

AUROTM

BMW - A001

TUTORIAL

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Safety Information

For your own safety and the safety of others, and to prevent damage to the device and vehicles upon which it is used, it is important that the safety instructions presented throughout the product user manual be read and understood by all persons operating or coming into contact with the device.

There are various procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the person doing the work. Because of the vast number of test applications and variations in the products that can be tested with this equipment, we cannot possibly anticipate or provide advice or safety messages to cover every circumstance. It is the automotive technician's responsibility to be knowledgeable of the system being tested. It is crucial to use proper service methods and test procedures. It is essential to perform tests in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area, the device being used, or the vehicle being tested.

Before using the device, always refer to and follow the safety messages and applicable test procedures provided by the manufacturer of the vehicle or equipment being tested. Use the device only as described in this manual. Read, understand, and follow all safety messages and instructions in this manual.

Safety Messages

Safety messages are provided to help prevent personal injury and equipment damage. All safety messages are introduced by a signal word indicating the hazard level.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.

Safety Instructions

The safety messages herein cover situations Auro is aware of. Auro cannot know, evaluate or advise you as to all of the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize your personal safety.

DANGER

When an engine is operating, keep the service area WELL VENTILATED or attach a building exhaust removal system to the engine exhaust system. Engines produce carbon monoxide, an odorless, poisonous gas that causes slower reaction time and can lead to serious personal injury or loss of life.

SAFETY WARNINGS

- 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, for exhaust gases are poisonous.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while testing.
- Be extra cautious when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Keep a fire extinguisher suitable for gasoline, chemical, and electrical fires nearby.
- Do not connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the test equipment dry, clean, free from oil, water or grease. Use a mild detergent on a clean cloth to clean the outside of the equipment as necessary.
- Do not drive the vehicle and operate the test equipment at the same time. Any distraction may cause an accident.
- Refer to the service manual for the vehicle being serviced and adhere to all diagnostic procedures and precautions. Failure to do so may result in personal injury or damage to the test equipment.
- To avoid damaging the test equipment or generating false data, make sure the vehicle battery is fully charged and the connection to the vehicle DLC is clean and secure.
- Do not place the test equipment on the distributor of the vehicle. Strong electro-magnetic interference can damage the equipment.

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Introduction

This manual introduces how to conduct BMW key learning with Auro OtoSys IM600 Smart Mode and Expert Mode.

Two options are available when accessing the IMMO function:

- Smart Mode – the IM600 tablet will read the vehicle information and analyze the IMMO part information automatically.
- Expert Mode – user can make selections step by step to locate the IMMO part.

➤ **Procedures before getting started:**

1. Connect the OtoFlash to the vehicle's DLC via the main cable for both communication and power source.
2. Connect the OtoFlash to the tablet via BT pairing, or USB connection.
3. Connect the IM600 tablet to the included programmer UP400 via USB cable.
4. Dismount the ECU module from the vehicle, refer to Appendix on [page 34](#).
5. Connect the ECU module to the Emergency coil stretched out from COM7.
6. Connect one end of the included OBD cable to the IM600 tablet, while the other end needs to be connected to the wire harness stretched out from COM8 on the ECU module. The wire harness is not included, you could DIY, refer to Appendix on [page 35](#).
7. Make sure the user has access to WiFi service in case you need to send the operation data.

 **NOTE**

Illustrations used in this manual are samples, and the actual testing screens may vary by vehicle. Observe the menu titles and on-screen instructions to make correct selections and operations.

Key Learning via Smart Mode

1. Turn on the IM600 tablet, tap **OtoSys** on the main interface screen, then **IMMO**. A vehicle menu displays and a disclaimer prompts up. Tap **Accept** to continue.



Figure 1 Sample Main Interface

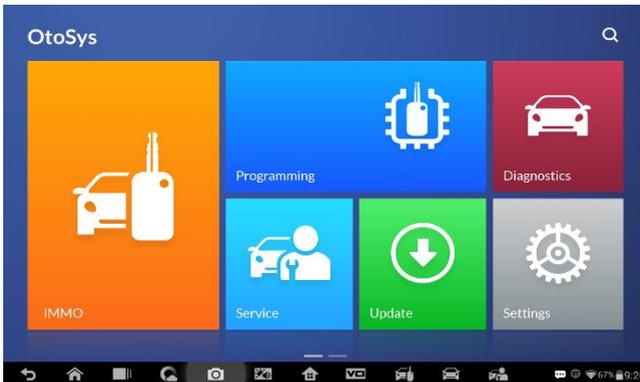


Figure 2 Sample OtoSys Interface

2. Connect the IM600 tablet to WiFi in case you need to send the operation data, then go back to the vehicle menu.

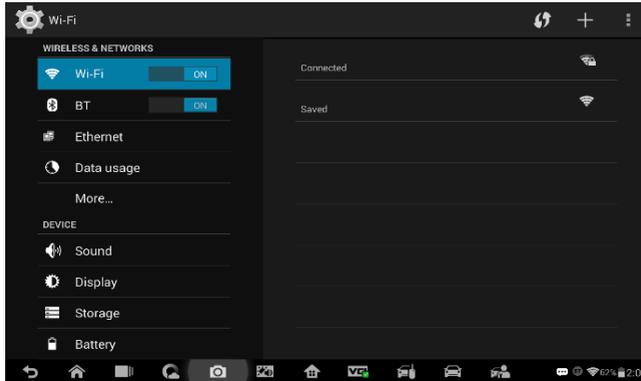


Figure 3 Sample Connect WiFi Screen

3. Tap **BMW** on the vehicle menu, then tap **Smart Mode** on the Mode Select interface.

NOTE

You can click on the icon near the top-right corner to record the operation data. If you encounter any difficulties, click on the icon again to send us the data and problems, so that our engineers could help.



Figure 4 Sample Vehicle Menu

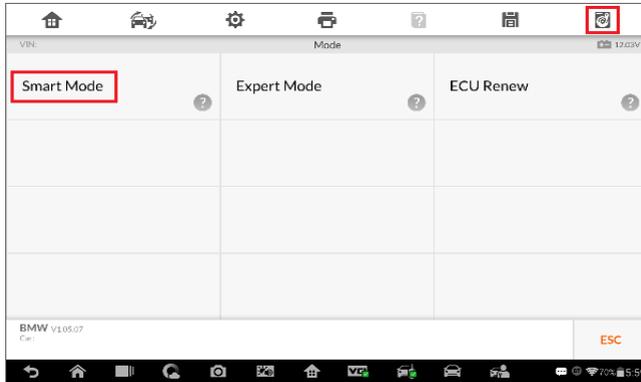


Figure 5 Sample Mode Select Screen

4. Make sure the engine is off, tap **OK** on the information interface. The IM600 tablet starts to read vehicle information automatically.

NOTE

The ECU module is detected automatically under the Smart Mode. Check the ECU module in ECU information at the bottom of the vehicle information interface.

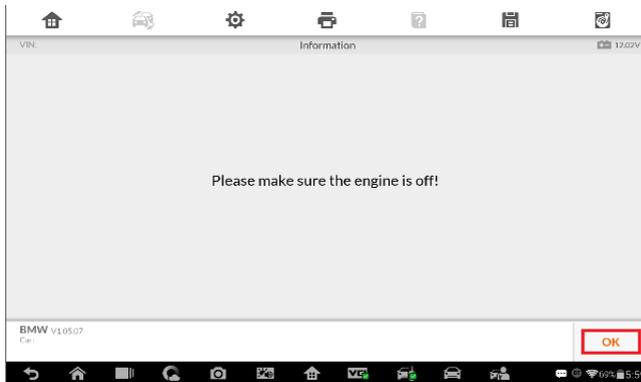


Figure 6 Sample Information Screen

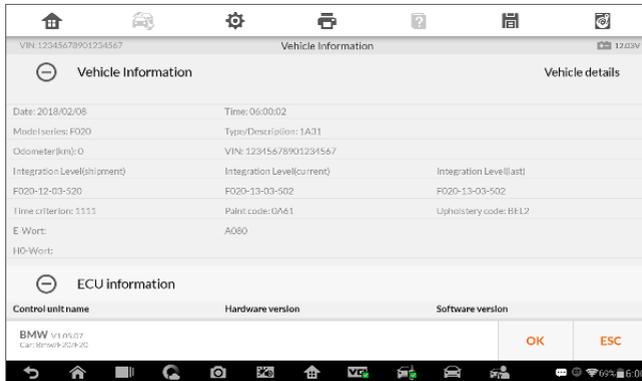


Figure 7 Sample Vehicle Information Screen

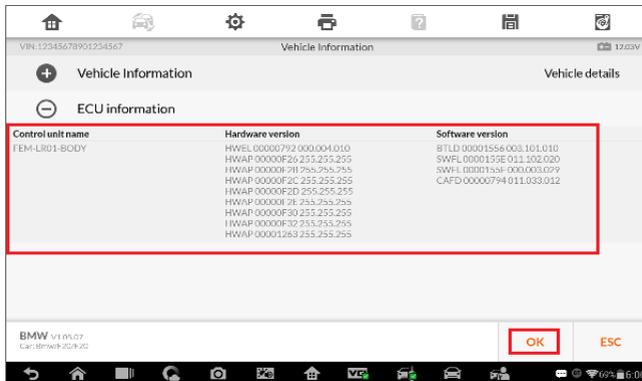


Figure 8 Sample Vehicle Information Screen

5. Tap **OK** on the vehicle information interface, the IM600 tablet starts to backup coding files automatically.

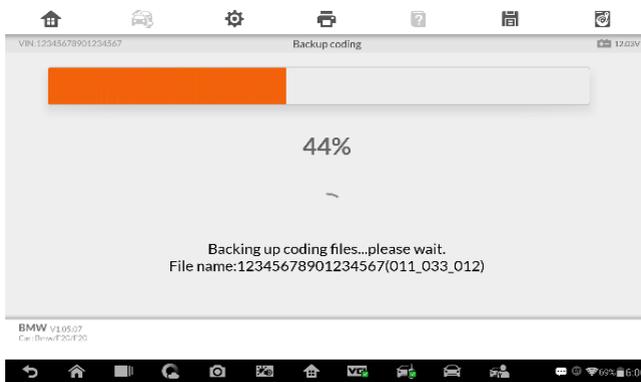


Figure 9 Sample Backup Coding Files Screen

6. After coding files backup, disassemble the EEPROM chip and connect it to the programmer for backing up and modifying EEPROM data. Tap **OK** when operation over.

NOTE

- Tap **Diagram** on the information interface for the EEPROM chip location. For more details about disassembling the EEPROM chip, please refer to Appendix on [page 37](#).
- Turn off the +12V power first.

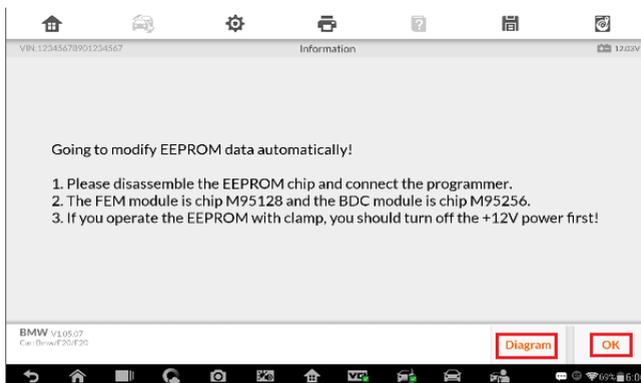


Figure 10 Sample Information Screen

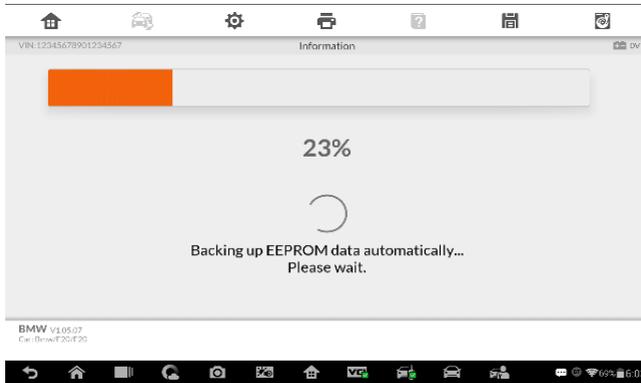


Figure 11 Sample Information Screen

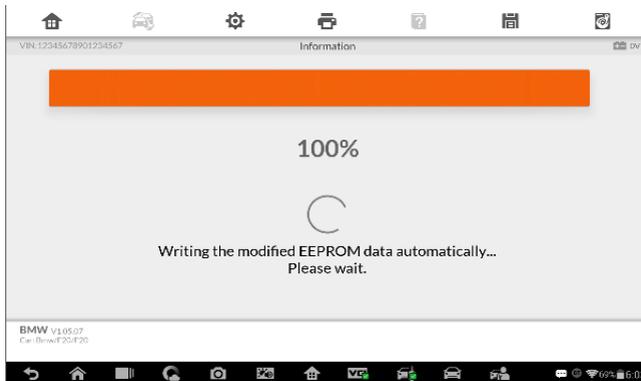


Figure 12 Sample Information Screen

7. Install the EEPROM chip back to the ECU module after modifying EEPROM data. Tap **OK** when operation over. Programing starts automatically.

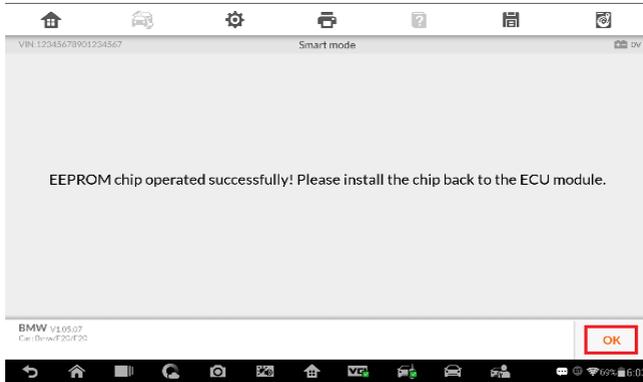


Figure 13 Sample Information Screen



Figure 14 Sample Information Screen

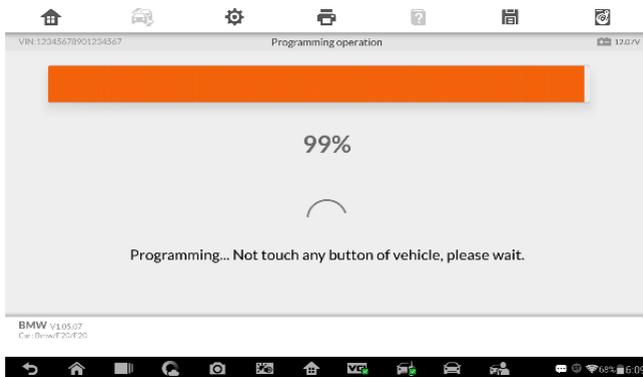


Figure 15 Sample Programming Screen

- After programming, disassemble the EEPROM chip and connect it to the programmer for restoring the EEPROM data.

NOTE

- Tap **Diagram** on the information interface for the EEPROM chip location. For more details about disassembling the EEPROM chip, please refer to Appendix on [page 37](#).
- Turn off the +12V power first.



Figure 16 Sample Note Screen

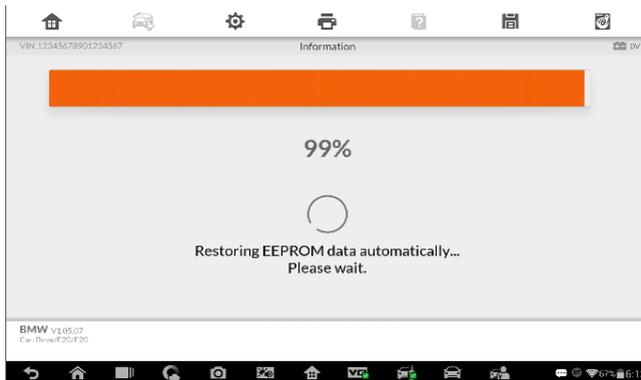


Figure 17 Sample Information Screen

9. Install the EEPROM chip back to the ECU module after restoring EEPROM data. Tap **OK** when operation over.

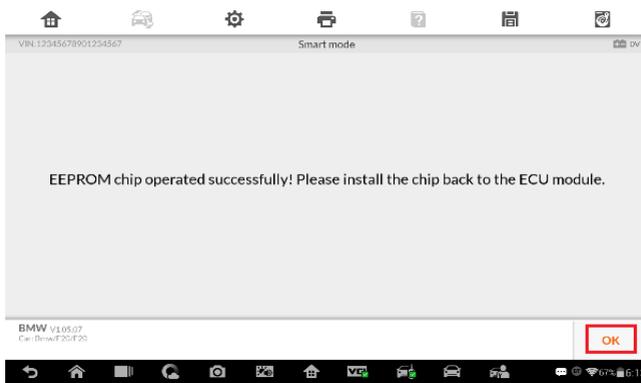


Figure 18 Sample Information Screen

10. Restoring coding files starts automatically after installation the EEPROM chip back. Pay attention to the notes displayed on the interface. Tap **OK** to proceed.

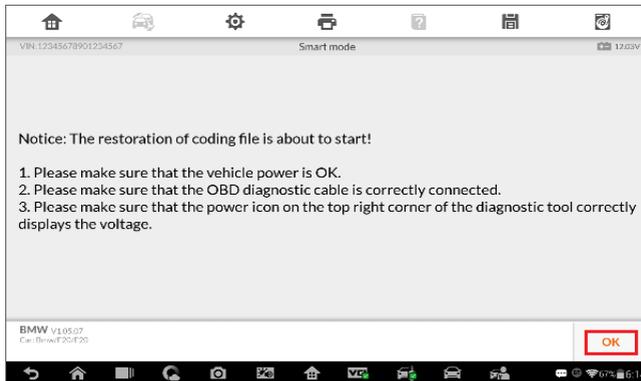


Figure 19 Sample Note Screen

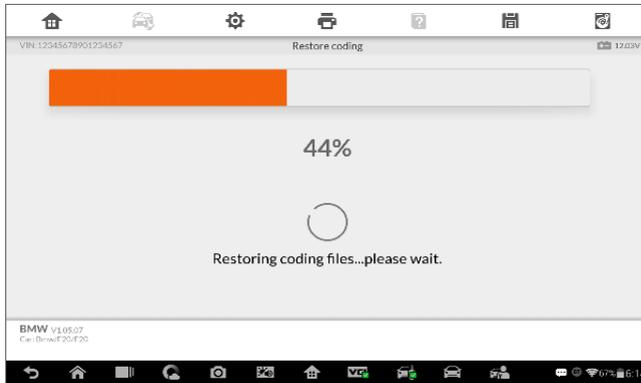


Figure 20 Sample Information Screen

11. Key learning starts automatically after restoring coding files. Pay attention to the operation guide. Tap **OK** to proceed.

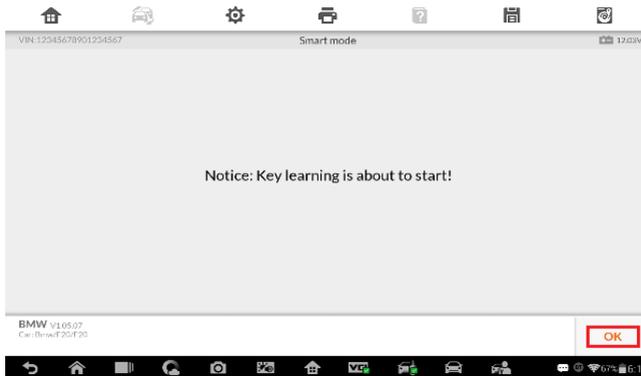


Figure 21 Sample Information Screen

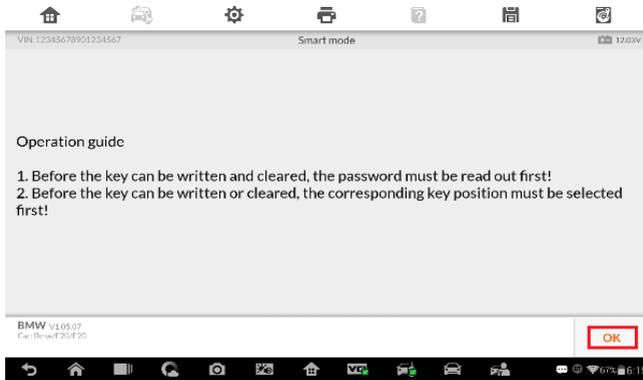


Figure 22 Sample Operation Guide Screen

12. Tap **Read password** on the Key Learning interface. Proceed as information displayed. Tap **OK** on the key password information interface, go back to the Key Learning interface.

NOTE

The ISN code is needed if you have no working keys with key learning.

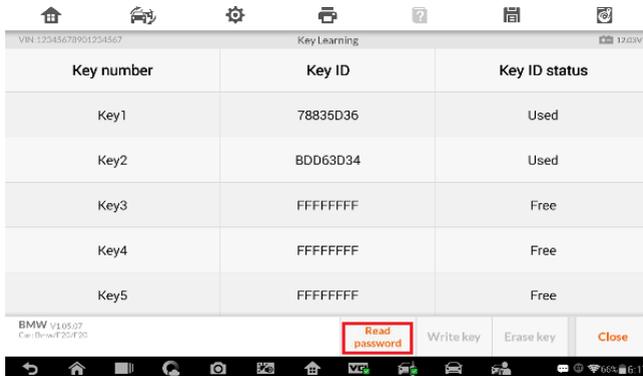


Figure 23 Sample Key Learning Screen

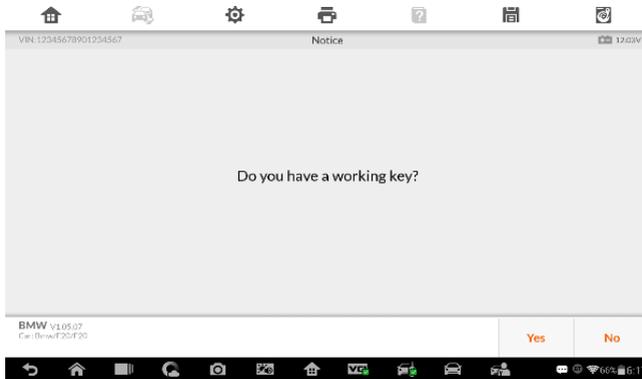


Figure 24 Sample Information Screen

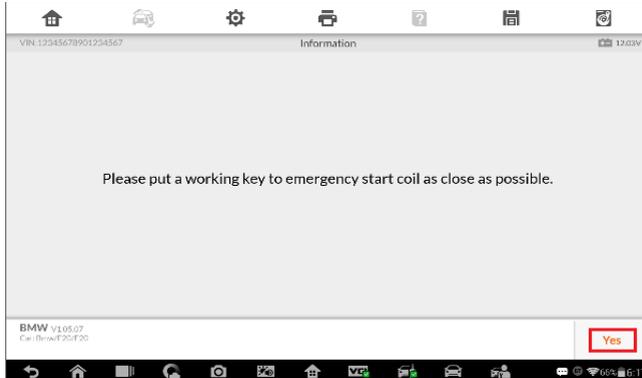


Figure 25 Sample Information Screen

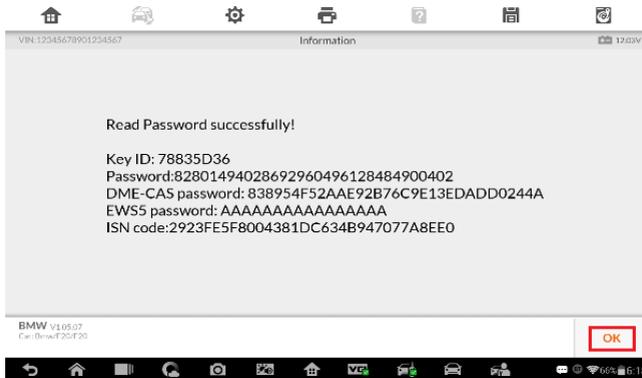


Figure 26 Sample Key Information Screen

- Select a free key to write. Tap **Write key**. Proceed as information displayed. Tap **OK** when operation over.

NOTE

Repeat Write key procedures if you need more than one newly-learned key.

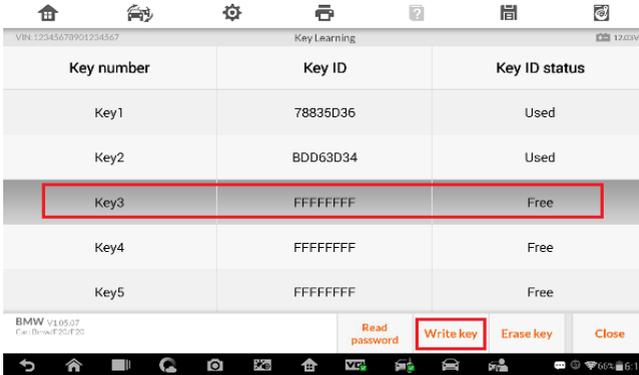


Figure 27 Sample Key Learning Screen

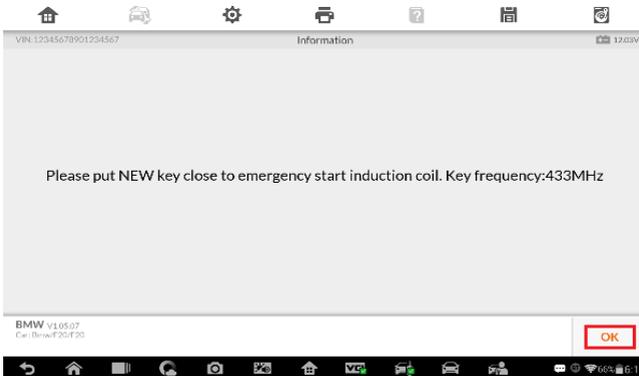


Figure 28 Sample Information Screen



Figure 29 Sample Connection Screen

14. Tap **OK** on the Write key success interface, go back to the Key Learning interface. The key ID status of the selected key becomes "Used". Key learning via Smart Mode completes.

NOTE

If keys are lost, select the corresponding keys on the interface, tap **Erase key** to delete the lost keys.

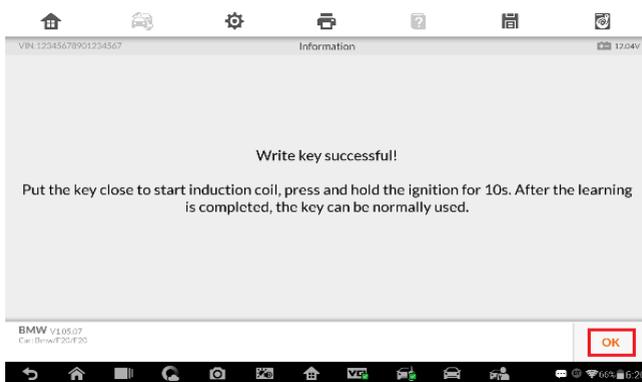


Figure 30 Sample Information Screen

Key number	Key ID	Key ID status
Key1	78835D36	Used
Key2	BDD63D34	Used
Key3	7FA09232	Used
Key4	FFFFFFFF	Free
Key5	FFFFFFFF	Free

BMW v1.05.07
Car:BMW720F20

Read password Write key Erase key Close

Figure 31 Sample Key Learning Screen

Key Learning via Expert Mode

1. Turn on the IM600 tablet, tap **OtoSys** on the main interface screen, then **IMMO**. A vehicle menu displays and a disclaimer prompts up. Tap **Accept** to continue.



Figure 32 Sample Main Interface

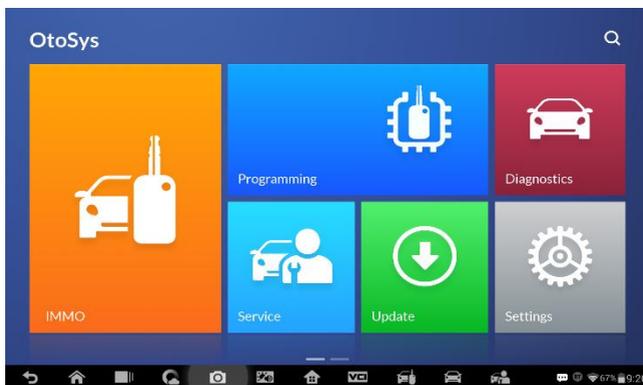


Figure 33 Sample OtoSys Interface

2. Connect the IM600 tablet to WiFi in case you need to send the operation data, then go back to the vehicle menu.

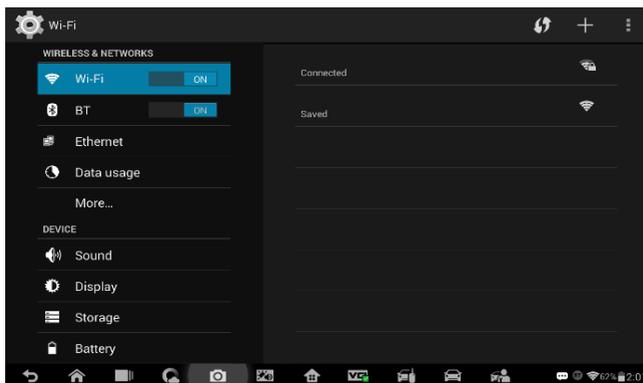


Figure 34 Sample Connect WiFi Screen

3. Tap **BMW** on the vehicle menu, then tap **Expert Mode** on the Mode Select interface. Pay attention to the Notice interface, tap **OK** to proceed.

NOTE

You can click on the icon near the top-right corner to record the operation data. If you encounter any difficulties, click on the icon again to send us the data and problems, so that our engineers could help.



Figure 35 Sample Vehicle Menu

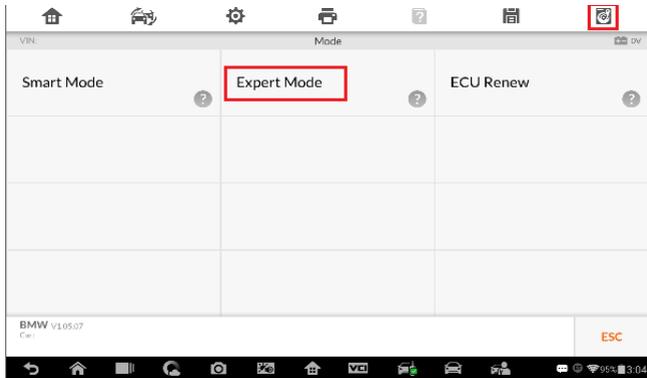


Figure 36 Sample Mode Select Screen

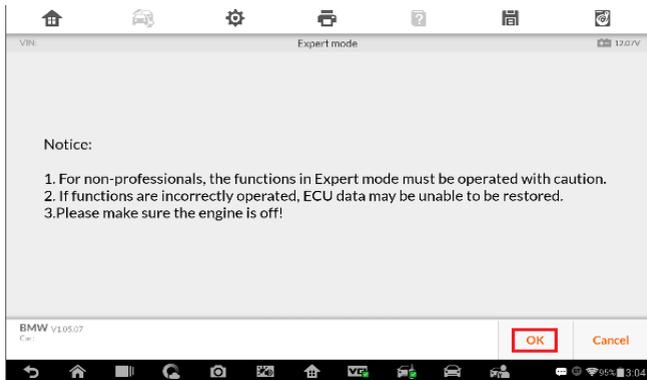


Figure 37 Sample Information Screen

4. Tap **FEM/BDC** on the Expert mode interface to the FEM/BDC Function Select interface.



Figure 38 Sample Expert Mode Function Select Screen

5. Tap **Vehicle information** to check the vehicle information. Tap **ESC** to the FEM/BDC Function Select interface.



NOTE

Check the ECU module in ECU information at the bottom of the vehicle information interface.

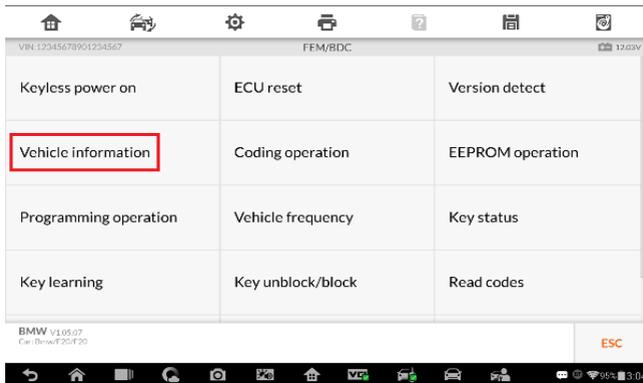


Figure 39 Sample FEM/BDC Function Select Screen

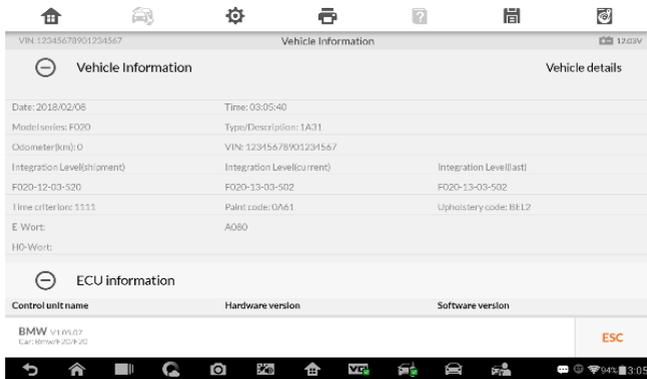


Figure 40 Sample Vehicle Information Screen

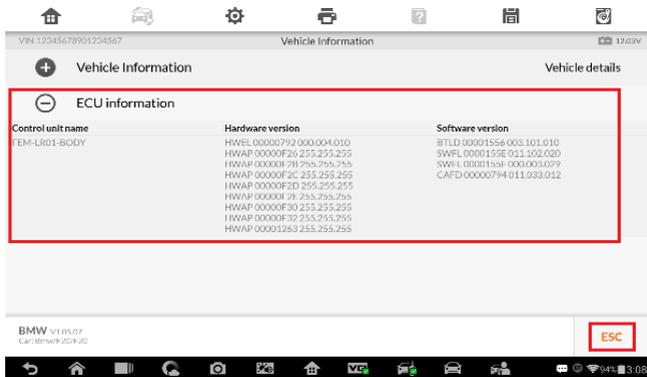


Figure 41 Sample ECU Information Screen

6. Tap **Coding operation** > **Backup coding** to back up coding files. Save the file after backup successful. Tap **OK** > **ESC**, go back to the FEM/BDC Function Select interface.

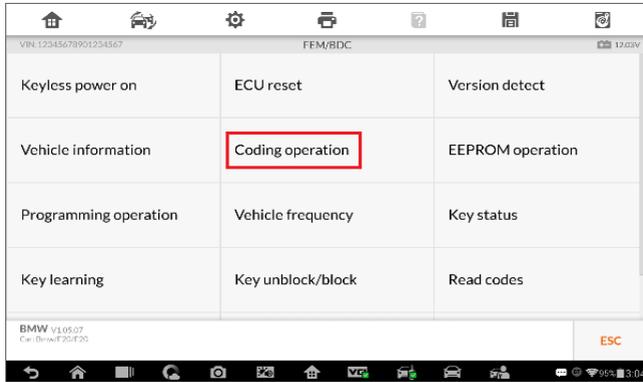


Figure 42 Sample FEM/BDC Function Select Screen

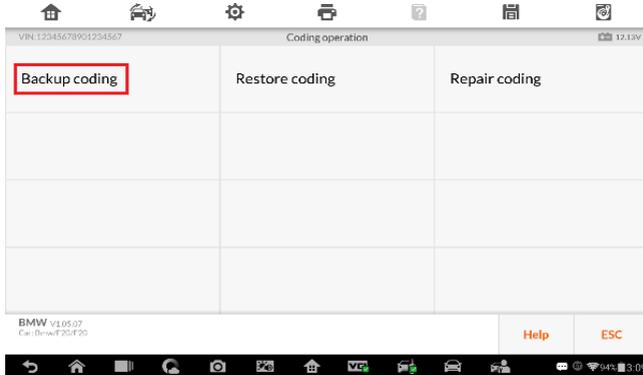


Figure 43 Sample Coding Operations Screen

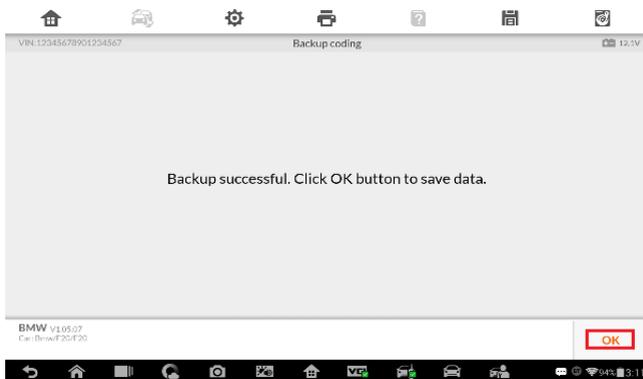


Figure 44 Sample Backup Coding Screen

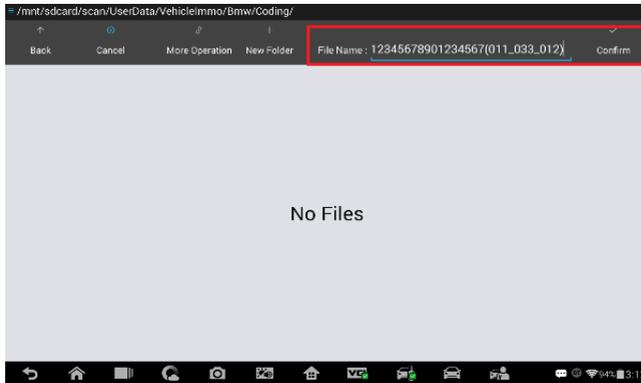


Figure 45 Sample Saving File Screen

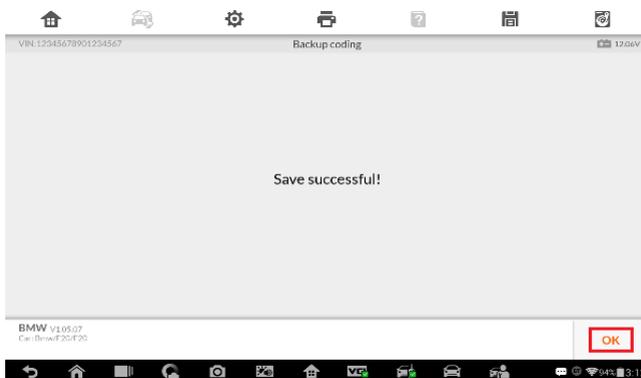


Figure 46 Sample Information Screen

7. Tap **EEPROM operation** on the FEM/DBC Function Select interface. The Model Selection interface displays, M95128 is corresponding to FEM module, and M95256 is corresponding to BDC module. Take FEM module as an example here, tap **M95128**. The M95128 Function Select interface displays.

NOTE

- Tap **Diagram** for the EEPROM chip position.
- Turn off the +12V power first, then disassemble the EEPROM chip and connect it to the programmer.

8. Tap **Read operation** on the M95128 Function Select interface. Save the EEPROM data displayed.



Figure 47 Sample Model Selection Screen

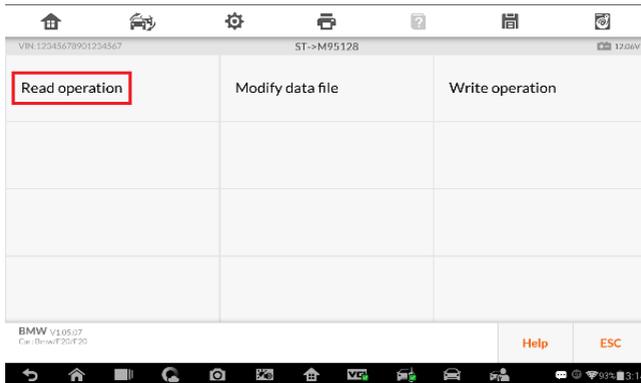


Figure 48 Sample M95128 Function Select Screen

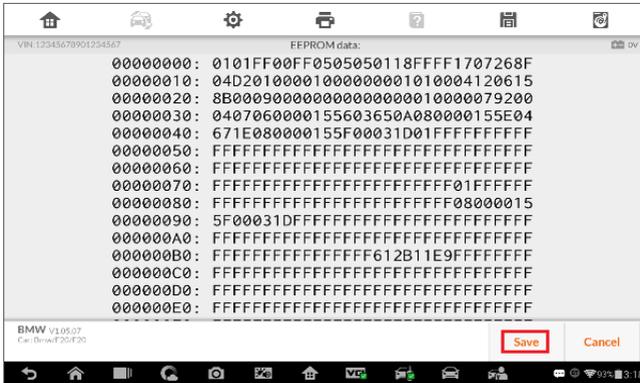


Figure 49 Sample EEPROM Data Screen

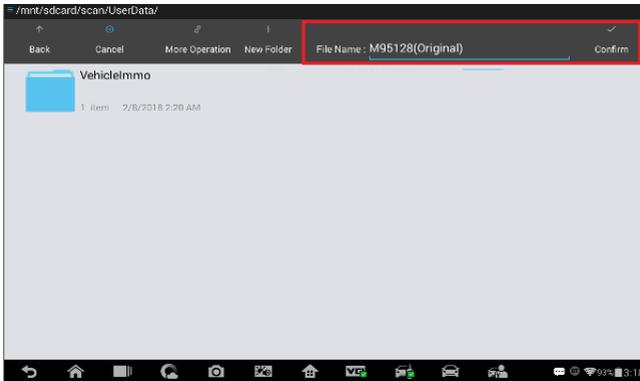


Figure 50 Sample Saving File Screen

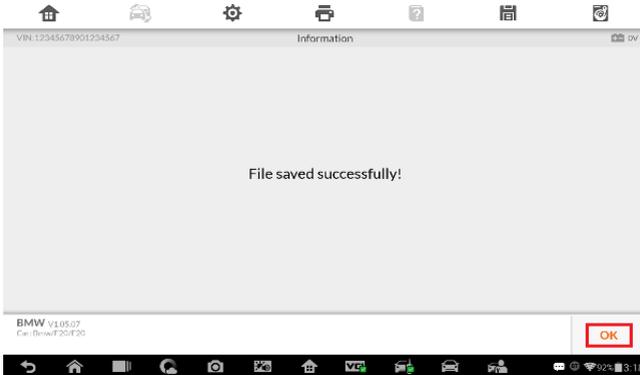


Figure 51 Sample Information Screen

9. Tap **Modify data file** after Reading operation. Select the source (original) file to modify.

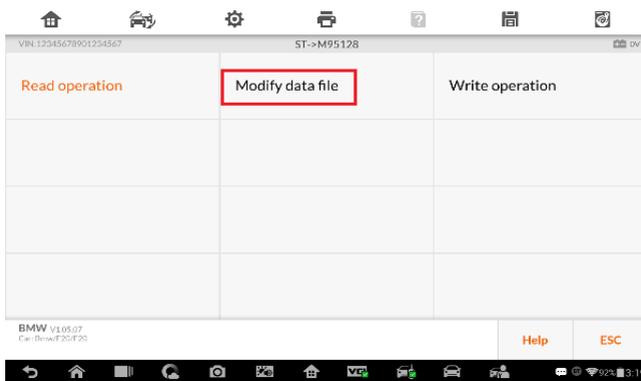


Figure 52 Sample M95128 Function Select Screen

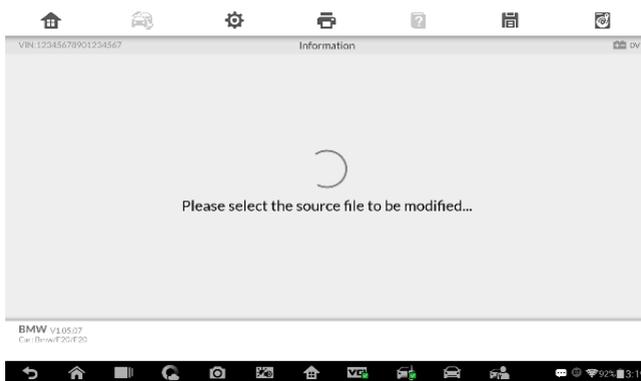


Figure 53 Sample Information Screen



Figure 54 Sample Selecting File Screen

10. Save the modified EEPROM data. Go back to the M95128 Function Select interface.



Figure 55 Sample Saving Data Screen

11. Tap **Write operation**. Select the modified EEPROM data to write. After writing successfully, turn off the +12V power, install the EEPROM chip back to the FEM module. Go back to the FEM/BDC Function Select interface.

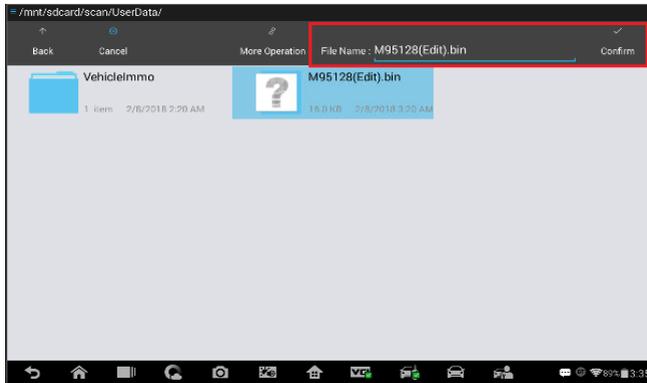


Figure 56 Sample Selecting File Screen



Figure 57 Sample Information Screen

12. Tap **Programming operation > ECU preprocessing**. Make sure the three operations listed have been taken, tap **Yes** and proceed.

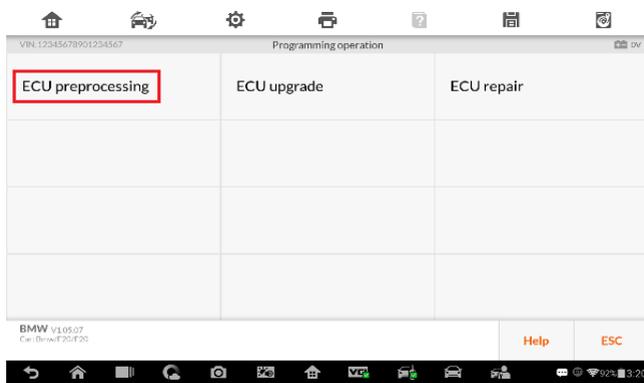


Figure 58 Sample Programming Operations Screen

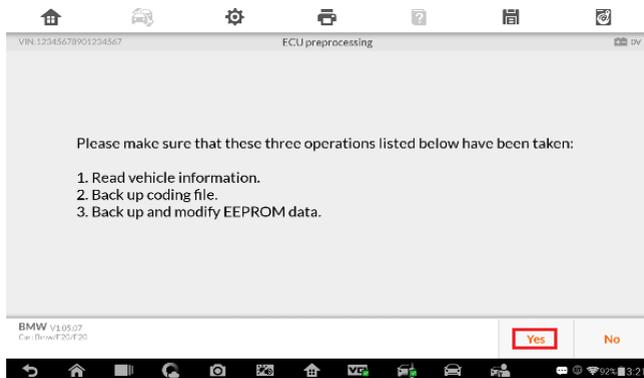


Figure 59 Sample Information Screen

13. Pay attention to the Note interface, tap **OK** to proceed. Go back to the FEM/BDC Function Select interface after programming successful.



Figure 60 Sample Information Screen

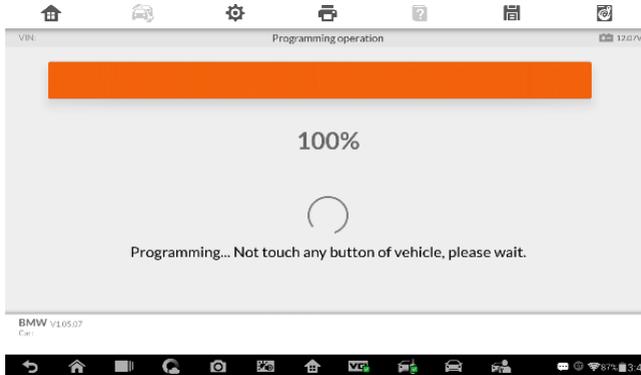


Figure 61 Sample Information Screen

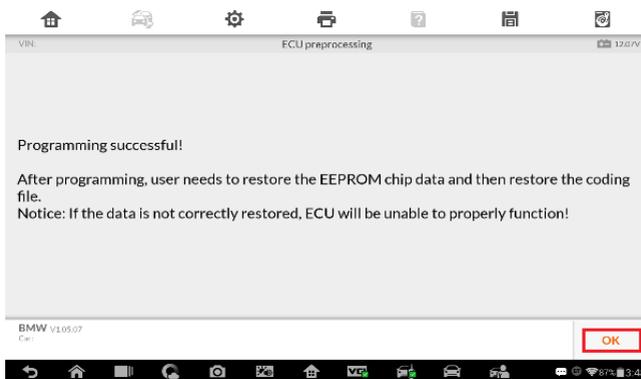


Figure 62 Sample Information Screen

14. Tap **EEPROM operation**. Turn off the +12V power, disassemble the EEPROM chip. Tap **M95128 > Write operation**. Select the original file to write. After written successfully, go back to the FEM/BDC Function Select interface, turn off the +12V power, install the EEPROM chip back to the FEM module.

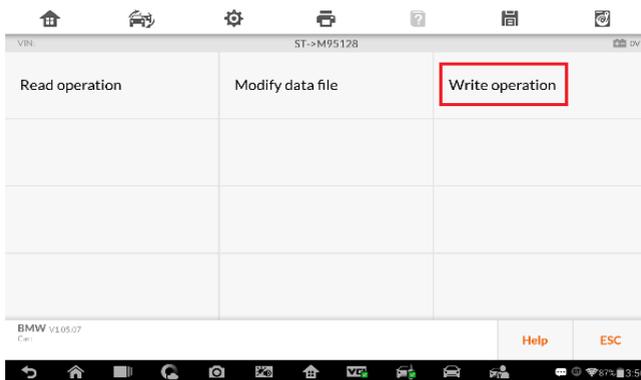


Figure 63 Sample M95128 Function Select Screen

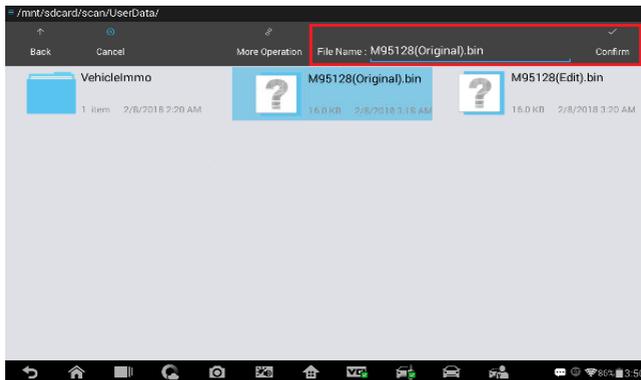


Figure 64 Sample Selecting File Screen

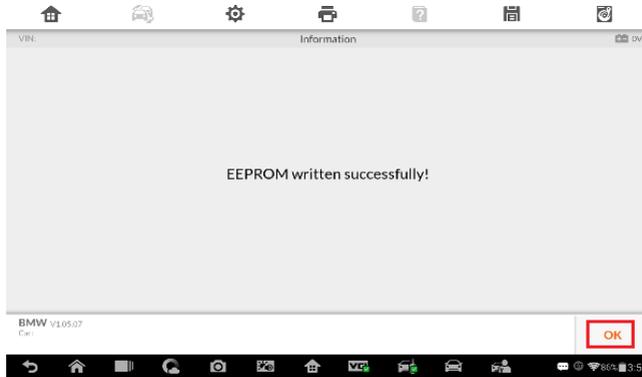


Figure 65 Sample Information Screen

15. Tap Coding operation on the FEM/BDC Function Select interface.

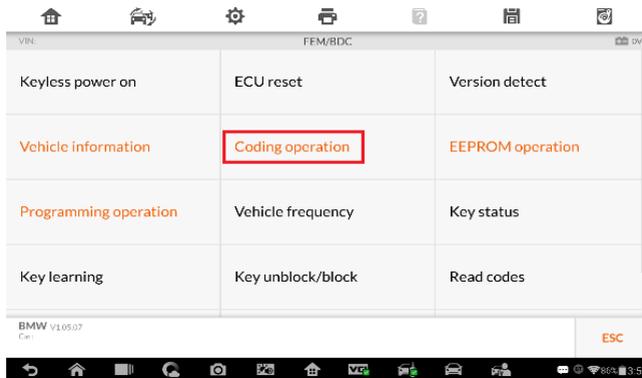


Figure 66 Sample FEM/BDC Function Select Screen

16. Tap **Restore coding** on the Coding operation Function Select interface. Select the initial coding file to restore. Go back to the FEM/BDC Function Select interface after restoration.



Figure 67 Sample Coding Operations Screen

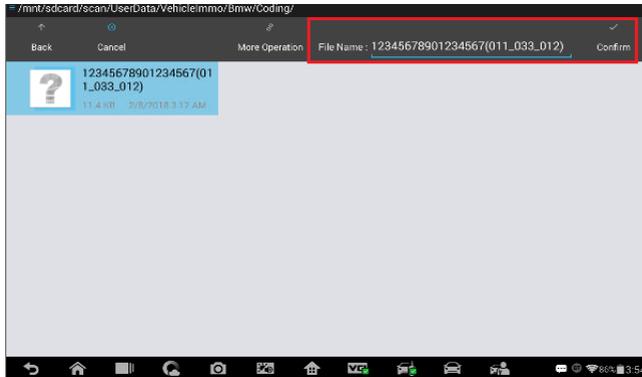


Figure 68 Sample Selecting File Screen

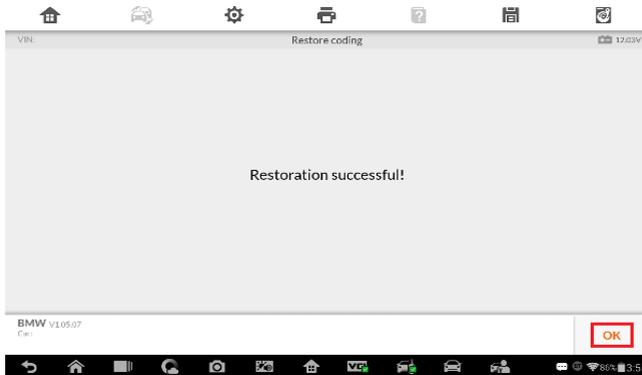


Figure 69 Sample Information Screen

17. Tap **Key learning** on the FEM/BDC Function Select interface. The Key learning procedures of Expert Mode is the same as that of Smart Mode. Please refer to [step 11 to step 14](#) of Key Learning via Smart Mode.

Appendix

Disassemble the ECU Module

The FEM/BDC module is located at the A-pillar of the front passenger side.

➤ **Procedures to disassemble the ECU module from the vehicle:**

1. Unclip the front door sill cover strip at the passenger side.
2. Remove the bottom right instrument trim panel and disconnect plug connections behind it.
3. Remove the side trim panel at the passenger side.
4. Remove the cover at the lower part of the module.
5. Unlock the positive battery cable connector.
6. Disconnect the plug connections to the module.
7. Release the bolt from the module.
8. Remove the module from the vehicle.

Connect the Test Wire Harness and OBD Cable

Details to connect the test wire harness and OBD cable are shown below. Make sure wires are connected to the right pins.

- Procedures to connect the test wire harness and OBD cable:
 1. Connect cables to corresponding pins according to the number shown in the figure.
 2. Connect another side of the wire harness of these cables to the OBD female adapter.
 3. Connector the emergency coil to the corresponding pins according to the numbers.

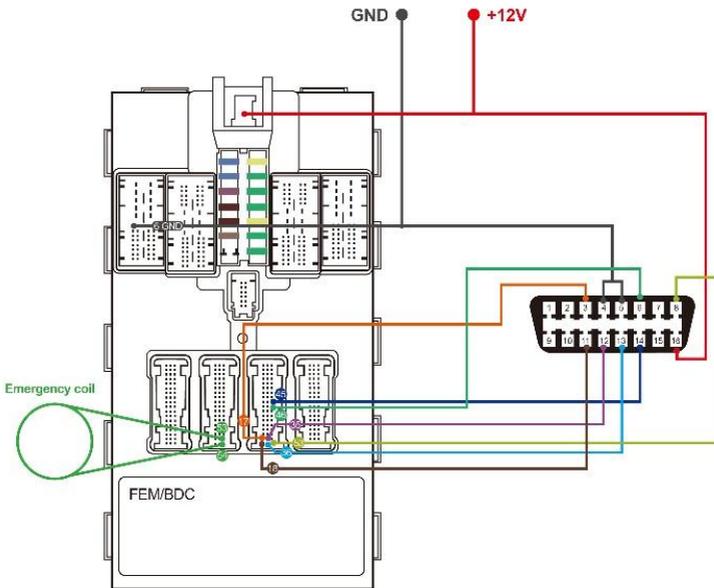


Figure 70 Sample Overall Connection

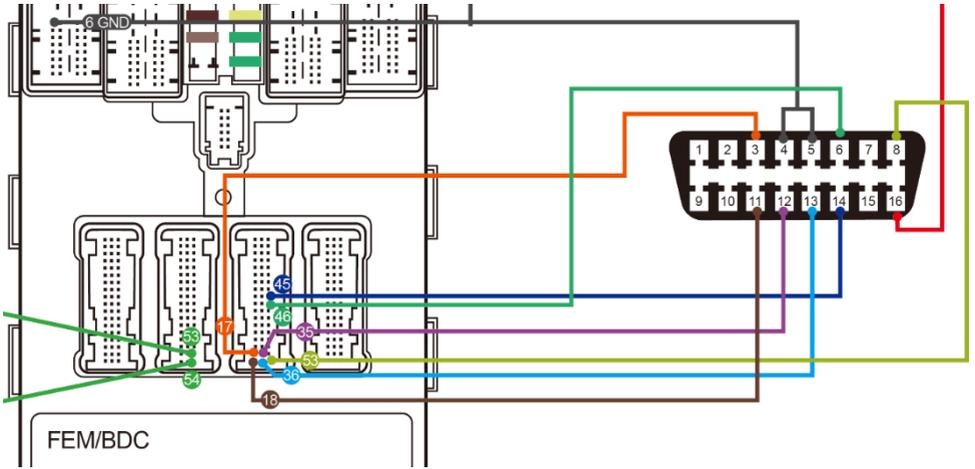


Figure 71 Sample Corresponding Numbers

Disassemble the EEPROM Chip

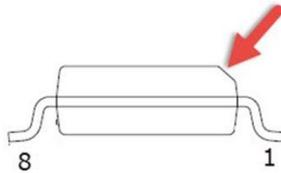
- Procedures to disassemble the EEPROM chip are shown below:
 1. Find the chip in the ECU module.
 2. Disassemble the EEPROM chip and figure out the pin 1, the bevel side on the right, viewed from the cross section.
 3. Assemble the chip in the clamp, match the pin 1 of the chip with that on the clamp.



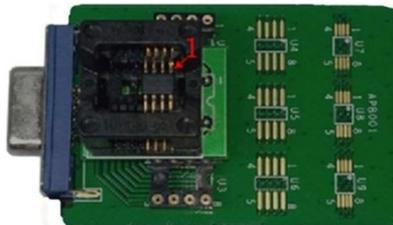
Picture 1: EEPROM position on FEM System



Picture 2: EEPROM position on BDC System



Picture 3: Pin 1 position



Picture 4: Pin 1 position on the clamp

Figure 72 Sample EEPROM Chip Position