

OBDII/EOBD Heavy truck Diagnostic tool

# User manual



2.8" Color display

## Table of Contents

1. Safety Precautions and Warnings .....	3
2. General Information .....	4
2.1 About DTC .....	4
2.2 J1708/J1587/J1939 .....	4
3. Using the Scan Tool .....	7
3.1 Tool Description .....	7
3.2 Specifications .....	8
3.3 Accessories Included .....	8
3.4 Power supply .....	8
4. OPERATION .....	9
4.1 Connection .....	9
4.2 Diagnose .....	9
4.3 Tool Setup .....	20
4.4 Help .....	22
5. Warranty and Service .....	23
5.1 Limited One Year Warranty .....	23
5.2 Service Procedures .....	23

## 1. Safety Precautions and Warnings

To prevent personal injury or damage to vehicles and/or the scan tool, read this instruction manual first and observe the following safety precautions at a minimum whenever working on a vehicle:

1. Always perform automotive testing in a safe environment.
2. Wear safety eye protection that meets ANSI standards.
3. Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
4. Operate the vehicle in a well ventilated work area: Exhaust gases are poisonous.
5. Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
6. Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
7. Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
8. Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
9. Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
10. Keep the scan tool dry, clean, free from oil/water or grease. Use a mild detergent on a clean cloth to clean the outside of the scan tool, when necessary.

## 2. General Information

### 2.1 About DTC

Diagnostic Trouble Codes (DTC) are codes stored by the on-board computer diagnostic system in response to a problem found in the vehicle. These codes identify a particular problem area and intended to provide you with a guide as to where a fault might be occurring within a vehicle. This section explains the basic elements of fault codes for J1587/J1708 and J1939 data bus protocols, how to view these codes on TOOL, and what they mean. Each fault code on TOOL contains three distinct pieces of information, as described below.

J1587/J1708 fault codes consist of the following, in this order:

Subsystem identifier (SID) – Indicates what function on the ECU has failed.

Failure Mode Indicator (FMI) - Indicates in what way the function failed.

Occurrence (OC) – Indicates the occurrence times of the fault codes.

J939 fault codes consist of the following, in this order:

Suspect Parameter Number (SPN) – Indicates what function on the ECU has failed.

Failure Mode Indicator (FMI) - Indicates in what way the function failed.

Occurrence (OC) – Indicates the occurrence times of the fault codes.

### 2.2 J1708/J1587/J1939

SAE J1708, SAE J1587 and SAE J1939 are automotive diagnostic protocol standard developed by the society of Automotive Engineers (SAE)

**SAE J1708**

SAE J1708 is a standard used for serial communications between ECUs on a heavy duty vehicle and also between a computer and the vehicle. With respect to Open System Interconnection model (OSI), J1708 defines the physical layer. Common higher layer that operate on top of J1708 are SAE J1587 and SAE J1922.

**SAE J1587**

SAE J1587 is an automotive diagnostic protocol standard developed by the Society of Automotive Engineers (SAE) for heavy-duty and most medium-duty vehicles built after 1985. The J1587 protocol uses different diagnostic connectors. Up to 1995, the individual OEMs used their own connectors. From 1996 to 2001, the 6-pin Deutsch-connector was standard. Beginning in 2001, most OEMs converted to the 9-pin Deutsch. Some OEMs still use the 6-pin

Deutsch. It has mostly been used US made vehicles, and also by Volvo.

SAE J1707 makes up the physical and data link layers while SAE J1587 makes up the transport and application layers with respect to the OSI model. SAE J1587 is used in conjunction with J1708 for automobile communication.

**SAE J1939**

SAE J1939 is the vehicle bus standard used for communication and diagnostics among vehicle components, originally by the car and heavy duty truck industry in the United States.

SAE J1939 is used in the commercial vehicle area for communication throughout the vehicle. With a different physical layer it is used between the tractor and trailer. This is specified in ISO11992.

SAE J1939 can be considered the replacement for the older SAE J1708 and SAE J1578 specifications.

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SAE J1939 can be considered the replacement for the older SAE J1708 and SAE J1578 specifications.

SAE J1939 has been adopted widely by diesel engine manufacturers. One driving force behind this is the increasing adoption of the engine Electronic Control Unit (ECU), which provides one method of controlling exhaust gas emissions within US and European standards. Consequently, SAE J1939 can now be found in a range of diesel-power applications: vehicles (on-and off-road), marine propulsion, power generation and industrial pumping.

Applications of J1939 now include off-highway, truck, bus, and even some passenger car applications.

## 3. Using the Scan Tool

### 3.1 Tool Description



1. LCD DISPLAY -- Indicates test results.
2. ENTER BUTTON--Confirms a selection (or action) from a menu.
3. ESC BUTTON -- Returns to previous menu.
- 4/5. UP/DOWN BUTTONS-- Move cursor up or down for selection.
- 6/7. RIGHT/LEFT BUTTONS -- Move cursor right or left for selection; Or turn page up or down when more than one page is displayed.
8. USB PORT -- Connects to computer to update the AUTO SCANNER online.
9. Cable with OBD II CONNECTOR -- Connects the AUTO SCANNER to the vehicle.

## 3.2 Specifications

Screen: 2.8" TFT 262K true color, 320\*240 QVGA LCD display

Input voltage range: 8~32V

Operating temperature: 32\_~122

Storage temperature: -4\_~158\_ / -20\_ ~70\_ @ RH60%

Outline dimension: 20\*8.5\*2.8CM

Weight : <17.6 oz (500g)

## 3.3 Accessories Included

1. User' manual -- Instructions on tool operations
2. 6 PIN DLC adaptor
3. 9 PIN DLC adaptor
4. 30 PIN DLC adaptor
4. USB cable – Connect to a computer for upgrading online

## 3.4 Power supply

The power of the tool is provided via the vehicle's Data Link Connector (DLC). Follow the steps below to power it up:

1.Find DLC on heavy-duty vehicle;

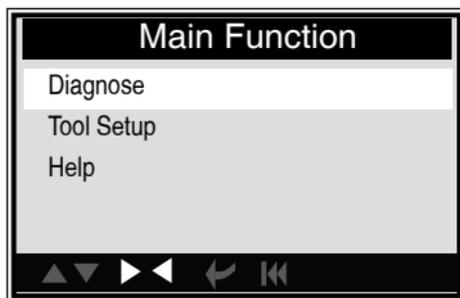
A plastic DLC cover may be found for some vehicles and you need to remove it before plugging the 6 PIN or 9 PIN DLC diagnostic adaptor.

2.Plug one end of 6pin or 9pin DLC diagnostic adaptor into the included OBD II 16 pin conector, and connect the other end to the heavy-duty vehicle's DLC.

## 4. OPERATION

### 4.1 Connection

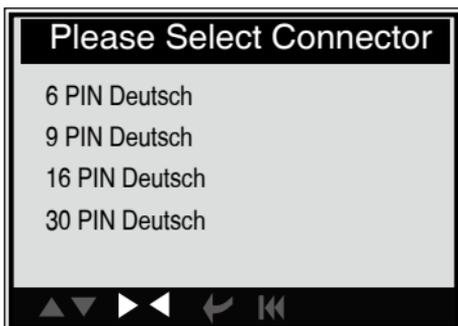
1. Turn the ignition off.
2. Locate the heavy-duty vehicle's Data Link Connector (DLC)
3. Select the desired diagnostic adaptor according to your vehicle's DLC. Plug one end of 6pin or 9pin DLC diagnostic adaptor into the included OBD II 16 pin connector, and connect the other end to the heavy-duty vehicle's DLC.
4. Turn the ignition on. Engine can be off or running.
5. After finishing, the system will enter the main menu interface, as belows.



**CAUTION:** Don't connect or disconnect any test equipment with ignition on or engine running.

### 4.2 Diagnose

Use [UP] or [DOWN ] button to select [diagnose] and press [ENTER], the system will switch to the following protocol selection interface



### A. Selecting SAE J1708 6 PIN Deutsch

Use [UP] or [DOWN] button to select [6 PIN Deutsch] and press[], a below screen will appear:



Select one desired item and press [ENTER], the system will switch to Function selection screen. See the below menu.

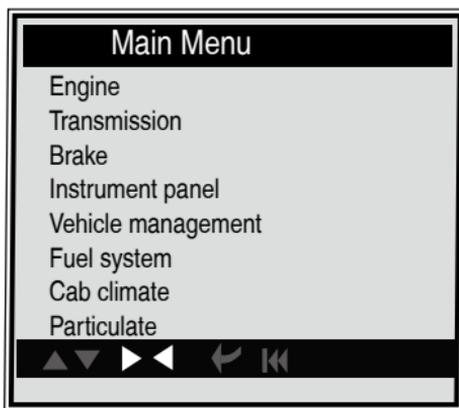
## B.Selecting SAEj1939 9 PIN Deutsch/16 PIN Deutsch/30 PIN Deutsch.

Caution: The operation menus for 9/16/30 PIN Deutsch are the same, so that we select 9 PIN Deutsch as the example for show.

If [9 PIN Deutsch] is selected, press [ENTER], a screen as below will appear.



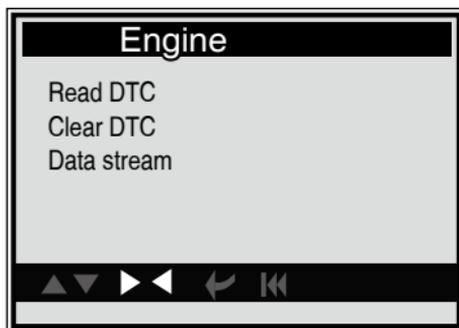
Press [UP] or [DOWN] button to highlight [SAE J1587/J1780], and press [], the following screen will appear:



If [SAE J1939] is selected, press [ENTER], the screen will appear as follows:

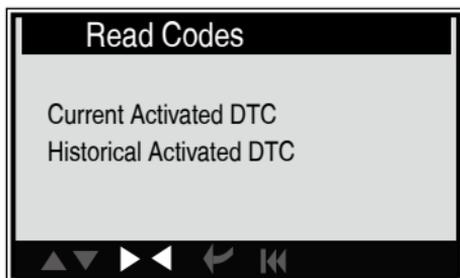


After selecting the system item, press [ENTER], the screen will appear as below:

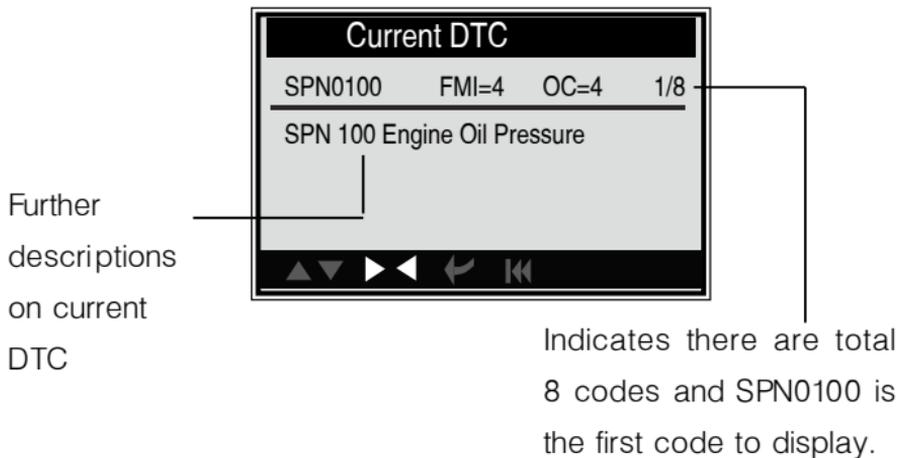


## 4.2.1 Read DTC

Select [Read DTC] and press [ENTER], it will jump to the following screen:



Press [UP] or [DOWN] button to highlight one desired item and press [], a screen will appear as below:

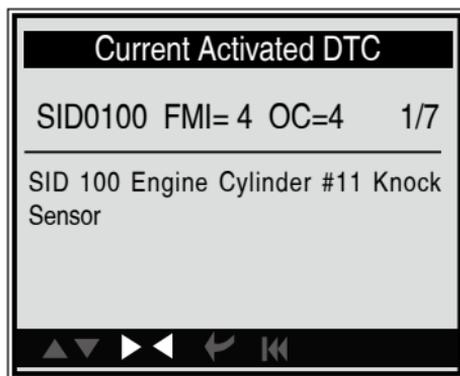


Generally, there are three elements displayed on the first row and the second row indicates details descriptions on DTC, as shown in Figure 4-9

- Suspect Parameter Number (SPN) – Indicate what function on the ECU has failed.
- Failure Mode Indicator (FMI) - Indicate what way the function failed.
- Occurrence (OC) – Indicate the occurrence times of the current DTC.

Whereas, if we choose [SAE J1587/1708], the faults codes will be displayed similar to the below screen:

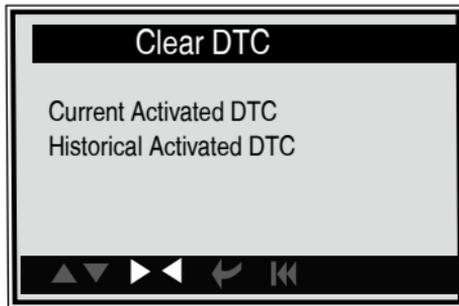
- Subsystem Identifier (SID) – Indicate what function on the ECU has failed.
- Failure Mode Indicator (FMI) - Indicate what way the function failed.
- Occurrence (OC) – Indicate the occurrence times of the current DTC.



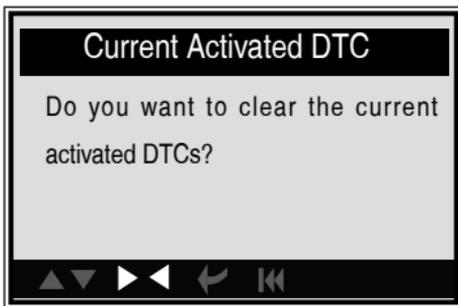
Press [LEFT] [RIGHT] button to the next or previous code; press [ENTER] to exit and return to the Function screen.

## 4.2.2 Clear DTC

Select [Clear DTC] and press [ENTER], the system will switch to the following screen.

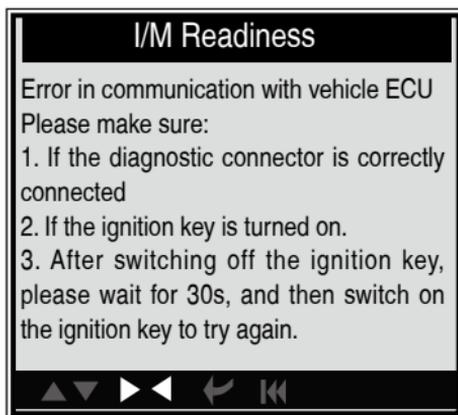


Select one desired item and press [ENTER], a prompt message will appear on the screen, as shown as below screen.



Press [ENTER] to erase DTCs, and if successfully, "Succeed" will be shown on the screen. Press [ESC] to exit and return to the Function screen.

If it failed to communicate with ECU, a screen will appear as below:

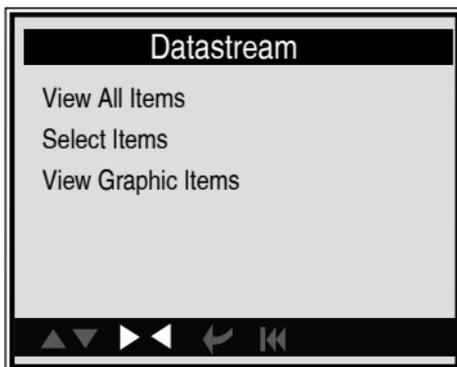


ou can use [LEFT] [RIGHT] button to view other data of vehicle. Press [ENTER] to return to Diagnostic Menu.

N/A means not available on this vehicle, INC means incomplete or not ready, OK means Completed or Monitor OK.

### 4.2.3 Data Stream

Press [UP] [DOWN] button to select [Date Stream] in main Menu screen and then press [ENTER] button to confirm, the screen will display as below.



### 4.2.3.1 View All Items

Use [UP] [DOWN] button to select [ View All Items] and pree [], a screen will appear as below:

All Datastream	
Fuel system 1 status	N/A
Fuel system 2 status	N/A
Calculated LOAD value	2.0%
Engine coolant temperature	-35 C
Short term fuel trim - bank 4	-36.1%

Navigation icons: ▲ ▼ ▶ ◀ ↶ ⏪ 1/37

Press [UP] [DOWN] button to select other data streams, press [ENTER], to return to the Data Stream menu screen.

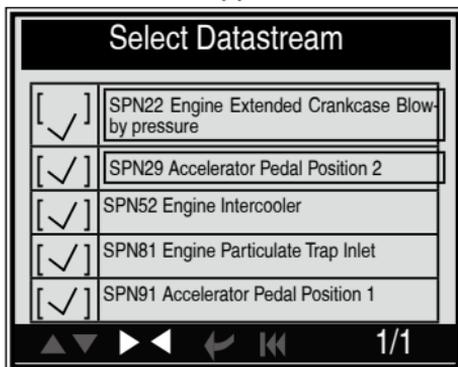
### 4.2.3.2 Select Items

Use [UP] [DOWN] button to select [Select Item] and press [ENTER], a screen will appear as below:

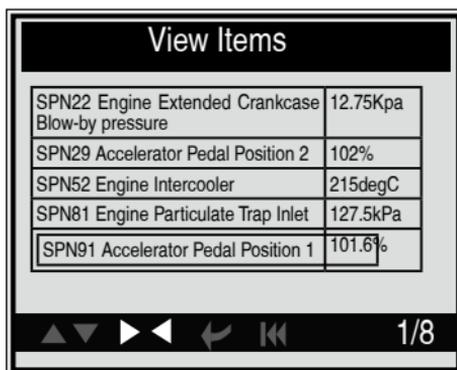
Select Datastream	
[ ]	SPN22 Engine Extended Crankcase Blow-by pressure
[ ]	SPN29 Accelerator Pedal Position 2
[ ]	SPN52 Engine Intercooler
[ ]	SPN81 Engine Particulate Trap Inlet
[ ]	SPN91 Accelerator Pedal Position 1

Navigation icons: ▲ ▼ ▶ ◀ ↶ ⏪ 1/1

Press [UP] [DOWN] button to select datastream items, and press [LEFT] [RIGHT] to turn page, the screen will appear as below:

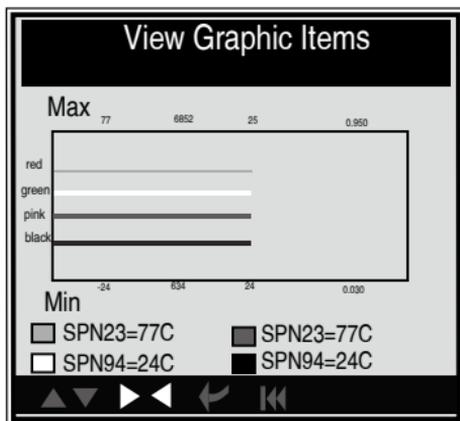
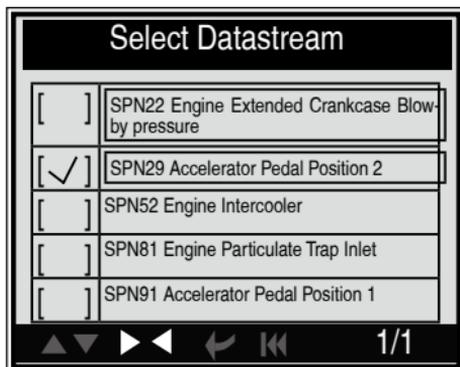


After selecting items and press [ENTER], it will enter the screen as below.



### 4.2.3.3 View Graphic Items

Press [UP] [DOWN] button to select [ View Graphic Items] in DATA STREAM MENU and press [ENTER], the system will enter the datastream selection interface. Select one desired item as shown and press [ENTER], a screen will appear as below:



## 4.3 Tool Setup

Select [ Tool Setup] in the main menu and press [ENTER], the system will enter the following screen:



### 1) Beeper: Turn ON/OFF the beeper.

Select [Beeper] in the main menu and press [ENTER] to switch to the screen shown as below:



If the beeper is set on, the RING icon will appear at the bottom of the screen.

## 2) Time and Date: Set time and date.

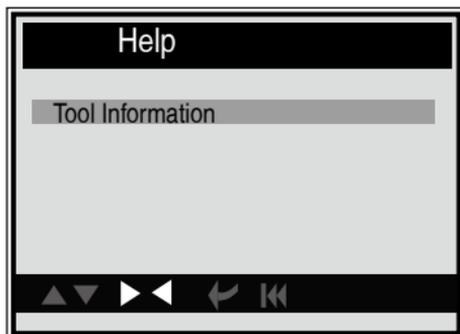
Select [ Time and Date] in the main menu and press[ENTER] to enter the setting screen, as below.



Use [UP] [DOWN] button to change the highlighted numbers; press [LEFT] [RIGHT] to move the highlight bar to different position; press [ENTER] to confirm. Press [ESC] to return to the Tool setup screen.

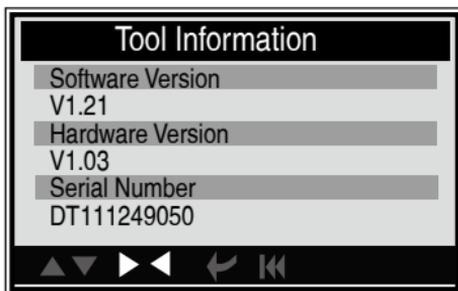
## 4.4 Help

This function is used to view Tool Information, About OBD, and About Data stream.



Tool Information includes: software version, hardware version, serial number, supported, time and date.

Select [Tool Information] in the Help Menu and press [ENTER] and the screen will display the interface as shown below:



Press [ESC] to return to previous menu.

## 5. Warranty and Service

### 5.1 Limited One Year Warranty

We warrants to its customers that this product will be free from all defects in materials and workmanship for a period of one (1) year from the date of the original purchase, subject to the following terms and conditions:

1). The sole responsibility of us under the Warranty is limited to either the repair or, at the option of us, replacement of the scan tool at no charge with Proof of Purchase. The sales receipt may be used for this purpose.

2). This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.

3). We shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the scan tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

4). All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. We reserves the right to make changes at any time without notice.

### 5.2 Service Procedures

If you have any questions, please contact your local store, distributor or visit our website.

If it becomes necessary to return the scan tool for repair, contact your local distributor for more information.