APPENDIX H

: USER'S MANUAL

Federal Communication Commission Interference Statement

Warning!
Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

***Note:** The manufacturer is not responsible for any Radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

FCC Caution
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
The antenna(s) used for this transmitter must not be collocated or operating in conjunction with any other antenna or transmitter.

TPMS MODULE

USER'S GUIDE

IMPORTANT NOTICES

This user's guide describes how to use for users to use more safe and easy.
In case users do not use the tool properly, it may cause the tool work wrong and affect to user's safety. Be sure to read this user's guide well and keep to be used to how to operate well.

In case you operate the tool wrong, the safety of users and tool may not be guaranteed.

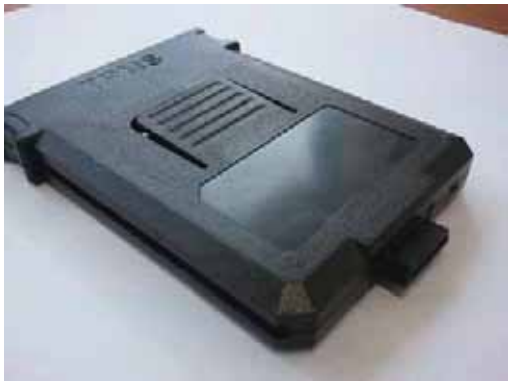
※ The specification and all details including in this user's gude may be changed without any notice to approve its quality and design in future.

Precautions

- **Be sure to use to CARMAN SCAN NEO product only.**
- **When the tool is equipped to CARMAN SCAN NEO, be sure CARMAN SCAN NEO should be "OFF".**
- **Be sure to maintain adequate clearance around the tool.**
- **Never drop it and disassemble it without manufacturer's instruction.**

1. Component and Specification

1-1 Component(Pic)



TPMS MODULE Main Unit

1-2 Specification

Item	Specification
CPU	STM32F, ARM 32-bit Cortex-M3 CPU
Memory	256Kbyte FLASH MEMORY
RF RECEIVER	315MHz ASK/FSK
	433MHz ASK/FSK
LF TRANSMITTER	125KHz
Operating Temperature	-10°C ~70°C
Operating Voltage	DC 8.0Volt ~ 24.0Volt
SIZE	106mm x 76mm x 14mm

2. Installation

Be sure to off CARMAN SCAN NEO before you install TPMS MODULE

Install TPMS module to the direction as below. The label " TPMS" should be upper position as below and it may not be installed if the direction is opposite

Above marked area is the space to install TPMS module and the cap should be opened to위 그림 install TPMS MODULE.

Install TPMS MODULE as above.

Push to the end to be installed tight

When separated, push the part labeled “PUSH” and separate TPMS MODULE

3. Operation

Refer to user’s guide Chapter 5 : TPMS and operate it.

WARRANTY CARD

Warranty Policy

1. The manufacturer warrants this product to be defect free in material and workmanship for a period of one (1) year from the date of purchase. Defective products may be returned by the original purchaser within the warranty period, postage pre-paid together with proof of purchase date to Nextech Co. LTD. Defective products will be repaired at manufacturer’s discretion, replaced at no charge.
2. The warranty does not apply to any units that have been tampered with, or to damages incurred through improper use and care, defects caused by abuse or through the usage for purposes other than the intended use, used in a manner inconsistent with the instructions regarding use, and faulty packing or mishandling by any common carrier.
3. Repairs not covered by this warranty will be performed at the current cost for parts and labor. In no event will Nextech Co. Ltd’s liability exceed the price paid for the product from direct, indirect, special, incidental or, consequential damages resulting from the use of this product, its accompanying software, or its documentation without obligation to notify any individual or entity. Warranties hereunder extend only to customers and are not transferable.

Warranty Period & Software update

1. Warranty period for Nextech products and these’s accessories including software card is one (1) year from the date of sale to the original consumer.
2. Free Software update for Nextech products is one (1) year from date of purchase. After one (1) year from purchase date, software updates will be optional and will require separate payment per request.

Repair Service

1. If you suspect that you have a problem with this product, please read the operation manual (guide) carefully to ensure that you are operating this product properly.
2. If you conclude that a real problem exists, check your product according to the procedures on the “Trouble Shooting Card” and mark your trial records in the blank.
3. Please return the main body or the troubled parts along with the “Trouble Shooting Card” to the repair service center listed below. Be sure to return them in freight prepaid as we don’t accept freight collect.

Nextech Service Center
Nextech Co. Ltd.
E&C Venture Dream Tower(the 3rd) 13F
Guro-dong, 197-33 Guro-Gu, Seoul, Korea
Tel : (822)3140-1489 Fax : (822)3140-1449
Email : sales@nex-tek.com
kkanggri@nex-tek.com

North America Customer Service Center
Nextech America Inc.
17581 Irvine Blvd suite 100
Tustin CA, 92780 USA
Tel: (714)832-0100 Fax: (714)832-0123
Email: csh@nex-tek.com
Website: www.nex-tech.com/carman

WARRANTY CARD

Warranty Registration

Upon receiving the product, please fill out the following registration form and return either by fax or separate mail to **Nextech Service Center or North America Customer Service Center (only USA customer)** according to your area.

IMPORTANT: Any delay or missing of your warranty registration may cause disadvantage or inconvenience to your warranty repair service.

CUSTOMER NAME _____

COMPANY NAME _____

ADDRESS _____

COUNTRY/STATE _____ ZIP _____

TEL No _____ FAX No _____

EMAIL ADDRESS _____

SERIAL No _____ LOT No _____

SOFTWARE VERSION _____

DEALERSHIP _____

DATE OF PURCHASE MONTH _____ DAY _____ YEAR _____

_____ _____

SIGNATURE DATE

CARMAN SCAN NEO
User Guide

Ver. 110324

Safety Cautions

This information is essential to protect your safety and prevent property damage.
Make sure to read this thoroughly before using CARMAN SCAN NEO.

Nextech

Table of Contents

Table of contents

Cautions in use

Safety Instruction

Cautions in Use

CARMAN SCAN NEO mentioned in this User's Guide is designed for those who have basic qualifications for using this system.
Users should follow the safety instructions for safe and efficient use of the product.

The cautions of use are as follows:

Do not drop CARMAN SCAN NEO.
Always use it in the rubber shroud to product it.

Do not place CARMAN SCAN NEO on the power distributor.
Although CARMAN SCAN NEO is manufactured to internally prevent the interference from the electromagnetic waves, the strong interference by excessive electromagnetic waves may damage the product.

Excessive surge or electric shock fed by a power cable may damage the power supply system of CARMAN SCAN NEO.
So, do not use the product while the power supply is unstable.

The voltage rating of the AC/DC adapter is 12V DC.
Be sure to use an AC/DC adaptor with the rated voltage.

Be careful not to let water or oil get into the product.
The product can be severely damaged.

**Be sure to use the USB cable supplied by Our Company only.
Otherwise, your PC or product can be damaged.**

1. Product Features

CARMAN SCAN NEO can check vehicle ECU information and malfunction status through the OBD-I, OBD-II and CAN communication.
You can connect CARMAN SCAN NEO to the vehicle diagnostic connector with a diagnosis cable to check if any of the engine, automatic transmission, ABS, air bag, power steering and other devices has an error, view current data and use actuator drive features.

CARMAN SCAN NEO has the following features:

- ▶ Diagnoses Korean, Japanese and European vehicles.
  - OBD-I , OBD-II, MOBD(ISO 9141-2, SAE-J1850, KWP-2000, CAN, SAE J1587)
- ▶ Supports vehicle troubleshooting and current data search.
  - You can diagnose vehicles with their sensors and switches, and save and reload the current data.
- ▶ Supports automatic actuator inspection.
  - This function runs/stops the actuator and switches forcibly in order to check if the corresponding active device is normal.
- ▶ You can save data and upgrade the diagnosis program by connecting the product to your PC.
- ▶ You can change the sound effects and display unit of the CARMAN SCAN NEO.
- ▶ Provides the LCD brightness adjustment function.
- ▶ With the built-in battery, you can perform diagnosis without an additional power supply. (for vehicles without DLC power)

2. Product Specifications

Item	Detail Specifications
CPU	PXA-320 806MHz
O.S	Window CE 5.0
LCD	5.7 inch (Color / Touch Screen)
Connectivity	USB (USB 2.0 / Compliant)
Operating Temperature	-10℃ ~ 60℃
Operating Voltage	8 ~ 32V
Function	TPMS / VIDEO(Composite) / Input(PAL,NTSC)
User Interface	Touch Screen & Multi Keyboard
Protocol	KWP 2000, ISO 9141-2, J1850(VPW,PWM) Dual Wire CAN(2.0A, 2.0B) J1587, Single Wire CAN, Hi Speed Serial
Maximum Sample Rate	25[MHz/S] per Channel
Volt / division	10m[V] to 100[V] in a 1, 2.5, 5 Sequence
Scope Time Setting	1[㎲] ~ 10[S]
Input Impedance	1[MΩ]
Battery	Li-Polymer 7.4[V] 4200[mA]

3. Rechargeable Battery

*** The rechargeable battery pack has the following features**

- Voltage of the rechargeable battery pack gradually decreases even when the system does not run.
- Before using the product for the first time, be sure to fully charge the battery.

Always use the rechargeable battery pack provided by Our Company.
- Using a 3rd party product may cause explosion.
  (7.4V 2200 mAh lithium ion battery pack)

Do not heat the rechargeable battery pack.
- It may cause explosion.

Do not short the battery pack terminal.
- It may cause explosion.

Do not place the battery pack on or near hot material over 60ºC.
- It may cause explosion.

Keep the battery pack away from touch of children or an animal.
- It may cause a fire or injury.

To prevent the battery pack from being discharged, always connect the power source before using the system. Screen captures, flight record and other information can be erased due to the discharged battery pack.

The rechargeable battery pack is a consumable product and is under warranty for 6 months after purchase.

4. Name and function of each part

◈ **Front View of Main Body**

Fig. 1.1 Main Body

Touch screen LCD panel
Touch a button or others on the LCD screen with a touch pen or finger to activate a function.

Function keys (F1~F6)
You can use these keys to clear trouble codes, view help, fix Current Data selection, etc.

ENTER key & Arrow key
Use this key to execute the command you have chosen.
Use this key to move cursor to the left/right/upper/lower sides.

Numeric key (0~9)
Use this key to enter cylinder serial number when you replace the injector or to enter numbers such as immobilizer password.

◈ **Right Side of Main Body**

Fig. 1.2 Right Side of Main Body

1) **Power Connector**
A connector for connection to AC/DC POWER adaptor.

2) **J2534**
Reprogram port

3) **RS 232 Connector**
A connector for RS 232 cable on gas analyzer

4) , 5) **USB Connector**
This is used when you connect CARMAN SCAN NEO to a PC to download the diagnosis program.

6) **Endoscope CAM Connector**

◈ **Upper part of Main Body**

Fig. 1.3 Upper part of Main Body

1) **Scope Cable Terminal**
- 1 ~ 4 CH : terminal to measure waveform, ignition, and other options (temperature, pressure, electric current, etc)
- EXT CH : terminal to use Multimeter, Simulator, Actuator, and EXT Trigger

2) **TPMS**

◈ **Low part of Main Body**

Fig. 1.4 Low part of Main Body

1) **DLC Communication Cable Connector**
A connector for connection to the DLC communication cable for vehicle diagnosis. Always use DLC communication cable provided with this product.

5. Component Figures and Descriptions

◈ **User Guide**

Figure 1.5 CARMAN SCAN NEO User Guide

◈ **Carrying Case**

Fig. 1.6 CARMAN SCAN NEO Carrying Case

CARMAN SCAN NEO includes a number of adaptors and cables for diagnosing vehicles. When the product is not in use, store it in the supplied carrying case to prevent damage and loss.

◈ **USB Cable**

Fig. 1.7 USB Cable

The USB cable connects the USB ports of CARMAN SCAN NEO and your PC to download the diagnosis software or save captured files to your PC.

CAUTION!

Be sure to use the USB cable supplied by Our Company only. Otherwise, your PC or product can be damaged.

◈ **Cigarette Lighter Power Cable**

Fig. 1.8 Cigarette Lighter Power Cable

The cigarette lighter power cable connects CARMAN SCAN NEO with the cigarette lighter jack in your vehicle to feed power to CARMAN SCAN NEO.

CARMAN SCAN NEO has a built-in battery so that you can use it without an additional power supply. When the battery power is weak or the battery is not charged, you can feed power by connecting the main module to the vehicle power source through the cigarette lighter power cable.

◈ **Battery Extension Cable**

Fig. 1.9 Battery Extension Cable

The battery extension cable is used to feed power to CARMAN SCAN NEO directly from a vehicle battery through the cigarette lighter power cable.

◈ **DLC Cable**

Fig. 1.10 DLC Cable

The DLC cable is also called the OBD-II cable. All vehicles released recently have built-in OBD-II connectors compatible to the OBD-II specification.
It is possible to diagnose new model vehicles by directly connecting the DLC cable. It is not necessary to connect any additional power source as power is feed through the diagnostic connector.

Old model vehicles should be diagnosed by connecting an additional adapter.

◈ **AC electrical power cord / adapter**

Fig 1.11 AC electrical power cord / adapter

When you want to download the diagnosis program or search flight record, you can use this AC/DC electrical power adapter to feed power.
Also, can charge the battery built in the product.

◈ **Oscilloscope**

Fig 1.12 SCOPE PROBE SET (2-CHANNEL+ EXT)

Fig 1.13 TRIGGER PICK UP

◈ **Optional Items**

[To see pictures of optional items please refer to the attached optional components or visit the website of Nextek Mall www.nex-tek.com.]

DLC Adapter

The DLC adapter is used to diagnose vehicles by connecting it to the DLC main connector. As there are similar shaped adapters, make sure to check the vehicle manufacturer name on the adapter before use.

Also, there can be various adapters for one manufacturer. Therefore, be sure to check the shape and pin numbers of the diagnostic connector in the vehicle.

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

1) Korean kit

Figure 1.14 Hyundai/Mitsubishi Cable (12P)

Figure 1.15 Kia/Mazda Adapter (6+1P)

Figure 1.16 Kia Adapter (20P, blue)

Figure 1.17 Daewoo, GM Adapter (12P)

Figure 1.18 Ssangyong Adapter (14P)

Figure 1.19 Ssangyong Adapter (20P)

Figure 1.20 Samsung Adapter (14P)

2) Japanese kit

Figure 1.21 Toyota Adapter (17R)

Figure 1.22 Toyota Adapter (17C)

Figure 1.23 Honda Adapter (3P)

Figure 1.24 Honda Adapter (5P)

Figure 1.25 Mitsubishi Cable (12+16P)

Figure 1.26 Subaru Adapter (9P)

Figure 1.27 Mazda Adapter (17C)

Figure 1.28 Mazda Adapter (6+1P)

Figure 1.29 Mitsubishi Adapter (12P)

Figure 1.30 Nissan/Infiniti Adapter (14P)

3) European kit

Figure 1.31 PSA Cable (30P)

Figure 1.32 PSA Cable (2P)

Figure 1.33 Fiat Adapter (3P)

Figure 1.34 Renault Cable (12P)

Figure 1.35 Mercedes Benz pin board (38P)

Figure 1.36 Opel Adapter (10P)

Figure 1.37 Audi/VW Cable (2+2P)

Figure 1.38 Mercedes Benz Cable (3 liners)

Figure 1.39 BMW Adapter (New Model)

4) Usa/ Australian kit

Figure 1.40 Holden Adapter (6P)

Figure 1.41 Ford Cable (20P)

6. Power Supply

1. Cigarette Lighter Power Cable

Power is fed through the cigarette lighter power cable.

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

2. Vehicle Battery

Connect the red clip of the battery extension cable to the (+) battery terminal, and black clip to the (-) terminal. Connect the cigarette lighter power cable between the battery extension cable and the product.

In this case, power is supplied anytime regardless of the ignition switch status or vehicle starting. (Be careful no to discharge the battery.)

DANGER **Be careful when connecting the cable, as incorrect polarity may damage the main module.**

3. DLC Cable

Where the vehicle satisfies the OBD-II communication convention and uses a certain manufacturer's diagnostic connector, the DLC main cable can supply power to the product directly without a separate power supply.

4. Rechargeable Battery Pack

If the built-in battery is used, you can use the system for 3 to 4 hours without any separate power supply.

TIP **The available time may change based on use and environment.**
How to charge: When the product is not in use, connect it to the power source by the AC/DC power adapter that came with the product to charge the built-in battery.

5. AC/DC Power Adapter

If the AC/DC adaptor is used for power supply, the battery will be automatically recharged depending on programs and it is also used for power supply to the main module.

1. Before Getting Started

1. Before using the system, check whether or not the battery is fully charged. If it is not charged, then connect external power supply or recharge the battery before using the system.
   - If you use the system by connecting it to a vehicle, you can also feed power to it through the vehicle diagnostic connector.

CAUTION!

If power is not feed by the vehicle diagnostic connector, you need to connect the cigarette lighter power cable to feed power before you start communication with the vehicle. Voltage mismatch between the ECU and CARMAN SCAN NEO may cause a communication error.

2. Before using the system, make sure to download the diagnosis program.
   The diagnosis program will be stored in the system memory.
   - Before using the system, check if the diagnosis program matches the option you have purchased.

2. Menu Description

When turning ON CARMAN SCAN NEO, the main screen with the menu is displayed as follow.

Figure 2.1 Main Screen

1) TPMS
- TPMS should be supported with TPMS module which is optional.

2) VEHICLE DIAGNOSIS
- This menu provides scanner's own functionality such as vehicle diagnosis, service data search, actuator activation, etc.

3) CONFIGURATION
- In this menu, you can check the system display unit, graph, background color, favorite setting, screen setting, time setting and system information.

4) DOWNLOAD
- In this menu, you can connect to the download program to update the software in CARMAN SCAN NEO.

5) OSCILLOSCOPE
- It can measure desired sensor waveform and ignition waveform with 4 channels, and use meter & simulator function.

6) UTILITY
- You can check flight record, text shot and screen capture and use gas analyzer function.

Chapter 2: Menu Configuration

3. Icons

When turning ON CARMAN SCAN NEO, the main screen with the menu is displayed as follow:

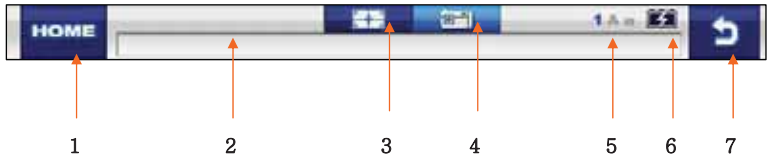


Figure 2.2 Icons

1. **HOME**
- Pressing this button returns to the main screen in the initial booted status.
2. **Path Box**
- This displays the path of the currently running function.
3. **Text Shot**
- Pressing this icon can store all current data values of a system being diagnosed.
4. **Screen Capture**
- The screen being displayed on the LCD can be taken and stored.
5. **Text Mode**
6. **Battery Charging Status**
- This shows the charging status of the built-in battery.

 : The status of an external DC power is supplied and at the same time indicates the status of being charged.

 : Displays the battery status
After charging the battery, use AT in order to avoid discharging.

7. **Back**
- Pressing this button returns to the previous screen.

Chapter 3: Configuration

1. Information

In this menu, you can check and enter user and system information.

Figure 3.1 Information > User Info.

1. Select **Information** from the **Configuration** menu.
2. **My Profile** is displayed and this information can be edited.
- When the cursor blinks on the desired text, click the **EDIT** button.

3. When information is modified after clicking the **EDIT** button, click the **Save** button to save the modified information.

Figure 3.2 Information > Editing "My Profile"

4. Clicking the **Information** button on the left pane displays the system and program information.

Figure 3.3 Information > System Information

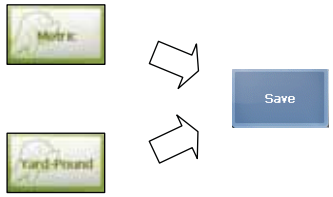
2. System Display Unit

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

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

Figure 3.4 System Display Unit

1. It is possible to change the display units all at once according to the region that uses "Metric" or "Yard-Pound" system.
2. After changing the display unit, click the **Save** button to save your modification.



TIP

- **SPEED** : You can change between **Km/h** and **MPH**.
- **TEMPERATURE** : You can change between **℃** and **℉**.
- **PRESSURE** : You can change among **mbar**, **kPa**, **inHg** and **psi**.
- **ANGLE** : You can change between **°** and **%**.
- **AIR FLOW** : You can change between **gm/s** and **lb/m**.
- **SOUND** : It can be turned **ON** or **OFF**.

3. Graph

In this menu, you can configure graphs that are displayed for data from sensors.

- The graph line color, background color and graph line thickness can be set.

Figure 3.5 Graph > Init 1

: Pressing this button displays the graph in its initial status as shown in the **figure 3.5**.

: Pressing this button displays the graph in its initial status in the white background.

: When making a change to the setting, click the **Save** button to save the modified setting. Then, the graph is displayed in the modified status.

BG. Color : Press this button to change the background color as desired.

X Grid : Press this button to change the color of the vertical line on the grid.

Y Grid : Press this button to change the color of the horizontal line on the grid.

Cursor Line : Press this button to change the color of the cursor which appears on which the screen is touched.

CH. 1/8 : Press this button to change the color of each graph for up to 8 channels. Up to 8 channels can be displayed on the screen at once.

CH. Color : Press this button to select the color of the channel graph.

Line Width 1 − + : Press this button to adjust the thickness of the graph line.

Figure 3.6 CH. Color screen

4. Maker

It is possible to select your favorite vehicle maker to be displayed on top in the diagnosis menu.

- This function can save time to search for the desired vehicle maker whenever the diagnosis is made.

Figure 3.7 Maker

Downloaded Program : Press this button to check the list of the diagnosis programs that are stored in the internal memory.
You can erase the diagnosis data (version, vehicle maker) by a vehicle maker.

Initialize Favorites : Press this button to initialize your favorites.
The selected favorite items are deselected.

Save Favorites : Press this button to store the selected favorites.
This favorites are displayed as icons in order in the diagnosis menu.

TIP **The favorite list displayed in this menu can also include makers of diagnosis programs that are not downloaded.**

Chapter 3: Configuration

5. Display

In this menu, you can align the touch screen coordinates, setup the language and adjust the LCD brightness.

- If the touch screen coordinates are not accurate, they can be corrected through the calibration function. Also, the brightness of the LCD can be adjusted so that the product can be fit both in dark and bright places.
  Also, the system language can be selected and set by a user.

Figure 3.8 Display

: Pressing this button displays the touch screen calibration panel. Press the (+) symbols shown on the screen to correct the coordinates automatically.

: Press this button to check if the coordinates are calibrated correctly through the calibration function.

System Language : The language of the operating system and diagnostic program can be set among the languages that are stored in the internal memory.

LCD Screen Brightness : Press the "-" and "+" buttons to adjust the screen brightness.

Chapter 4: Utility

In this menu, you can check the flight record, text shots and screen captures and utilizes the gas analyzer function.

1. Flight Record

In this menu, you can save the service data for your vehicle for analysis.

- You can save the desired service data.
- This function is useful when data should be saved to diagnose an intermittent symptom.

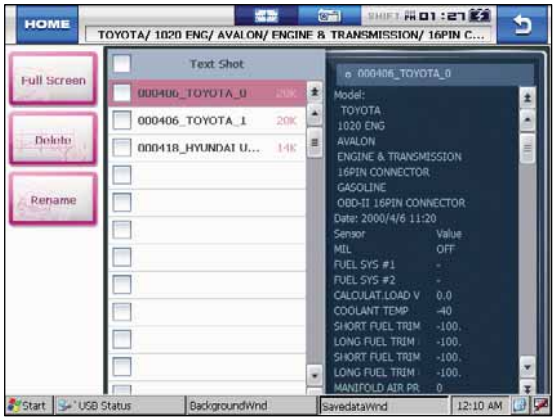


Figure 4.1 Flight Record

: Click this button to display the data only selected by the user.

: Click this button to delete the file selected by the user.

: Click this button to rename the file that was temporarily set when saving the file (only in English).

- Text View: Click this button to check the saved data in numbers.

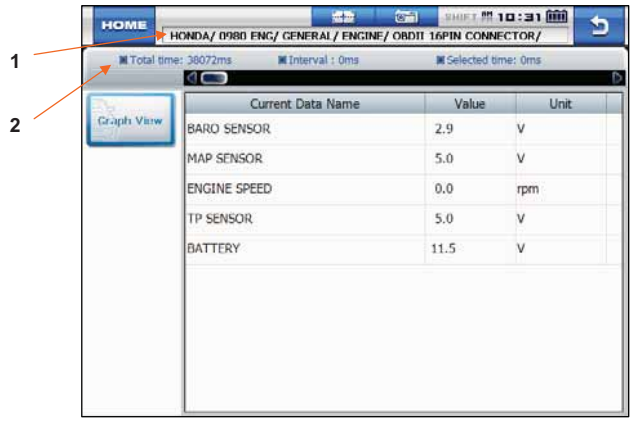


Figure 4.2 Data_Text View

1. HONDA/ 0980 ENG/ GENERAL/ ENGINE/ OBDII 16PIN CONNECTOR/

Maker >> Diagnostic program version >> Language version >> System >> Diagnostic connector

2. Total time: 38072ms Interval : 0ms Selected time: 0ms

Total time >> Interval >> Selected time

: Press this button to switch to the graph screen from the text screen.

- Total time: The total time of the saved flight record is displayed.
- Interval: This indicates the time from the initial clicked position of the bar on top to the point that the bar is dragged and released.
- Selected time: This indicates the time of the currently clicked position of the bar in the total time.

- Graph View: Click this button to switch to the graph screen for tendency analysis.

Figure 4.3 Data_Text View

: Press this button to switch the graph screen to the text screen.

: Press this button to configure the displayed graph.

: In the graph screen, up to 8 current data are displayed at once. If more than 8 current data are saved, click the channel ▲ and ▼ keys to scroll the current data.

- Graph config: Press this button to set the channel, current value and max./min. values of graphs

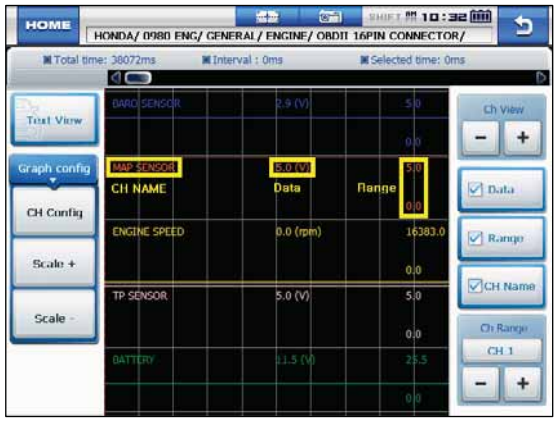


Figure 4.4 Data_Graph config (CH Config)

: Clicking this button displays the panel on the right to setup each displayed graph by a channel.

: Pressing this button extends the horizontal axis on the grid for more precise graph analysis.

: Pressing this button shortens the horizontal axis on the grid to display more data on the screen at once.

: 5 current data are displayed on the screen at once by default. The number of data displayed on the screen can be set from 1 to 8.

: Press this button to show or hide the current value of the sensor.

: Press this button to show or hide the maximum and minimum values for each sensor on the right side of the screen.

: Press this button to show or hide the sensor names.

: Press these buttons, you can increase or decrease the maximum value for each channel to increase or decrease the graph values.

2. Text Shot

This function is to save all values of the current data for the selected moment from a system being diagnosed. This is used to save data at a certain moment and analyze them.

- As all data can be saved at once, you can diagnose your vehicle conveniently.

Figure 4.5 Text Shot > Item selection

: Press this button to display all saved data for the selected item(s).

: Press this button to delete the selected item.

: Press this button to rename the selected file from the temporarily set name.

- Full Screen: As all current data are saved for the selected system, you can utilize the full screen function to check the vehicle condition conveniently.

Figure 4.6 Text Shot > Full Screen

: Press this button to return to the **Text Shot** list.

3. Screen Capture

You can take a screen capture and save it when necessary.

- As you can take a screen capture with a simple action, this function is very convenient and useful for your diagnosis.

Figure 4.7 Screen Capture

: Press this button to show the saved files on a full screen.

: Select several files and press this button to display them in a slide show.

: Press this button to set the number of repetition and the display time of each file in a slide show and to adjust the color and thickness of the red marker in a full screen.

: Press this button to rename the file.

: Press this button to delete a file.

- Full Screen: The red marker function can be used in the full screen. You can make or edit a note onto a saved screen capture.

Figure 4.8 Full Screen > Red Marker

: Press this button to activate the red marker function. Then, click on the screen and drag it to make a mark.

: Press this button to edit the contents written with the red marker function.

: Press this button to save the written contents.

: If several data are selected in the **Image** list (**Figure 4.7**), you can switch between images and use the red marker function.

: Press this button to deactivate the function.

4. Gas Analyzer

CARMAN SCAN NEO can measure and analyzer the emitted gas with Gas analyzer.

How to connect

1. Preparation

NGA 6000 module, RS232C cable and CARMAN SCAN NEO

2. Connection

- Connect the NGA 6000 module to CARMAN SCAN NEO with the RS232C cable.
- Click on the **Gas Analyzer** button.

Figure 4.9 NGA 6000 GAS ANALYZER

Figure 4.9 Gas Analyzer

: Press this button to print the test result.

: Press this button to set the measurement to 0.

: Press this button to purge the remaining gas from the measurement probe with clean air.

: Press this button to start the function (measurement).

: Press this button to cancel the function and return to the previous screen.

: Press this button to switch to the bar graph.

: Press this button to setup the test items and criteria.

① If the measurement is over the value specified in the **SETUP** menu, it is displayed in red.

Chapter 5: TPMS

1. TPMS

TPMS should be supported with TPMS module which is optional.

Using TPMS product function please. Register ID after the replacement and repair of tire or wheel. (But, it can be used with only TPMS system.)

Figure 5.1 TPMS

Figure 5.2 TPMS ID REGISTRATION

Chapter 6: Diagnosis Menu

1. How To Connect Self-Diagnostic Connector and Select Diagnosis Program (for Korean, Japanese and European vehicles)

1. Locate the diagnostic connector in the vehicle.
   - Most vehicles released after year 2002 conform to the OBD-II Protocol and have OBD-II diagnostic connectors.
   - Most OBD-II vehicles have their diagnostic connectors on the section over the brake pedal under the steering wheel. **(Figure 6.1)**
   - If an additional adaptor is required, the scanner display shows the type of the necessary adaptor and the location of the diagnostic connector. **(Figure 6.2)**

Figure 6.1 Location of OBD-II diagnostic connector

Figure 6.2 Adapter and DLC location guide screen

2. Use the diagnosis cable to connect the vehicle's diagnostic connector and CARMAN SCAN NEO.
3. Turn on CARMAN SCAN NEO.
   - If power is not feed through the diagnostic connector and the CARMAN SCAN NEO battery is not fully charged, you need to connect an additional power supply (vehicle battery or cigarette lighter power cable, etc).
4. Select the **[VEHICLE DIAGNOSIS]** menu.

5. Select the maker of the vehicle to be diagnose.

Figure 6.3 Vehicle maker selection

6. If there are several diagnostic data versions in the internal memory of CARMAN SCAN NEO, select the desired diagnosis data version.

Figure 6.4 Diagnosis program version selection

7. Select the vehicle model to be diagnose.

Figure 6.5 Vehicle model selection

8. Select the system to be diagnose.

Figure 6.6 System selection

1. Diagnostic Trouble Codes

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

In order to check for DTCs, you need to connect CARMAN SCAN NEO to the vehicle diagnostic connector correctly. Refer to Chapter 6 "Diagnosis Menu" for correct connection. Also, recheck the specifications, such as the vehicle maker, vehicle model, displacement, etc.

Figure 7.1 DTC selection

NOTE) The menu for DTC selection, shown in the **figure 7.1**, can differ by vehicle makers and models.

1. When selecting the correct vehicle model and system from the menu and communication with the vehicle is properly established, the menu appears as the figure 7.1. Select **DIAGNOSTIC TROUBLE CODES** and press the **ENTER** key.

If the message indicating a communication error is displayed instead of the menu like the figure 7.1 or communication cannot be established, check the vehicle condition and the connection status of the diagnostic

Figure 7.2 DTC 1

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

Old DTCs are not activated unless there is no corresponding fault history. Diagnostic Trouble Codes detected only when the text shot can be saved.

3. Press the **Current DTC** button to check if there is any current DTC.

Figure 7.3 DTC 2

Recheck : Press this button to check for DTCs again.
The module checks the ECU information again for DTCs.

Detail : Press this button to display detailed information for DTCs.

Freeze Frame : Press this button to check Freeze Frame data for malfunction.

DTC List : Press this button to check the DTC list for malfunction if the vehicle is equipped with MIL.

Clear DTC : Press this button to clear DTC.

Figure 7.4 DTC 3

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

2. Current Data

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

It is important to select the vehicle specifications correctly for accurate sensor data measurement. Make sure to set the vehicle displacement, manufactured year, fuel, etc. correctly.
The current data list can differ even with the same vehicle models.

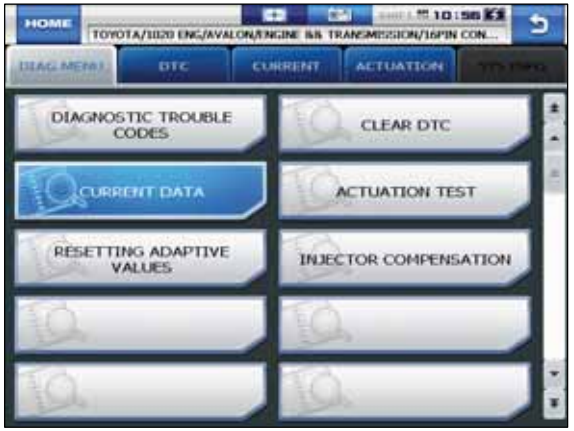


Figure 7.5 Current data item selection

NOTE) The menu for current data selection, shown in the **figure 7.5**, can differ by vehicle makers and models.

1. When selecting the correct vehicle model and system from the menu and communication with the vehicle is properly established, the menu appears as the **figure 7.5**. Select **CURRENT DATA** and press the **ENTER** key.

If the message indicating a communication error is displayed instead of the menu like the figure 7.5 or communication cannot be established, check the vehicle condition and the connection status of the diagnostic connector again.

2. The current data list is displayed as shown in the **figure 7.6**.

Figure 7.6 CURRENT DATA 1

Graph View : Press this button to check current data in graphs.

- It is helpful to convert the current vehicle data to graphs for tendency analysis. (Up to 30 items can be selected while up to 8 graphs can be displayed at a time.)
- To convert current data to graphs, such data are need to be fixed. Then, only these fixed data change.

File : Press this button to save sensor data or check the saved files.

- Data are stored in the internal memory and they can be stored synchronized with your PC.

Show DTC : Press this button to display DTCs at once.

Guide Info : If the selected system has help information, this button is activated. Then, press this button to display information.

TIP **When fixing only certain items, values of only these items change. Therefore, the data change measurement is performed faster and more precise diagnosis can be achieved.**

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

Figure 7.7 CURRENT 2

Text View : Press this button to switch to the text view mode.

AUTO : Press this button to switch to the graph view mode and display the maximum and minimum values of the measured sensor data.

- In the normal mode, the maximum and minimum values of each sensor are programmed into the ECU and these programmed values are displayed.

RESET : Press this button to deactivate the automatic mode. Then, the maximum and minimum values are displayed in the normal mode.

CH CH : In the graph view mode, up to 8 current data can be displayed at a time. If the number of sensor data displayed on the screen at a time is set to less than 8, the remaining current data are displayed in the list on the bottom. (Adjust the number with the up/down buttons.)

- File: Press this button to save data or check the saved data.

Figure 7.8 Flight Record Data

: Press this button to start to record the selected sensor data.

- The data can be recorded for up to 1 hour and the recording time can vary depending on the number of the selected current data.
  (When the recording operation is performed for 1 hour, it stops automatically.)

: Press this button to check or search for the stored file(s) or retrieve and display data as necessary.

1. The screen displays the **Record Data** menu pane where you can check the saved data through the flight record list.
2. For the flight record, text shot, screen capture and gas analyzer functions, refer to **Chapter 4. Record Data**.

Figure 7.9 Record Data Viewer

- Graph Config: Press this button to set the channel, current value and max./min. values of graphs.

Figure 7.10 Graph Config

: Press this button displays the panel on the right to setup each displayed graph by a channel.

: Press this button extends the horizontal axis on the grid for more precise graph analysis.

: Press this button shortens the horizontal axis on the grid for more Precise graph analysis.

: 5 current data are displayed on the screen at once by default. The number of data displayed on the screen can be set from 1 to 8.

: Press this button to show or hide the current value of the sensor.

: Press this button to show or hide the max and min values for each sensor on the right side of the screen.

: Press this button to show or hide the sensor names.

: Press this button to increase/decrease the max value range to zoom in and out the displayed graphs.

: Press this button to stop the screen while checking current data. Press this button again starts the screen.

- Show DTC: The upper half of the screen displays the current data while the lower half of the screen displays the DTC list.
  If there is any DTC, the corresponding sensor data can be checked for comparison.

Figure7.11 Current data & DTC

: Press this button to exit the dual display mode and return to the **Record Data Viewer**.

3. Actuation

- In this menu, you can start and stop actuators and switches forcibly to diagnose them.
- The actuation function is available depending on vehicle makers and models.

Figure 7.12 ACTUATION > Selection

1. When selecting the correct vehicle model and system from the menu and communication with the vehicle is properly established, the menu appears as the **figure 7.12**.
   Select an item to actuate.

If the message indicating a communication error is displayed instead of the menu like the figure 7.12 or communication cannot be established, check the vehicle condition and the connection status of the diagnostic connector again.

2. The screen **Figure 7.13 ACTUATION > 1** appears.

3. Press the **Start** button starts the actuation function.
   - Before starting actuation, make sure to check the operating condition to inspect the system in the proper condition.
   - The actuation time differs by the actuated items.

Figure 7.13 ACTUATION > 1

4. Press the **Stop** button stops the actuation function.
   - Press this button to stop the actuation function during diagnosis.
   - Press the **ESC** button on the main module or the arrow button on the right top corner of the screen also stops the actuation function.

: Press this button to switch from the text view mode to the graph view mode.

The actuation result is judged by noise from the running actuator or switch and vehicle RPM change.
Therefore, it is recommended to perform the actuation test in a quiet area and use current data values as a reference.

1. Main Menu

The user can choose from 2 channel scope modes and ignition waveform measurement mode. (Guidelines in the menu may vary according to function improvement.)

Fig. 8.1 Oscilloscope Main Menu

Fig. 8.2 Oscilloscope Main Menu

2. Scope environment setup

When **[scope]** is selected in **[Fig. 8.2]**, the screen in **[Fig. 8.3]** appears

Fig. 8.3 Measurement main screen

When  icon is clicked in **[Fig. 8.3]**, the screen in **[Fig. 8.4]** appears

Fig. 8.4 Measurement environment setup screen

1) Waveform display window

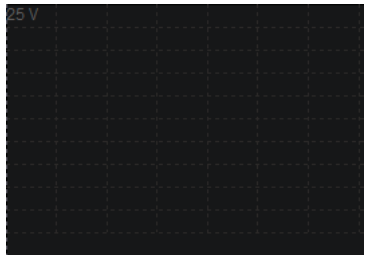


Fig. 8.5 Waveform display window

☞ It consists of 4 channels in the middle of the screen and displays waveforms.

2) Environment setup / Measured value window

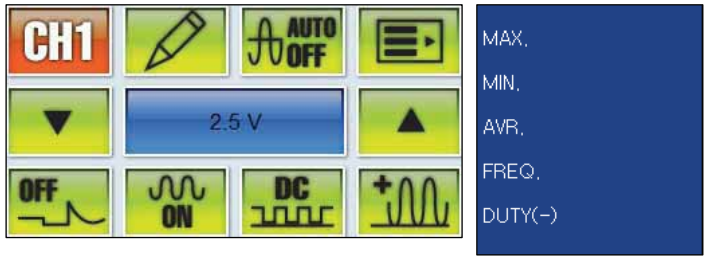


Fig. 8.6 Environment setup / Measured value window

☞ It is consisted of 4 channels on the right side of the screen, which circulates by  icon..

3) Menu window

Fig. 8.7 Menu window

☞ Area at the bottom of the screen, where the user can choose from various scope

3. Description of scope environment setup icons

Fig. 8.8 Environment setup

1) **Channel Setting :** The user can choose or cancel each channel.

2) **Record name :** The user can enter a name of each channel test item.

3) **Automatic voltage setting :** Voltage of the applicable channel is automatically set according to input waveform. It is not executable in overlay mode.

4) **Selection of Options :** Options for channel (pressure, vacuum, low current, high current, temperature, etc) can be selected.

5) ,6) ,7) **Voltage adjustment :** Click up and down arrow keys to adjust voltage from minimum of 10mV to maximum of 100V.

8) **Peak OFF / ON :** Peak of each channel can be set or cancelled.

9) **Selection of Filter :** Noise filter for each channel can be set or cancelled.

10) **Selection of Coupling :** DC/AC coupling for each channel can be selected.

11) **Selection of Uni / Bi Mode :** Ground level of each channel can be set at the bottom/in the middle. Uni places the ground level at the bottom while Bi in the middle. When a measurement signal displays both positive(+) electric potential and negative(–) electric potential, using Bi mode is more convenient.

Q) Communication cannot be established.

A) 1. Check the connection of the diagnostic cable.
- Communication cannot be established if the diagnostic cable is not properly connected.

2. Check if power is properly supplied to the main module.
- Vehicle diagnosis can be affected by unstable power source.

*** If this symptom continues to occur, the hardware of the main module or a component of the vehicle may malfunction.**

*** If this symptom continues to occur, contact your Dealer for service.**

3. Through the power supply from the vehicle diagnostic cables if you do not connect the cable supplying power to the Cigarette Lighter Power Cable.
- AT batteries and vehicle batteries in electric potential difference does not communicate

Q) I cannot turn on the module.

A) 1. Check if the battery in the module is charged.
- The built-in battery may not be charged.

2. The battery may not be able to function due to the ambient temperature.
- Avoid excessively hot or cold areas.

Q) The touch screen does not function properly.

A) 1. The touch screen coordinates may not be correctly aligned.
- It is possible to test the touch screen coordinates by selecting the CONFIGURATION from the main menu and then selecting DISPLAY and Test Touch Coordinate menus in order. If the coordinates are not correct, correct them using the Calibrate Touch Screen function.

*** If this symptom continues to occur, contact your Dealer for service.**

WARRANTY CARD

Warranty Policy

1. The manufacturer warrants this product to be defect free in material and workmanship for a period of one (1) year from the date of purchase. Defective products may be returned by the original purchaser within the warranty period, postage pre-paid together with proof of purchase date to Nextech Co. LTD. Defective products will be repaired at manufacturer's discretion, replaced at no charge.
2. The warranty does not apply to any units that have been tampered with, or to damages incurred through improper use and care, defects caused by abuse or through the usage for purposes other than the intended use, used in a manner inconsistent with the instructions regarding use, and faulty packing or mishandling by any common carrier.
3. Repairs not covered by this warranty will be performed at the current cost for parts and labor. In no event will Nextech Co. Ltd's liability exceed the price paid for the product from direct, indirect, special, incidental or, consequential damages resulting from the use of this product, its accompanying software, or its documentation without obligation to notify any individual or entity. Warranties hereunder extend only to customers and are not transferable.

Warranty Period & Software update

1. Warranty period for Nextech products and these's accessories including software card is one (1) year from the date of sale to the original consumer.
2. Free Software update for Nextech products is one (1) year from date of purchase. After one (1) year from purchase date, software updates will be optional and will require separate payment per request.

Repair Service

1. If you suspect that you have a problem with this product, please read the operation manual (guide) carefully to ensure that you are operating this product properly.
2. If you conclude that a real problem exists, check your product according to the procedures on the "Trouble Shooting Card" and mark your trial records in the blank.
3. Please return the main body or the troubled parts along with the "Trouble Shooting Card" to the repair service center listed below. Be sure to return them in freight prepaid as we don't accept freight collect.

Nextech Service Center

Nextech Co. Ltd.

E&C Venture Dream Tower(the 3rd) 13F

Guro-dong, 197-33 Guro-Gu, Seoul, Korea

Tel : (822)3140-1489 Fax : (822)3140-1449

Email : sales@nex-tek.com

North America Customer Service Center

Nextech America Inc.

17581 Irvine Blvd suite 100

Tustin CA, 92780 USA

Tel: (714)832-0100 Fax: (714)832-0123

Email: csh@nex-tek.com

WARRANTY CARD

Warranty Registration

Upon receiving the product, please fill out the following registration form and return either by fax or separate mail to **Nextech Service Center or North America Customer Service Center (only USA customer)** according to your area.

IMPORTANT: Any delay or missing of your warranty registration may cause disadvantage or inconvenience to your warranty repair service.

CUSTOMER NAME _____

COMPANY NAME _____

ADDRESS _____

COUNTRY/STATE _____ ZIP _____

TEL No _____ FAX No _____

EMAIL ADDRESS _____

SERIAL No _____ LOT No _____

SOFTWARE VERSION _____

DEALERSHIP _____

DATE OF PURCHASE MONTH _____ DAY _____ YEAR _____

_____ _____

SIGNATURE DATE