

### **BMW FEM/BDC Smart Key Programming Procedure**

#### Preface

Most of the latest BMW vehicles adopt FEM/BDC modules, which must be programmed before the key programming. OBDSTAR Key Master DP already updated the BMW FEM/BDC key programming software. To make the operation clear, let's show the FEM smart key programming process with Key Mater DP as below:

### Prepare

To get a better understanding of BMW key programming, following three major steps and some tools will be explained first.

- 1. Key Information
- 2. Key Programming Preprocessing
- 3、 Key Add/Delete

Before key programming, read key information of current vehicle. Then delete the lost key or add new key based on this information.

For these vehicles to be programmed for the first time with this kind of device, Key Programming Preprocessing is necessary before key adding and deleting. Key programming Preprocessing can be operated in the car or on workbench, while operating with specialized test cable on workbench is strongly recommended. FEM test cable is shown below:



To read and write data on chip of FEM/BDC, it's necessary to prepare and EEPROM. EEPROM/PIC picture is shown below:



### 1. Key Information Reading

After connecting vehicle or test harness, select "Key Information" under BMW Immobilizer menu to read current key information:

Diag Program	IMMOBILISER				SN:950500040970
DIAG - ASIA		$\bigcirc$	$\square$	$\bigcap$	$\square$
DIAG - CHINA	BENZ	BESTURN	BMW	CHERY	CHRYSLER
DIAG - EUROPE	BENZ	BESTURN	вми	CHERY	CHRYSLER/DODGE/
DIAG - USA		$\bigcap$	$\bigcap$	$\square$	
EEPROM ADAPTER	JIABAO	FIAT	FORD	GEELY	GM
IMMOBILISER	FAW JIABAO	FIAT	FORD/LINCOLN	GEELY/MAPLE/	GM
OBDII	$\bigcap$		$\bigcap$		
OIL/SERVICE RESET	GREATWALL	німіко	HONDA	HONGQI	HYUNDAI
OTHER FUNCTION	GREATWALL	НІМІКО	HONDA/ACURA	HONGQI	HYUNDAI
9	•		0	DP	VCI

IMMOBILISE	<b>R</b> ВМW					SN:950500040970
BMW V30.13	3					
						Back OK
	9	5	습	D	DP	VCI

IMMOBILIS	SER	BMW V3	0.13				SN:950500040970
Disable an							
FEM/BDC							
	sel	ect	menu	"FEM	/BDC″		
							Cancel OK
	4		<b>`</b>		a	DP	VCI

IMMOBILISER	FEM/BDC k	ey programming			SN:9505	00040970
Key programming						
Other function						
		select	″key	program	ming"	
					Cancel	ок
ŧ		<b>)</b>	D	DP	VCI	

Notice: It will remind you to operate preprocessing in this step. If the vehicle was programmed for the first time, it's necessary to operate key programming preprocessing. If not, operate Key Add or Key Delete directly.

IMMOBILISER	Information				SN:950500	0040970
	Key progra 1.Preprod 2.After ke	mming procedure: cess key programr cy programming pi	ning reprocessed, add	or delect key		
						ок
4	•		٥	DP	VC1	

IMMOBILISER	Key programm	ng			SN:950500040970
Key information	]				
Key programmin	g preprocessing				
Key Adding					
Key detect					
Function Introdu	ction				
Operation guide					
	seled	ct "key	informa	tion"	]
					Cancel
	•	<u>ن</u>	ō	DP	VCI

This is showing FEM module information. Click "OK" to continue.

IMMOBILISER ABOUT	SN:950500040970
Name	Value
VIN:	LBV3B1409FMB87540
Mileage:	0
Chasis:	F30
Model:	320i
Area:	CHN
Serial code:	8842590934
Svk 01[2018/1/19]	HWEL_00000792-000.004.011 HWAP_00000F26-255.255.255 HWAP_00000F2B-255.255.255 HWAP_00000F2C-255.255.255 HWAP_00000F2E-255.255.255 HWAP_00000F32-255.255.255 HWAP_00001263-255.255.255 BTLD_00001556-003.102.020
② う 公	

This is showing current key numbers, position, and ID. Based on demand, delete lost key and add new key in the position of Not Occupied/Starting during key programming.

IMMOBILISER Information	SN:950500040970
Name	Value
Key 00 ID: 8D80D536	Occupied/Enable
Key 01 ID: FFFFFFF	Not occupied/Enable
Key 02 ID: 520ED923	Occupied/Enable
Key 03 ID: FFFFFFF	Not occupied/Enable
Key 04 ID: FFFFFFF The two keys position and ID	Not occupied/Enable
Key 05 ID: FFFFFFF for current vehicles	Not occupied/Enable
Key 06 ID: FFFFFFF	Not occupied/Enable
Key 07 ID: FFFFFFF	Not occupied/Enable
Key 08 ID: FFFFFFF	Not occupied/Enable to the previous menu
Key 09 ID: FFFFFFF	Not occupied/Enable
Key 10 ID: FFFFFFF	Not occupied/Enable
	ок

### 2. Key Programming Preprocessing

It's required to operate key programming preprocessing if the vehicle was programmed with the device for the first time. After reading key information, click "OK" back to main menu and select "Key Programming Preprocessing":

IMMOBILISER	Key programmin	g				SN:950500040970
Key information						
Key programmin	g preprocessing	]	1			
Key Adding						
Key detect	Select	"key pro	gramming	preproces	ssing"	
Function Introdu	ction					
Operation guide						
						Cancel OK
¢	5	合		ð	DP	VCI



There are seven steps in processing. Start from the first step:

	IMMOBILISER	reproces	sing							SN:95	0500	0409	70		
Contraction of	Step 1:Code data	a backup													
Constant of the	Step 2:EEPROM	original da	ta backup												
	Step 3:Service m	node data g	generation		-										
100000000	Step 4:Service m	node data v	vriting		7	ste	eps	nee	eds	to be	opera	ated			
	Step 5:FEM or BI	DC module	program	ning	or ke	ne l ey j	oy oro	one gran	to min	finis g pre	h the proce:	ssing			
Constants.	Step 6: EEPROM	original da	ita recove	ring											
	Step 7: Code dat	ta recoverii	ng												
0000000															
												Cance	el	ок	
	9		5	1	ζ.		Ć	5		DP		VCI			

### Step 1: Code data backup

Select and click "Code data backup"

IMMOBILISER	Key progra	SN:950500040970								
Step 1:Code data backup select step 1										
Step 2:EEPROM original data backup										
Step 3:Service mode data generation										
Step 4:Service mode data writing										
Step 5:FEM or Bl	Step 5:FEM or BDC module programming									
Step 6: EEPROM	original dat	a recovering								
Step 7: Code dat	a recovering	]								
						Cancel OK				
\$		•	۵	٥	DP	VCI				

IMMOBILISER	Information				SN:9	950500040970
		Backup	O encoding data			
•	•	,	D	DP	VCI	

Read the code data and click "yes" to save it with the filename by default. Or click "no" to customize filename and remember it (the filename will be helpful in step7)



Code data backup completed.



#### Step2: EEPROM Original Data Backup

Select "EEPROM original data backup"

IMMOBILISER	Key programming p	reprocessing			SN:950500040970				
Step 1:Code data	Step 1:Code data backup								
Step 2:EEPROM	Step 2:EEPROM original data backup								
Step 3:Service mode data generation									
Step 4:Service mode data writing Select "EEPROM original data backup"									
Step 5:FEM or Bl	Step 5:FEM or BDC module programming								
Step 6: EEPROM	original data recover	ing							
Step 7: Code dat	a recovering								
					Cancel OK				
9	5	۵	D	DP	VCI <sup>®</sup>				



During the step2, the screen will show a simple operation instruction. The operation process differs from the user's programmer, here we take Key Master DP and EEPROM/PIC adapter for example. Shown as below:

① Disassemble the FEM/BDC module from car or test cable, open the shell and weld the 95128/95256 chip and take it out.





2 Weld the 95128/95256 chip to the 95XXX position on the adapter board or insert to the chip holder with the chip clip, (pay attention to the direction of the chip) as following:





③ Then, connect the EEPROM adapter with Key Master DP, plug in the 12V power, shows as below:



④ Exit immobilizer function and go back to the main screen, then choose "EEPROM/PIC adapter" :

Diag Program	EEPROM ADAPTER				SN:950500040	970
DIAG - ASIA						
DIAG - CHINA	EEPROM		Enter to of EEPROM	realize the read and v	e function vrite	
DIAG - EUROPE	PIC/FREESCALE					
DIAG - USA						
EEPROM ADAPTER	Sele	ct EEPR	OM adapte	r		
IMMOBILISER						
OBDII						
OIL/SERVICE RESET						
OTHER FUNCTION						
3	5		٥	DP	VCI	



EEPROM	PIC/FREESCA	LE ADAPTER			SN:950500040970
PIC/FREESCALE	ADAPTER V33	58			
	SCALE ADAPTER				
					Back OK
\$	5	습	D	DP	VCI



EEPROM	EEPROM					SN:	9505000409	970
Read pin code								
Data initialization								
Data Recovery								
EEPROM RW	]		Enter	"EEPROM	RW″			
						Car	icel OK	(
3	,	•	습	đ	DP	VC1 <sup>®</sup>		

EEPROM	EEPROM RW				SN:950500040970
24CXX Series					
93CXX serial					
25CXX Series					
95CXX Series		Click "95CXX	series"		
					Cancel OK
9	ŕ	۵	٥	DP	VCI

EEPROM	95CXX Series				SN:950500040970
95020					
95040					
95080					
95160					
95320					
95640					
95128	]•	95128 for	· FEM Module		
95256	]	95256 for	· BDC Module	]	
					Cancel OK
	÷		٥	DP	VCI



EEPROM	I 🔤	95128 SN:950500040970							
	Please enter the filename to be saved after reading success Read success,Please enter the filename to save: 00000000								
A	В	С	D	E	F	1	2	3	Del
G	Н	I	L	К	L	4	5	6	Done
м	N	0	Р	Q	R	7	8	9	Caps
S	Т	U	v	w	x	Y	Z	0	··-
	۲	•	)		٥		DP	VCI	

EEPROM	95128					SN:950500040970
	Read success,	Please enter the	filename to sav	e:		
	FEM00000					
						Back OK
	9	5		ō	DP	VC1 <sup>8</sup>





Notice: The original EEPROM data backup completed and saved with the name"FEM00000". Disassemble 95128/95256 chip from adapter board and weld back to FEM/BDC module.

### Step3: Service Mode Data Generation

Put FEM/BDC module back to car or connect with the test cable. Exit the "EEPROM/PIC adapter" function, enter Immobilizer and choose BMW vehicles, click "step 3: service mode data generation":

IMMOBILISER	Key programming	preprocessing			SN:950500040970			
Step 1:Code data	ıbackup							
Step 2:EEPROM	Step 2:EEPROM original data backup							
Step 3:Service m	ode data generatio	n 🖣	]					
Step 4:Service m	ode data writing	Click "Ser	vice mode	data gen	eration"			
Step 5:FEM or BE	Step 5:FEM or BDC module programming							
Step 6: EEPROM	original data recov	rering						
Step 7: Code data	a recovering							
					Cancel OK			
9	\$	۵	٥	DP	VCI			

IMMO	BILISER	Select file:				SN:950500040970		
NO.		File name	e 🔺		time	size		
001		0000000.8	BIN	2	018/01/17 10:48	2 KB		
002		FEM00000.	BIN	2	2018/01/19 16:24 16 K			
003		MQBEEPRON	I.BIN	2	018/01/17 14:15	10 KB		
		Select the in the seco	filename s nd step	saved		Cancel OK		
	0	5		D	DP	VCI		



Service mode data generation succeeded and saved directly on the Key Master DP, as the picture shows above. Click "ok" to go back to the last menu.

IMMOBILISER	Information				SN:950500040970
	k				
	saved fi	lename for	service mo	ode data	
EEPROM s	ervice mode data o	eneration succee	ded.File saving p	ath: <mark>0:\storage</mark>	e\emulated
1010101930	1500040970 (Data)				
sa	ved path fo	r service i	node data		
					OK
					OK
0	•		D	DP	VCI

#### Stpe4: Service Mode Data Writing

Click "step 4: service mode data writing":





This step needs the EEPROM/PIC adapter or other programmer to read and write 95128/95256 chip. If you use other programmer to write service mode data, you need to copy the generated service mode data from Key Master DP and reserve it on the programmer or PC computer, then write the data.

Write service mode data with EEPROM/PIC adapter as follow:

1 Disassemble 95128/95256 chip again, weld it to the adapter, connect with the Key Master DP.



(2) Exit BMW Immobilizer, go back to the main menu, choose the EEPROM/PIC adapter.



EEPROM	PIC/FREESC	ALE ADAPTER	R	 	SN:950500040970
PIC/FREESCALE	ADAPTER V3	3.58			
	SCALE ADAPTE	R			
			_		
					Васк
	•			DP	VCI

EEPROM PIC/FREE			SCALE ADAPTE	R V33.58	 	SN:950500	040970
000000000000000000000000000000000000000	EEPROM		Select	"EEPROM"			
000000000000000000000000000000000000000	PIC/FREESCALE						
000000000000000000000000000000000000000							
000000000000000000000000000000000000000							
200000000000000000000000000000000000000							
000000000000							
222222222222222222222222222222222222222							
0000000							
						Cancel	ОК
	0		5		DP	VCI	

EEPROM	EEPROM		*****		SN:950500040970
Read pin code					
Data initialization	n				
Data Recovery					
EEPROM RW	]•	Enter	"EEPROM F	?W″	
					Cancel OK
3	5	<u>ن</u>	a	DP	VCI

EEPROM	EEPROM RW				SN:950500040970
24CXX Series					
93CXX serial					
25CXX Series					
95CXX Series		Click "95CXX	series"		
					Cancel OK
9	5	۵	٥	DP	VC1

EEPROM	95CXX Series				SN:950500040970
95020					
95040					
95080					
95160					
95320					
95640					
95128	]•	95128 for	· FEM Module		
95256	]	95256 for	· BDC Module	]	
					Cancel OK
	÷		٥	DP	VCI



EEPROM	1	95128						SN:950	)500040970	
	Please enter the filename to be saved after reading success Read success,Please enter the filename to save: 00000000									
A	В	C	D	E	F	1	2	3	Del	
G	Н	I	L	К	L	4	5	6	Done	
м	N	0	Р	Q	R	7	8	9	Caps	
S	Т	U	V	W	X	Y	Z	0	· · -	
	⇒	+	,		ā		DP	VC1 <sup>8</sup>		

Input a filename randomly, a different name from the backup EEPROM data in step 2.

EEPROM	95128		.00000000000000000000000000000000000000			SN:950500040970
	You can but it c the file	input a f an not be name in t	ilename the sau he secou	randomly ne as nd step.		
	Read succes	ss,Please enter t	the filename t	o save:		
	QFJJEJKP					
						Back OK
	ŧ	•	습	a	DP	VCI

Do not exit after the profile reserved. Click "Help" and choose the service mode data "FEM00000(Calc)".



EEPROM	95128				SN:950500	040970					
00000000.BIN											
MQBEEPROM.BI	MQBEEPROM.BIN										
FEM00000.BIN											
FEM00000(Calc	).BIN	Select the saved in th	filename fo ne last step	r service	mode data						
QFJJEJKP.BIN											
					Cancel	ок					
•	5	ŝ	٥	DP	VCI						



Make sure again the written data is right. If you use other programmer, please copy the service mode data "FEM00000(Calc)" from the position shown in the picture.



Service mode data recover completed. Click "ok" to go back to the last menu and exit EEPROM/PIC adapter function.



#### Step5: FEM or BDC module programming

Weld the 95128/95256 chip back to FEM/BDC module, put the module back to car or connect to the test cable, connect the Key Master DP with car or the OBDII for test cable. Exit EEPROM/PIC adapter function, enter key add pre menu, choose "step 5: program FEM/BDC module".

IMMOBILISER	Key programming prepr	rocessing			SN:950500040970					
Step 1:Code data backup										
Step 2:EEPROM original data backup										
Step 3:Service m	Step 3:Service mode data generation									
Step 4:Service m	Step 4:Service mode data writing									
Step 5:FEM or B	DC module programming		Click to	o program						
Step 6: EEPROM	original data recovering									
Step 7: Code dat	a recovering									
					Cancel OK					
9	<b>`</b>		D	DP	/C18					



After the program completed, click "ok" to go back to the last menu.



#### Step6: EEPROM Original Data Recovering

The procedures for EEPROM data recovering is the same as the service mode data writing. The only difference is the different writing data. Select the EERPOM original data saved in the step2. Operate according to the service mode writing, the data selected is as following:

After read the saved data, then click "help" and choose the saved EEPROM original data "FEM00000.BIN".

EEPROM	95128					SN:950500040970			
00000000.BIN									
MQBEEPROM.BIN									
FEM00000.BIN	]•[	Select the	EEPROM	original	data sav	red in step 2			
FEM00000(Calc).BIN									
QFJJEJKP.BIN									
						Cancel OK			
9	•	<b>,</b>		0	DP	VC1 <sup>8</sup>			





EEPROM original data recovery completed. Click "ok", exit EEPROM/PIC adapter function and weld the 95128/95256 chip back to the FEM/BDC module.





#### Step7: Code Data Recovery

Put FEM/BDC module back to car or connect with test cable, Key Master DP connect car or OBDII for test cable. Enter the menu "key programming preprocessing", choose "step 7: code data recovery".

IMMOBILISER	Key programming pre	eprocessing			SN:950500040970				
Step 1:Code data backup									
Step 2:EEPROM original data backup									
Step 3:Service mode data generation									
Step 4:Service mode data writing									
Step 5:FEM or BE	)C module programmi	ing							
Step 6: EEPROM	original data recoverii	ng							
Step 7: Code dat	a recovering ┥	Sele	ct "Code	tata re	covering"				
					Cancel OK				
Ð	5		D	DP	VCI				

IMMOBILISER		Select fi	le:				SN	950500	040970
NO.			File name 🔺			time		siz	ze
001		0	0000000.BIN		20	018/01/17 10:48		21	КВ
002		FE	M00000.BIN	20	018/01/19 16:24		16	КВ	
003		MQ	BEEPROM.BIN		20	018/01/17 14:15		10	КВ
	Selec	t the	filenam	e saved	in the	second s	сер	ncel	ок
	9		•		a	DP	VCI		

IMMOBILISER	Informatior	ı				SN:950500040970
			O Encoding			
3		\$		ō	DP	VCI

Coding succeeded. Key add pre operation completed. Click "ok" and exit the key add pre.





### 3. Key Add

After the key add pre process, please connect car to do key add and key delete. Put the FEM/BDC modules back into car, then connect Key Master DP with the car OBD. Enter the menu, choose "key add".

IMMOBILISER	Key progr	Key programming SN:95050004097				
Key information						
Key programming preprocessing						
Key Adding	•	select ″	Key Addin	lg"		
Key detect						
Function Introduction						
Operation guide						
						Cancel OK
	3	•		D	DP	VCI

Then, put the key on the emergency starting position and click "ok". Emergency starting position is on the right side of the steering column shell, a place with key sign as below:

IMMOBILISER	Information				SN:95050	00040970
		Attach key to eme	rgency starting po	sition		
						ок
9			a	DP	VCI	



Attach the key to the key sign as below:



Key Master DP will recognize the valid key and show its frequency, click "Yes" to continue.



Then the device will show the car key quantity, position and ID, such as the two programmed keys 00 and 02. Now we can add one key at the position 01, or from 03 to 09. We choose the position 08 here.

IMMOBILISER	Setect key wirting positi	on			SN:950500040970
Name			Value		
Key 00 ID: 8D80D53	6 <mark>∢</mark> —key 1		Occupied/Enab	ble	
Key 01 ID: FFFFFFF	=		Not occupied/	Enable	
Key 02 ID: 520ED92	3 <b>∢</b> Key 2		Occupied/Enab	ble	
Key 03 ID: FFFFFFF	-		Not occupied/	Enable	
Key 04 ID: FFFFFFF	=		Not occupied/	Enable	
Key 05 ID: FFFFFFF	Click and select key	position :0	98 <mark>0 N</mark> ot occupied/	Enable	
Key 06 ID: FFFFFFF	- /		Not occupied/	Enable	
Key 07 ID: FFFFFFF	<u>×</u>		Not occupied/	Enable	
Key 08 ID: FFFFFFF	=		Not occupied/	Enable	
Key 09 ID: FFFFFFF	-		Not occupied/	Enable	
Key 10 ID: FFFFFFF	-		Not occupied/	Enable	
					Cancel OK
3	5		D	DP	VCI





Put the key to be programmed on the emergency starting position, click "ok" to continue.



If the new key is recognized, the device will show "programming succeeded", click "ok" to continue.

IMMOBILISER	Information					SN:95050004	0970
		Pr	ogram success				
						C	ж
<b>a</b>	•	<b>,</b> 合	đ	DP	v		



After key programming succeeded, the programmed key information will be read automatically. Key 08 is the new added key.

IMMOBILISER Information	SN:950500040970
Name	Value
Key 00 ID: 8D80D536	Occupied/Enable
Key 01 ID: FFFFFFF	Not occupied/Enable
Key 02 ID: 520ED923	Occupied/Enable
Key 03 ID: FFFFFFF	Not occupied/Enable
Key 04 ID: FFFFFFF	Not occupied/Enable
Key 05 ID: FFFFFFF	Not occupied/Enable
Key 06 ID: FFFFFFF	Not occupied/Enable
Key 07 ID: FFFFFFF	Not occupied/Enable
Key 08 ID: DA0DD923	Occupied/Enable
Key 09 ID: FFFFFFF	Not occupied/Enable
Key 10 ID: FFFFFFF	Not occupied/Enable
	ок
ē <b>†</b> ċ	

### 4. Key Delete

The operation for key delete is the same as key add. Enter key enable /disenable, read and remember the key ID. Then go to key add--- key delete, choose the key to be deleted according to the prompt(the current key can not be deleted, no worried about deleting it by mistake).