately for self-protection.

In case the ZENITH Z7 LITE 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 or by mistake. If the internal memory is altered or manipulated by the user from the original state when the ZENITH Z7 LITE was locked, any request for unlocking the device will be refused.

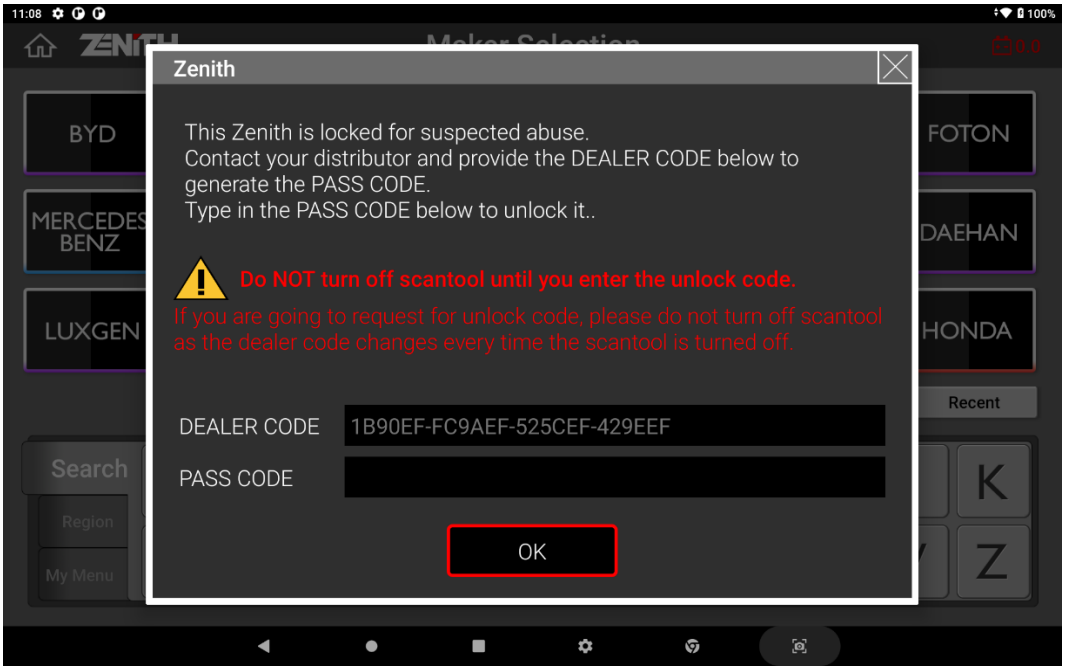


B. Violation of end user license agreement for regional restriction

As written in the first page of this manual, and as it appears on the screen in the process of registering ZENITH Z7 LITE, the product is licensed for use only in the designated country or region. ZENITH Z7 LITE found being used outside the designated country or region can be locked down as it constitutes a violation of end user license agreement.

Once ZENITH Z7 LITE is locked for this reason, it is not recoverable unless the ZENITH Z7 LITE base unit is returned to the authorized local distributor in the region where the ZENITH Z7 LITE is actually being used.

The ZENITH Z7 LITE can be unlocked only by inputting the unlock code which is provided with the consent of the authorized local distributor in the region of actual use. And this unlocking process itself is not subject to warranty and relevant 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, ZENITH Z7 LITE 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 the ZENITH Z7 LITE fails to log on to the EZDS server for a certain period, a warning message pops up to remind that the device needs to connected to the internet for validation.

If you keep the ZENITH Z7 LITE not validated by not connecting to the internet despite of the repeated warnings, the device will respond in a manner that increasing the inconvenience for using it, for example, it will 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 still ignored.

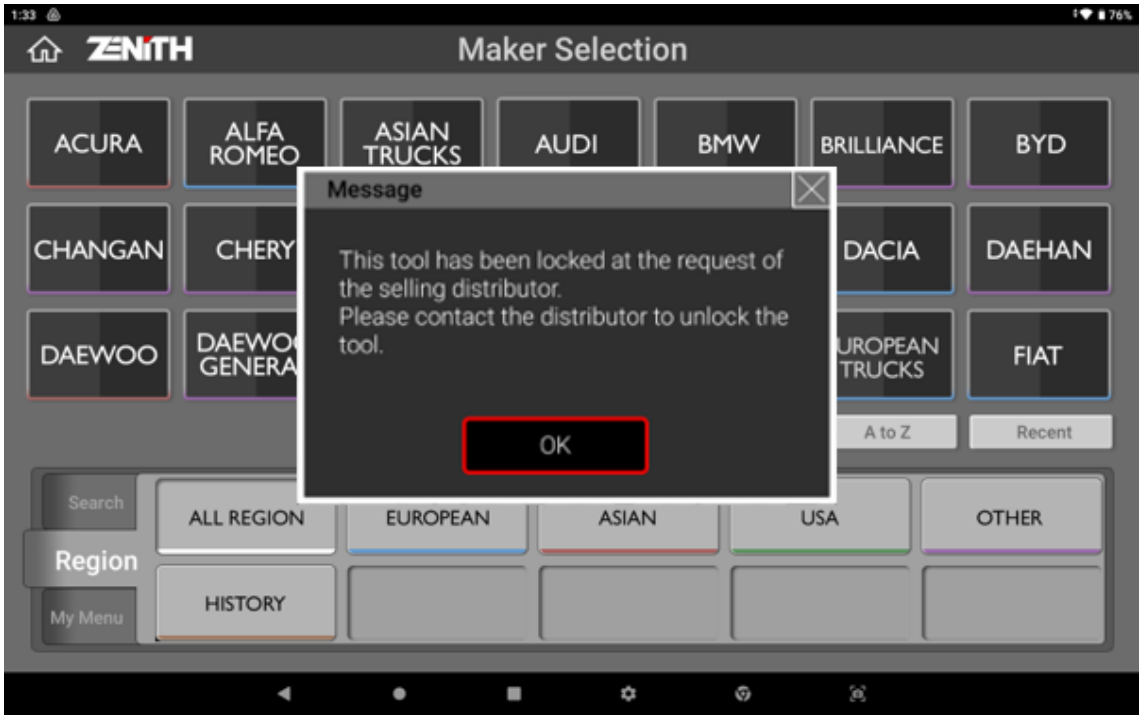
If the device is not validated despite of such inconvenience increased over time, Zenith software finally becomes completely not operational as it constitutes breach of end user license agreement. Zenith software will not run and just the reminder asking you to connect the device to the internet will appear on the screen without any button to close the message.
The only way to remove the message and restore Zenith software'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 the ZENITH Z7 LITE normally until the next request for validation. However, if the device is found being used outside the designated country, which constitutes a direct violation of end user license agreement, the ZENITH Z7 LITE will be locked down as explained above in the section.

C. System Lock by distributor

On the premise of prior consent of the customer, the authorized local distributor may reserve the right to restrict the use of ZENITH Z7 LITE of which ownership has not been completely transferred to the customer in such cases as selling on installment or credit.

Below screen will be displayed on the screen when the use of the ZENITH Z7 LITE is restricted by the distributor, which can be resolved by settling down on the issues with the local distributor.

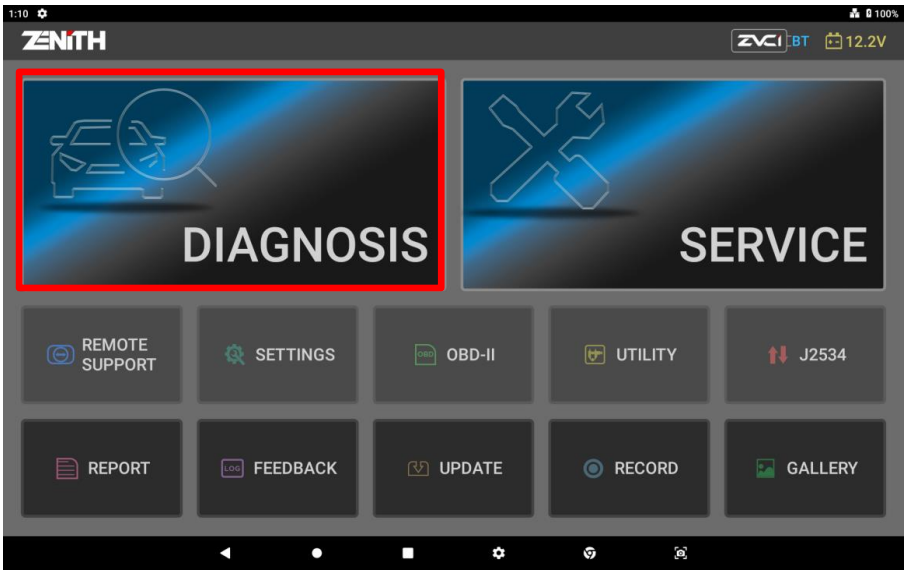


Chapter 6. Diagnosis - General

6.1 Vehicle Selection

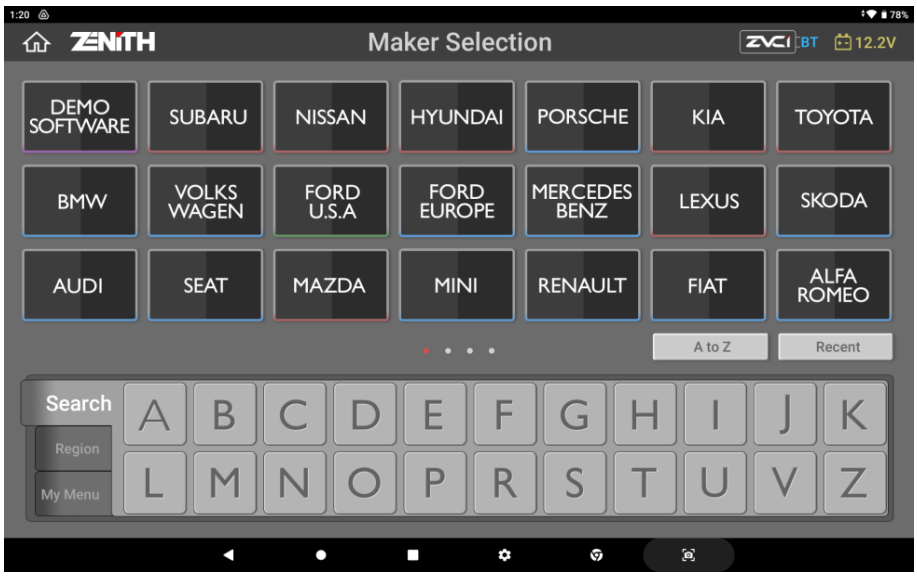
A. Diagnosis

To conduct manufacturer specific diagnostic functions including DTC Analysis, Data Analysis, Actuation Test, ECU Info and various Special Functions for each car manufacturer, select [Diagnosis] button from the ZENITH Z7 LITE main menu.



B. Maker (Carline) Selection

Selecting [Diagnosis] from the main menu is followed by carline selection menu as shown below.



For easy and quick navigation among those carline buttons, ZENITH Z7 LITE offers 5 sorting features at both ends in the lower half of the screen.

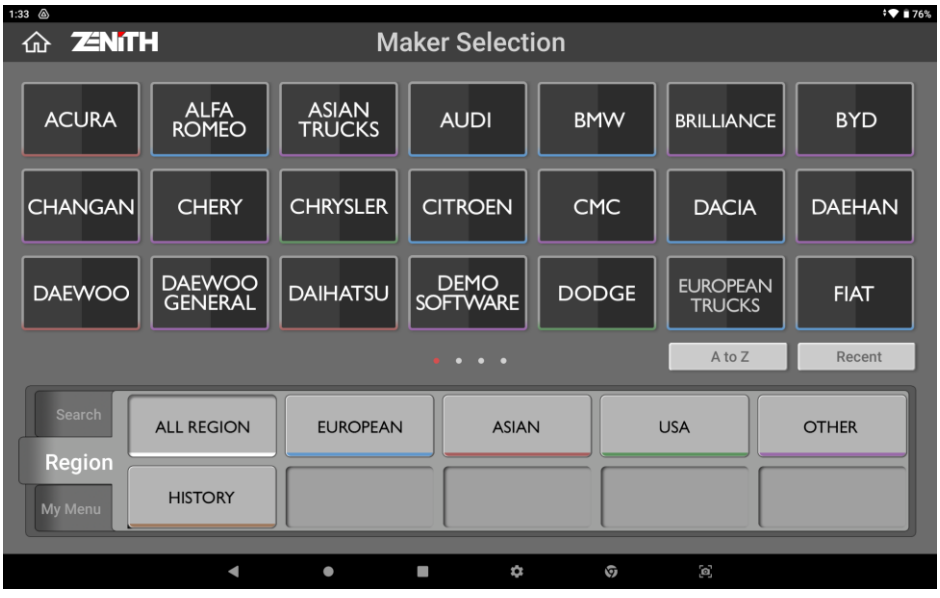
- Search

[Search] shows the buttons of the carlines that begins with the alphabet that you select. Below is an example of when you select [A] and as it appears, the carlines that begin with letter [A] are listed.
After selecting the first letter, the carlines can be further sorted by selecting the [Category] tab.



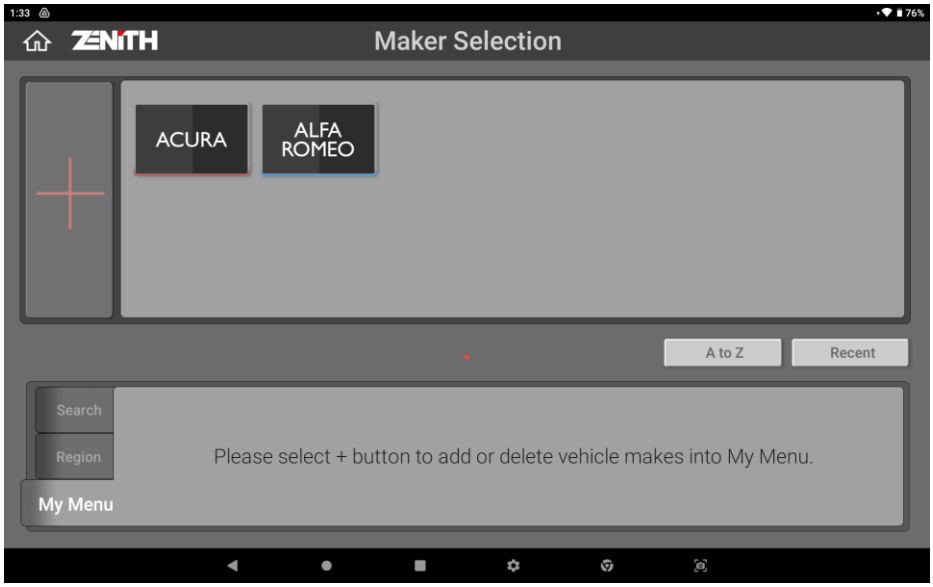
- Region

[Region] is used for sorting the carline buttons according to their originating regions, such as ‘All Regions’, ‘Asian’, ‘Australia’, ‘European’, ‘USA’, and ‘Other’.
In addition, ‘History’ feature displays recently diagnosed vehicle / accessed system / function path, offering a shortcut to the system without navigating menu from scratch.



➢ My Menu

[My Menu] allows you to add or delete certain carline buttons to form his/her own list of the preferred carlines for quick navigation. To add a certain carline to [My



Menu], press [+] button, select the desired carline and hit [Apply] button. To delete, deselect the software and hit 'Apply' button.

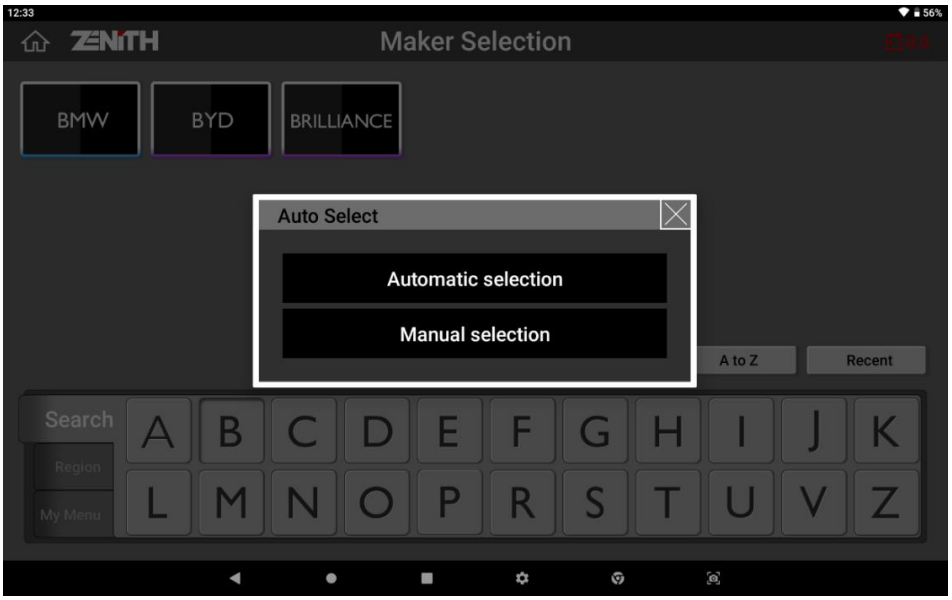
➢ Alphabet & Recent

The default sorting order of the carline buttons is "Recent selection comes first". [A to Z] feature organizes the carline software in alphabetical order from A to Z. Select [Recent] to put the buttons back in "recent selection first" order.

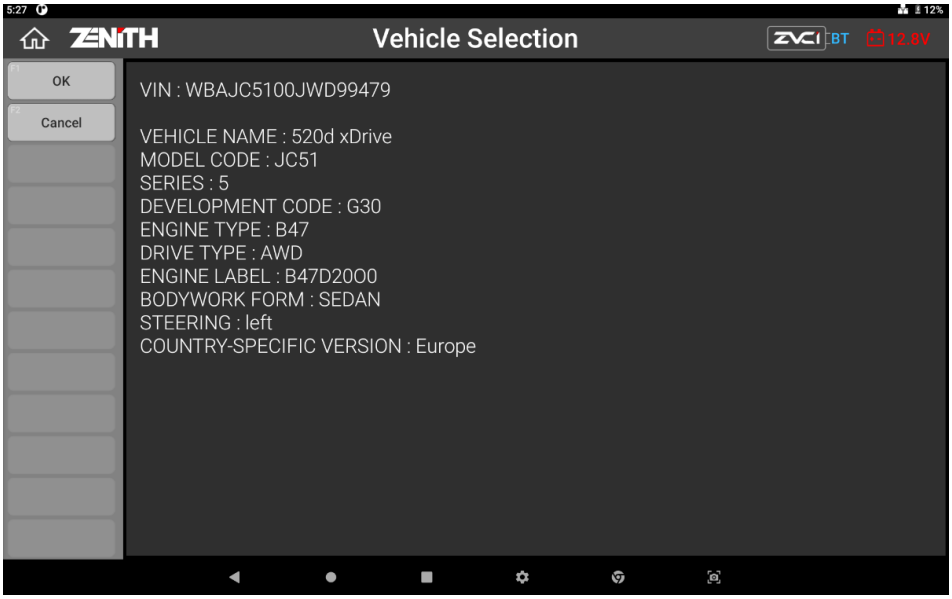


C. Automatic selection & Manual selection

Zenith Z7 offers options to select the vehicle model either automatically or manually. [Automatic selection] detects the vehicle information including the VIN number, model year, model name, engine type, and other necessary information whereas [Manual selection] lets the user to select the vehicle information manually.



➢ Automatic Selection



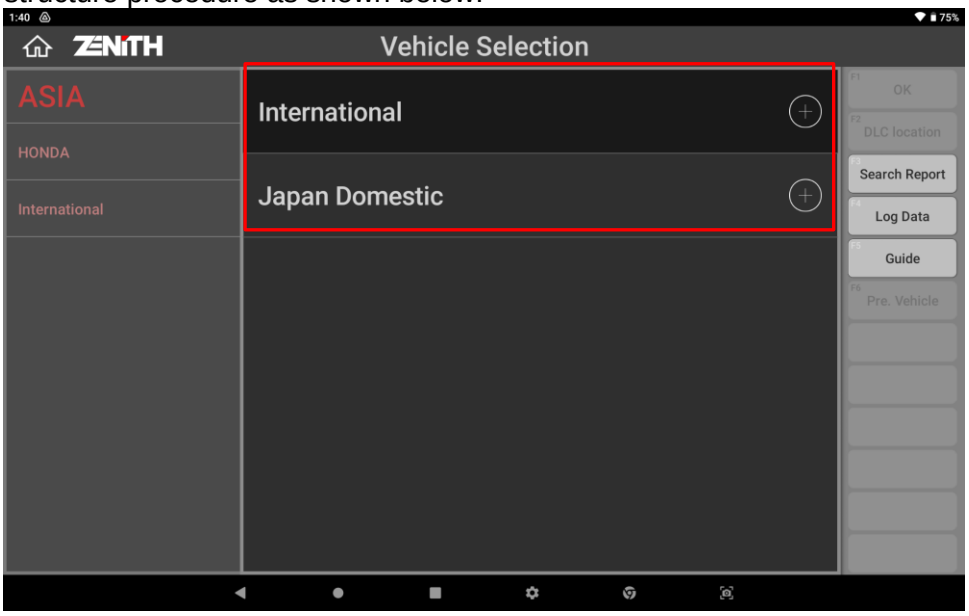
*Automatic selection may not work if connected vehicle does not communicate through CAN protocol. In such case, please select the model manually.

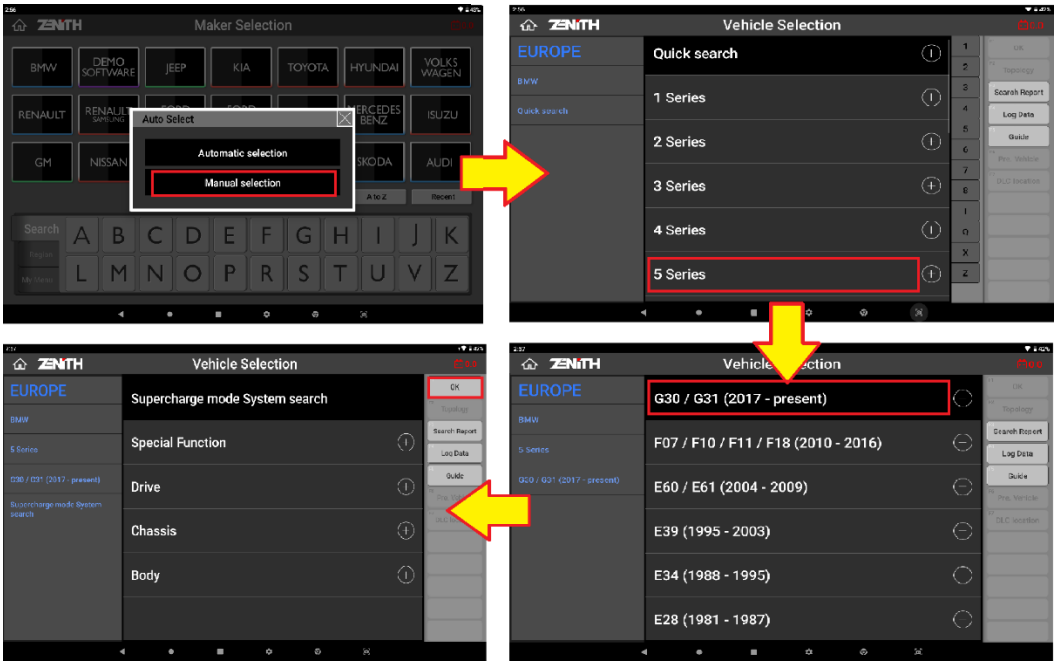
➢ **Manual Selection**

User needs to select vehicle's model, year, engine type and the system.

D. Japan Domestic vs. International

Select any Japanese brand Toyota, Lexus, Nissan, Infiniti, Honda, Acura, Mitsubishi, Mazda, Daihatsu and Suzuki from the Maker (Carline) Selection menu, then it is followed by the ZENITH Z7 LITE's unique Japanese car menu structure procedure as shown below.





➢ Japan Domestic

Zenith Z7 is offering the model names and the detailed model selection procedure for the cars sold in Japanese domestic market or secondhand vehicles imported from Japan with unique domestic model names and variants.

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 identical models are not also sold in Japan.

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

➢ International

In the overseas, outside Japan, the Japanese cars are named differently, and there is a huge variety of variant models that are not found in Japan.
[International] menu was added to include ALL regional versions of the Japanese automakers.

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 selecting model name, model code, type or model year.

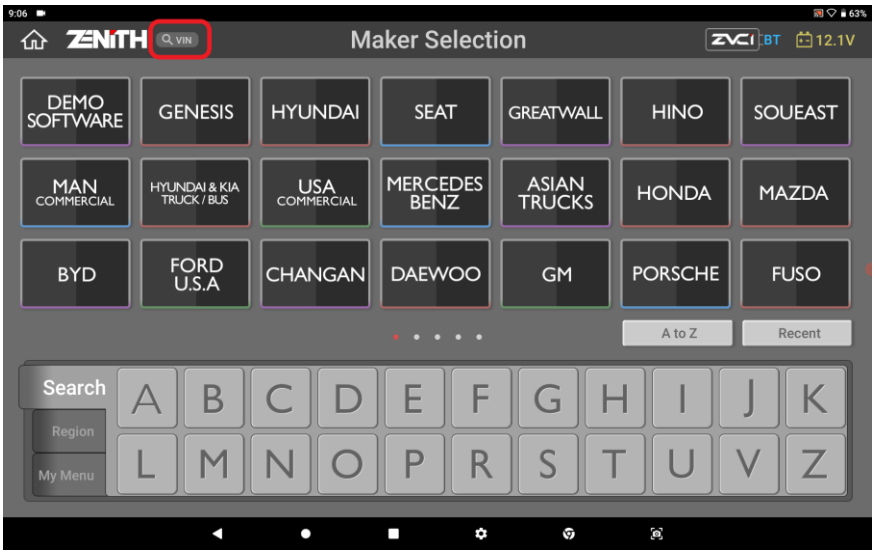
The procedure is simplified but it does not mean that the diagnostic results are also simplified. It provides complete function and diagnostic result of the same level as selecting all the details of the test vehicle in [Japan Domestic] menu.

6.2 Smart Auto Selection

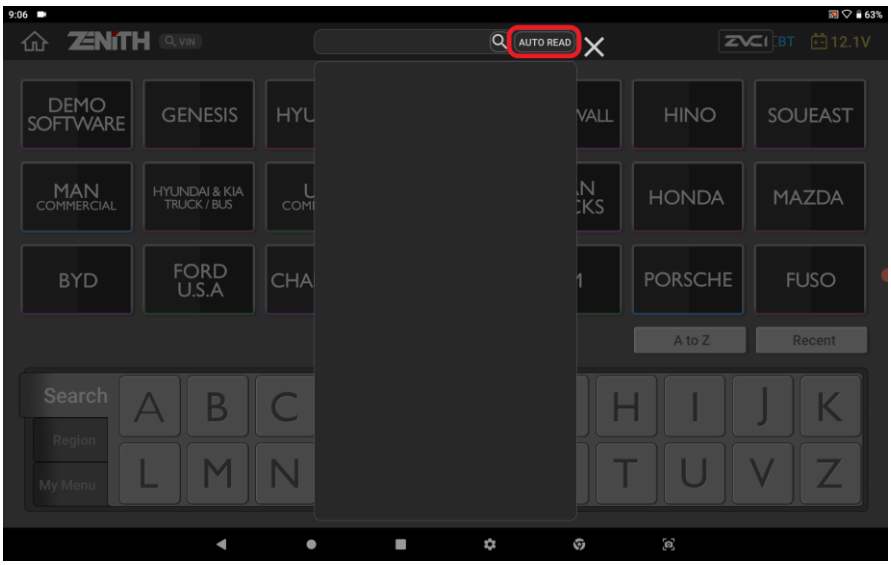
A. Smart Auto Selection

For better user experience, Zenith Z7 provides Smart Auto Selection function which is selecting Maker and model automatically with the VIN read from the vehicles. (Supported by Zenith Z7 only.)

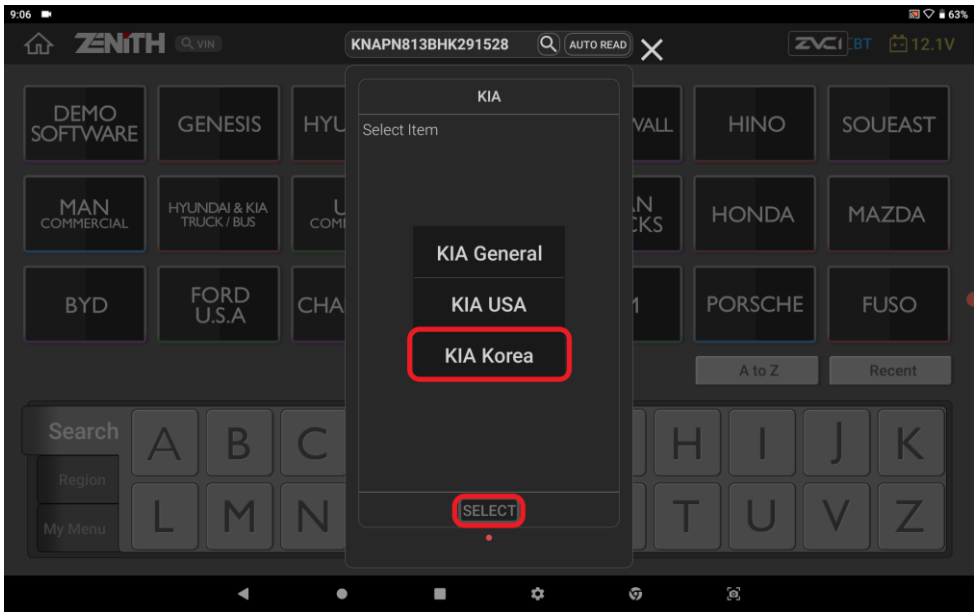
Smart Auto Selection function menu is available by selecting the “VIN” on the top right side of screen, in the right side of ZENITH logo, as the below.



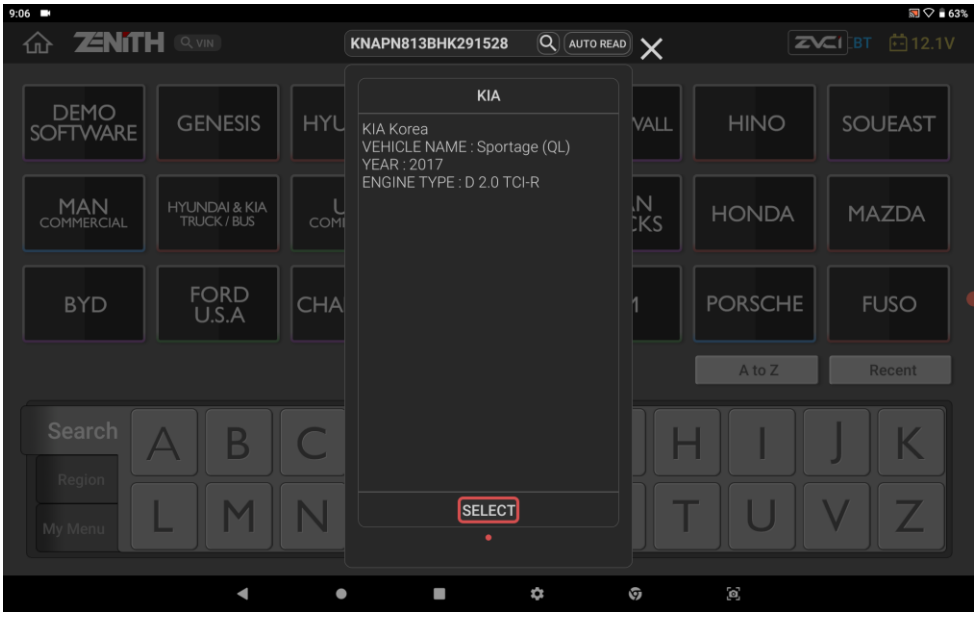
Select [AUTO READ] button at the top of the screen to identify car maker and model.



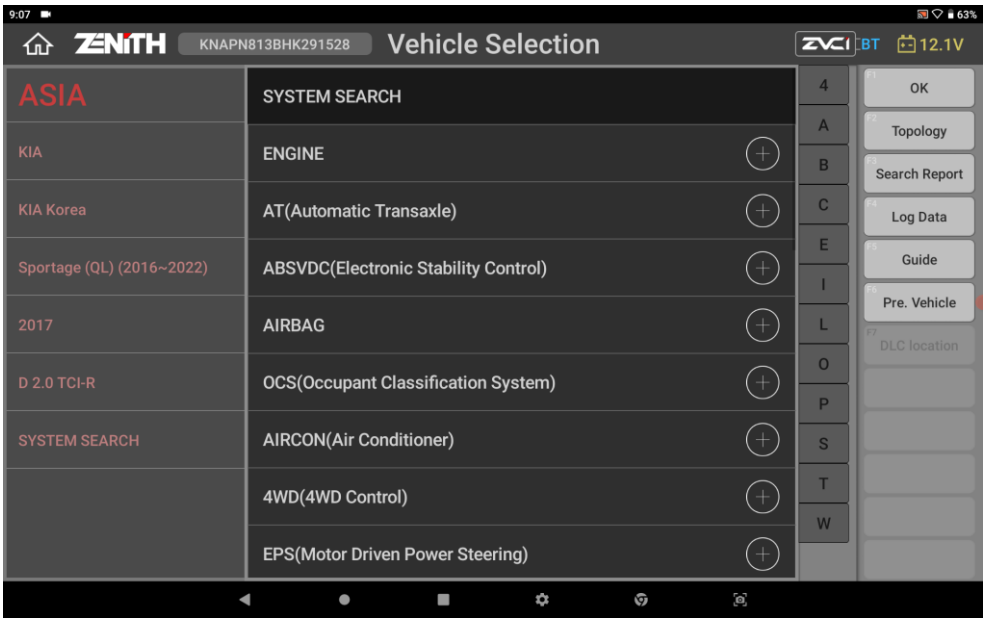
Select origin of manufacture among KIA General, KIA USA, KIA Korea and hit [SELECT] button to proceed Smart Auto Selection function. (The below pictures are example of KIA Sportage 2017 model)



Confirm the identified vehicle information is correct and hit [SELECT] button to communicate with equipped module of the vehicle.

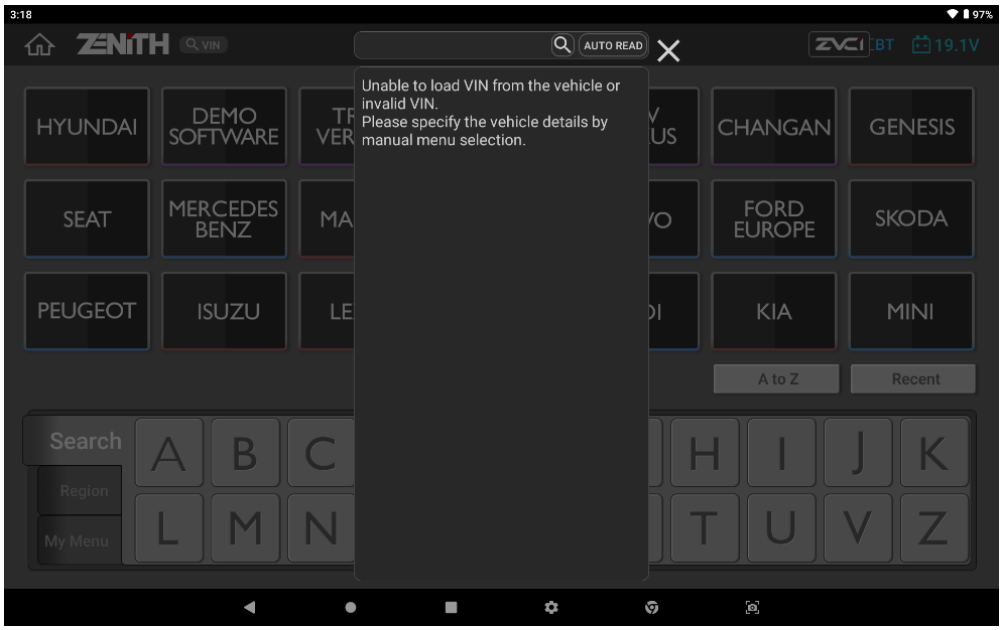


Proceed diagnosis function on user's demands.



B. Smart Auto Selection function failure

If VIN is not able to be read from vehicles or VIN is not identified, Zenith Z7 shows pop-up message as the below picture. In this case, please follow Automatic selection & Manual selection method described above



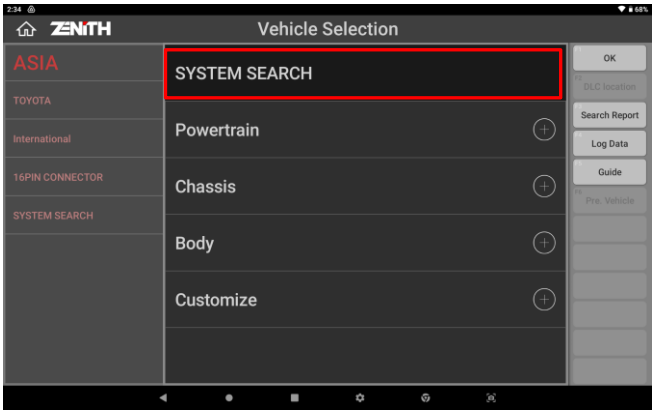
6.3 System Search

A. System Search Function

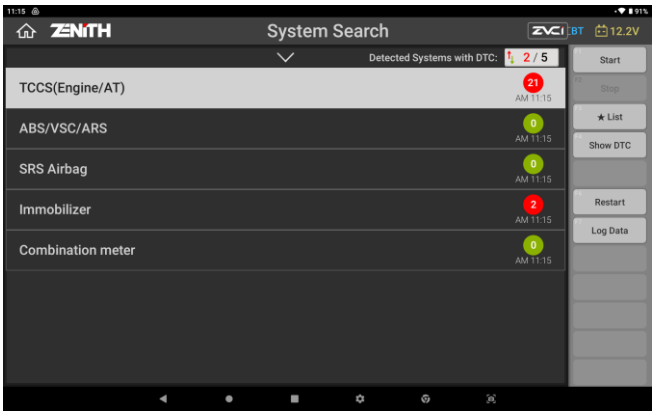
For many car manufacturers with some exceptions, selecting “System Search” from the system selection menu activates the automatic “All Systems Check” procedure, where ZENITH Z7 LITE tries to establish communication with all possible systems fitted in the vehicle one after another, and then provides the summarized report of the diagnostic result on the screen.



Selected [Toyota] from Maker (Carline) selection menu as an example



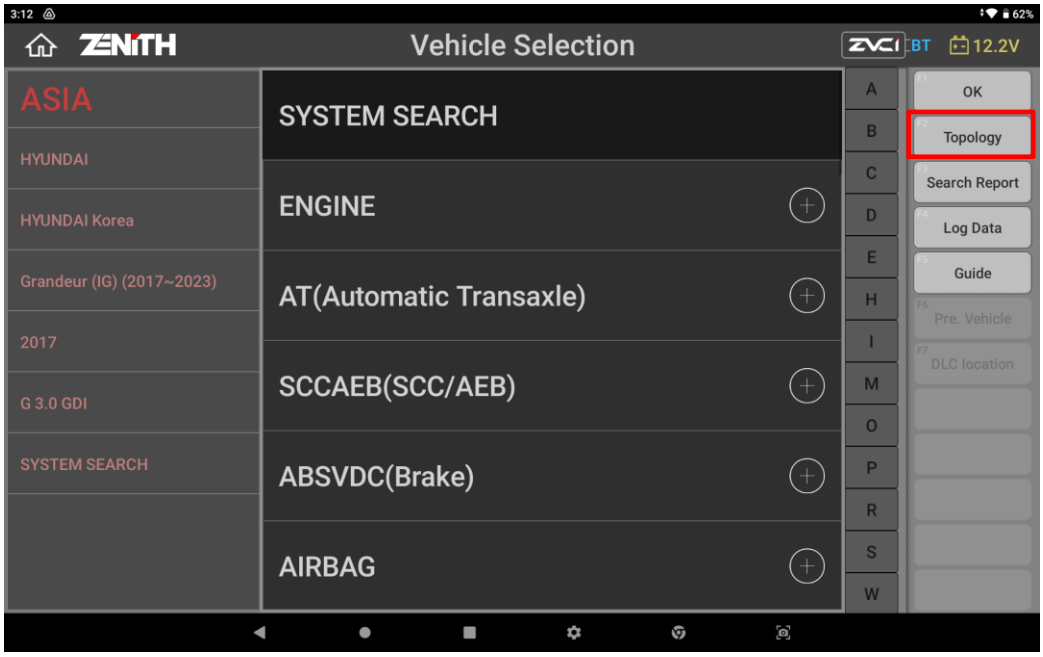
Select [System Search] option in the top of the control system list.
>> Select OK on the left to continue.



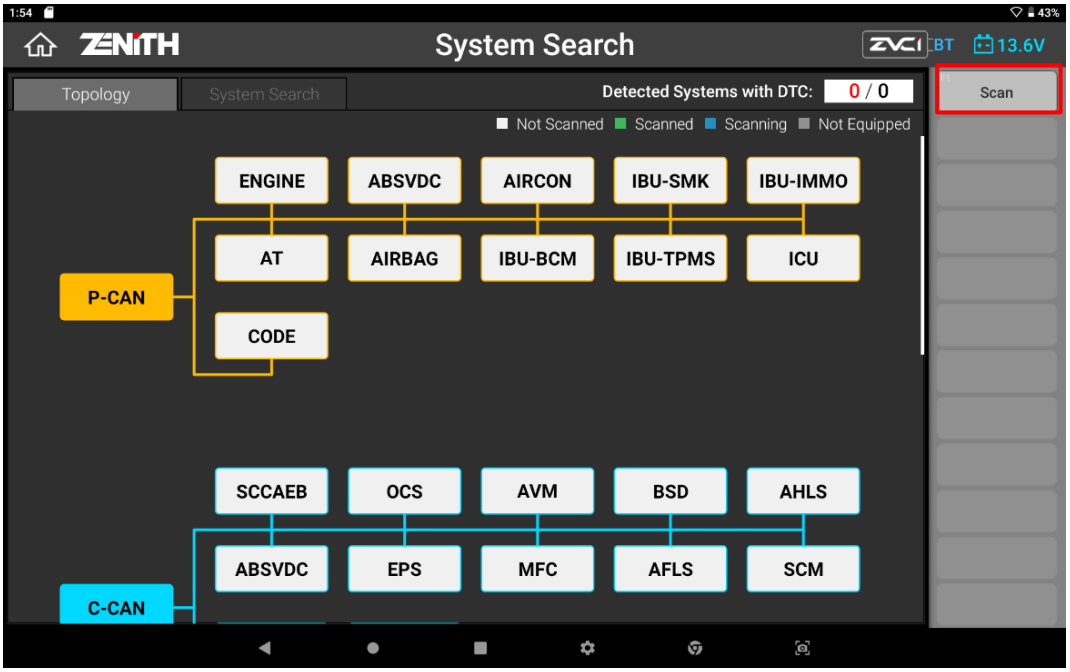
Zenith Z7 checks the availability of individual control system one after another and counts the number of DTCs (fault codes) stored in each system.

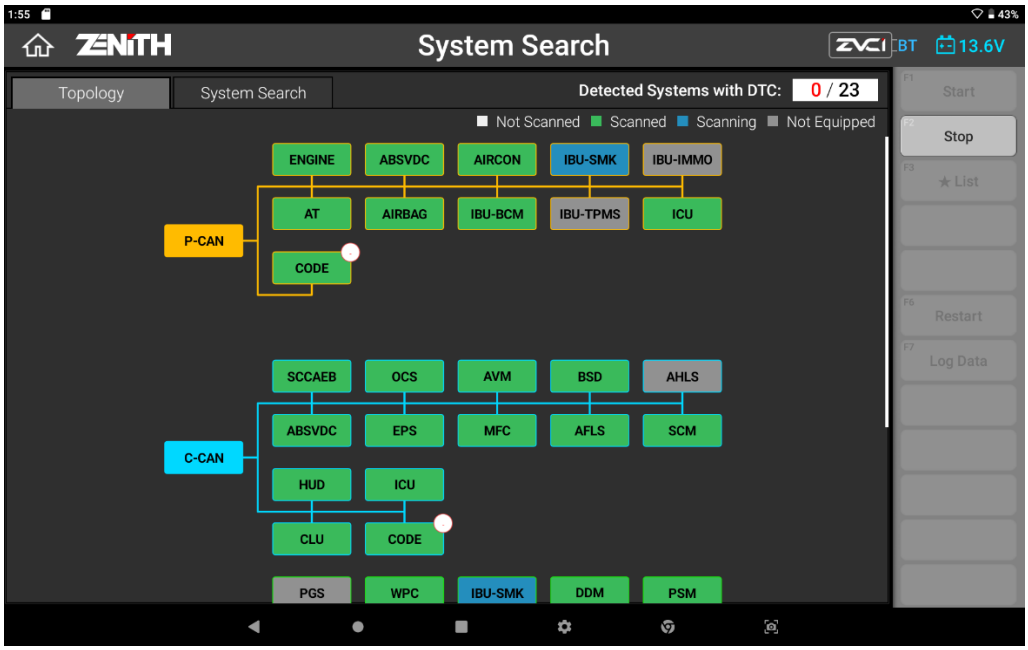
B. Topology

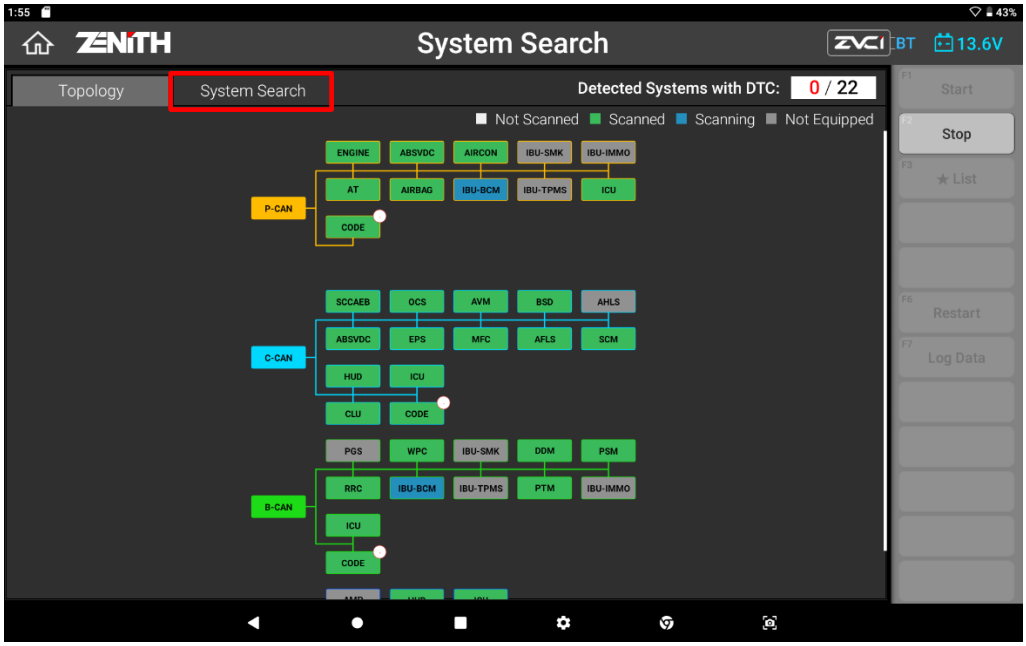
Topology provides a high-level comfortable view of the layout, design and behavior of data bus configurations. Perform a scan and quickly check which modules produce DTC.

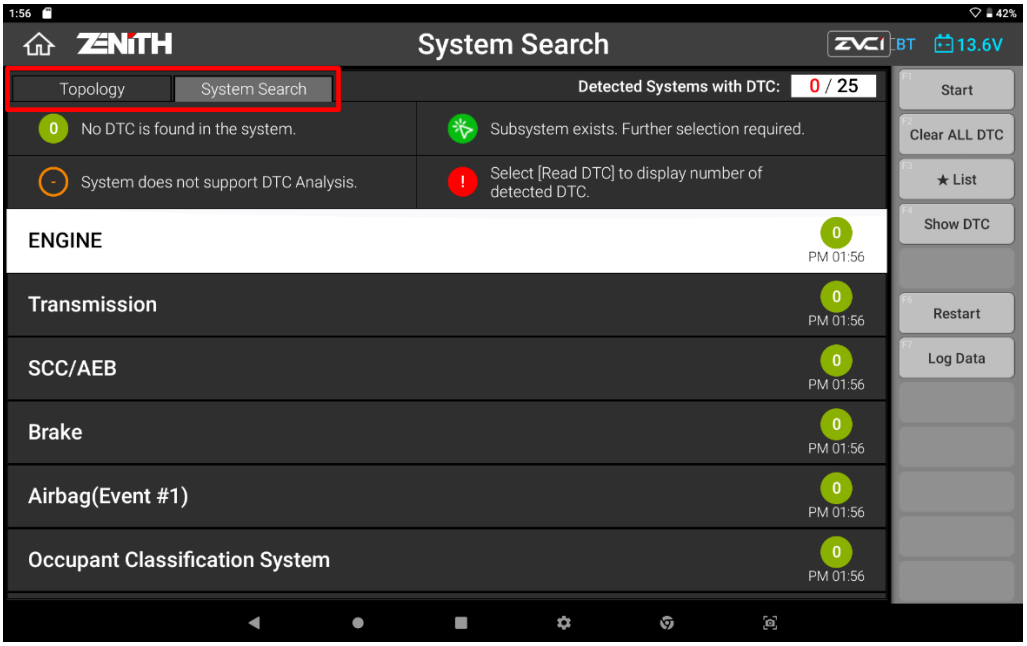


Select “Topology” button and “Scan” button. Then check the topology module tree as below. when the system search is completely finished, the color of each system is changed to green or gray. Grey color system means it was not equipped in the car.

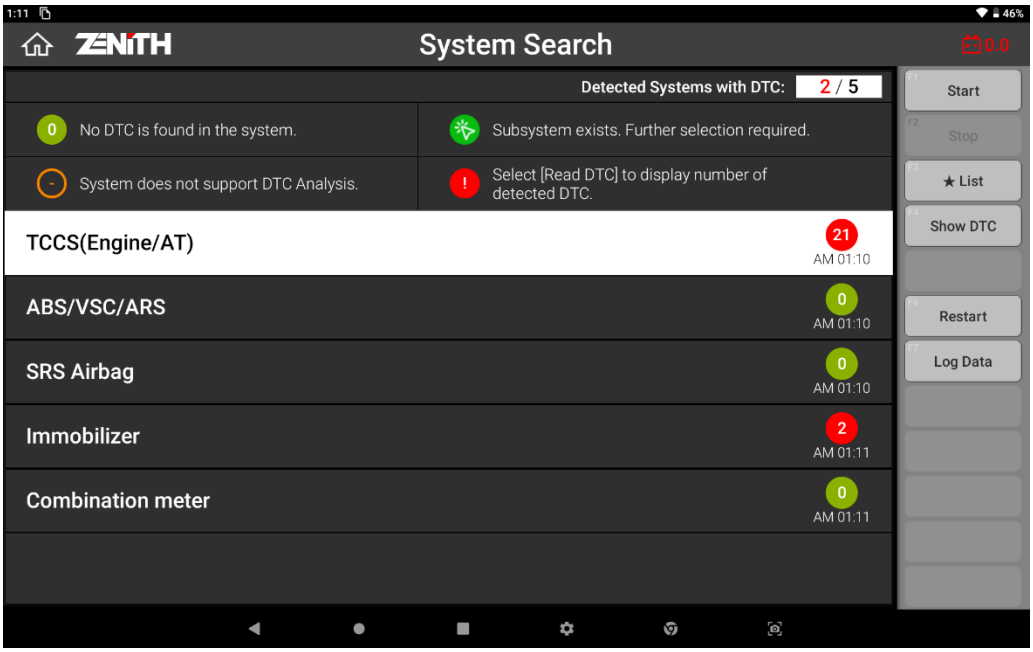



System Search
Topology
System Search
Detected Systems with DTC: 0 / 23
Not Scanned Scanned Scanning Not Equipped
ENGINE ABSVDC AIRCON IBU-SMK IBU-IMMO
AT AIRBAG IBU-BCM IBU-TPMS ICU
P-CAN
CODE
SCCAEB OCS AVM BSD AHLS
ABSVDC EPS MFC AFLS SCM
C-CAN
HUD ICU
CLU CODE
PGS WPC IBU-SMK DDM PSM
Start
Stop
List
Restart
Log Data


System Search
Topology
System Search
Detected Systems with DTC: 0 / 22
Not Scanned Scanned Scanning Not Equipped
ENGINE ABSVDC AIRCON IBU-SMK IBU-IMMO
AT AIRBAG IBU-BCM IBU-TPMS ICU
P-CAN
CODE
SCCAEB OCS AVM BSD AHLS
ABSVDC EPS MFC AFLS SCM
C-CAN
HUD ICU
CLU CODE
PGS WPC IBU-SMK DDM PSM
RRC IBU-BCM IBU-TPMS PTM IBU-IMMO
B-CAN
ICU
CODE
Start
Stop
List
Restart
Log Data



C. System Search Result



➢ Systems found in the vehicle

The control systems with which ZENITH Z7 LITE could communicate and check the fault codes are listed on the screen.

➢ Number of DTCs

Zenith Z7 reads the fault codes from the vehicle's control systems while conducting the system search function and indicates the number of fault codes found in each

system. However, some of the control systems such as SRS, IMM or BCM may not support fault code Read and Erase functions. Some control modules may require a scan tool to communicate with the system individually to read the fault code.

In both cases, ZENITH Z7 LITE is unable to count and show the number of fault codes in the System Search report, because the vehicle control systems are designed in that way.
To avoid misunderstanding, ZENITH Z7 LITE indicates such exceptional cases with the symbols 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 fault codes are found in the control system without specifying the count.

D. Additional Commands

- START

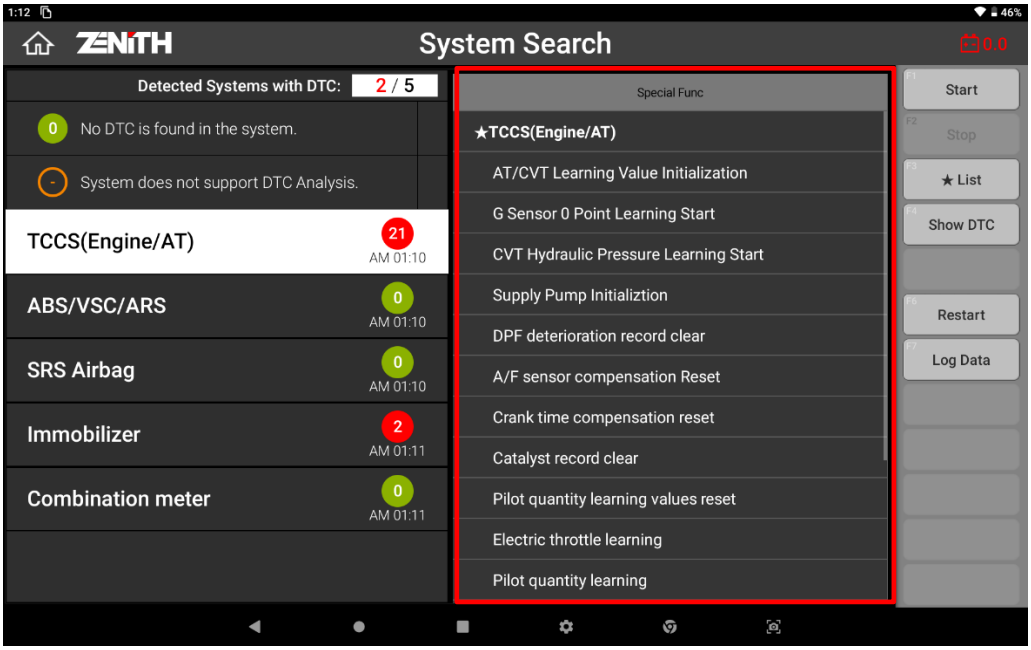
Select a system to conduct more diagnostic functions from the systems list in the left half of the screen, and touch [START] to enter the system.

- STOP

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

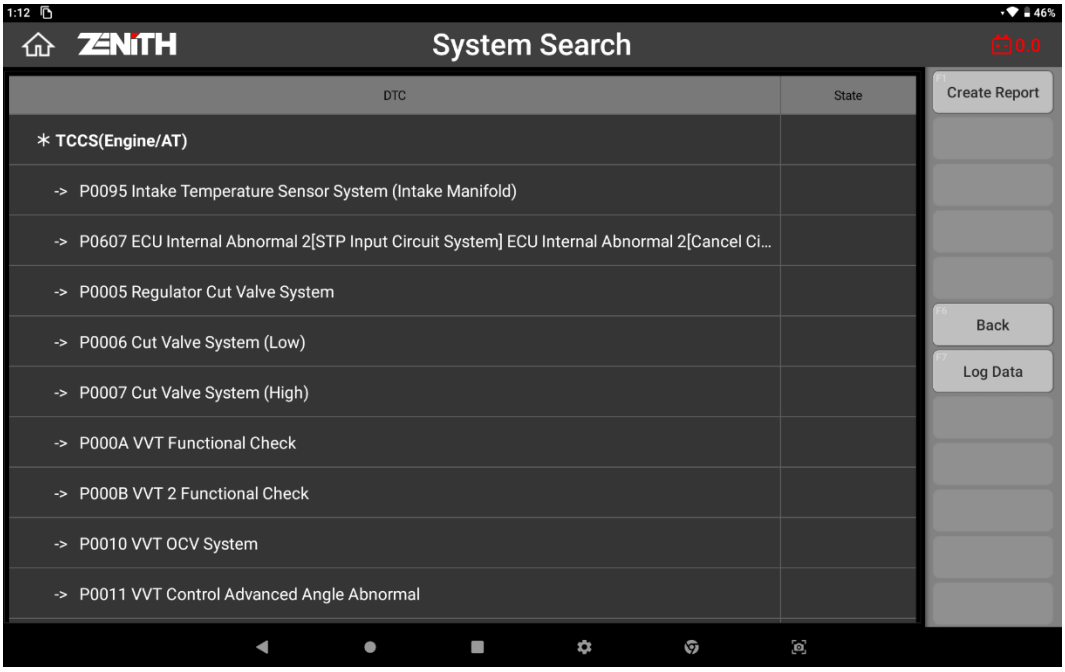
- ★LIST

Select [★LIST], then ZENITH Z7 LITE shows the details of the advanced diagnostic functions (special functions) available with the detected systems in the right half of the screen.



➢ SHOW DTC

Displays the detailed list of the fault codes found in each control system with the manufacturer specific code numbers and descriptions.



➢ CREATE REPORT

[Create Report] button appears when [SHOW DTC] is selected.
Select this button in order to use the System Search result for the creating Pre & Post Repair Diagnostic Report. Please refer to [Chapter 12. Diagnostic Report] for more details about the Pre & Post Repair Report function.

- RESTART

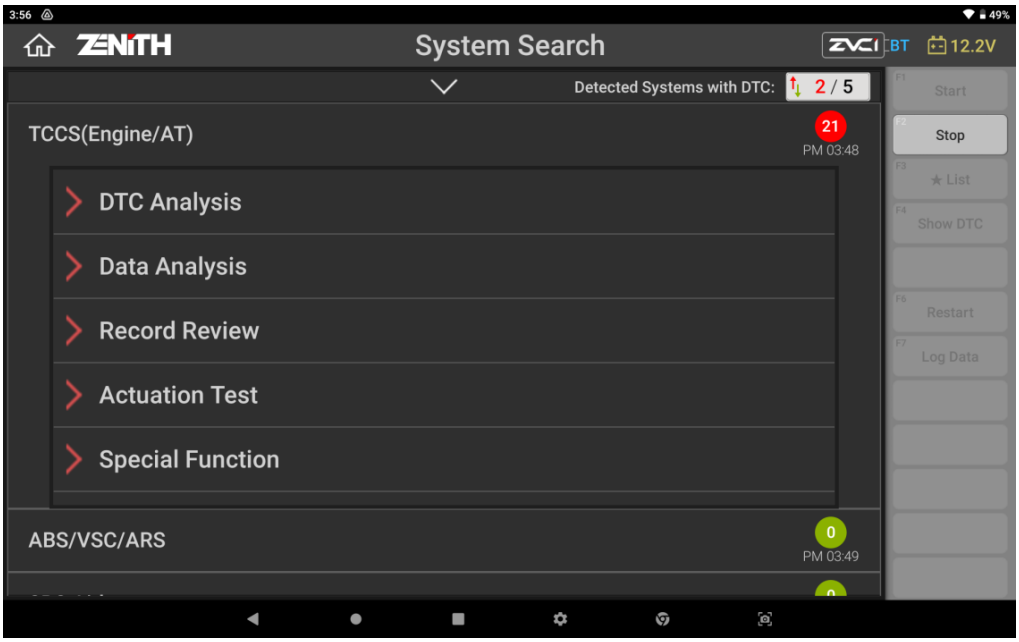
Select [RESTART] to begin System Search again.

6.4 DTC Analysis

Reads the DTC (Diagnostic Trouble Codes or fault codes) stored in the control module and erases them after repairing the vehicle

A. Diagnostic Function Menu

When the Maker (Carline) 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 carlines that ZENITH Z7 LITE supports.



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

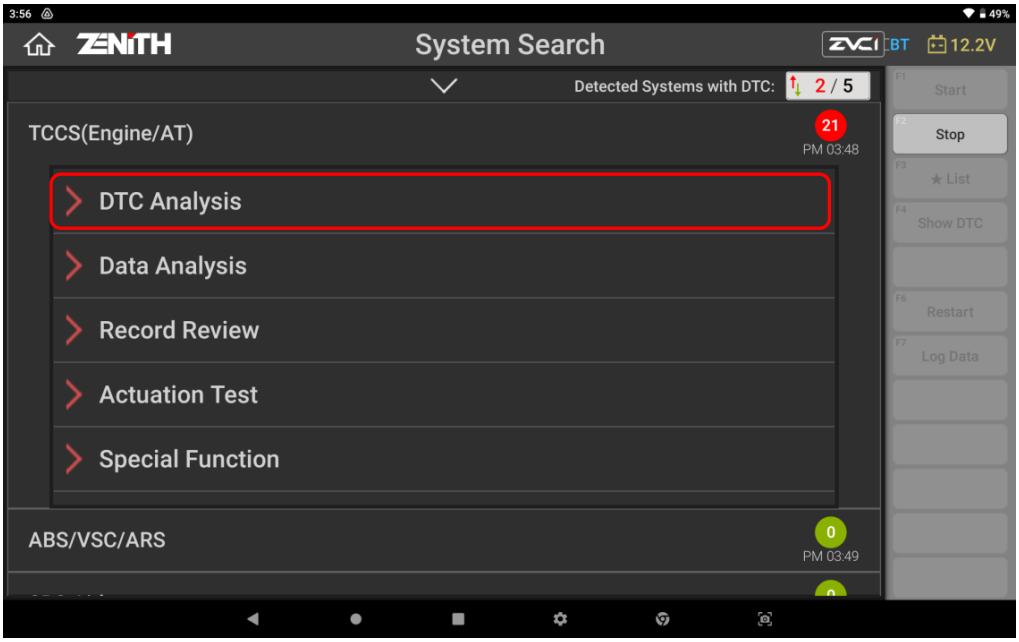
The details of the diagnostic functions are explained in the following sections in this chapter individually.

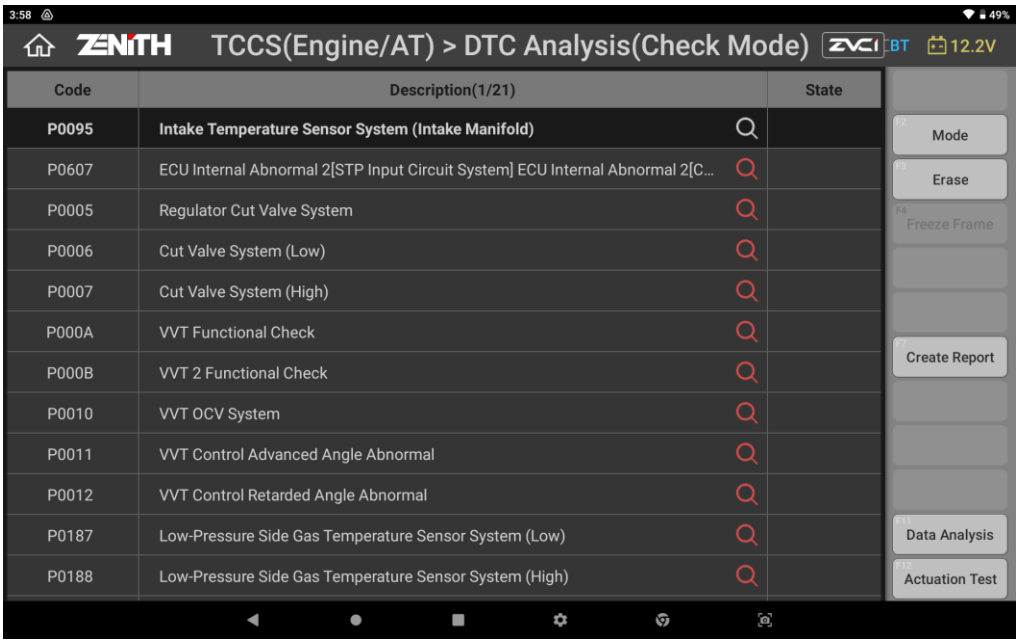
B. DTC Reading & Erasing

Some car manufacturers may provide different DTC Analysis functions in their own styles and methods, therefore make sure to be comprehend the different procedures and conditions before executing the manufacturer specific DTC Analysis functions.

C. DTC Reading

Select [DTC Analysis] then ZENITH Z7 LITE checks the DTCs set in the selected control system and shows the list of the DTCs.





D. Present / History / Pending DTC

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

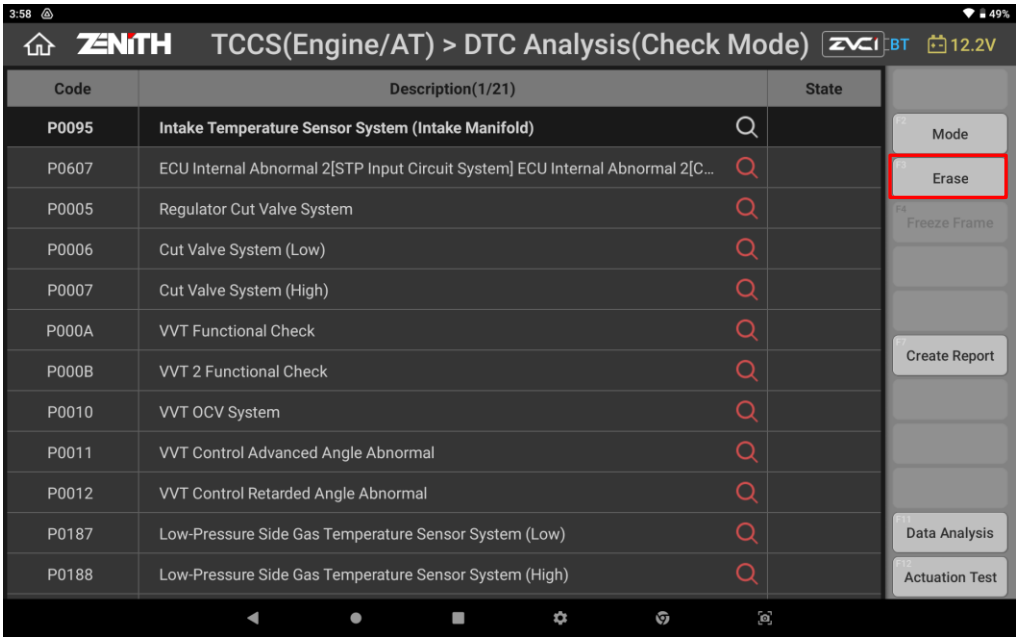
- **Present DTC**
  An actual DTC currently affecting the control system's error or failure and needs further diagnosis for repair and erasure.

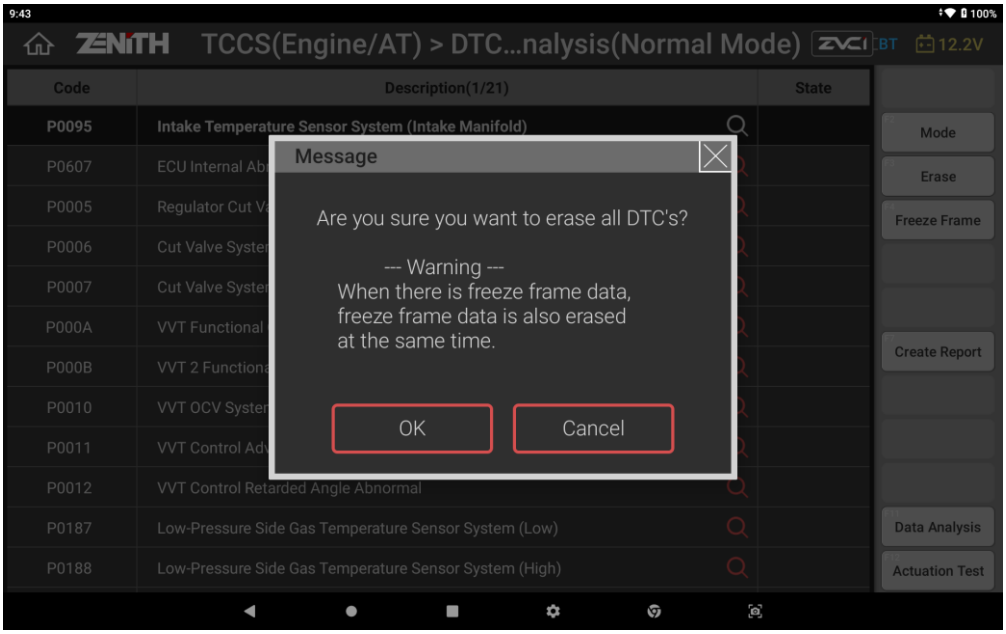
- **History DTC**
  A DTC that was active in the past as the related parameter readings went out of range but dismissed after several drive cycles without reoccurring.

- **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.

E. DTC Erasing

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

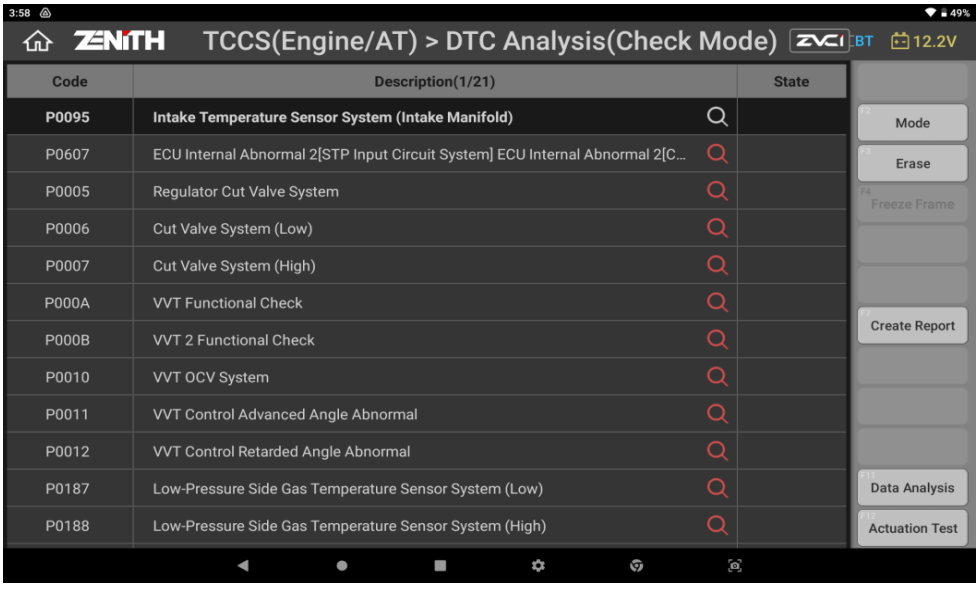




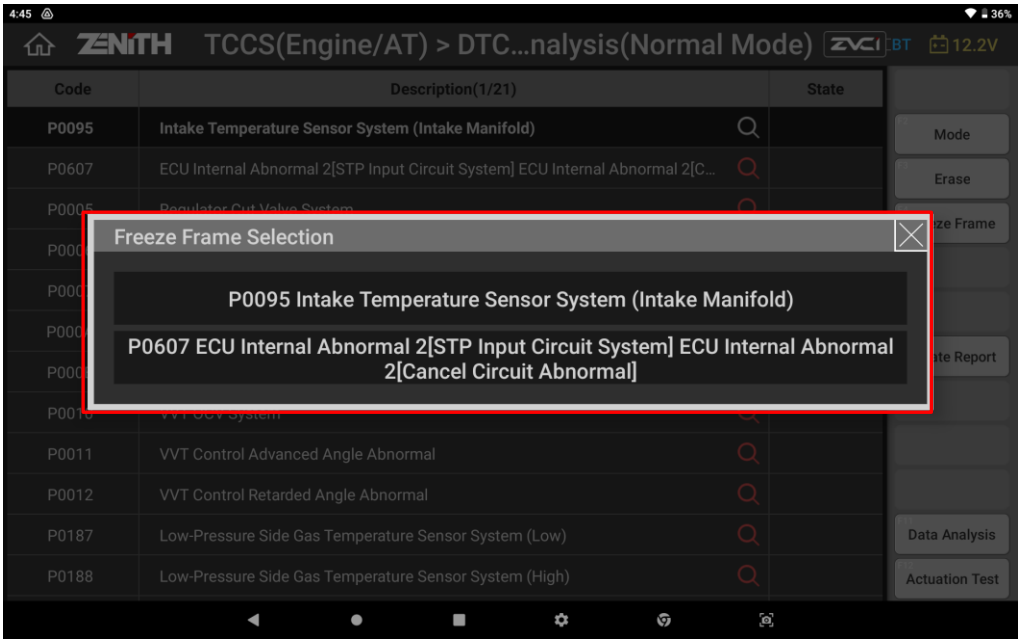
F. Freeze Frame Data

To aid the mechanic's better understanding of what had happened to the vehicle's control system before and after the moment that the DTC was set, Live Data (or Data Stream, PID Reading) parameters are recorded when the critical diagnostic trouble code is detected and set in 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 retrieve 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.

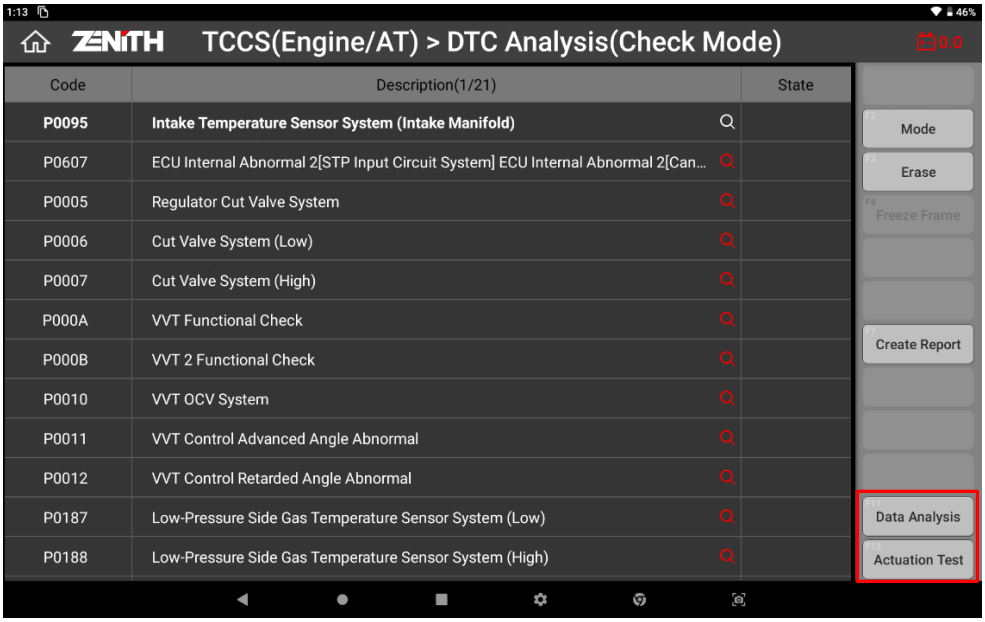


G. Manual DTC Reading

Reading and erasing the codes from the old vehicles of 1980's and early 1990's using Z7 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 ZENITH Z7 LITE screen.

H. Move to other function menu

Press [More↓] button located at the bottom of the side menu bar to find [F11 Data Analysis] and [F12 Actuation Test] function buttons. User can jump directly to observe live data and component testing.



I. **Mode** (just for Toyota, Lexus and Daihatsu)

[MODE] button is activated only when reading the DTCs from Toyota, Lexus or Daihatsu vehicles.

Unlike the other automakers, Toyota and Daihatsu have an additional option for DTC reading function, which is switching the diagnostic mode to Check Mode or Normal Mode.

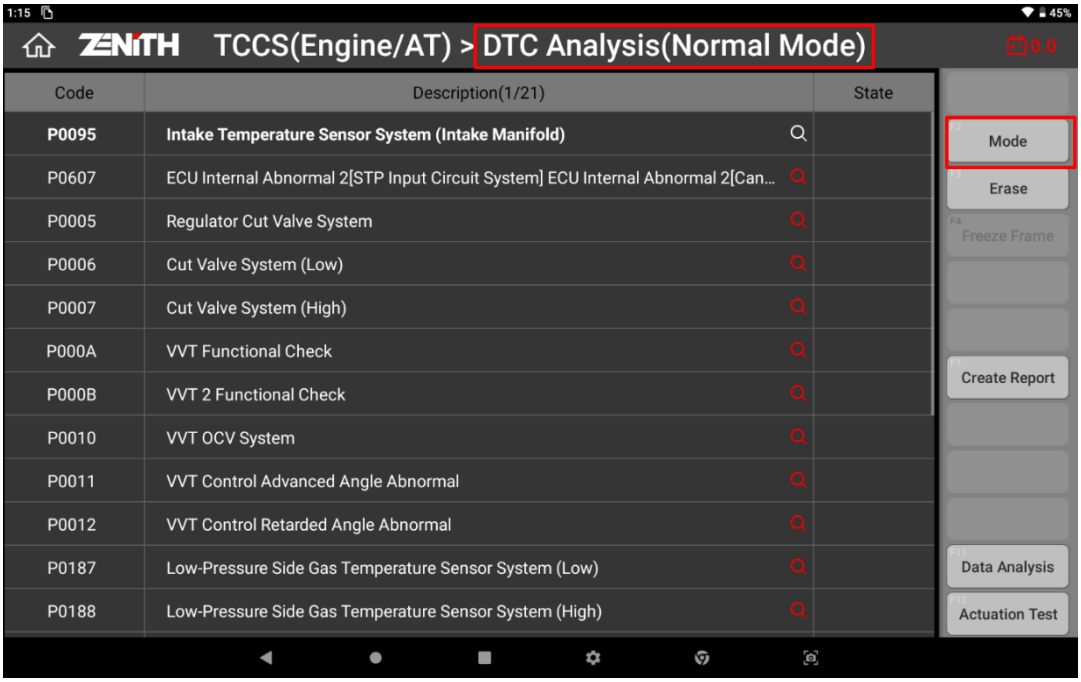
- Normal Mode

  Reading DTC in [Normal Mode] is the standard DTC reading function that is not much different from the other automakers.

- Check Mode

  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.

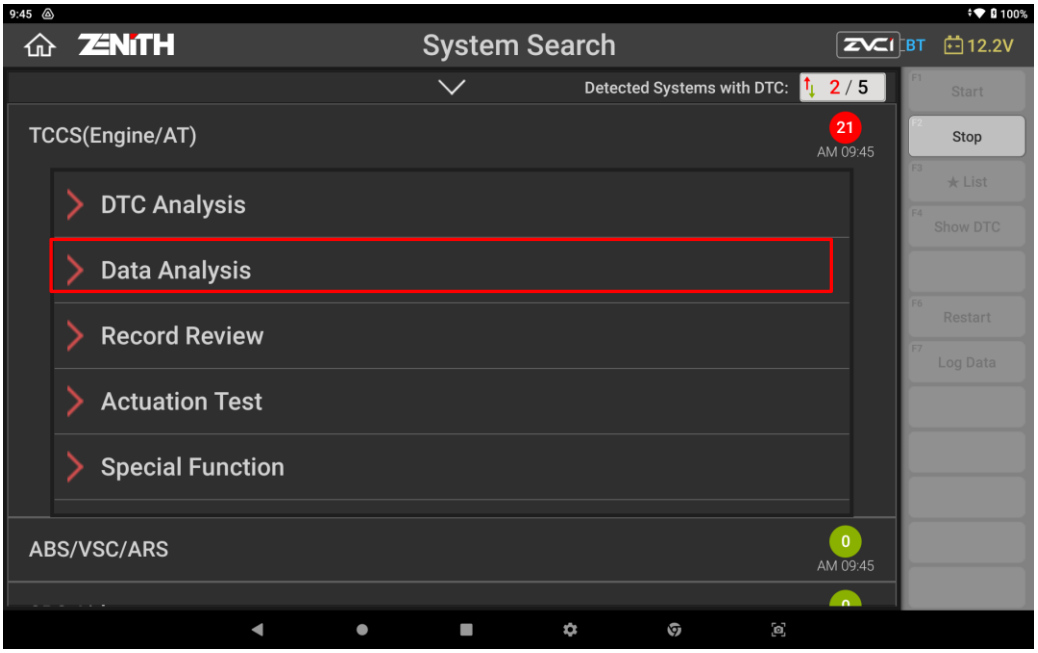

1:15
45%
ZENITH
TCCS(Engine/AT) > DTC Analysis(Normal Mode)
0.0
Code
Description(1/21)
State
P0095 Intake Temperature Sensor System (Intake Manifold)
P0607 ECU Internal Abnormal 2[STP Input Circuit System] ECU Internal Abnormal 2[Can...
P0005 Regulator Cut Valve System
P0006 Cut Valve System (Low)
P0007 Cut Valve System (High)
P000A VVT Functional Check
P000B VVT 2 Functional Check
P0010 VVT OCV System
P0011 VVT Control Advanced Angle Abnormal
P0012 VVT Control Retarded Angle Abnormal
P0187 Low-Pressure Side Gas Temperature Sensor System (Low)
P0188 Low-Pressure Side Gas Temperature Sensor System (High)
Mode
Erase
Freeze Frame
Create Report
Data Analysis
Actuation Test

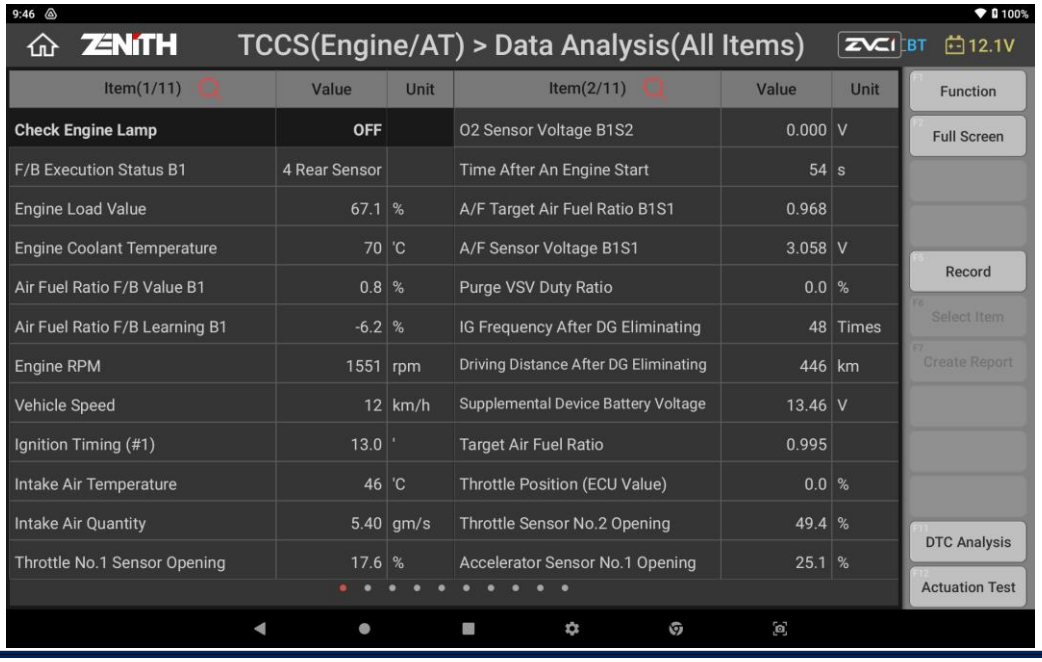
6.5 Data Analysis

Also named as Live Data, Data List, Data Stream, PID Reading 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.

A. Data Reading

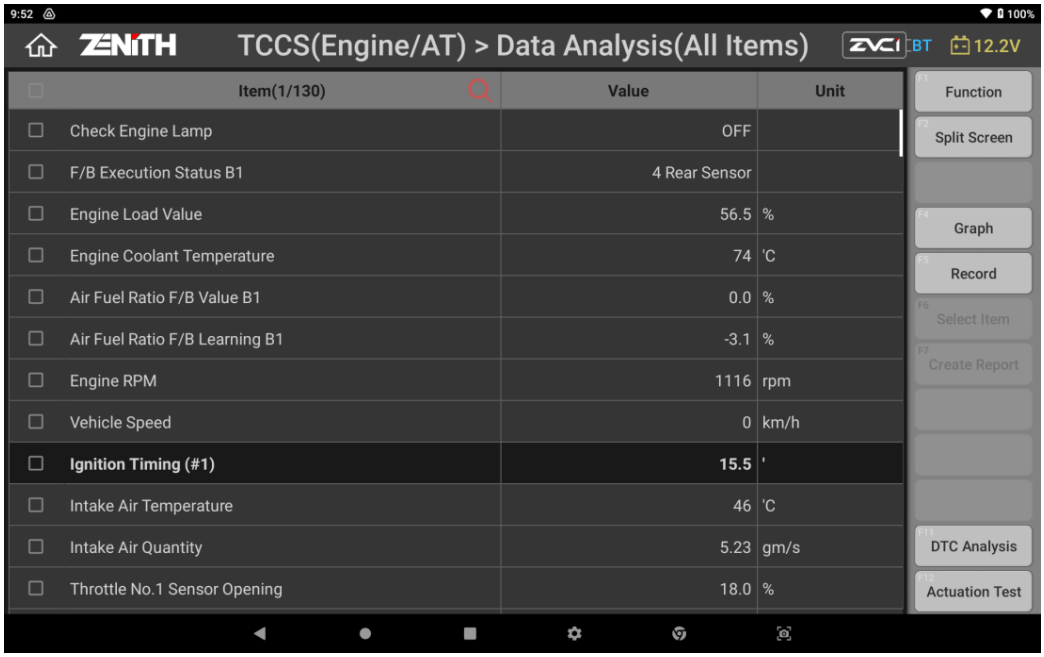
Select [Data Analysis] from the menu then the data parameters are listed as shown below.



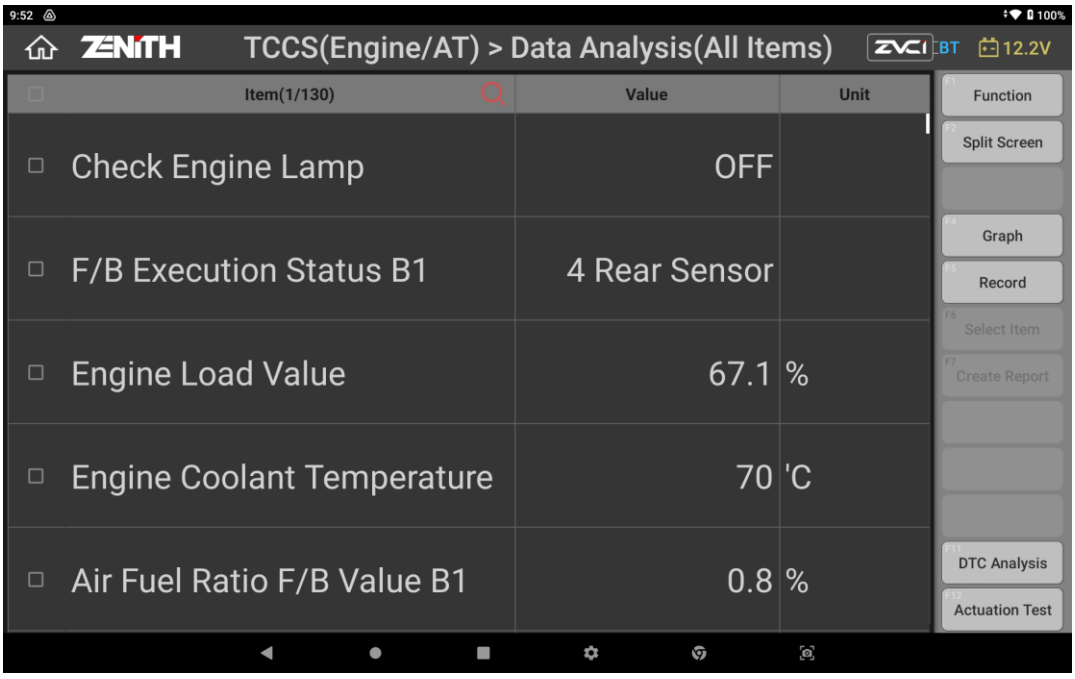


➢ Full Screen

Select [Full Screen] button on the left to switch the data display to a full page “Detail” mode, where up to 11 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 24 parameters in the split screen.



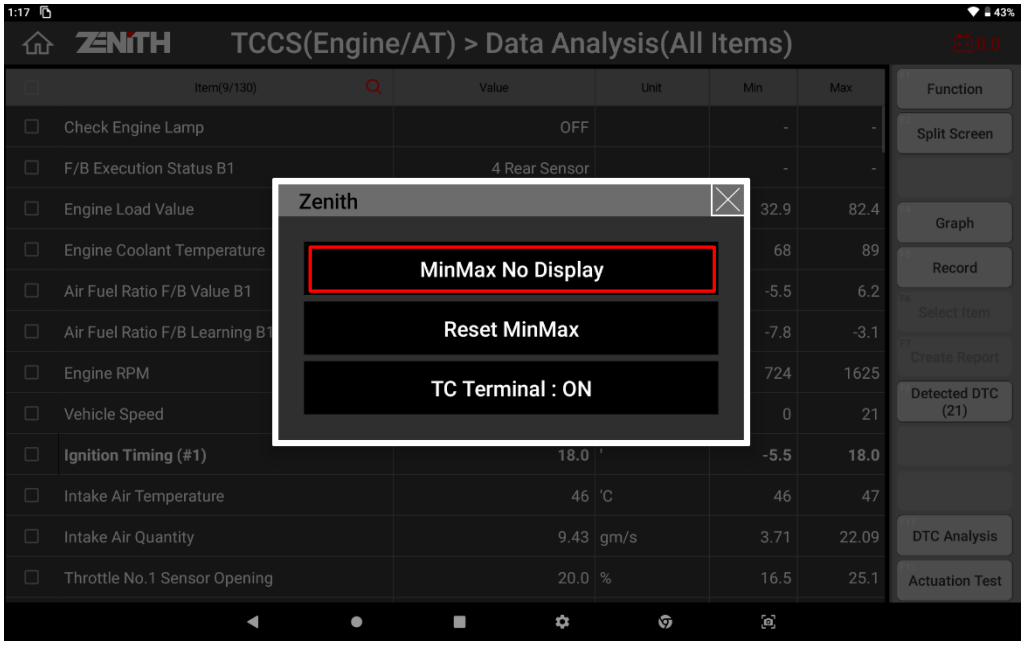
Using thumb and index finger, the list can be zoomed in so that the parameters can be viewed in much bigger font (limited to 5 parameters at max.)

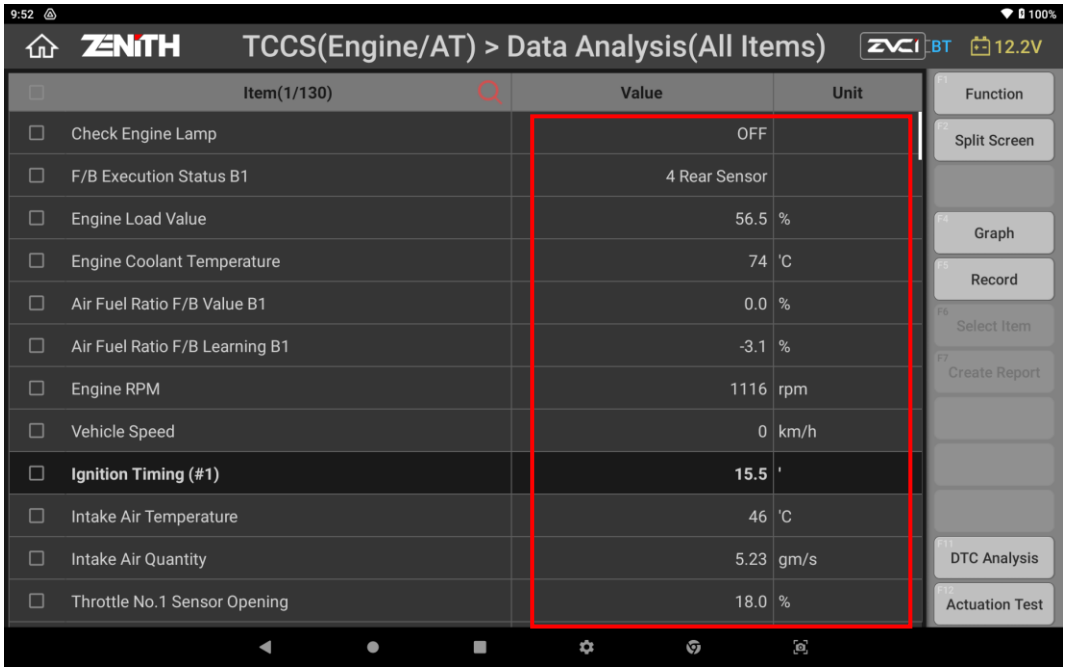


➢ Function

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)



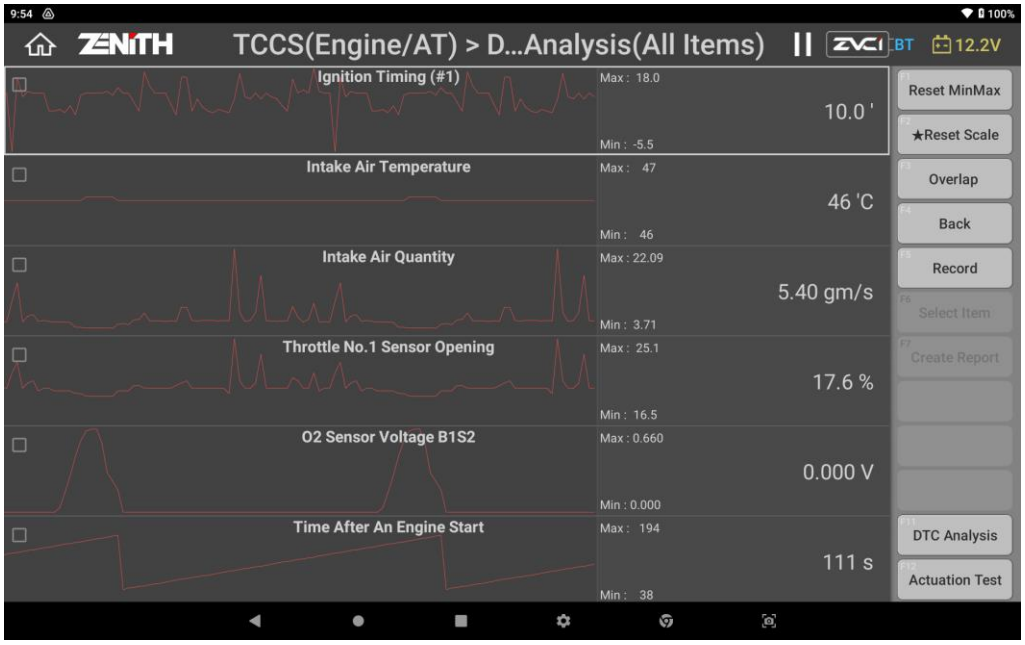


B. Graph Mode

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.

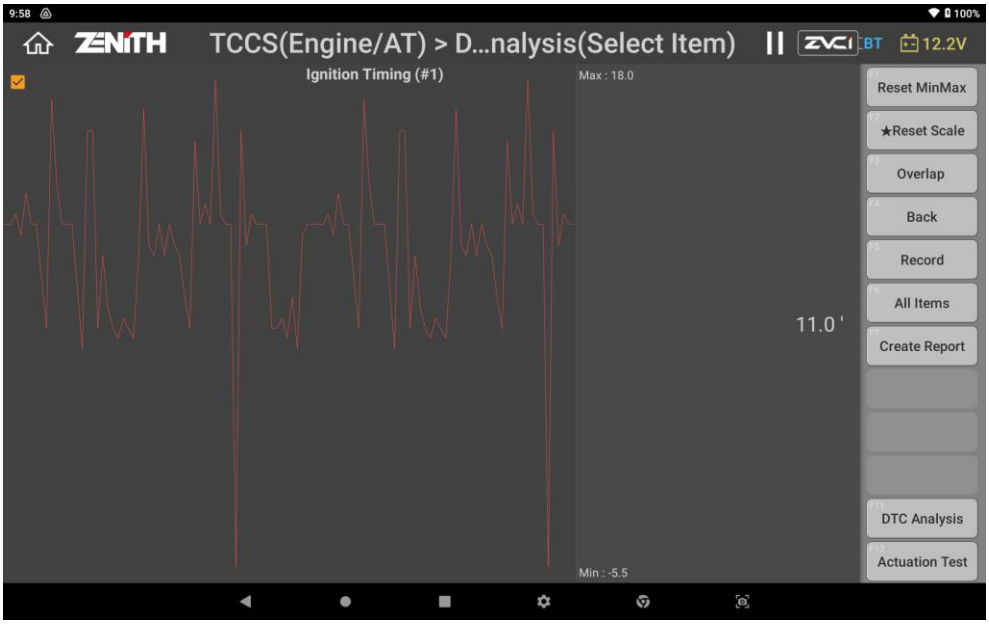
- Switching to Graphs

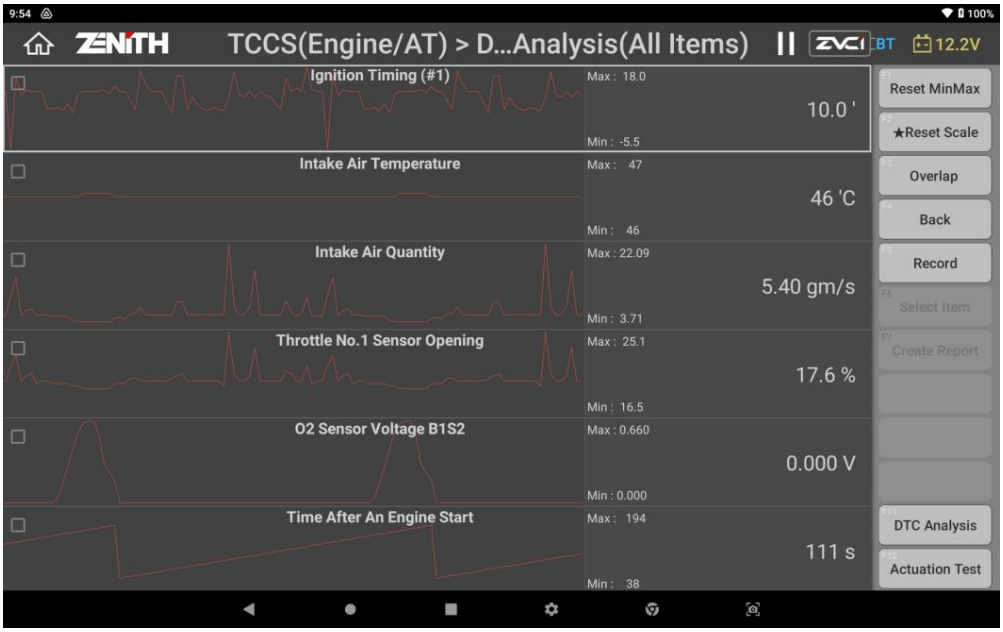
Select [GRAPH] button to switch the display mode to graphs.
At first, the graph mode runs with 6 lines for all parameters in the data list.



- Graph Zoom IN & OUT

You can zoom in or zoom out each graph with thumb and index finger, and the dynamic graph can be minimized as small as the total of 8 graphs can be displayed in a single screen. The graph can be maximized as big as the graph fits in the screen.





➢ BACK

Returns to the text based numeric data display mode.

➢ RECORD

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

C. Select Items (Parameters) / All Items

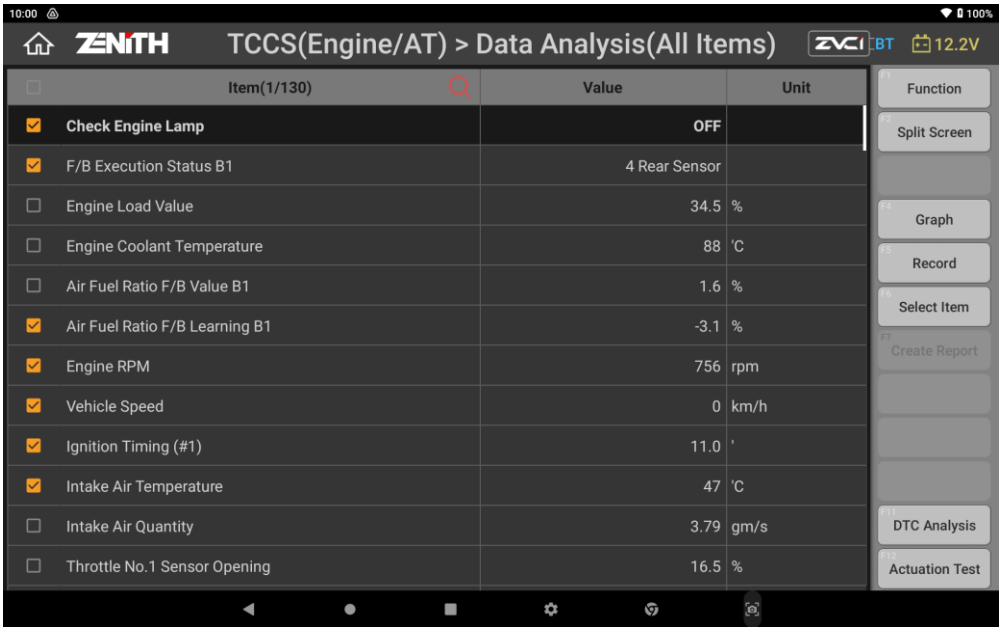
Late model vehicles provide the data for more parameters, sometimes hundreds of them are listed for a single system. Parameters are scattered here and there in the data list, and the increased parameters makes it more difficult to check and monitor the related parameters efficiently moving page to page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

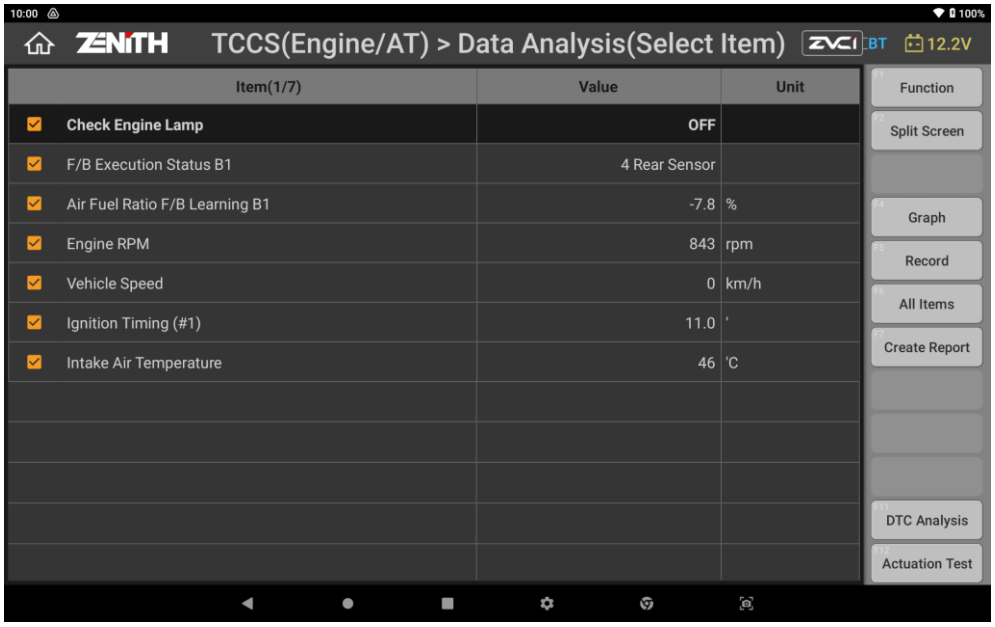
As the more parameters are selected, it takes more time to receive data of the increased number of parameters from the control module, and inevitably it results in slower data refreshing rate. And vice versa: the fewer parameters you select, the faster data frame refreshing rate you get.

➢ Select Items from the list

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.



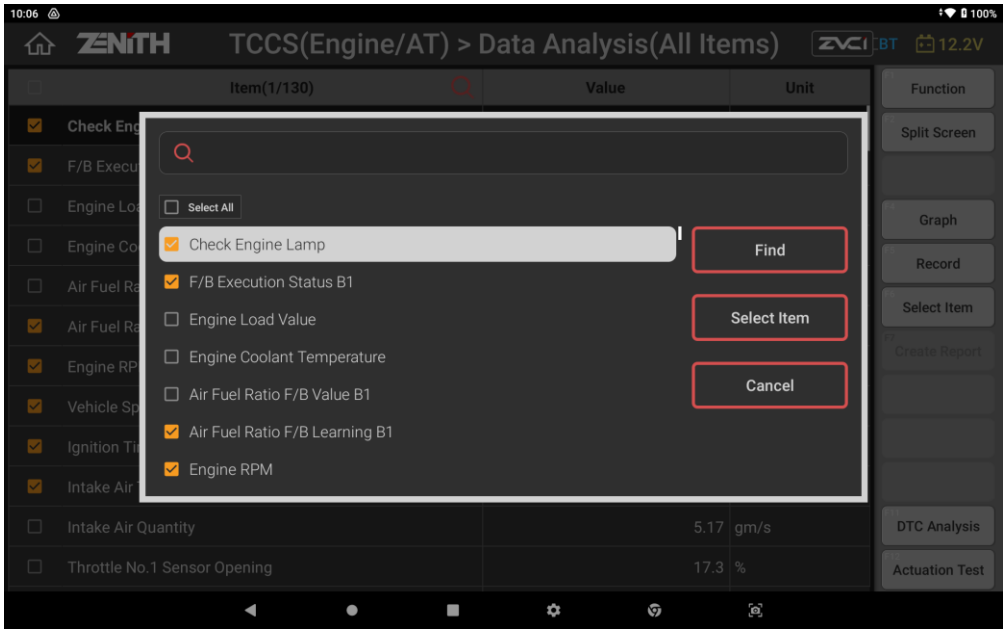


➢ Item Search

To search specific item(s), simply hit the magnifier icon located next to the Item number it the top of the list.

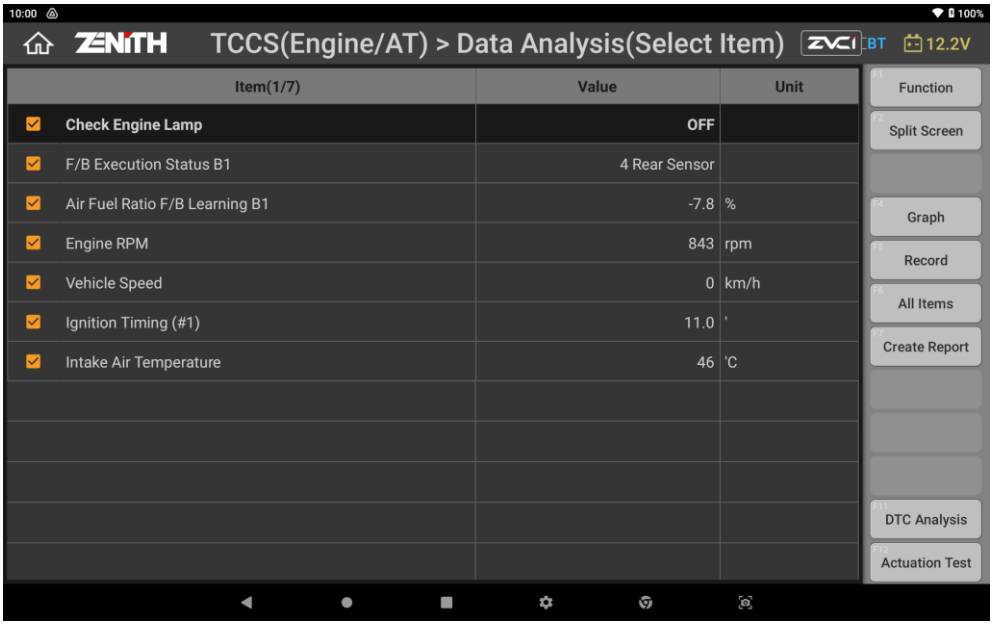


Type in the search keyword then the items that include the keyword in the parameter name are listed.



To jump to the data list page where the item (parameter name) in the search result was originally included, select the item and hit the [Find] button.

To observe selected items only by removing the rest of all parameters, hit the checkbox in front of each item and press [Select Item] button.



➢ All Items

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

D. Custom Graph Mode

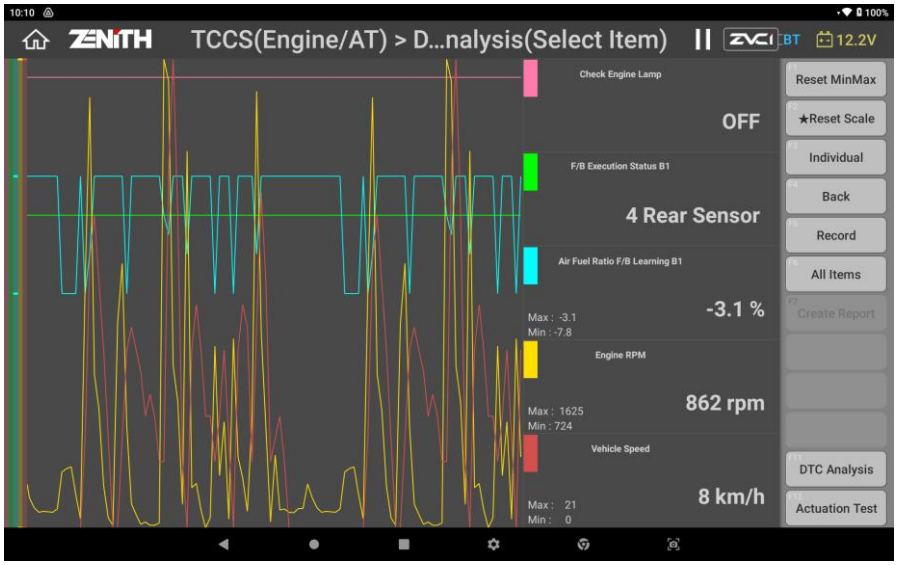
Custom graph mode runs when [Overlap] is selected.
In custom mode you have freedom to move the graph of each parameter horizontally and resize the vertical scale of each graph individually. Capability to customize the scale and the position of each graph offers more intuitive approach to make efficient analysis of the parameters.

➢ Resize

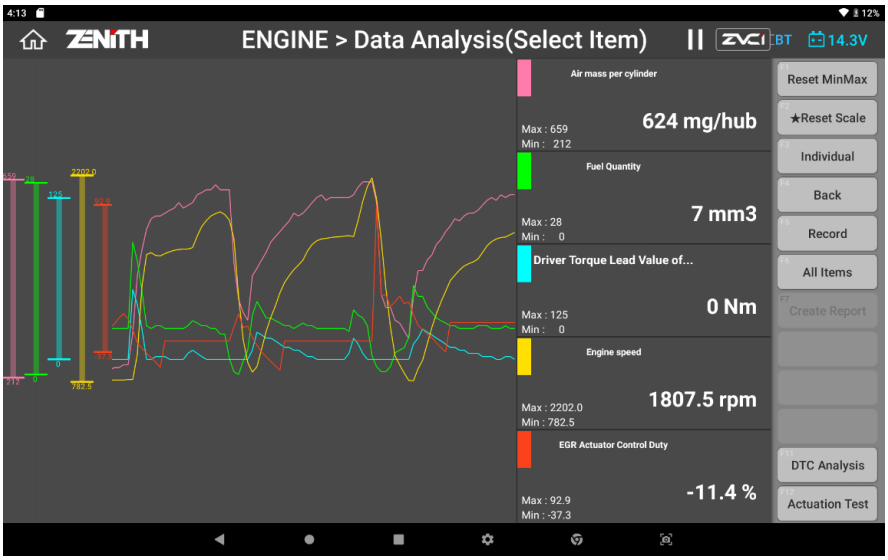
Use your 2 fingers (thumb and index finger) and place them on the vertical line of the corresponding color of the parameter you want to resize. Widen or narrow the gap between the 2 fingers to make the graph larger or smaller.

➢ Move

Tab on 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>

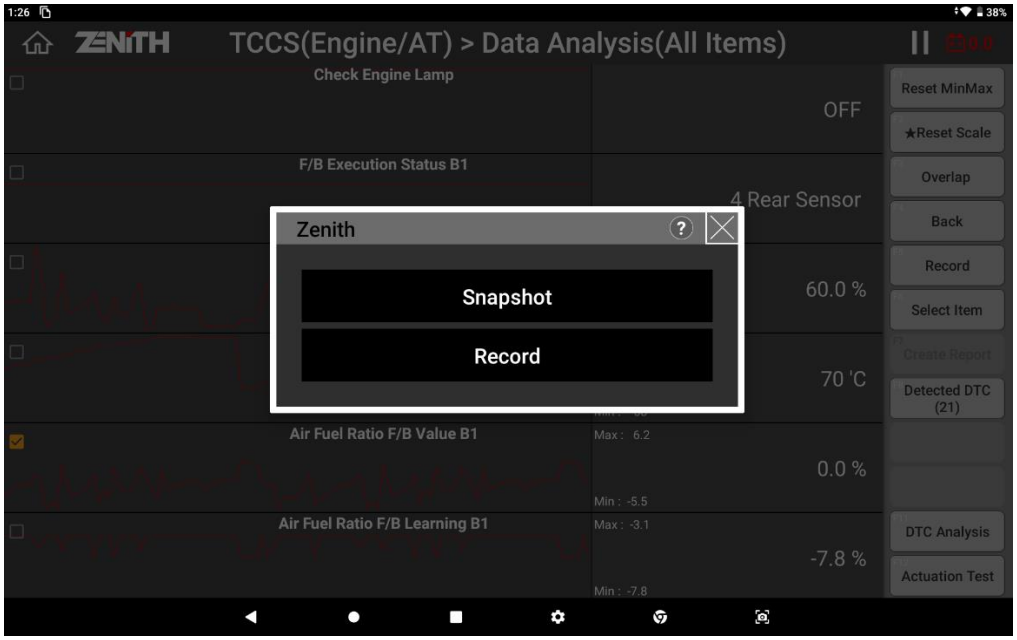


<Custom mode graphs resized and overlapped in the center of the screen>

E. Data Recording

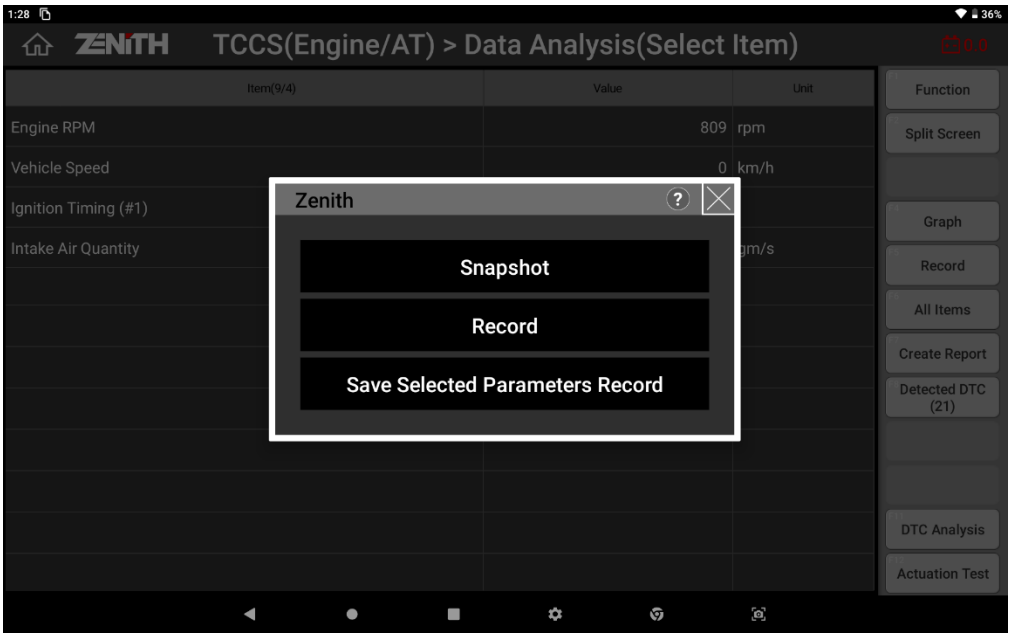
➢ Record Data Options

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



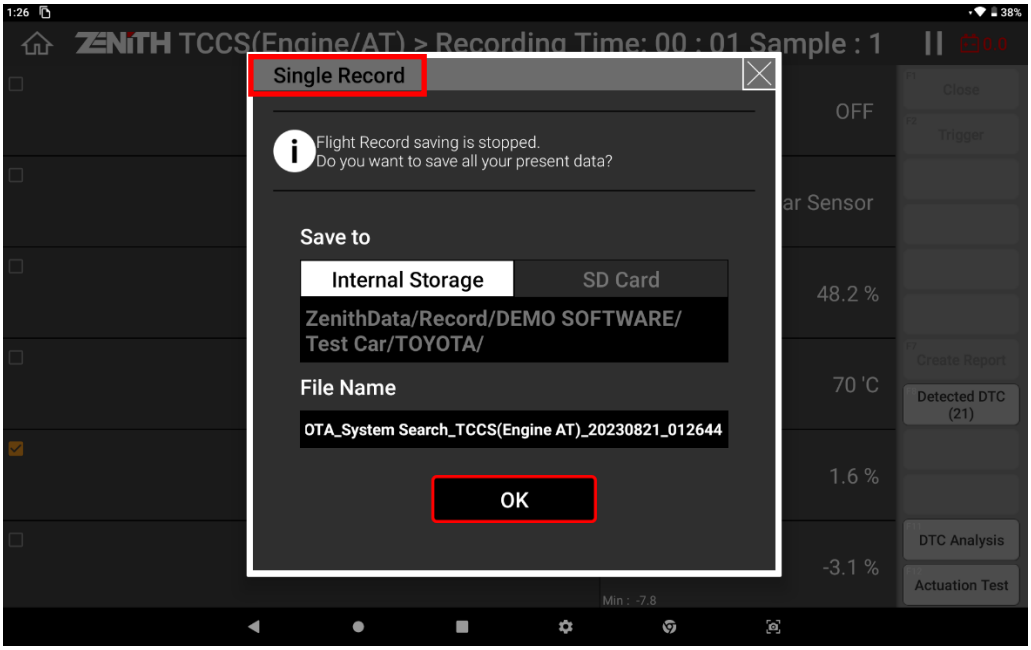
Select [Record] to save consecutive multiple frames containing all parameters.

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 selecting them.



- SINGLE RECORD

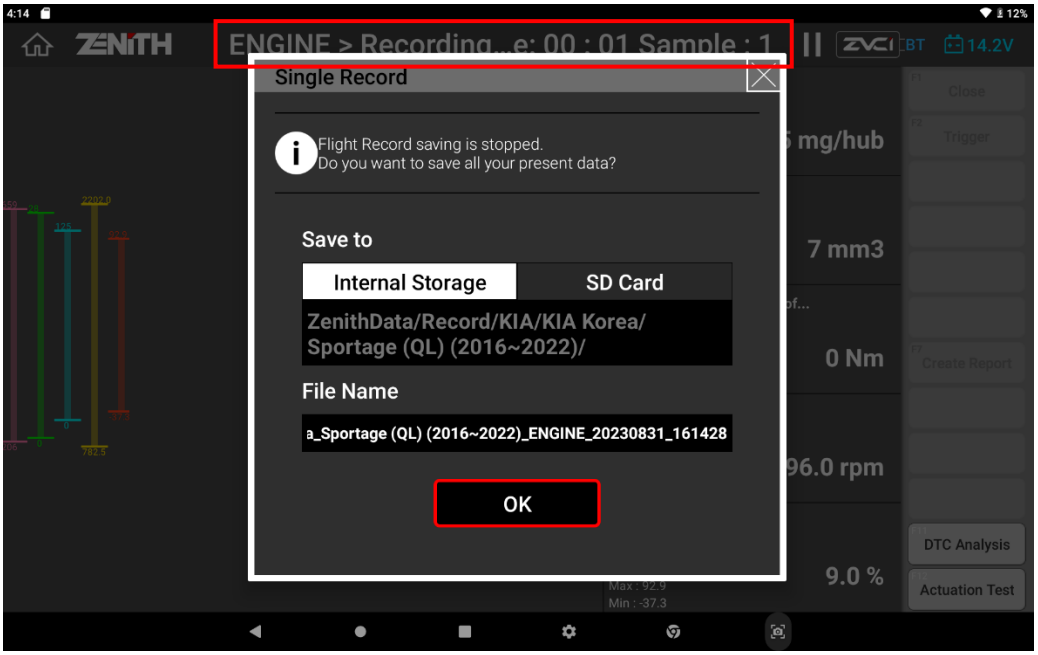
Just like a snapshot, only a single frame at the time of touching the button is sampled and recorded.



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.



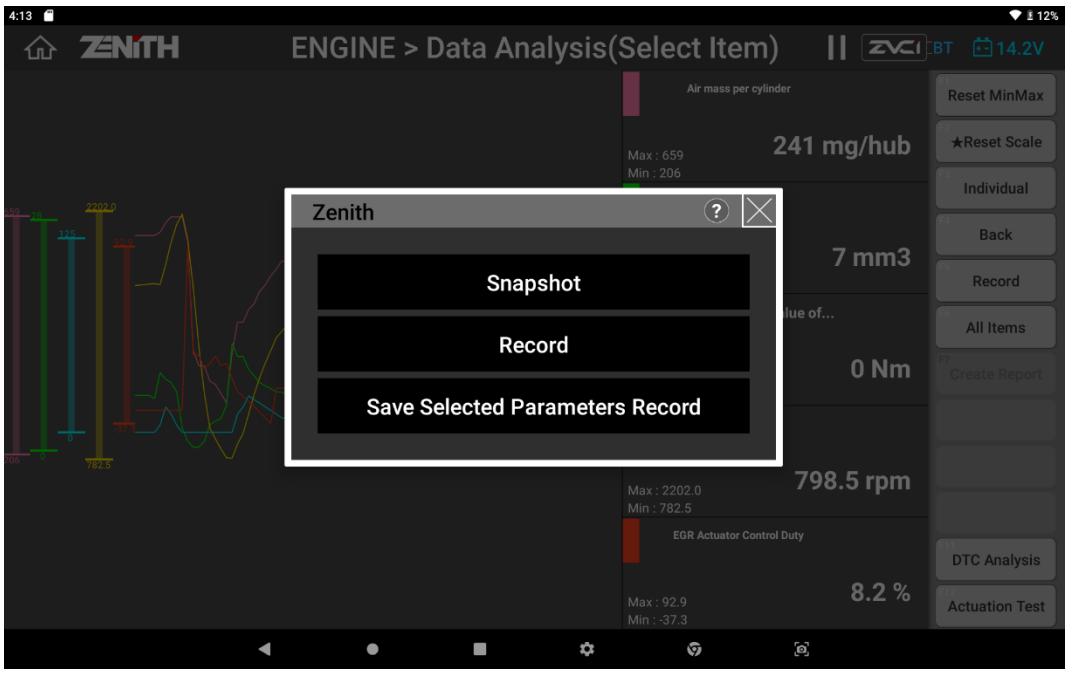
Select [Trigger] to mark the important or critical moment, which is going to be indicated when reviewing the data.

Select [Close] to stop data recording and select “OK” to end, then the data is saved as the Flight Record Data in the ZENITH Z7 LITE internal memory.

➢ SELECTED ITEMS RECORD

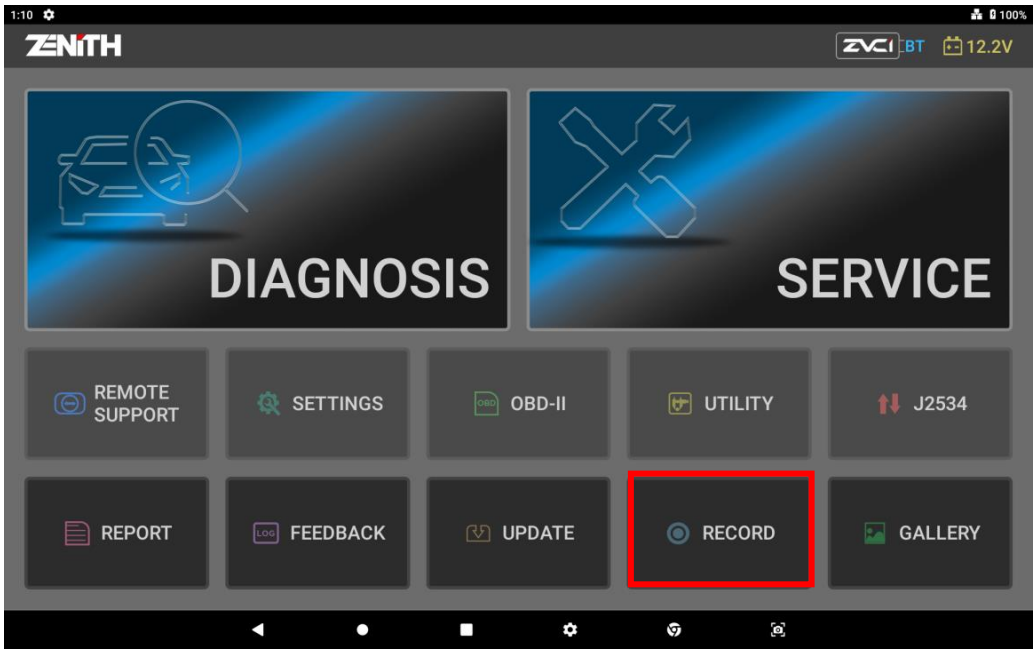
This option is available only when data list or graphs are being displayed in [SELECT ITEM] mode that shows just the data readings of the selected parameters.

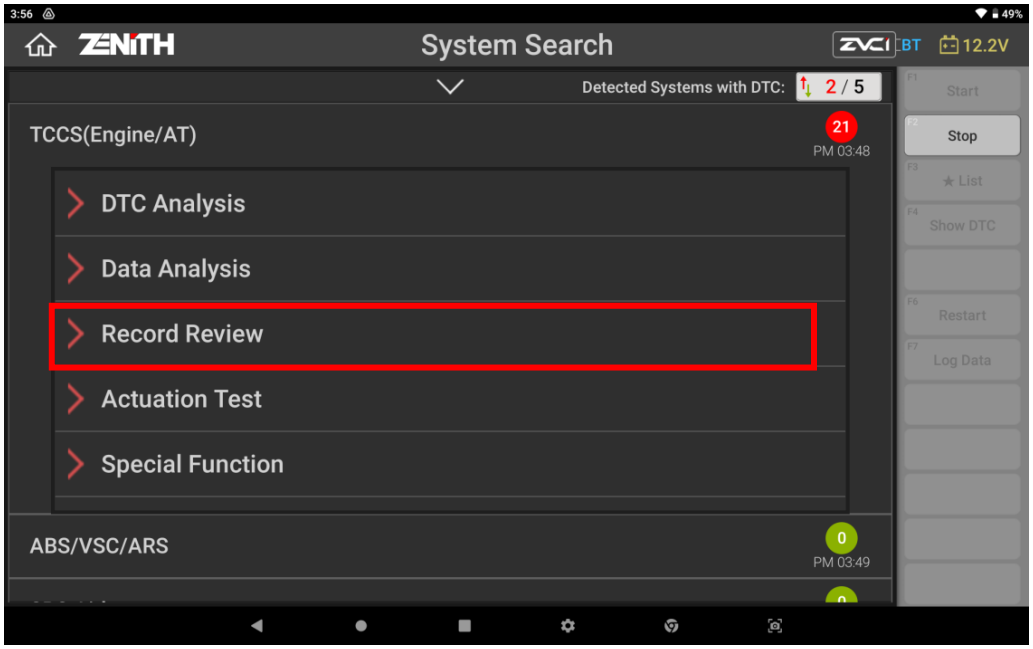
Unlike Consecutive Record that starts recoding when selected, Z7 stops recording immediately and saves the data that has been previously recorded in its temporary memory to a file when you choose [SAVE SELECTED PARAMETERS RECORD].



F. Recorded Data Replay

Recorded data can be reviewed and replayed by selecting “Record” function from the ZENITH Z7 LITE main screen, or “Record Review” from the diagnostic function’s menu.





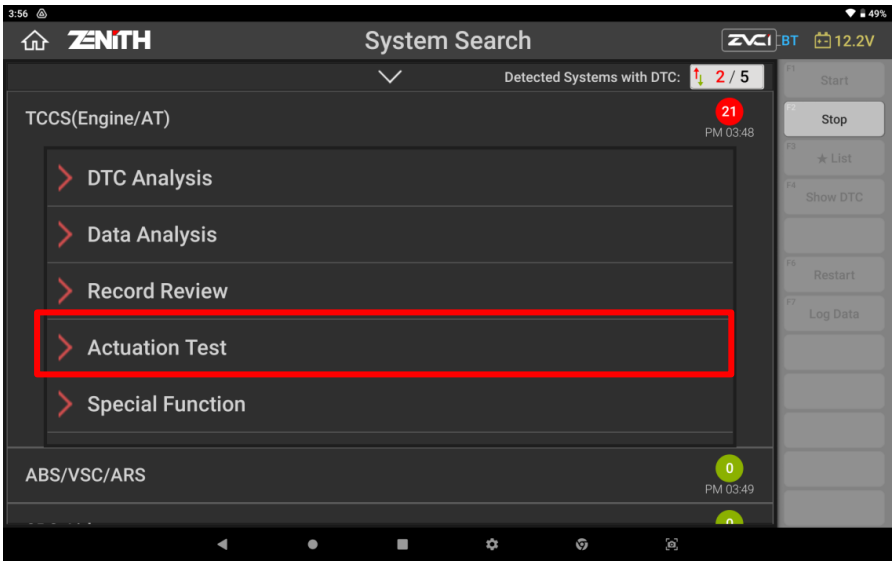
6.6 Actuation Test

Actuation Test is a function that runs or stops an active part on the output side of the control module such as injector, fan and valve and examines if the active part and the related circuits are functioning properly under the command of the control module.

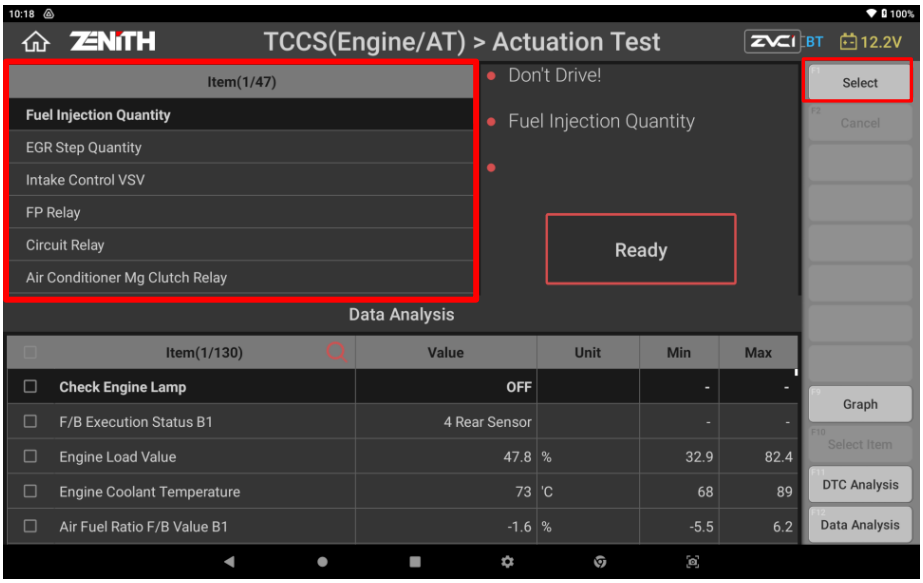
* Supported actuation test items vary depending on the control systems of vehicles.

A. Actuation Test Item Selection

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

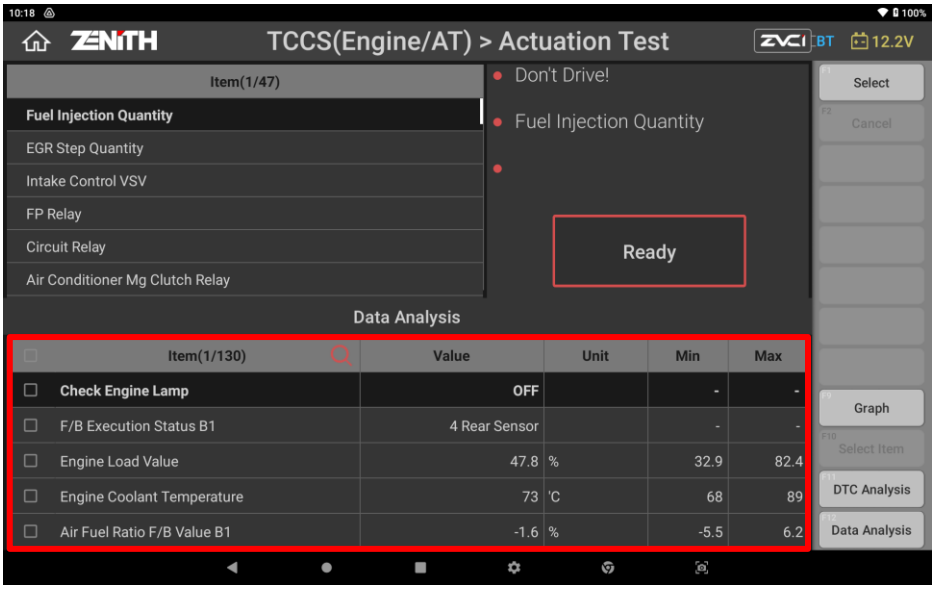


➢ Select an auction test item from the list in the upper section of the screen.
>> Observe the vehicle condition for each test on the Left side screen.
>> Select [SELECT] button on the right of the screen.



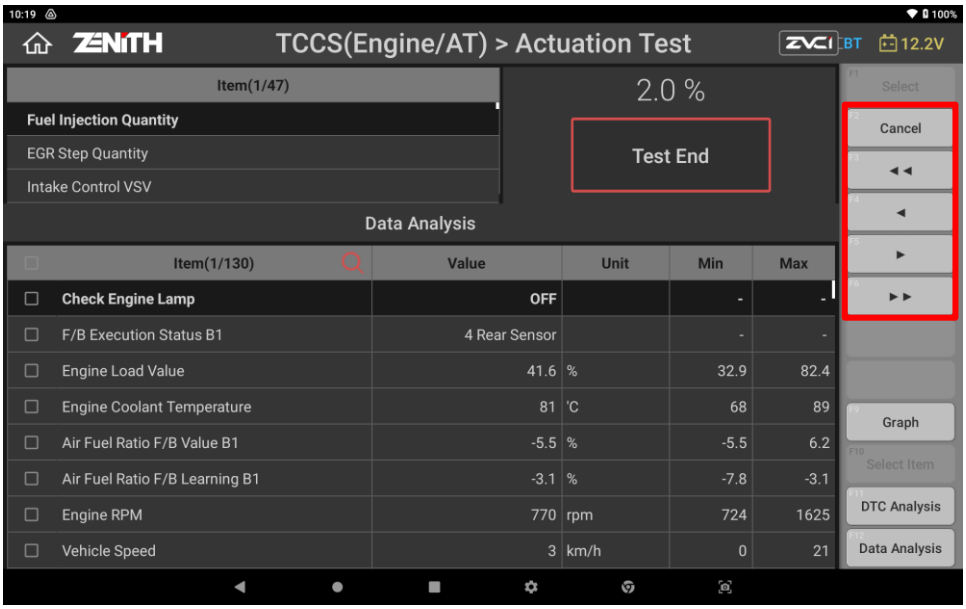
➢ Search and select the related data parameters in the lower section of the screen for reference.

>> 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



B. Actuator ON / OFF control

Please note that the options for ON (Run) / OFF (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: UP / DOWN, Function: RUN / STOP. Please check the buttons on the right of the screen to comprehend how the test function runs and how to stop it before starting the actuation test.



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

C. Different Items Supported

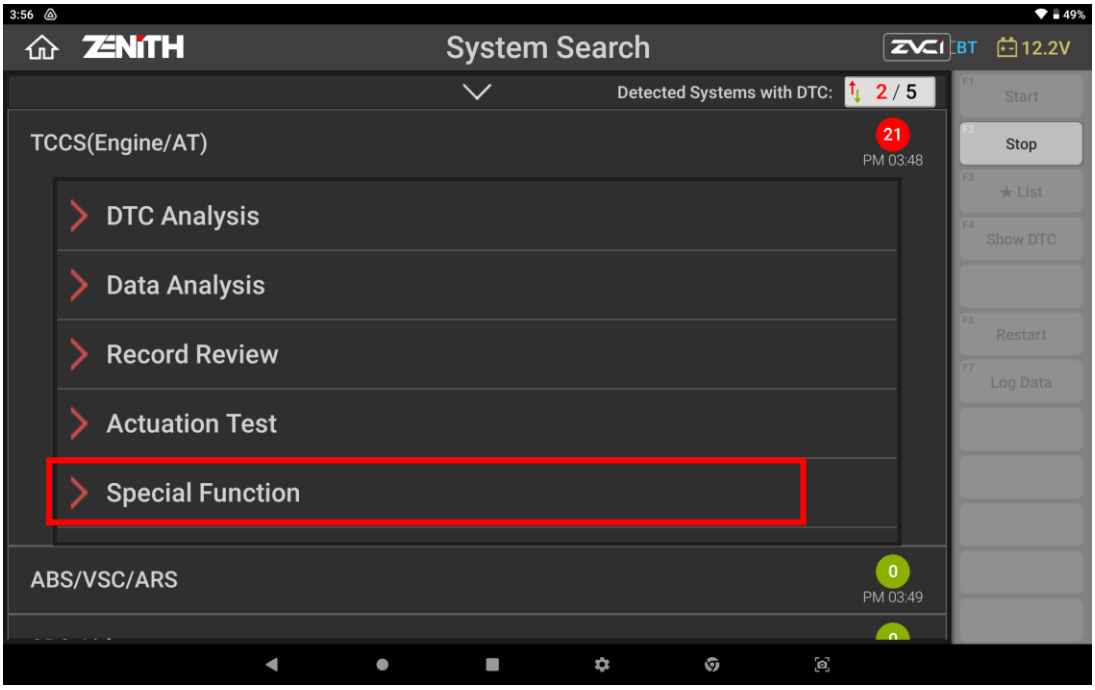
Not all active parts of a control system are supported for this function. The list of the active parts available for the actuation test is predefined by the automakers, therefore different items are supported according to the brands and models.

6.7 Special Function

While DTC Analysis, Data Analysis, Actuation Test and System Information 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/radar/camera calibration. These advanced test functions are collectively called [Special Function] on ZENITH Z7 LITE.

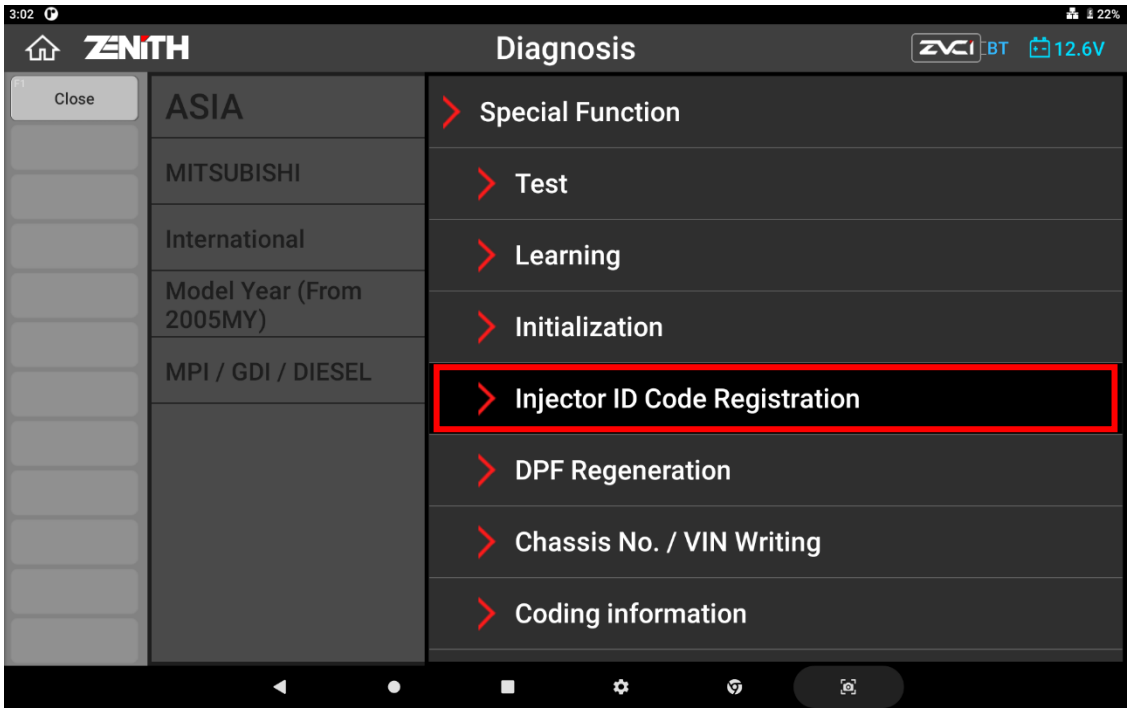
A. Selecting Special Function

Select [Special Function] from the diagnostic functions menu, then the special functions available for the selected control system are listed.

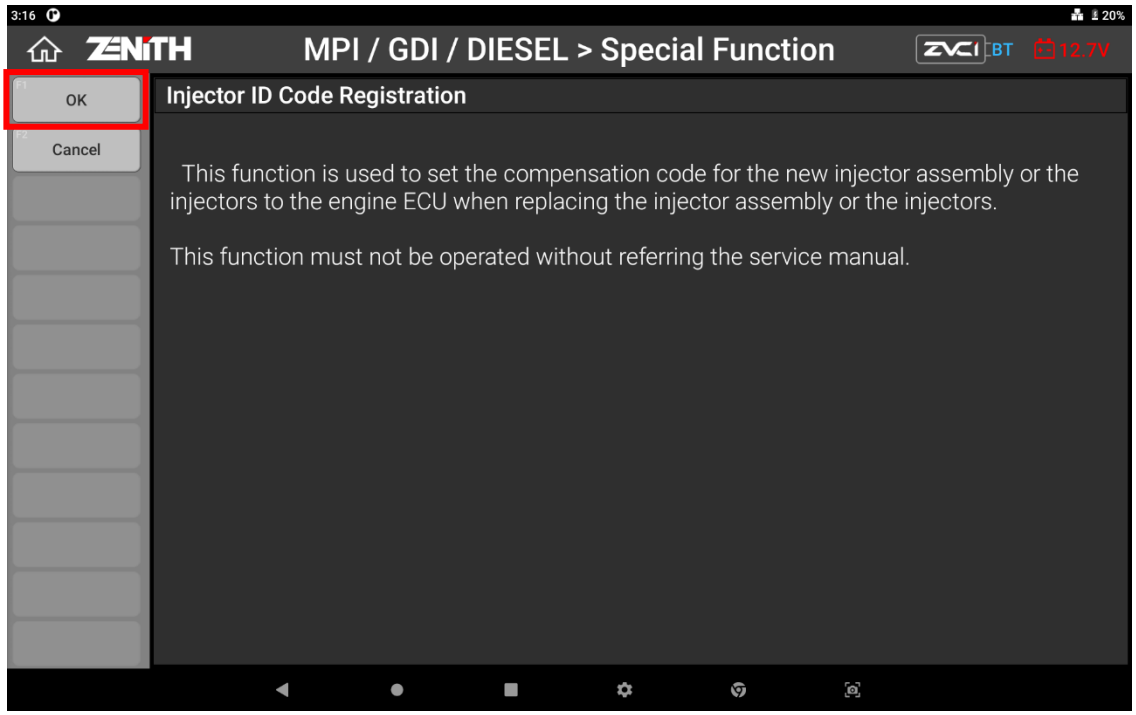


Following screen captures are taken while conducting [Injector ID Code Registration] function on a MITSUBISHI vehicle.

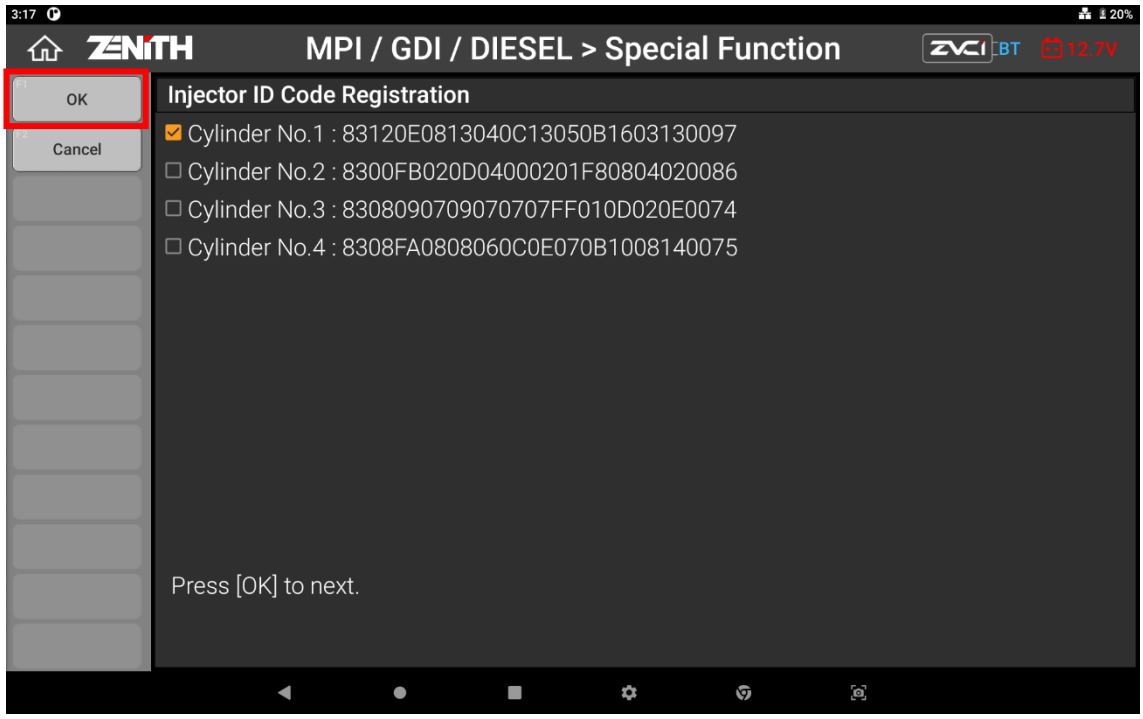
➢ Find and select the desired special function from the list



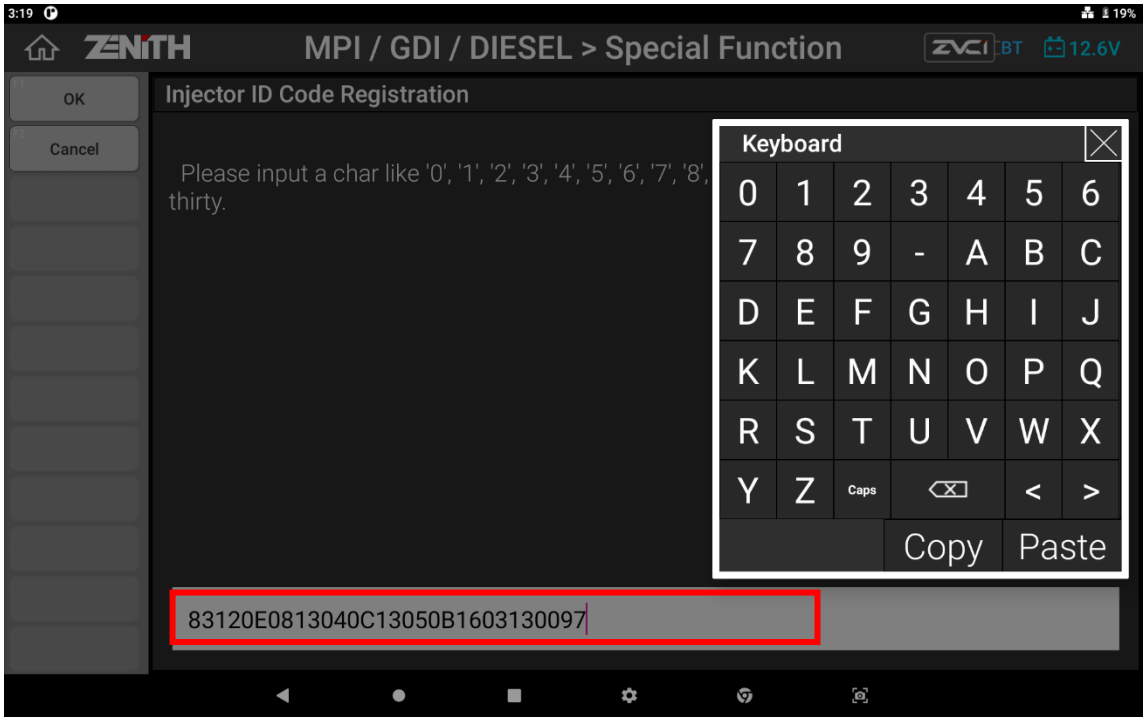
➢ Read the instruction on the screen and select [OK] button to proceed.



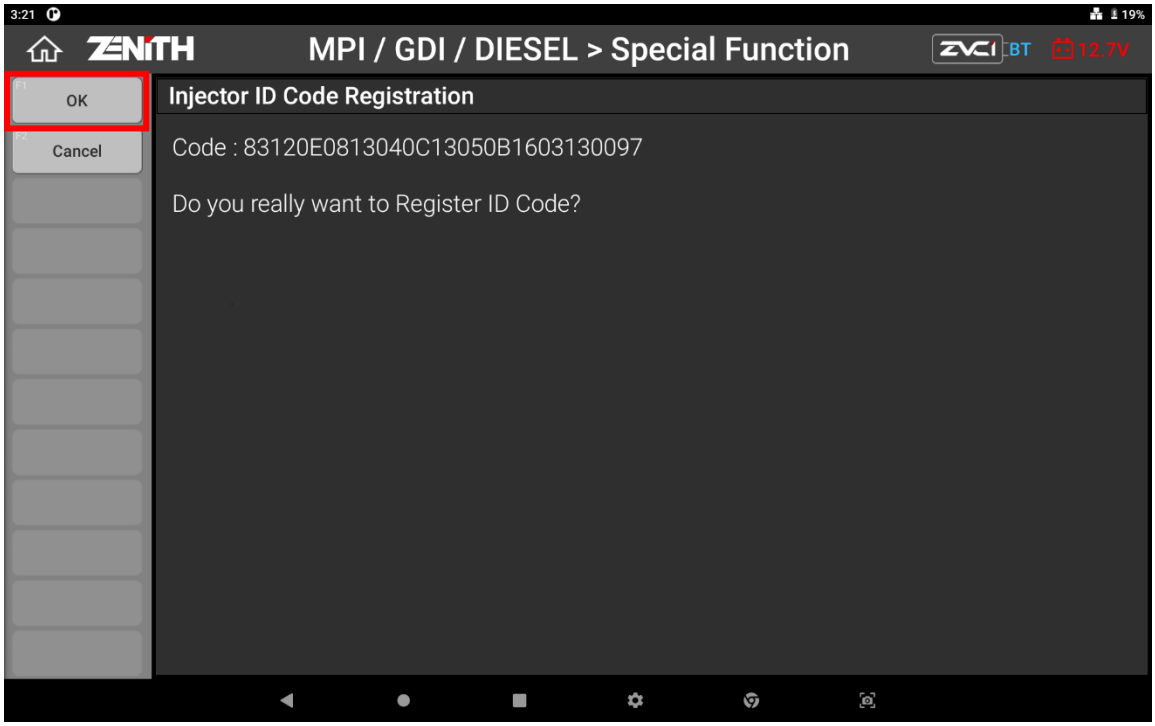
- Select one of the injectors to code and select [OK]



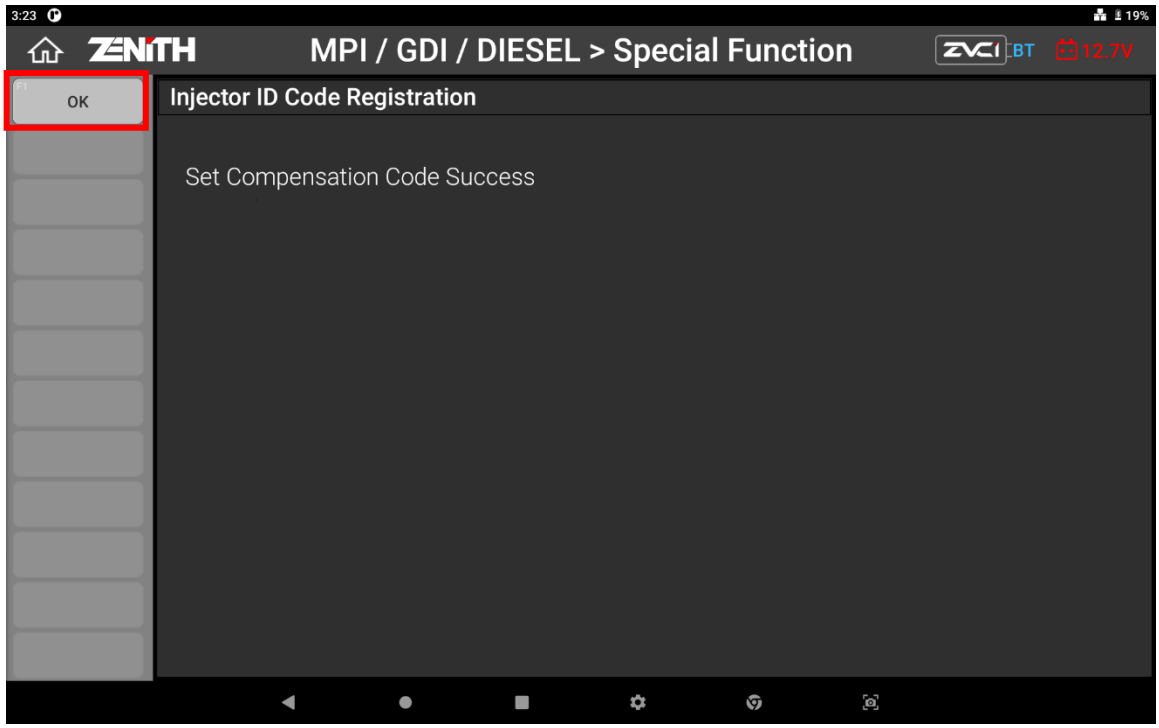
- Type in the injector ID code for the selected one using the keypad on the screen. Select [OK] when done.



- Check if the code has been entered correctly, then select [OK] once again to complete the injector coding.



➢ Function Completed message is displayed when the code value is entered without error. Select [OK] to end the Special Function.



Note

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 depending on the carlines and vehicle models.

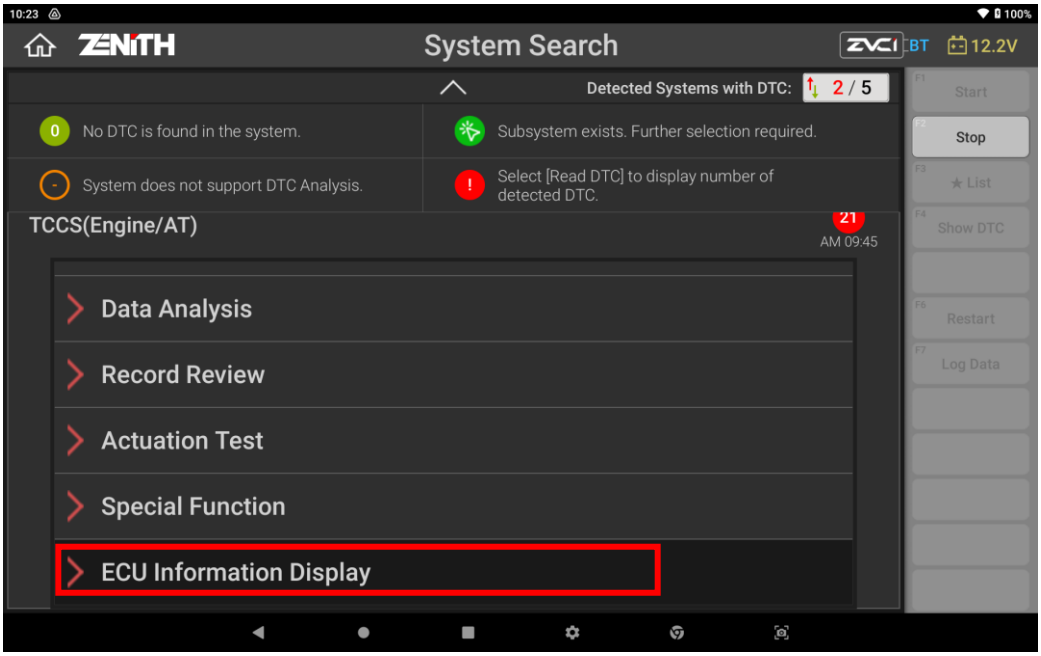
Test Conditions

An unfulfilled test 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.

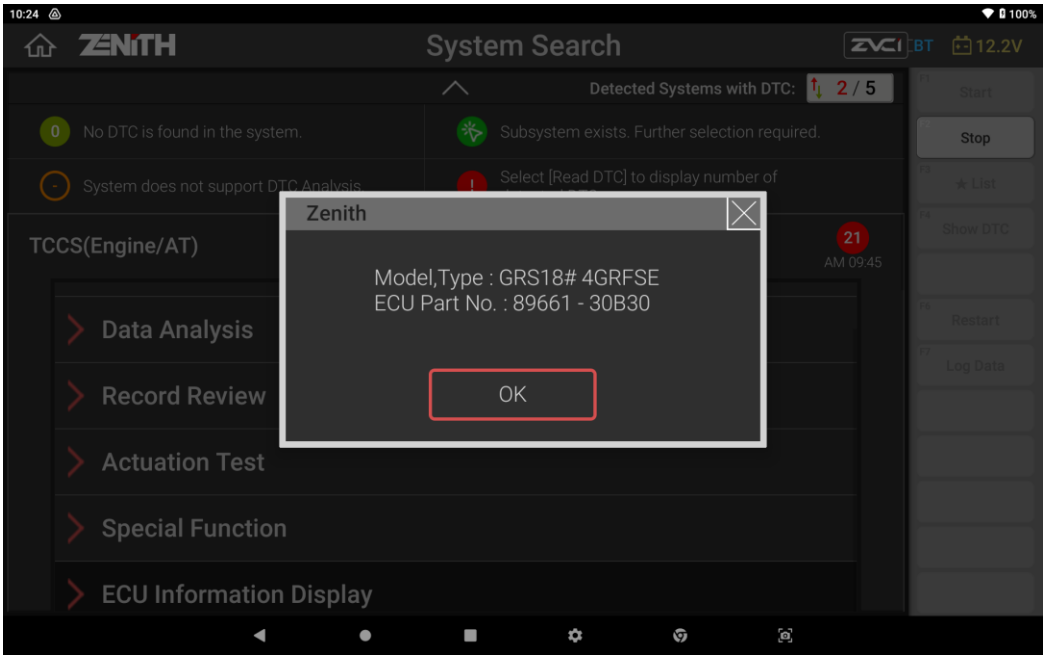
6.8 ECU Information Display

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 function menu.

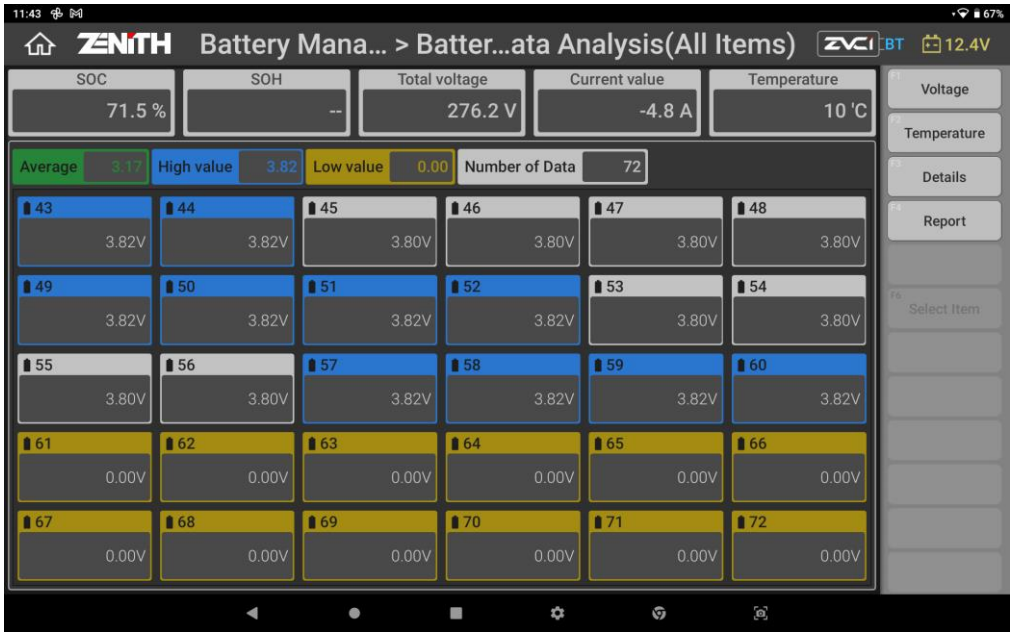


➢ The ECU information of the selected control system is displayed.



6.9 Battery Management System (BMS)

EV, HEV vehicle's Battery information such as SOC, SOH, Voltage, Current Value, Temperature of each cell are available to check in Battery Management System of Zenith Z7 LITE



Detailed Diagnostic Report of the Battery Management System could be issued in a form of pdf for printing or sent to personal email as image below.



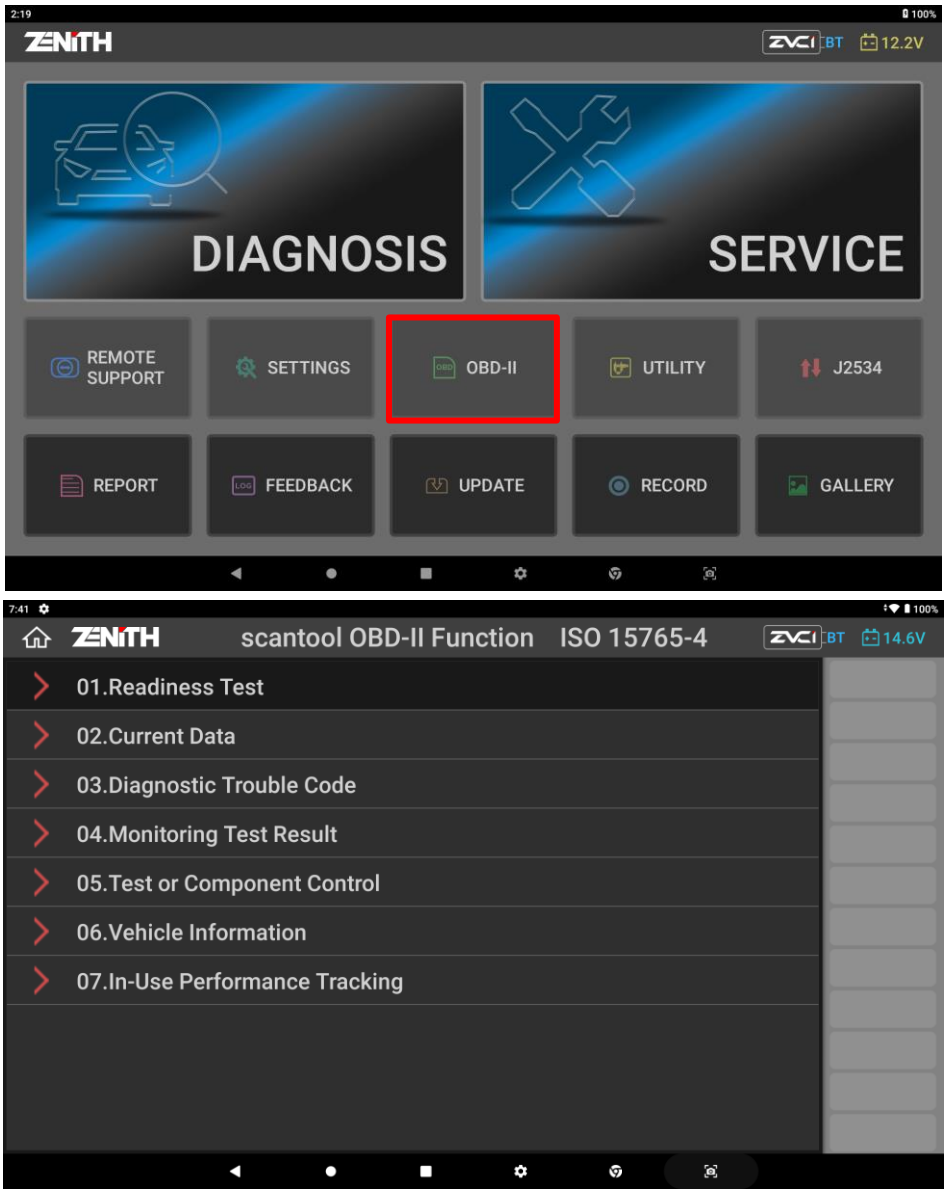
(Example image of BMS Diagnostic Report)

Chapter 7. Generic OBD-II

7.1 OBD-II

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]

7.2 OBD-II Test Mode (Diagnostic Service)

There are 9 diagnostic services described in the latest OBD-II standard SAE J1979. Before 2002, J1979 referred 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

A. Test Modes supported by Z7

Zenith Z7 does not support all of these generic test modes (diagnostic services) under the standard service names because the product is built to conduct manufacturer specific diagnostic functions.

- [Service 01]

  This service is supported by ZENITH Z7 LITE in 2 separate 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]

  These services are supported by ZENITH Z7 LITE when selecting [03. Diagnostic Trouble Code] from the menu.

- [Service 05]

  This service is supported just for non-CAN-Bus system applied vehicles, and ZENITH Z7 LITE shows [04. O2 Test Results] in the menu for this service in case the vehicle is a non-CAN-Bus system applied type that supports the function.

- [Service 06]

  This service is supported just for CAN-Bus system applied vehicles, and ZENITH Z7 LITE shows [04. Monitoring Test Result] instead of [04. O2 Test Results] automatically if the vehicle is fitted with CAN-Bus system.

- [Service 08]

  This service is supported when [05. Test or Component Control] is selected.

- [Service 09]

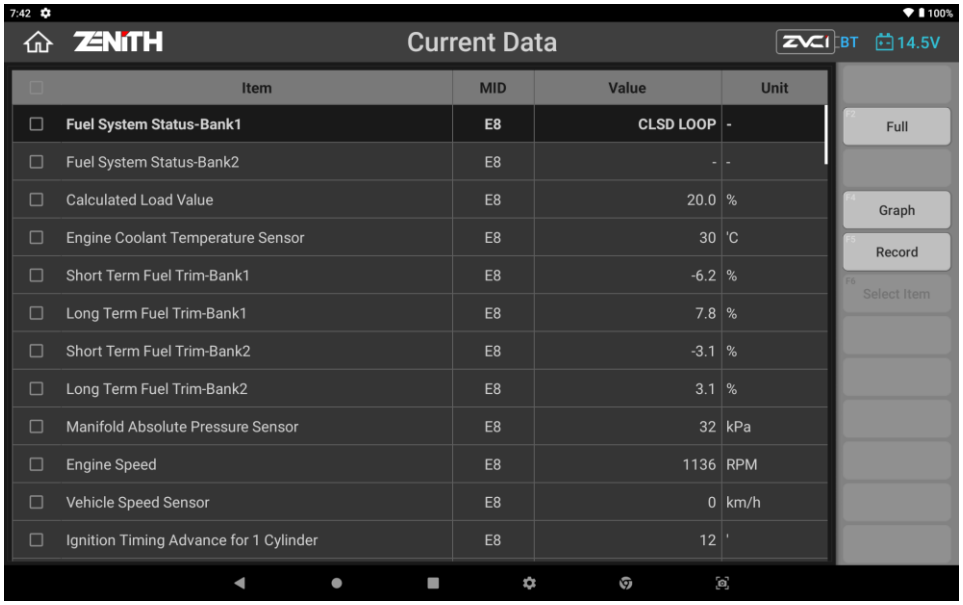
  This service is available under [06. Vehicle Information] menu.
  PID 08 of Service 09 that is reading “In-use performance tracking of spark ignition vehicles” data is provided under [07. In-use Performance Tracking] menu separately.

Note

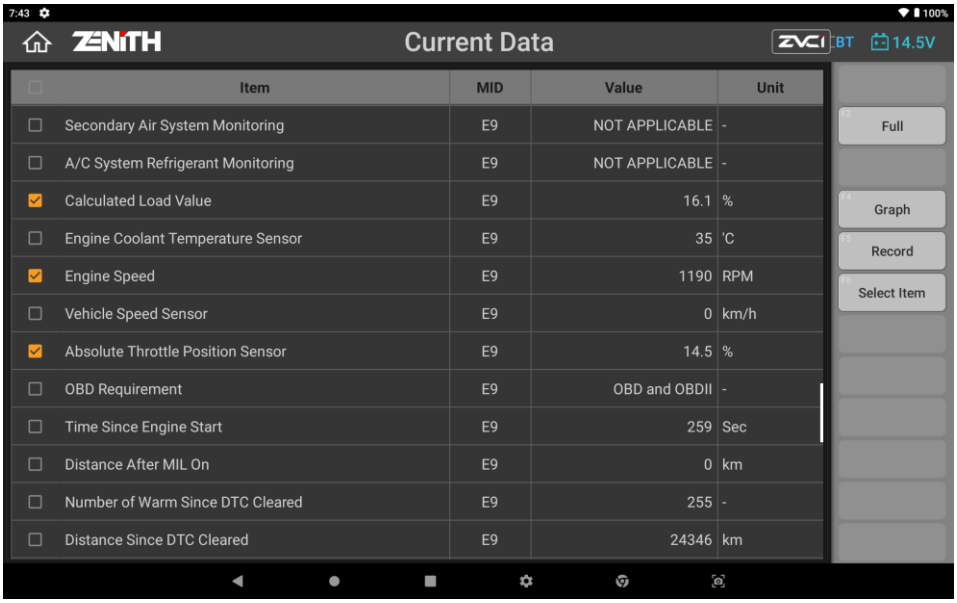
When a function is selected from the OBD-II menu, if the result may come up with “NOT SUPPORTED” reading, then it means the selected function is not supported by the vehicle.

B. Generic OBD-II / EOBD Current Data

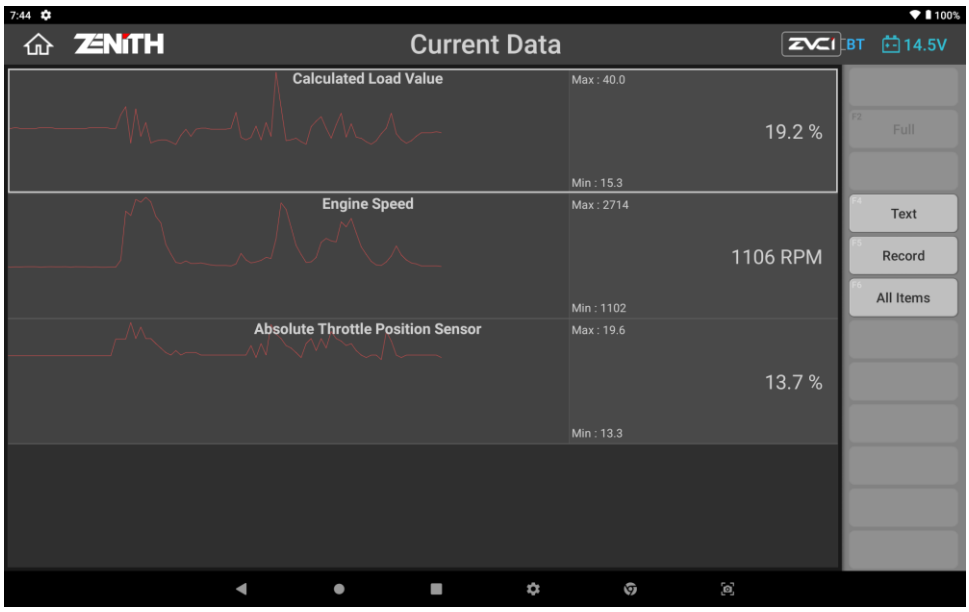
As explained above, when [1. Readiness Test] and [2. Current Data] are selected from the OBD-II menu, Current data that is equivalent to OBD2 Service 01 is provided.



[Readiness Test]



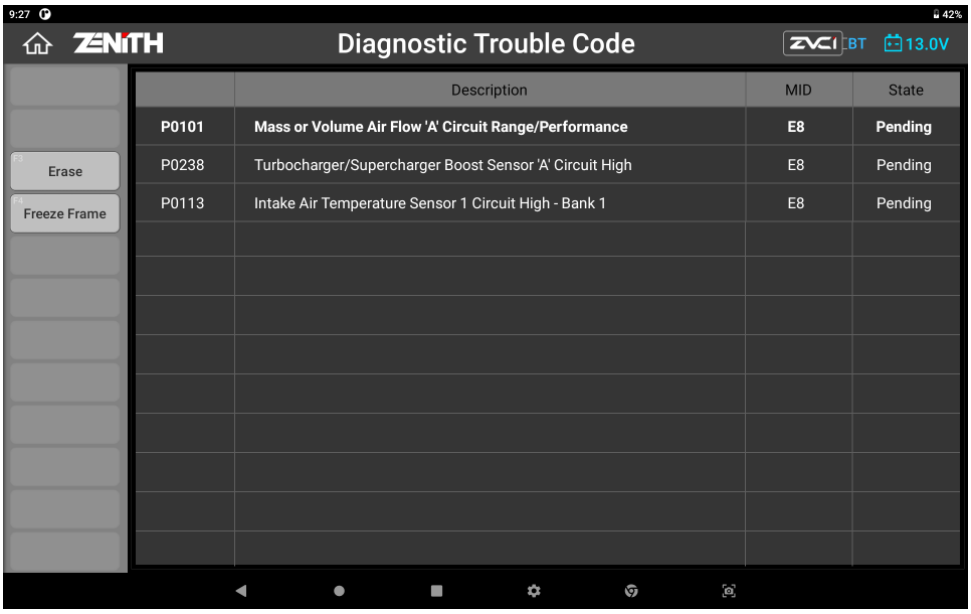
[Current Data in Text Mode]



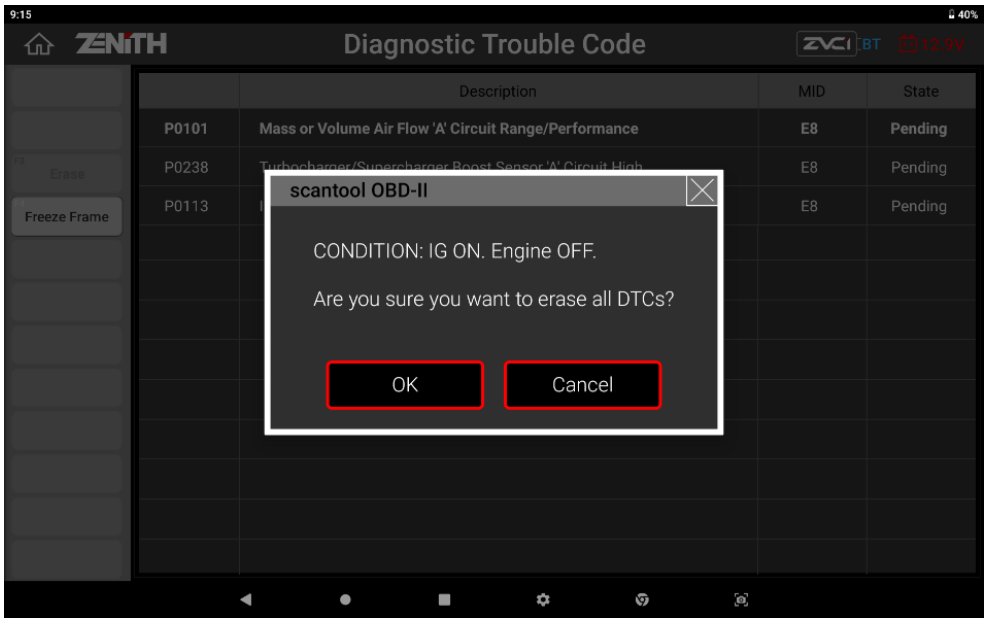
[Current Data in Graph Mode]

C. 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.

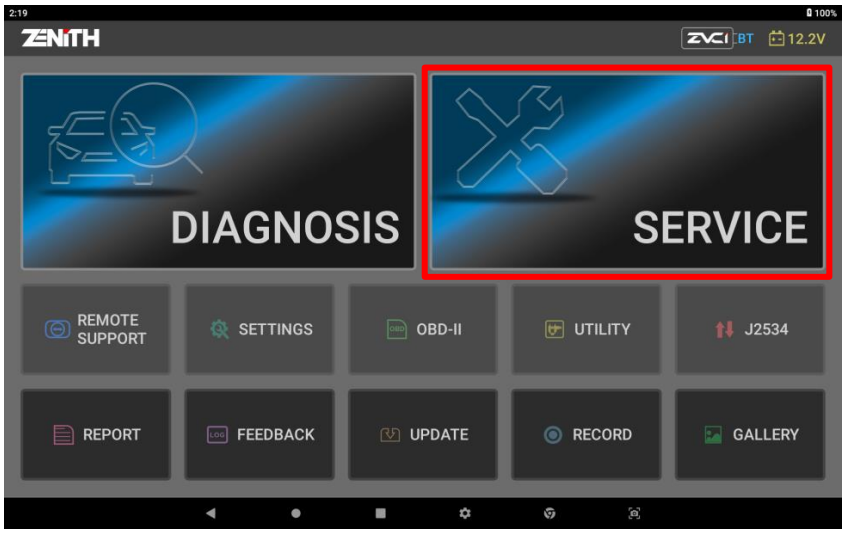
Chapter 8. Service function

3.6 Service Tab

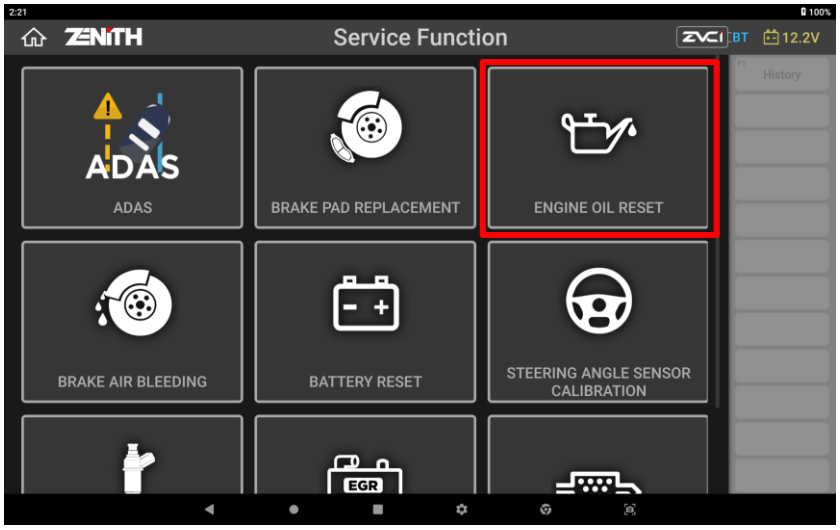
Service tab offers shortcuts to the most frequently used special function in workshop such as ADAS, Brake Pad Replacement, Engine Oil Reset, Brake Air Bleeding, Battery Reset, and Steering Angle Sensor Calibration*
*More functions can be added to the list of service function.

3.7 Procedure

A. Select [SERVICE] tab in the main menu.



B. Select the desired Service Function



C. Select the carline you wish to diagnose

Note

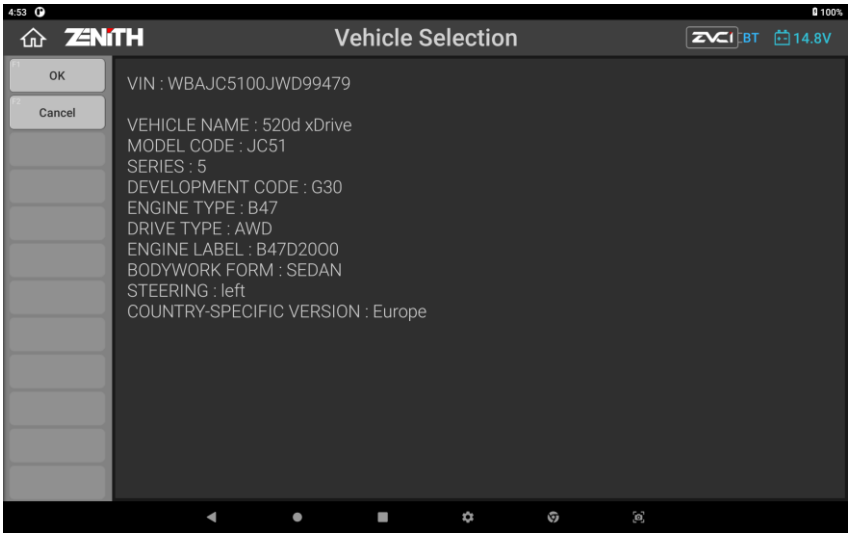
If Automatic selection is not available, vehicle model, year and engine type have to be selected manually.

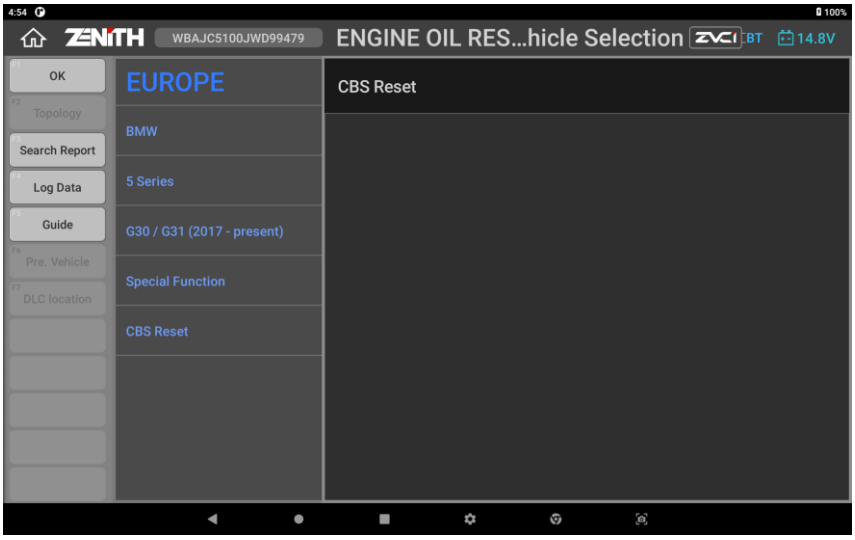




- Once the vehicle is detected automatically, confirm the vehicle information and press [OK] button. To establish communication with the system, select [OK] button located at the side menu, then the service function for the selected vehicle will be listed in the menu.

  It eliminates the process of having to further navigate the menus of multiple steps for specifying the control system and finding the special functions for the service.





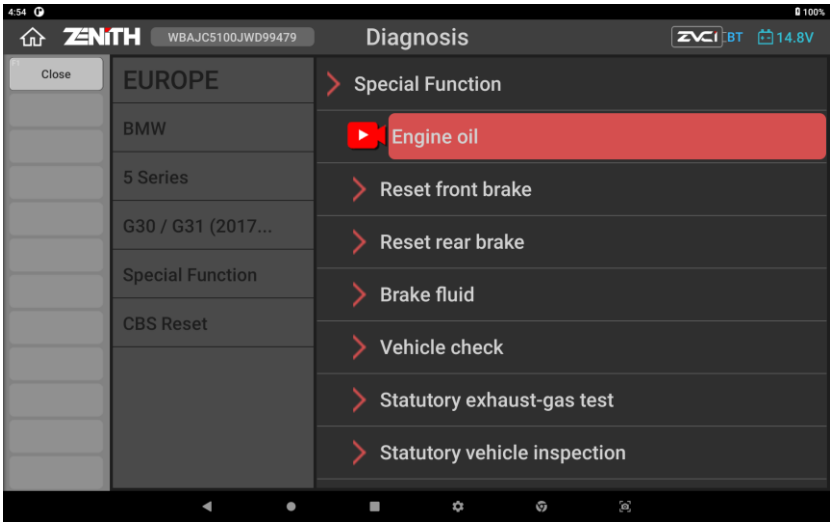
Note

Certain vehicle models may come up with one or more systems in the list in case the service requires to conduct two or more special functions for completion.

D. Select the service

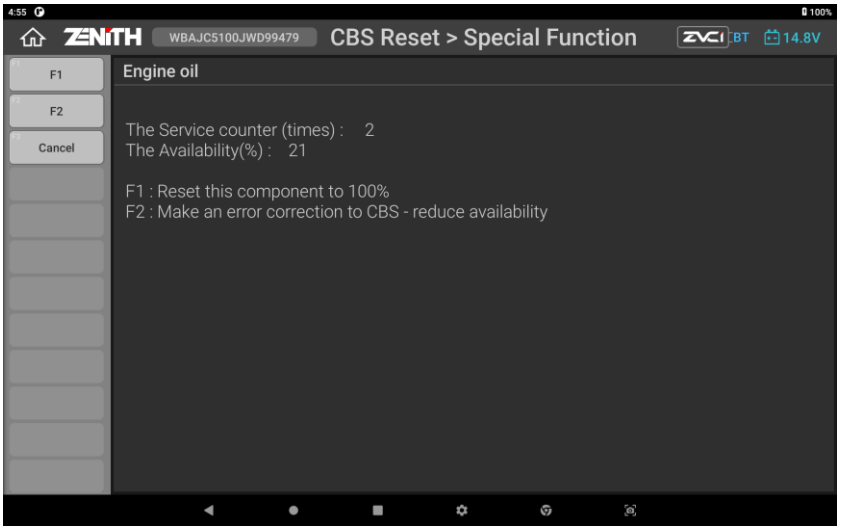
When communication with the control system is established successfully, the selected service function will be highlighted in the list.

Also, if there is a tutorial video available for the specific function in EZDS official Youtube® channel, [video play] icon will be shown in front of the function name in the list. Hit the icon, then ZENITH Z7 LITE will open the browser to play the tutorial Youtube® video.



E. Test Condition

Always observe and follow the on-screen instruction prior to starting the function.



Chapter 9. Remote support & J2534 PassThru

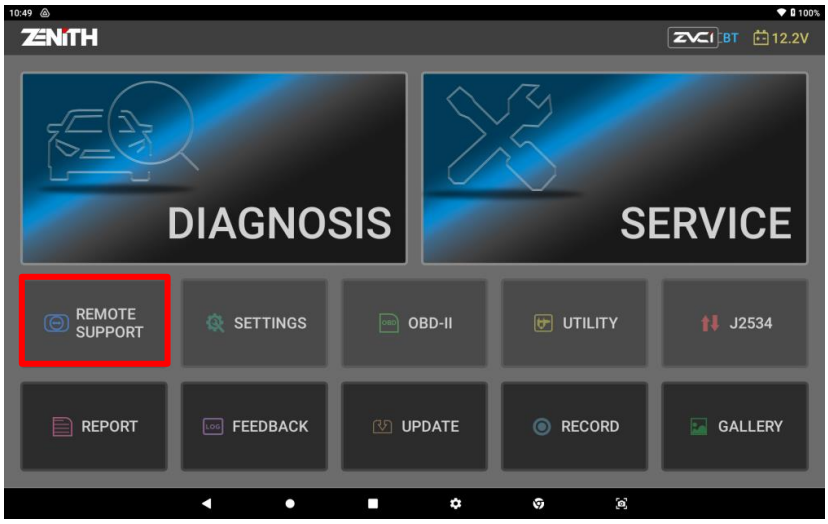
3.6 Remote support

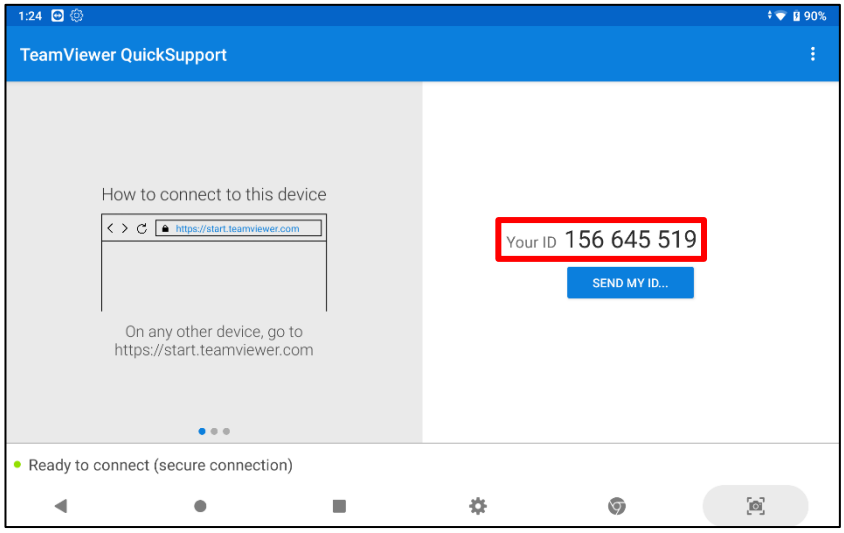
Remote Support function allows the Distributor or EZDS to host a remote access session on the customer's ZENITH Z7 LITE by using TeamViewer® * for support and assistance purposes.

* The application used for Remote Support can be changed or added.

A. How to connect

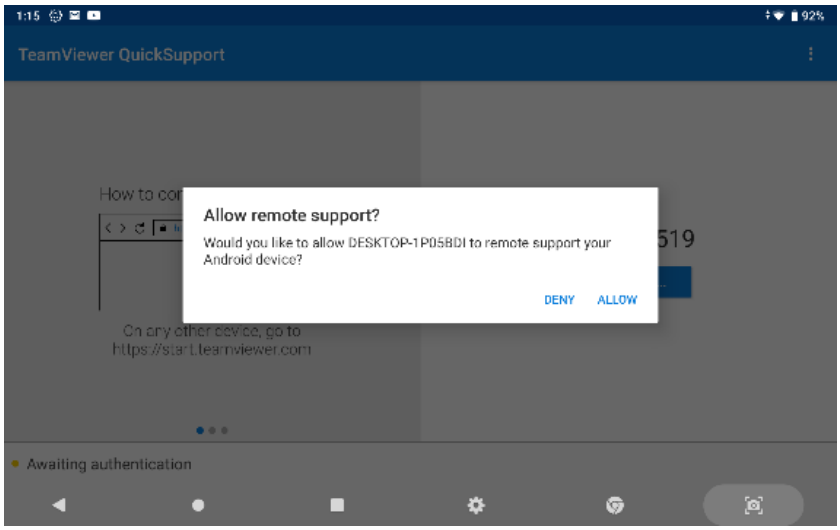
In order to allow the distributor or EZDS tech support personnel to look into your ZENITH Z7 LITE, select [REMOTE SUPPORT] button in the main screen. Check your device's ID displayed on the screen and advise it to the Distributor or EZDS.





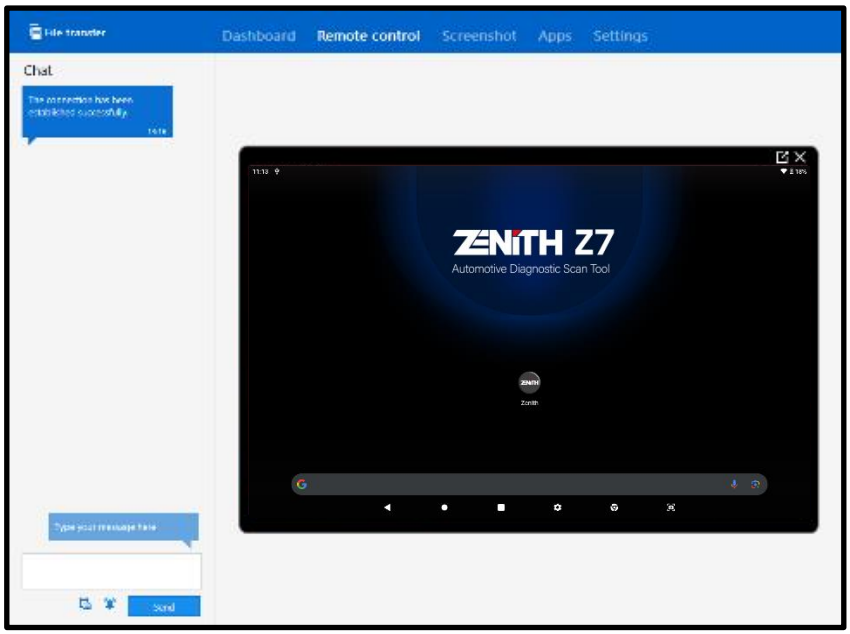
When the host enters this ID as the client, a query asking your confirmation to allow remote access.

Select [Allow] to hand the command on the device to the host and let the remote access session begin.
Select [Deny] to abort.



B. Be your own host

If you have the valid subscription for the use of TeamViewer®, you can host a remote access to your own ZENITH Z7 LITE from you're the PC or other devices by using this function.
You can remote control your own ZENITH Z7 LITE from remote host device once the remote session begins, and utilize various remote features, such as transferring files from ZENITH Z7 LITE to the host device.

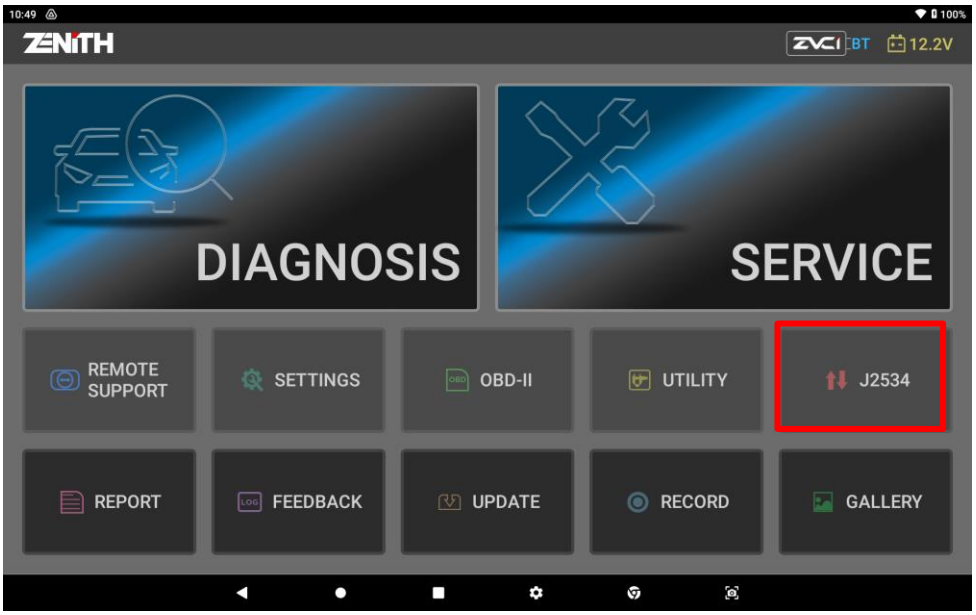


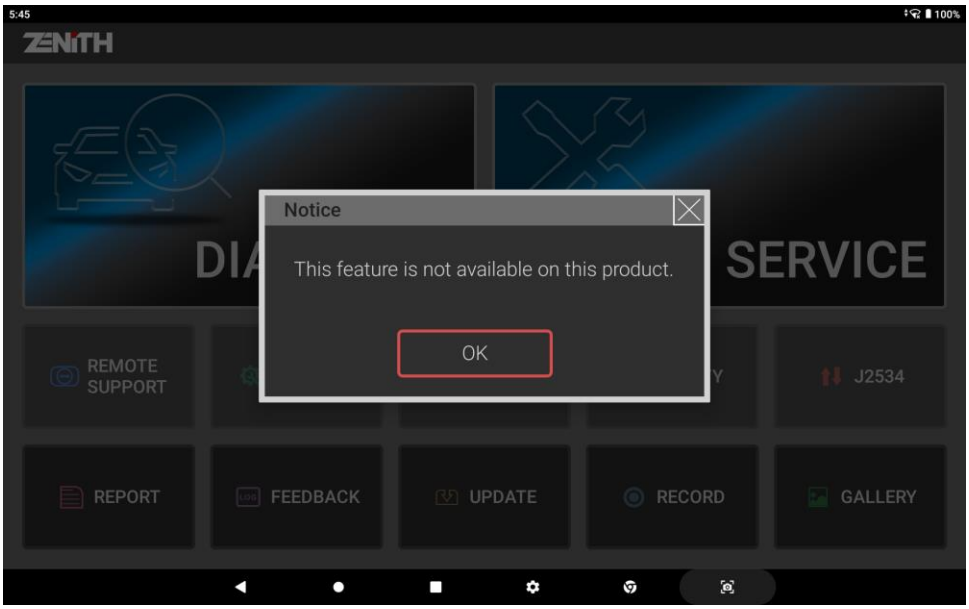
3.7 J2534 Pass Thru Function

Note

ZENITH Z7 LITE(ZVCI) doesn't support J2534 function. (J2534 is available with Zenith Z7 PRO(ZVCI2))

J2534 is ONLY supported on ZENITH Z7 PRO. When users select J2534 menu on Z7 LITE, the notification below will be displayed.



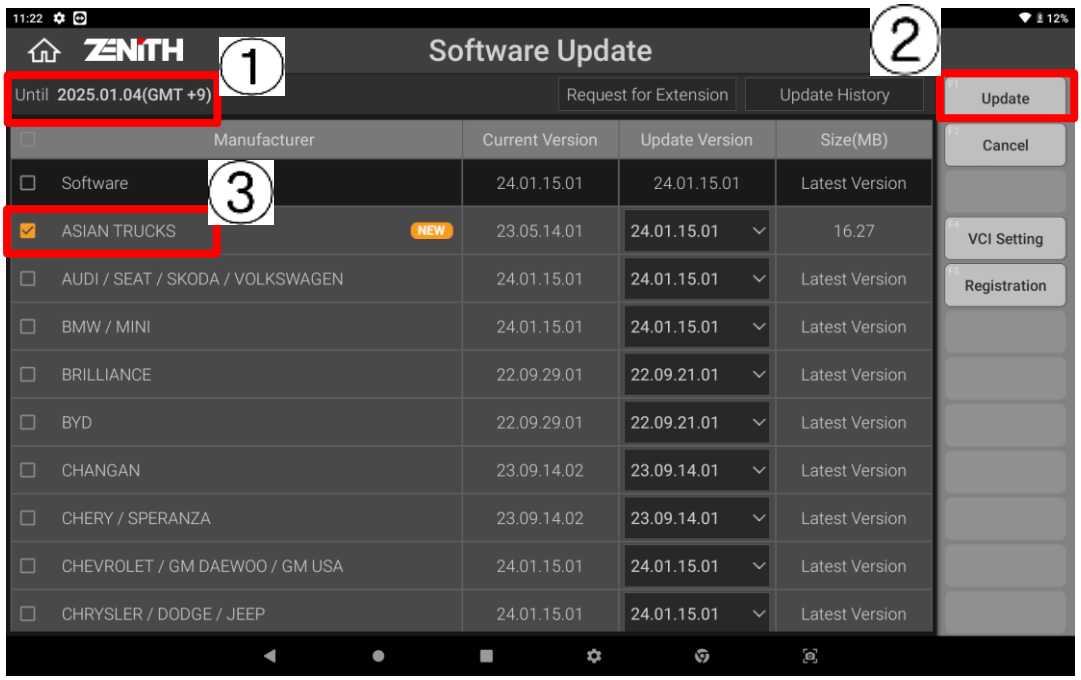


Chapter 10. Update & Feedback

10.1 Software Update

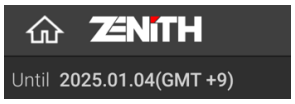
➢ Update List

If the ZENITH Z7 LITE is properly registered and activated, the downloadable software applications are listed like below and you can scroll up and down to navigate the list. Clarification is needed that if one-to-many registration is allowed, the update period will be managed and charged per ZVCI.



➢ Screen elements

➢ (1) Until

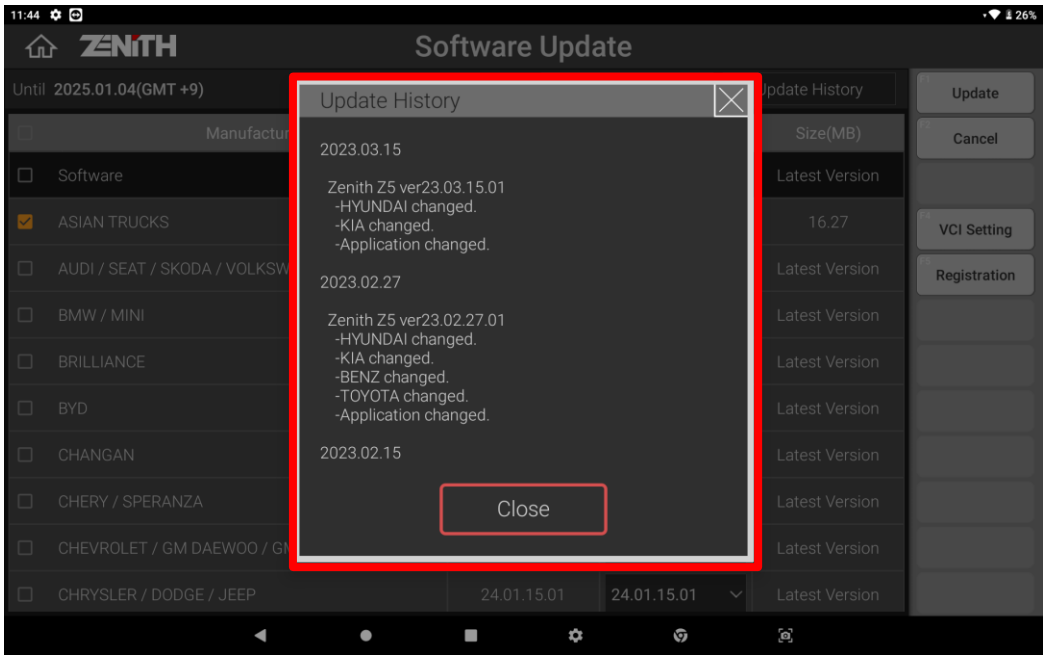


The date indicated in top left corner of the screen with the prefix “Until” indicates the expiry date of software update subscription.

In case the update subscription has expired or about to expire soon, send a request for update extension by clicking on the [Request for Extension] button on the right side. When the request is submitted, the download server automatically relays your contact Information to the authorized local distributor in the country / region so that they can take care of the request.

➢ (2) Update History

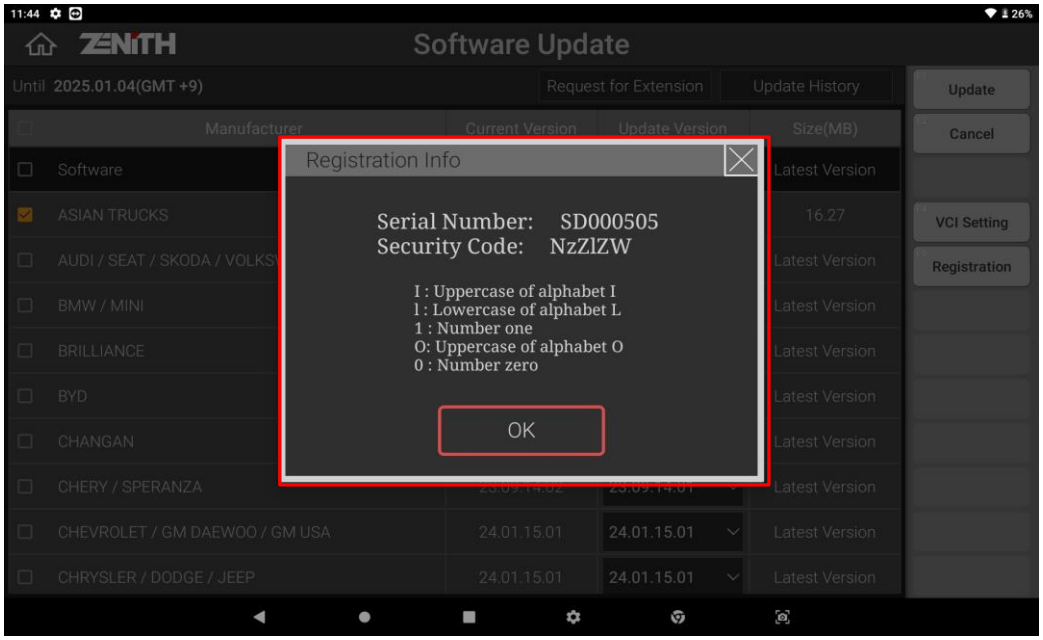
Select the [Update History] button in the upper right corner to view the details of the



latest and the previous updates.

➢ (3) Registration

Select the [REGISTRATION] button on the right side to view the serial number and



the security code needed for the website membership enrollment.

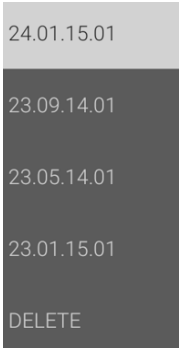
➢ [NEW] symbol

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.



➢ Downloadable Versions List

You can check the version numbers of the software currently loaded on the ZENITH Z7 LITE, and the other version numbers 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 Asian [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.

➢ Select and Start Download

Select the carlines to download software either by selecting the checkbox in the head of each line, or tick on the checkbox in the table header which will select or deselect all the carlines at once.



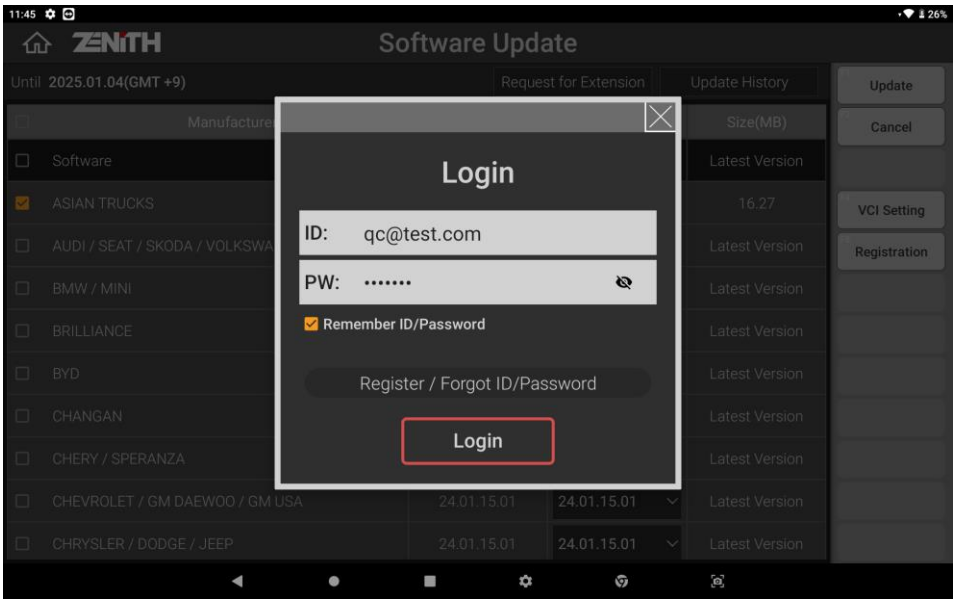
When done, select [UPDATE] on the right corner to start downloading.

➢ Login

You need to log on to the download server using the ID and Password that have been activated during website membership enrollment in the process of registering the device.

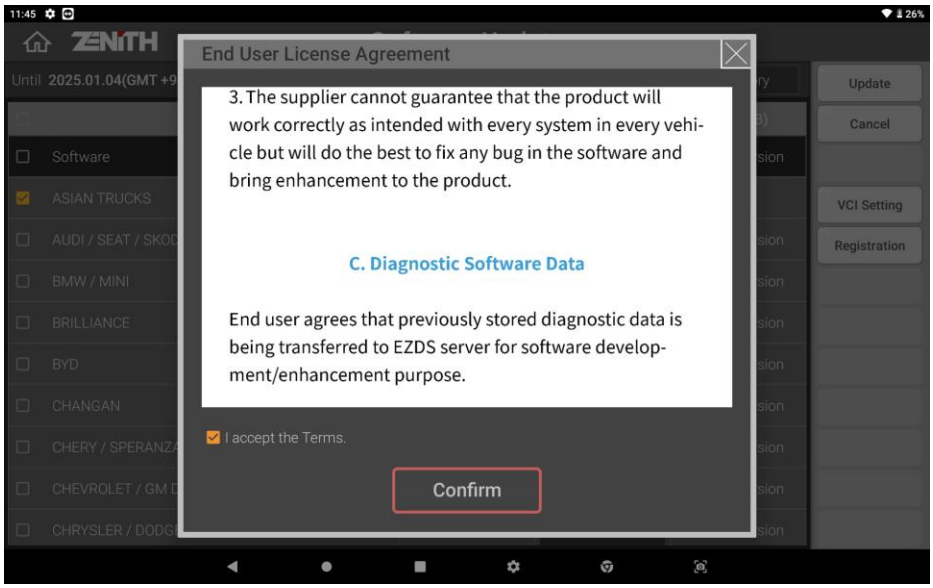
You can save your ID to avoid inconvenience of entering the email address every time by selecting the [Remember ID] checkbox, however, for protection of private information, ZENITH Z7 LITE is not allowed to save the password in the device for personal information protection and security, therefore you are required to enter the password each time.

Failure to provide correct login information or attempting to bypass the login process will restrict the software update file downloads to ZENITH Z7 LITE.



➢ **End User License Agreement**

When logged on to the software download server, the End User License Agreement window comes up on the screen, to which you are required to agree before downloading the software files to ZENITH Z7 LITE.

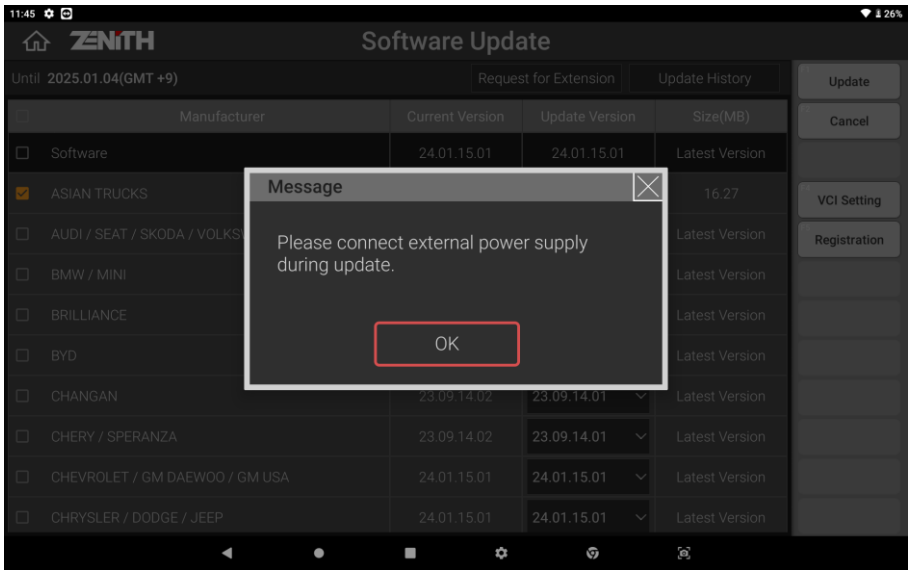


Note

Upon downloading software update files from the server, user diagnostic data previously stored in ZENITH Z7 LITE is also transferred to EZDS server, which is analyzed and used for software development / enhancement purpose.

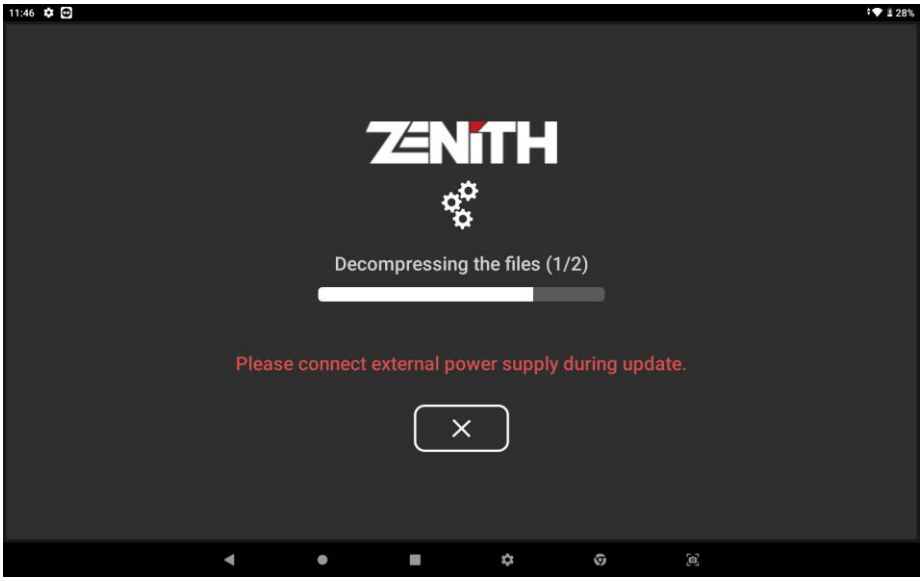
➢ **External Cradle power supply**

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 cradle power source such as AC power from the wall outlet through the AC/DC adapter.



➢ Software Downloading

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





10.2 Feedback

A. Purpose of Feedback Function

This function was designed to use the ZENITH Z7 LITE as a terminal for interacting with the individual users by allowing them to provide accurate and sufficient feedback information to EZDS in case of function failure or error, with which the software developers could analyze to pinpoint the cause of the problem and find out the solution precisely.

B. How to log data

If any diagnostic function fails or does not work properly as intended, you can log the bi-directional data transmission between the ZENITH Z7 LITE and the vehicle control system by 1) starting Data Log mode, 2) repeating the same function until the same failure/trouble is experienced again, 3) stopping Data Log mode.

- **Switch to [Log Data] Mode**



You can start Data Log mode by selecting [Log Data] button on the right side 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 are listed.

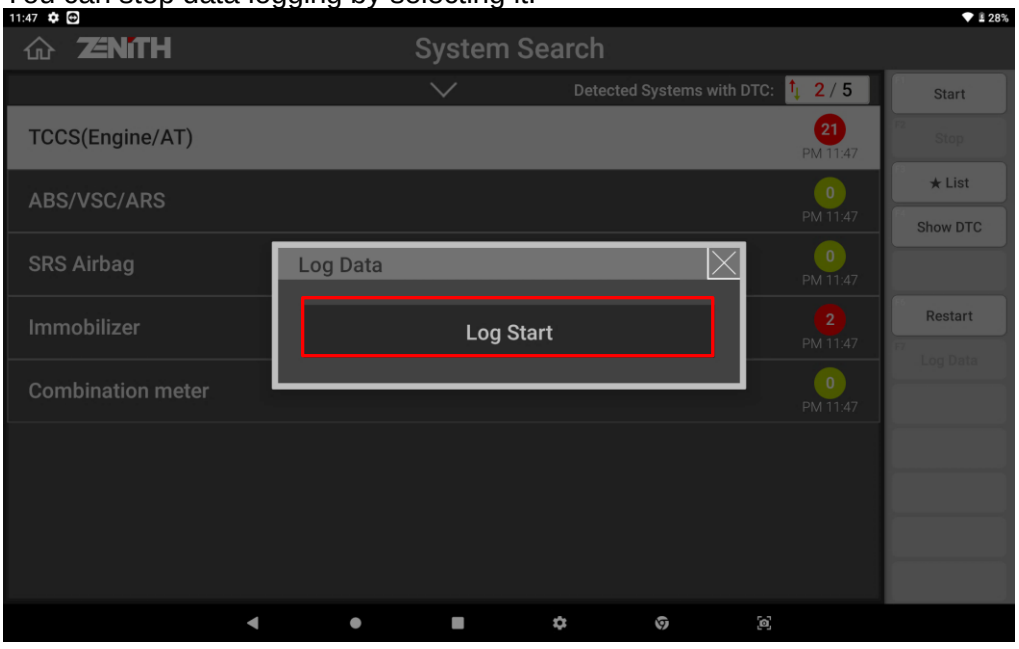
So, if you experience function failure or an error, move back to the upper level menu and select [Log Data] button on the right side of the screen, then the [Data Log] mode begins.

➢ [Data Log] Start

When [Log Data] is selected, you can select either [Log Start] or [Logo Storage] from the pop-up menu.

Select [Log Start] to start data logging.

Once started, this menu option will change to [Log Stop]
You can stop data logging by selecting it.



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



➢ Repeat the function

When the Data Log begins, the tape recorder symbol in the top left corner of the screen appears to indicate that the bi-directional data transmission between the ZENITH Z7 LITE and the vehicle control system is being cached.



Please repeat the same function until you encounter the same symptom or function failure that you wanted to report.

➢ **[Data Log] Stop**

Select the [Log Data] button in the right side of the screen 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] then the cached log data is saved in the ZENITH Z7 LITE internal memory.

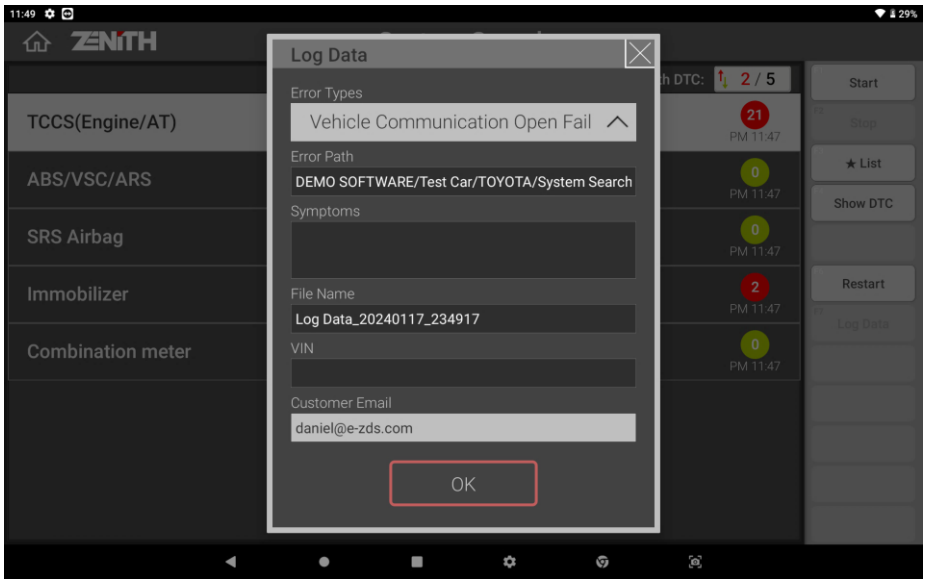


➢ [Log Data] Save

Select the type of error or failure that best describes your problem from the drop-down menu in the top line of the pop-up query.

The vehicle model and system information are 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.



Chapter 11. Record & Gallery

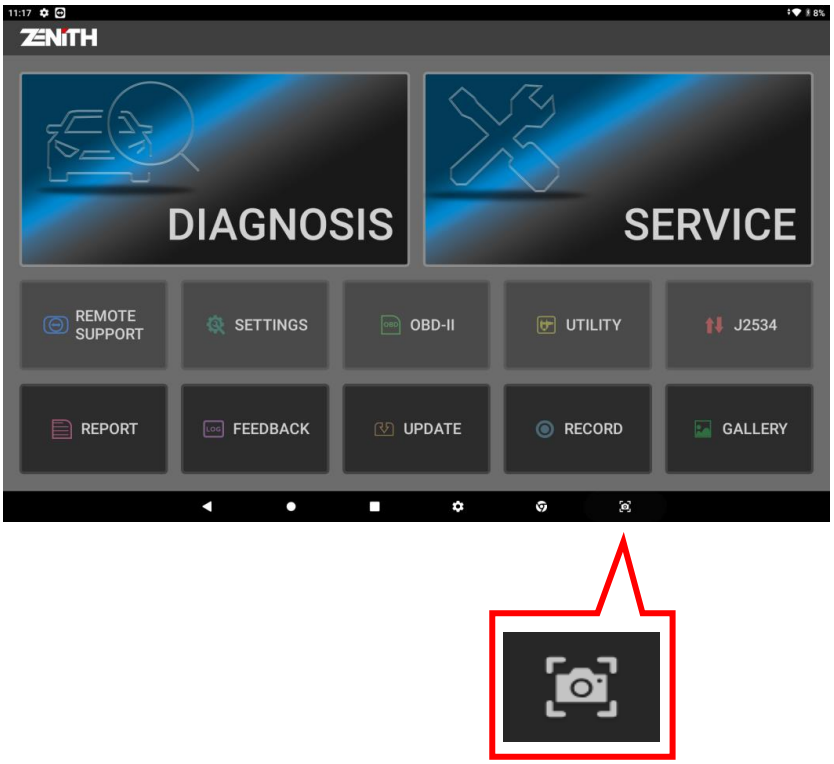
11.1. Screen Capture

A. Screen Capture saving

Screen capture function is used for saving screen capture images in the ZENITH Z7 LITE memory and reloading them later for review and analysis.

- Screen Capture

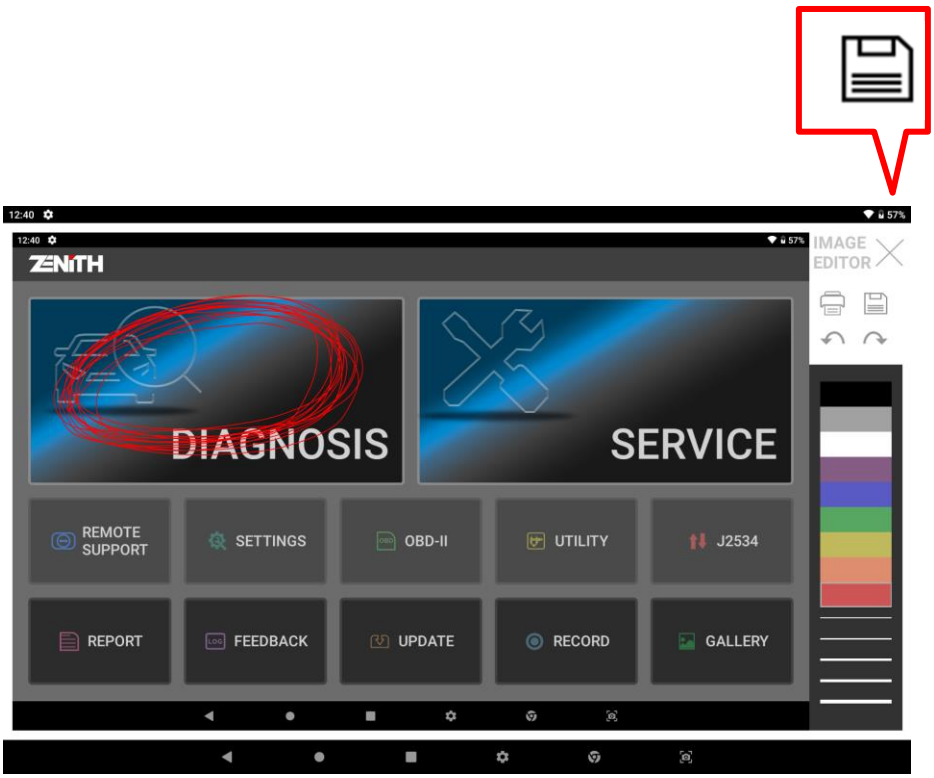
  Any time you need to capture the current screen display, touch the [Screen Capture] button in the bottom right corner of the screen, which is a part of basic Android system function.



.

- Image Processing

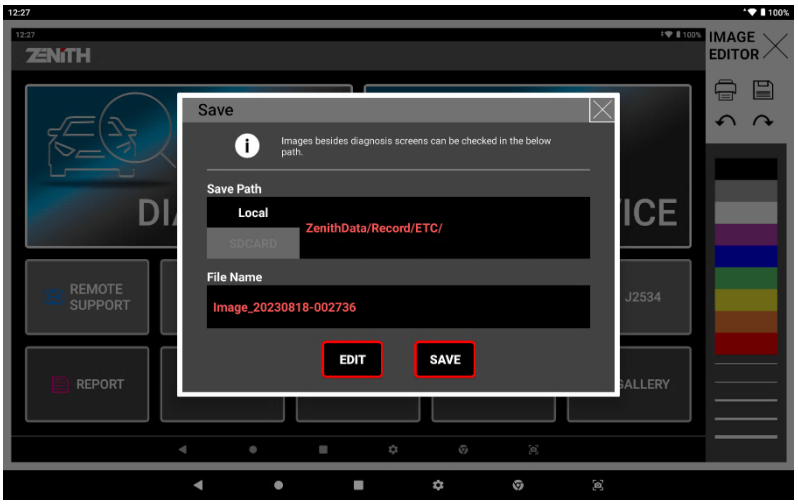
  When the current screen is captured as an image, the [Image Editor] application is automatically executed, where you can add your handwritten notes and drawings by touching the screen with the finger or the stylus pen.



➢ Save Image

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

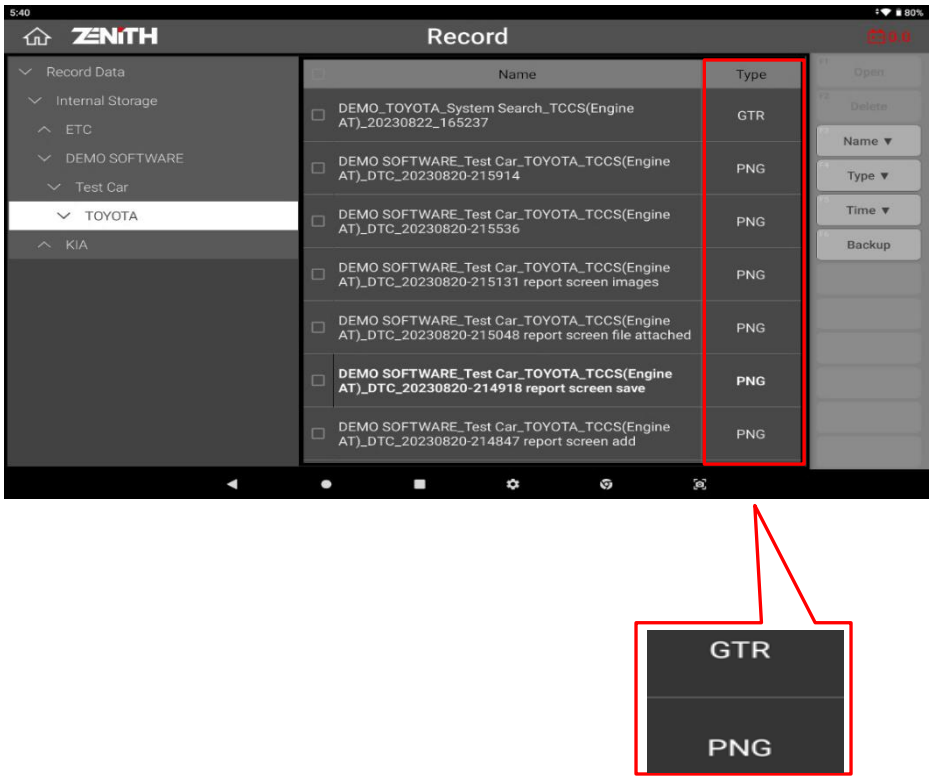
Check the file saving path and type in the file name if you want to change the file name from the default one that is named based on the Android system's date and time, then select [OK] to save the file. The screen capture is saved as an image file in the pre-defined folder of ZENITH Z7 LITE memory.



B. File Format of the save images

Screen captures are saved as image files of PNG format while live data readings are saved as spreadsheet files of GTR format.

- Screen Capture: *.PNG image files
- Live Data: *.GTR spreadsheet files.

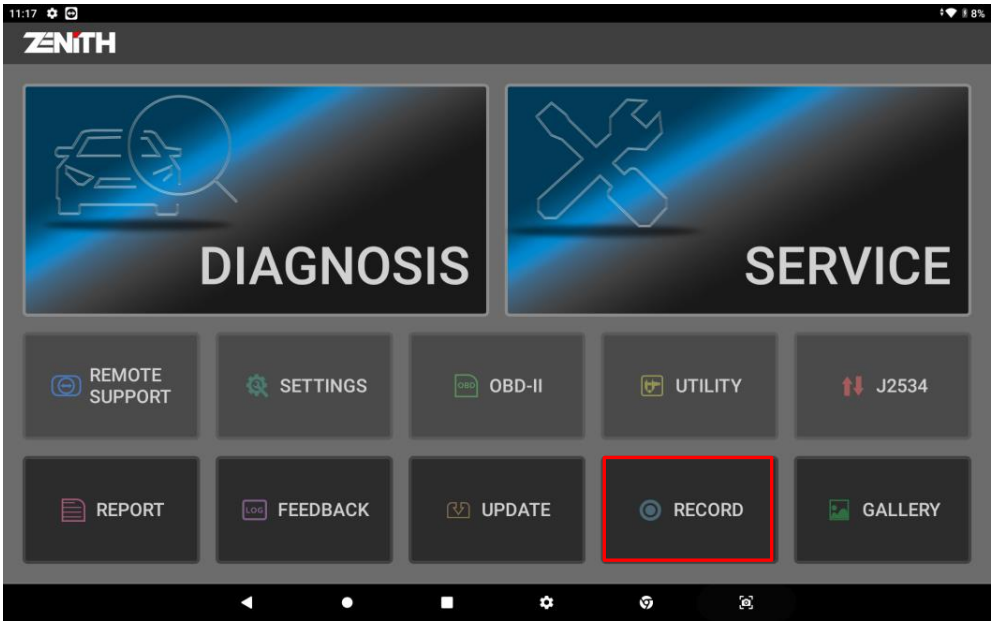


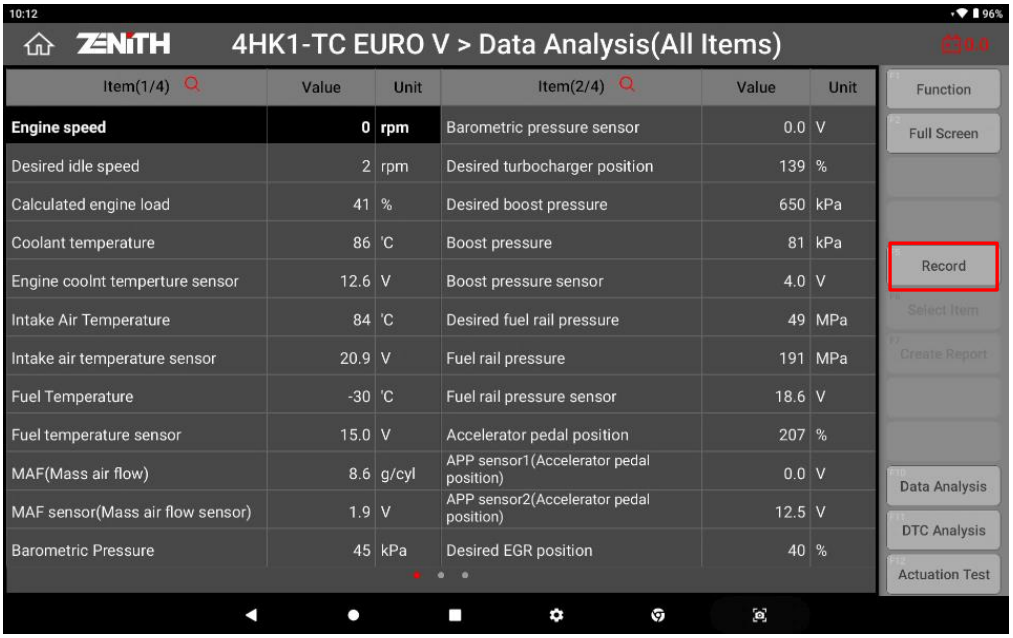
11.2. Data Reloading

Please Refer to [E. Data Recording] part in Section [6.4. Data Analysis] for more information about Data Record function.

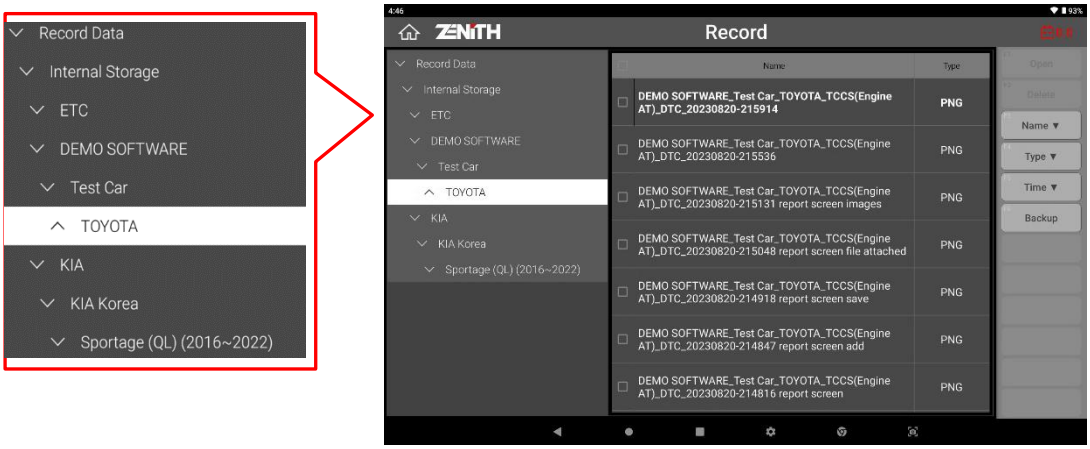
A. Saved data folder structure

When you select [Record] from the ZENITH Z7 LITE main menu or [Record] from the diagnostic function menu of each carline software, you can reload the saved record data.





The file folder structure of the ZENITH Z7 LITE internal data storage is displayed on the screen as shown below.
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 ZENITH Z7 LITE when reloading.

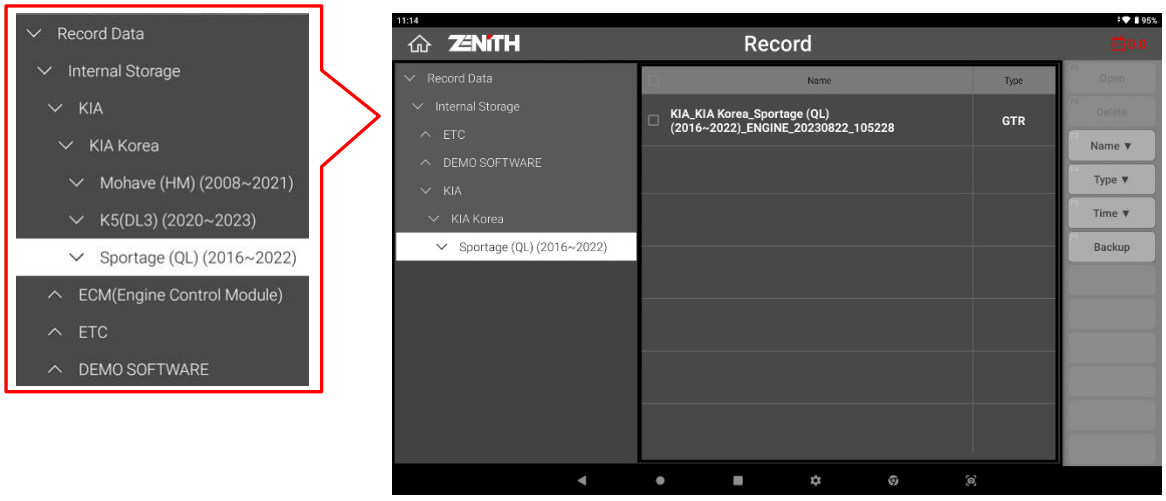


You can select the Carline under [Internal Storage] folder and the next level folders are named as you had selected in the menu before saving the data files.

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.

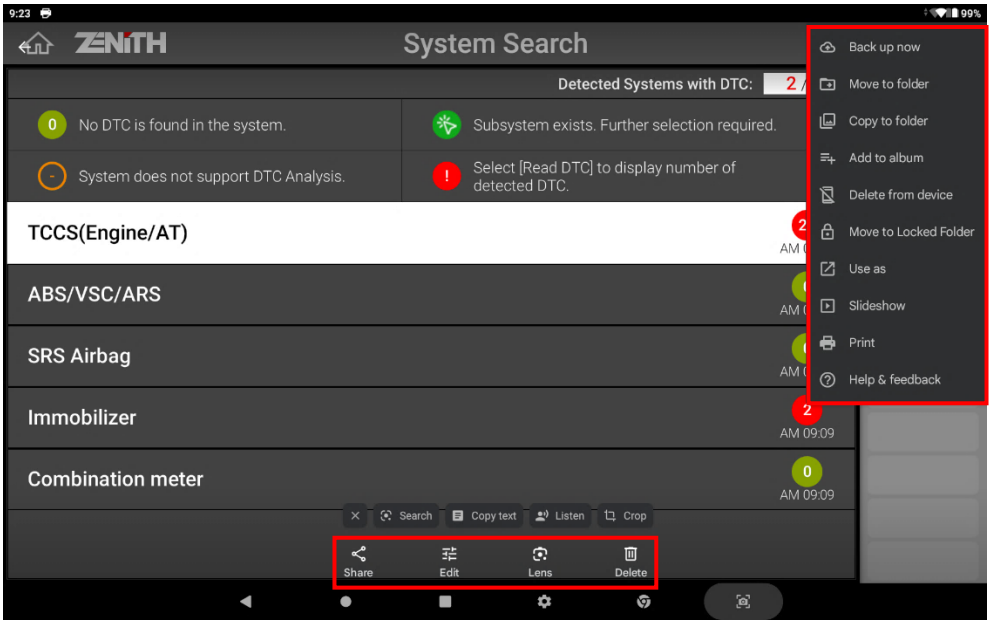
Examples.
Internal Storage >> Toyota >> International >> 16PIN Connector
Internal Storage >> Mazda >> International >> CX6
Internal Storage >> Kia >> Kia Korea >> Sportage (QL)

The example below is when you are looking for the data files that have been saved while working on a Kia Sportage (QL) vehicle of a Korean domestic version.



B. Saved Image Files

Select a PNG file among the saved files then the Gallery application runs to open and show the selected PNG file on the screen.

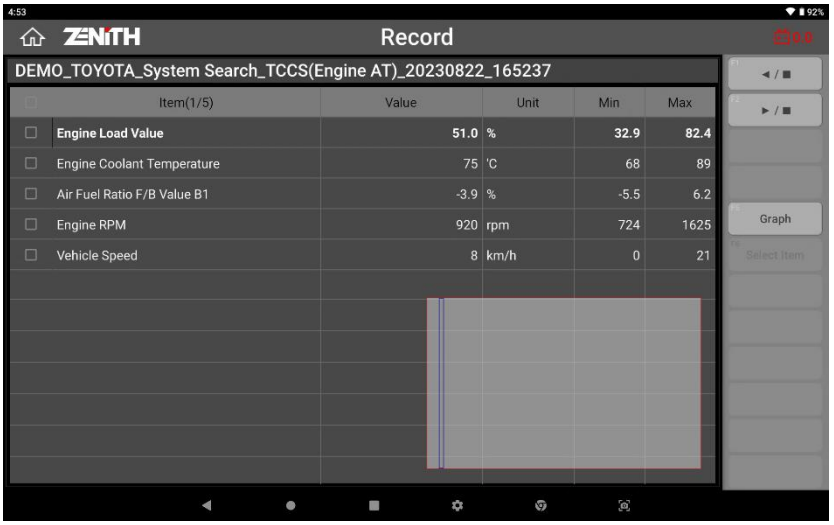


You can print or share the file by selecting the additional function buttons in the top right corner of the screen.

Please refer to the [11.4. Data Printing] section for printing function details.

C. Recorded Data Loading

Select a GTR file in the list, then the Record function is activated.
You can replay the recorded live data parameters in text mode as shown below.



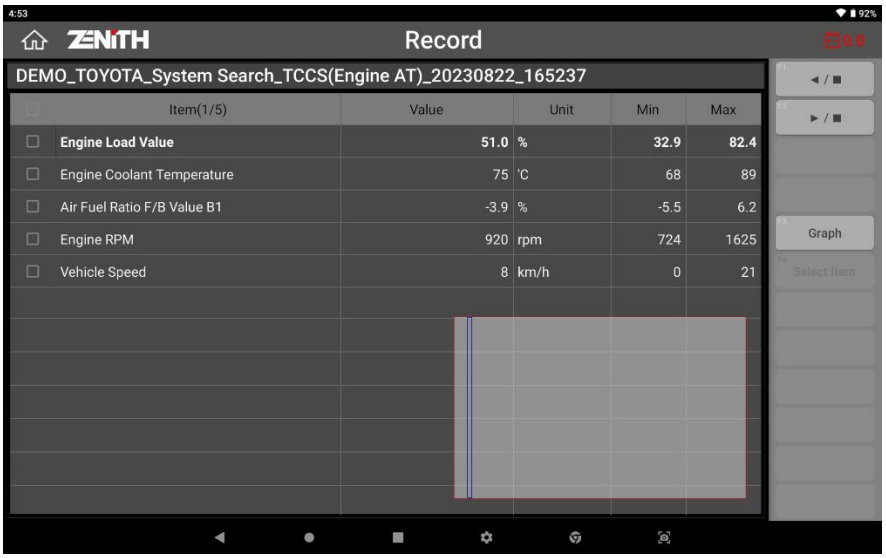
D. Replay Control

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 right side of the screen.

Control button	Description
◄ / ■ ► / ■	Play or stop the recorded data forward and backward
Graph	Switch to the graphical mode.

E. Current Frame Indication

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

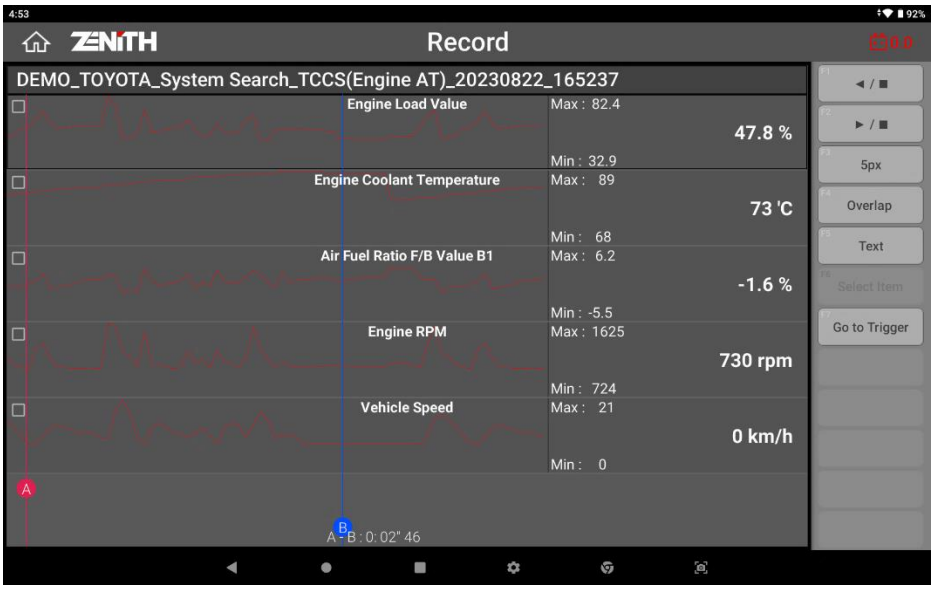


F. Graph Mode

Basic operation of [Record] 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 8 parameters are displayed on the screen.

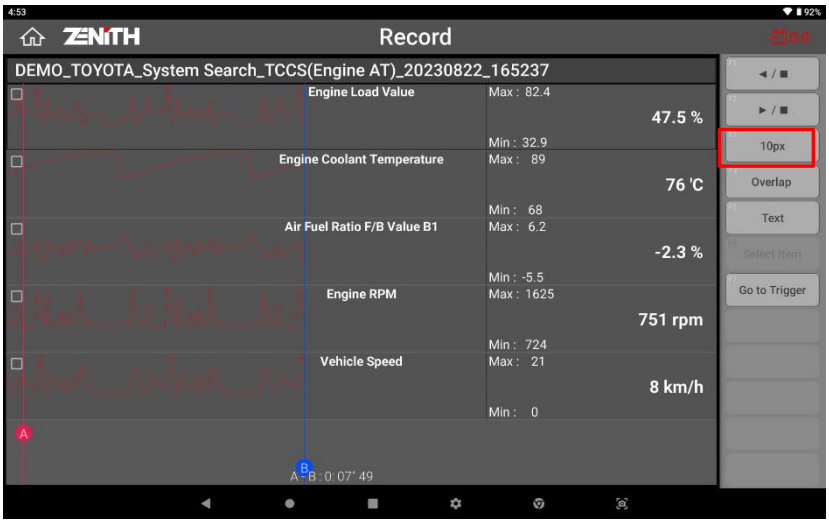
You can replay the frames of saved data forward or backward using the buttons on the left of the screen



G. Graph Horizontal Scale Control

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

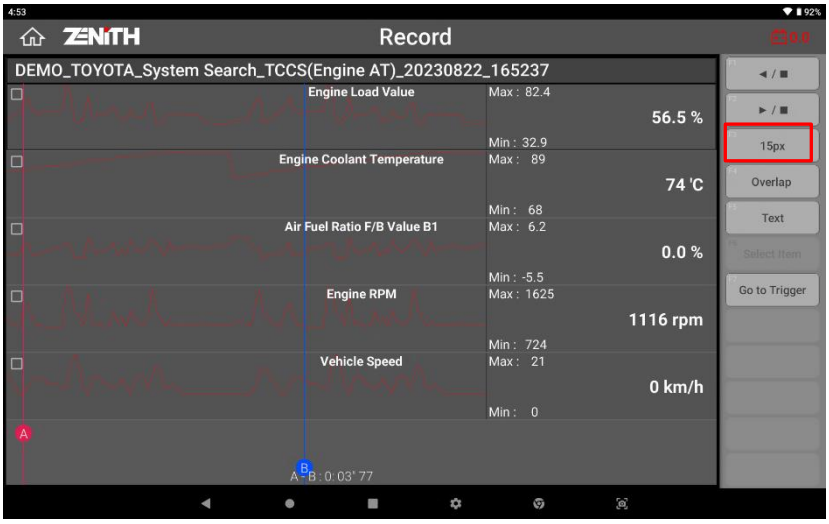
5px	Graph scale can be controlled by selecting the pixel per frame (5px -> 10px -> 15px). The more pixels per frame, the bigger the graphs, and vice versa.



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

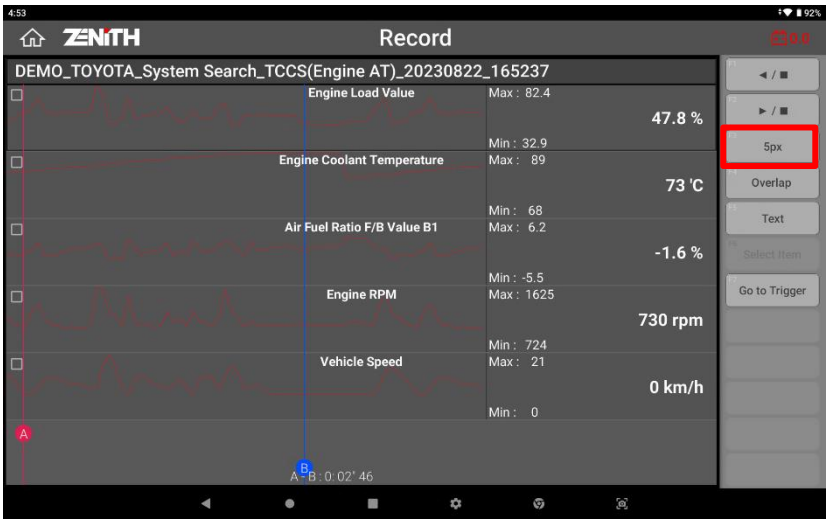
>> Example in the left is showing the graphs of 5px scale.

>> You can change the scale to 10 pixels per frame by selecting [10px] button in the right side, which makes the graphs 2 times wider in width.



>> Example in the left is showing the graphs of 10 pixels per frame scale.

>> You can change the scale to 15 pixels per frame by selecting [15px] button in the right side, which makes the graphs 1.5 times wider in width.



>> Example in the left is showing the graphs of 15 pixels per frame scale.

>> You can change the scale to 5 pixels per frame by selecting [5px] button in the right side, which makes the graphs 1/3 in width.

H. Number of Graphs Control

You can change the number of graphs displayed on the screen by controlling the vertical scale of the graphs by using zoom-in and zoom-out function with 2 fingers on the screen.
From a single parameter up to 8 parameters can be displayed at a time.

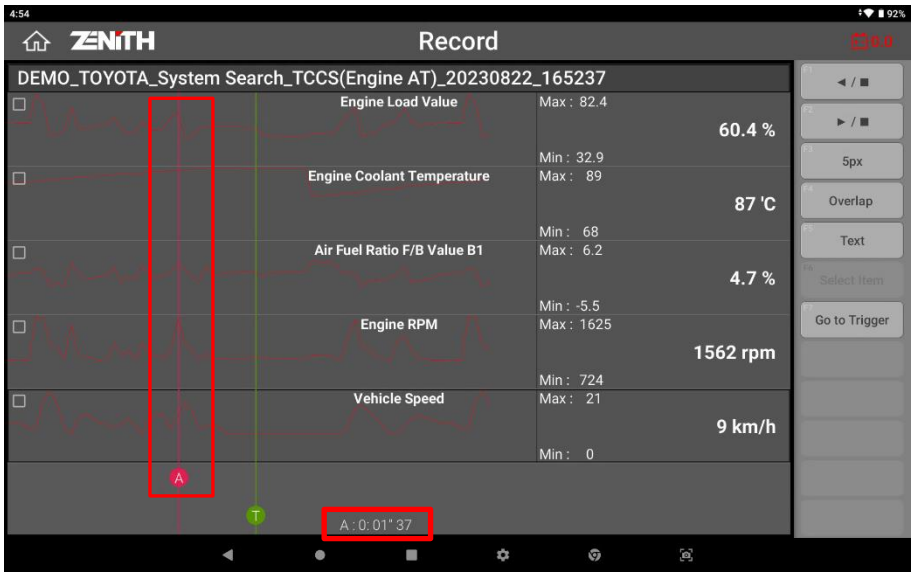
I. Cursor

- Cursor A

  Cursor A is a vertical red line that is placed on a certain horizontal position on a graph and read the values of the point.

Time elapsed from the beginning of the graph until the point of Cursor A's position is also indicated in the bottom of the screen.

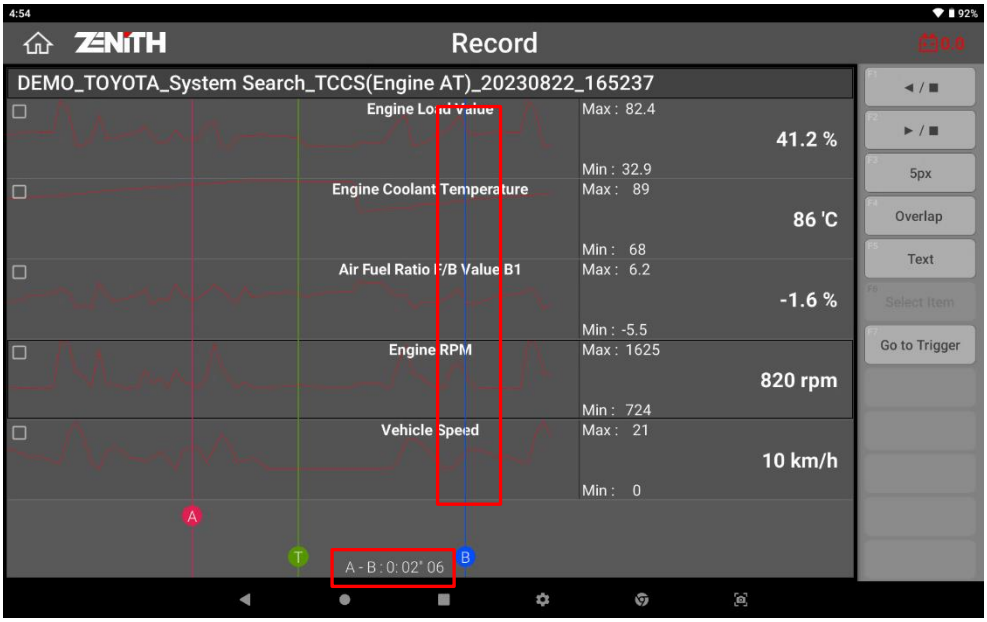
Tab on the red circle with letter A and you can drag the cursor left and right.



- Cursor B

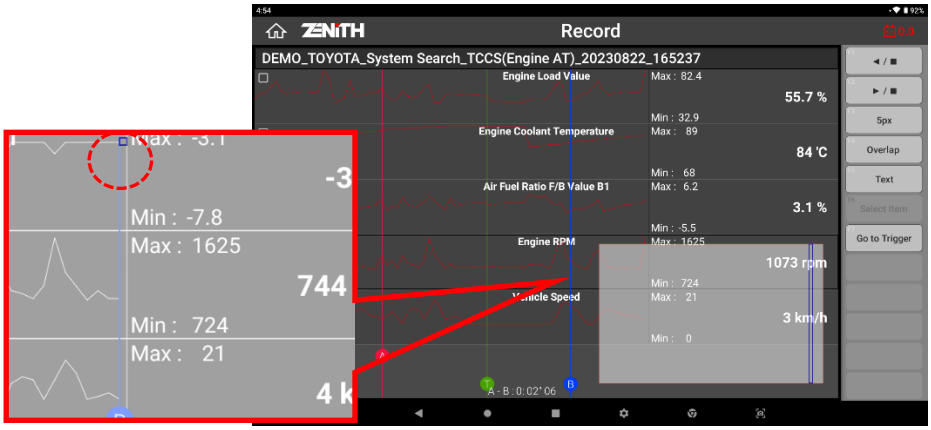
Cursor B is a vertical blue line that appears when you make a quick double touch the graph area. It is placed on a certain horizontal position on a graph and the time difference between the positions of cursor A and B is indicated in the bottom of the screen

Tab on the blue circle with letter B and you can drag the cursor left and right. Quick double touch on the screen will remove the cursor B.



J. Current Frame Mark

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.

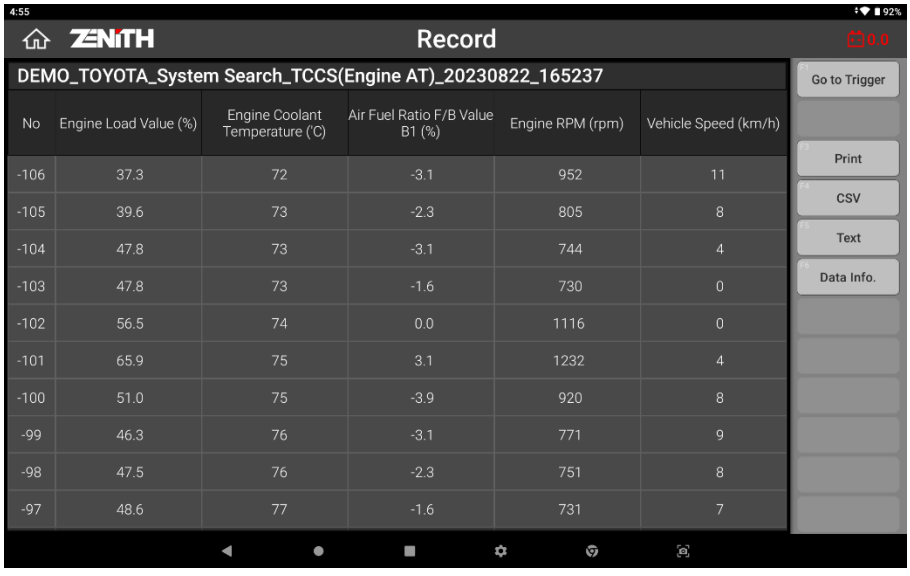


K. Text - Spreadsheet mode

Select [TEXT] among the side menu buttons in graph mode, then the display mode changes to Text mode. Initially the data readings are displayed in the form of a spreadsheet.

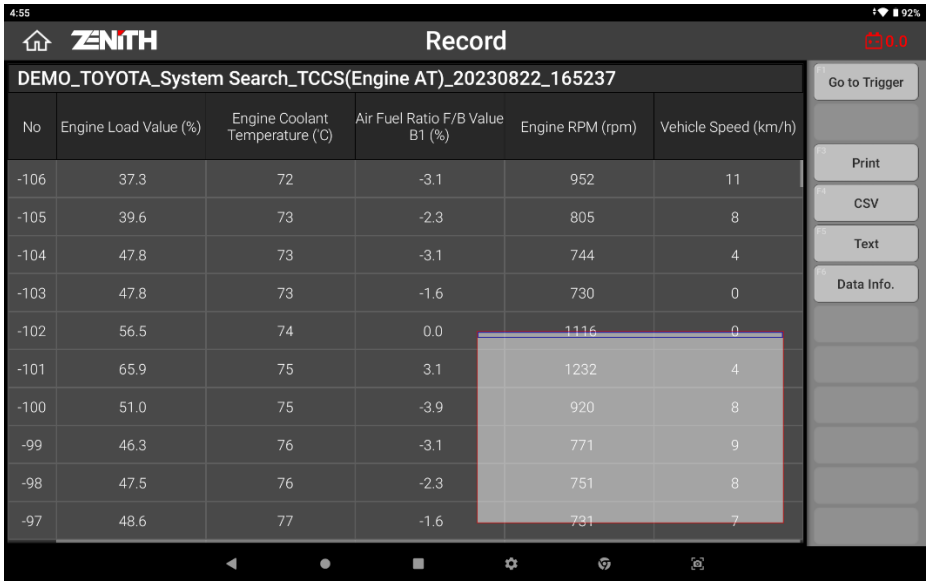
- Spreadsheet format

In spreadsheet format, the parameter names are listed horizontally in the header row, 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.



No	Engine Load Value (%)	Engine Coolant Temperature ('C)	Air Fuel Ratio F/B Value B1 (%)	Engine RPM (rpm)	Vehicle Speed (km/h)
-106	37.3	72	-3.1	952	11
-105	39.6	73	-2.3	805	8
-104	47.8	73	-3.1	744	4
-103	47.8	73	-1.6	730	0
-102	56.5	74	0.0	1116	0
-101	65.9	75	3.1	1232	4
-100	51.0	75	-3.9	920	8
-99	46.3	76	-3.1	771	9
-98	47.5	76	-2.3	751	8
-97	48.6	77	-1.6	731	7

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



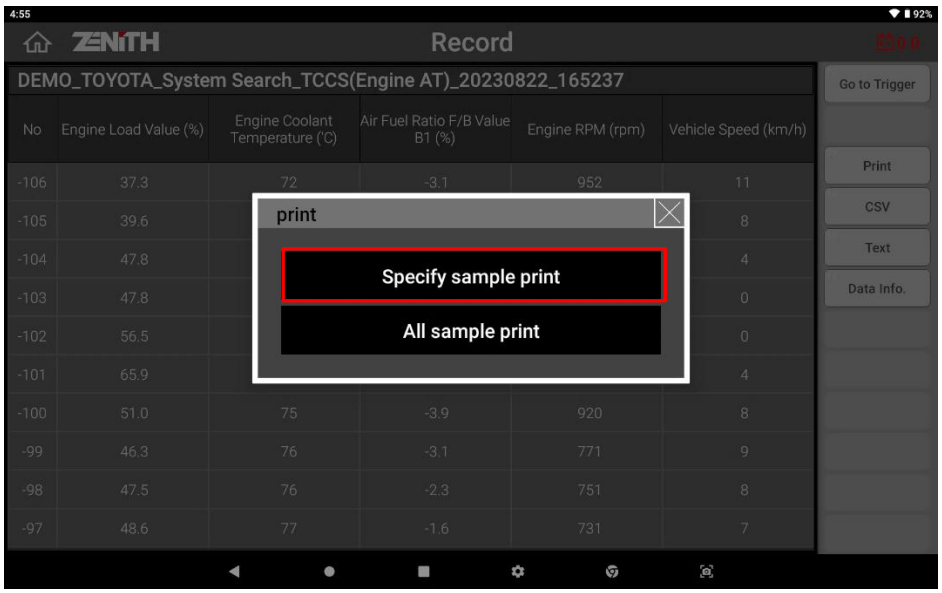
No	Engine Load Value (%)	Engine Coolant Temperature (℃)	Air Fuel Ratio F/B Value B1 (%)	Engine RPM (rpm)	Vehicle Speed (km/h)
-106	37.3	72	-3.1	952	11
-105	39.6	73	-2.3	805	8
-104	47.8	73	-3.1	744	4
-103	47.8	73	-1.6	730	0
-102	56.5	74	0.0	1116	0
-101	65.9	75	3.1	1232	4
-100	51.0	75	-3.9	920	8
-99	46.3	76	-3.1	771	9
-98	47.5	76	-2.3	751	8
-97	48.6	77	-1.6	731	7

- Go to Trigger

This option becomes available in Spreadsheet mode.
If a 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.

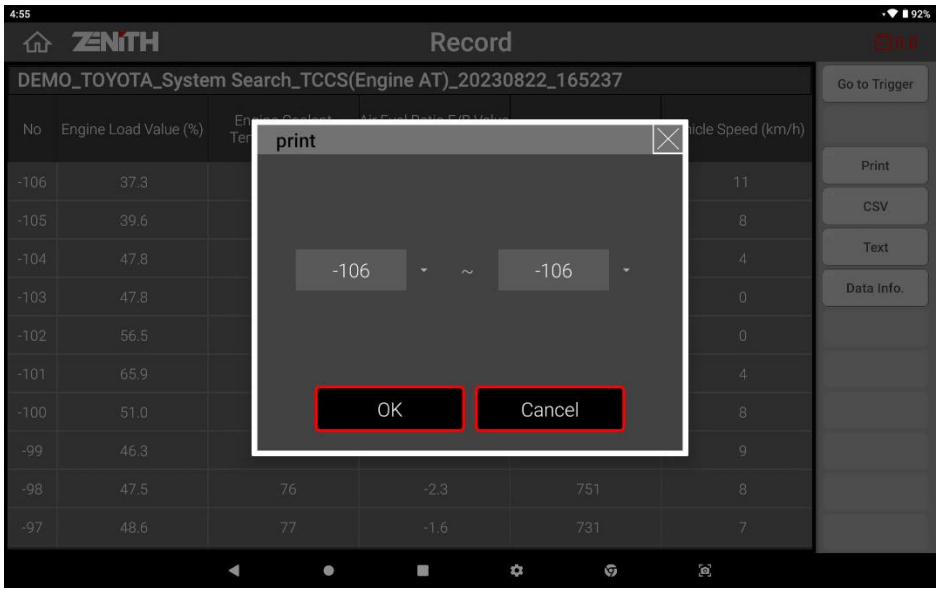
- Print

Print the spreadsheet using the printers connected to the ZENITH Z7 LITE or save in the PDF format. 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 [11.4. Data Printing] section to learn more about printer set up and printing function.

- **CSV**

Select [CSV] button to convert the spreadsheet to a CSV (Comma Separated Values) format for data processing.

- **Text**

Select [Text] button to switch to normal Data Analysis text mode.

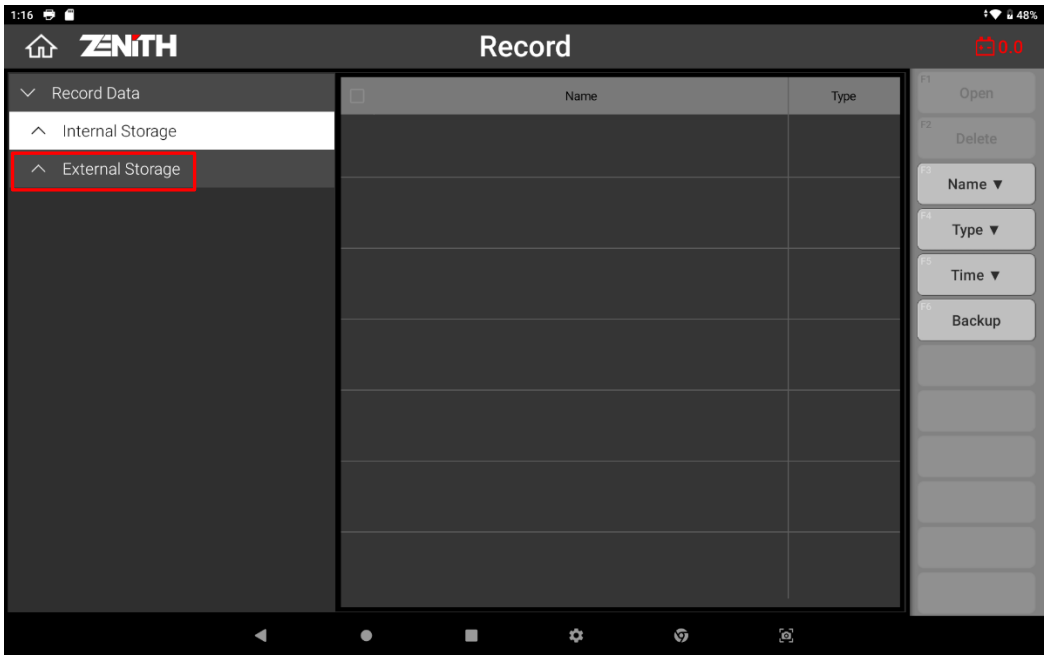
11.3. Data Backup

You can transfer the image and data files saved in ZENITH Z7 LITE's internal storage to an external storage device by selecting [Backup] from the side menu.

A. External Storage Device

A micro SD Card can be inserted to ZENITH Z7 LITE 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.

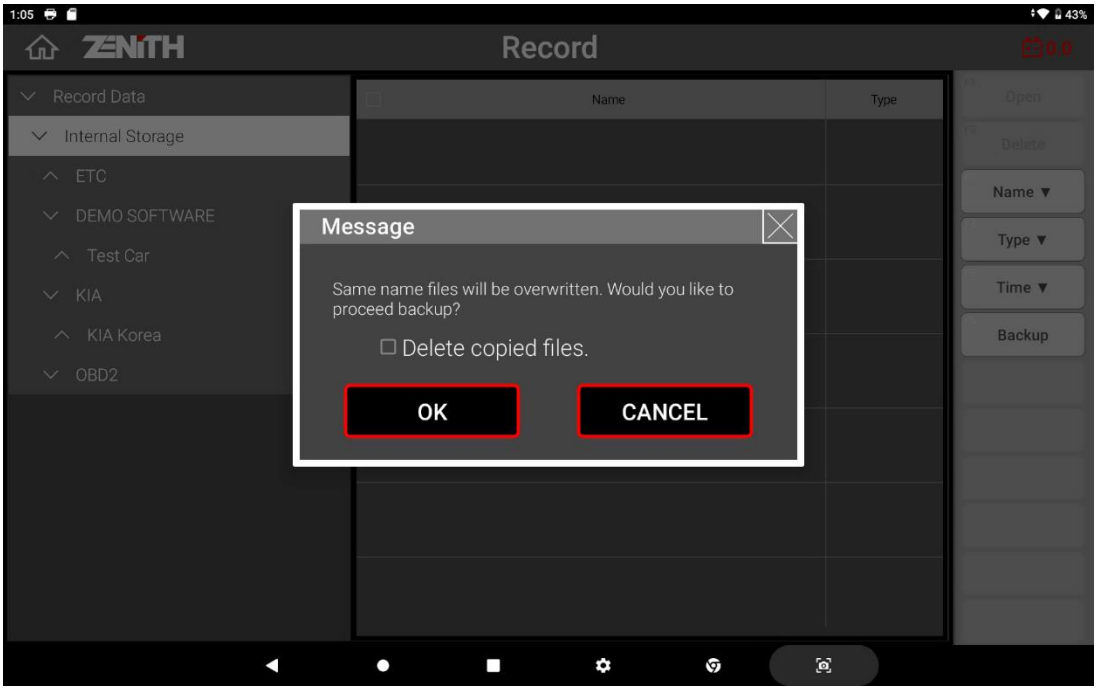
When you insert the micro SD Card or connect the USB storage device, it is recognized as an external storage device by Z7 and indicated in the [Record] menu's folder structure like below



B. Backup

Select [Backup] to transfer the folders and files contained in the Internal Storage to the micro SD Card or the USB storage device.

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.


1:05
43%
ZENITH
Record
Record Data
Internal Storage
ETC
DEMO SOFTWARE
Test Car
KIA
KIA Korea
OBD2
Name
Type
Open
Delete
Name ▼
Type ▼
Time ▼
Backup
Message
Same name files will be overwritten. Would you like to proceed backup?
Delete copied files.
OK
CANCEL

11.4. Data Printing

You can print the image, recorded data and diagnostic report saved in ZENITH Z7 LITE's internal storage via wireless printer.

A. Printer Driver Installation

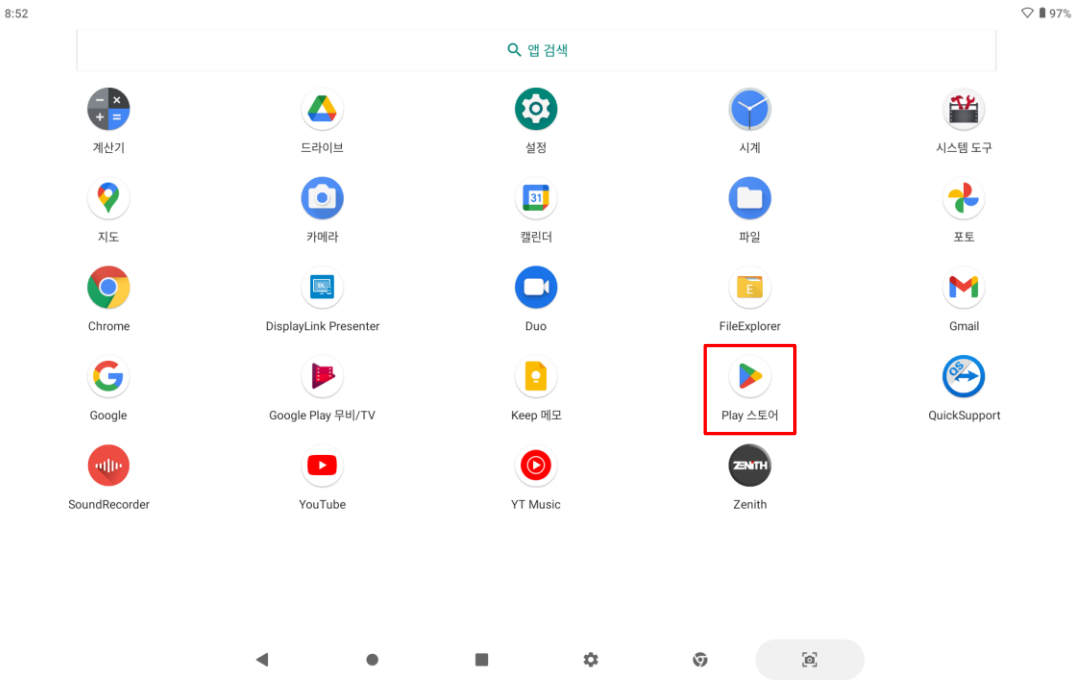
- In order to connect Z7 to your wireless printer, you need to install a print driver application that is compatible with your printer.

Note

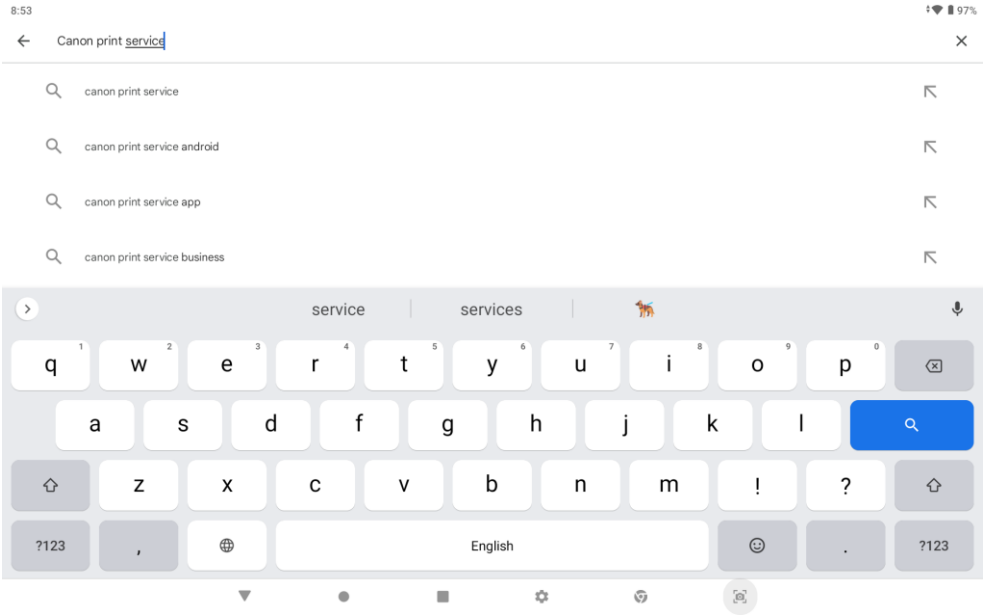
Only the printer drivers approved by EZDS can be installed in the ZENITH Z7 LITE. Other applications are not allowed to download due to technical and security reasons. Warranty voids if any attempt to download unauthorized applications to the ZENITH Z7 LITE is found.

<< Example: Canon Print Service >>

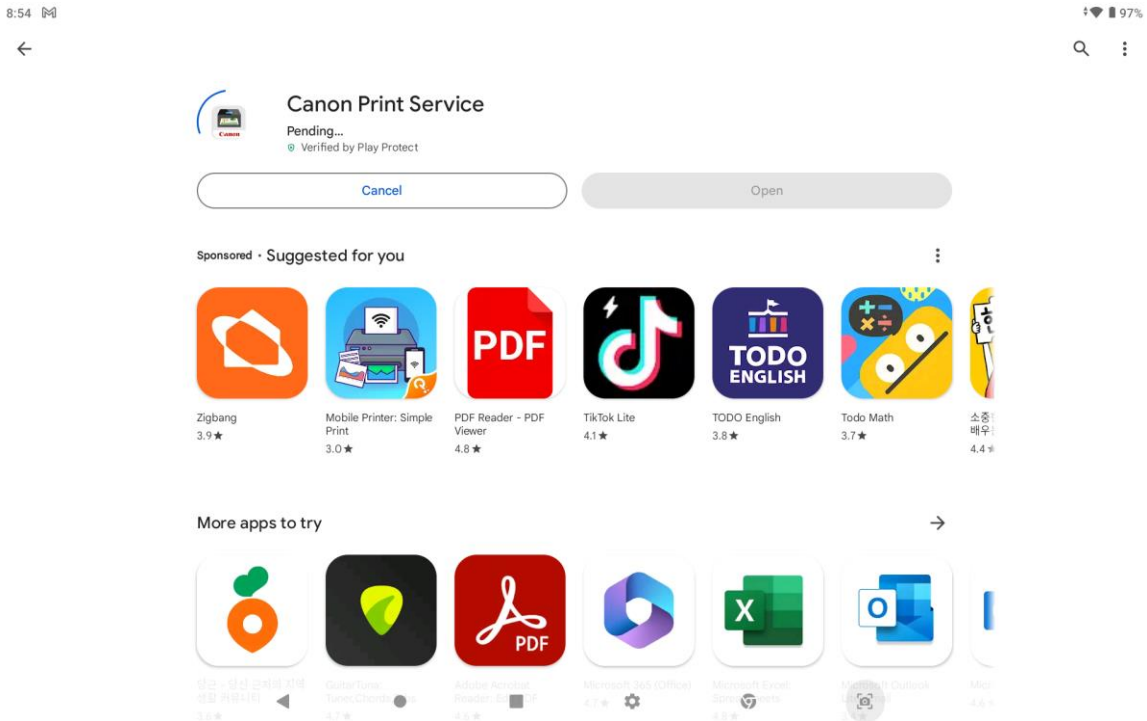
- Select Google® Play Store® from the home screen and sign in using your personal ID and password.



➢ After successful login to Play Store®, search for the driver application of the printer you wish to connect.



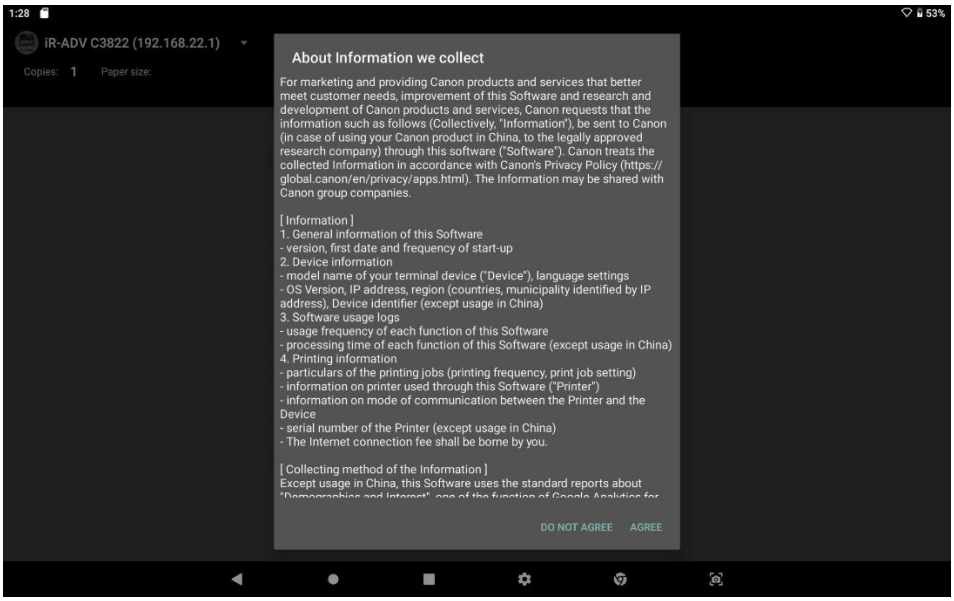
➢ If the driver application for the printer is found, download the driver and install it to the ZENITH Z7 LITE.



- When installed successfully, the printer icon will come up on the Z7 home screen.
-



- Run the application and follow the setup procedure as instructed, and allow it to access the photos, media, and files in the device. Then connect the printer.



➢ **From the printer, press OK when it asks to connect to the device (Zenith Z7).**

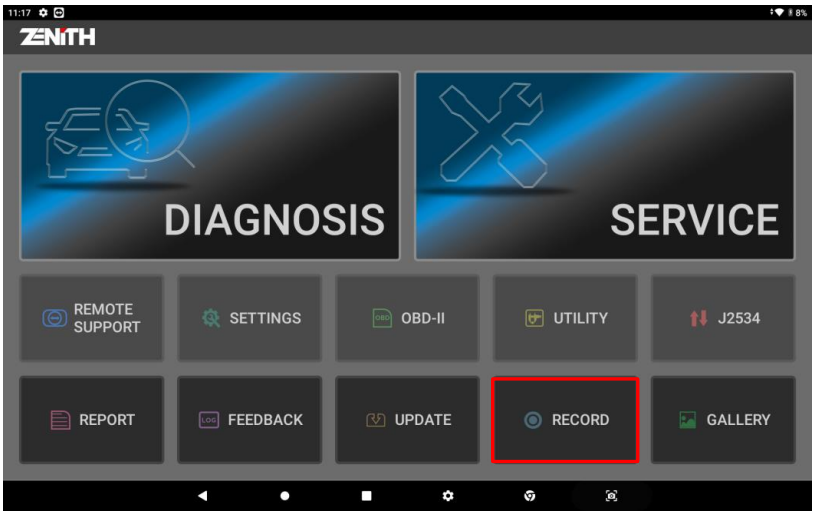


B. Printing Image

Saved images can be printed from either photo folder located at home screen or inside ZENITH Z7 LITE application in [Record]. For the purpose of this manual, only Zenith application will be explained.

➢ **Select [Record] to search for an image that is going to be printed.**

Whenever you capture an image or record data during diagnosis, specific carline folder is created under ‘Record Data’ and ‘Internal Storage’ folder.
Screenshot image is saved as PNG format in Z7.

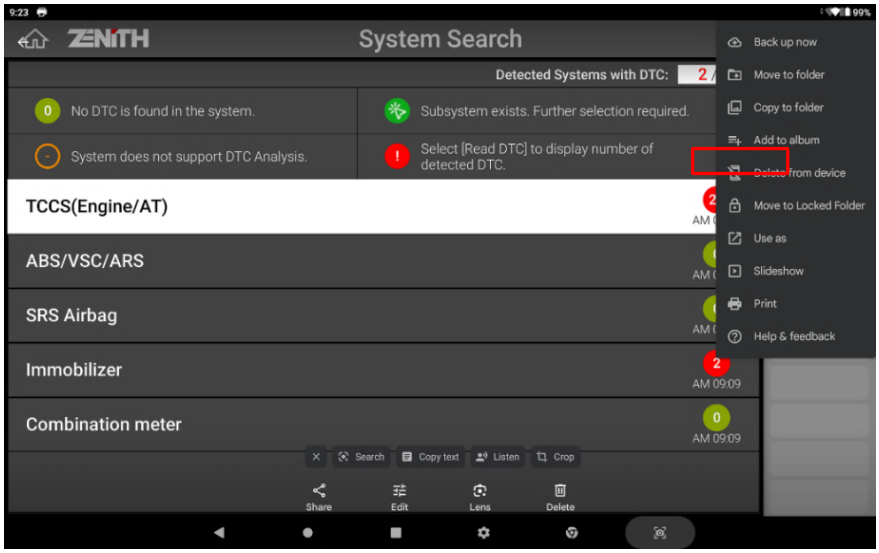


➢ **Once you find desired image, select [OPEN] to view the image.**

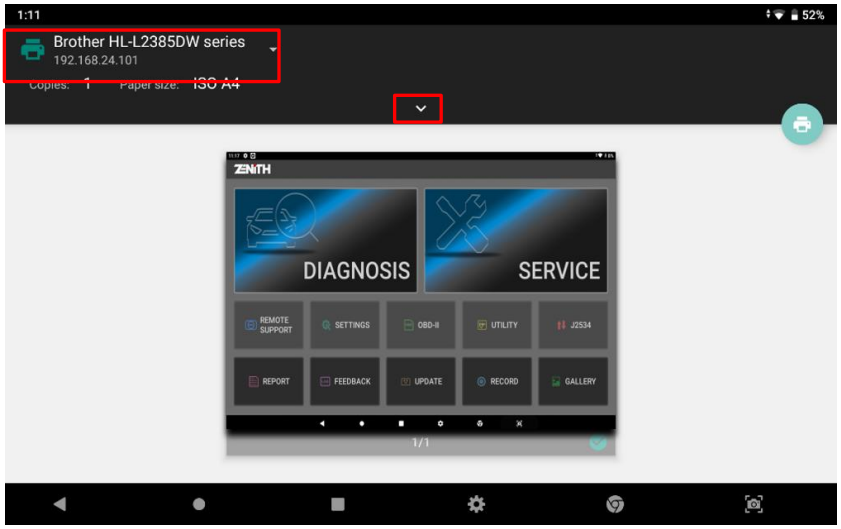


- If you select option icon at the top right corner, drop down menu will appear and you will see print option as shown below. Select [Print] to begin printing the image

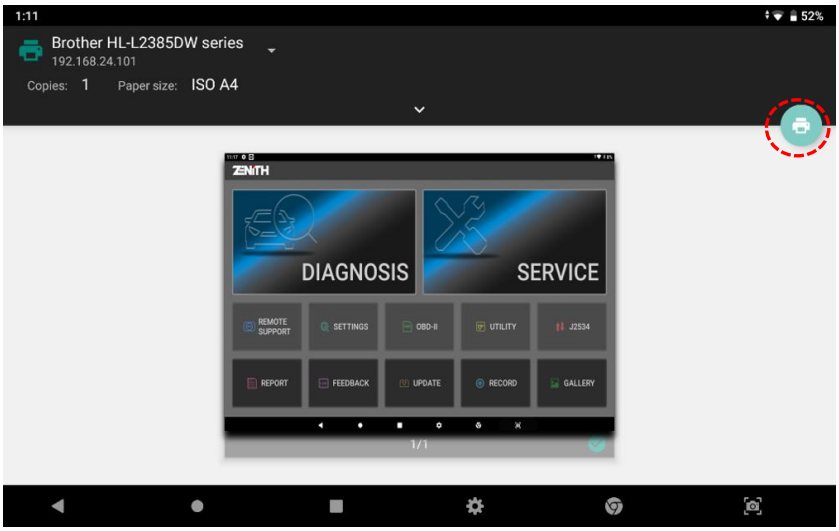




- If your wireless printer is properly connected to Z7, you will see the printer's name displayed at left top corner as shown below.



- 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.



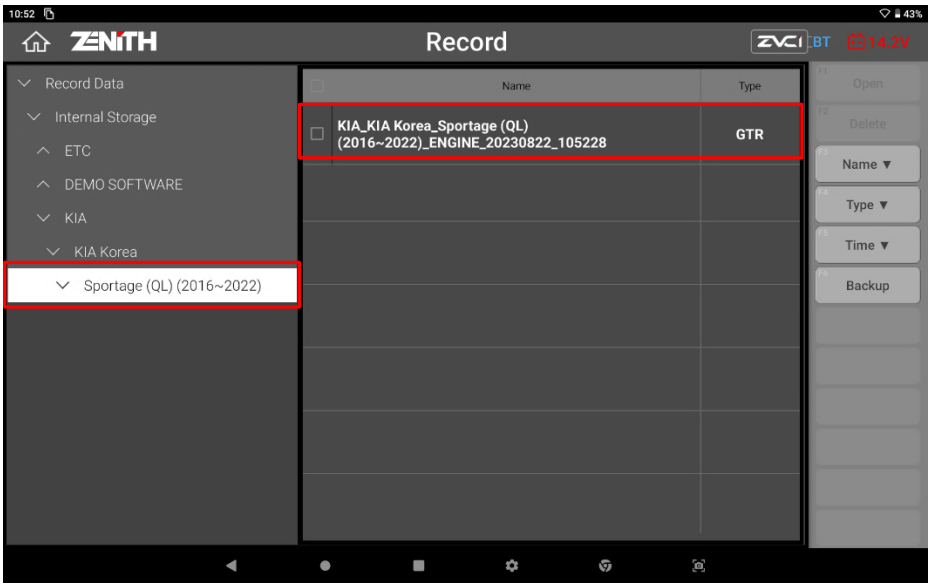
C. Printing Recorded Data

After recording live data in [Data Analysis], you can print those parameters captured at each frame. Please refer to earlier parts of this Chapter for more information on recorded data.

- Select [Record] to search for the recorded data that is going to be printed.



- 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. Select the file and select [OPEN] to view the data.

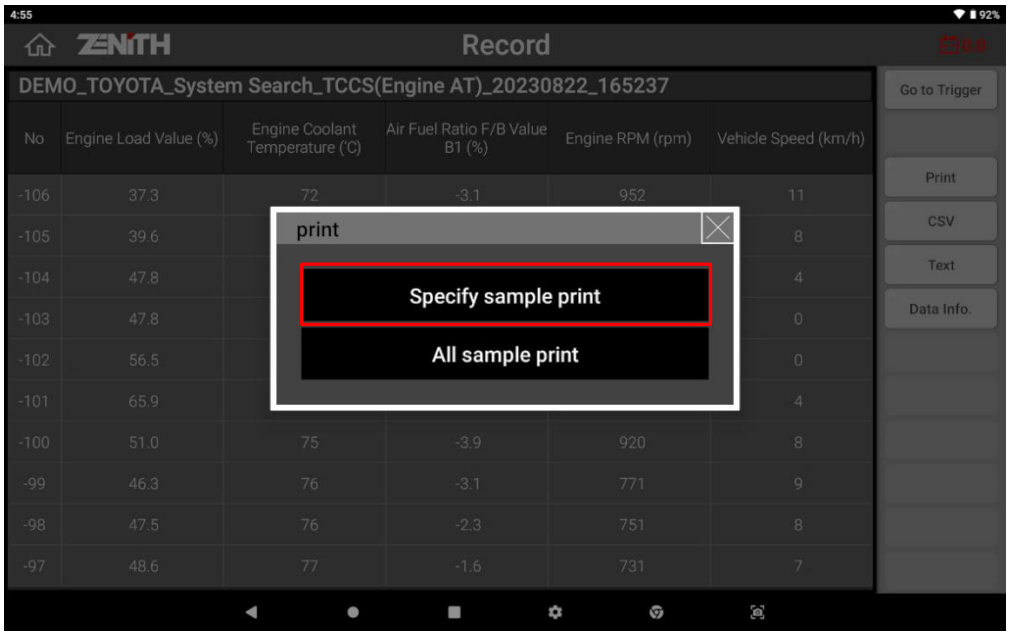


- In order to print recorded data, you must switch to Spreadsheet format text mode by selecting [Graph] firstly and then select [Text] as shown below images. Please refer to [11.2. Data Reloading] section of this Chapter in this manual for more information.

  All recorded samples are displayed in the 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.



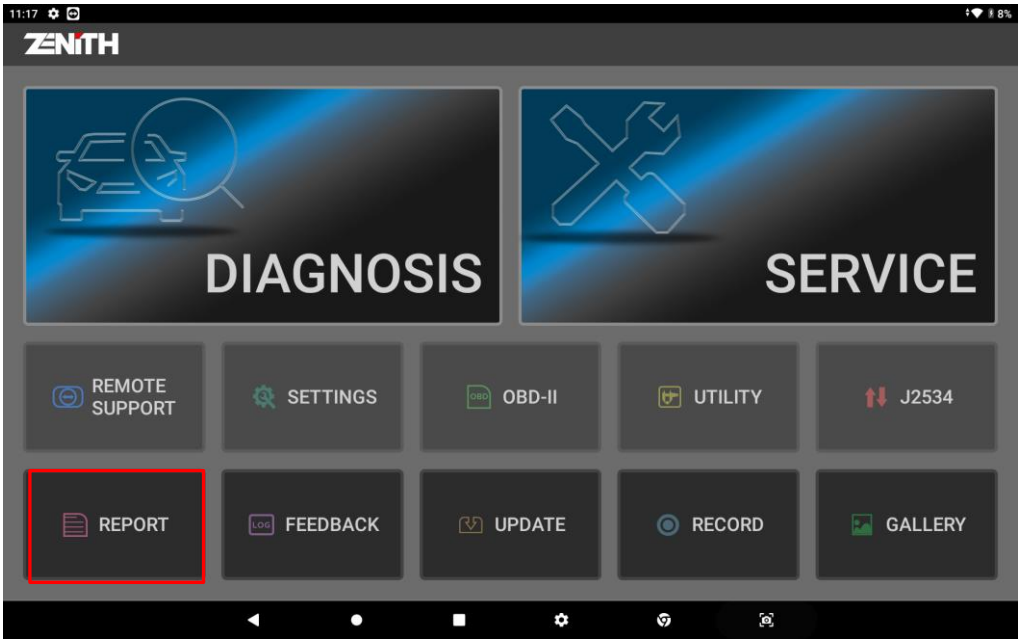
- Then slide down the top bar or select pointing down arrow button, you can edit print setting such as paper size, color, and orientation. Selecting print icon as shown below will print the image with desired setting.



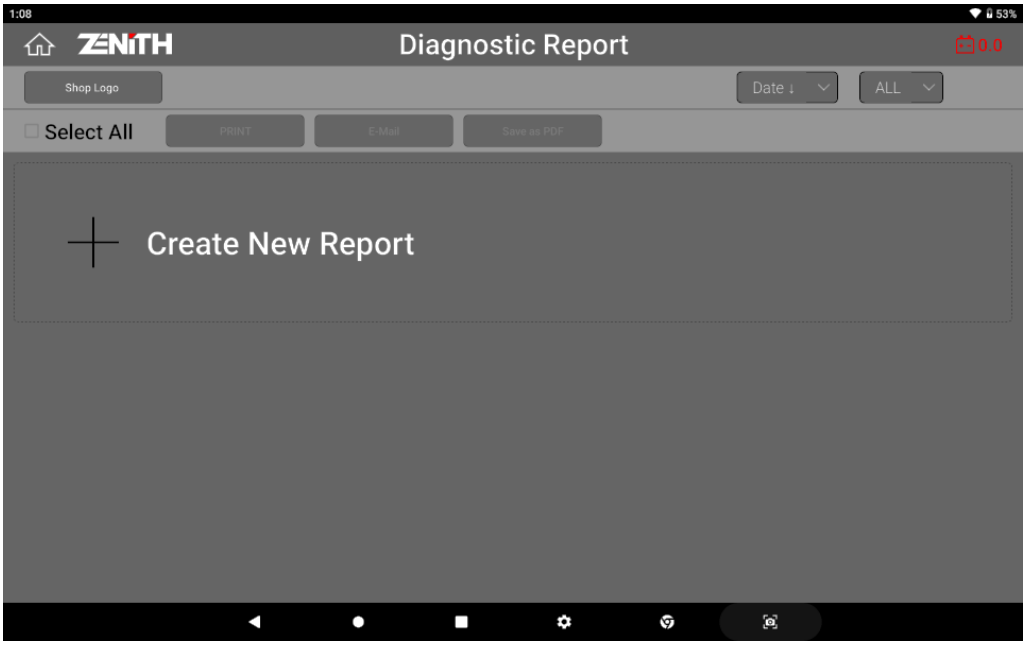
Chapter 12. Report

12.1. Diagnostic Report Function

Not only can you save the pre and post repair diagnostic reports as a PDF file in ZENITH Z7 LITE's memory, also, with the help of Bluetooth and Wi-Fi technology, you can print or send them to desired E-mail addresses.



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



12.2. Creating a report

A new report is created in the following sequence:

Pre-repair Scan
- System Search
- DTC Analysis
- Save Pre-scan Result

→ **Repair Service** →

Post-repair Scan
- System Search
- Save Post-scan Result

A. Create a new report

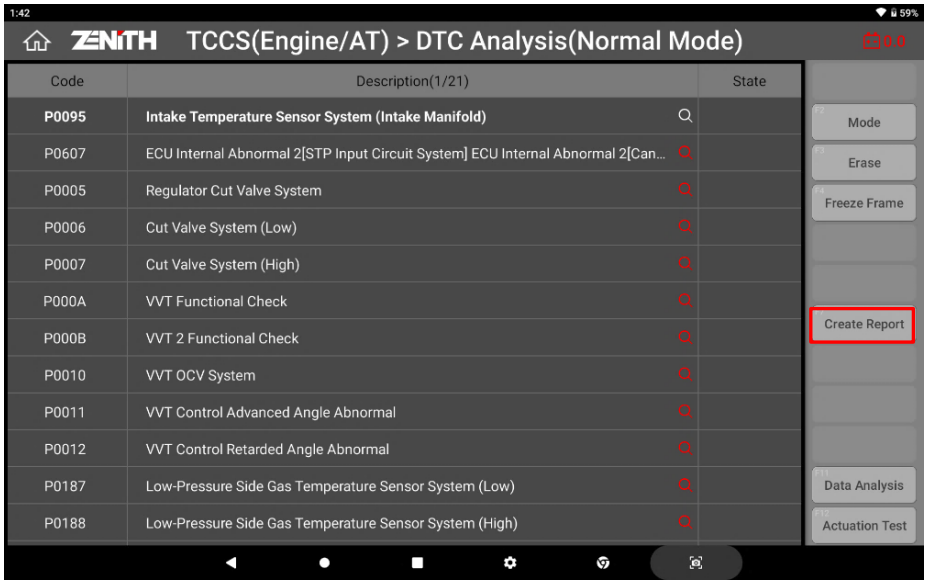
In order to create a diagnostic report, you must start from selecting [DIAGNOSIS] from ZENITH Z7 LITE main menu to perform [System Search] on the vehicle.

Please refer to [6.2 System Search] & [6.3 DTC Analysis] sections of [Chapter 6. Diagnosis -General] in this manual for more details.

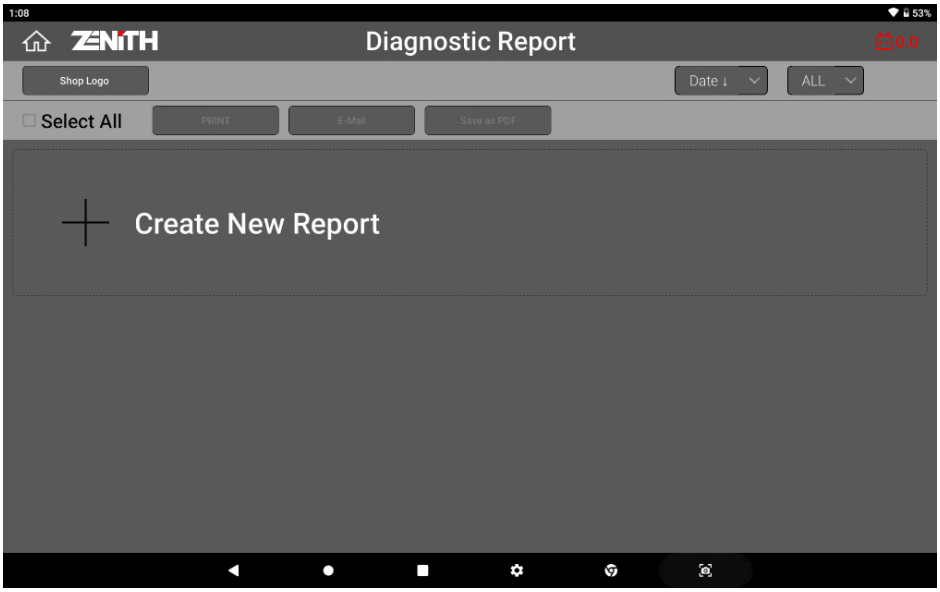
[System Search] scans all available control systems equipped in the vehicle and displays the number of DTCs stored in each control system.



After [System Search] or [DTC Analysis] is completed, select [Show DTC] to view the detailed list of detected systems and DTCs, and select the [REPORT] button at the top of right.



Previously saved reports are displayed if available and you can also create a new diagnostic report by selecting [+ Create New Report]



B. Vehicle and Workshop Information

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

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

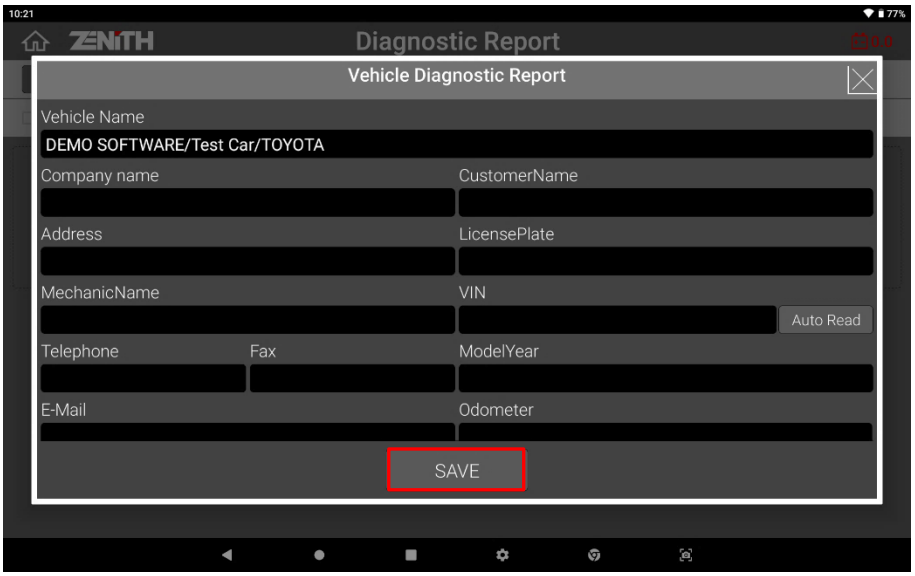
- Workshop information
  Workshop name, Address, Mechanic's Name, Telephone number, Fax number and Email address are automatically loaded from the user information saved in Configuration of the ZENITH Z7 LITE. You can edit each entry if necessary.

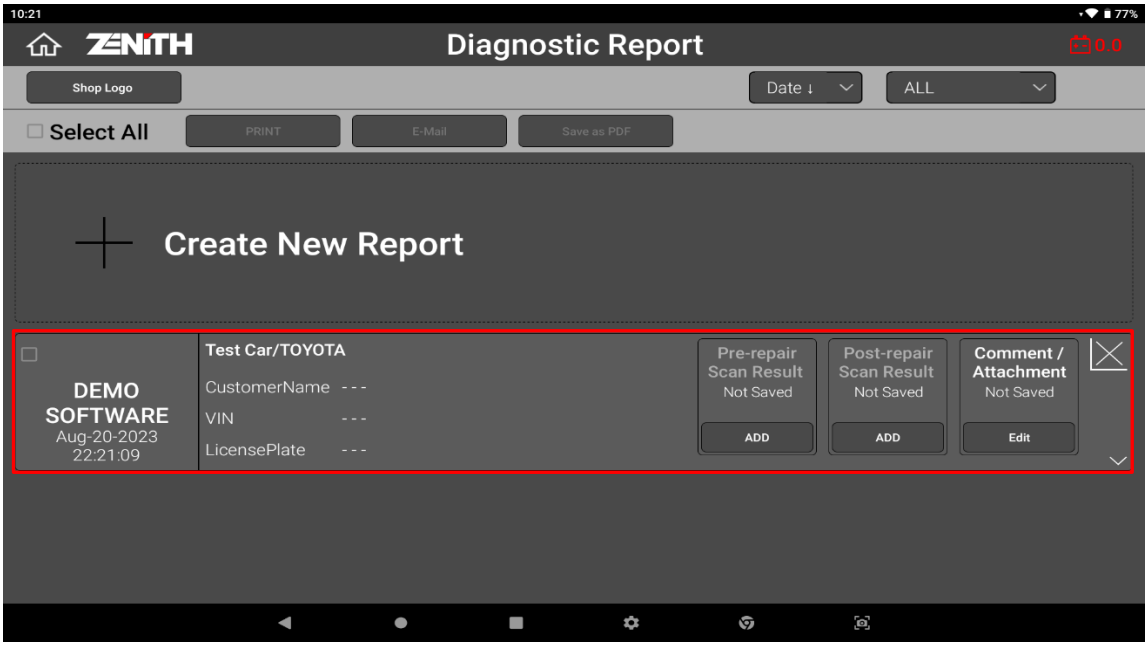
- Date
  Automatically loaded from the system clock

- Customer information
  You need to enter manually if necessary.

- VIN Auto Read
  Select [Auto Read] button if you want to let ZENITH Z7 LITE read the VIN from the vehicle automatically. If auto read is not available, you may have to enter the VIN manually.

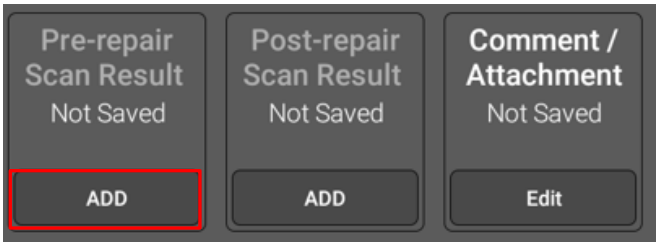
A new report is created when you select [SAVE] button in the bottom..





C. Pre-repair Scan

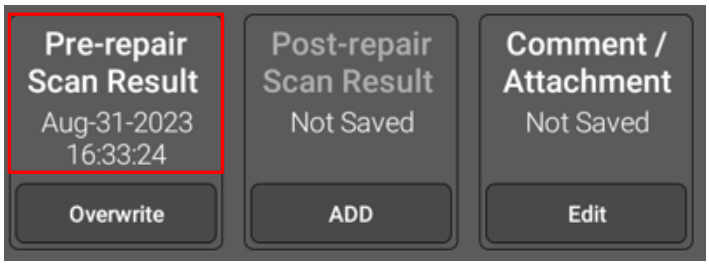
You can add the result of the current diagnostic session to the report as [Pre-repair Scan Result] by selecting [ADD] button.



Once [Add] button is selected, ZENITH Z7 LITE will ask for confirmation.



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

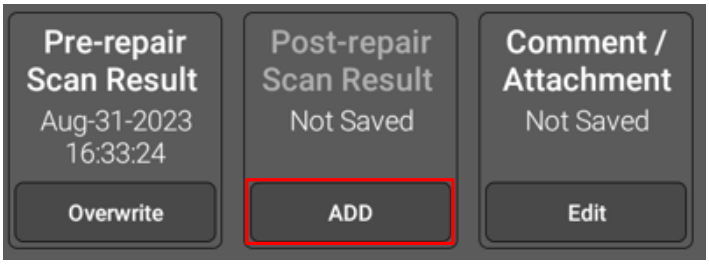


If you want to delete the previously saved Pre-repair Scan Result and replace it with a new result, you can do so by repeating the System Search as explained above and selecting [Overwrite] button.

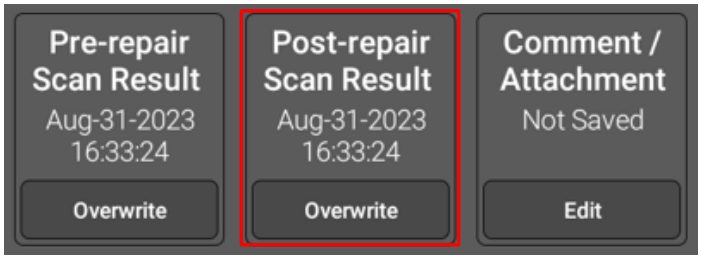
D. Post-repair Scan

Repair the vehicle as necessary and repeat the [System Search] or [DTC Analysis] procedure as explained above when repair and maintenance works are completed.

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

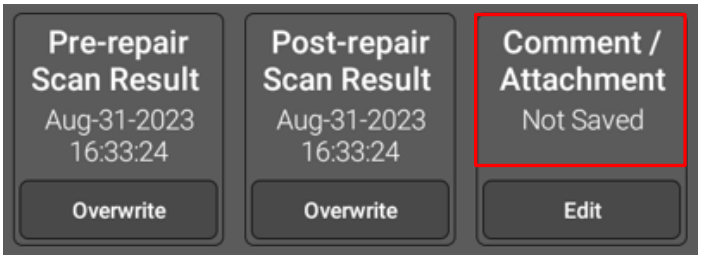


The status of the Post-repair Scan Result changes from “Not Saved” to “date and time” when the Result was saved. Also [ADD] button changes to [Overwrite].
You can delete the previously saved Post-repair Scan Result and replace it with a new result by selecting [Overwrite] button.



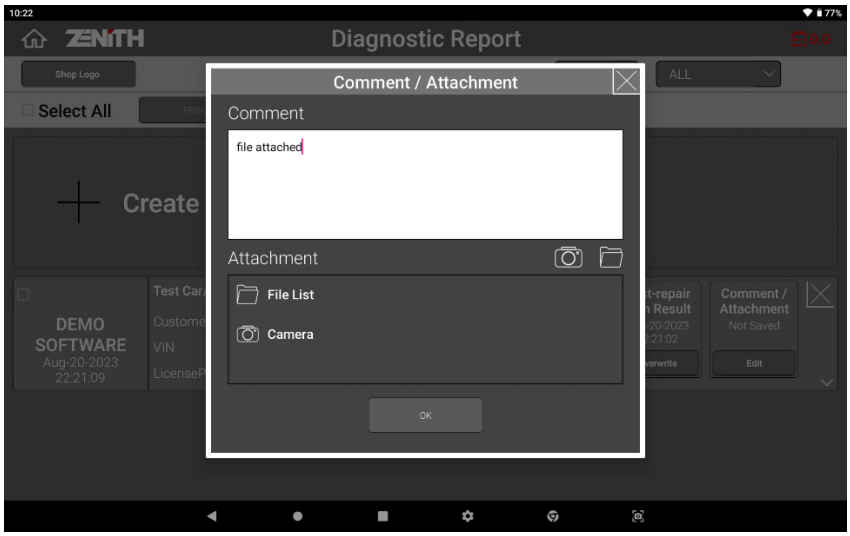
E. Comment / Attachment

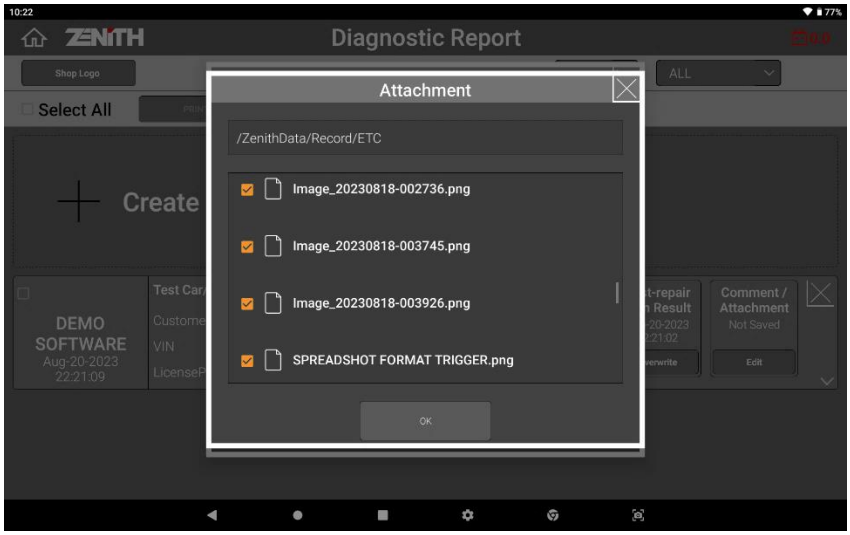
Leave a note or comment in the report by selecting [Edit] button in [Comment / Attachment] box.



Once [Edit] button is selected, you can freely type in a note in the comment box. On the same screen, you can search for the image files saved in Zenith Z5 memory and attach them to the report.

Navigate the folders in the ZENITH Z7 LITE 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 report creating.

12.3. Additional Functions

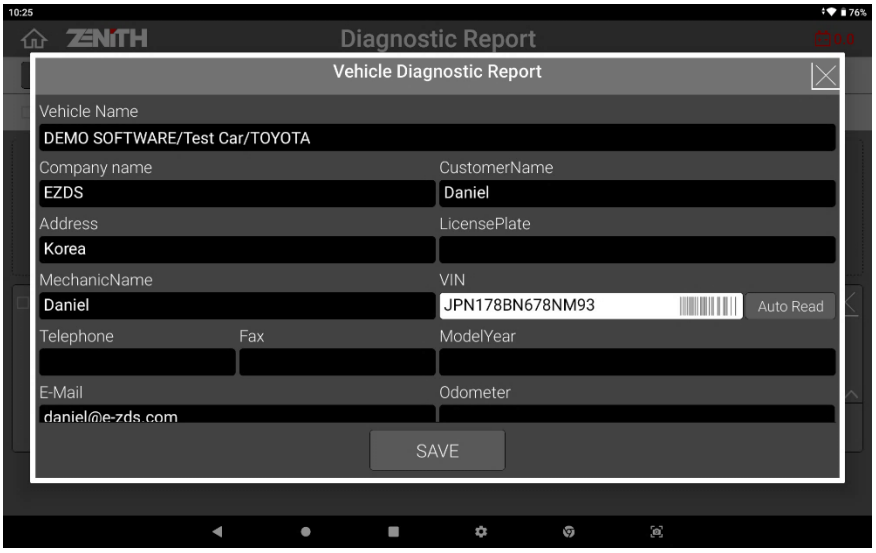


Selecting upper arrow, as shown above in the red box in the right side of the report will show additional functions: [Edit Header info], [Print], [E-Mail], and [Save as PDF].

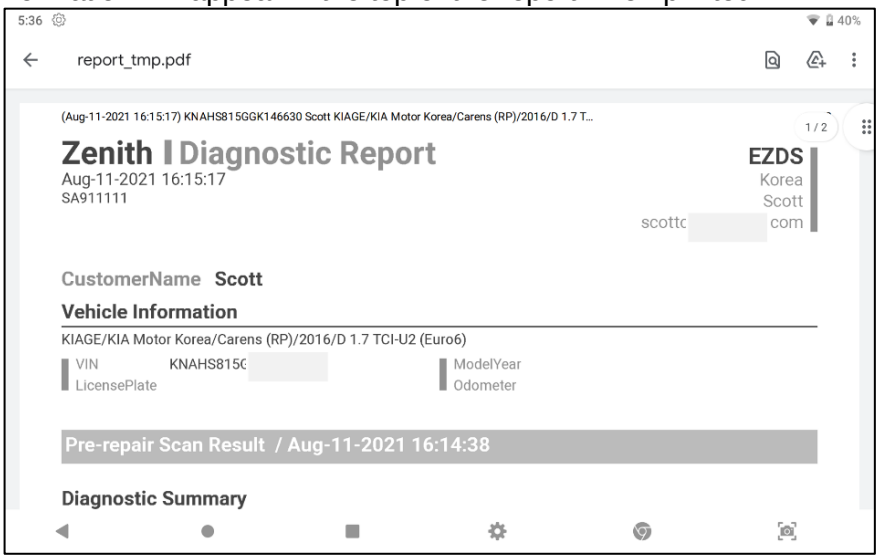
You can freely edit the report header, print, send as an email attachment or save the report as the PDF format file.

A. Edit Header Information

You can edit or enter the header information that will be displayed in 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 ZENITH Z7 LITE configuration menu.



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



B. Print

If the printer is connected, you can print the diagnostic report by selecting [PRINT] among the additional functions. Please refer to [11.4. Data Printing] for more information about printer set up and installation of printer drivers to ZENITH Z7 LITE.

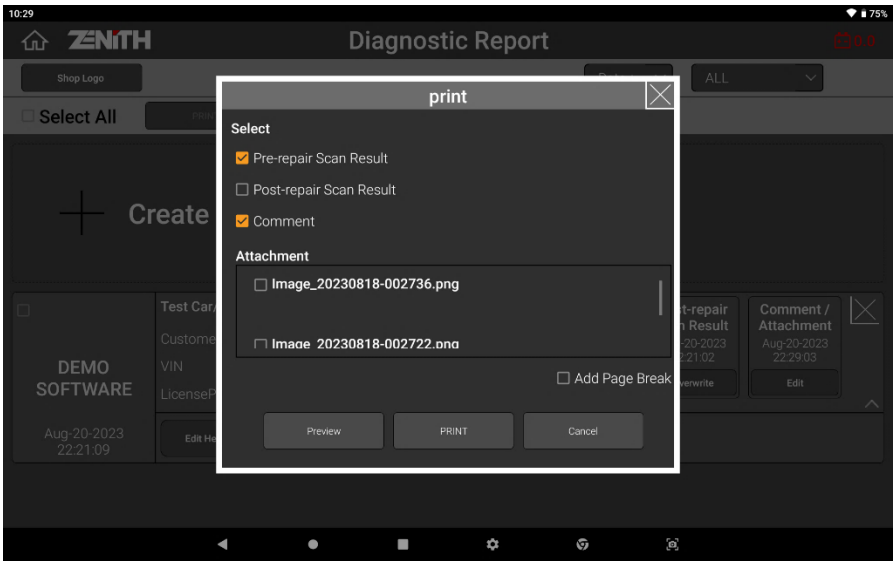
Once [PRINT] button is selected, a pop-up menu where you can select desirable items that will be included in the printed report.

➢ Items for Printing

Checked items will be included in the report.

- Pre-repair Scan Result
- Post-repair Scan Result

- Comment (and attachment)



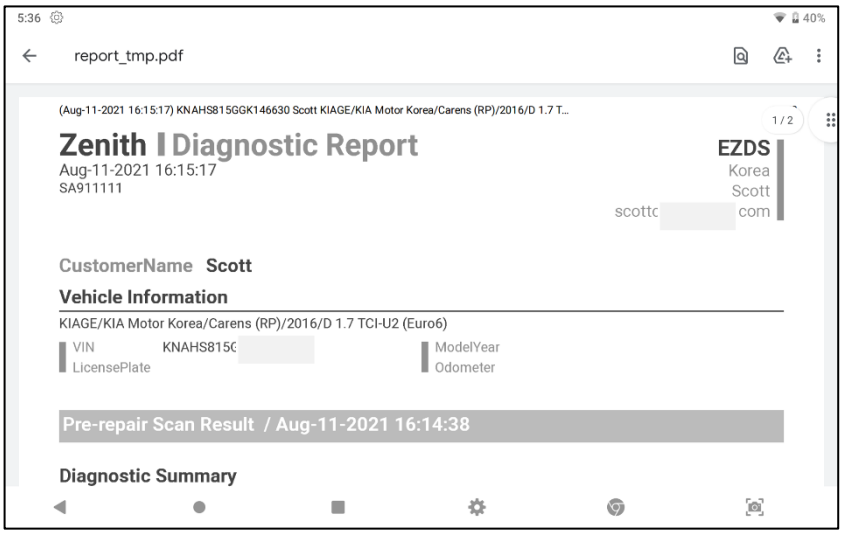
➢ Add Page Break

If this option is checked, ZENITH Z7 LITE will separate each of the selected item by adding a page break and putting the header information in the head of each item.

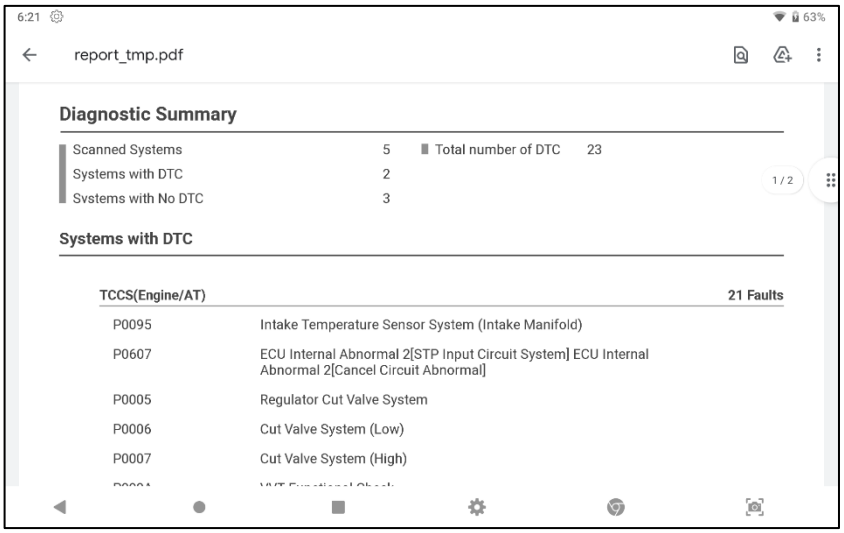
If not checked, all the selected items will be printed without a break as a single piece and the header information is printed in the first page only.

➢ Preview

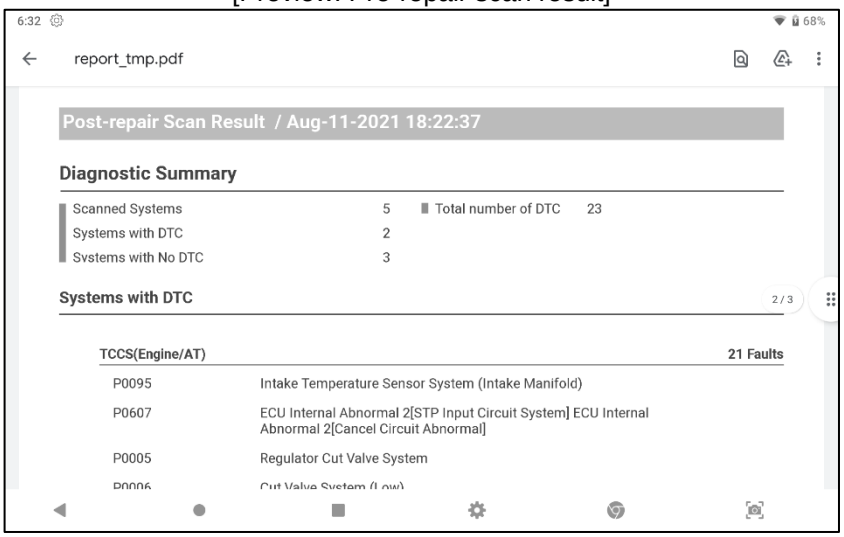
Allows you to view the end result before printing.



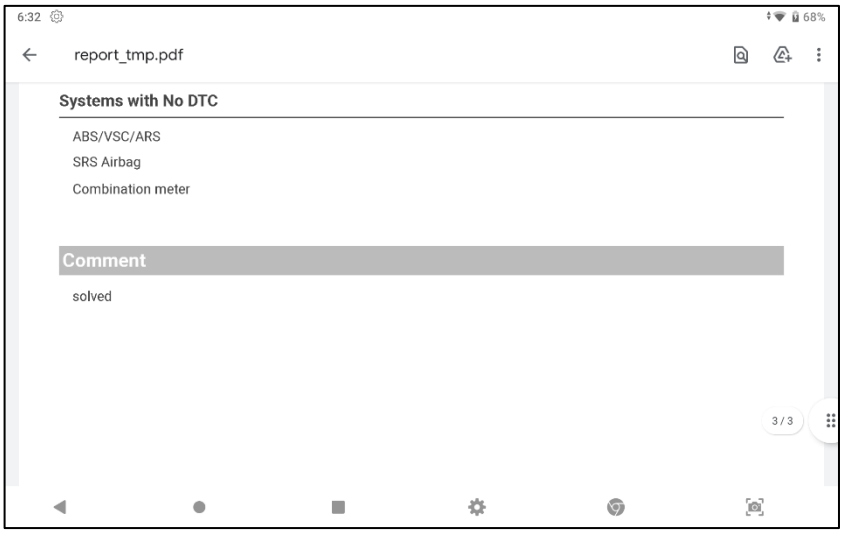
[Preview: Header Information]



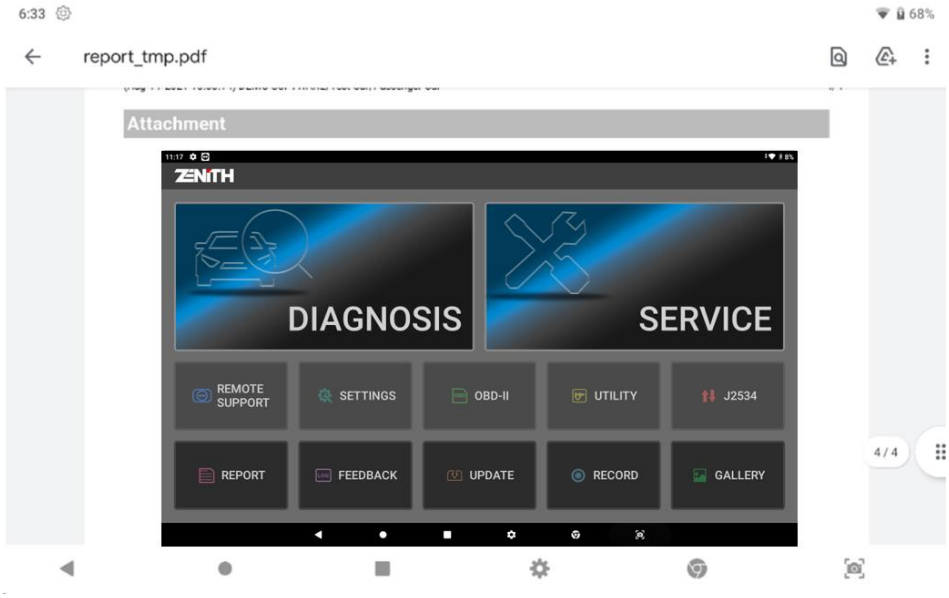
[Preview: Pre-repair scan result]



[Preview: Post-repair Scan Report]



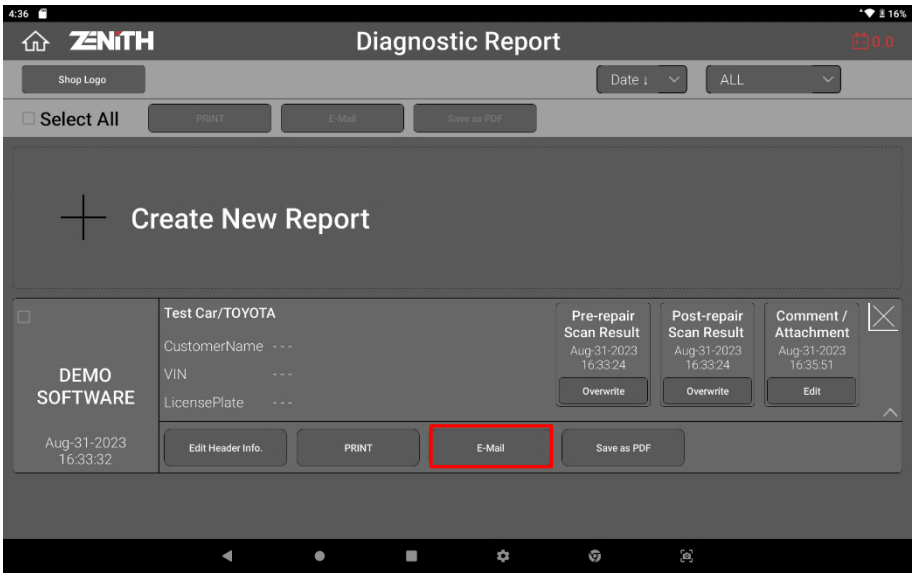
[Preview: comment]



[Preview: Attachment]

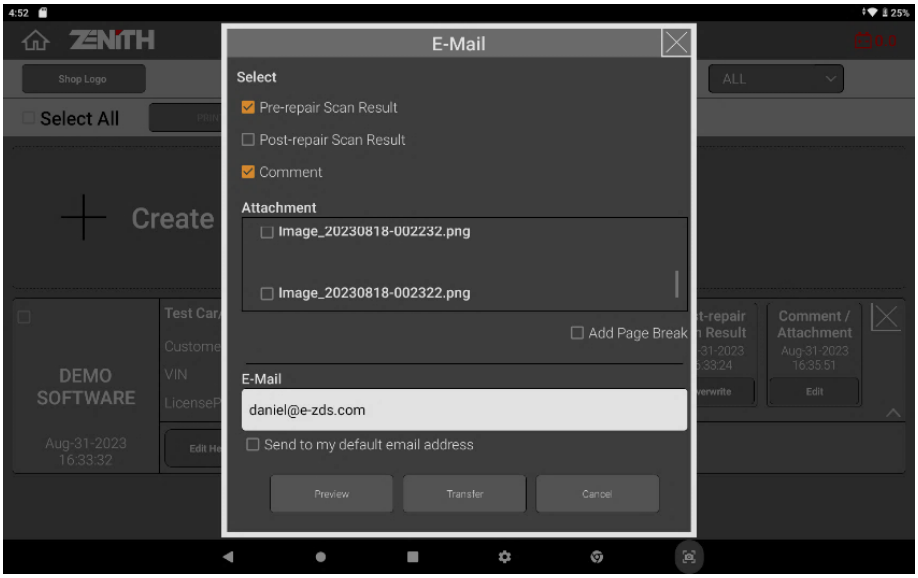
C. e-mail

If the ZENITH Z7 LITE is connected to the internet, you can send the diagnostic report as an e-mail attachment to the entered address.



Once [E-Mail] button is selected, you can select the items to include in the report by ticking on checkbox. If [Add Page Break] is checked, the report will be saved separately for each item with identical header information in top of each report.
Enter the recipient's e-mail address and select [Transfer] to send the email.





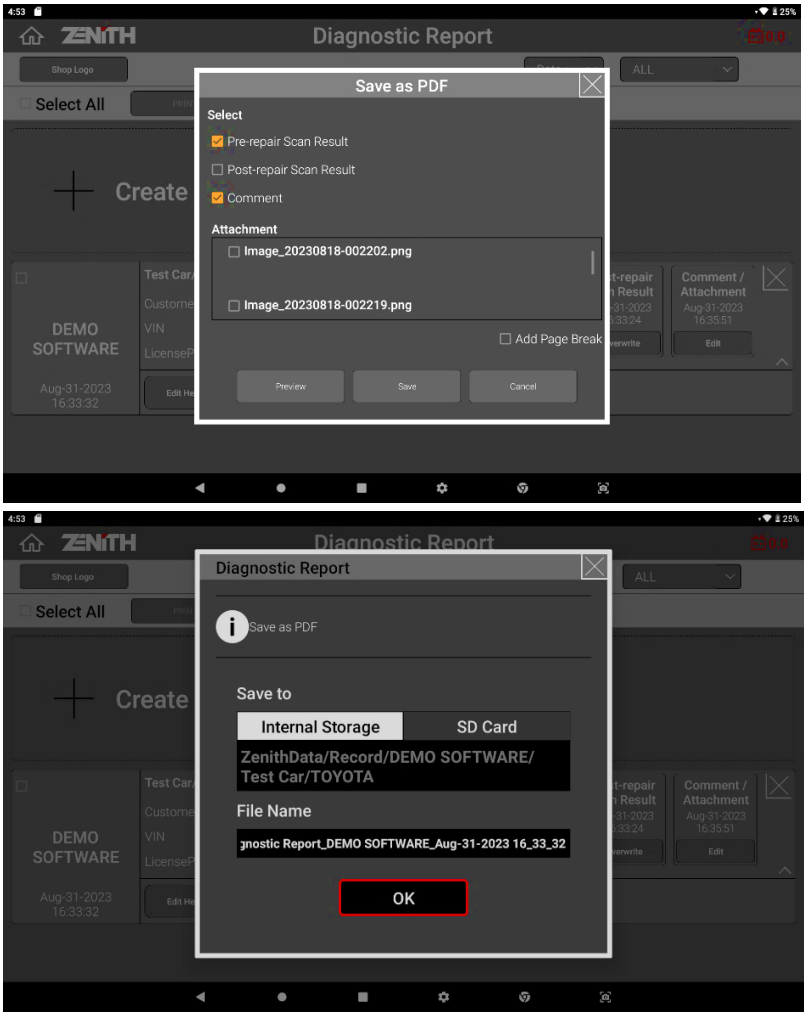
D. Save as PDF

You can save the report as a PDF file in the memory to be copied to the external storage device or shared with the others.
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 the items to include in the report and opt whether or not to add page break, then select [Save] button.

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



Chapter 13. Appendix

13.1. ZENITH Z7 LITE 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, EZDS will repair the ZENITH Z7 LITE (Main Unit and ZVCI only) with new or reconditioned parts, free of charge for one (1) year from the date of registration.

Warranty service is provided by the local distributor in the country where the product was originally shipped to. In a situation when the ZENITH Z7 LITE Main Unit and ZVCI needs to be returned to Korea for warranty service, EZDS will cover the freight cost for return trip of the ZENITH Z7 LITE Main Unit and ZVCI for repair service.

Scope of Warranty

Functioning accessories including cables, cradle and connectors are warranted for 1 year from the date of product registration.
Non-functioning parts and consumable accessories including but not limited to Main Unit plastic case, cartons, paper box, carry case and parts thereof, plastic bags, and printed material.
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 EZDS, 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 anyone unauthorized by EZDS.

YOU ARE REQUIRED TO REGISTER ZENITH Z7 LITE AND USER INFORMATION TO ZENITH WEBSITE WHEN THE PRODUCT IS DELIEVERED TO YOU WITHOUT DELAY. EZDS HOLDS THE RIGHT TO REFUSE PROVISION OF ANY SERVICE FOR THE PRODUCT THAT HAS NOT BEEN REGISTERED.

Limited Liability and Disclaimer

EZDS 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.

EZDS'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 EZDS 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,

EZDS 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 EZDS 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 Good.

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.

13.2. Discard of used equipment

According to the European Union's WEEE directive, this symbol means that products sold into EU countries must dispose electrical device and/ or its battery separately from household waste. Disposing of the device separately will help conserve resources and energy and contribute to human health and environment protection.
Customers or end-users in EU countries should contact their local equipment supplier representative or service center for information about the waste collection system in their country.



(Fig. 1 WEEE)

13.3. Safety Regulatory

Hereby, EZDS Co. Ltd. declares that the radio equipment type EF501 is in compliance with Directive 2014/53/EU. This device can be operated in at least one Member state without infringing applicable requirements on the use of radio spectrum. To comply with CE RF exposure requirements, the handset must be kept 0.20 inches (0.5cm) from the body without any reference to a particular side or edge. Any belt clips, holsters, and similar accessories containing metallic components may not be used. Body-worn accessories that cannot maintain 0.20 inches (0.5cm) separation distance between the user's body and the handset, and have not been tested for typical body-worn operations may not comply with CE RF exposure limits and should be avoided.

CE

Regulatory Articles

• **Article 10(2):** Manufacturers shall ensure that radio equipment shall be so constructed that it can be operated in at least one Member State without infringing applicable requirements on the use of radio spectrum.

• **Article 10(10):** In cases of restrictions on putting into service or of requirements for authorization of use, information available on the packaging shall allow the identification of the Member States or the geographical area within a Member State where restrictions on putting into service or requirements for authorization of use exist. Such information shall be completed in the instructions accompanying the radio equipment. The Commission may adopt implementing acts specifying how to present that information. Those implementing acts shall be adopted in accordance with the advisory procedure referred to in Article 45(2).

FCC compliance information

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

• This device may not cause harmful interference, and
• This device must accept any interference received, including interference that may cause undesirable operation.

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference. The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna. End users cannot modify this transmitter device. Any Unauthorized modification could void the user's authority to operate this device.

Part 15.105 (B)

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.
• Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the
equipment under FCC rules.

FCC 15.407 (g) states

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
Since this is an Indoor Only device (required for this band) you do not need to worry about the extreme frequency Stability over wide temperatures, but you can show that the frequency Generation portion of this device (from the schematic) has its own stated stability that would never allow the device to generate emissions or part of the spectrum outside of the authorized band (can be determined by looking at the Occupied BW plots to see how much margin to the band edge is available).
If the devices in the future use the other higher frequency UNII bands, and the devices can be used outdoors, you may need to provide details of stability over a much wider temperature range (depending on the use conditions stated in the manual).
Most compliance for this requirement is stated from the specification of the frequency generation portion of the device and not necessarily through additional testing.

SAR (Specific Absorption Rate)

This device is designed to keep its radiated output power below the FCC radio frequency exposure limits.
Nevertheless, the device should be used in such a manner that the potential for human contact is minimized during normal operation, and in order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to antenna should be minimized.

Manufacturer

Head Office: A-1405 Hyundai Intel. Ind. Center, 11 Beopwon-ro 11-gil, Songpa-gu,
Trade name: EZDS Co., Ltd
Trademark:

EZDS
E-ZENITH DIAGNOSTIC SYSTEM