

BMW Multi Tool User Manual



X-Horse Electronics Co., Ltd.

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1. Safety Precautions and Warnings

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

- 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 in front of the drive wheels and never leave the 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 the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
- Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the 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

Thank you for choosing BMW Multi Tool.

This manual includes the use of equipment notes, please read this manual carefully before use so that you can correctly use it.

X-Horse Electronics, 2011

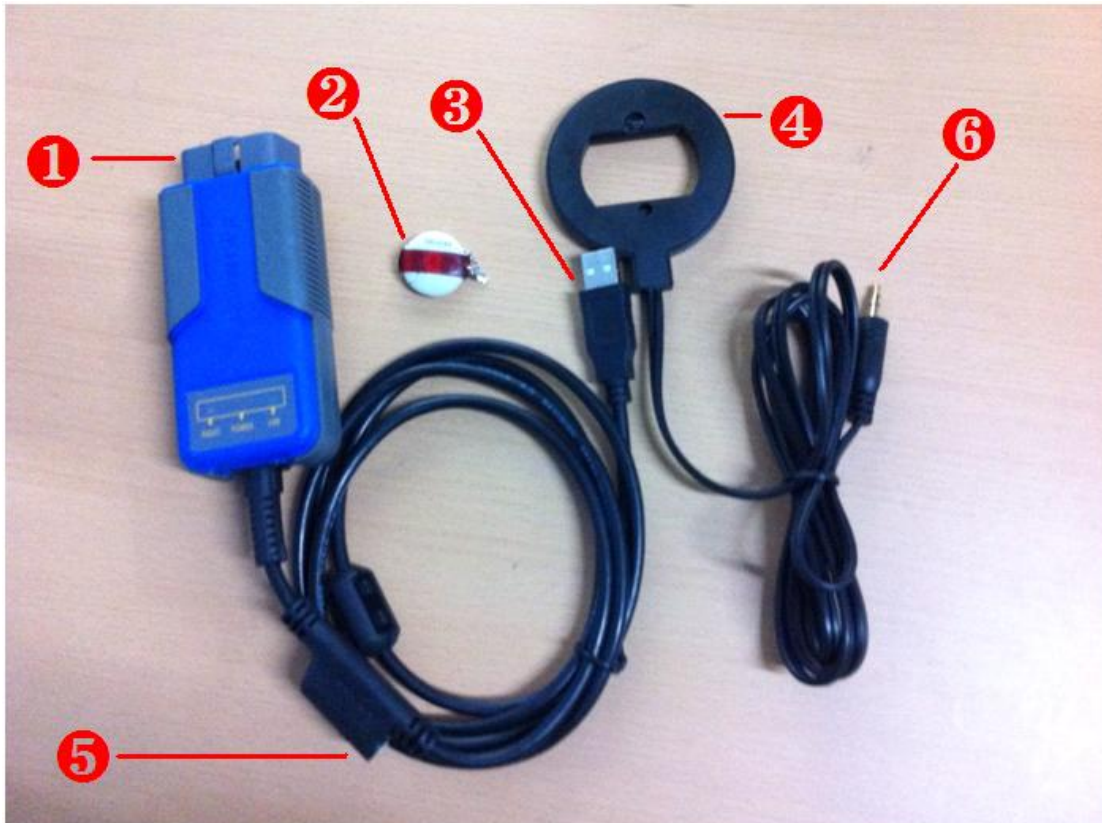
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3. Hardware Overview

3.1. Tool Description



ITEM	Description
1	OBD II CONNECTOR Connects the tool to the vehicle's Data Link connector (DLC).
2	Dongle USB dongle.
3	USB CONNECTOR Connects the tool to the PC/Laptop through USB Cable.
4	Programmer Program keys.
5	Programmer Female Pin Connects programmer to device.
6	Programmer Male Pin Connects programmer to device.

3.2. Specifications

ITEM	Description						
Operating Temperature	-20 to 70 °C (-4 to 158 °F)						
Storage Temperature	-40 to 85 °C (-40 to 185 °F)						
Diagnostic Interface	16 PIN						
USB Interface	USB 2.0						
Power	DC 5 V - 12 V						
Consumption	1 W						
Dimensions	<table border="1"> <thead> <tr> <th>Length</th> <th>Width</th> <th>Height</th> </tr> </thead> <tbody> <tr> <td>95 mm(3.74")</td> <td>49 mm(1.93")</td> <td>28 mm(1.10")</td> </tr> </tbody> </table>	Length	Width	Height	95 mm(3.74")	49 mm(1.93")	28 mm(1.10")
Length	Width	Height					
95 mm(3.74")	49 mm(1.93")	28 mm(1.10")					
Net Weight	85 g						
Gross Weight	223 g						

3.3. System Requirements

PC/Laptop Minimum Specification

	Minimum Specification	Recommended Specification
CPU	Pentium 3/1GHz or above	Pentium 4/1.6GHz or above
Memory(RAM)	512M or above	1G or above
HDD	40G or above	60G or above
Display	800 x 600 or above	1024 x 768 or above
OS	Win98/2000/XP/Vista	WinXP
Port	USB	USB

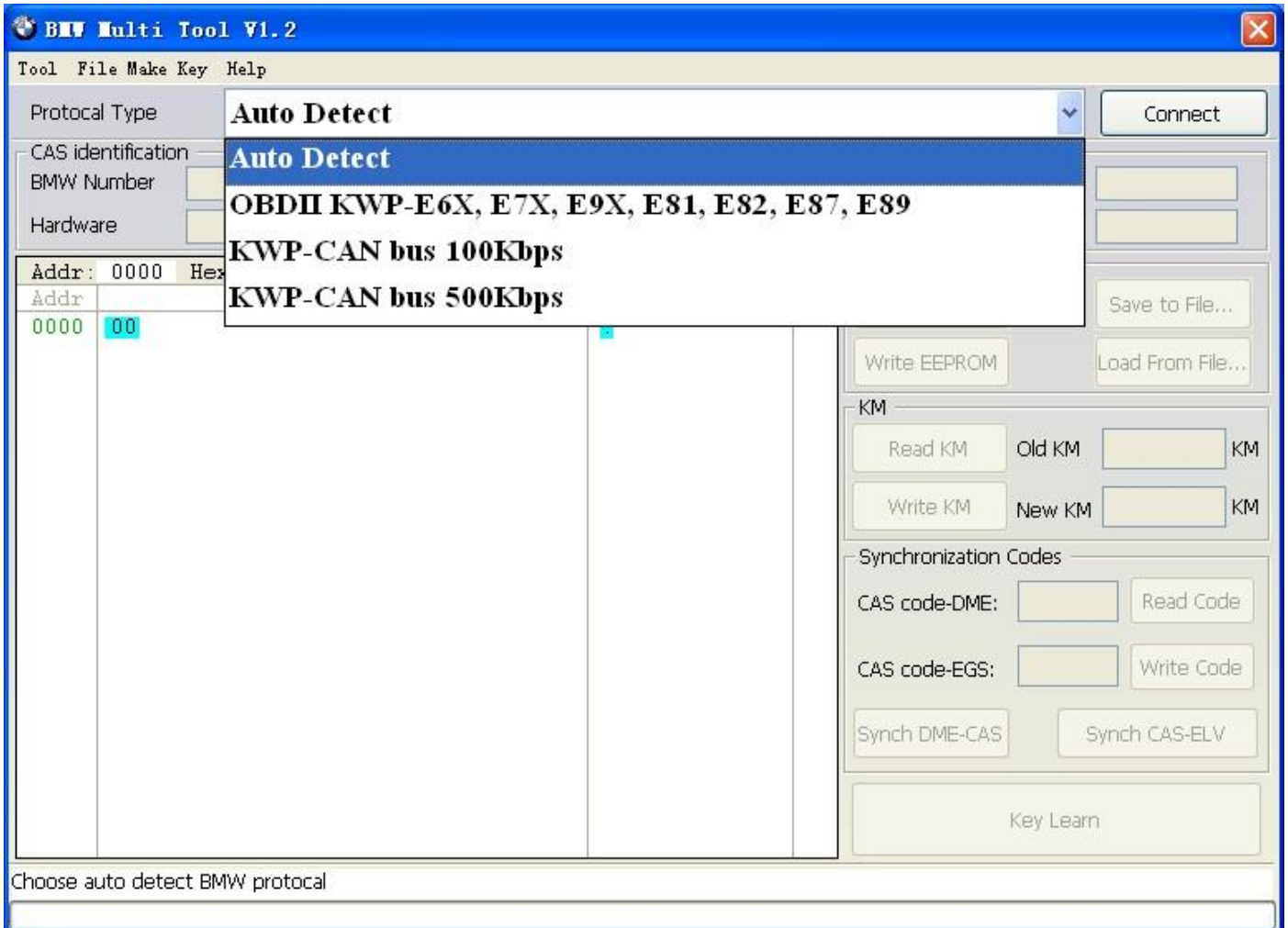
4. Software Overview

4.1. Overview

BMW Multi Tool includes forth parts, hardware device, dongle, programmer, software. Before running software you must connect dongle and hardware device to computer.

4.2. Function

Main window follows:



i. Menu

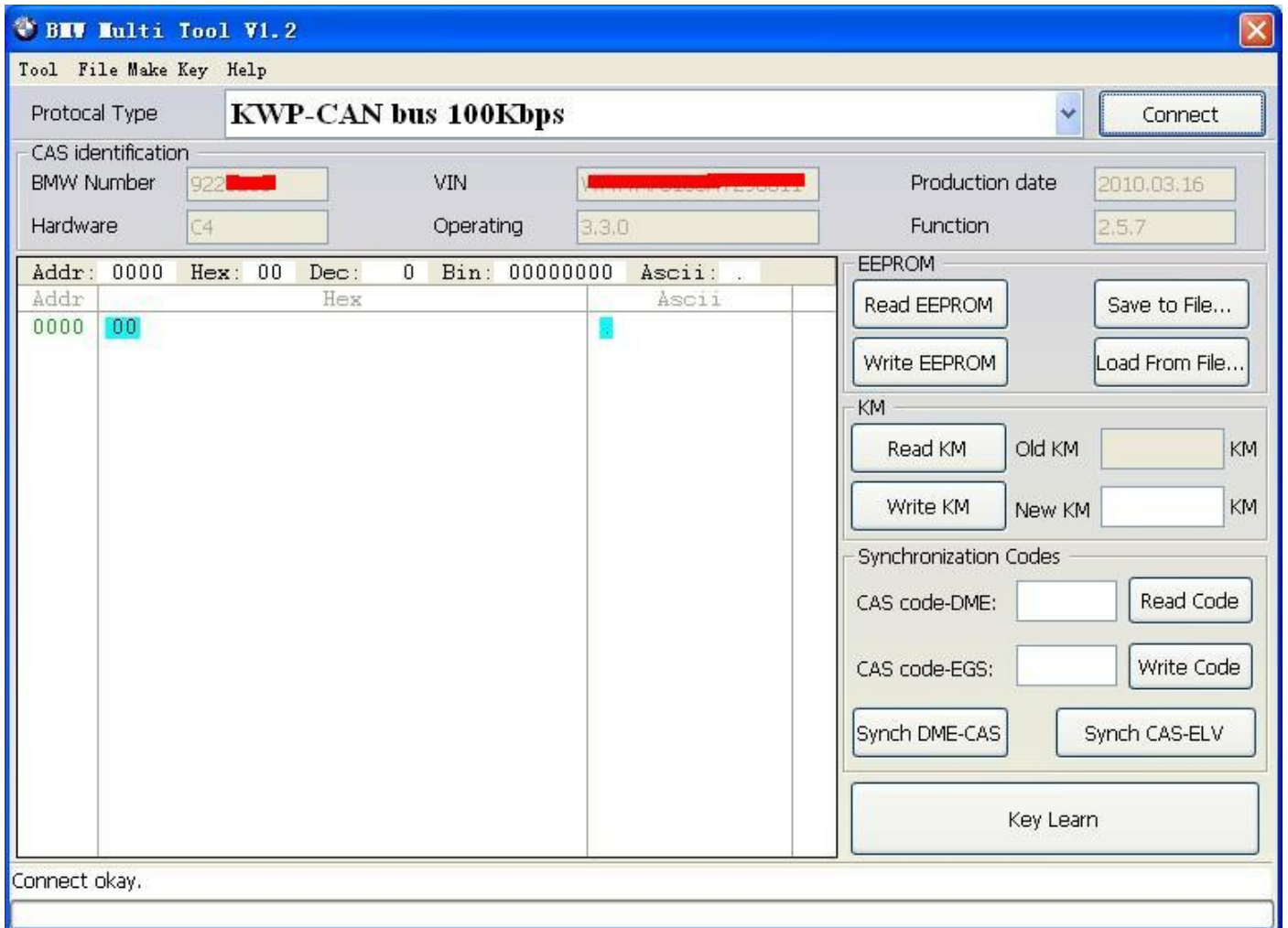
Tool: you can choose language here, support “English” and “Chinese Simplified” Restart software to apply your settings.

File Make Key: you can prepare dealer key with EWS and CAS EEPROM dump.

Help: Device update. You can get your device and dongle id version and update it.

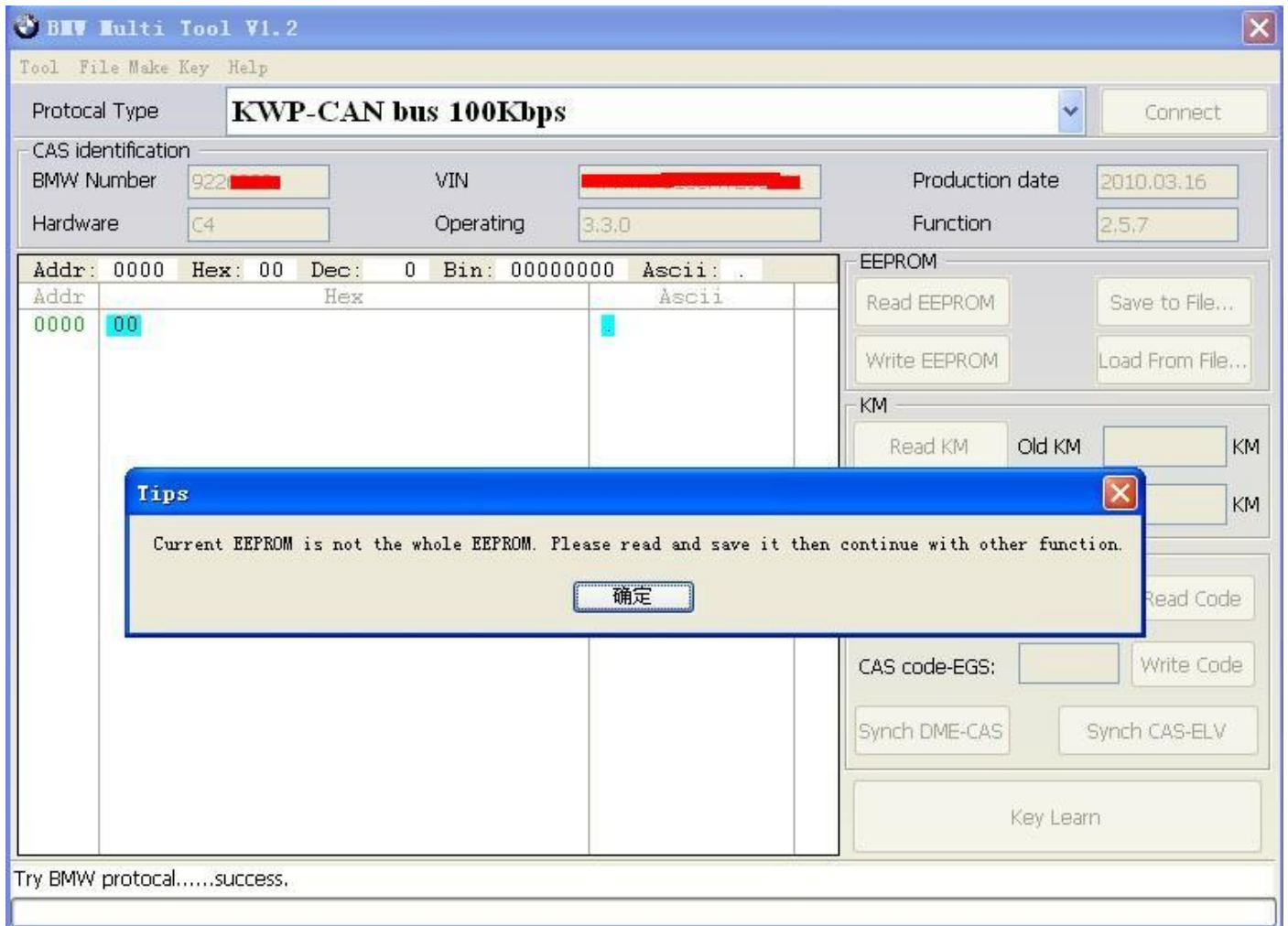
ii. Protocol type:

Now BMT support there type of protocol: KWP-CAN BUS 100Kbps, KWP-CAN BUS 500Kbps, KWP-2000. “Auto Detect ” function can help you to choose the right protocol. After choose protocol okay, then press “Connect”. If connected success. All CAS info will display in CAS Identification. Include CAS number, VIN, production date, etc. see the picture follows:



iii. EEPROM Function: Read EEPROM, Write EEPROM, Save File, Load File...

1. You should backup the CAS EEPROM before prepare dealer key. After succeed read EEPROM, please save it as back file. This step is very important.
2. Now can't read the whole EEPROM for cas3 system. But the main section is contained. It should be saved. When you read CAS EEPROM, it will give tips as follow(Press ok to continue):



3. After success read it, you will get:

The screenshot shows the BMW Multi Tool V1.2 interface. The 'Protocol Type' is set to 'KWP-CAN bus 100Kbps'. The 'CAS identification' section includes fields for BMW Number (92...), VIN, Production date (2010.03.16), Hardware (C4), Operating (3.3.0), and Function (2.5.7). A 'Connect' button is visible.

The main data area displays a table of EEPROM data:

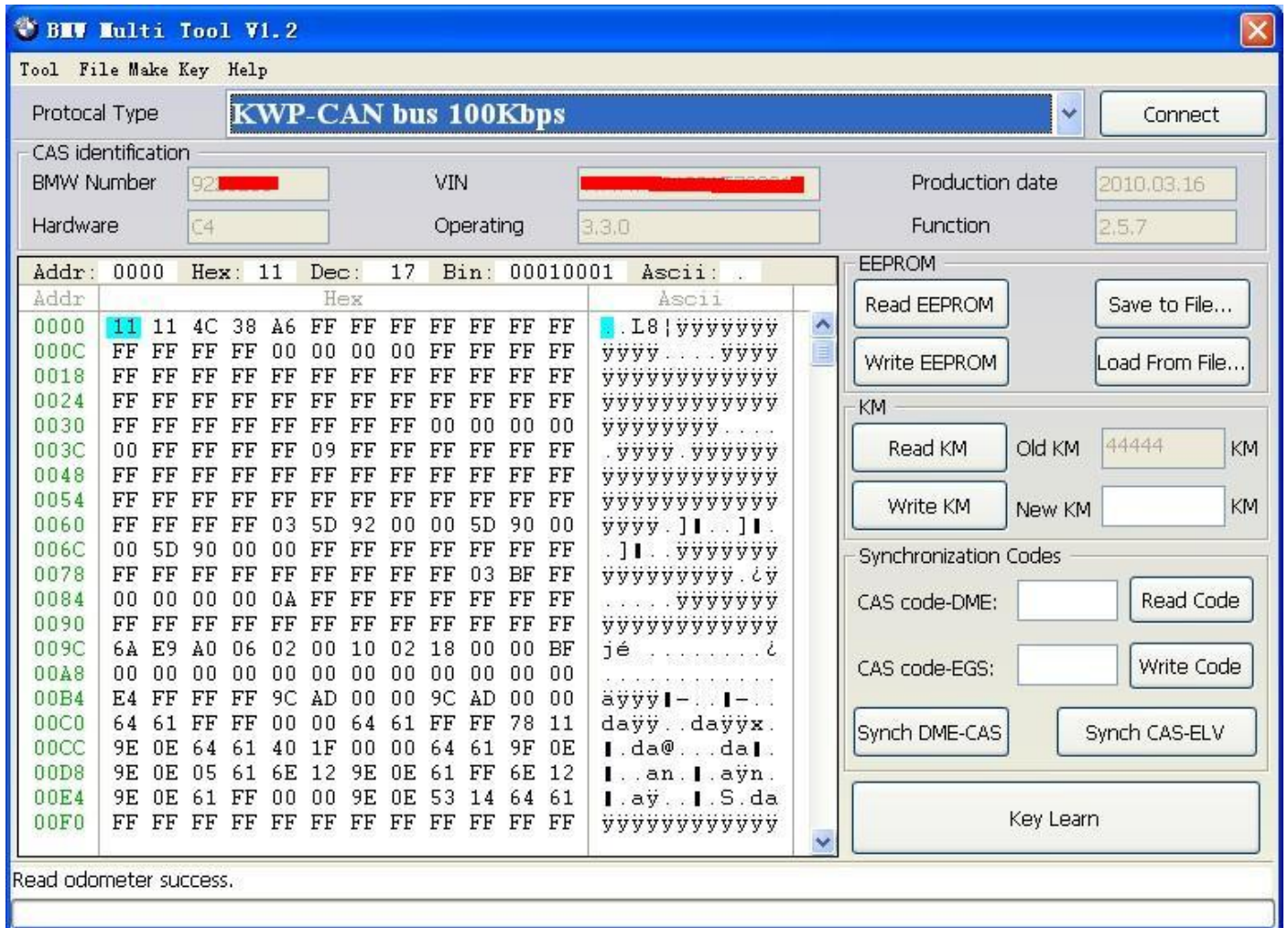
Addr	Hex	Ascii
0000	11 11 4C 38 A6 FF FF FF FF FF FF FF	.L8 yyyyyyyy
000C	FF FF FF FF 00 00 00 00 FF FF FF FF	yyyy...yyyy
0018	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0024	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0030	FF FF FF FF FF FF FF FF 00 00 00 00	yyyyyyyy....
003C	00 FF FF FF FF 09 FF FF FF FF FF FF	.yyyy.yyyyyy
0048	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0054	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
0060	FF FF FF FF 03 5D 92 00 00 5D 90 00	yyyy.][].]
006C	00 5D 90 00 00 FF FF FF FF FF FF FF	.] [] .yyyyyy
0078	FF FF FF FF FF FF FF FF FF 03 BF FF	yyyyyyyyyy.ÿ
0084	00 00 00 00 0A FF FF FF FF FF FF FFyyyyyy
0090	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy
009C	6A E9 A0 06 02 00 10 02 18 00 00 BF	jé.....é
00A8	00 00 00 00 00 00 00 00 00 00 00 00
00B4	E4 FF FF FF 9C AD 00 00 9C AD 00 00	äyy ---
00C0	64 61 FF FF 00 00 64 61 FF FF 78 11	dayy..dayyx.
00CC	9E 0E 64 61 40 1F 00 00 64 61 9F 0E].da@...da].
00D8	9E 0E 05 61 6E 12 9E 0E 61 FF 6E 12].an.].ayn.
00E4	9E 0E 61 FF 00 00 9E 0E 53 14 64 61].ay...].S.da
00F0	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy

Reading data success.

On the right side, there are control panels for EEPROM, KM, and Synchronization Codes. The EEPROM panel includes 'Read EEPROM', 'Write EEPROM', 'Save to File...', and 'Load From File...' buttons. The KM panel includes 'Read KM' and 'Write KM' buttons, along with 'Old KM' and 'New KM' input fields. The Synchronization Codes panel includes 'CAS code-DME' and 'CAS code-EGS' input fields, 'Read Code', and 'Write Code' buttons, and 'Synch DME-CAS' and 'Synch CAS-ELV' buttons. A 'Key Learn' button is located at the bottom of the right panel.

4. Write EEPROM function is only support CAS1, CAS2 system. Doesn't support write to cas3 system.

- iv. **Odometer: Support read and change KM stored in CAS system. Don't support to change KM in instrument. If you want to change the KM display in instrument. You should change KM in CAS system first. Then modify the KM in instrument manually. Read KM :**



When you try to write KM to CAS system, you will get the following tips: Press OK to continue.

BMW Multi Tool V1.2
✕

Tool File Make Key Help

Protocol Type: **KWP-CAN bus 100Kbps** Connect

CAS identification

BMW Number	92 [redacted]	VIN	[redacted]
Production date	2010.03.16		
Hardware	C4	Operating	3.3.0
Function	2.5.7		

Addr: 00B8	Hex: 9C	Dec: 156	Bin: 10011100	Ascii:	
Addr	Hex	Ascii			
0000	11 11 4C 38 A6 FF FF FF FF FF FF FF	..l8 yyyyyyyy			
000C	FF FF FF FF 00 00 00 00 FF FF FF FF	yyyy...yyyy			
0018	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy			
0024	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy			
0030	FF FF FF FF FF FF FF FF 00 00 00 00	yyyyyyyy....			
003C	00 FF FF FF FF 09 FF FF FF FF FF FF	.yyyy.yyyyy			
0048	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy			
0054	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy			
0060	FF FF FF FF 03 5D 92 00 00 5D 90 00	yyyy.] .]. .			
006C	99 5D 92 00 00 FF FF FF FF FF FF FF	.]. .] .			
0078					
0084					
0090					
009C					
00A8					
00B4					
00C0					
00CC	9E 0E 64 61 40 1F 00 00 64 61 9F 0E	.da@...da .			
00D8	9E 0E 05 61 6E 12 9E 0E 61 FF 6E 12	.an. .ayn.			
00E4	9E 0E 61 FF 00 00 9E 0E 53 14 64 61	.ay... .S.da			
00F0	FF FF FF FF FF FF FF FF FF FF FF FF	yyyyyyyyyyyy			

EEPROM

Read EEPROM Save to File...

Write EEPROM Load From File...

KM

Read KM Old KM KM

Write KM New KM KM

Tips

This operation will only change KM in CAS system. You can modify the km in instrument manually. Do you want to continue?

Read Code

Write Code

Synch CAS-ELV

Key Learn

Read odometer success.

BMW Multi Tool V1.2
✖

Tool File Make Key Help

Protocol Type
▼
KWP-CAN bus 100Kbps
Connect

CAS identification

BMW Number

Hardware

VIN

Operating

Production date

Function

Addr: 0020 Hex: FF Dec: 255 Bin: 11111111 Ascii: ý

Addr	Hex	Ascii
0000	11 11 4C 38 A6 FF FF FF FF FF FF FF FF	..L8 ýýýýýýýý
000C	FF FF FF FF 00 00 00 00 FF FF FF FF	ýýýý...ýýýý
0018	FF FF FF FF FF FF FF FF FF FF FF FF	ýýýýýýýýýýýýýý
0024	FF FF FF FF FF FF FF FF FF FF FF FF	ýýýýýýýýýýýýýý
0030	FF FF FF FF FF FF FF FF 00 00 00 00	ýýýýýýýý....
003C	00 FF FF FF FF 09 FF FF FF FF FF FF	.ýýýý.ýýýýýý
0048	FF FF FF FF FF FF FF FF FF FF FF FF	ýýýýýýýýýýýýýý
0054	FF FF FF FF FF FF FF FF FF FF FF FF	ýýýýýýýýýýýýýý
0060	FF FF FF FF 03 5D 92 00 00 5D 90 00	ýýýý.] . .
006C	00 5D 90 00 00 FF FF FF FF FF FF FF	.] .ýýýýýýýý
0078	FF FF FF FF FF FF FF FF FF 03 BF FF	ýýýýýýýýýý.¿ý
0084	00 00 00 00 0A FF FF FF FF FF FF FFýýýýýýýý
0090	FF FF FF FF FF FF FF FF FF FF FF FF	ýýýýýýýýýýýýýý
009C	6A E9 A0 06 02 00 10 02 18 00 00 BF	jé.....¿
00A8	00 00 00 00 00 00 00 00 00 00 00 00
00B4	E4 FF FF FF 9C AD 00 00 9C AD 00 00	äýýý --- ---
00C0	64 61 FF FF 00 00 64 61 FF FF 78 11	daýý..daýýx.
00CC	9E 0E 64 61 40 1F 00 00 64 61 9F 0E	..da@...da .
00D8	9E 0E 05 61 6E 12 9E 0E 61 FF 6E 12	..an.. .äýn.
00E4	9E 0E 61 FF 00 00 9E 0E 53 14 64 61	..äý... S.da
00F0	FF FF FF FF FF FF FF FF FF FF FF FF	ýýýýýýýýýýýýýý

EEPROM

Read EEPROM Save to File...

Write EEPROM Load From File...

KM

Read KM Old KM KM

Write KM New KM KM

Synchronization Codes

CAS code-DME: Read Code

CAS code-EGS: Write Code

Synch DME-CAS Synch CAS-ELV

Key Learn

Writing data success.

v. Synchronization Codes:

- 1、CAS3 code-DME 、CAS3code-EGS: Read and write DME and EGS code stored in CAS3 system.
- 2、Synchronize DME and CAS— this function will be useful while prepare dealer key or any other operation which cause can't start the engine.
- 3、Synchronize CAS and ELV — this function can help clear wheel errors.

The screenshot shows the BMW Multi Tool V1.2 interface. The 'Protocol Type' is set to 'KWP-CAN bus 100Kbps'. The 'CAS identification' section displays the following information:

BMW Number	9	VIN		Production date	2010.03.16
Hardware	C4	Operating	3.3.0	Function	2.5.7

The main data area shows a memory dump for address 005D. The data is displayed in Hex, Dec, Bin, and Ascii formats. The ASCII column shows the following text:

```

L8|yyyyyyyy
yyyy...yyyy
yyyyyyyyyyyy
yyyyyyyyyyyy
yyyyyyyy...
.yyyy.yyyyyy
yyyyyyyyyyyy
yyyyyyyyyyyy
yyyy.]|.|.|.
.|. yyyyyyy
yyyyyyyyyy.
.yyyyyyy
yyyyyyyyyyyy
jé
.
äyy|-.|-
dayy..dayyx.
|.da@...da|.
|.an|.ayn.
|.äy...|.S.da
yyyyyyyyyyyy
    
```

The 'EEPROM' section contains buttons for 'Read EEPROM', 'Write EEPROM', 'Save to File...', and 'Load From File...'. The 'KM' section has 'Read KM' (Old KM: 44444) and 'Write KM' (New KM: 1000) buttons. The 'Synchronization Codes' section includes 'CAS code-DME: 4C38' (Read Code), 'CAS code-EGS: 1111' (Write Code), 'Synch DME-CAS', and 'Synch CAS-ELV' buttons. A 'Key Learn' button is located at the bottom.

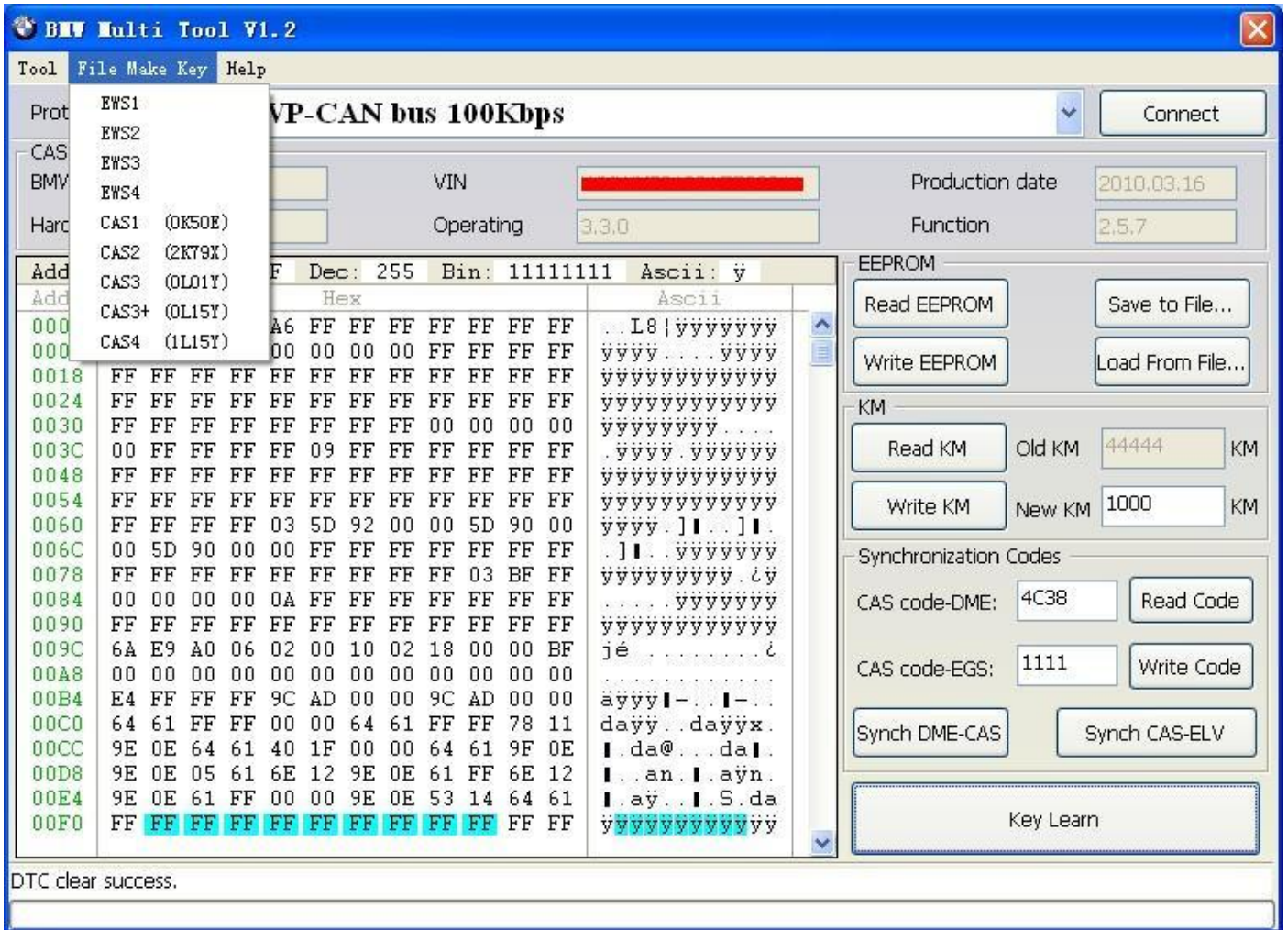
Reading data success.

vi. Key Learn

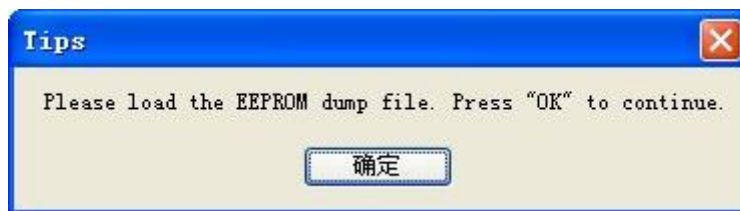
Function introduction:

1. **Get Key Info:** With this function you can get the key cutting, remote frequency, and key data.
2. **Save Key Info:** Save the read key info.
3. **Load Key Info:** Load the saved key info. To see the key data and prepare for write key info.
4. **Write Key Info:** Write the loaded key info into CAS system.
5. **Make Dealer Key:** You can prepare dealer key after you get key info successfully. Also you should choose the key position.
6. **Add key:** Add the new dealer key into CAS system. Some CAS system needs this step to start the engine.
7. **Enable Key:** Insert a working key, choose the key position which you want to disable. The key position can't be same with the key in ignition.
8. **Disable Key:** Insert a working key, choose the key position which you want to enable. The key position can't be same with the key in ignition.
9. **Clear DTC:** Before prepare dealer key and after it you can use this function to clear DTC.
10. **Clear Shadow:** Before prepare dealer key and after it you can use this function to clear Shadow.

vii. File Make Key



1. Choose CAS or EWS type. It will tips you:

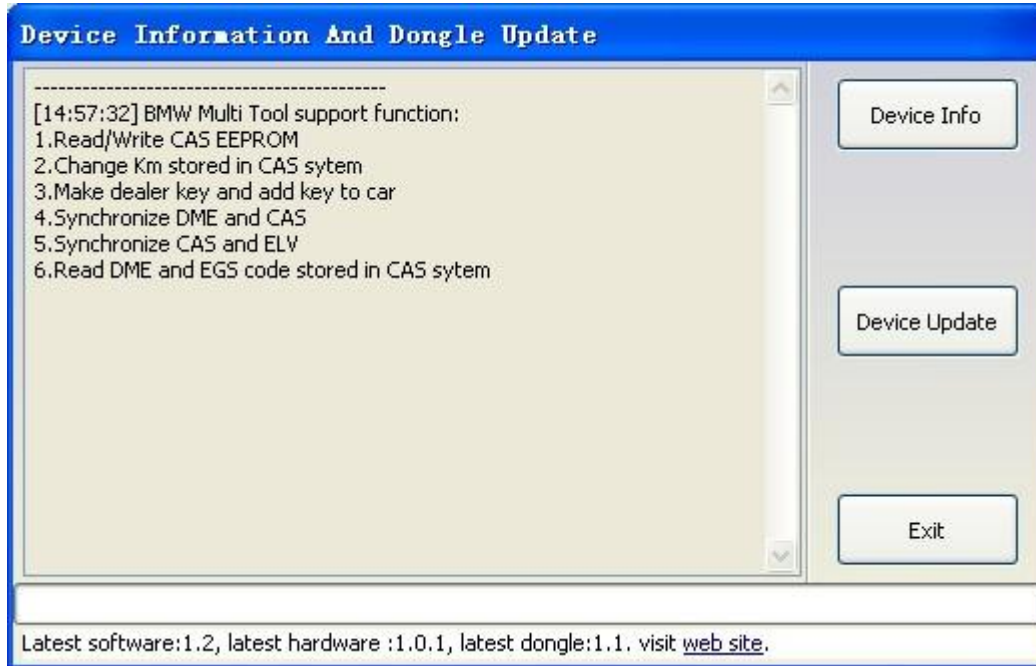


2. Load the choose EEPROM file you will get the make dealer key window:

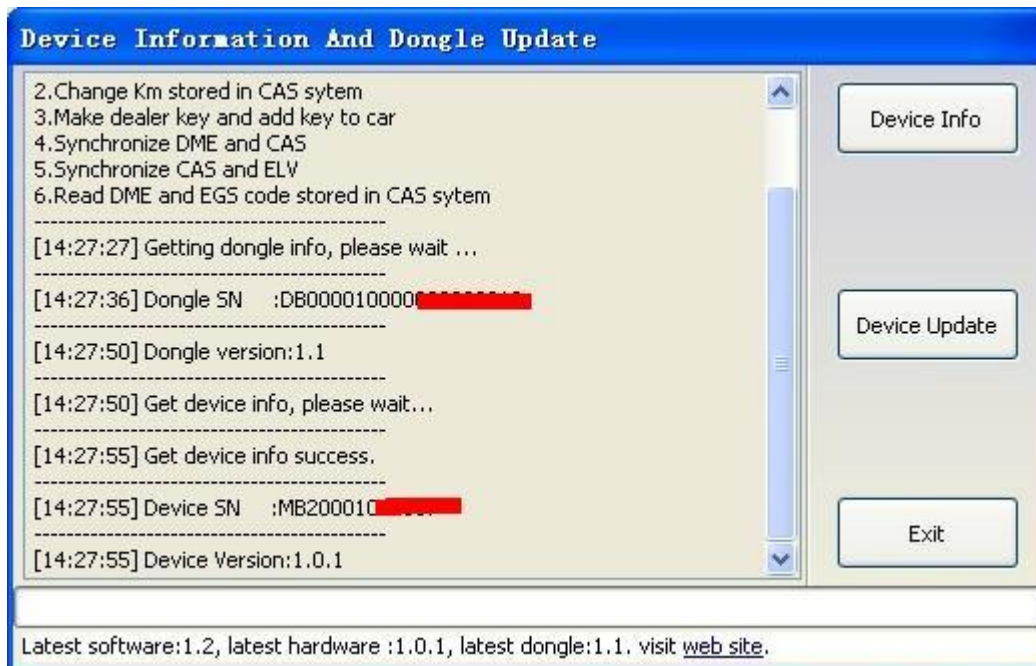


viii. Device Update

Open this window after connect to internet. You can see the latest software version, firmware version, dongle version. You can go to our website for further information. After succeeded update device firmware, must reconnect the hardware to computer.



1. Device Info: Get dongle and hardware SN and version.



2. Device Update: This function can update the dongle and device.

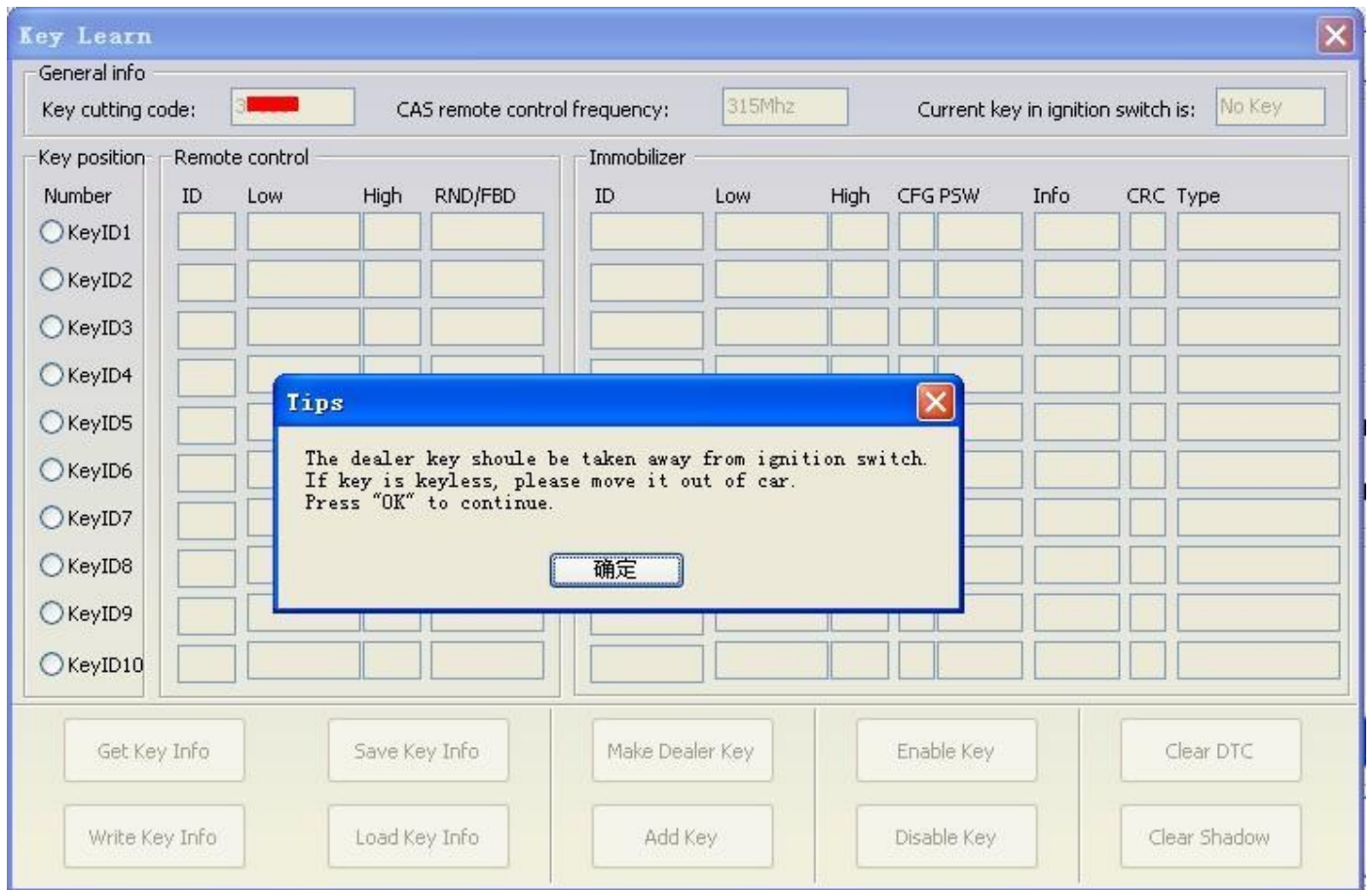


Process to prepare dealer key:

1. On main window choose “Connect” to auto detect the current car protocol and get the CAS info.
2. On main window choose “Read EEPROM” to read the CAS EEPROM file and save it.
3. On main window choose “Key Learn” button to get key learn window.
4. On Key Learn window choose “Get Key Info” to get the key info stored in CAS system.(picture 2).
5. Choose “Save Key Info” button to save the read key info for backup.
6. Check the connection between programmer and device. Keep connection while make key process.
7. Put new blank key into the center of programmer.
8. Choose the position where you want to suit the key.
9. Press “Make Dealer Key” to prepare dealer key. After succeed you will get (picture 3)
“Key make okay and locked. Please use it start the car. If can’t start engine, use “Add Key” function add the new dealer key to CAS system.” Once can start the engine, go to step 13.
10. Put the new dealer key into programmer. Use “Add Key” function to add the key to CAS system. After that you will get (picture 4):”New dealer key success written to CAS system. You can start engine with the new key now. If can’t please use the original working key first.”
11. Please return to main widow and use function “Synch DME-CAS” to synchronize DME (ECU) with CAS.
12. Use “Synch CAS-ELV” to clear wheel errors.
13. Enter to key learn window use “Clear DTC” and “Clear Shadow” function clear all error sin CAS system.

While prepare dealer key process. Once you get the tips like picture 1, remove the key from ignition switch, if key has keyless, take the key out of car.

Picture 1:



Picture 2:

Key Learn

General info

Key cutting code: CAS remote control frequency: Current key in ignition switch is:

Key position	Remote control				Immobilizer								
	Number	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1	C979	7891304A	6EC9	2E520B31		70A5AB97	6F	3715	C8	D25595	004B00	1E	PCF 7945 remote
<input type="radio"/> KeyID2	5E2A	FD6D94AF	D48C	643E1D66		036F6A97	9D	B6FA	C8	695B7A	004B00	6B	PCF 7945 remote
<input type="radio"/> KeyID3	4CD0	89995983	19D3	08A8F0EF		E5A5B516	A1	D69B	0E	ADA836	002B00	4C	PCF 7936 transpc
<input type="radio"/> KeyID4	6F10	E8122696	30CF	24602665		1FB6B516	84	F8F1	08	D433AC	002B00	A3	PCF 7936 transpc
<input type="radio"/> KeyID5	7D22	1FC38BE9										14	PCF 7936 transpc
<input type="radio"/> KeyID6	3BEE	4C42D7D1										E4	Unknown
<input type="radio"/> KeyID7	588C	7E74EEEE										71	Unknown
<input type="radio"/> KeyID8	BF56	828D34A1										68	Unknown
<input type="radio"/> KeyID9	8055	6E06DAE2	D8EC	73325755		FFFFFFFF	BE	D8A1	C8	C5AEF4	007608	3C	Unknown
<input type="radio"/> KeyID10	86DA	35137491	D9ED	CB618D0B		FFFFFFFF	4AD	A99C	C8	941D15	007608	85	Unknown

Tips

Please use "Save Key Info" to save the original key information.

确定

Picture 3:

Key Learn

General info
 Key cutting code: CAS remote control frequency: Current key in ignition switch is:

Key position	Remote control				Immobilizer							
	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1	C979	7891304A	6EC9	2E520B31	70A5A897	6F-	3715	C8	D25595	004B00	1E	PCF 7945 remote
<input type="radio"/> KeyID2	5E2A	FD6D94AF	D48C	643E1D66	036F6A97	90-	B6FA	C8	695B7A	004B00	6B	PCF 7945 remote
<input type="radio"/> KeyID3	4CD0	89995983	19D3	08A8F0EF	E5A5B516	A1-	D69B	0E	ADA836	002B00	4C	PCF 7936 transpc
<input type="radio"/> KeyID4	6F10	E8122696	30CF	24602665	1FB68516	84-	F8F1	08	D433AC	002B00	A3	PCF 7936 transpc
<input type="radio"/> KeyID5	7D22	1FC38BE9	F721	B387FD40	E5A5B516	60-	5E90	08	B12E96	002B00	14	PCF 7936 transpc
<input checked="" type="radio"/> KeyID6	3BFF	4C42D7D1	9D8C	03BC7A77	FFFFFFF	29-	705D	C8	48F534	007608	E4	Unknown
<input type="radio"/> KeyID7											71	Unknown
<input type="radio"/> KeyID8											58	Unknown
<input type="radio"/> KeyID9											3C	Unknown
<input type="radio"/> KeyID10											85	Unknown

Tips

Key make okay and locked. Please use it start the car.
 If can not start engine. use "Add Key" function add the dealer key to CAS system.

Get Key Info Save Key Info Make Dealer Key Enable Key Clear DTC

Write Key Info Load Key Info Add Key Disable Key Clear Shadow

Picture 4:



Warning: Make sure connect dongle to compute before run the software.

5. Troubleshooting

5.1. “Device not connected” Error



Information: Hardware not connected to PC with USB port.

Solution: Plug device to USB.

6. Warranty and Service

6.1. Limited One Year Warranty

X-Horse 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:

- 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.
- X-Horse shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
- 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. X-Horse reserves the right to make changes at any time without notice.

6.2. Service Procedures

If you have any questions, please post at <http://www.x-horses.com/forum/>