

STRONGWAY®

ABS & Airbag Reset Tool with SAS Calibration

Owner's Manual



⚠ WARNING: Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #114957

READ & SAVE THESE INSTRUCTIONS

Thank you very much for choosing a Strongway product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This **product** is designed for certain applications only. Northern Tool and Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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Intended Use

The Professional ABS & Airbag Reset Tool works on most vehicles on the road today. It does not only have extensive coverage of vehicles but also provides accurate and professional diagnosis of ABS and airbag faults.

Packaging Contents

- Diagnostic Cable (1)
- USB Cable (1)
- TF Card Reader (1)
- Manual (1)
- Quick Start Guide (1)
- Nylon Carry Pouch (1)
- Scanner (1)

Technical Specifications

Property	Specification
Display LCD	Backlit, 240*320 TFT color display
Operating Temperature	-32 to 140 F°
Storage Temperature	-4 to 158 F°
Power	8-18V vehicle power and 3.3V USB power
Dimensions	7-3/4" x4" x 1/2"
Weight	1.32lbs

Important Safety Information

⚠WARNING

- Read and understand all instructions. Failure to follow all instructions may result in serious injury or property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this tool. Always be aware of the environment and ensure that the tool is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the product until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this product in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the product. There are specific applications for which the product was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. This product will be safer and do a better job at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

⚠WARNING

- This product may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.
- Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Some examples of these chemicals are:
 - lead from lead-based paints,
 - crystalline silica from bricks and cement and other masonry products, and
 - arsenic and chromium from chemically-treated lumber.
- Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well-ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.
- Handling power cords on corded products may expose you to lead, a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. Wash your hands after handling.

⚠WARNING

WORK AREA SAFETY

- Inspect the work area before each use. Keep work area clean, dry, free of clutter, and well-lit. Cluttered, wet, or dark work areas can result in injury. Using the product in confined work areas may put you dangerously close to cutting tools and rotating parts.
- Do not use the product where there is a risk of causing a fire or an explosion; e.g., in the presence of flammable liquids, gases, or dust. The product can create sparks, which may ignite the flammable liquids, gases, or dust.
- Do not allow the product to come into contact with an electrical source. The tool is not insulated and contact will cause electrical shock.
- Keep children and bystanders away from the work area while operating the tool. Do not allow children to handle the product.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

⚠️WARNING

PERSONAL SAFETY

- Stay alert, watch what you are doing, and use common sense when operating the tool. Do not use the tool while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the tool may result in serious personal injury.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents on the tool often cover moving parts and should be avoided.
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields, or when needed, a face shield. Use a dust mask in dusty work conditions. Also use non-skid safety shoes, hardhat, gloves, dust collection systems, and hearing protection when appropriate. This applies to all persons in the work area.
- Do not overreach. Keep proper footing and balance at all times.
- Remove keys or wrenches before connecting the tool to an air supply, power supply, or turning on the tool. A wrench or key that is left attached to a rotating part of the tool may cause personal injury.
- Secure the work with clamps or a vise instead of your hand when practical. This safety precaution allows for proper tool operation using both hands.

⚠️CAUTION

PRODUCT USE AND CARE

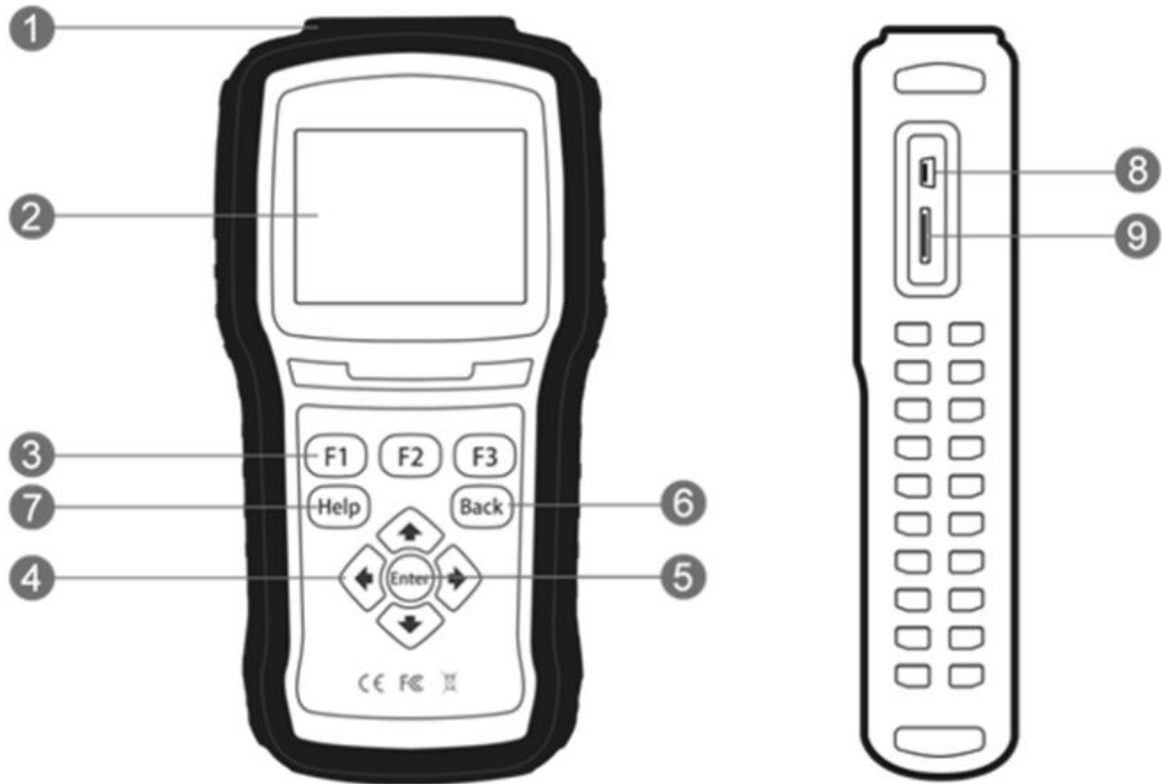
- Do not force the product. Products are safer and do a better job when used in the manner for which they are designed. Plan your work, and use the correct product for the job.
- Check for damaged parts before each use. Carefully check that the product will operate properly and perform its intended function. Replace damaged or worn parts immediately. Never operate the product with a damaged part.
- Do not use a product with a malfunctioning switch. Any power tool that cannot be controlled with the power switch is dangerous and must be repaired by an authorized service representative before using.
- Disconnect the power/air supply from the product and place the switch in the locked or off position before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
- Store the product when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the tool for good working condition prior to storage and before re-use.
- Use only accessories that are recommended by the manufacturer for use with your product. Accessories that may be suitable for one product may create a risk of injury when used with another tool. Never use an accessory that has a lower operating speed or operating pressure than the tool itself.
- Keep guards in place and in working order. Never operate the product without the guards in place.
- Do not leave the tool running unattended.

Specific Operation Warnings

⚠WARNING

- Do not route the test cable in a manner that would interfere with driving controls.
- Do not exceed voltage limits between inputs specified in this user's manual.
- Always wear ANSI approved goggles to protect your eyes from propelled objects as well as hot or caustic liquids.
- Fuel, oil vapors, hot steam, hot toxic exhaust gases, acid, refrigerant and other debris produced by a malfunction engine can cause serious injury or death. Do not use the scanner in areas where explosive vapor may collect, such as in below-ground pits, confined areas, or areas that are less than 18 inches (45 cm) above the floor.
- Do not smoke, strike a match, or cause a spark near the vehicle while testing and keep all sparks, heated items and open flames away from the battery and fuel / fuel vapors as they are highly flammable.
- Keep a dry chemical fire extinguisher suitable for gasoline, chemical and electrical fires in work area.
- Always be aware of rotating parts that move at high speed when an engine is running and keep a safe distance from these parts as well as other potentially moving objects to avoid serious injury.
- Do not touch engine components that get very hot when an engine is running to avoid severe burns.
- Block drive wheels before testing with engine running. Put the transmission in park (for automatic transmission) or neutral (for manual transmission). And never leave a running engine unattended.
- Do not wear jewelry or loose fitting clothing when working on engine.
- Don't connect or disconnect the equipment while the ignition is on or the engine is running.

Main Parts of Product



• 1 Diagnostic Port	• 2 LCD Display	• 3 Function Keys / Shortcut keys
• 4 Direction Keys	• 5 ENTER Key	• 6 BACK Key
• 7 HELP Key	• 8 USB Port	• 9 TF Card Port

Before Each Use

⚠WARNING

- Always perform automotive testing in a safe environment.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc, away from all moving or hot engine parts.
- Operate the vehicle in a well-ventilated work area; Exhaust gases are poisonous.
- Put blocks on drive wheels and never leave vehicle unattended while running tests.
- 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.
- Put transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking break is engaged.
- Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
- Don't connect or disconnect any test equipment with ignition on or engine running.
- Keep the Scan Tool dry, clean and free from oil, water and grease. Use a mild detergent on a clean cloth to clean the outside of the Scan Tool, when necessary.

Providing Power to Scanner

Before using the scanner, make sure to provide power to the scanner.

The unit operates on any of the following sources:

- 12-volt vehicle power
- USB connection to computer

System Setup

This section illustrates how to program the scanner to meet your specific needs.

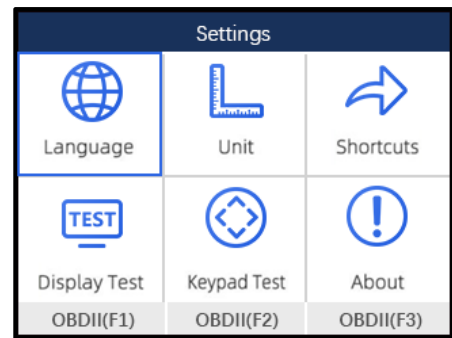
When Settings is selected, a menu with available service options displays. Menu options typically include:

- Language
- Unit
- Shortcuts
- Display Test
- Keypad Test
- About

1. Select Language

Selecting Language opens a screen that allows you to choose system language. The scan tool is set to display English menus by default.

- a) Scroll with the arrow keys to highlight Language from Settings menu and press ENTER key.



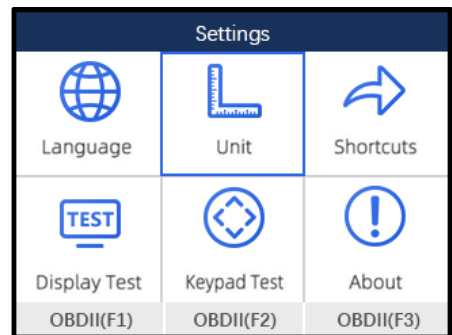
- b) Press left and right arrow key select a language and press the ENTER key to confirm. Press the Back key to exit and return.



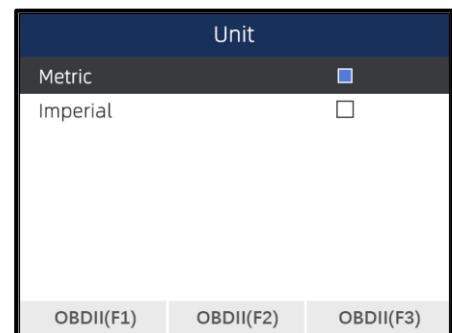
2. Change Unit

Selecting Unit opens a dialog box that allows you to choose units of measure.

- a) Scroll with the arrow keys to highlight Unit from Settings menu and press the ENTER key.



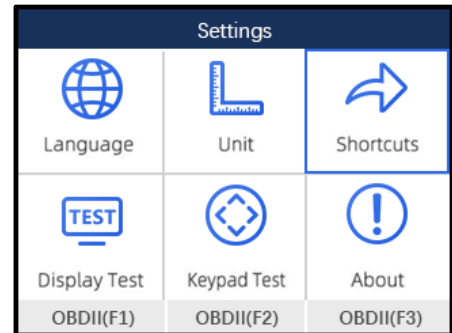
- b) Press the up and down arrow key select an item and press the ENTER key to save and return.



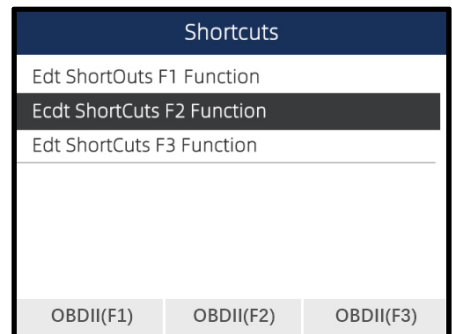
3. Configure Shortcut Keys

Selecting Shortcuts option lets you to change the functionality of the shortcut buttons.

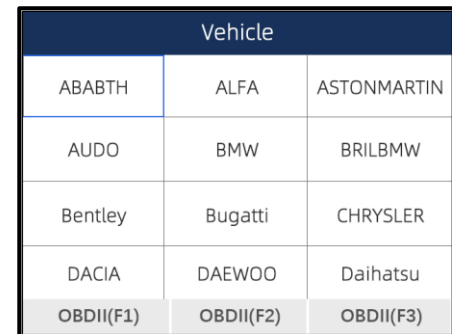
- a) Scroll with the arrow keys to highlight Shortcuts from Settings menu and press the ENTER key. A screen with available shortcut keys displays.



- b) Press the up and down arrow key select a shortcut key and press the ENTER key. A screen with a list of loaded applications displays.



- c) Scroll with the arrow keys to highlight an application and press the ENTER key to assign the application to the shortcut key.



4. Display Test

Selecting Display Test option opens a screen that allows you to check the functionality of the display.

- a) Scroll with the arrow keys to highlight Display Test from Settings menu and press the ENTER key to start test. Check if there are any missing spots in the LCD screen.

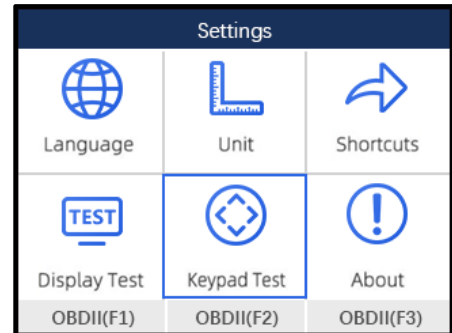


- b) To quit the test, press the Back key.

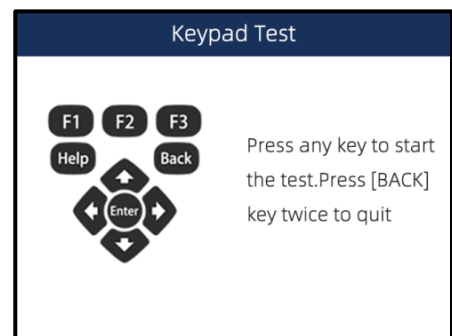
5. Keypad Test

Selecting Keypad Test option opens a screen that allows you to check the functionality of the keypad.

- a) Scroll with the arrow keys to highlight Keypad Test from Settings menu and press ENTER key.



- b) Press any key to start test. The virtue key corresponding with the key you pressed will be highlighted on the screen if it works correctly.

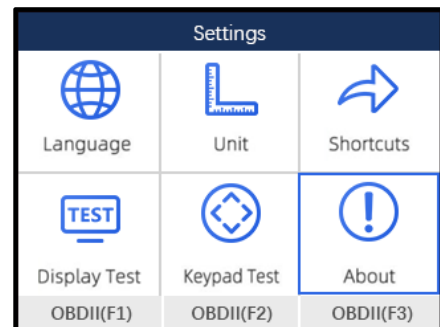


- c) To quit the test, press Back key twice.

6. Tool Information

Selecting About option opens a screen that shows information about your scan tool, such as serial number, which may be required for product registration.

- a) Scroll with the arrow keys to highlight About from Settings menu and press the ENTER key.



- b) A screen with detailed information of the scanner displays.
c) Press the Back key to exit.

Operating Instructions

⚠WARNING

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

- Never try to provide power for the scan tool from USB connection when the scan tool is communicating with a vehicle..
- Not all identification options listed above are applicable to all vehicles. Available options may vary by vehicle manufacturer.
- Turn the ignition on. Engine can be off or running.
- If the "LINKING ERROR" message does not go away, then there might be problems for the code reader to communicate with the vehicle. Contact your local distributor or the manufacturer's customer service department for assistance.

Getting Started

1. Connecting to Vehicle Power

The scanner normally powers on whenever it is connected to the data link connector (DLC).

- a) Locate the data link connector (DLC). The DLC is generally located under the dash on the driver side of the vehicle.
- b) Attached the Diagnostic cable to the scanner and tighten the captive screws to ensure good connection.
- c) Connect a correct adapter to the data cable according to the vehicle being serviced and plug it into the vehicle DLC.
- d) Switch the ignition key to the ON position.
- e) The scanner automatically boots up

2. Connecting to Computer with USB Cable

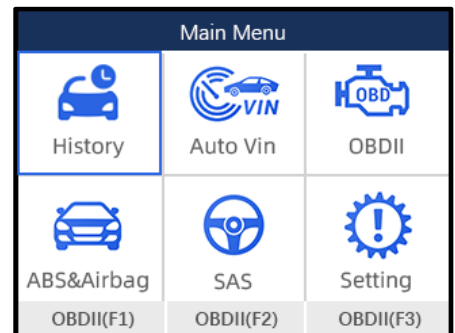
The scan tool also receives power through the USB port when it is connected to a computer for software updates and printing of data.

- a) Connect the scanner to a computer with the USB cable provided.

3. Application Overview

When the scan tool boots up, the Home screen opens. This screen shows all applications loaded on the unit. The available vehicle applications may vary depending on software configuration.

- Auto VIN - leads to screens for identifying a car by VIN reading.
- OBDII/EOBD - leads to OBDII screens for all 9 generic OBD system tests.
- SAS - leads to screens for steering angle calibration
- ABS & Airbag - leads to screens for diagnostic trouble code information, live data, ECU information and special functions of ABS and airbag systems on 49 vehicle makes sold worldwide.
- Settings - leads to screens for adjusting default settings to meet your own preference and view information about the scanner.



- Data Manager - leads to screens for access to data records.
- Update - leads to screen for updating the scanner.

4. Input Dialog Box

This section illustrates how to use the scan tool to input letters and numbers, such as VIN number, channel number, test values and DTC number. Typically, you may be required to input letters or numbers when you are doing any of the following operations.

- VIN entry
- input channel number
- set adaptation value
- enter block number
- enter login code
- key matching
- look up DTCs

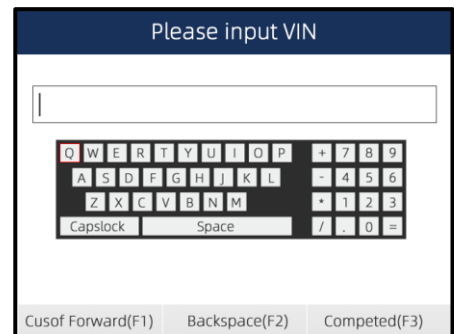
The scan tool provides 4 different types of keyboard to meet your specific needs. Depending on the needs of text entry, it automatically shows the most suitable keypad.

- classic QWERTY keyboard for input of texts that contain both letters and numbers
- numeric keyboard for input of numbers
- alphabet keyboard for input of letters
- hexadecimal keyboard for special functions, such as key matching, UDS coding

- a) When you are requested to input text, press the function key Keyboard.



- b) Scroll with the arrow keys to highlight your desired letter or number and press the ENTER key to confirm.



- c) To delete a letter or number, use the function key Cursor Forward to move the cursor to it and then press the Backspace button.
- d) When finished the entry, press Completed key to continue.

Vehicle Identification

This section illustrates how to use the scanner to identify the specifications of the vehicle under test.

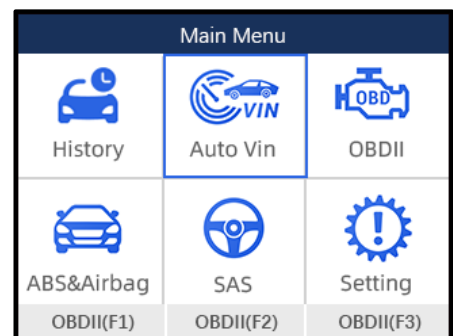
The vehicle identification information presented is provided by the ECM of the vehicle being tested. Therefore, certain attributes of the test vehicle must be entered into the scan tool to ensure the data displays correctly. The vehicle identification sequence is menu driven, you simply follow the screen prompts and make a series of choices. Each selection you make advances you to the next screen. Exact procedures may vary somewhat by vehicle. It typically identifies a vehicle by any of the following means:

- Automatic VIN reading
- Manual VIN entry
- Manual vehicle selection

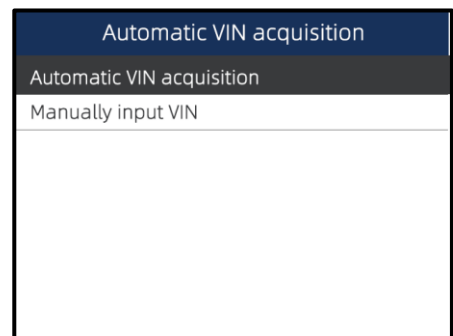
1. Automatic VIN acquisition

Automatic VIN Acquisition allows to identify a vehicle by automatically reading the vehicle identification number (VIN).

- a) Scroll with the arrow keys to highlight Auto VIN from the main menu and press the ENTER key.



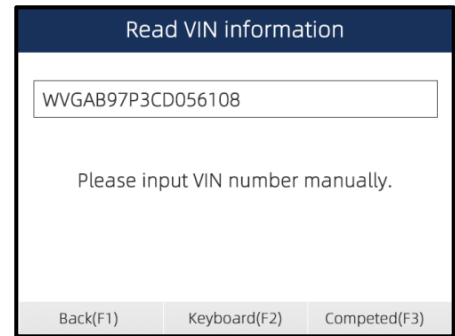
- b) Select Automatic VIN Acquisition from the menu, and press the ENTER key.



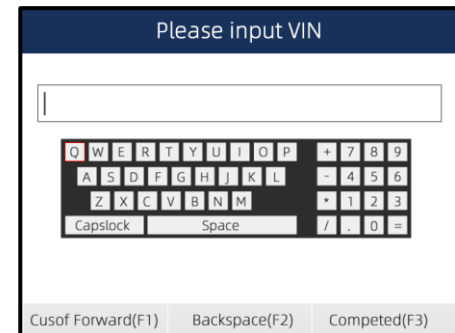
- c) The scan tool starts to communicate with the vehicle and read the Vehicle Specification or VIN Code automatically.



- d) Answer YES if the Vehicle Specification or VIN code is correct and a menu of controller selection displays. Answer NO if it is incorrect, and you are required to enter the correct VIN number manually.



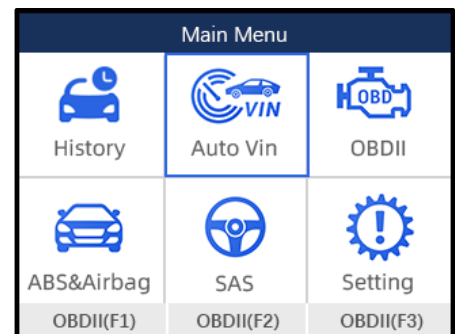
- e) If it takes too long to get the VIN code, press Cancel to stop and input the VIN manually. Or if failed to identify the VIN, please input the VIN manually or click Cancel to quit.



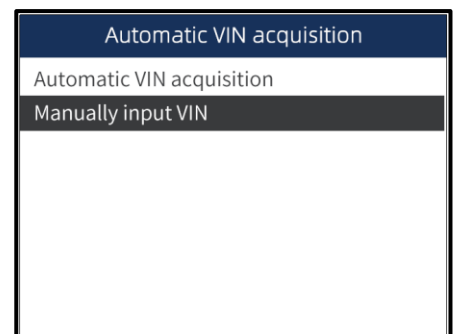
2. Manual VIN Entry

Manual VIN Entry identifies a vehicle by manually inputting a 17-digit VIN code.

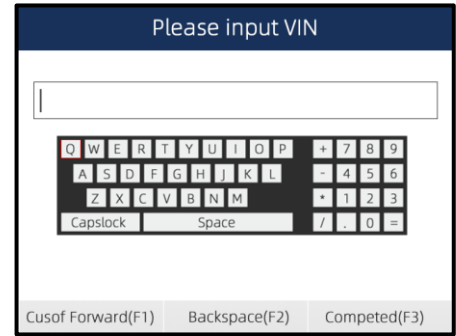
- a) Scroll with the arrow keys to highlight Auto VIN from the main menu and press the ENTER key



- b) Select Manually input VIN from the menu, and press the ENTER key



- c) Press the function key Keyboard and a virtual keyboard opens for VIN entry.

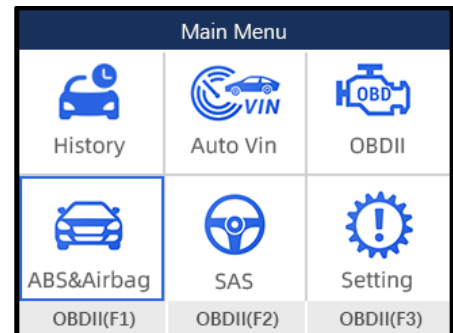


- d) Input a valid VIN code and use the function key Completed to confirm. The scan tool starts to identify the vehicle.

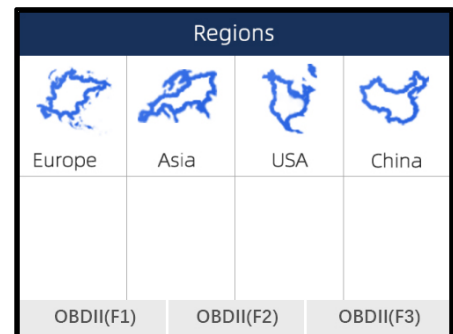
3. Smart VIN

Smart VIN allows to identify a vehicle by automatically reading the vehicle identification number (VIN).

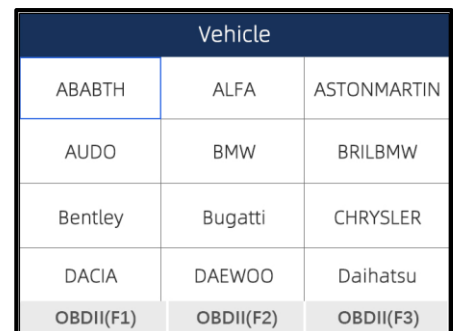
- a) Scroll with the arrow keys to highlight ABS & Airbag from main menu and press the ENTER key to start. If you have the application assigned to one of the function keys at the bottom of the screen, you can alternatively press the function key to start the application.



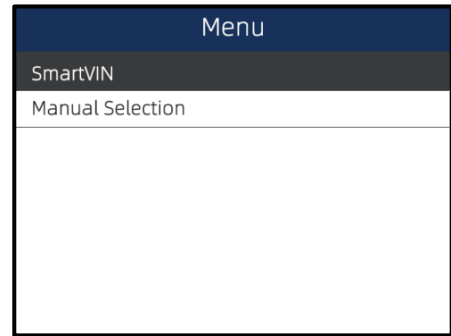
- b) A screen with vehicle manufacturer areas displays. Select the area where the car brand is originated. A list of vehicle makes display.



- c) Select the vehicle manufacturer. A list of vehicle identification options displays.



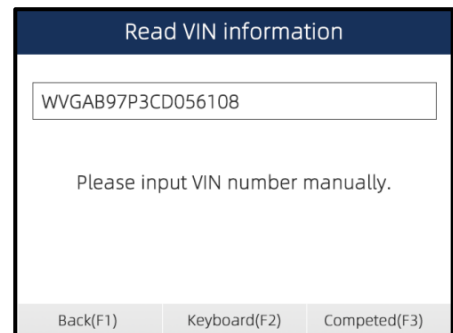
- d) Select Smart VIN from the menu, and press the ENTER key.



- e) The scan tool starts to communicate with the vehicle and read the Vehicle Specification or VIN Code automatically.



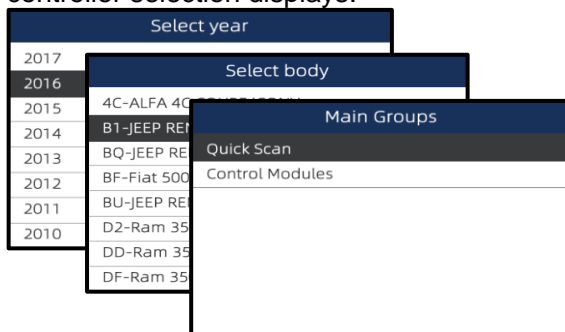
- f) Answer YES if the Vehicle Specification or VIN code is correct and a menu of controller selection displays. Answer NO if incorrect, and you are required to enter the correct VIN number manually.



4. Manual Selection

Manual Selection identifies a vehicle by making several selections according to certain VIN characters, such as model year, and engine type.

- a) Refer to step a-c of 3 Smart VIN.
- b) On each screen that appears, select the correct option and then press the ENTER key. Do this until the complete vehicle information is entered and the menu of controller selection displays.



Diagnostic Operations

This section illustrates how to use the scanner to read and clear diagnostic trouble codes, and view “live” data readings and ECU information on controllers installed on a variety of vehicles and also save “recordings” of the data readings.

1. Quick Scan

Quick Scan performs an automatic system test to determine which control modules are installed on the vehicle and provides diagnostic trouble codes (DTCs) overview. Depending on the number of control modules, it may take 10 minutes or longer to complete the test.

- a) Scroll with the arrow keys to highlight Quick Scan from the menu and press ENTER to start.

Select body	
4C-ALFA 4C COUPE/CONV	
B1-JEEP RENEGADE LATM	
BQ-JEEP RENEGADE (CHNA	
BF-Fiat 500L	
BU-JEEP RENEGADE	
D2-Ram 3500 Pickup	
DD-Ram 3500 Cab Chassis	
DF-Ram 3500 cab chassis 10K	

- b) To pause the scan, press the function key corresponding with Pause on the screen.

Quick Scan		
1	03-ABS Brakes	Scanning
Erase(F1)	Pause(F2)	Report(F3)

- c) At the end of successful automatic controller scan, a menu with a list of installed controllers together with their DTC overview displays.

Quick Scan		
Success:9		9/9
1	AIRCON(Air conditioner)	Fault I 4
2	ABS/ESP(ABS/ESP)	Fault I 20
Erase(F1)	Report(F3)	

- d) If there is diagnostic trouble code(s) detected in a control unit, press the function key corresponding with Report on the screen to view details of code information. Or press the function key Erase to clear them.

Report	
ID	Description
P012300	Throttle/Pedal Pos Sensor A Cro. lHigh Input -Active/static
P022200	Throttle/Pedal Position Sensor/switch BLow nput =Active/state lb
P308700	Supply relay for engine component Electrical malfunction in orout-Passive/Sporadic
P201400	Intake Manifold Runner Postion
Save(F1)	

- e) Press function key F1 to save the trouble code information.
- f) Select the system you would like to test, and press the ENTER key. When the scanner has established connection with the vehicle, the Function Menu displays.

Function Menu
ECU Information
Read Codes
Clear Codes
Live Data
Special Function

2. Control Modules

Control Modules screen displays all controllers available on the vehicles. The controllers listed on the menu do not mean that they are installed on the vehicle.

- a) Scroll with the arrow keys to highlight Control Modules from the menu and press the ENTER key. A controller menu displays.

Main Groups
Quick Scan
Control Modules

- b) Select the system you would like to test. When the scanner has established connection with the vehicle, the Function Menu displays.

Control Modules
03-ABS Brakes
15-Airbags

After a system is selected and the scanner establishes communication with the vehicle, the Function Menu displays. The menu options may include:

3. ECU Information

ECU Information screen displays the identification data of the control module under test, such as the control module identification string, the control module coding, and Work Shop Code.

- a) Select ECU Information from the menu and press the ENTER key

Function Menu
ECU Information
Read Codes
Clear Codes
Live Data
Special Function

- b) A screen with detailed information of the selected control module displays

ECU Information	
MODEL	BC
SYSTEM	DEF
S/W VER	48.49
ECU P	5041424344
S/W NUMBER	4243
Save(F1)	

- c) Press function key Save to store ECU information. Or use the BACK key to exit.

4. Read Codes

Read Codes menu lets you read trouble codes found in the control unit.

Typical code status include:

- Present/Permanent/Current Codes
- Pending Codes
- History Codes

Present/Permanent/Current codes stored in a control module are used to help identify the cause of a trouble or troubles with a vehicle. These codes have occurred a specific number of times and indicate a problem that requires repair.

Pending codes are also referred to as maturing codes that indicate intermittent faults. If the fault does not occur within a certain number of drive cycles (depending on vehicle), the code clears from memory. If a fault occurs a specific number of times, the code matures into a DTC and the MIL illuminates or blinks.

History codes are also referred to as past codes that indicate intermittent DTCs that are not currently active.

- a) Scroll with the arrow keys to highlight Read Codes from Function Menu and press the ENTER key. A code list including code number and its description displays.

Function Menu	
ECU Information	
Read Codes	
Clear Codes	
Live Data	
Special Function	

- b) Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data.

Trouble Codes		
ID	Status	Description
B1651	Active	Crash recorded in driver sideairbag(Replace SRSCM)
B1490	History	OCS(Occupant classification system)defet
B1388	History	STPS(Seat track position sensor)-Driver open or short to battery
Save(F1)		Freeze Frame(F2)

6. Live Data

Live Data menu lets you view and record real time PID data from a selected vehicle electronic control module.

Complete List

Complete List menu lets you view all live PID data from a selected system.

- a) Scroll with the arrow keys to highlight Live Data from the menu and press the ENTER key.

Function Menu
ECU Information
Read Codes
Clear Codes
Live Data
Special Function

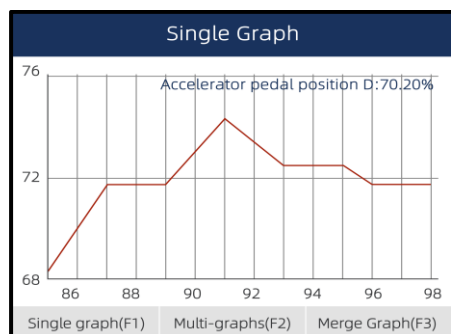
- b) Select the Complete List from the menu and press the ENTER key to display the data screen.

Live Data
Complete List
Custom List

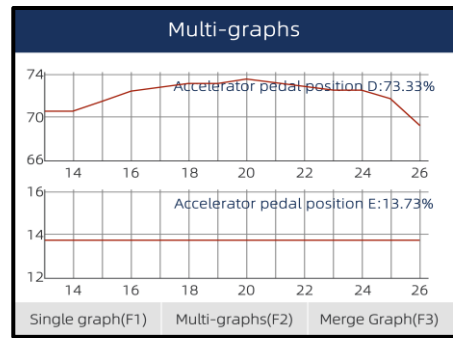
- c) Scroll with the up and down arrow keys to highlight a line, and left and right arrow keys to scroll back and forth through different screens of data. Press function key Pause to suspend collecting data from the vehicle and use the Start key to resume collecting data. To record data to memory of the scanner, use the function key SAVE, and press Stop Saving to stop recording at any time.

Live Data		
Name	Value	Unit
Alocation of oxygen sensorsOxygen sensor bank 2.sensor 4	Not installed	
Ambient air pressure	11.6	psi
Calculated oil temperature	21	
Cause for cancellation	0	
Charge air pressure specified Value	994.09820557	HPa
Pause(F1)	Graph(F2)	Save(F3)

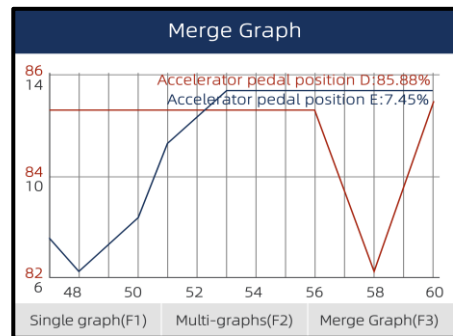
- d) Use up and down arrow key to select line. If Graph is highlighted, it indicates graphing is available for the selected line. Press the function key Graph to display the PID graph.



- e) Press the function key Multi-graphs to display two PID graphs in one screen. Press Single graph to view one plot.



- f) Press the function key Merge Graph to display two PID plots in one coordinate to check how they affect each other.

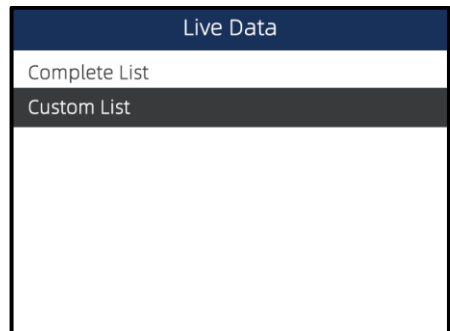


- g) Press the Back key to return to the previous menu.

Custom List

Custom List menu lets you to minimize the number of PIDs on the data list and focus on any suspicious or symptom-specific data parameters.

- a) Select Custom List from the menu and press the ENTER key.



- b) The custom data selection screen displays. Scroll with the up and down arrow keys to highlight a line, press the ENTER key and then repeat the action to make more selections. To deselect an item, select it again and then press the ENTER key. Alternatively, use the function keys Select All and Deselect to select or deselect all items at once.

Custom list		
<input type="checkbox"/>	Steering angle sensor-1(ESP only)	11
<input type="checkbox"/>	Steering angle sensor-2(ESP only)	12
<input type="checkbox"/>	Steering angle sensor-NESP only)	13
<input type="checkbox"/>	G-Sensor longitudinal	14
<input type="checkbox"/>	G-Sensor lateral	15
<input type="checkbox"/>	ABS warning lamp	16
<input type="checkbox"/>	EBD warning lamp	17

Select All(F1) Deselect(F2) OK(F3)

- c) When finished selection, use the function key OK to display selected items.

Live data		
Name	Value	Unit
Wheel speed sensor-Right front	1	mph
Wheel speed sensor-Left front	1	mph
Wheel speed sensor-Left rear	0	mph
Wheel speed sensor-Right rear	1	mph
Steering angle sensor-1(ESP only)	HGH	
Steering angle sensor-2(ESP only)	LOW	
Steering angle sensor-2(ESP only)	LOW	
Pause(F1)	Graph(F2)	Save(F3)

7. Special Functions

Special tests are bi-directional diagnostic tests on anti-lock brake systems and air bags. The tests let you to use the scanner temporarily activate or control a vehicle system or component, and when you exit the test, the system/component returns to normal operation.

Some tests display a command to the operator. For example, if “Press Brake Pedal” displays, the operator has to press and hold the brake pedal and then continue. The number, and type of tests will vary for each vehicle, year and components.

Typical special test options include:

- ABS Manual Control Tests – allows to manually control the actuators in order to test ABS motors, solenoids, solenoid enable relays, EMBs, and more.
- ABS Motor Test – allows to manually control the ABS pump motor.
- ABS Version Test – displays the name of the brake system and the ABS controller version number, software ID, and sequence value.
- Actuator Tests – allows to manually control the actuators in order to test AYC valves, inlet valves, outlet valves, pump motors, and TRACS valves.
- Auto Bleed Test, Automated Bleed, or Service Bleed – removes air from the internal brake fluid chambers after servicing the brakes.

After bleeding the brake system, check the brake pedal for excessive travel or a “spongy” feel. Bleed again if either condition is present.

- Automated Test - automatically commands each solenoid valve and the pump motor on and off to test for proper operation.
- Brake Bleed Preparation Test - prepares the brake lines for bleeding by clearing air from the modulator. The test rehomes all the ABS and TCS motors, cycles the TCS motors, and then returns all motors to the “home” position at the bottom of the bore.
- Function Test - automatically commands the ABS relay, valve solenoids, and pump motor on and off to test for proper operation.
- Gear Tension Relief Test - relieves tension from the ABS motor gears so you can separate the ABS motor pack from the ABS hydraulic modulator.
- Hydraulic Control Tests - allows to manually engage and disengage the ABS solenoids for troubleshooting the hydraulic functions.
- Idle Up Manual Control Test - allows to manually control the idle up actuators.
- Lamp Tests - allows to manually control the ABS or TCS warning or indicator lamps.
- Motor Rehome Test - prepares the brake lines for bleeding by clearing air from the modulator. The test returns all ABS motors to their “home” positions.
- Pump Motor Tests - allows to manually control the pump motor.
- Relay Test - allows to manually engage and disengage either the ABS or TCS relays in order to test relay operation.
- Requested Torque Test - allows to manually control the engine torque to test for proper operation of the traction control system (TCS).
- Setup SDM Serial Number (Air Bag Sensing and Diagnostic Module) - allows to program a new air bag serial number into the dash integration module (DIM). You use

this test after installing a new air bag; otherwise a diagnostic trouble code will be set when you turn on the ignition.

- Solenoid Tests - allows to manually control the inlet and output valve solenoids.
- System Identification - displays information about the brake system, the vehicle, and the ABS controller.
- TCS Test - allows to control the pump motor in order to apply fluid pressure to the front wheel circuits.
- Traction Control System (TCS) Manual Control Tests - allows to perform motor tests and an adjuster assembly control test.
- Voltage Load Test - "loads" the ABS battery supply circuit to test for adequate battery capacity.

- a) Scroll with the arrow keys to highlight the special function test you want to perform from the menu and press the ENTER key.

Function Menu
ECU Information
Read Codes
Clear Codes
Live Data
Special Function

- b) A group selection screen, test selection screen, several step-by-step instruction screens, or bi-directional control screen may appear. Read the screens and follow all instructions. If necessary, use the function keys to perform commands or answer any questions. If more than 3 function keys displays, use up and down arrow keys to select a command and press the ENTER key to confirm.

Special Function
ABS Manual Control Tests
ABS Motor Test
ABS Version Test
Actuator Tests
Autobled Test

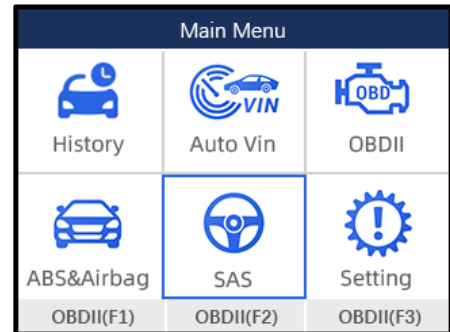
- c) When completed, press the BACK key to return to previous screens.

Not all function options listed above are applicable to all vehicles. Available options may vary by the year, model, and make of the test vehicle.

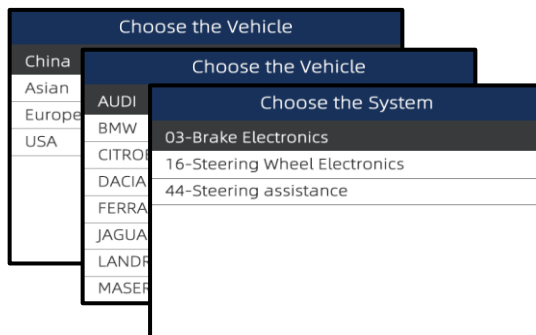
Steering Angle Sensor (SAS) Calibration

SAS Calibration menu lets you perform calibration of the steering angle sensor, which permanently stores the current steering wheel position as straight-ahead in the sensor EEPROM. On successful calibration of the sensor, its fault memory is automatically cleared.

- a) Scroll with the arrow keys to highlight SAS from the main menu and press the ENTER key.



- b) On each screen that appears, select the correct option and then press the ENTER key. Read the screens and follow all instructions to complete the test.



OBDII/EOBD Operations

OBDII/EOBD menu lets you access all OBD service modes. According to ISO 9141-2, ISO 14230-4, and SAE J1850 standards, the OBD application is divided into several sub programs, called 'Service \$xx'. Below is a list of OBD diagnostic services:

- Service \$01 - request current powertrain diagnostic data
- Service \$02 - request powertrain freeze frame data
- Service \$03 - request emission-related diagnostic trouble codes
- Service \$04 - clear/reset emission-related diagnostic information
- Service \$05 - request oxygen sensor monitoring test results
- Service \$06 - request on-board monitoring test results for specific monitored systems
- Service \$07 - request emission-related diagnostic trouble codes detected during current or last completed driving cycle
- Service \$08 - request control of on-board system, test or component
- Service \$09 - request Vehicle Information

When OBDII/EOBD application is selected from Home screen, the scanner starts to detect the communication protocol automatically. Once the connection has established, a menu that lists all of the tests available on the identified vehicle displays. Menu options typically include:

- System Status
- Read Codes
- Freeze Frame Data
- Clear Codes
- Live Data
- I/M Readiness
- O2 Sensor Test
- On-board Monitor Test
- Component Test
- Vehicle Information
- Modules Present
- Code Lookup

NOTE: Not all function options listed above are applicable to all vehicles. Available options may vary by the year, model, and make of the test vehicle. A "Not supported the mode!" message displays if the option is not applicable to the vehicle under test.

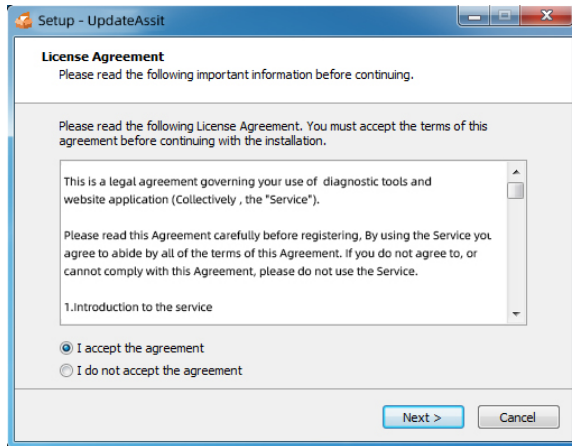
Update

The scanner can be updated to keep you stay current with the latest development of diagnosis. This section illustrates how to register and update your scan tool.

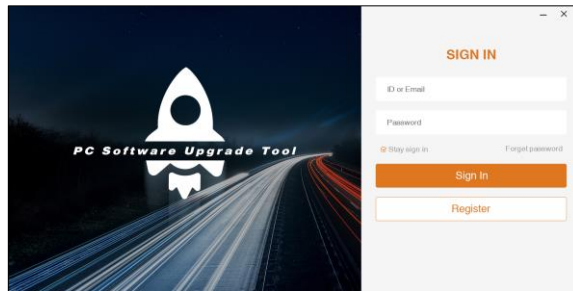
1. Create an ID with UpdateAssist

You are allowed to register and create an ID with the update tool UpdateAssist.

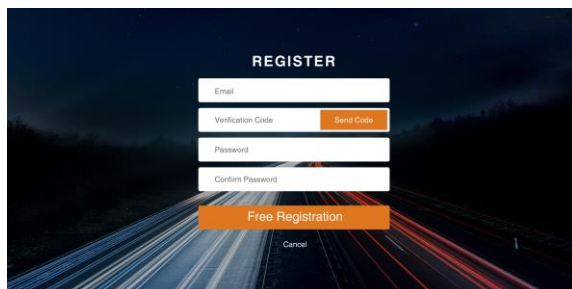
- a) Launch the PC application UpdateAssist.
- b) Unzip the application file. Follow instructions on computer screen to install the application and driver.



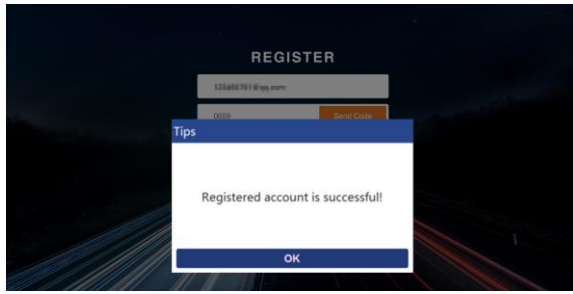
- c) Double click the desktop icon  to launch the application.



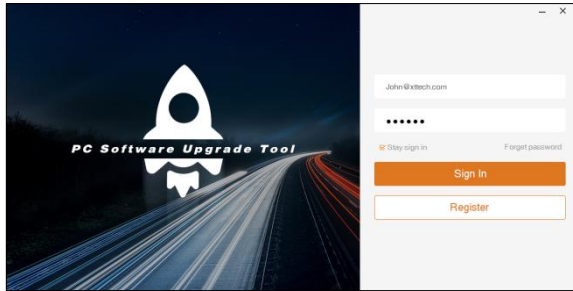
- d) Click Register button, a Register window will pop up. Enter your own email address and click "Send code" to find the verification code in your mailbox . Create a unique password, confirm password and then click "Free registration" to complete.



- e) A Registered account is successful message will appear if you registered successfully.



- f) Click OK. It skips to the login page automatically. You can input your ID and Password to sign in.




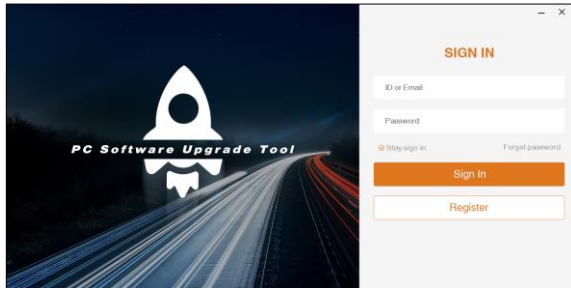
3. Update the Scanner

To update scanner, you need the following tools:

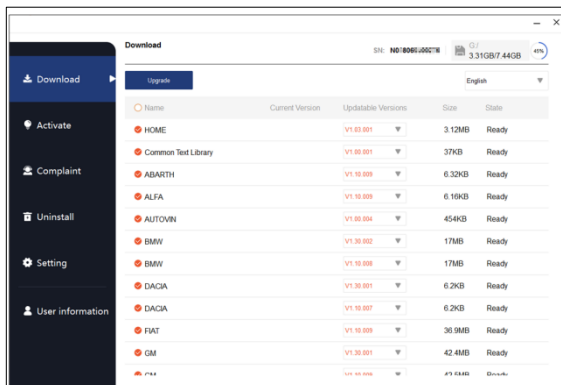
- The scan tool
 - PC application UpdateAssist
 - PC or laptop with USB ports
 - Internet service
-
- To be able to use update tool, PC or laptop must meet the following minimum requirements:
 - Operation System: Windows 7, Windows 8 and Windows 10.
 - CPU: Intel PIII or better
 - RAM: 64MB or better
 - Hard Disk Space: 30MB or better
 - Display: 800*600 pixel, 16 byte true color display or better
 - Internet Explorer 4.0 or newer

NOTE: Before updating, please make sure your network works correctly; Before updating, please make sure you have already created an ID.

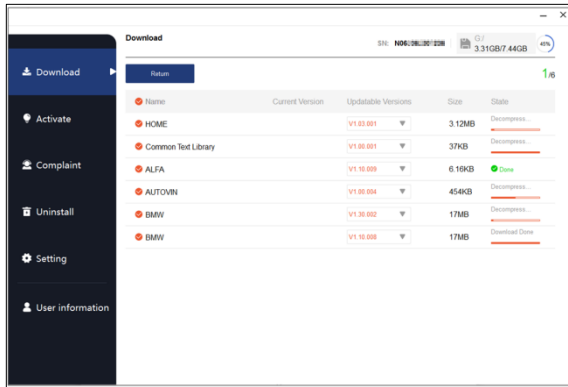
- a) Double click the desktop icon  to launch the application.
- b) Remove the TF card from the tool, and connect it to the PC with the TF Card Reader.
- c) Log in with your ID and password.



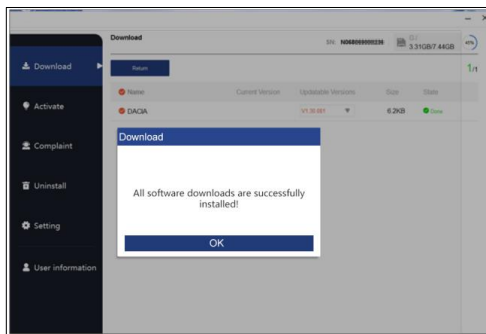
- d) In the Download tab, click the check box(es) in front of the software(s) you wish to update and then click the Upgrade button on the top of the software(s) to download.



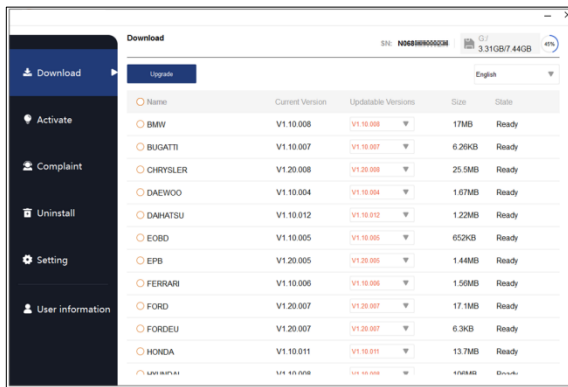
- e) When Upgrade button is clicked, it begins to download. And you can check the Current Status. If the Current Status shows Downloading, please do not close the update application.



- f) When all the items are updated, an “All software downloads are successfully installed!” message displays. Please click OK to confirm.



- g) Please click Return to review all the software status.



NOTE: If “Update Failed” dialog comes up, it indicates that the software updates failed. Please check the network connection. If the problem still exists, please contact your local dealer for assistance.

- h) Should you have any questions regarding the product, please click Complaint, fill in all required information and click Submit to send us your issue.

The screenshot shows the 'Complaint' window. On the left is a dark sidebar with navigation options: Download, Activate, Complaint (highlighted), Uninstall, Setting, and User information. The main area contains a form with the following fields: Subject (text input), Screen (dropdown menu), Serial Number (dropdown menu), Name (text input), Car Brand (text input), VIN (text input), and Year (text input). A Submit button is located at the bottom right of the form.

- i) To uninstall a software or all software, select them on the Uninstall tab and click the Uninstall button. And the uninstalled items can be found in the Uninstall screen.

The screenshot shows the 'Uninstall' window. The sidebar is the same as in the previous screenshot, with 'Uninstall' highlighted. The main area displays a table of software items with columns for Name, Current Version, Size, and Status. A 'Uninstall' button is visible at the top left of the table area.

Name	Current Version	Size	Status
ABARTH	V1.10.009	25.04KB	Ready
ACURA	V1.10.011	25.02KB	Ready
ALFA	V1.10.009	25.02KB	Ready
ASTONMARTIN	V1.10.009	5.84KB	Ready
Audi	V1.10.007	49.99KB	Ready
AudiVW	V1.00.004	1.18KB	Ready
BMW	V1.10.008	115.32KB	Ready
BMWBMW	V1.10.008	24.96KB	Ready
Bentley	V1.10.007	25.06KB	Ready
Bugatti	V1.10.007	25.06KB	Ready
CHRYSLER	V1.20.008	171.87KB	Ready

- j) Please click Setting to change the update tool language.

The screenshot shows the 'Setting' window. The sidebar has 'Setting' highlighted. The main area is titled 'Language Setting' and features a dropdown menu currently set to 'English'. A 'Confirm' button is located to the right of the dropdown.

- k) Please click User Information to view your personal information. To modify your personal information, just click the Edit and type in the message box and click Confirm. To help us provide better sales, please make sure that the telephone, email and country are correctly entered.

The screenshot shows the 'User Information' window. The sidebar has 'User information' highlighted. At the top of the main area is an 'Edit' button. Below it are several text input fields for: First Name, Middle Name, Last Name, Company, Telephone, Fax, Address, City, State/Province, Country, and Zip Code.

Limited Warranty

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the Strongway product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of one year from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, Your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.

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Northern Tool & Equipment Company, Inc.

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www.northerntool.com

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